ORIGAMI MASTERS BUGS

HOW THE BUG WARS CHANGED THE ART OF ORIGAMI

SEBASTIAN ARELLANO

DAN ROBINSON

WON PARK

ROBERT J. LANG

MARC KIRSCHENBAUM

JASON KU

INCLUDES INSTRUCTIONS FOR 12 AMAZING MODELS

SHUKI KATO

ORIGAMI MASTERS
BUGS

ORIGAMI MASTERS
BUGS
HOW THE BUG WARS CHANGED THE ART OF ORIGAMI

Introduction by Sherry Gerstein
Illustrations by Marcio Noguchi

With bug models created by:
SEBASTIAN ARELLANO
SHUKI KATO
MARC KIRSCHENBAUM
JASON KU
ROBERT J. LANG
WON PARK
DAN ROBINSON

Race Point
PUBLISHING

The artist is a receptacle for emotions that come from all over the place: from the sky, from the earth, from a scrap of paper . . .

CONTENTS

THE BUG WARS

?

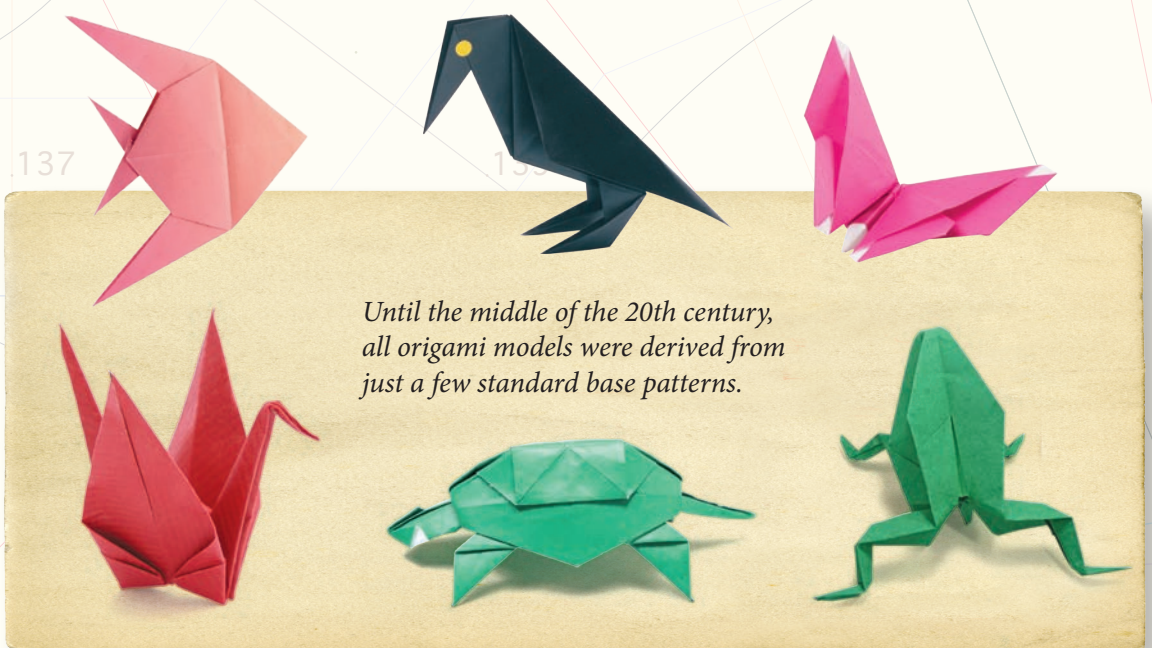
’ , , . I ’ , ,

. ?

1990 . , B

, ,

. ,



Until the middle of the 20th century, all origami models were derived from just a few standard base patterns.

I , ,
- .
E , .
20 .
, .
J ’ A
. C
, ,
1940 1950 . ,
.

Akira Yoshizawa, called by many the father of modern origami

,

H ,

. E

. I -

, .136

.

B 1970 1980 ,

.

J ,

, , , .

J ,

.

, 30 . A

.

A J

J J , : /

. D A J. (

) J 139

1990 .

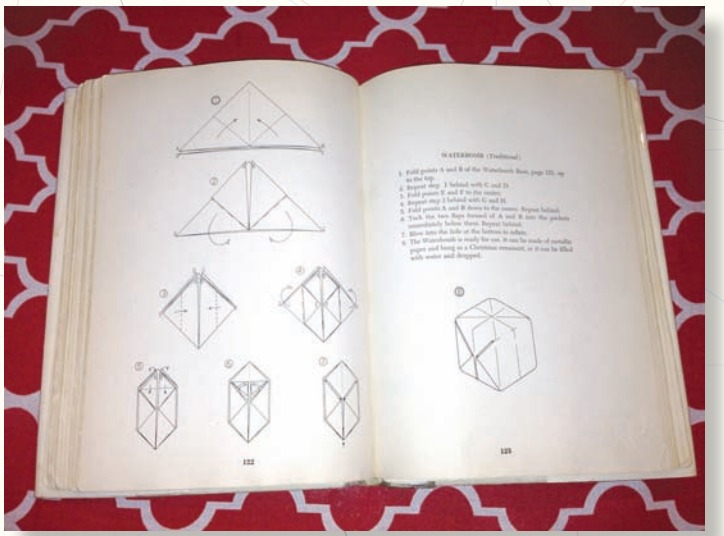
. I

, , ,

. I

. I ,

.



Diagrams from an origami book by Samuel Randlett

A

, , :

, J. . I

. ,

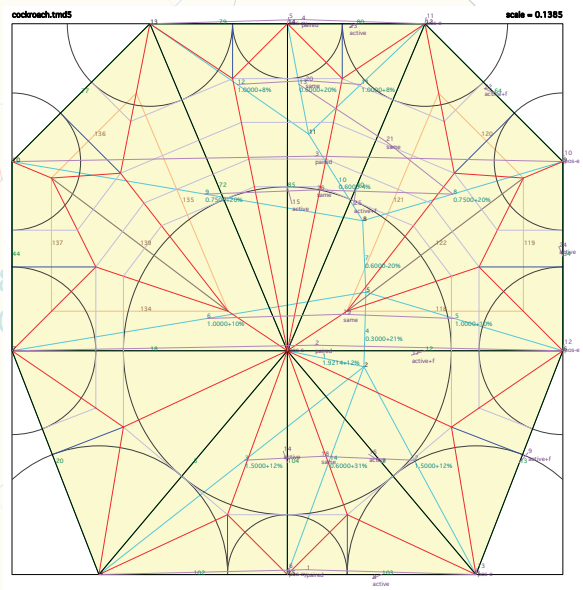
;

. C

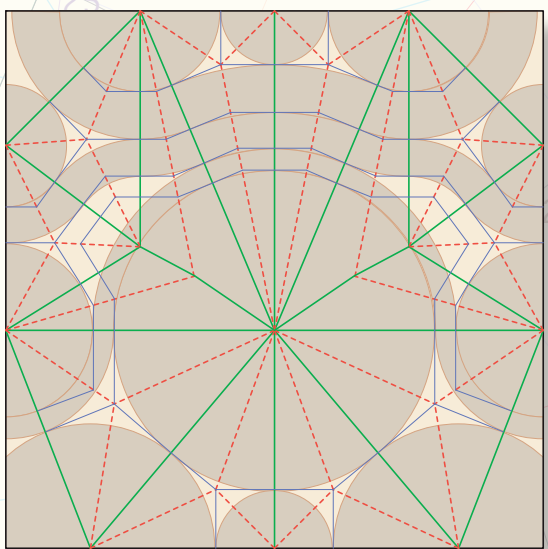
, -

- .

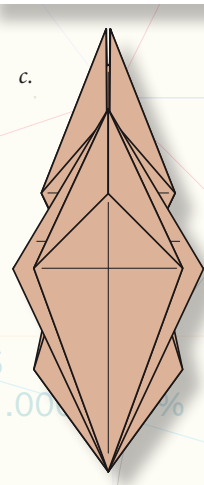
b.



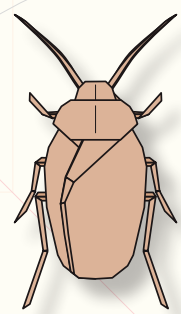
a.



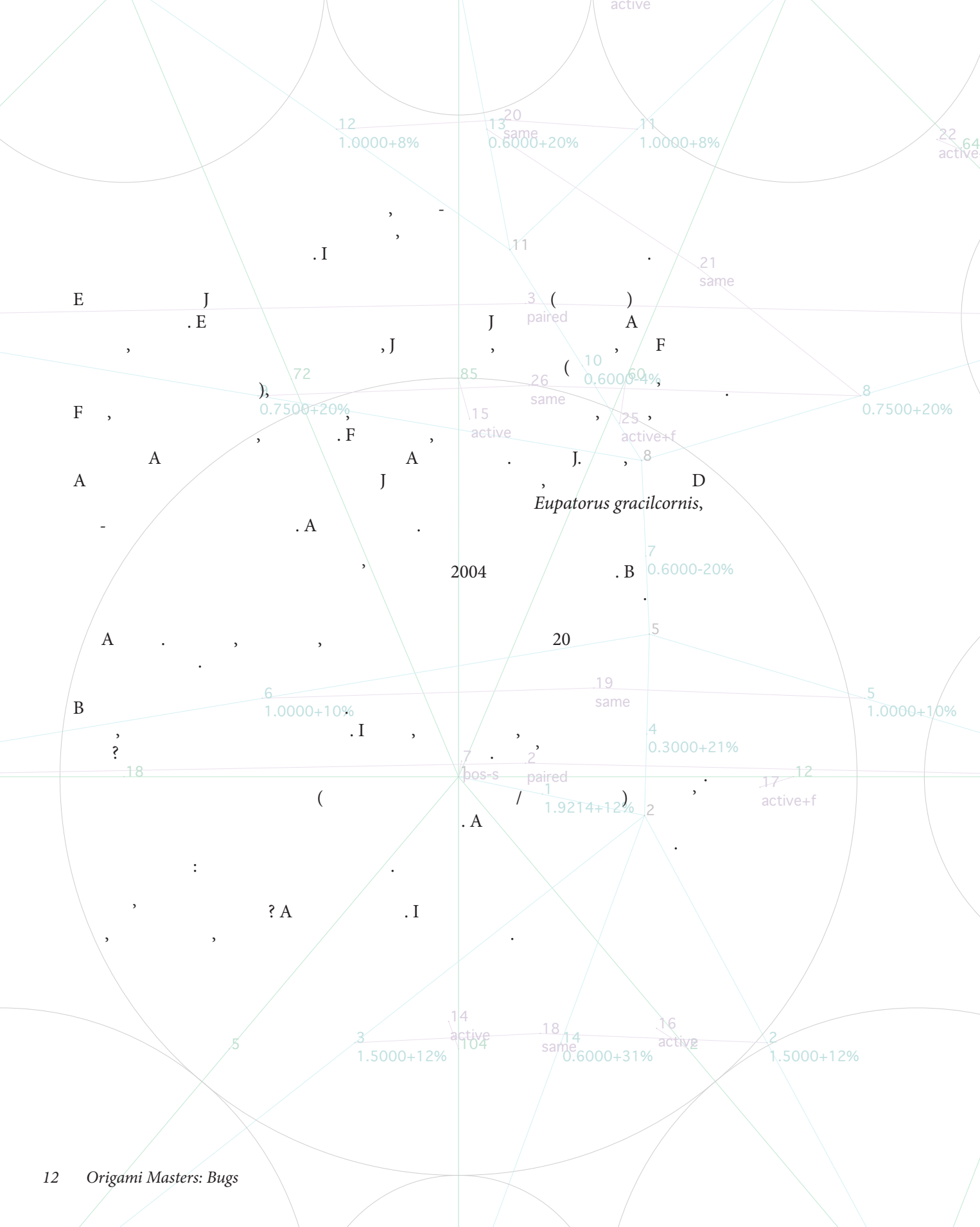
c.



d.



a. Generic crease pattern; b. Crease pattern generated by TreeMaker; c. Base; d. Folded model



Eupatorus gracilcornis,

2004

20

We can allow satellites, planets, suns, universe, nay whole systems of universes, to be governed by laws, but the smallest insect, we wish to be created at once by special act.

C D

TERMS & SYMBOLS

E

E

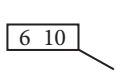

F


F

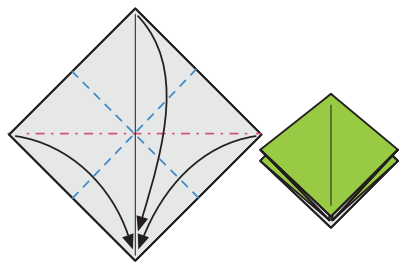

F

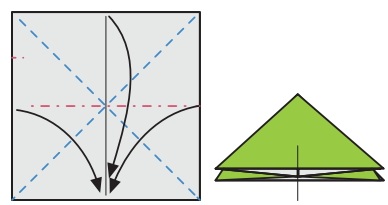
H

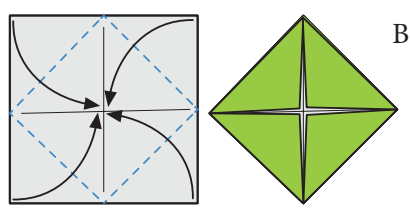

/ /

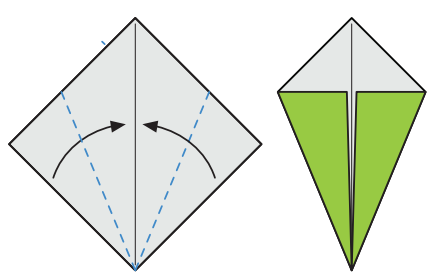


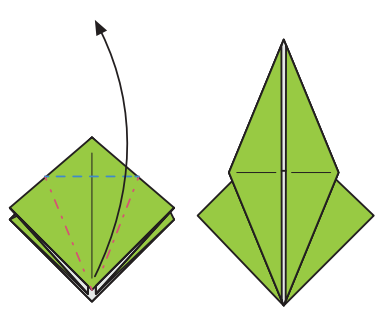

C

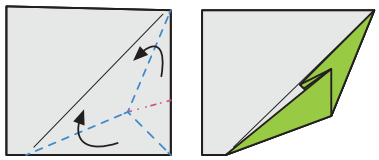


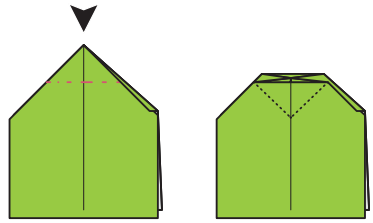

-

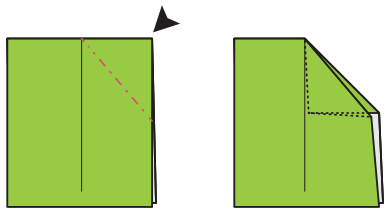

B


/

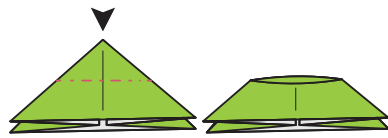




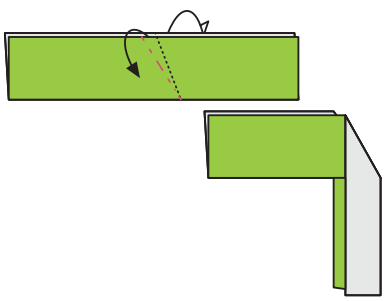


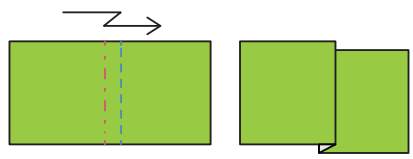


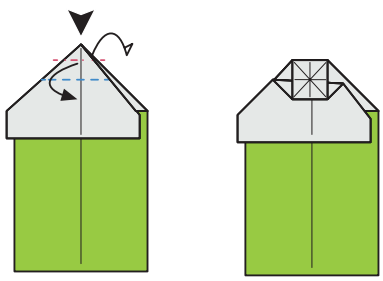
I

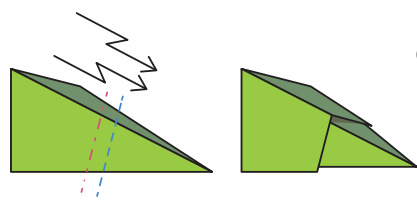


C

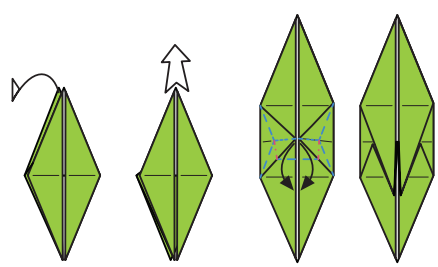


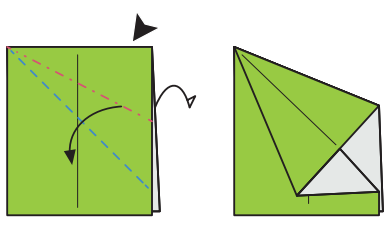


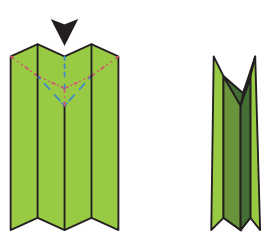




C







E

Terms & Symbols 15


THE PROJECTS

Flapping Dollar Butterfly

WON PARK

Dollar Dragonfly

30 .

H

. H

,

,

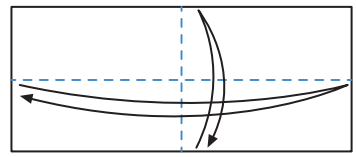
.

H H , H .

FLAPPING DOLLAR BUTTERFLY

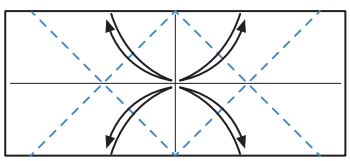
This is one of my latest designs, created in 2012. I wanted to create a model that would capture the flapping motion of a real butterfly. To make sure you get a clean flapping action, try ironing the model after it has been completely folded.

1



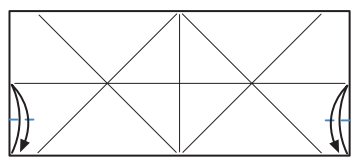
F .

2



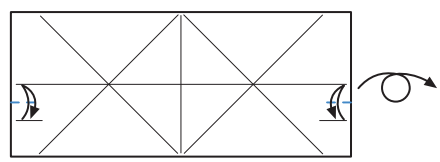
F . .

3



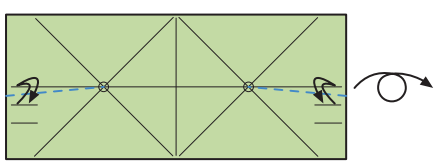
. .

4



. .

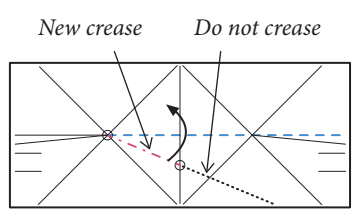
5



F . .

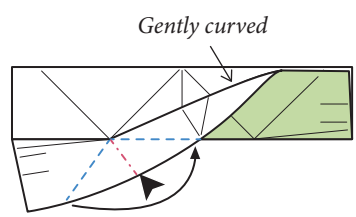
. .

6



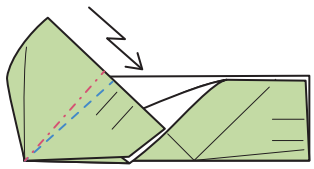
. A . .

7



B .

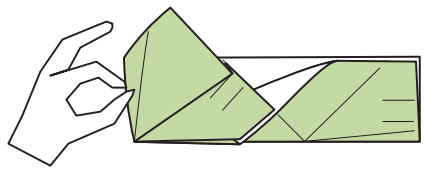
8



,

5.

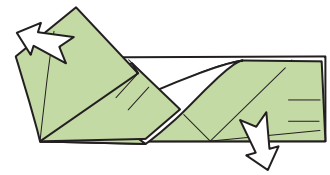
9



C

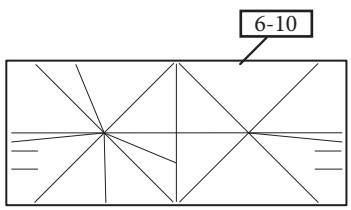
.

10



.

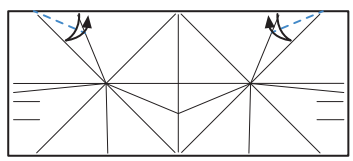
11



6 10

.

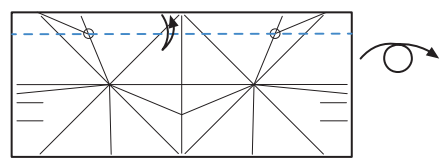
12



F .

.

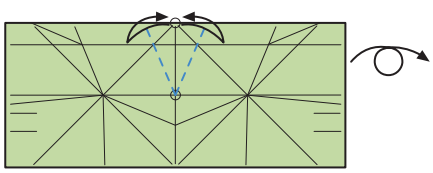
13



F

. . .

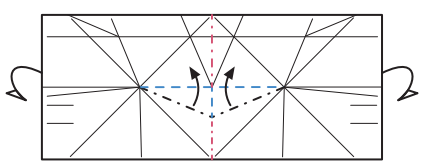
14



F

. .

15

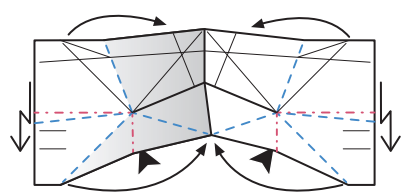


B

.

.

16



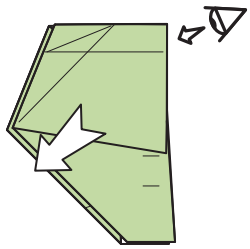
C

7

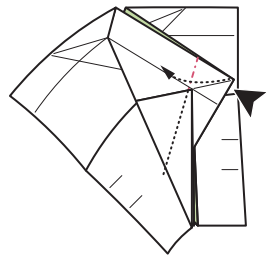
9. .

.

17

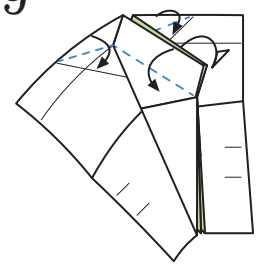


18



I

19



.

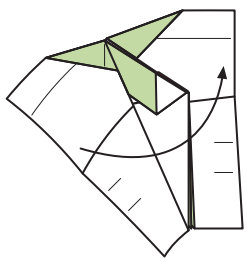
14.

12

13.

.

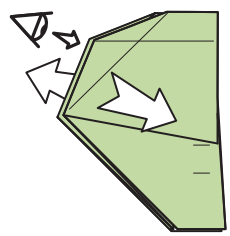
20



C .

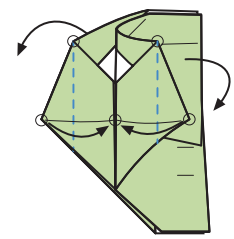
.

21



.

22



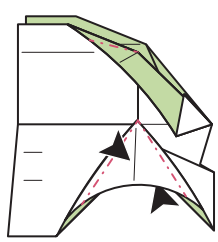
F

,

.

.

23



.

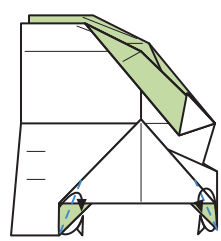
.

.

.

.

24



F

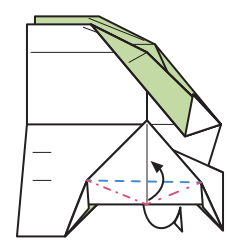
,

.

.

.

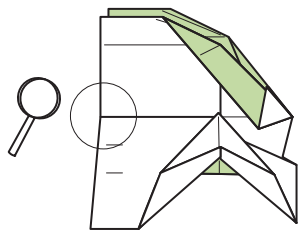
25



.

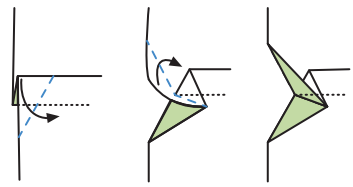
.

26



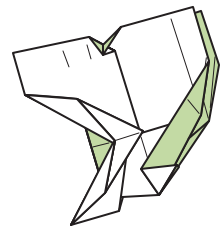
D .

27



. , .

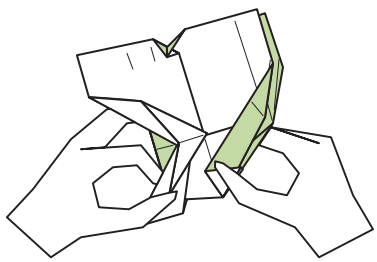
28



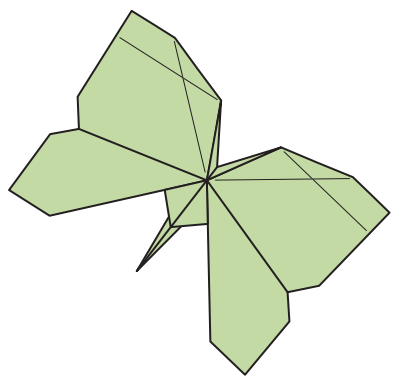
F D B .

, .

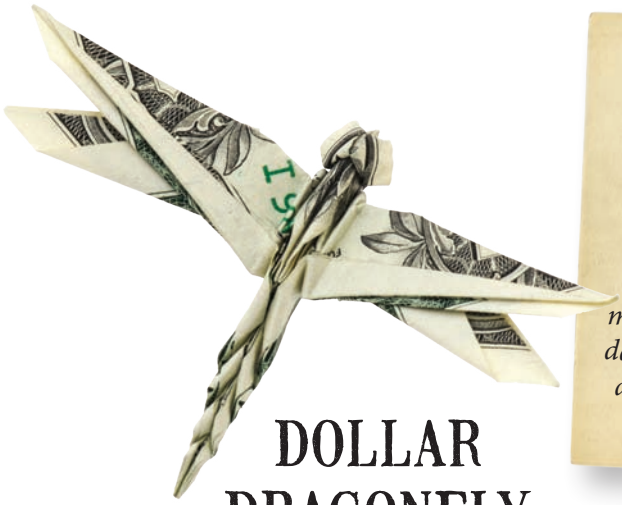
29



H .



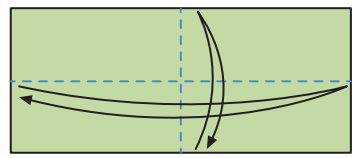
Top view of folded model, wings open.



DOLLAR DRAGONFLY

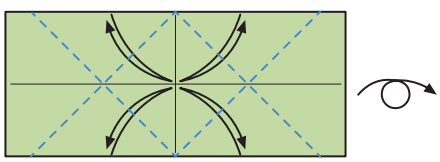
This is one of my very first original models. I created it in high school. It uses the same base as my first butterfly design. My advice for making a model with clean folds: dampen the bill slightly and use clamps to set folds properly.

1



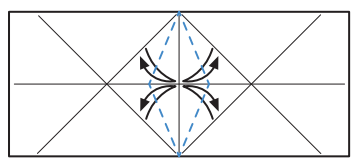
F .

2



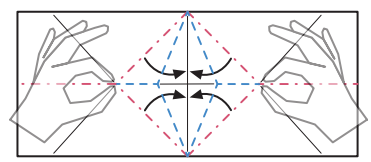
F . . .

3



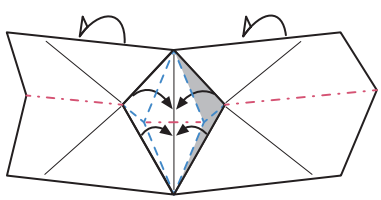
F . .

4



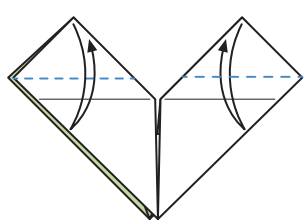
.

5



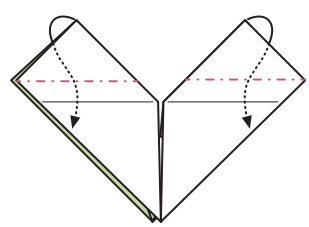
C .

6



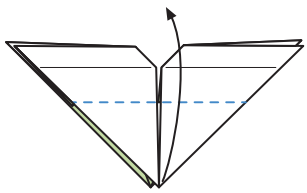
F . .

7



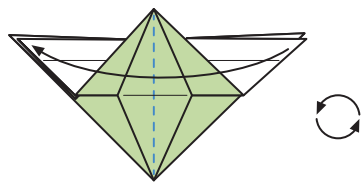
I .

8



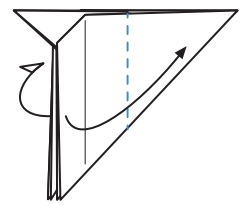
F .

9



F . .

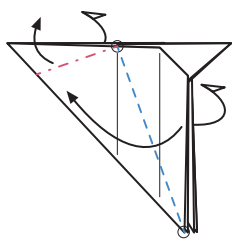
10



F .

.

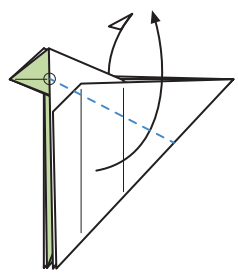
11



.

.

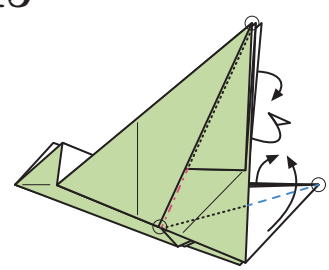
12



F .

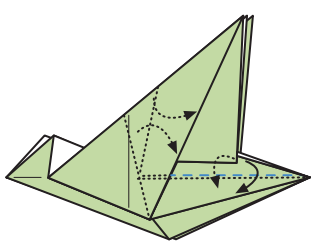
.

13



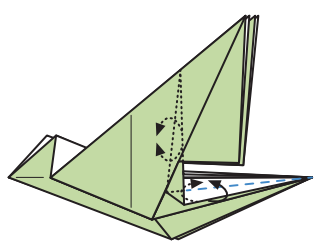
. .

14



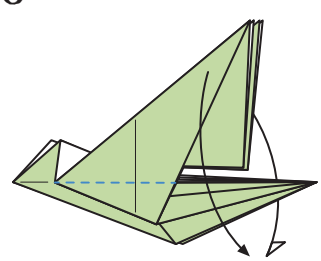
. .

15



. .

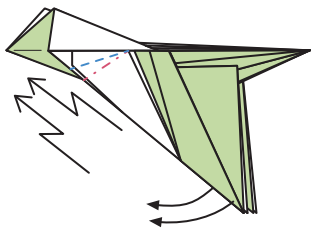
16



.

.

17

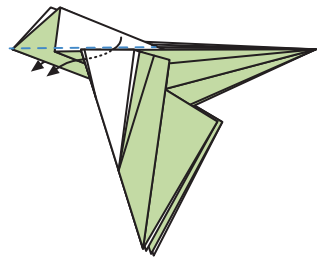


C

.

.

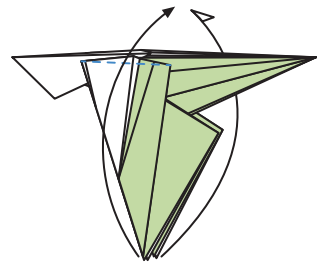
18



F

.

19

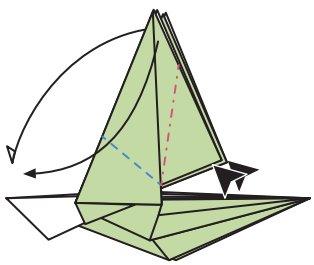


F

.

.

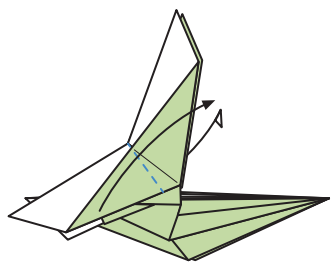
20



.

.

21

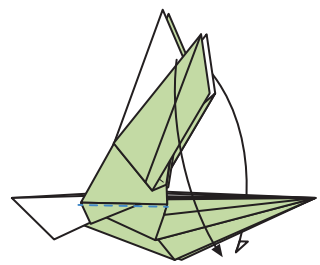


C

.

.

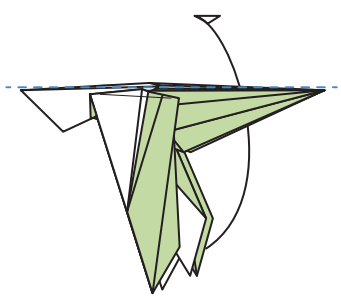
22



F

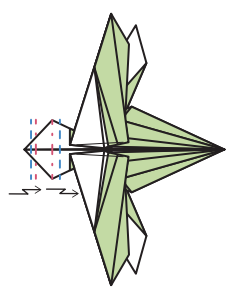
.

23



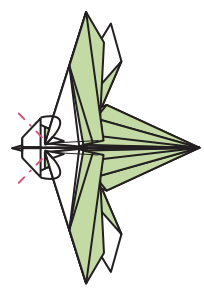
.

24



.

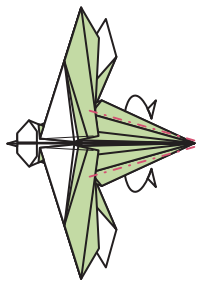
25



F

.

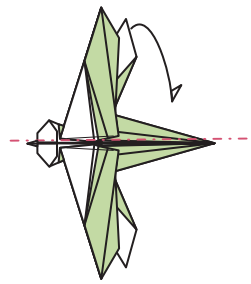
26



F

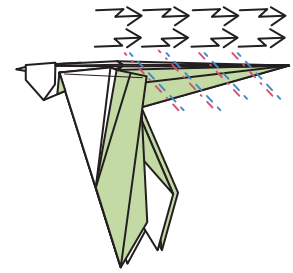
.

27



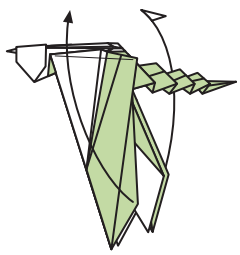
F .

28

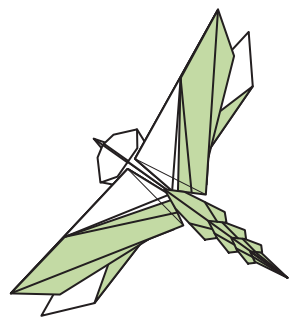


.

29



.



The completed dragonfly.

E ’ : F

. I ,

’

.

;

,

.

.

’

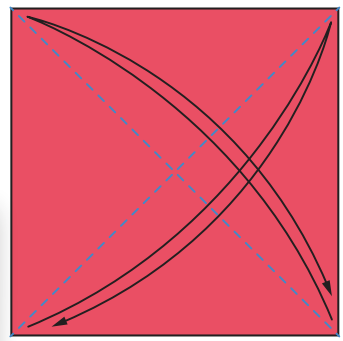

A
11
H
,
A
,
3D
. H
Praying Mantis
SEBASTIAN ARELLANO


Bed Bug

BED BUG

This is one of my earliest designs, and the one that has gone through the most revisions. I usually fold it from 6- or 8-inch paper, but anything smaller than 12 inches is fine. While the sample shown here has been folded from tissue foil, it can also be folded from stiffer paper. When I first designed the model, I used to varnish it and attach it to a barrette for my sister to wear in her hair. It made a very interesting decoration!

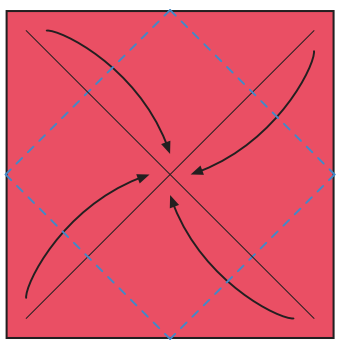
1



:

.

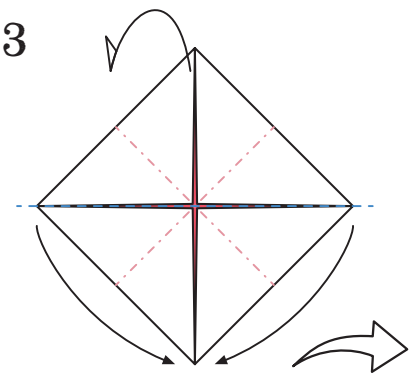
2



F

.

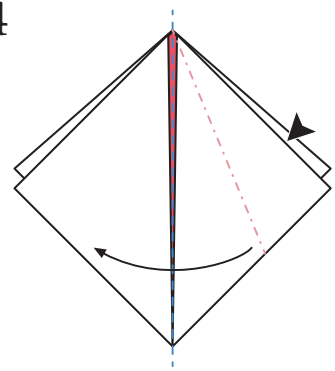
3



C

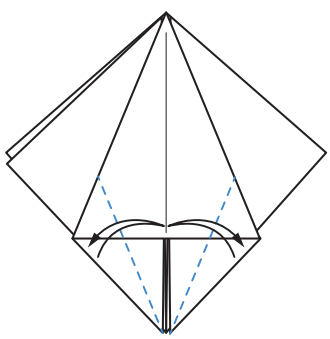
.

4



.

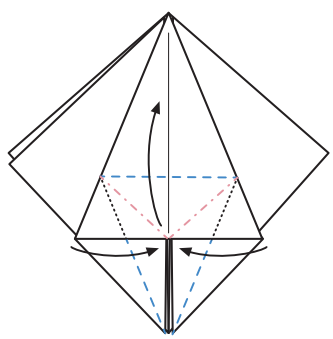
5



:

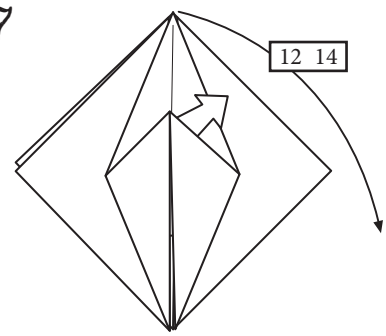
.

6



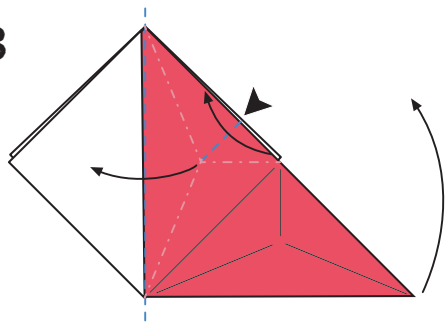
.

7



.

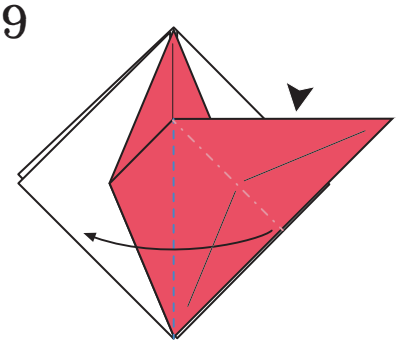
8



C

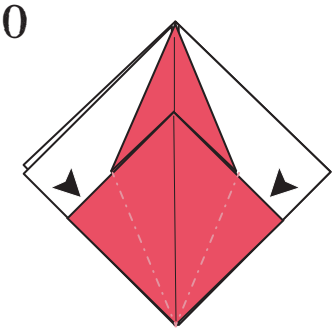
.

9



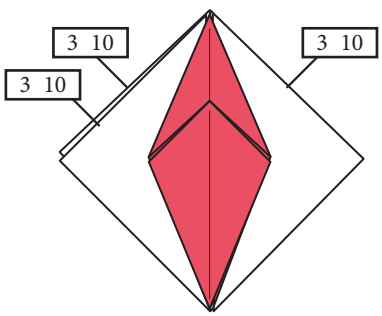
.

10



.

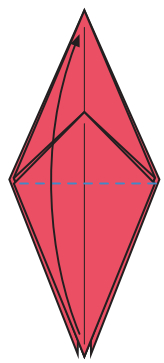
11



3 10

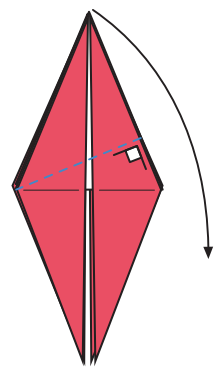
.

12



.

13

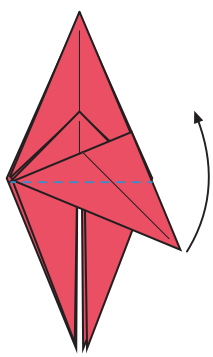


.

90

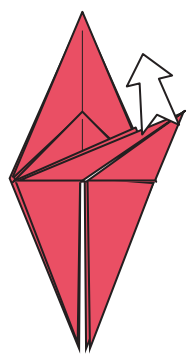
.

14



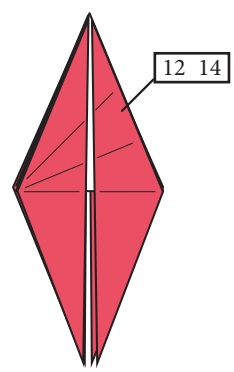
.

15



.

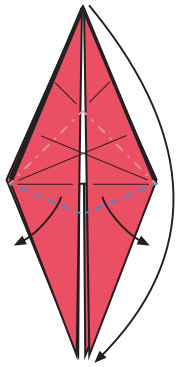
16



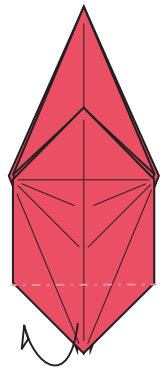
12 14

.

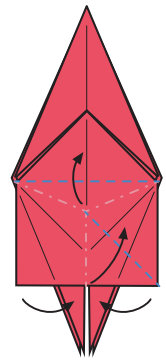
17



18

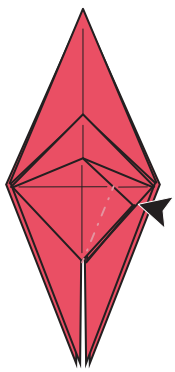


19

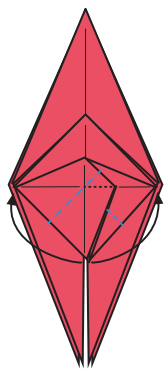


C

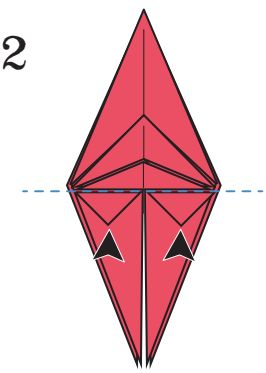
20



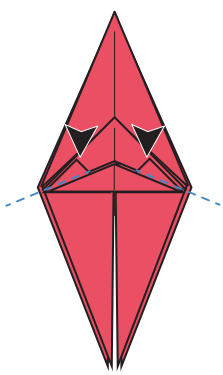
21



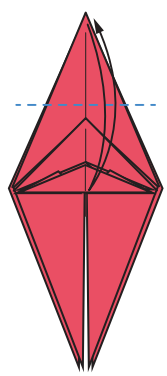
22



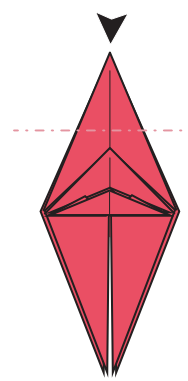
23



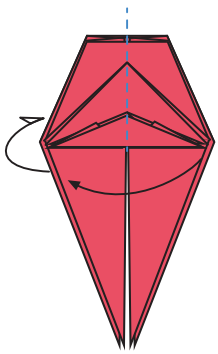
24



25



26

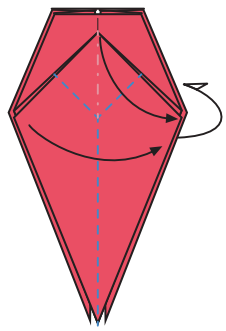


F

;

.

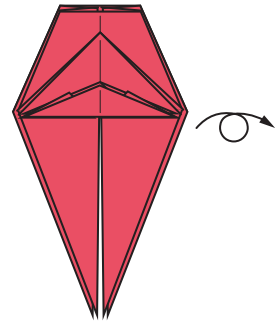
27



F

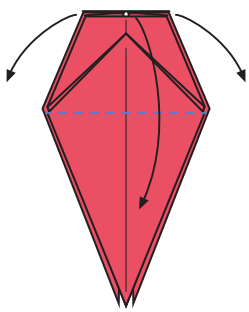
.

28



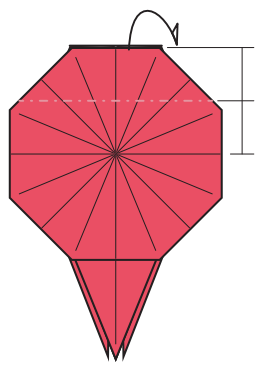
.

29



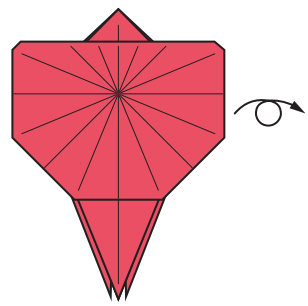
.

30



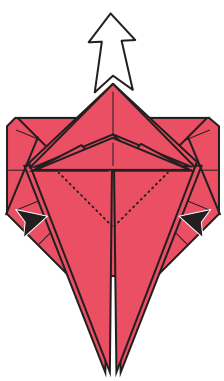
.

31



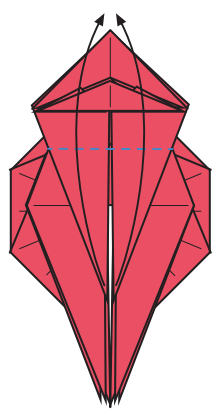
.

32



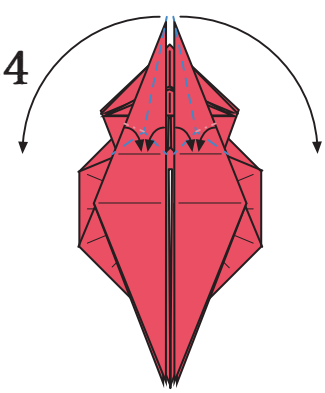
30.

33



.

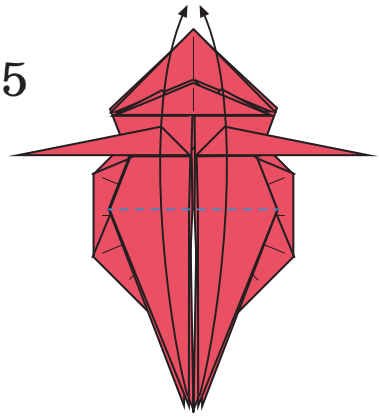
34



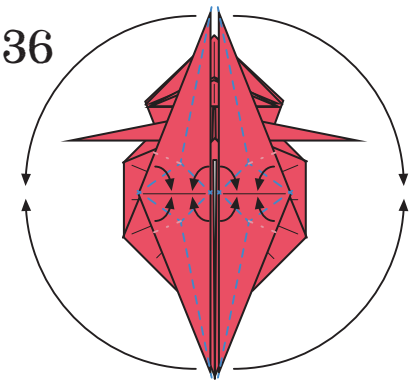
-

.

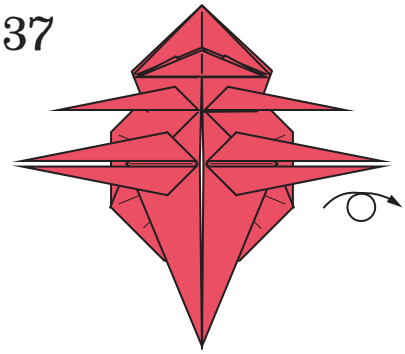
35



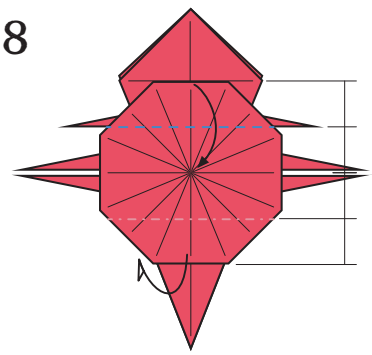
36



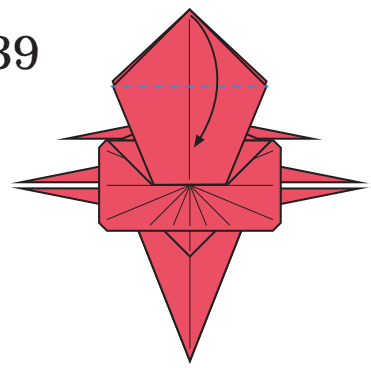
37



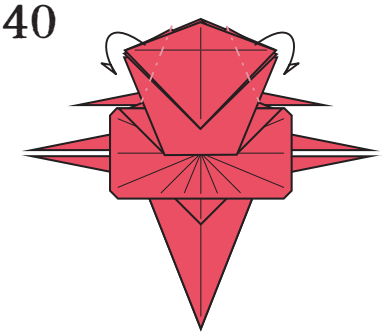
38



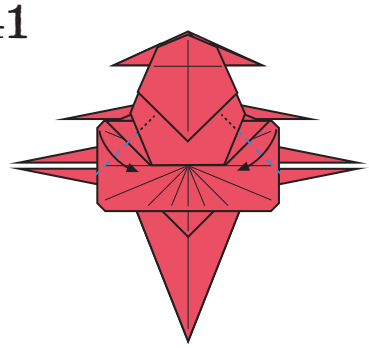
39



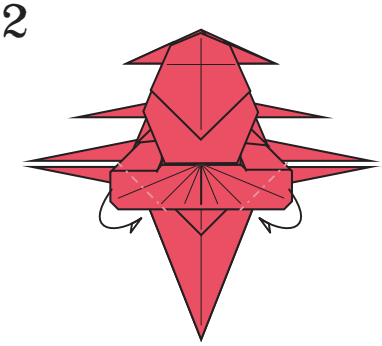
40



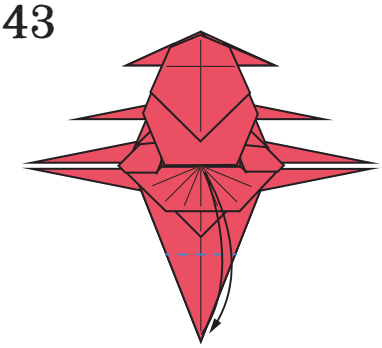
41



42

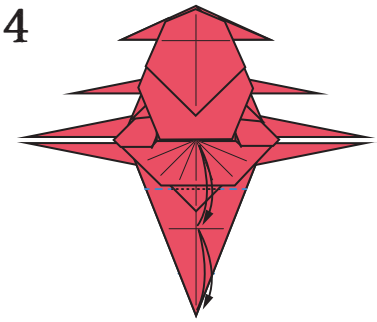


43



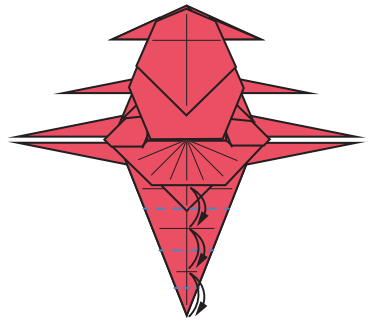
F

44



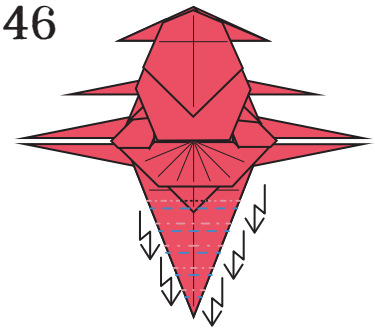
F . .

45



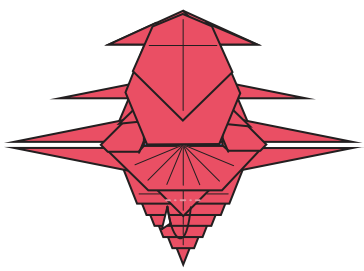
F . .

46



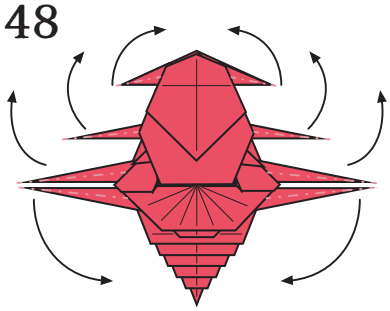
C .

47



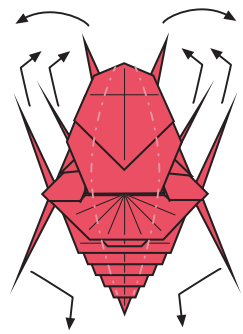
.

48

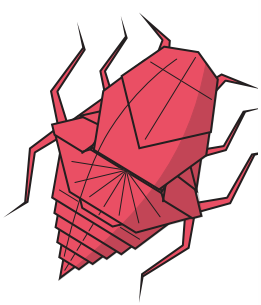


.

49



C .



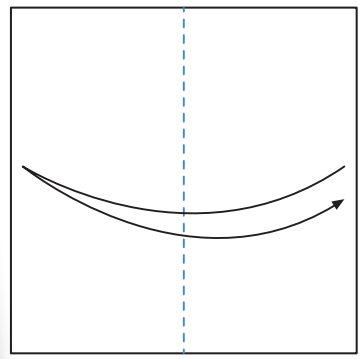
The completed bed bug.

View from underside.

PRAYING MANTIS

This particular praying mantis is a combination of two previous insect designs. Squares measuring 12 to 17.5 inches work well for this model. Use tissue foil or double tissue. If you use larger, thinner paper, take special care with the legs—the weight of the body may be too much for them unless they are folded and positioned just so! The plus side of using the larger paper is that you will be able to shape the head better, so it is a tradeoff.

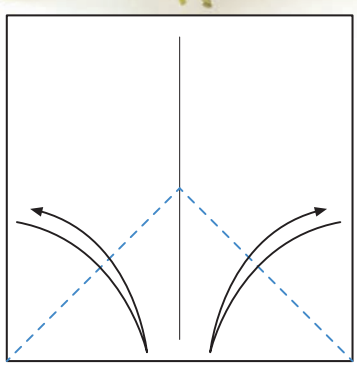
1



:

.

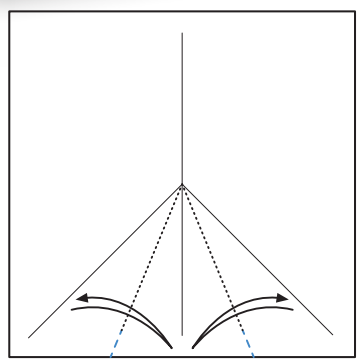
2



F

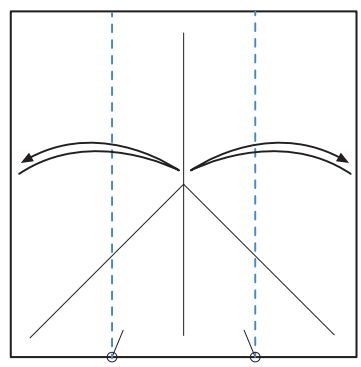
.

3



.

4

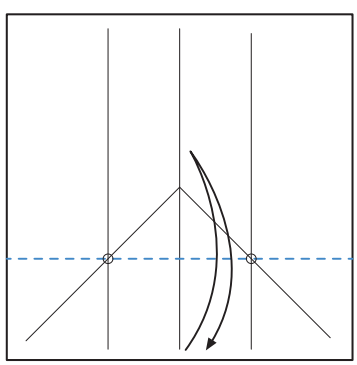


,

.

.

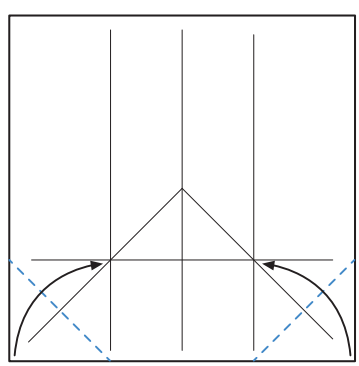
5



.

.

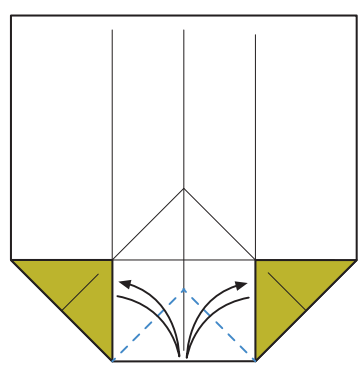
6



F

.

7

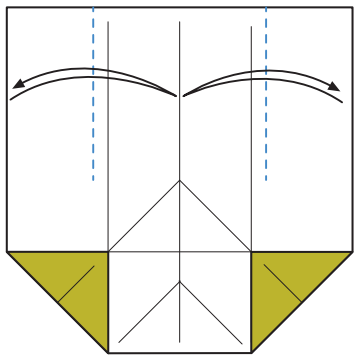


F

.

.

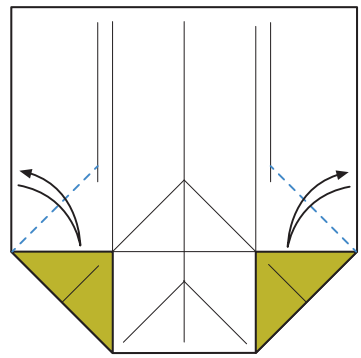
8



F

.

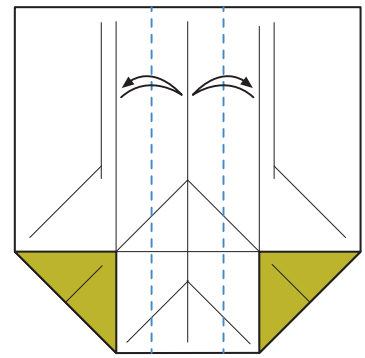
9



F

.

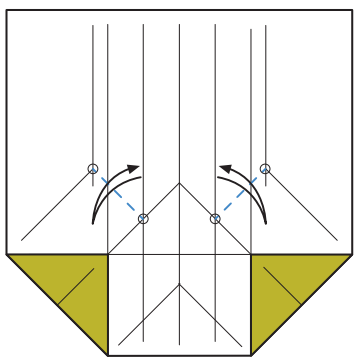
10



F

.

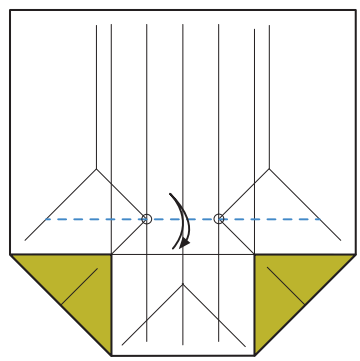
11



.

.

12

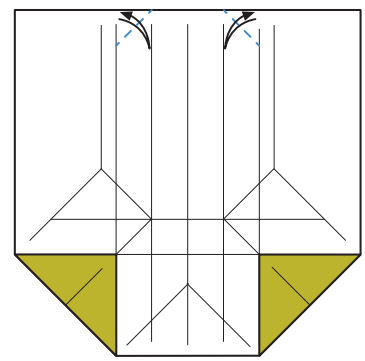


F

.

.

13

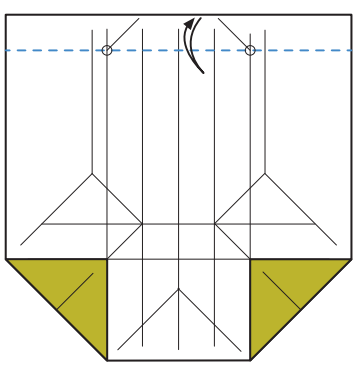


F

.

.

14

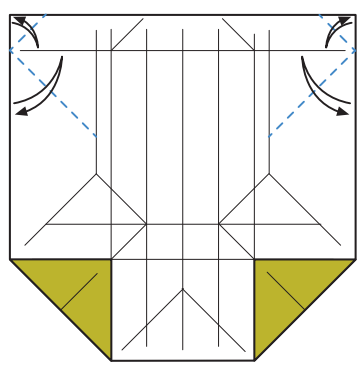


F

.

.

15

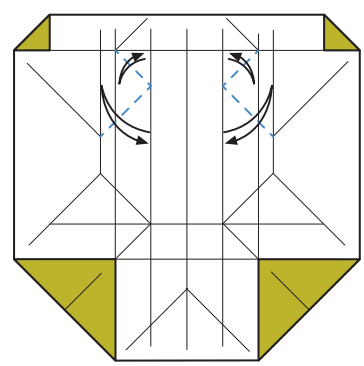


F

.

.

16

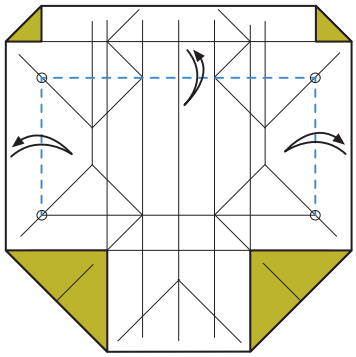


F

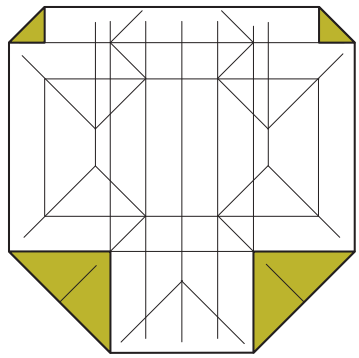
.

.

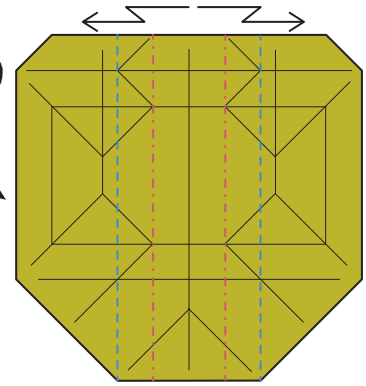
17



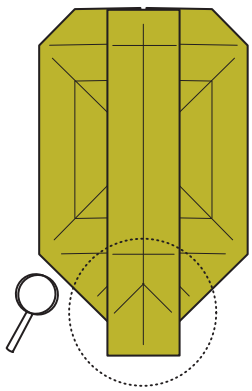
18



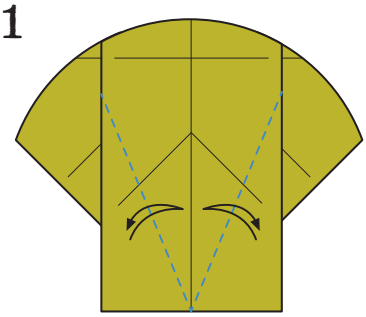
19



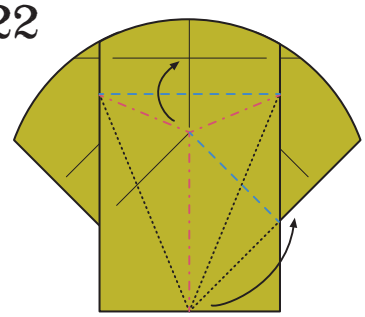
20



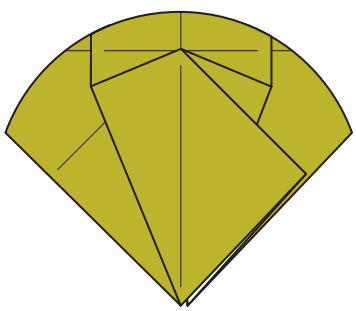
21



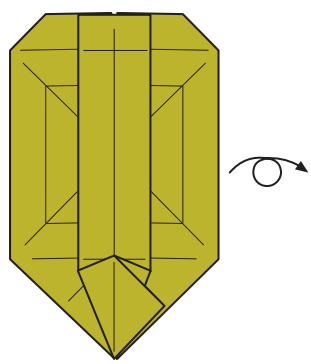
22



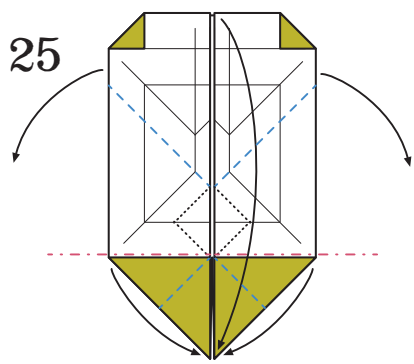
23



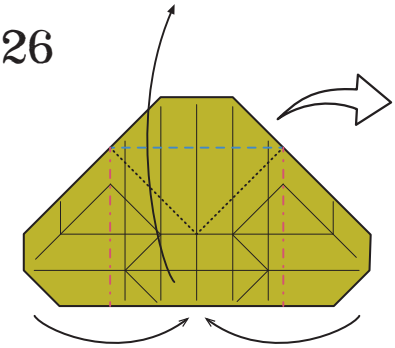
24



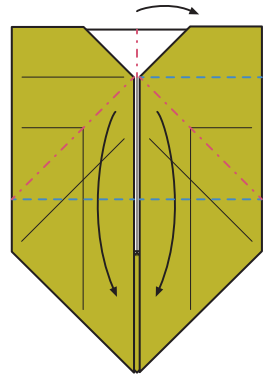
25



26

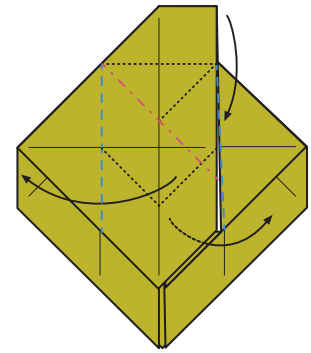


27

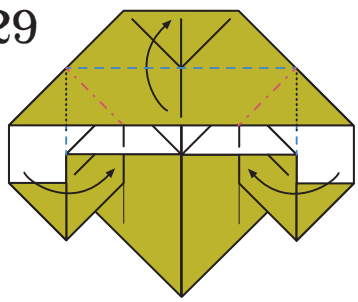


C

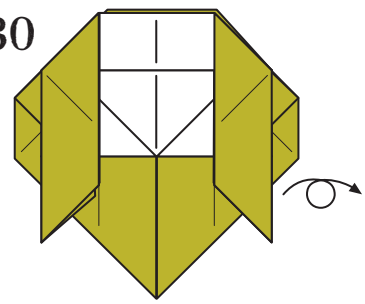
28



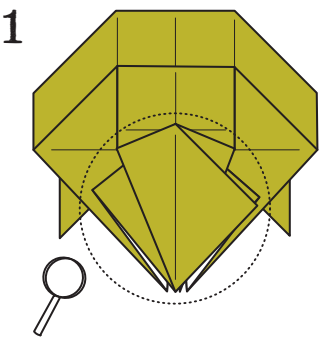
29



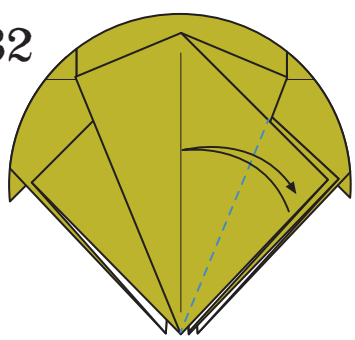
30



31

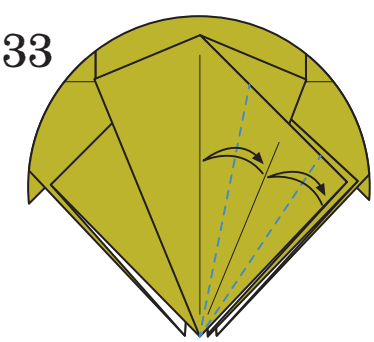


32



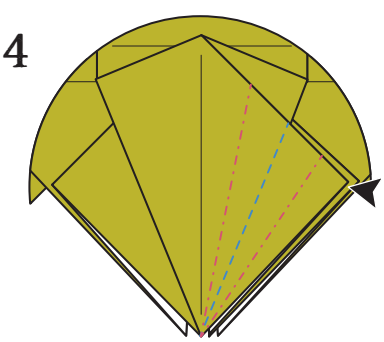
F

33

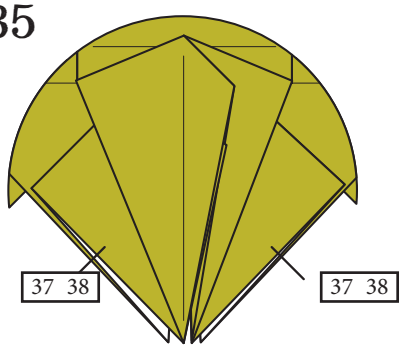


F

34



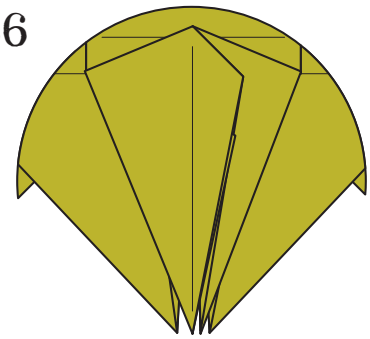
35



32 34

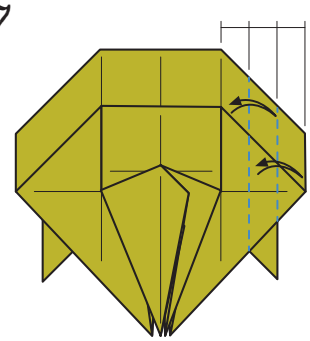
.

36



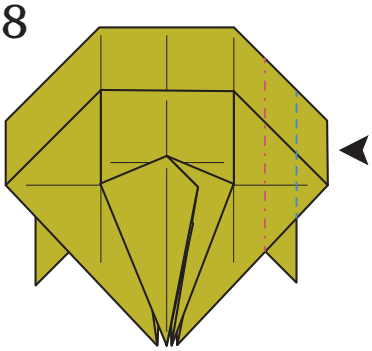
C .

37



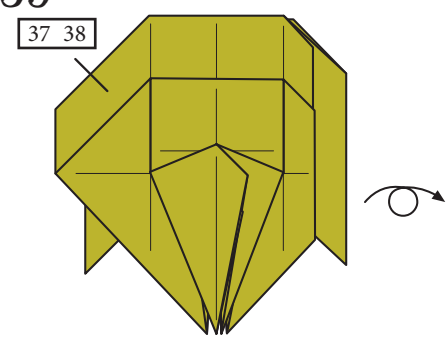
. .

38



.

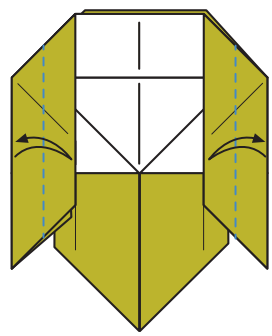
39



37 38

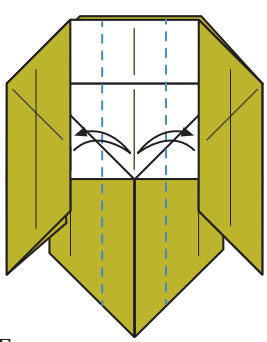
.

40



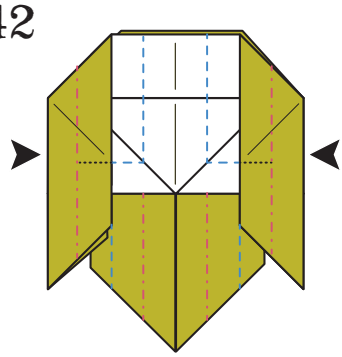
F . .

41



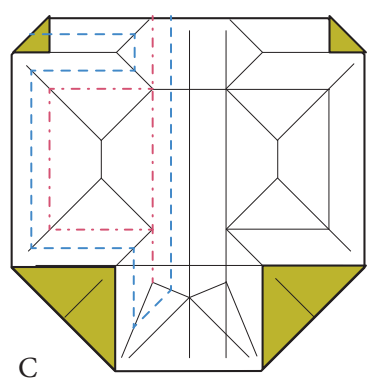
F . .

42



.

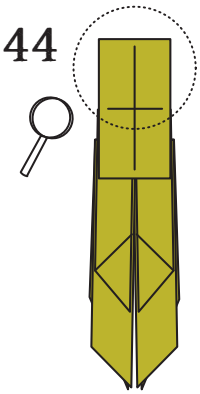
43



C

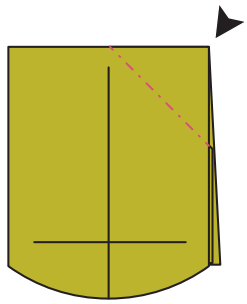
.

44



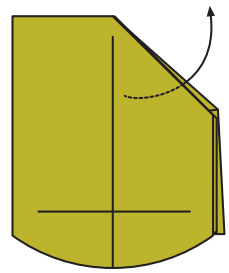
.

45



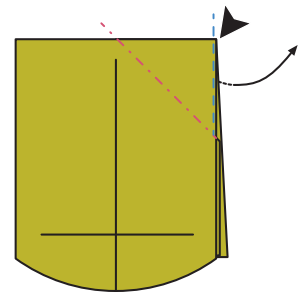
I . .

46



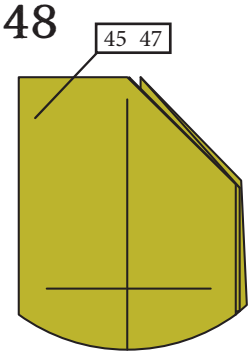
. .

47



.

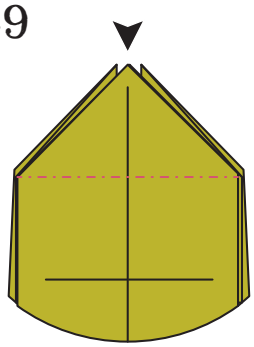
48



45 47 .

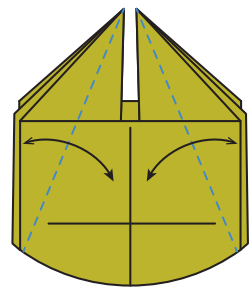
.

49



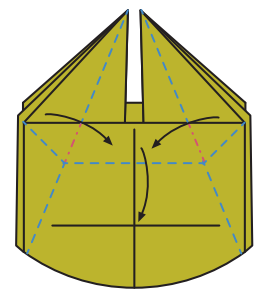
.

50



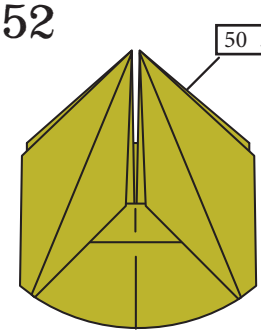
F . .

51



. .

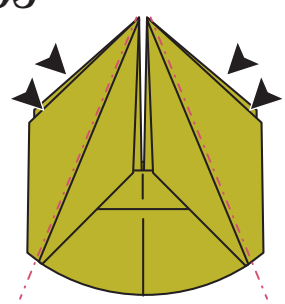
52



50 51 .

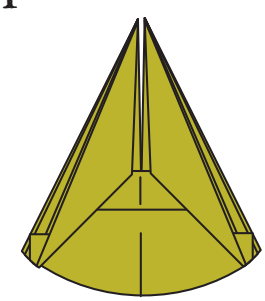
.

53



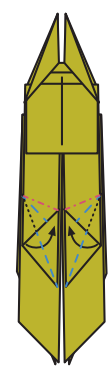
.

54

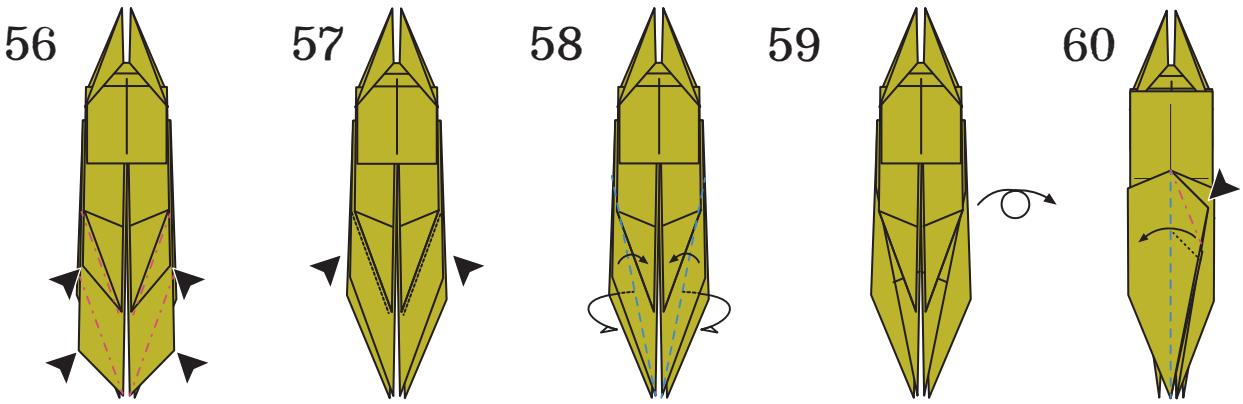


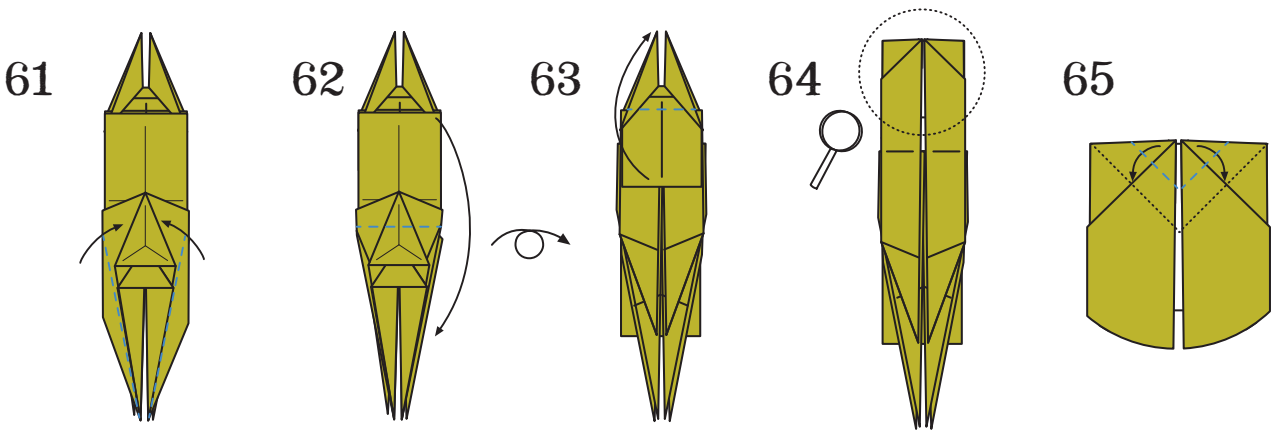
C . .

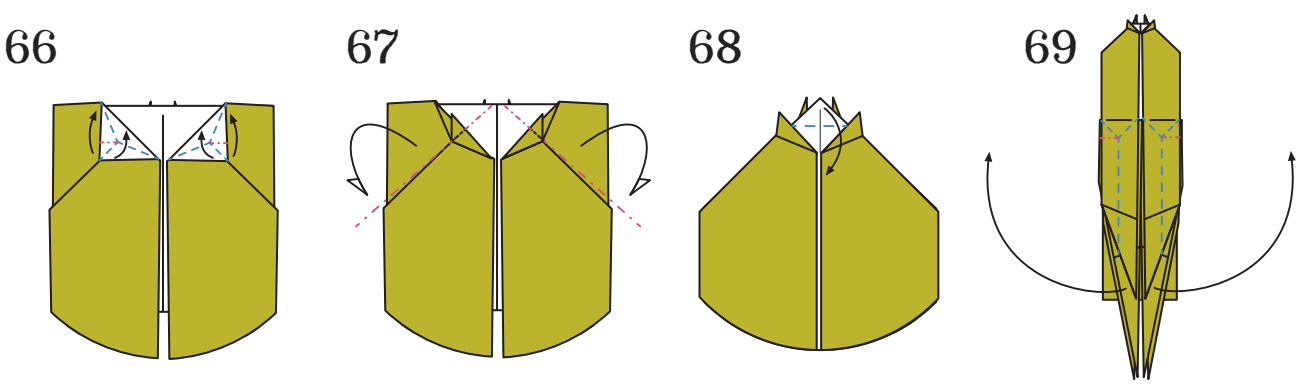
55



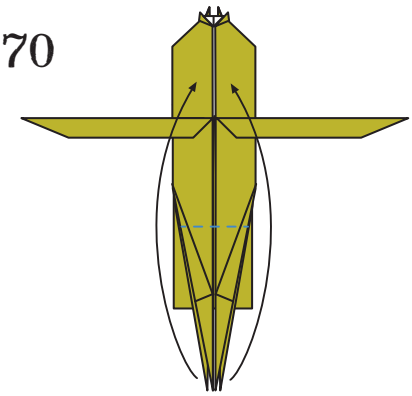
. .


56
57
58
59
60


61
62
63
64
65

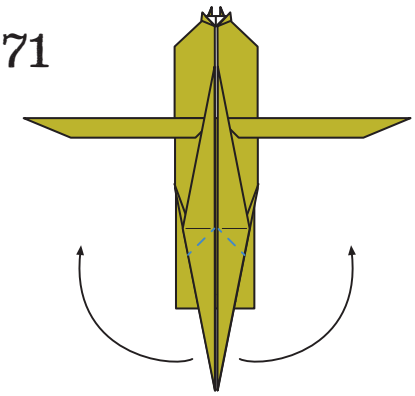

66
67
68
69

70



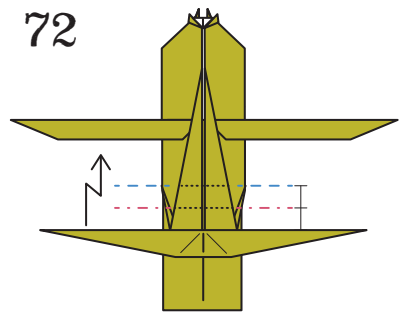
F .

71



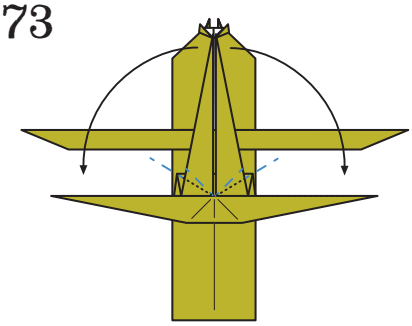
.

72



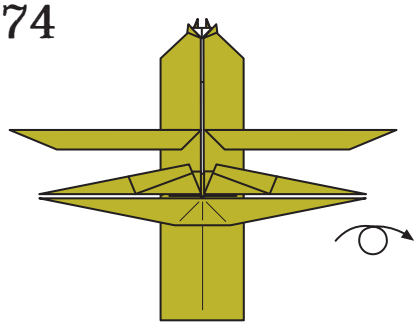
.

73



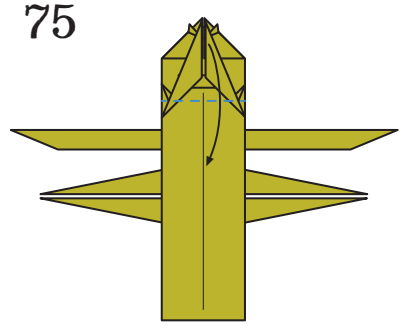
, .

74



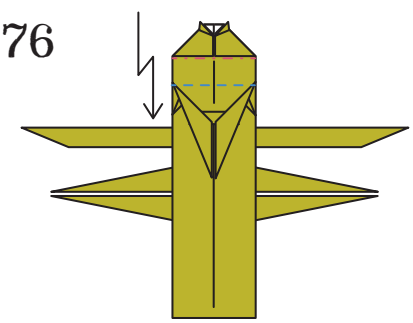
.

75



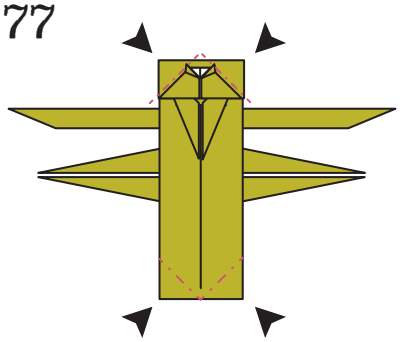
F .

76



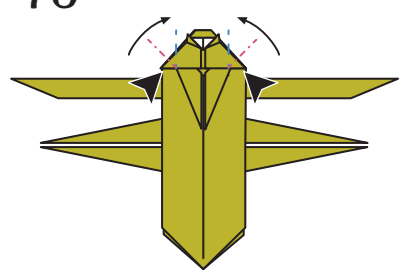
.

77



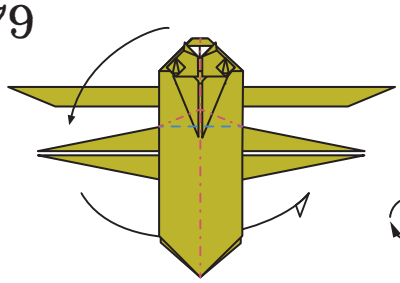
.

78

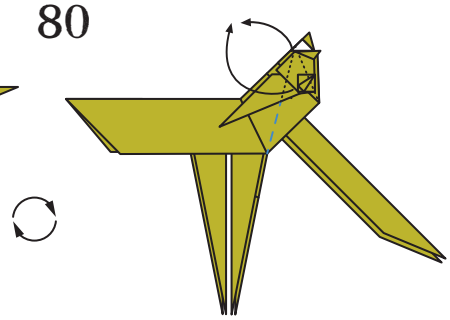


.

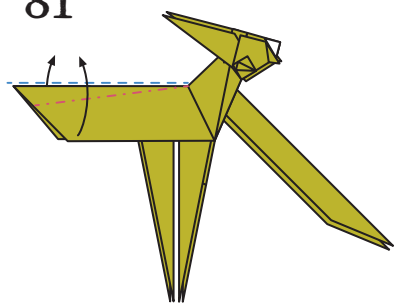
79



80



81



F

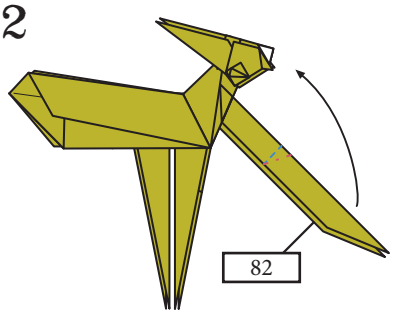
. .

.

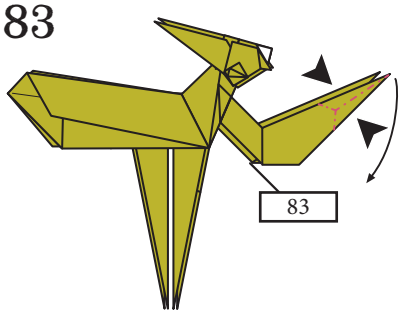
,

.

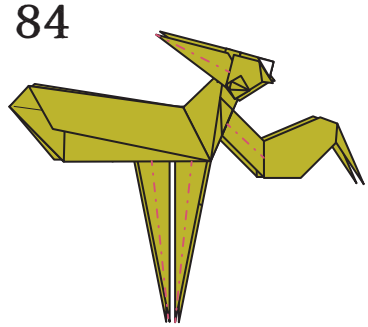
82



83



84



C

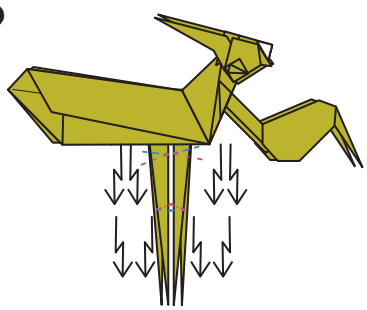
.

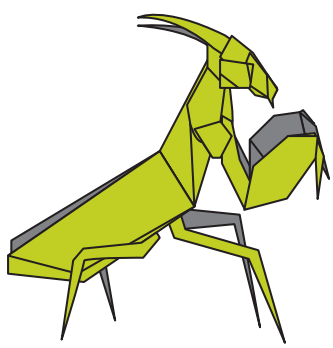
-

.

.

85





C

.

The completed praying mantis.

Mosquito

MARC KIRSCHENBAUM

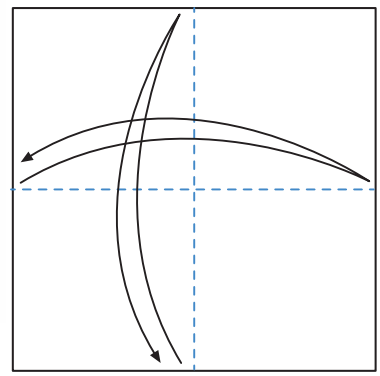
Ladybug

, A
,
.
H
, A
H ,
I , I ,
H -7.
.
A A,
,
B D .
A' .

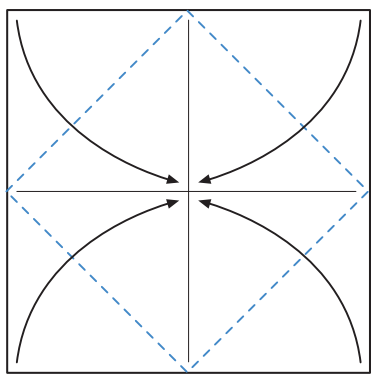
MOSQUITO

I happen to like the paper of the unryu (mulberry bark) variety, but any fine paper with long, strong fibers should be equally effective. I used 10-inch sheets here. Thinner papers (20 gm/in or lighter) work well for the mosquito. I will bond two sheets of paper together with methyl cellulose for a two-toned effect.

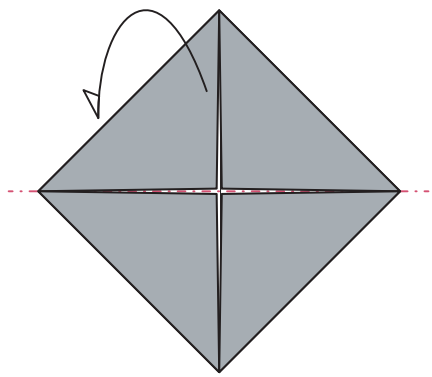
1



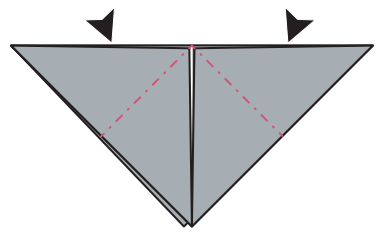
2



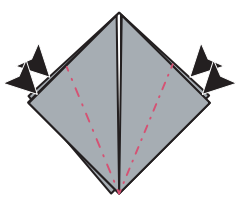
3



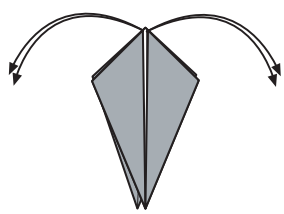
4



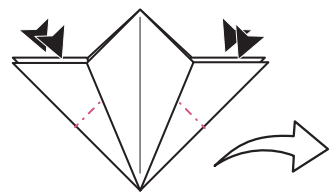
5



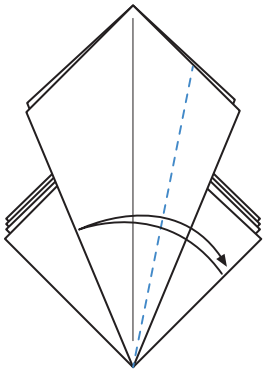
6



7

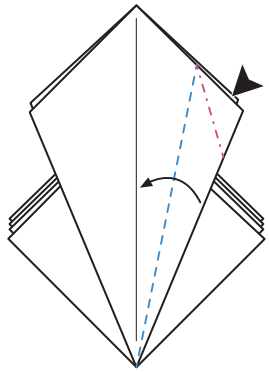


8



.

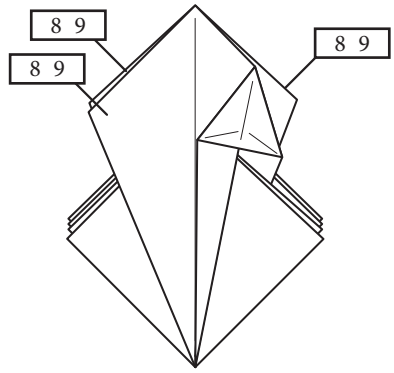
9



-

.

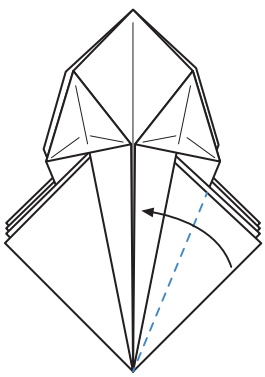
10



8 9

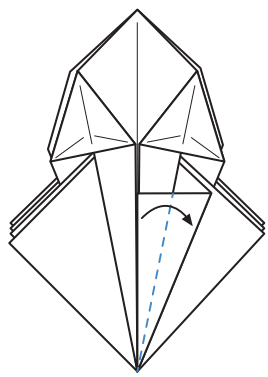
.

11



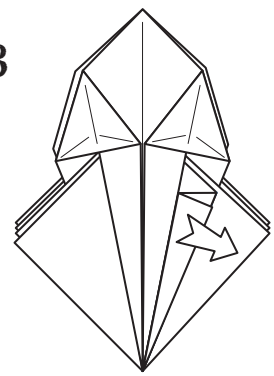
.

12



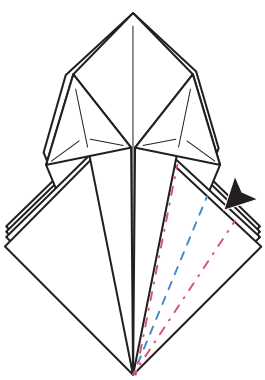
.

13



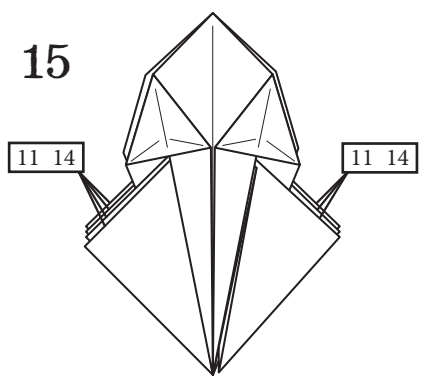
.

14



.

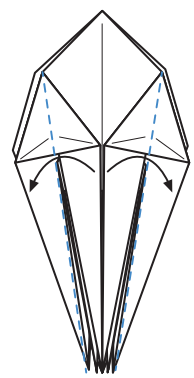
15



11 14

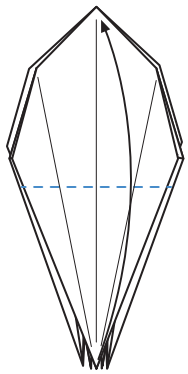
.

16

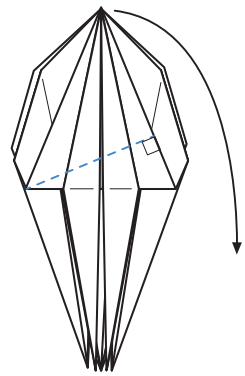


.

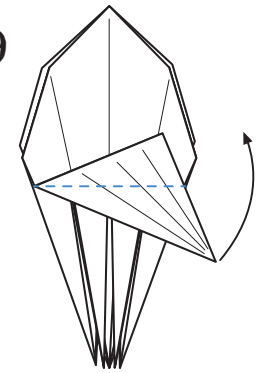
17



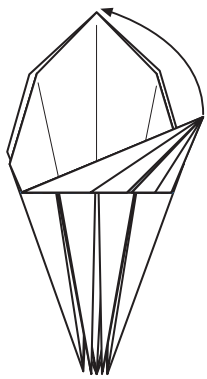
18



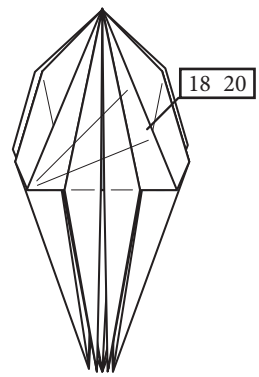
19



20

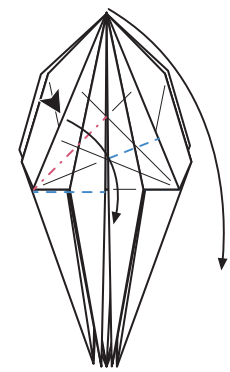


21

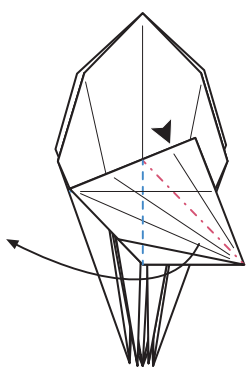


18 20

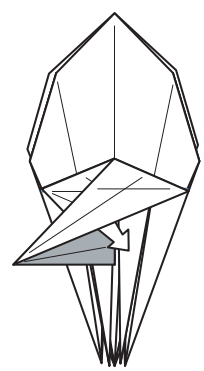
22



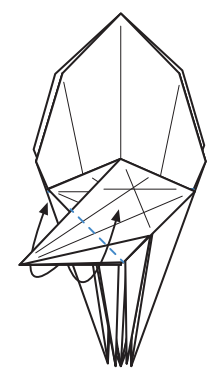
23



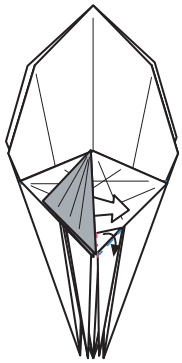
24



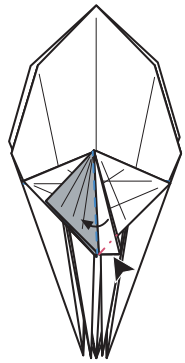
25



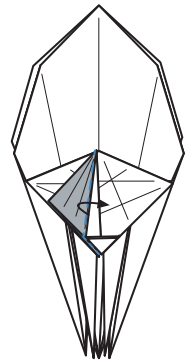
26



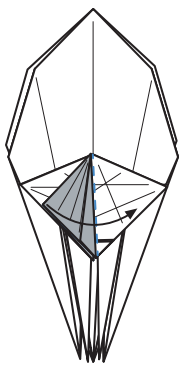
27



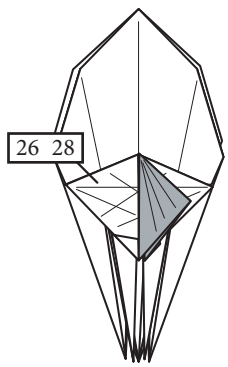
28



29

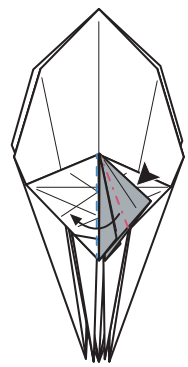


30

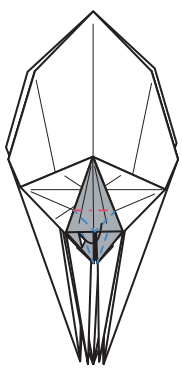


26 28

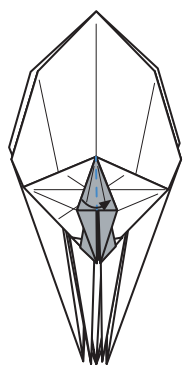
31



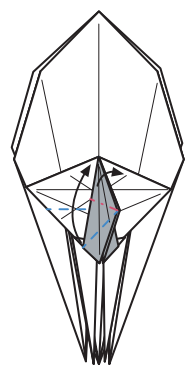
32



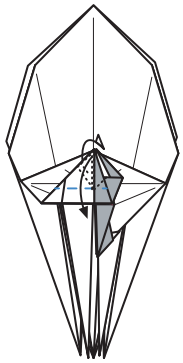
33



34

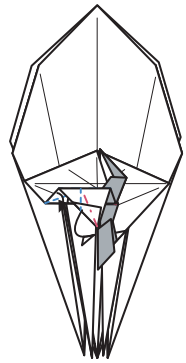


35



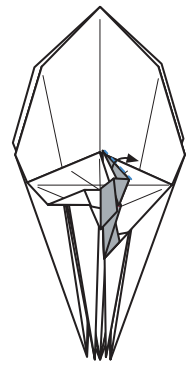
.

36



.

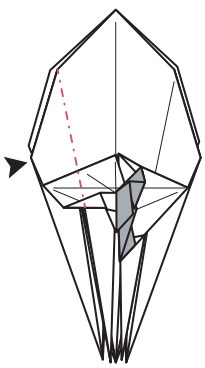
37



,

.

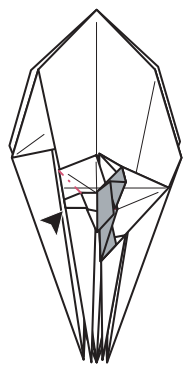
38



C

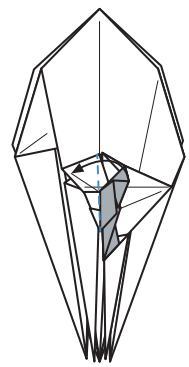
.

39



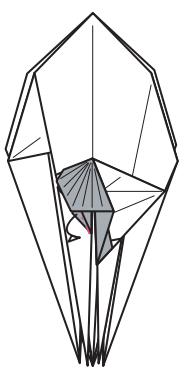
.

40



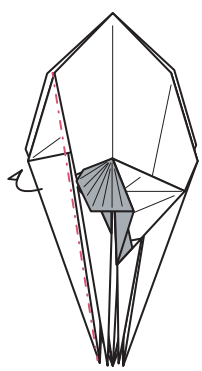
.

41



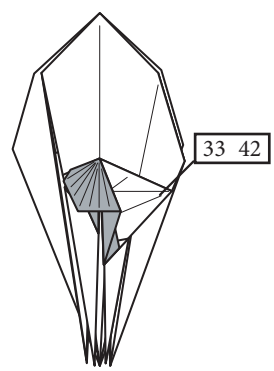
.

42



.

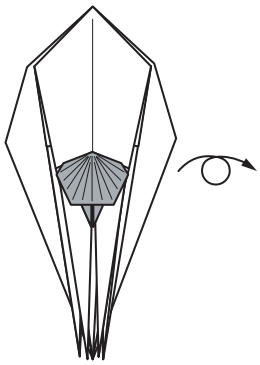
43



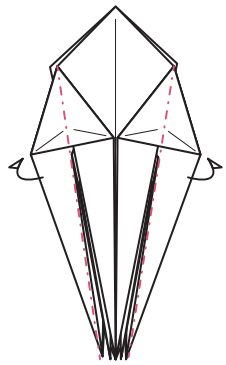
33 42

.

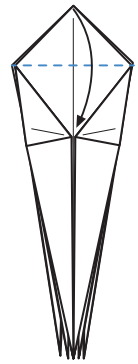
44



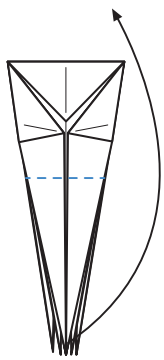
45



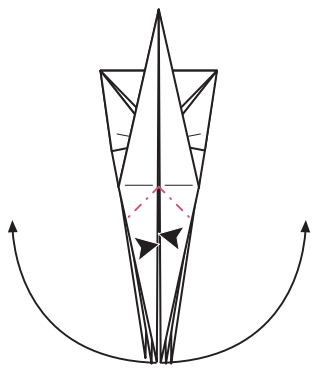
46



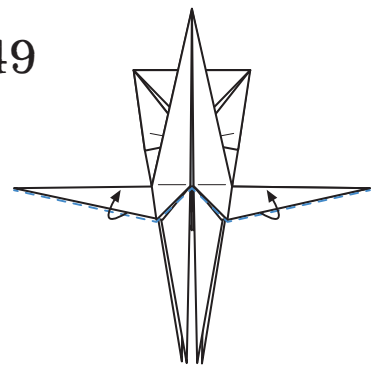
47



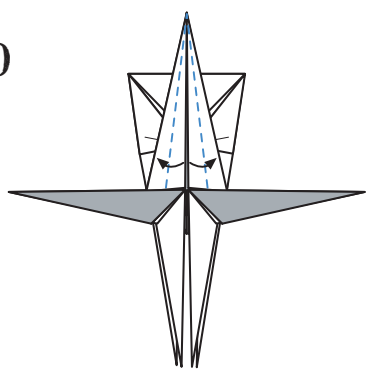
48



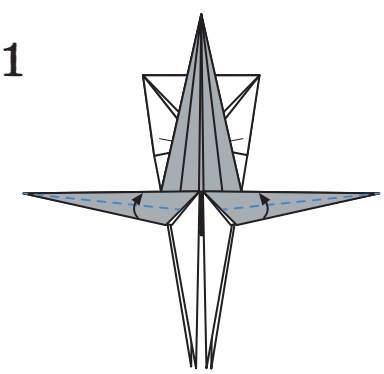
49



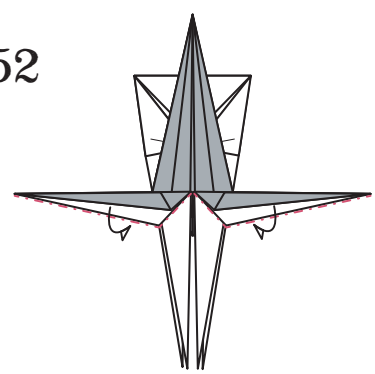
50



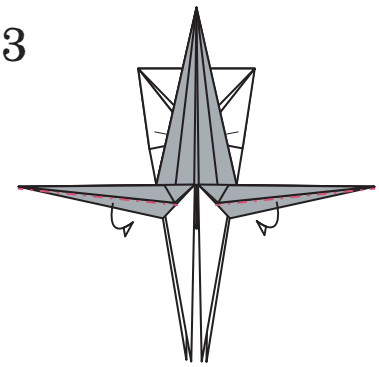
51



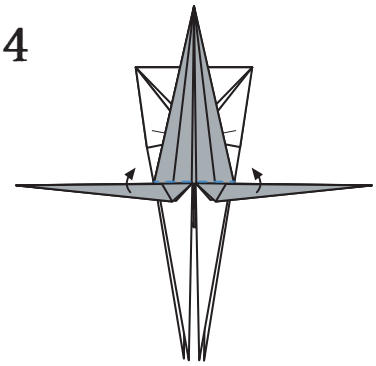
52



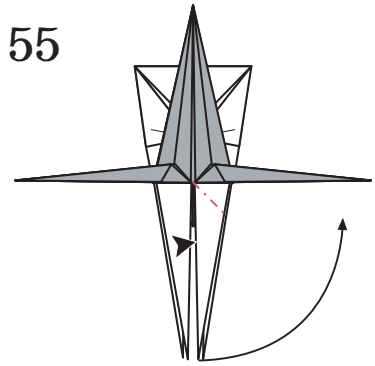
53



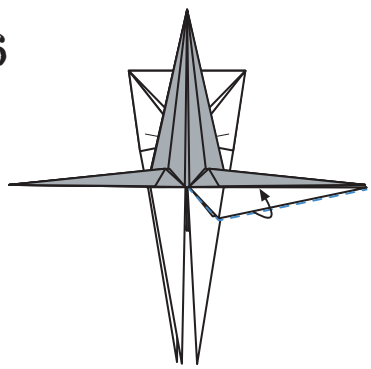
54



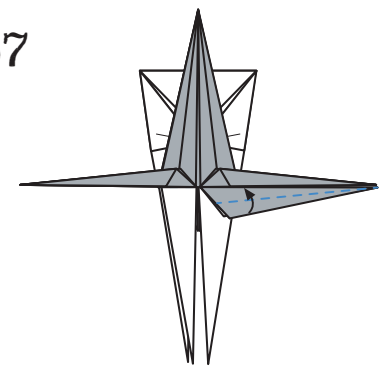
55



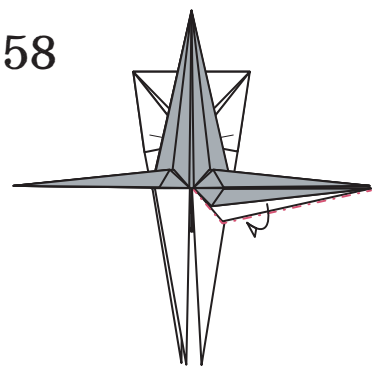
56



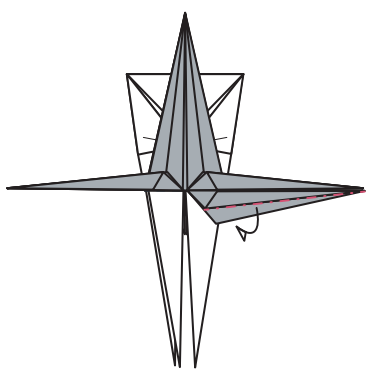
57



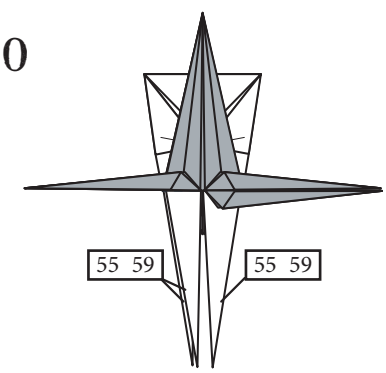
58



59

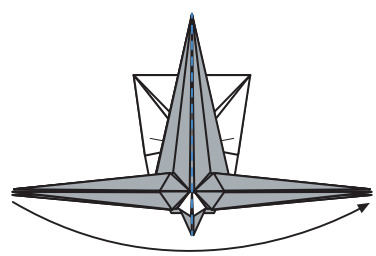


60

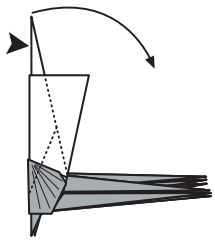


55 59

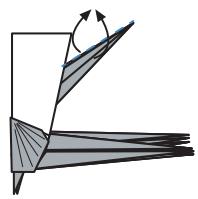
61



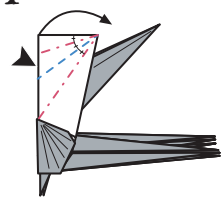
62



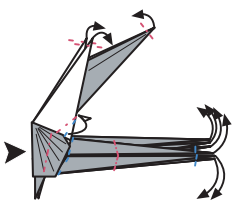
63

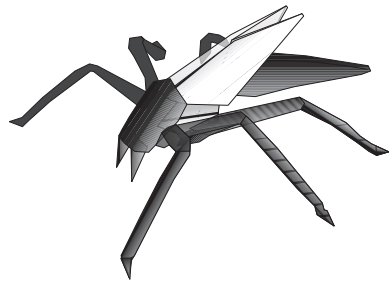


64



65



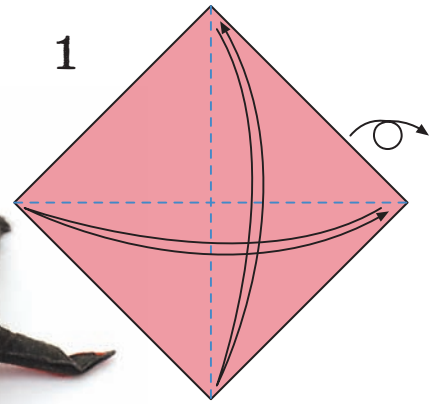


The completed mosquito.

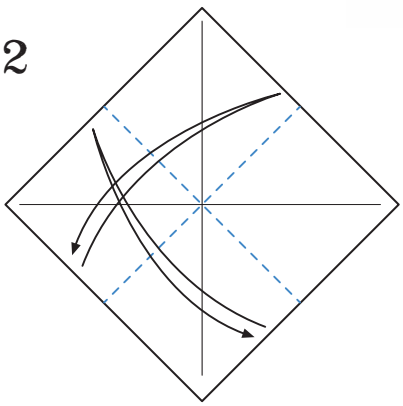
I've experimented with various paper sizes and types for my insects. As with the mosquito, I like to use 10-inch paper of the unryu (mulberry bark) variety. For the ladybug, I tend to use thicker papers (about 40 gm/in) and I prefer papers that do not show fibers because the piece is busy enough with all the spots. I use a thick red paper bonded with methyl cellulose to a thinner black paper.

LADYBUG

1

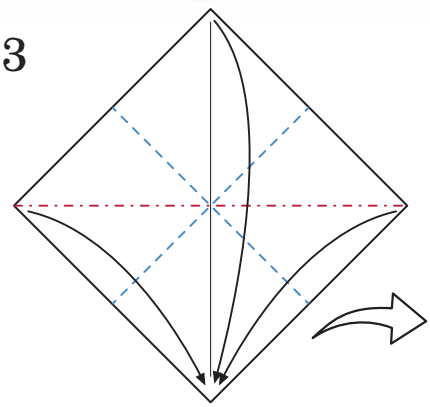


2



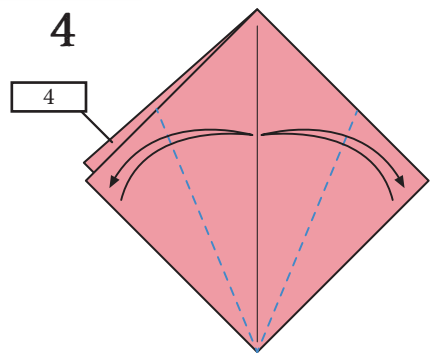
F

3

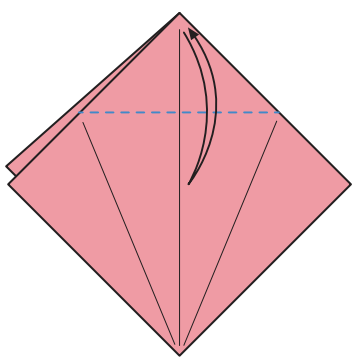


F

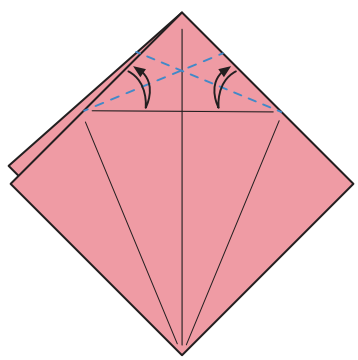
4



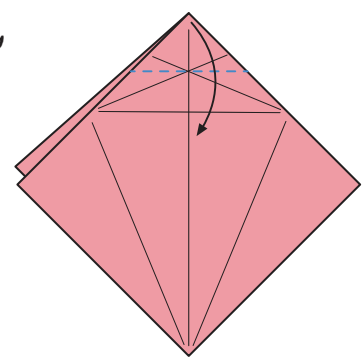
5



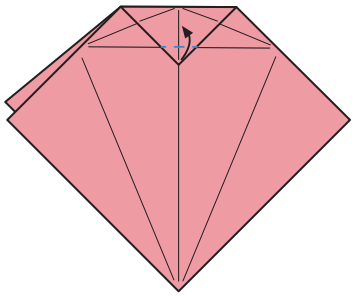
6



7

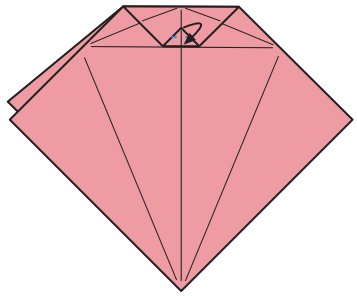


8



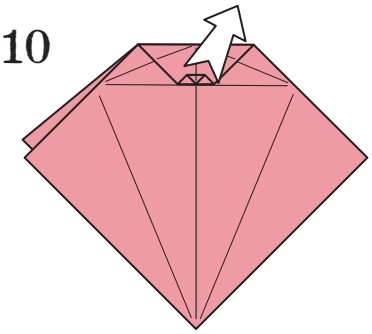
.

9



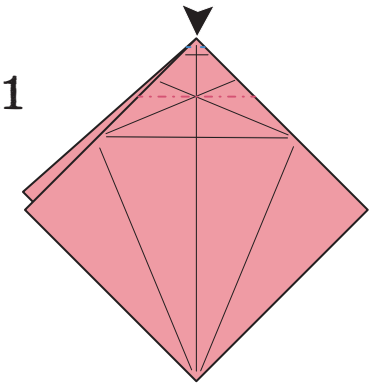
.

10



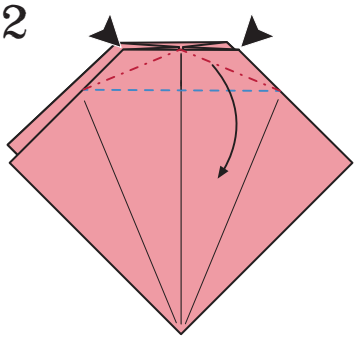
.

11



.

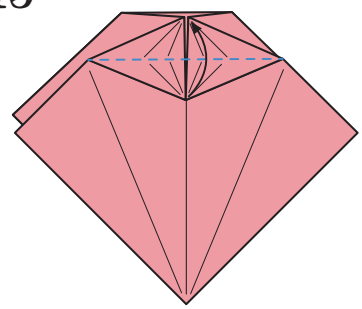
12



, -

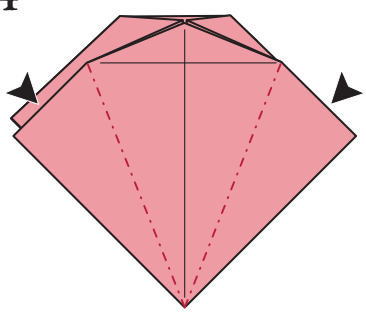
.

13



.

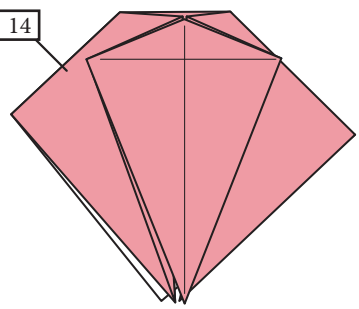
14



.

15

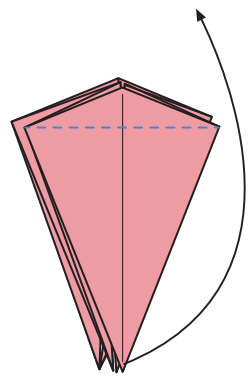
12 14



12 14

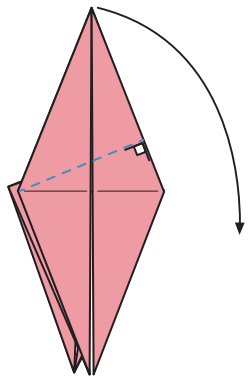
.

16



.

17

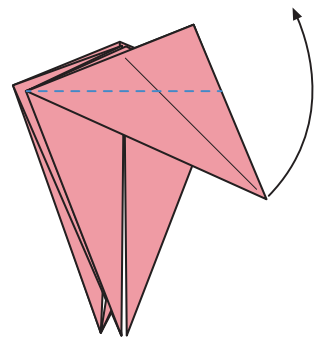


.

90

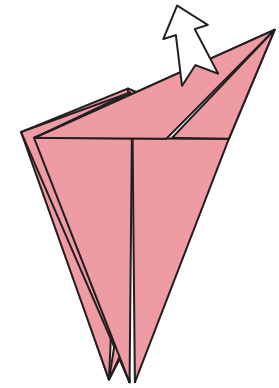
.

18



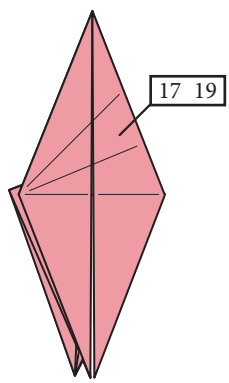
.

19



.

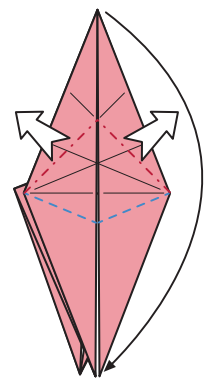
20



17 19

.

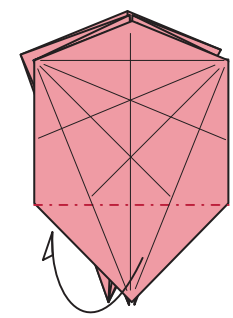
21



,

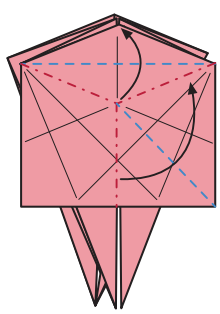
.

22



.

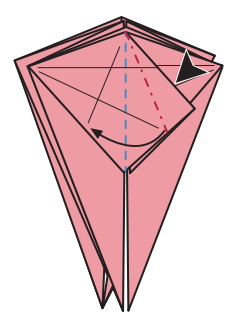
23



-

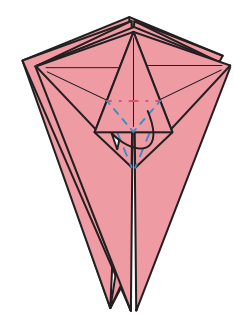
.

24



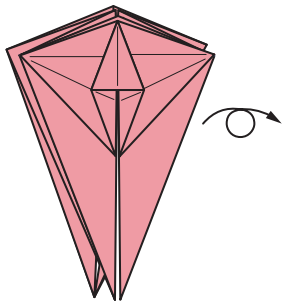
.

25



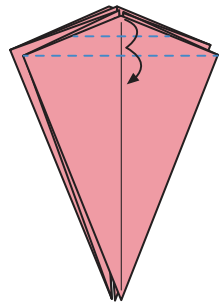
.

26



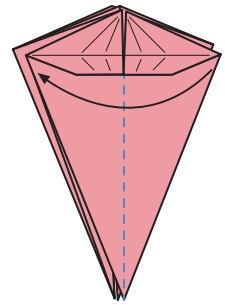
.

27



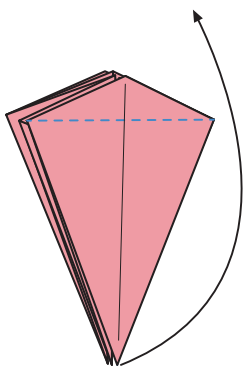
.

28



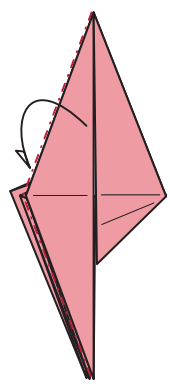
.

29



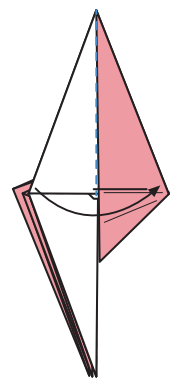
.

30



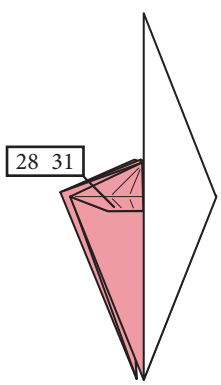
.

31



.

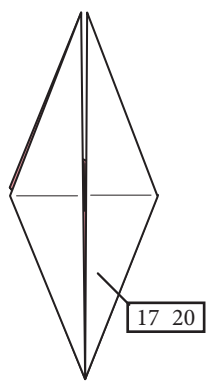
32



28 31

.

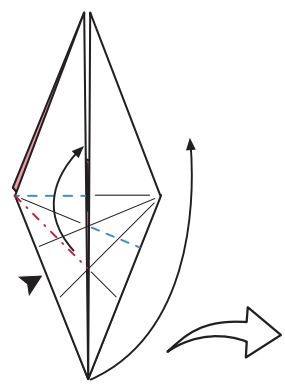
33



17 20

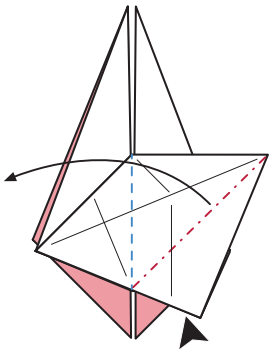
.

34

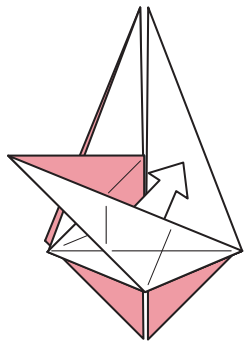


.

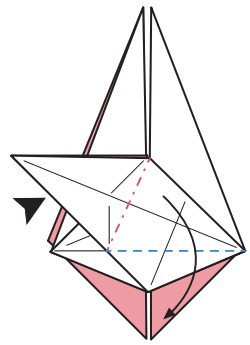
35



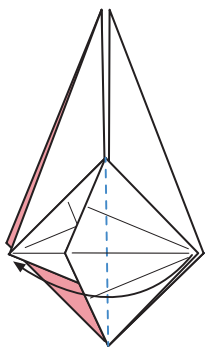
36



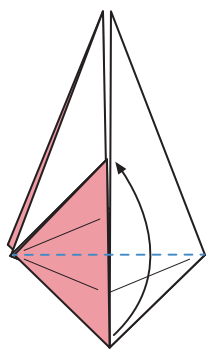
37



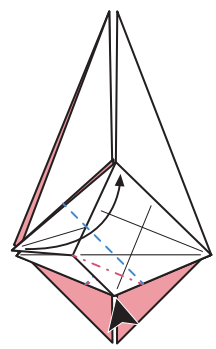
38



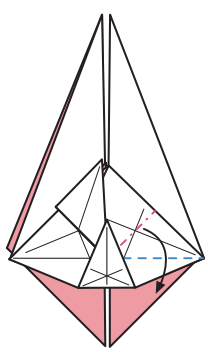
39



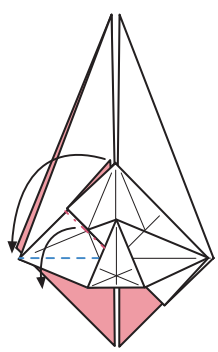
40



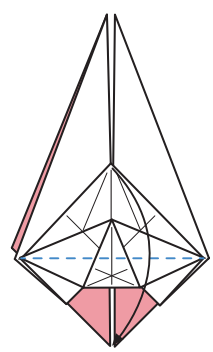
41



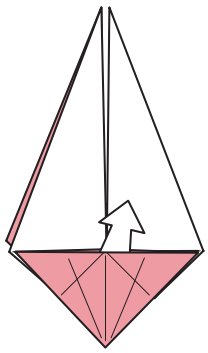
42



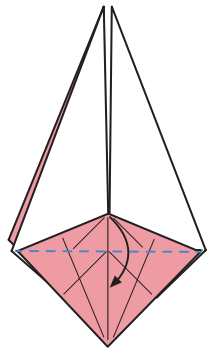
43



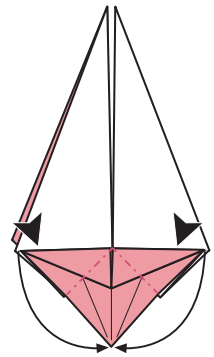
44



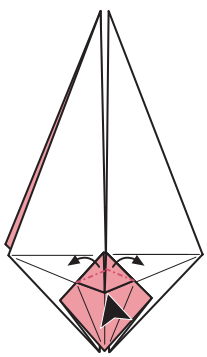
45



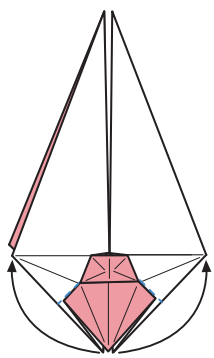
46



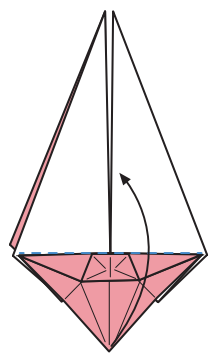
47



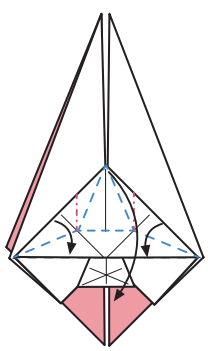
48



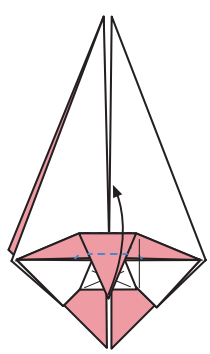
49



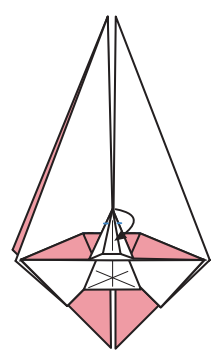
50



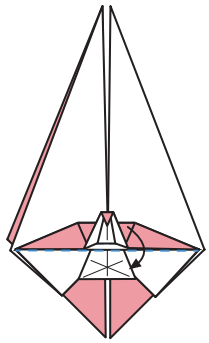
51



52

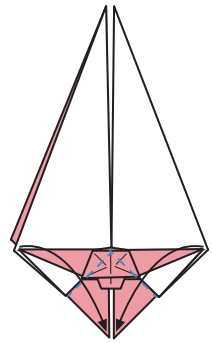


53



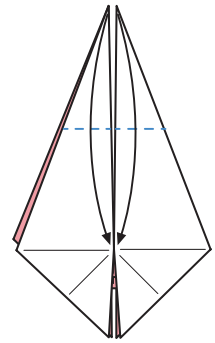
.

54



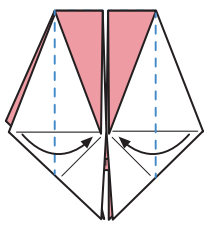
.

55



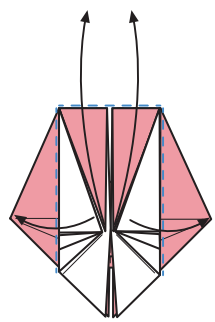
.

56



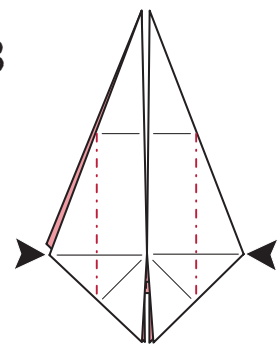
.

57



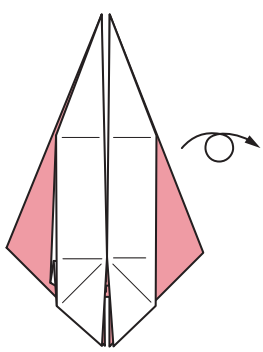
.

58



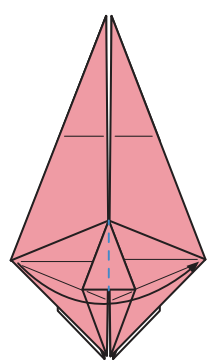
( ).

59



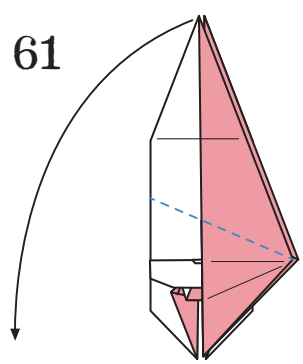
.

60



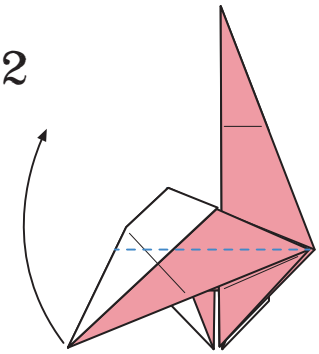
.

61



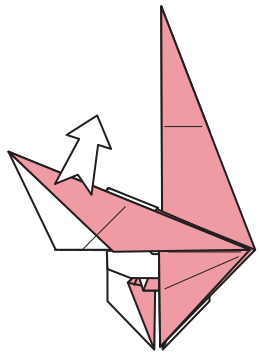
.

62

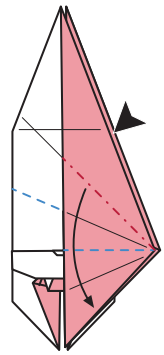


.

63

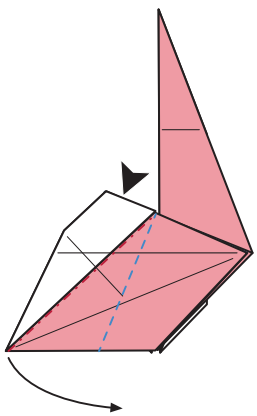


64



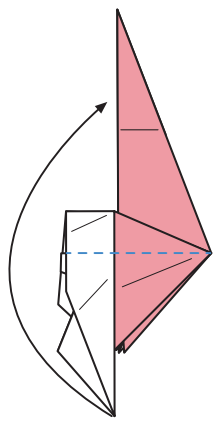
.

65



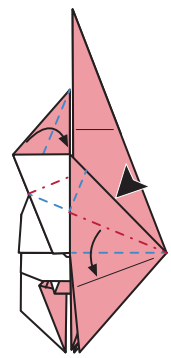
.

66



.

67

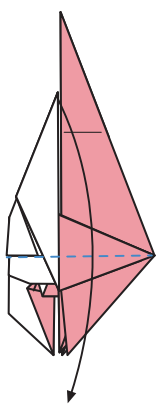


F

,

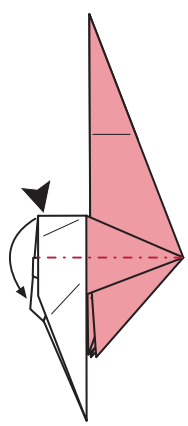
.

68



.

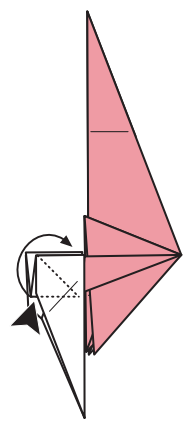
69



(

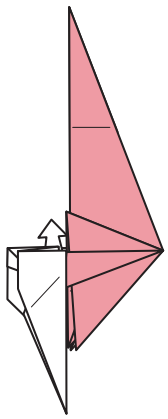
).

70



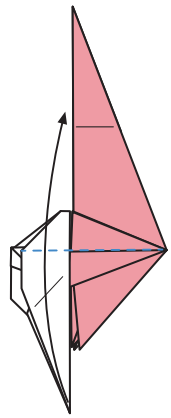
.

71



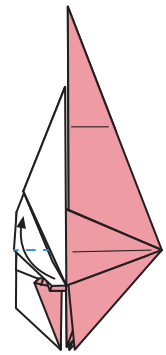
.

72



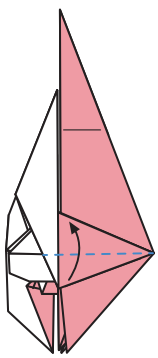
.

73



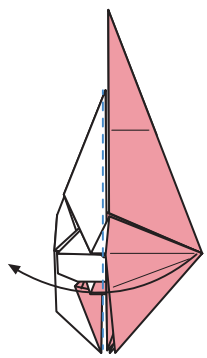
( ).

74



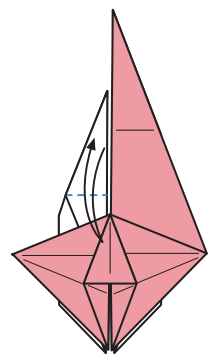
.

75



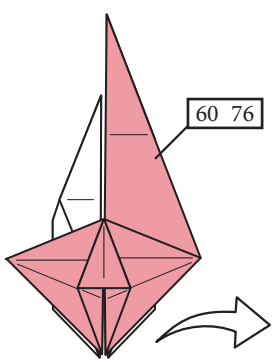
.

76



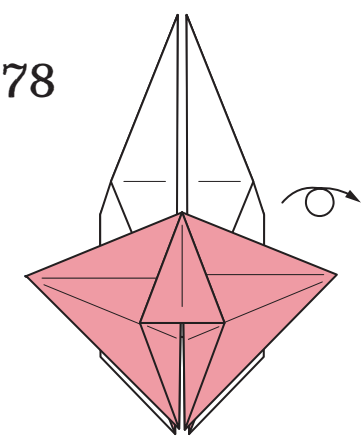
: .

77



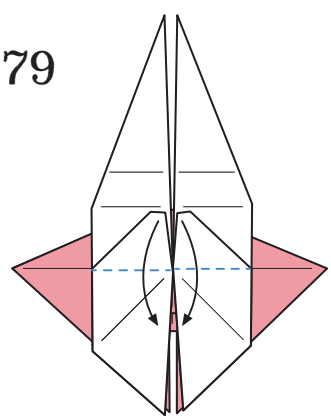
60 76
.

78



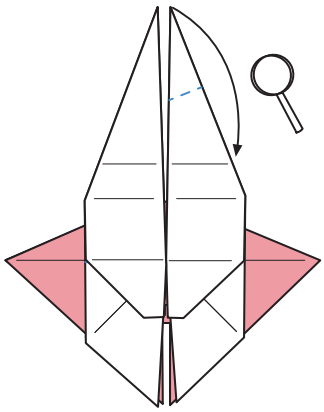
.

79



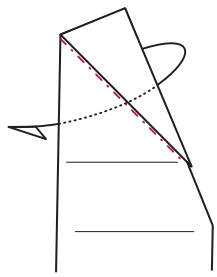
.

80



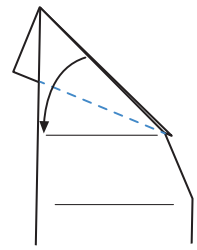
.

81



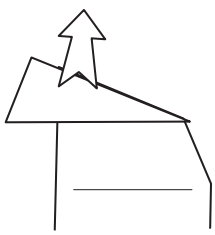
.

82



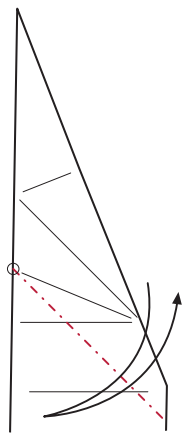
.

83



.

84

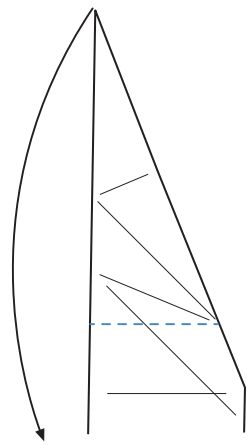


:

45 ,

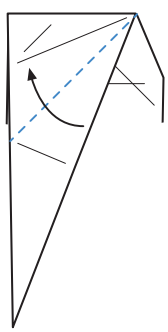
80. .

85



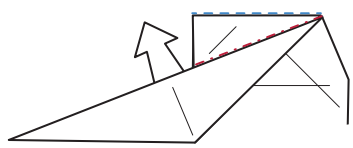
.

86



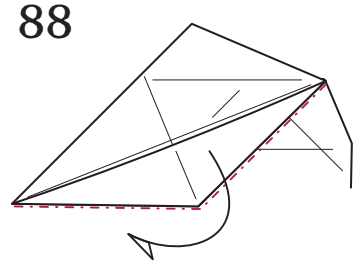
.

87



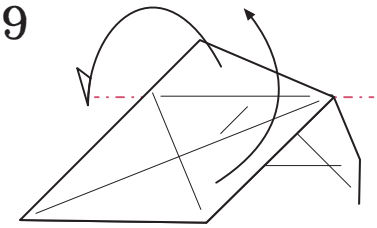
.

88



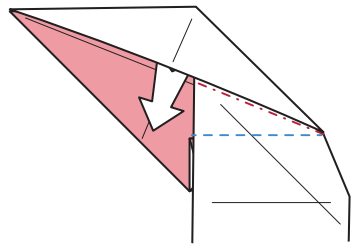
.

89



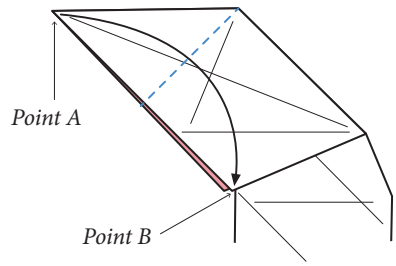
F .

90



.

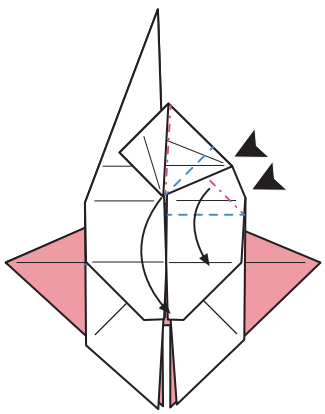
91



A

B.

92

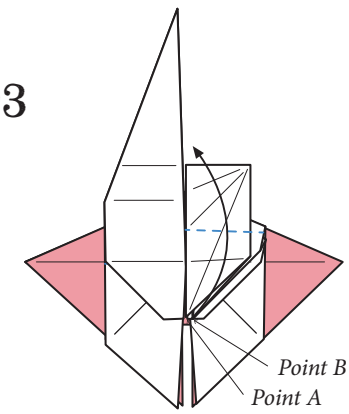


-

.

A B .

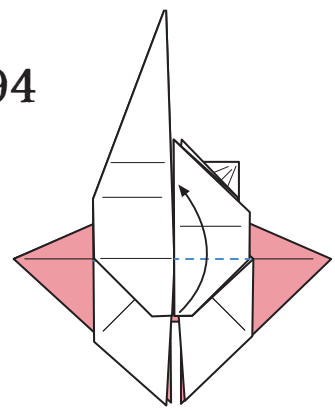
93



A B

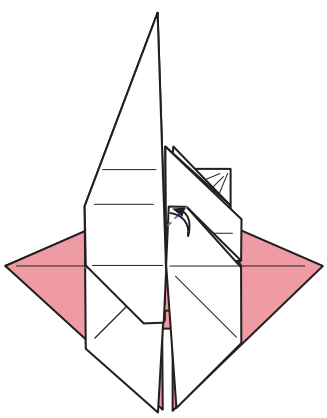
.

94



.

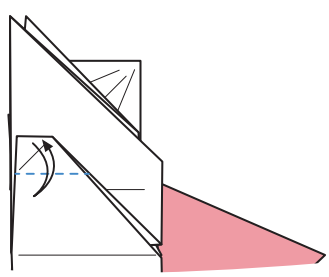
95



:

.

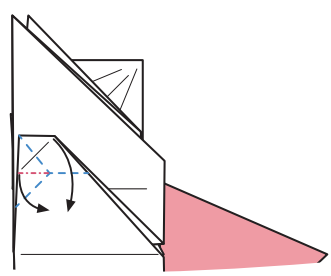
96



:

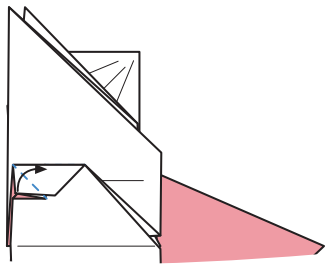
.

97

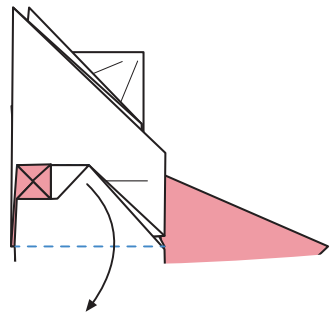


.

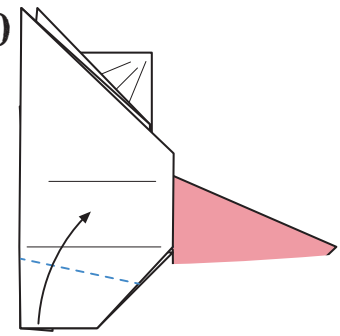
98



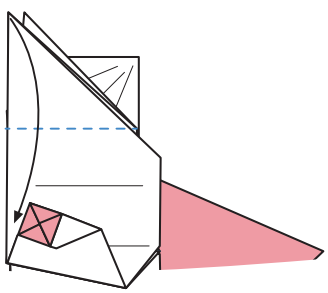
99



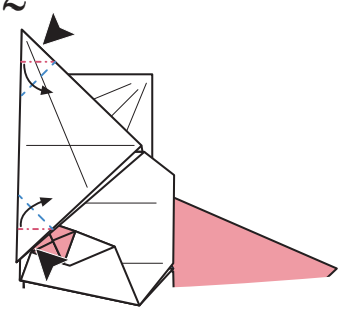
100



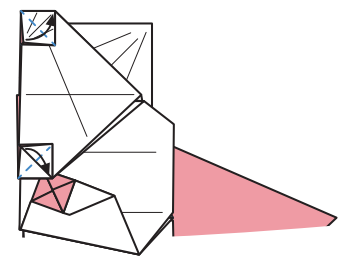
101



102

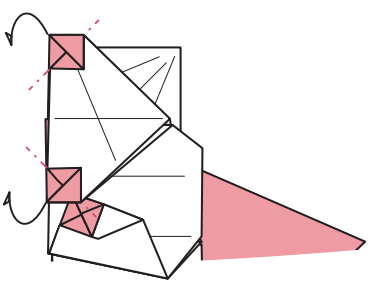


103



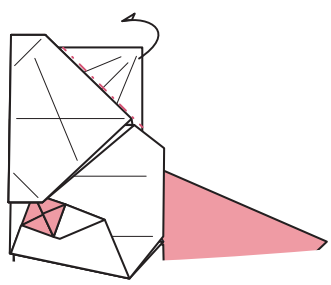
98.

104

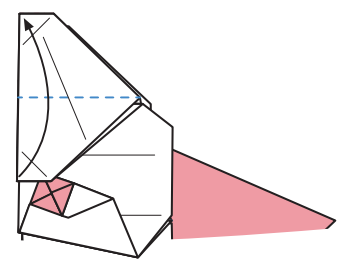


F

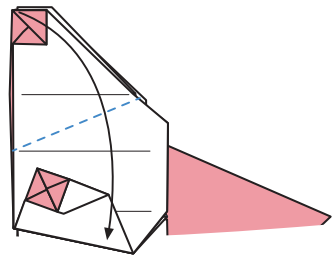
105



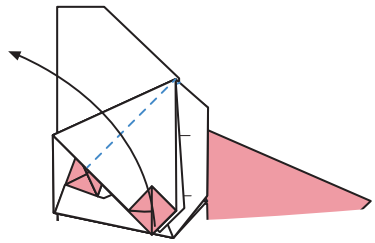
106



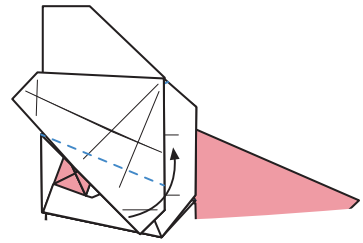
107



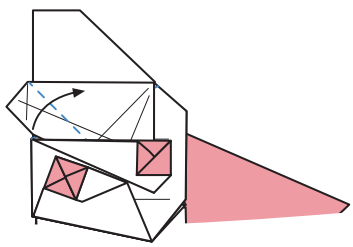
108



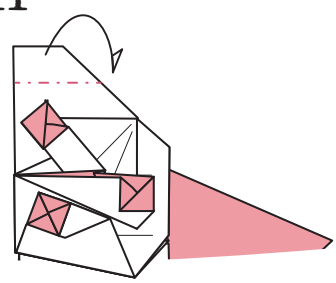
109



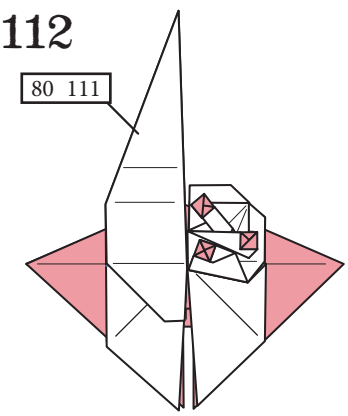
110



111

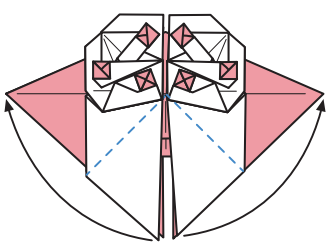


112

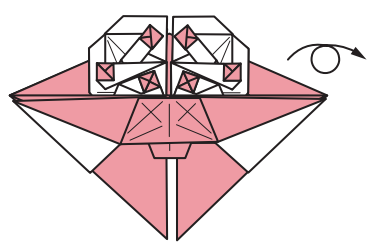


80 111

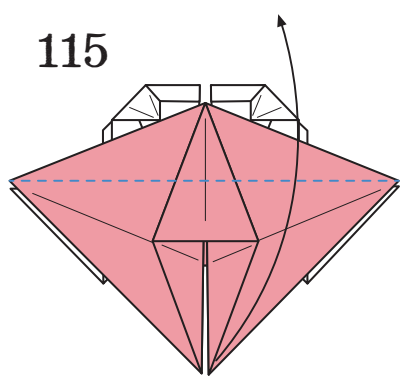
113



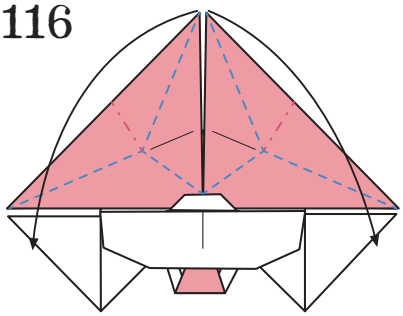
114



115



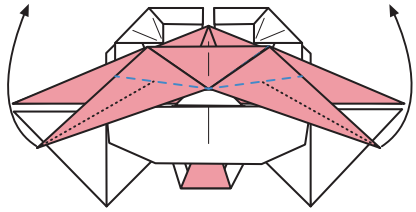
116



-

.

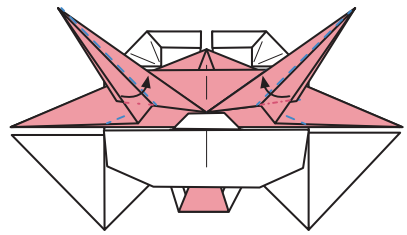
117



,

.

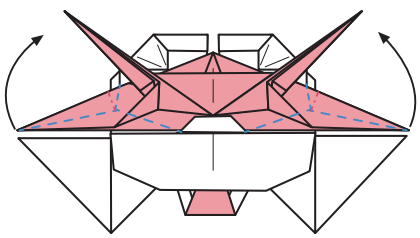
118



,

.

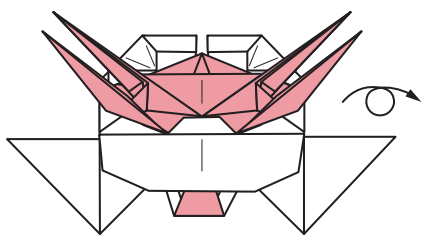
119



-

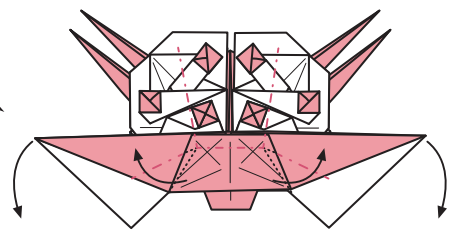
.

120



.

121

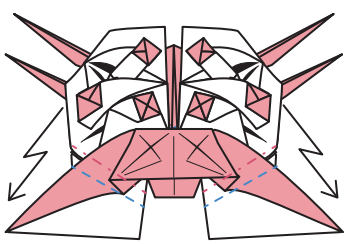


C

,

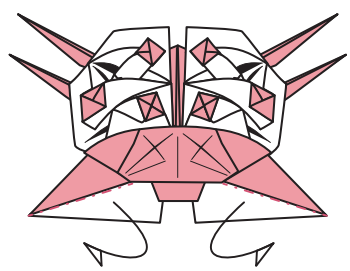
.

122



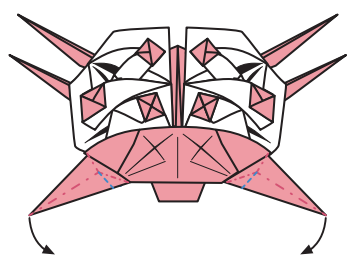
.

123



.

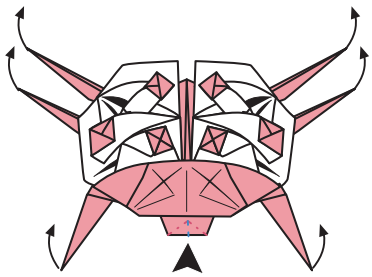
124

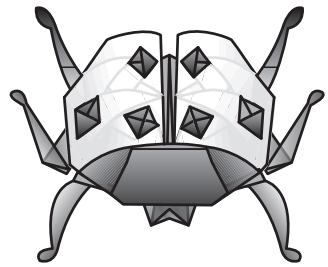


-

.

125





The completed ladybug.

DANIEL ROBINSON

D
, J . H
25 . H
.
. H
,
.
D
;
.

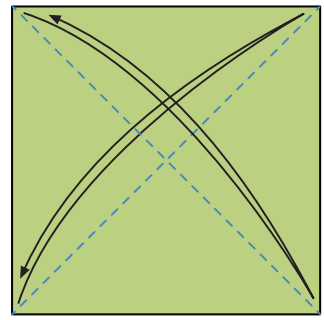
Leaf Insect

LEAF INSECT

This model of Linnaeus' leaf insect (*) is folded from a 10-inch square of handmade origami paper, a blend of abaca and rag cotton fiber. I wanted to deliver a convincing change in texture from the stick-like legs to the leaf appendages as well as creating a distribution of layers that would give the folder the opportunity to shape the model in a realistic way.*

Fun fact about leaf insects, cousins of walking sticks: they are sometimes fooled by their own camouflage and end up eating each other!

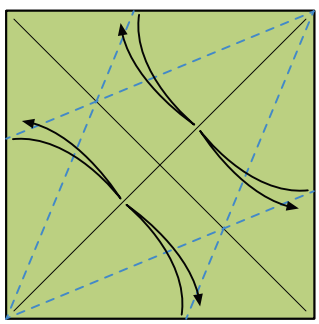
1



. F

.

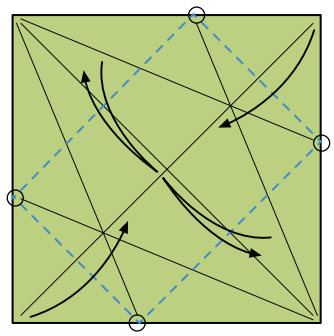
2



F

.

3

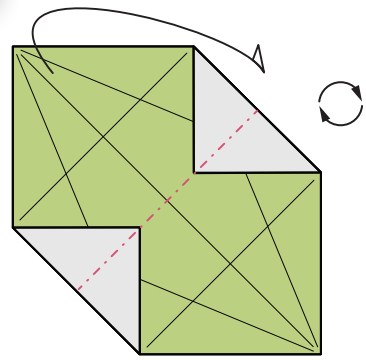


F

. .

.

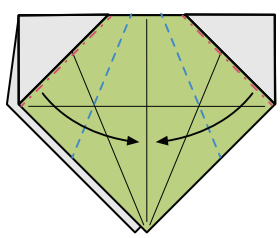
4



F

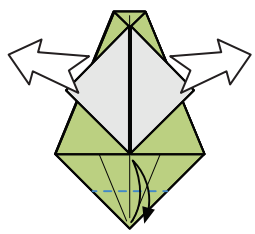
. .

5



.

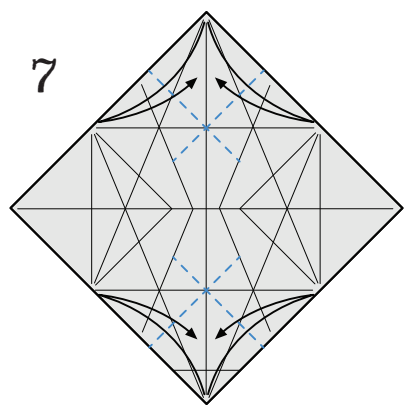
6



F

, .

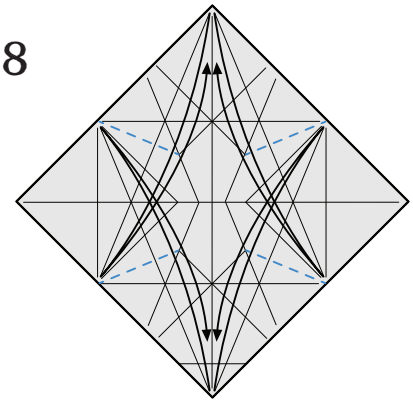
7



F

, .

8

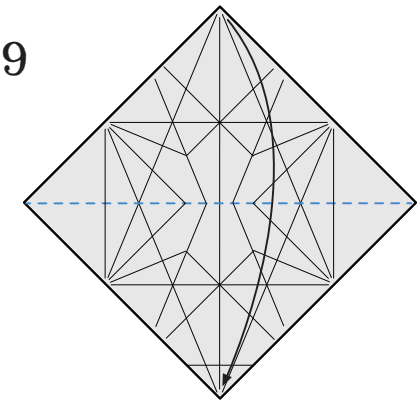


F

,

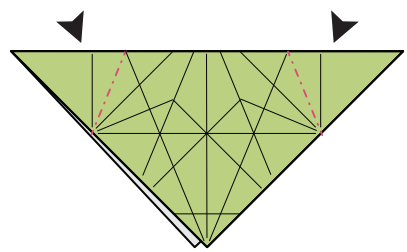
.

9



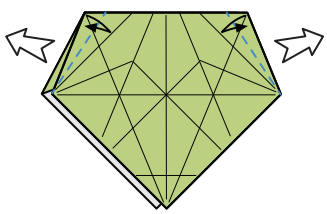
F .

10



.

11

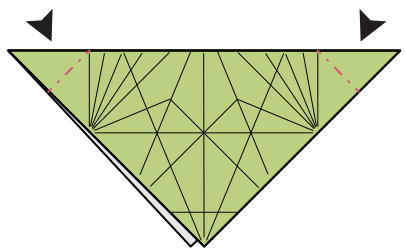


F

,

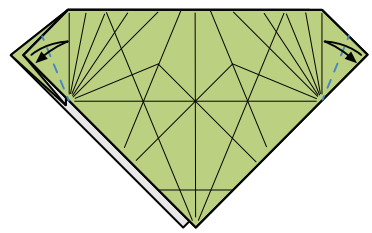
10.

12



.

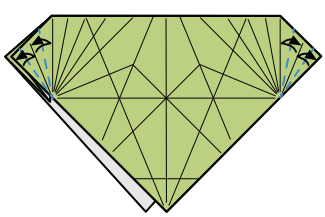
13



F

. .

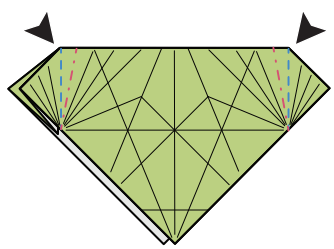
14



F

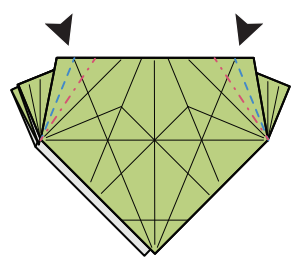
. .

15



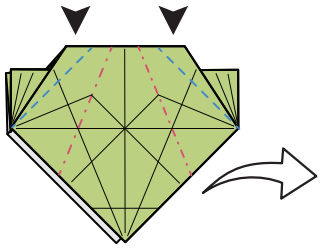
C .

16



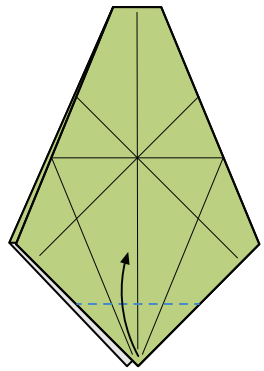
C .

17



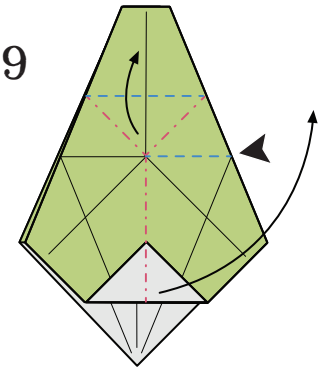
C .

18



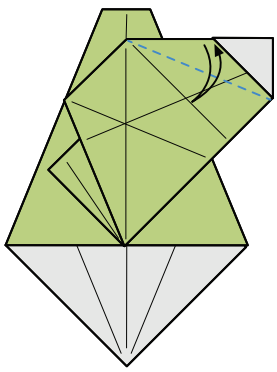
F .
F .

19



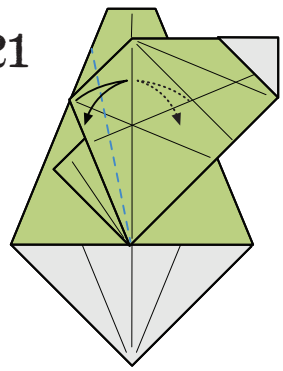
.

20



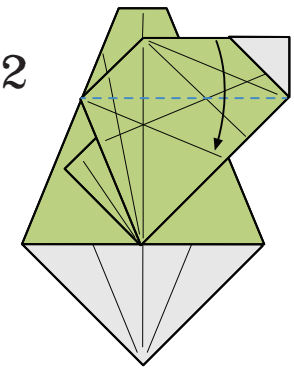
F
.

21



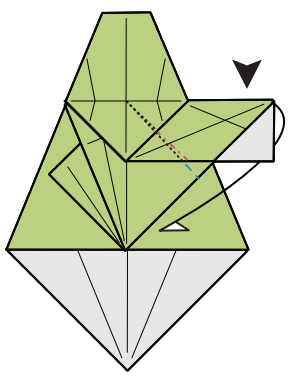
F
. .

22



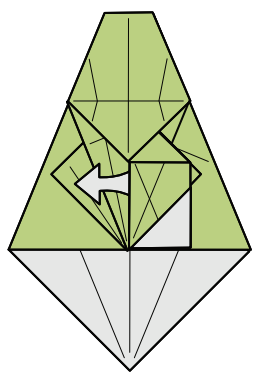
F ,
.

23



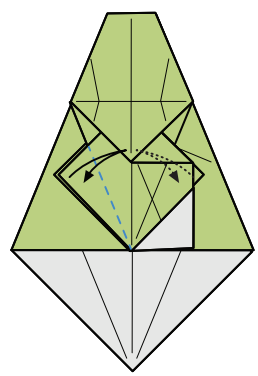
I .

24



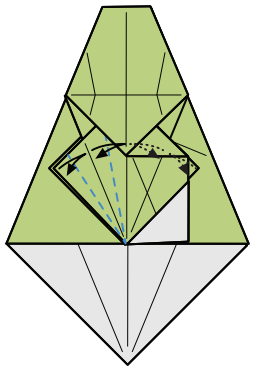
( ).

25

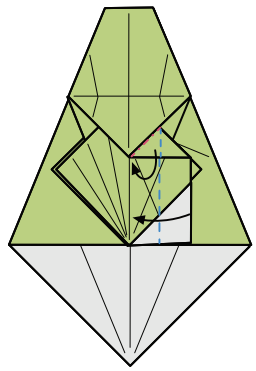


F
. .

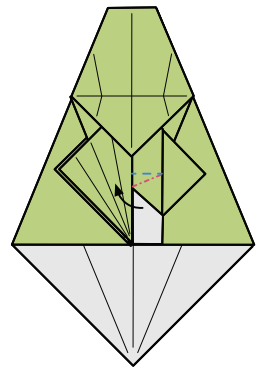
26



27



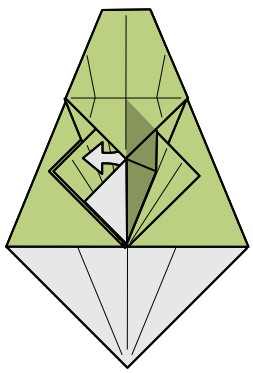
28



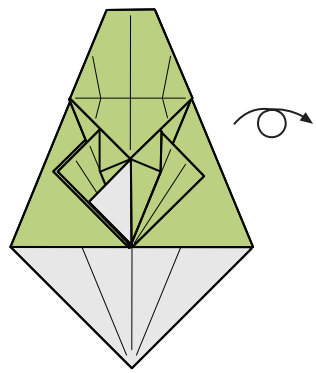
F

20.

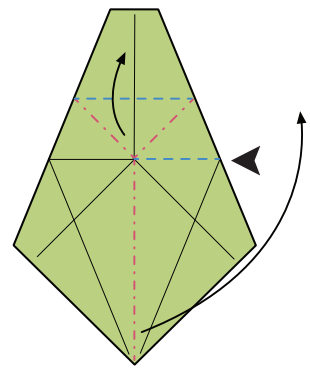
29



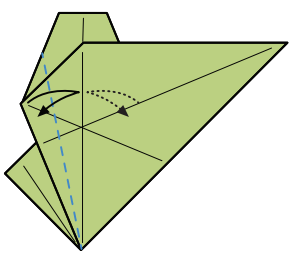
30



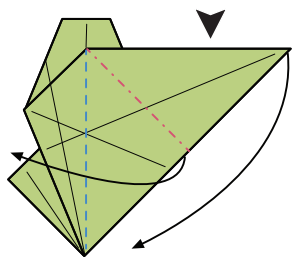
31



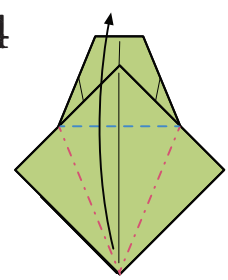
32



33

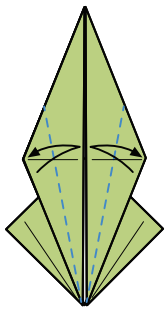


34



F

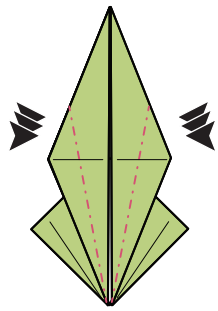
35



F

.

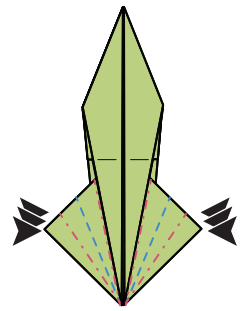
36



-

21, 32, 35.

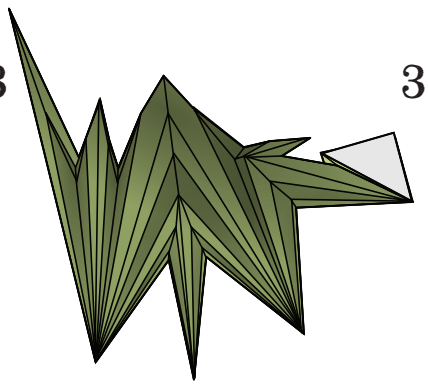
37



13 14

25 26.

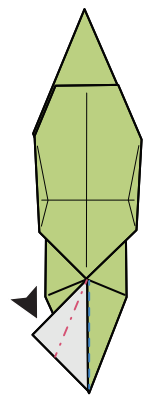
38



C

.

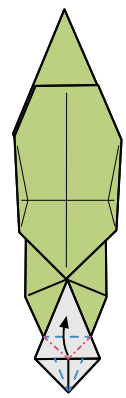
39



.

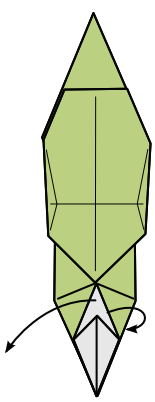
.

40



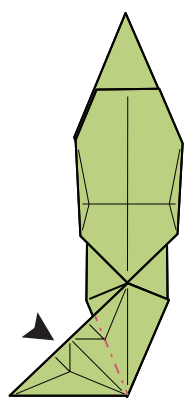
.

41



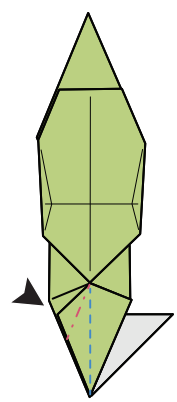
.

42



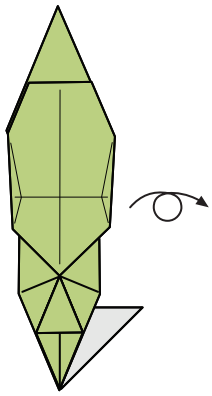
I .

43

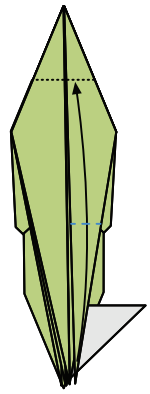


- .

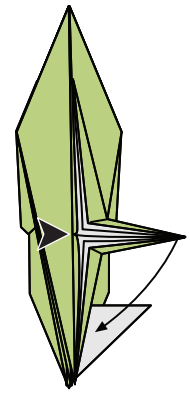
44



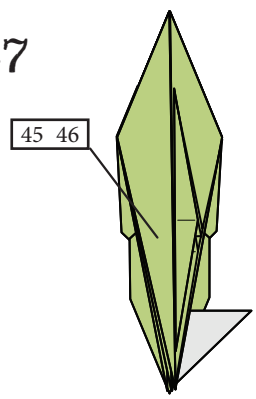
45



46

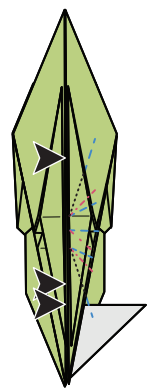


47

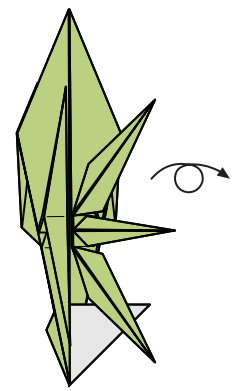


45 46

48

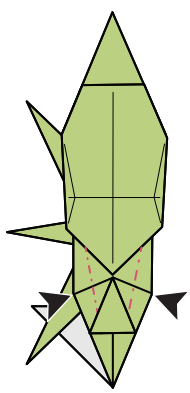


49

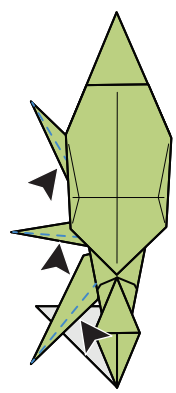


I

50

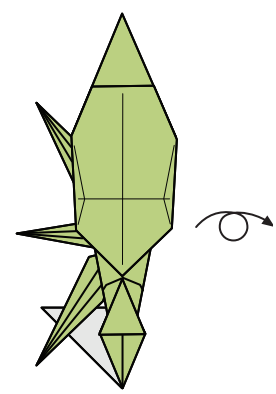


51

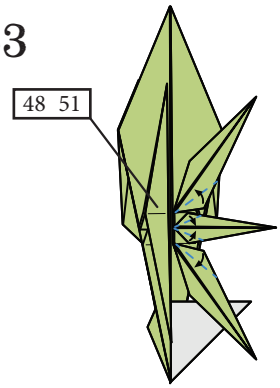


2⁄3

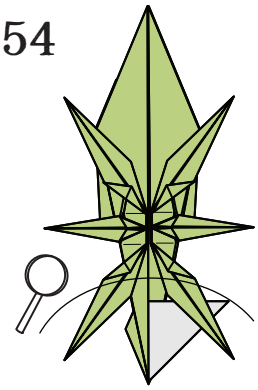
52



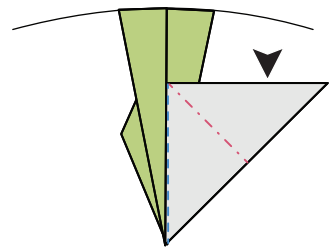
53



54



55



F

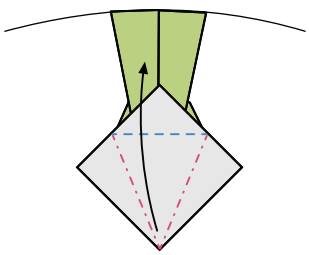
;

. 48 51 .

.

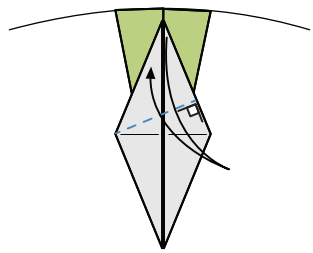
.

56



.

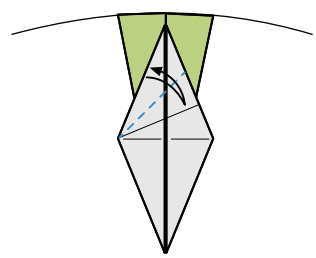
57



F

.

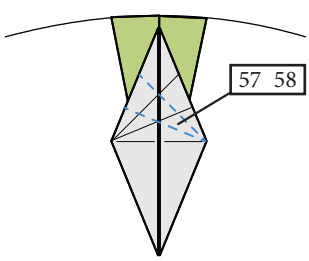
58



F

.

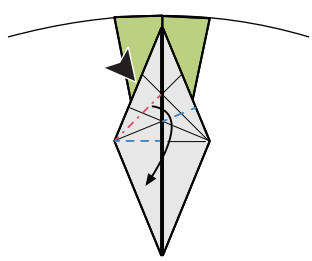
59



57 58

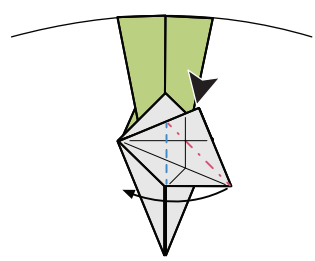
.

60



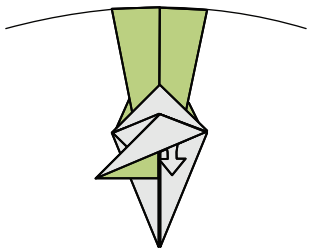
.

61

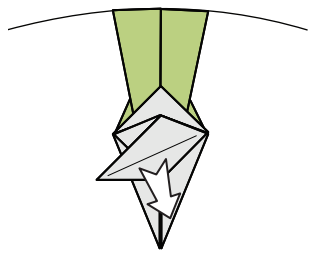


.

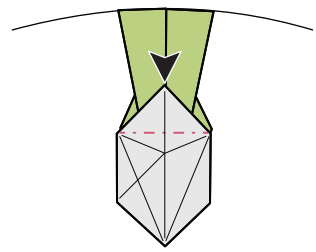
62



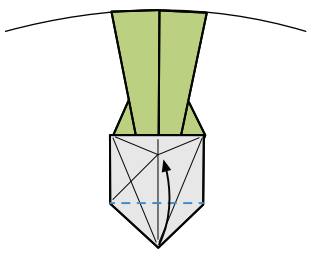
63



64

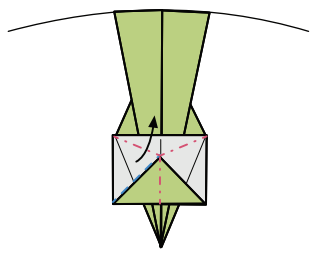


65



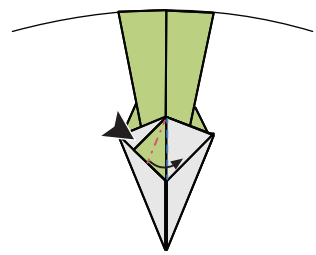
F

66

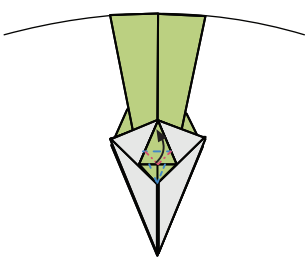


C

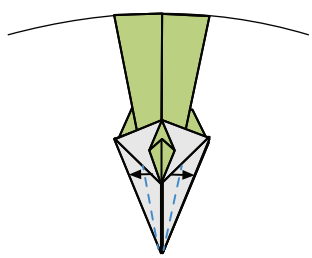
67



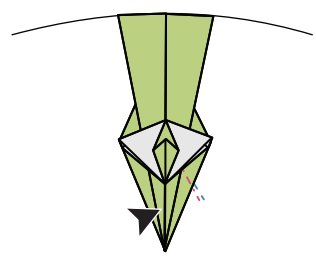
68



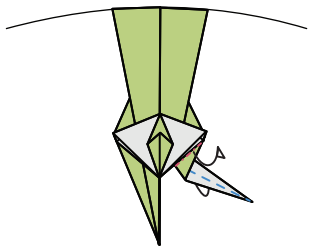
69



70



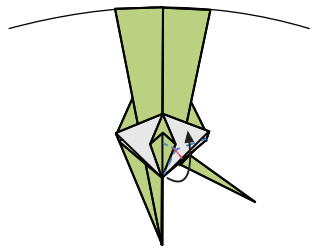
71



.

.

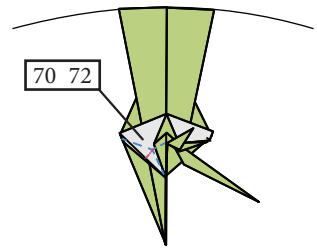
72



-

.

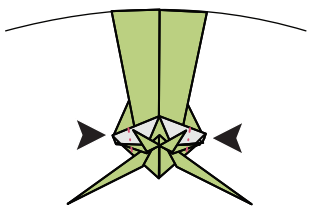
73



70 72

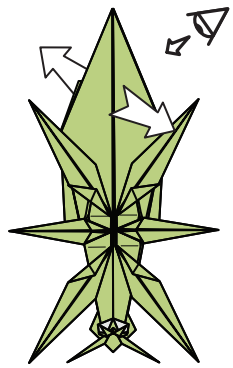
.

74



.

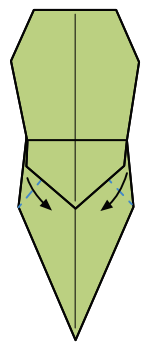
75



F .

.

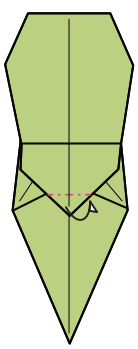
76



F .

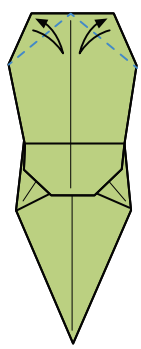
.

77



.

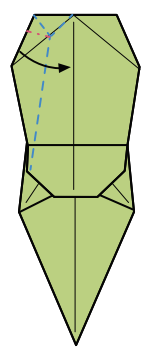
78



F

.

79

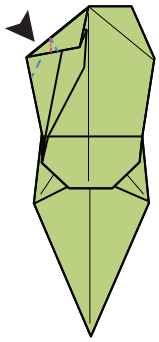


B

,

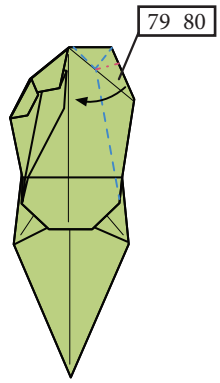
.

80



.

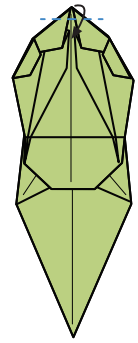
81



79 80

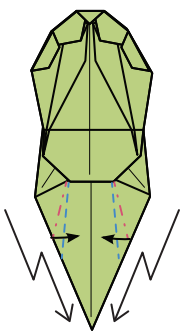
.

82



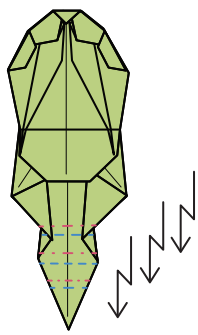
.

83



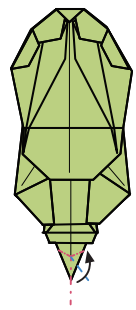
.

84



.

85

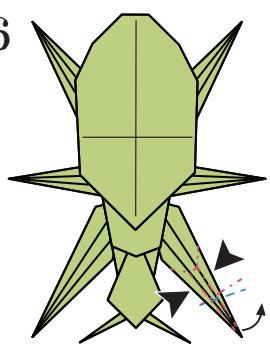


-

. C

.

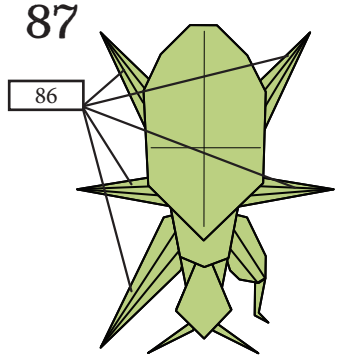
86



( )

.

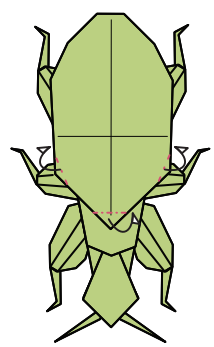
87



86

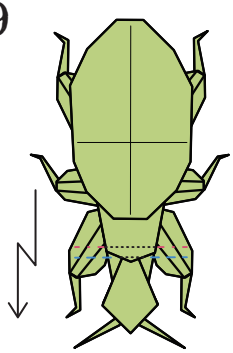
.

88

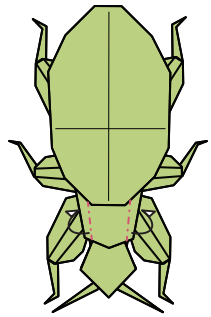


.

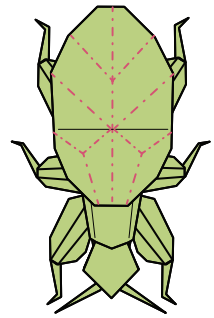
89

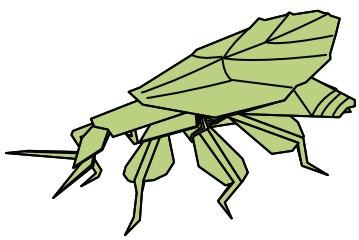


90



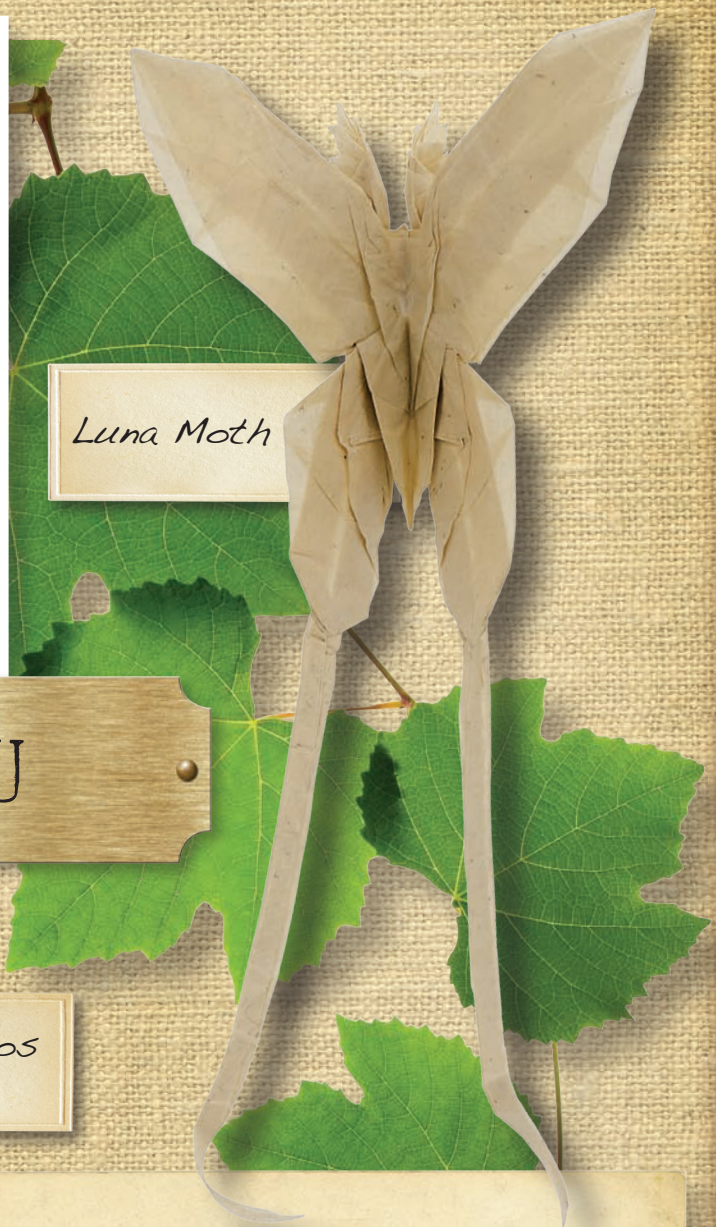
91





The completed leaf insect.

JASON KU



J . H .

I 2005, F

(J A) , J . ,

I

I ’ , I .

C ,

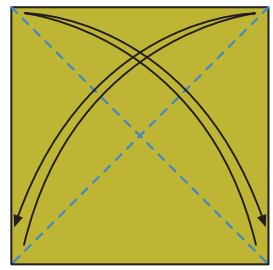
A’ , *The Fold*,

A .

RHINOCEROS BEETLE

When it comes to horned beetles, the common rhinoceros beetle is probably the most basic. That means that I could focus on producing a clean, 3D body with an even distribution of layers. Many different paper types and thicknesses can be used, but I'd avoid very thick paper. This model locks itself together during the folding process, so glues or special treatments aren't needed. A 10-inch square will produce a 4-inch long model.

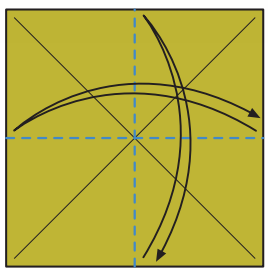
1



. F

.

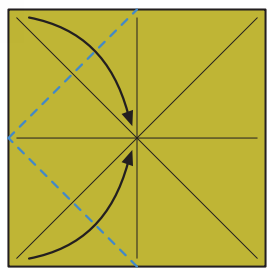
2



F

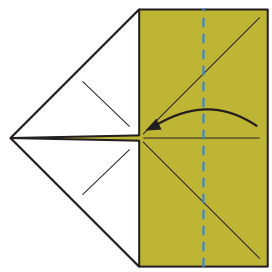
.

3



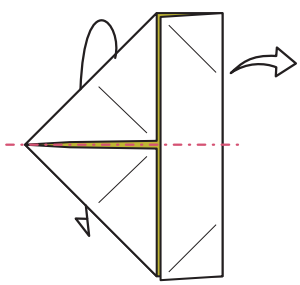
.

4



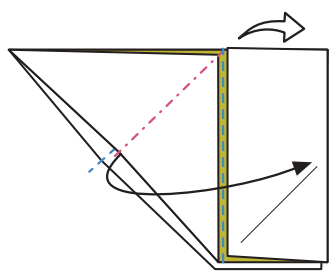
.

5



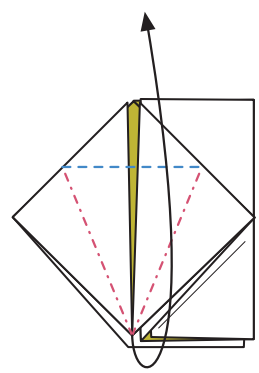
.

6



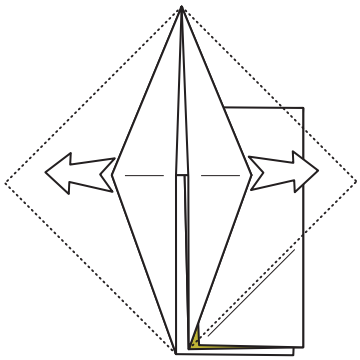
C . .

7



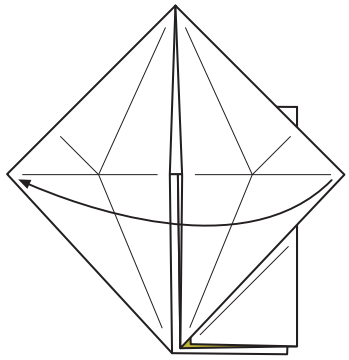
C . .

8



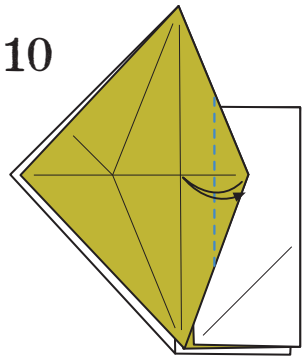
.

9



F .

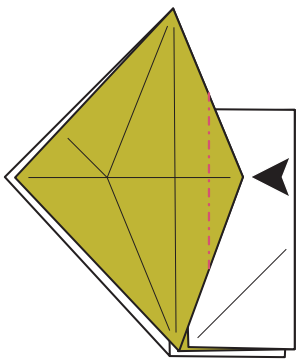
10



F

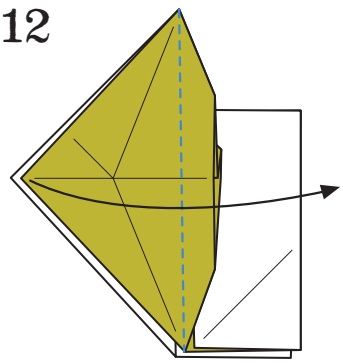
.

11



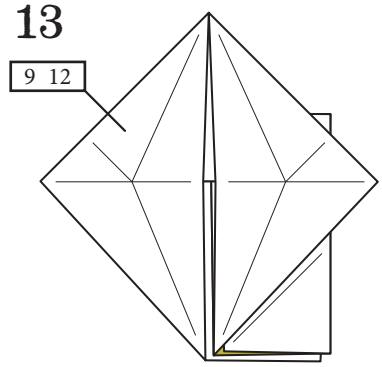
.

12



.

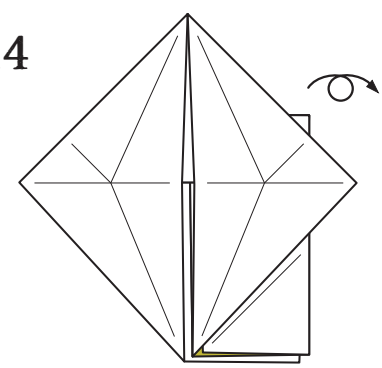
13



9 12

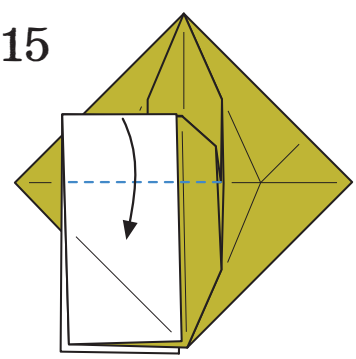
.

14



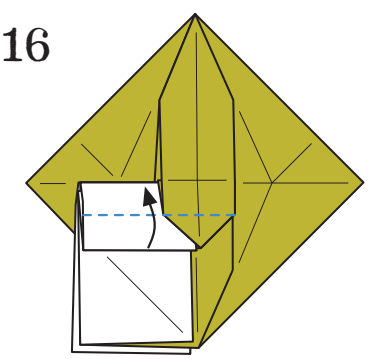
.

15



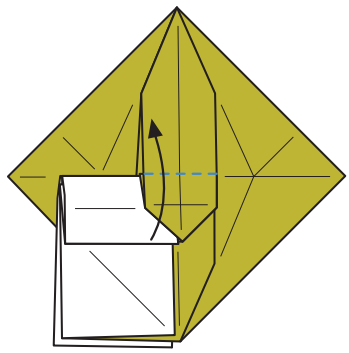
.

16

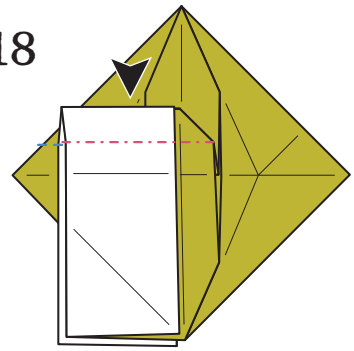


.

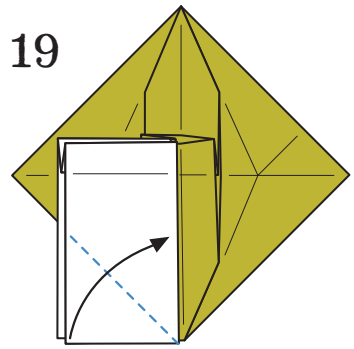
17



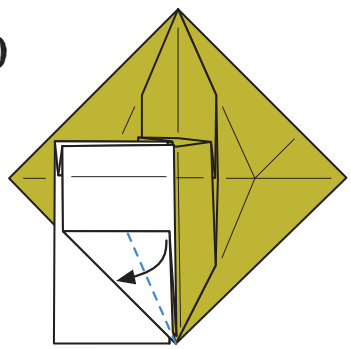
18



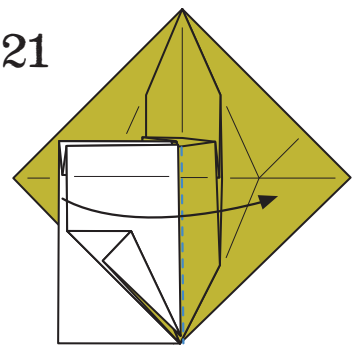
19



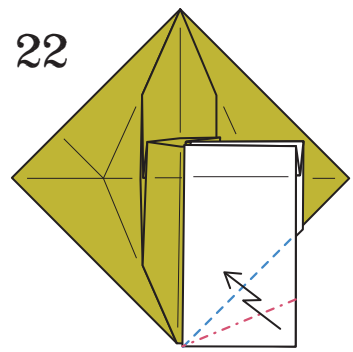
20



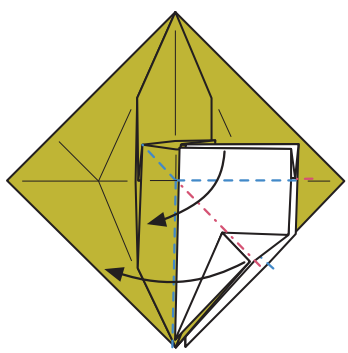
21



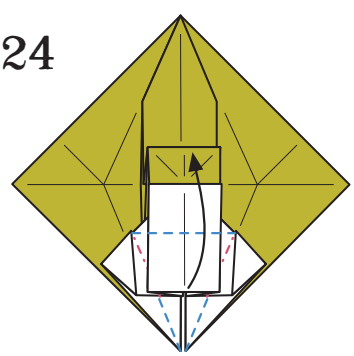
22



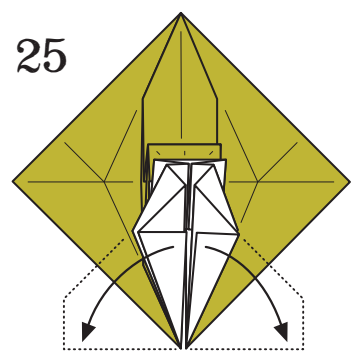
23



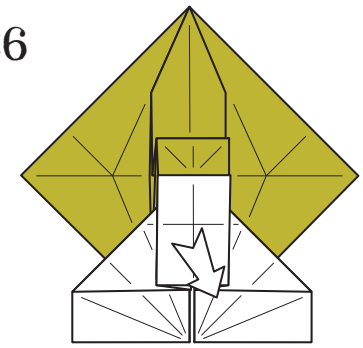
24



25

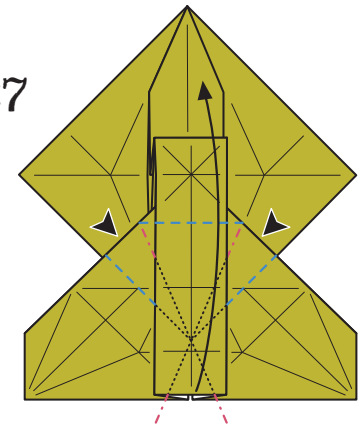


26



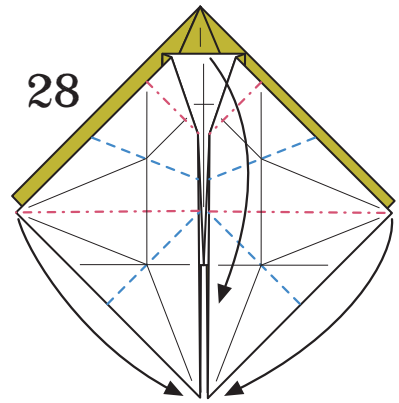
.

27



.

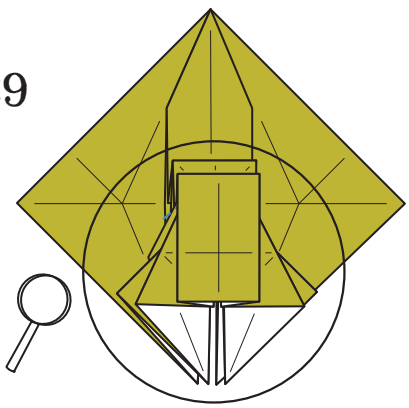
28



C

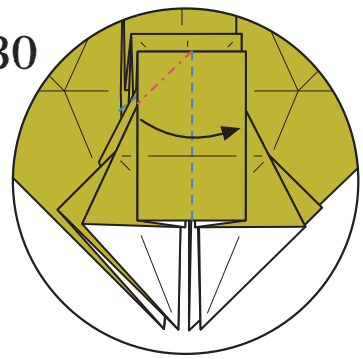
.

29



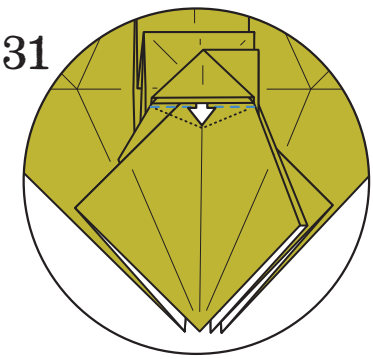
C .

30



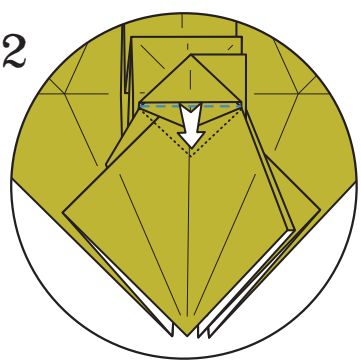
.

31



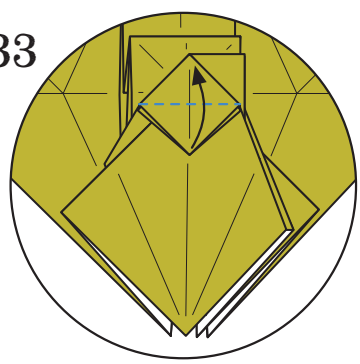
.

32



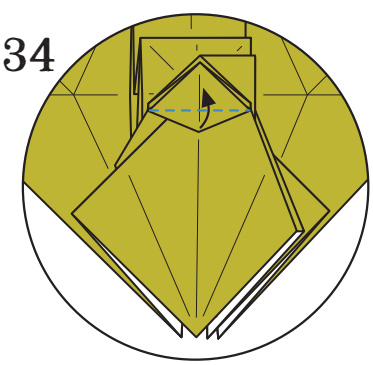
.

33



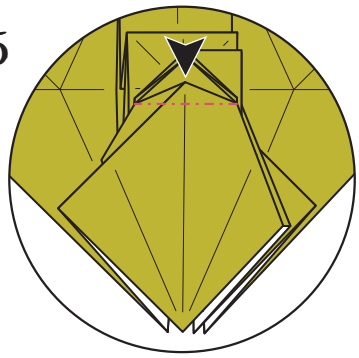
.

34

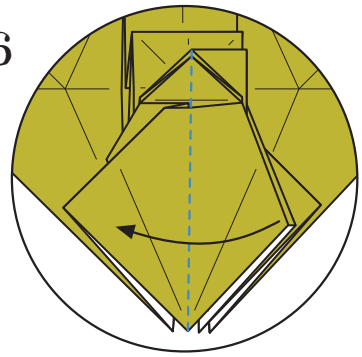


.

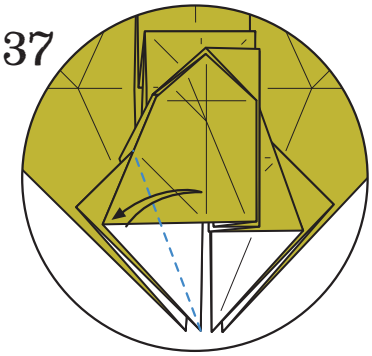
35



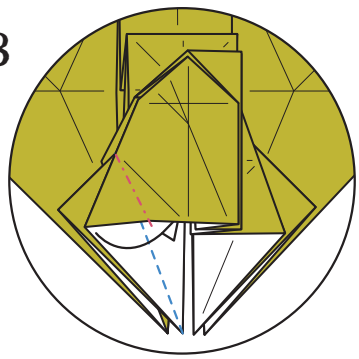
36



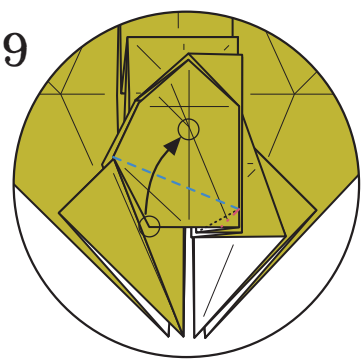
37



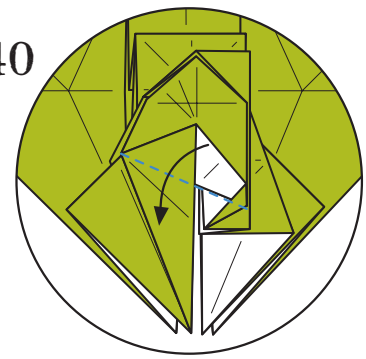
38



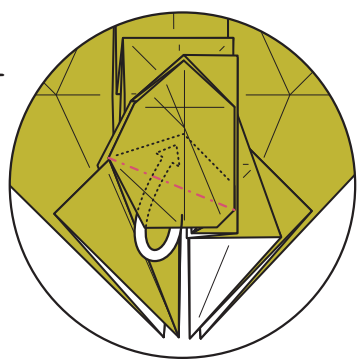
39



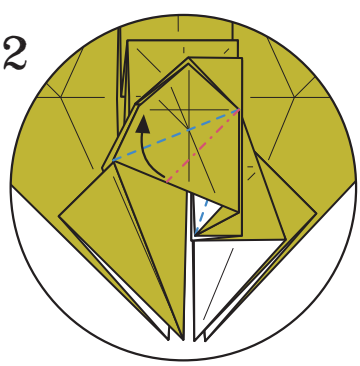
40



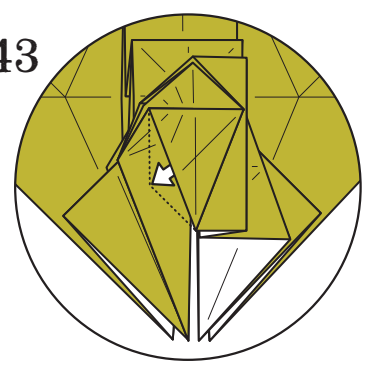
41



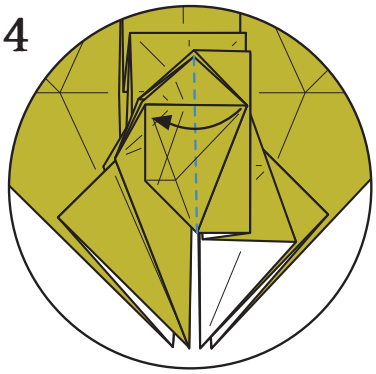
42



43

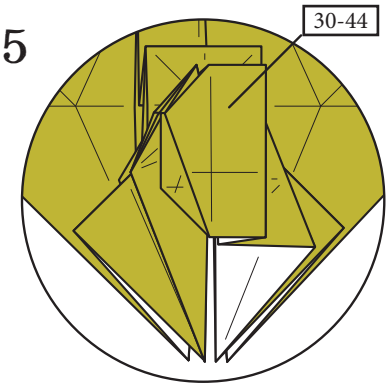


44



.

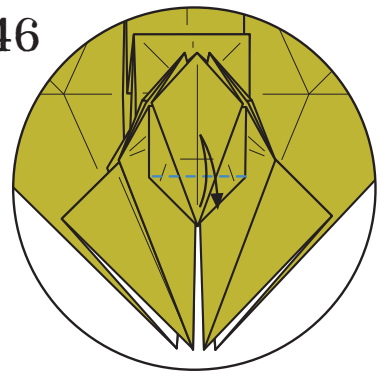
45



30 44

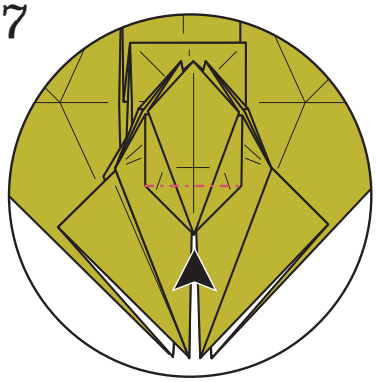
.

46



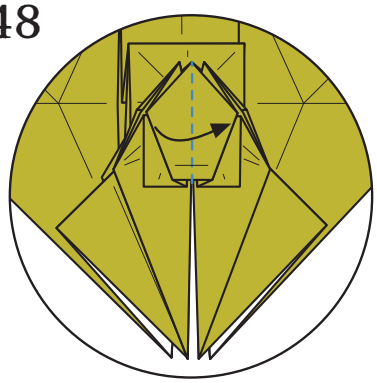
.

47



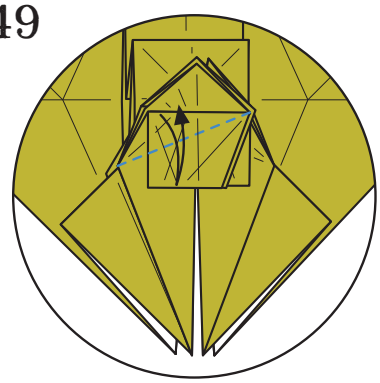
.

48



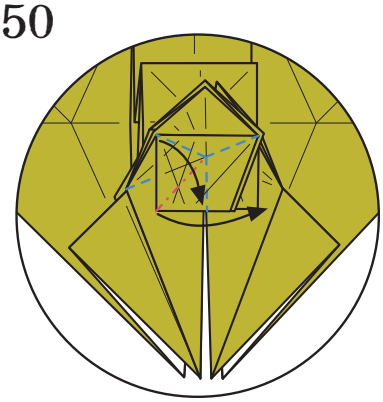
.

49



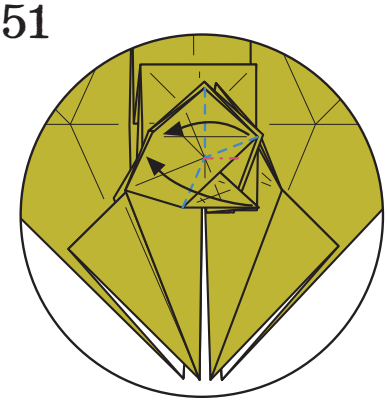
.

50



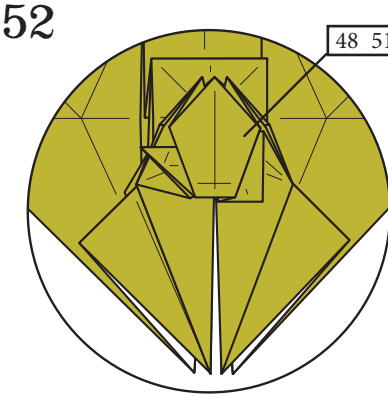
.

51



- .

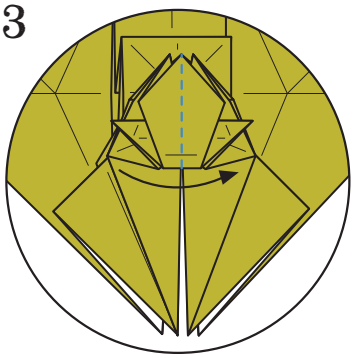
52



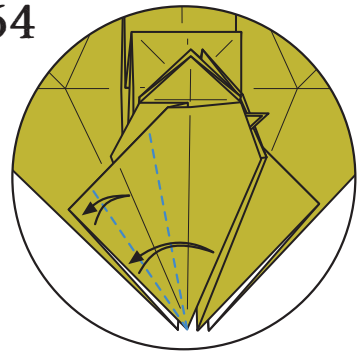
48 51

.

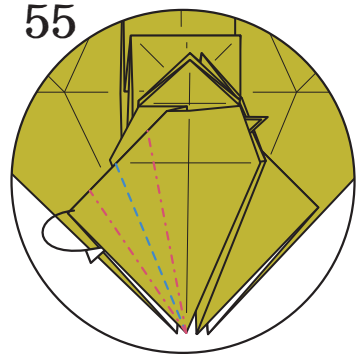
53



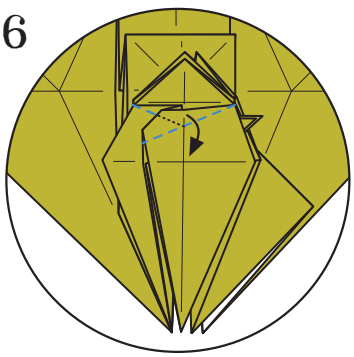
54



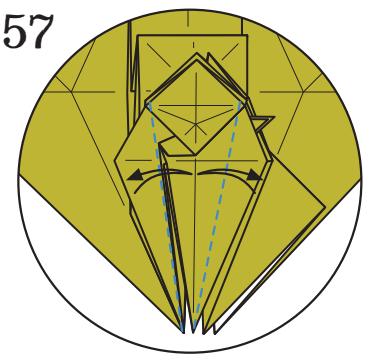
55



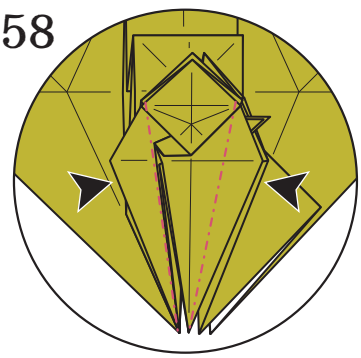
56



57

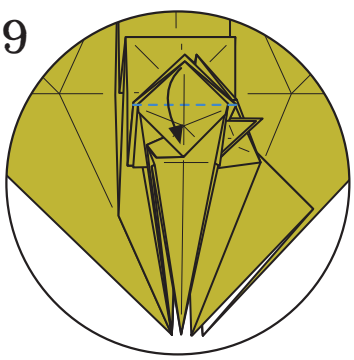


58

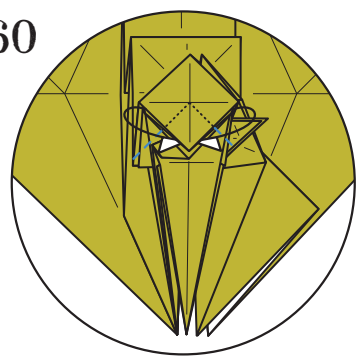


C

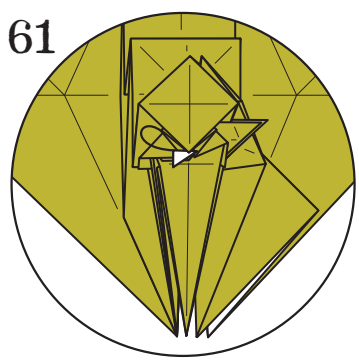
59



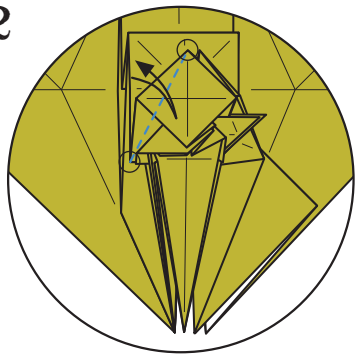
60



61

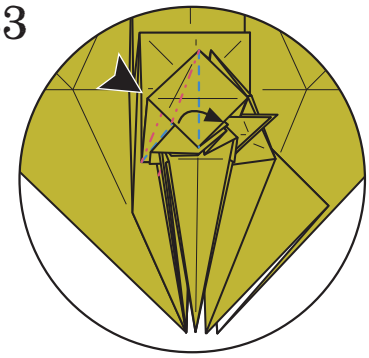


62



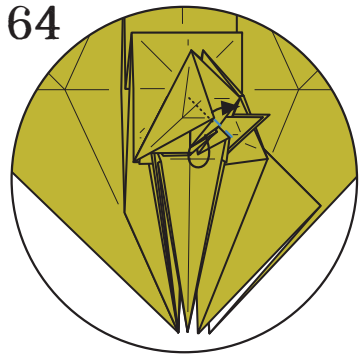
.

63



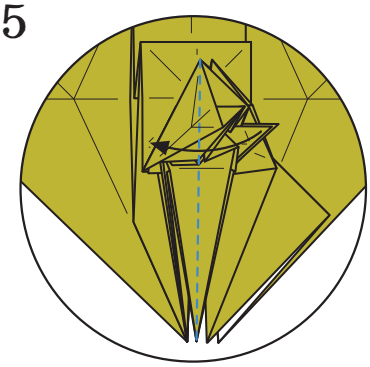
.

64



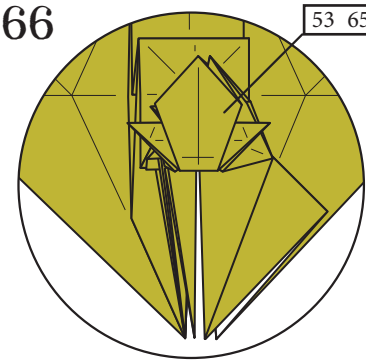
.

65



.

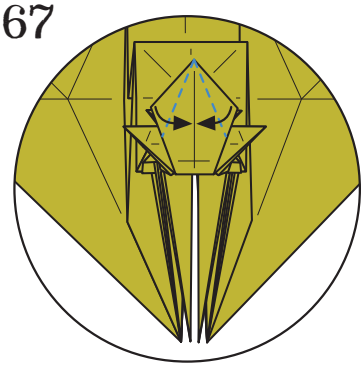
66



53 65

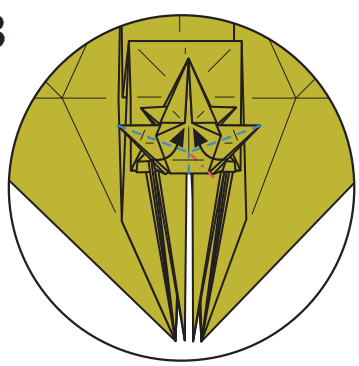
.

67



.

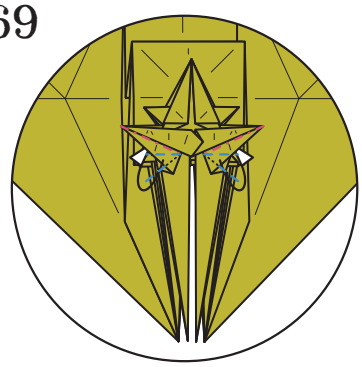
68



-

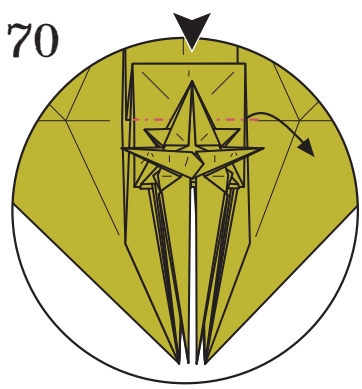
.

69



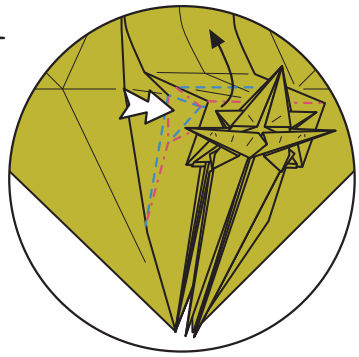
.

70



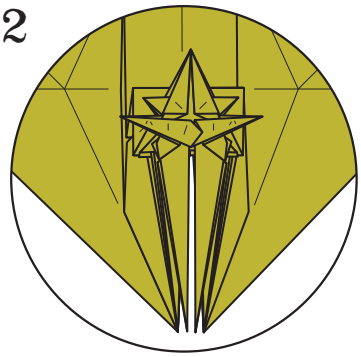
.

71



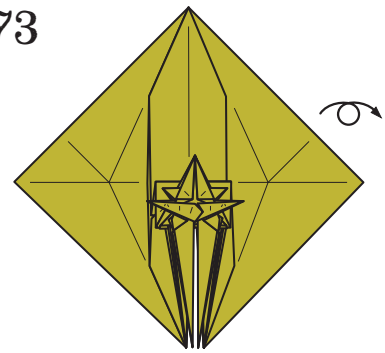
I .

72



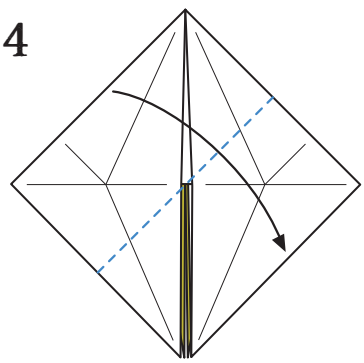
.

73



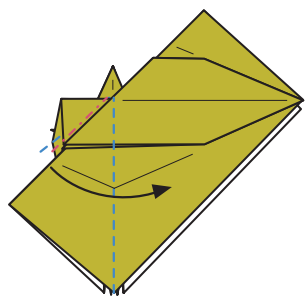
.

74



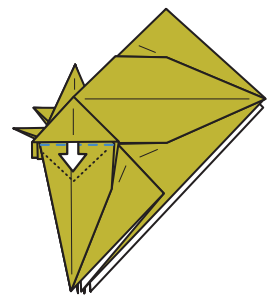
.

75



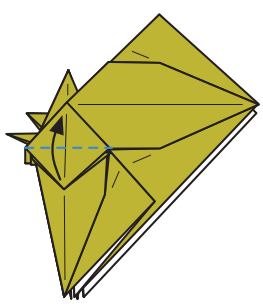
.

76



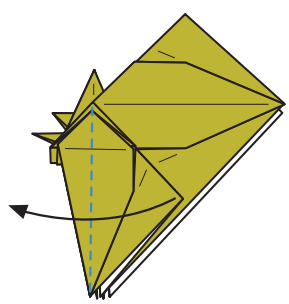
.

77



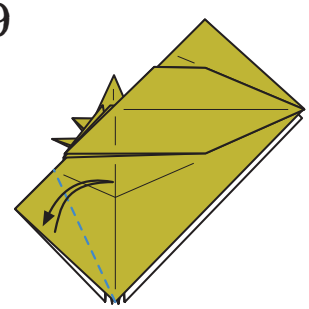
.

78



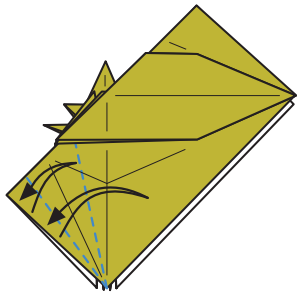
.

79



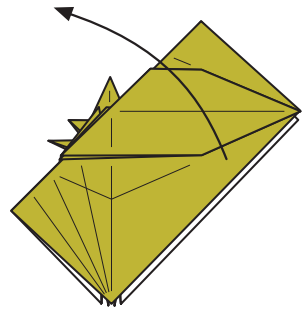
.

80



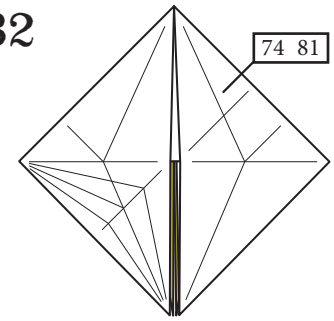
.

81



.

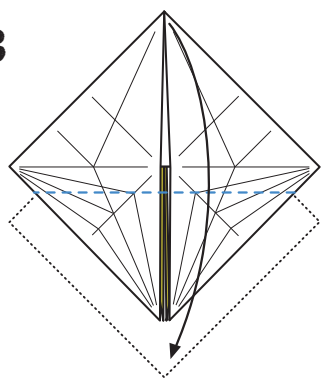
82



74 81

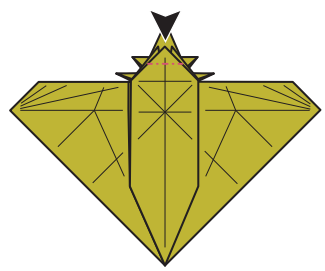
.

83



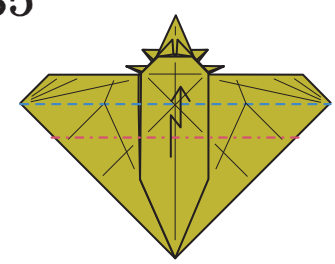
.

84



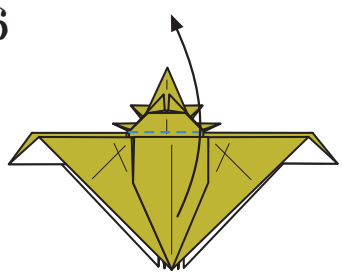
.

85



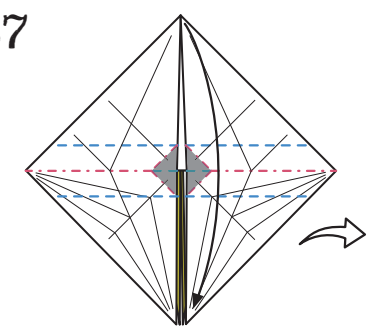
.

86



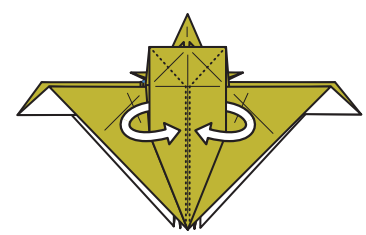
.

87



.

88



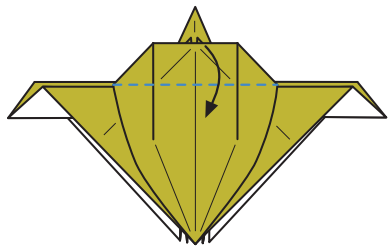
( ).

89

.

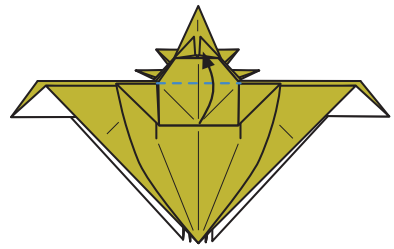
.

90



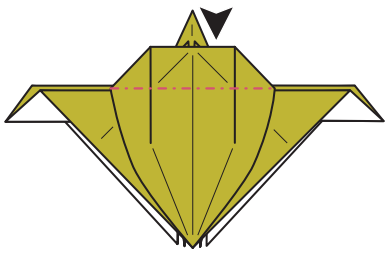
.

91



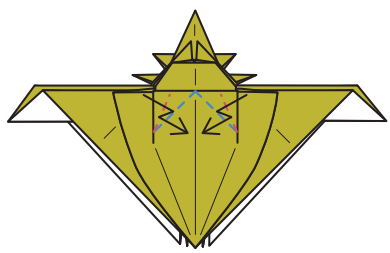
.

92



C .

93

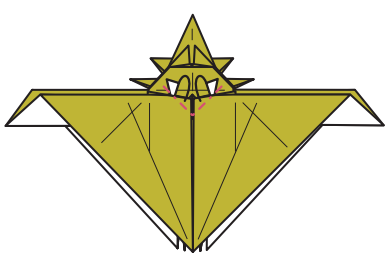


.

94

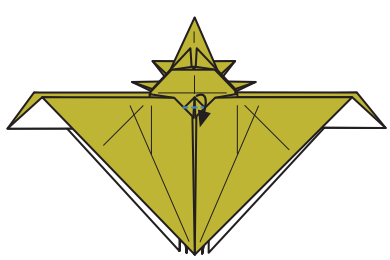
F .

95



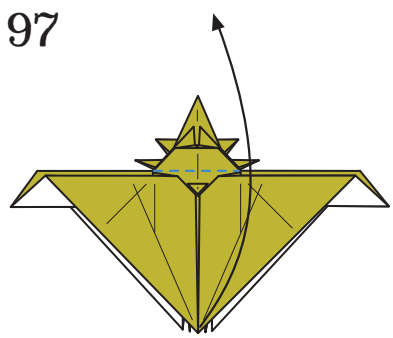
.

96



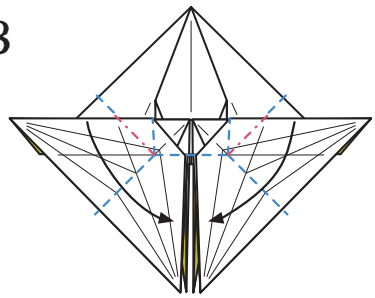
.

97

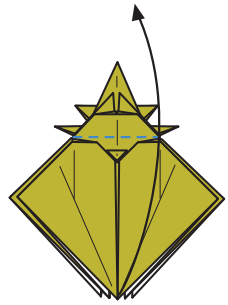


.

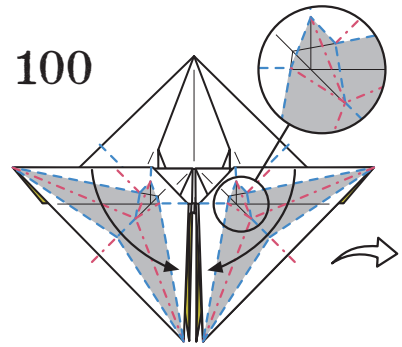
98



99



100



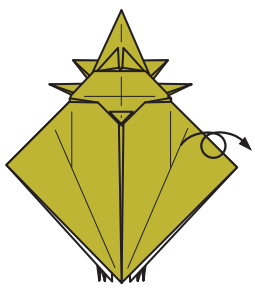
F

.

98

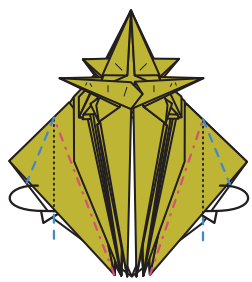
.

101



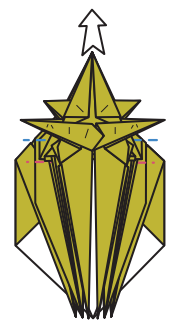
.

102



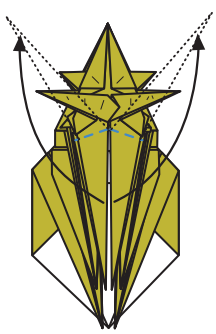
.

103



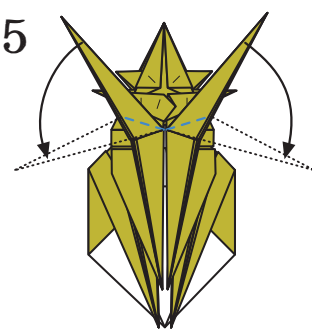
.

104



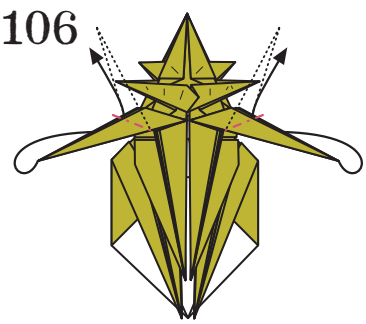
.

105



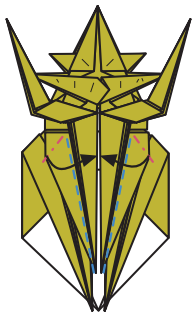
.

106

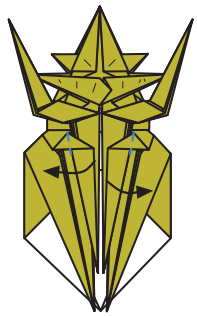


.

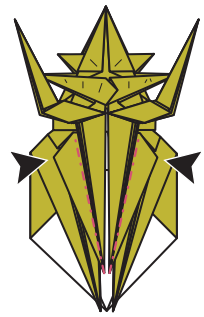
107



108

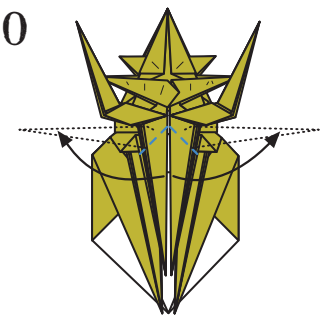


109

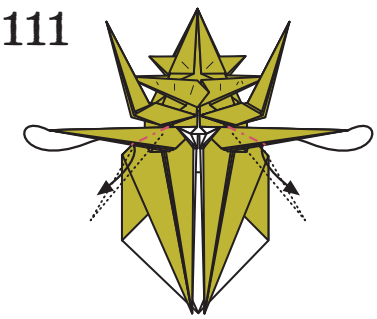


C

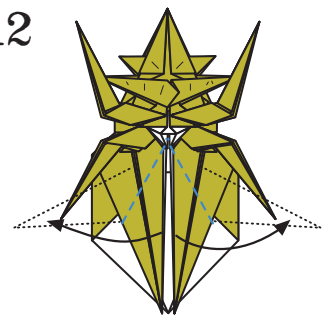
110



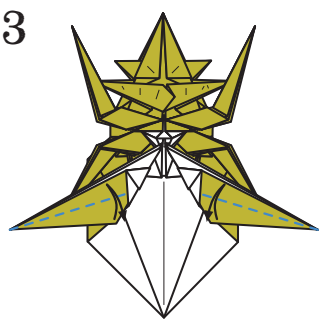
111



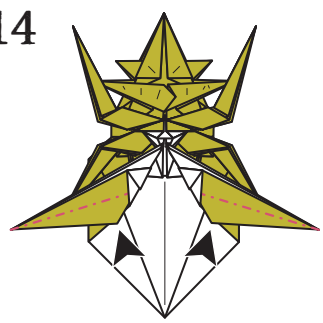
112



113

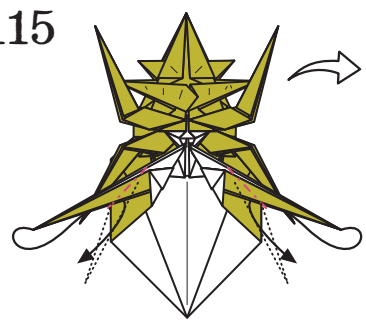


114

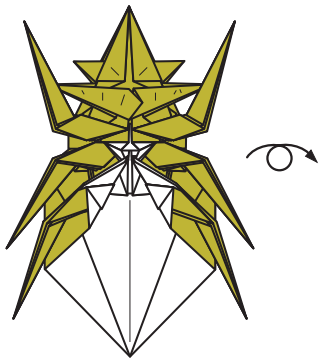


C

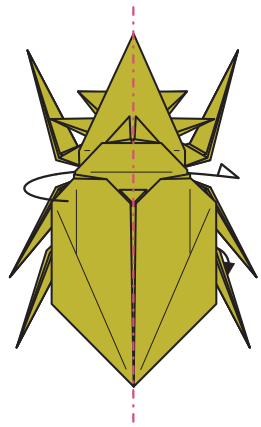
115



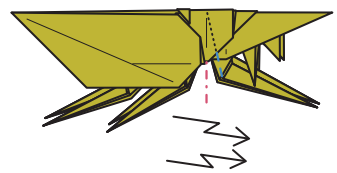
116



117

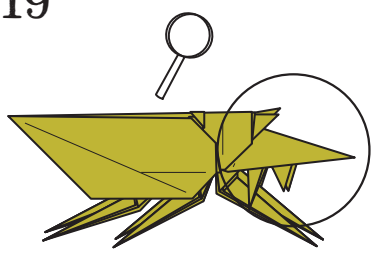


118



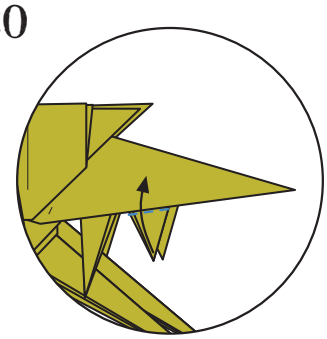
C

119

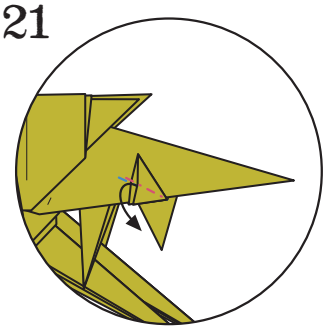


C

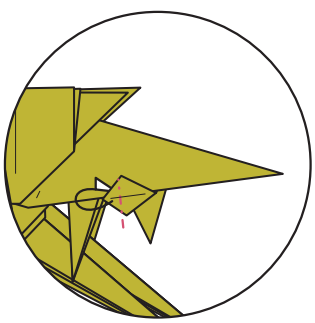
120



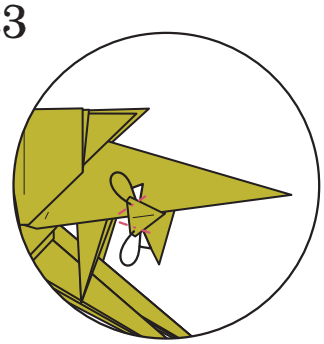
121



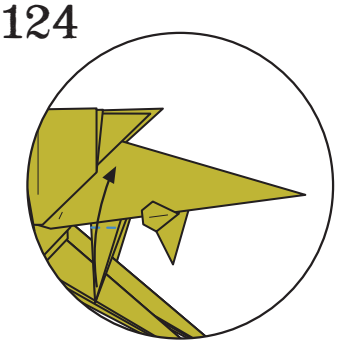
122



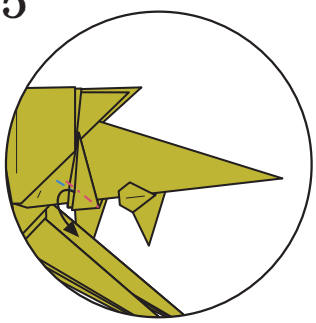
123



124

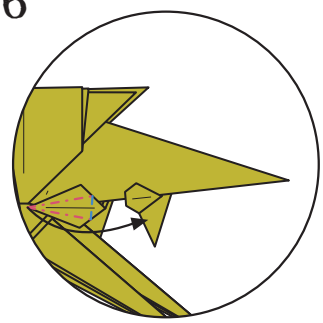


125



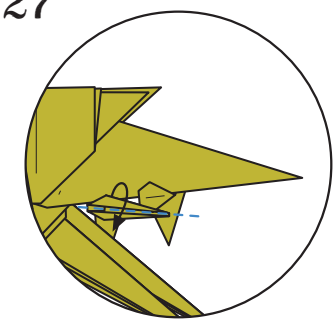
.

126



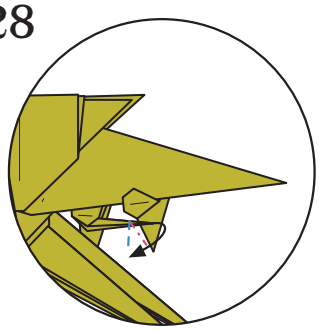
.

127



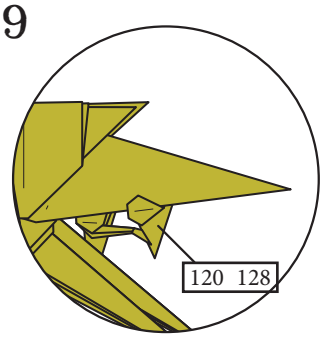
.

128



.

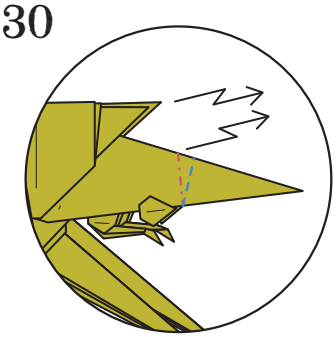
129



120 128

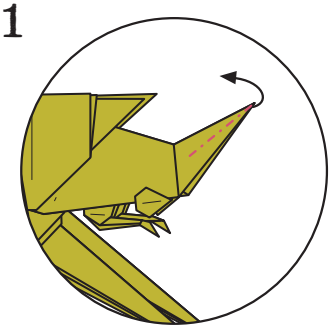
.

130



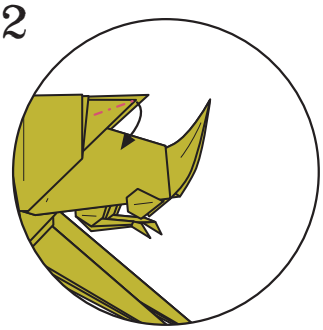
C .

131



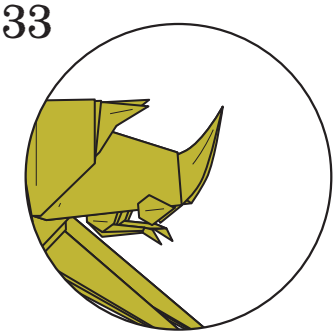
.

132



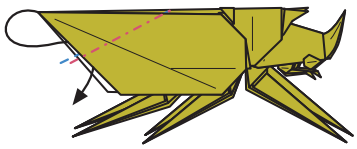
.

133



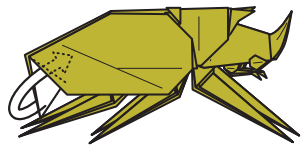
E

134



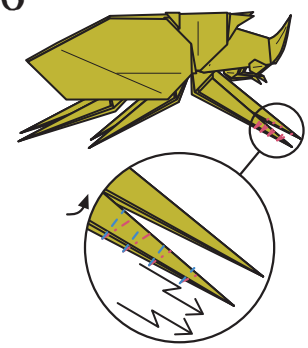
( ).

135



.

136

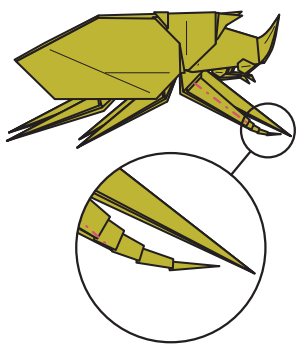


C .

-

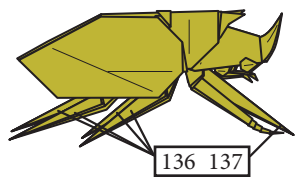
.

137



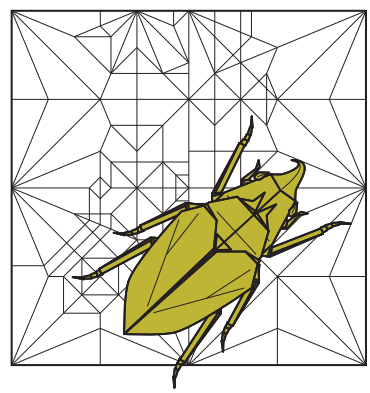
.

138

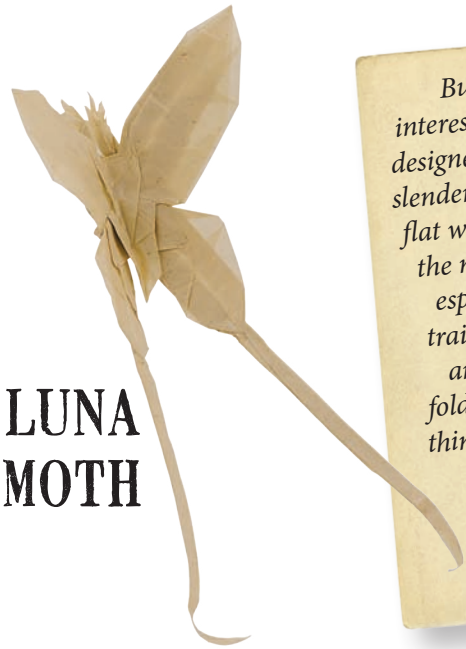


136 137

.



The folded rhinoceros beetle in front of the crease pattern.

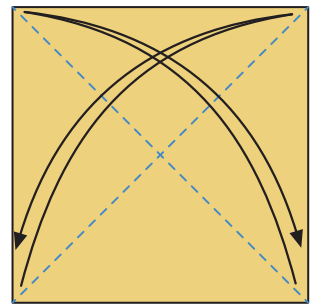


LUNA MOTH

Butterflies and moths are interesting subjects for an origami designer. You need to create several slender appendages as well as wide, flat wings. This particular moth—the male Chinese luna moth—is especially striking for its long, trailing hindwings and feathery antennae. This model is best folded from very strong, yet very thin paper. A 10-inch square will produce a 6-inch model.

Applying glue or paper stiffener to the finished piece can help it keep its shape.

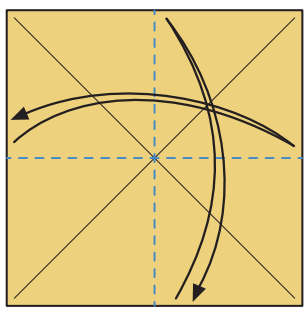
1



. F

.

2

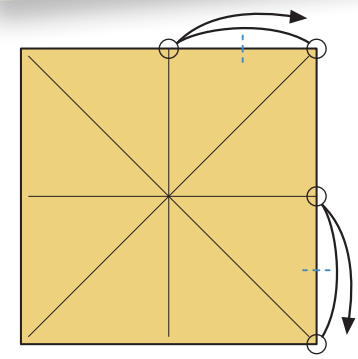


F

.

.

3

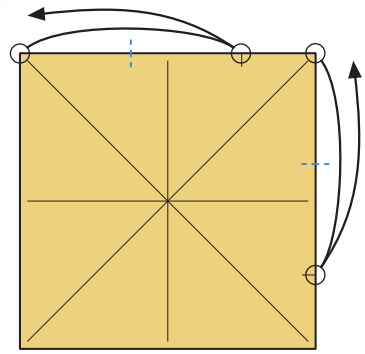


F

,

.

4

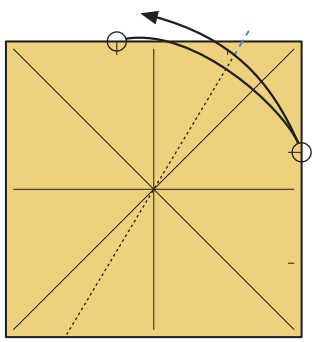


F

,

.

5

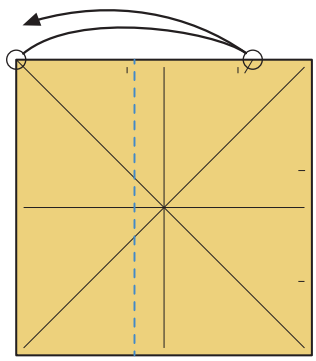


F

,

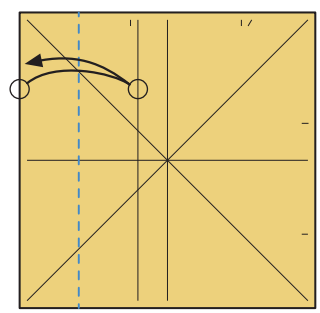
.

6



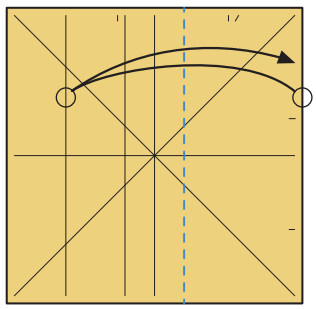
.

7

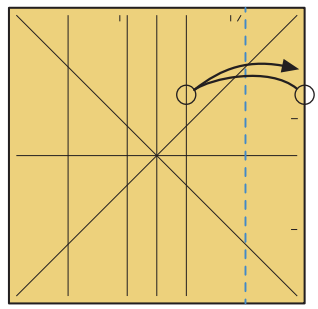


.

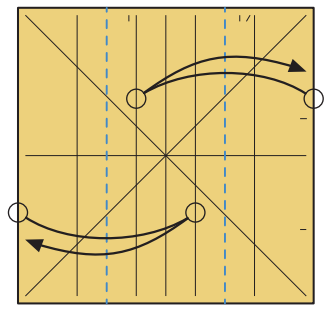
8



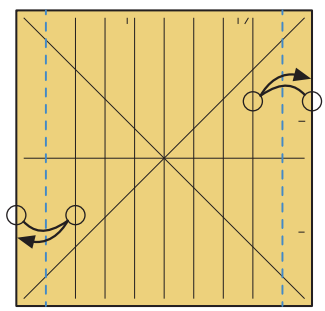
9



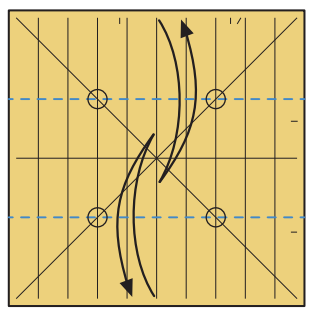
10



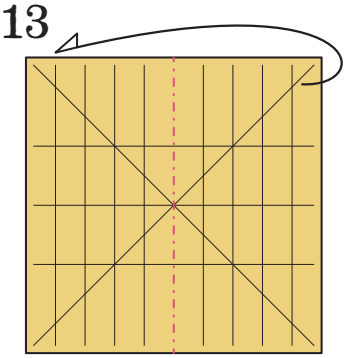
11



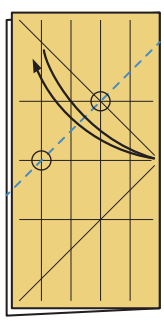
12



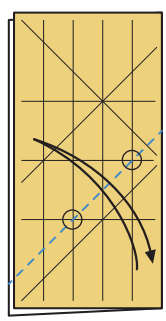
13



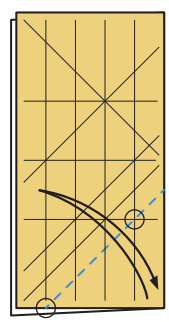
14



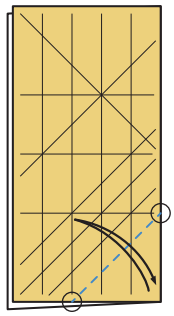
15



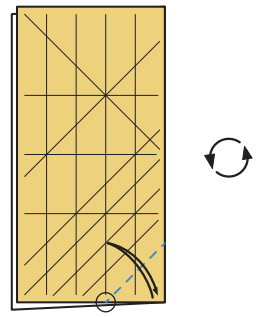
16



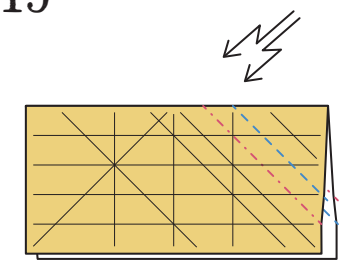
17



18



19

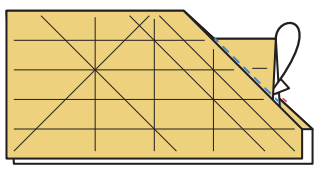


C .

.

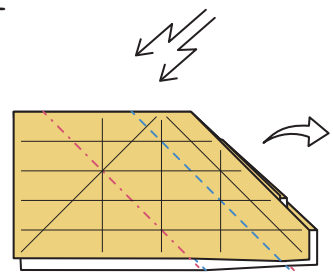
. .

20



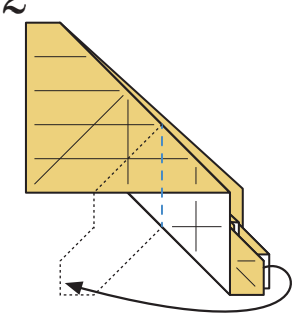
.

21



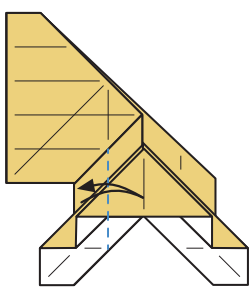
C .

22



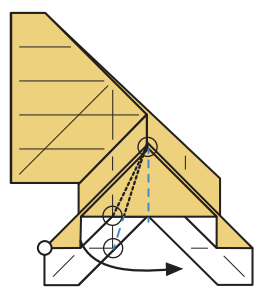
.

23



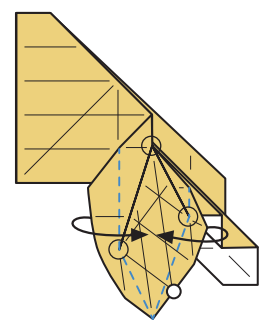
.

24



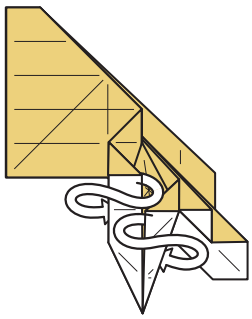
. .

25



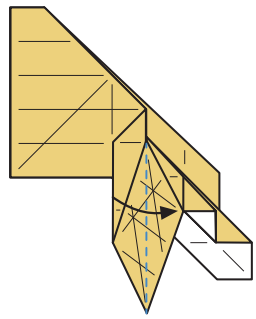
.

26



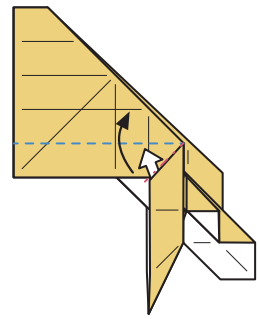
.

27



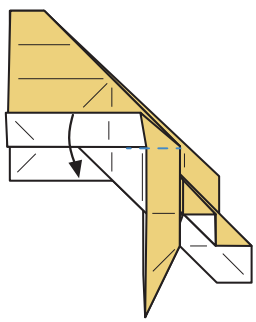
.

28



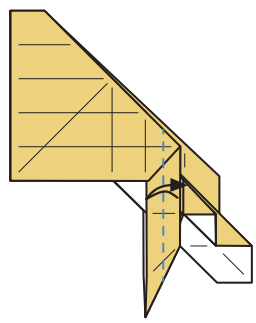
.

29



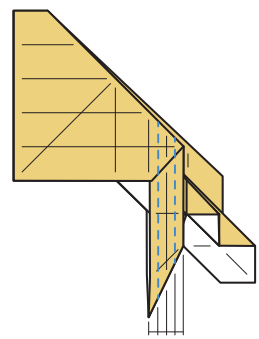
.

30



.

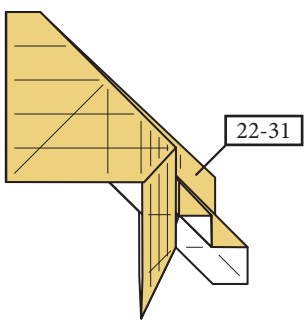
31



F

.

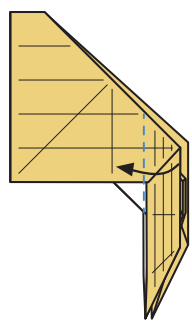
32



22 31

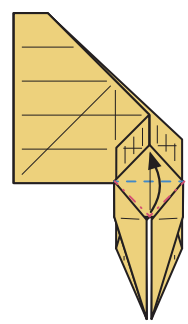
.

33



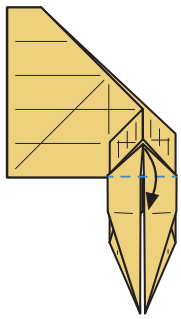
.

34

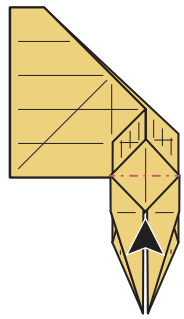


.

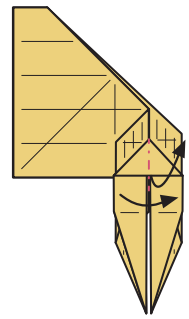
35



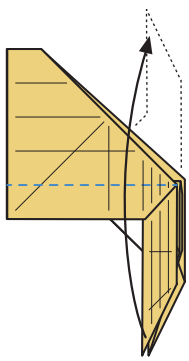
36



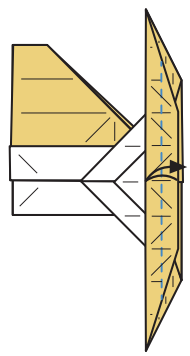
37



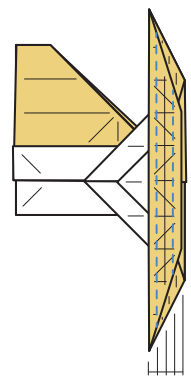
38



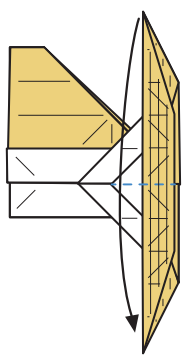
39



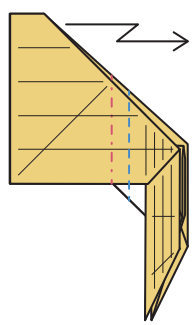
40



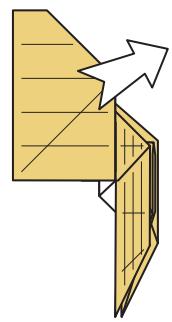
41



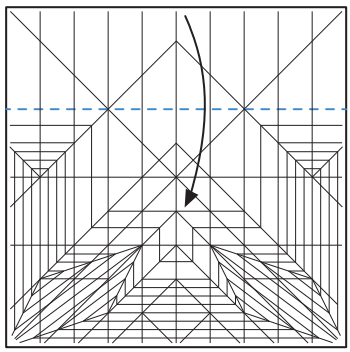
42



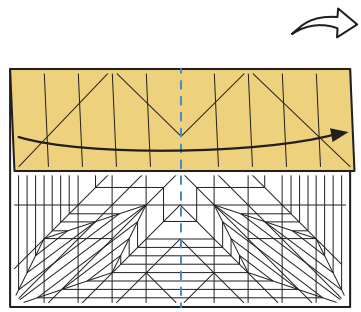
43



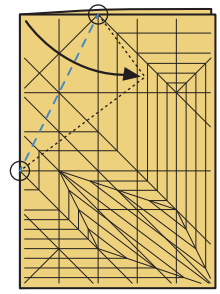
44



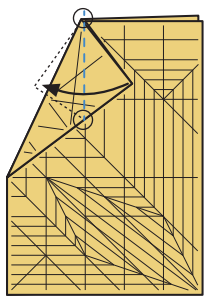
45



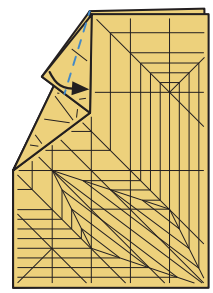
46



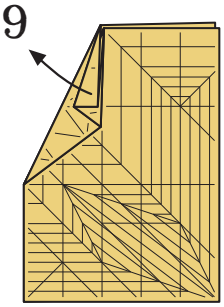
47



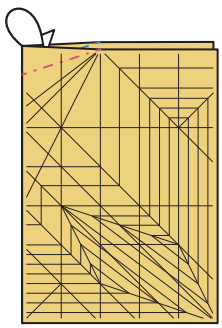
48



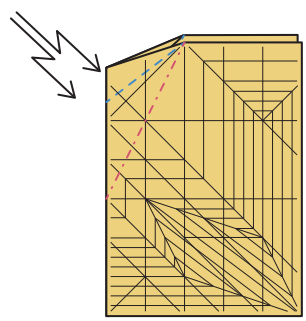
49



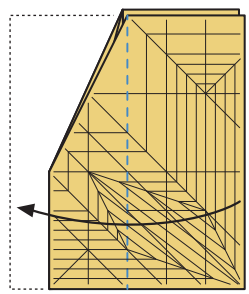
50



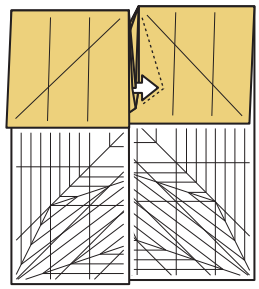
51



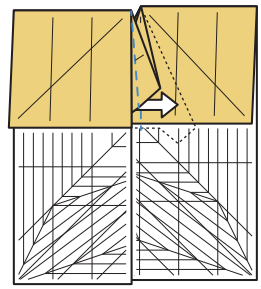
52



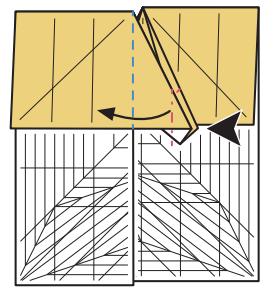
53



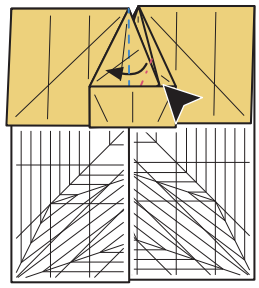
54



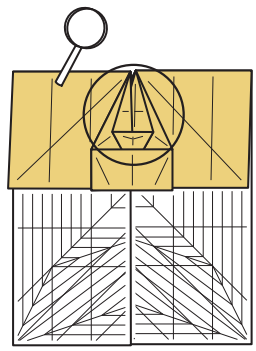
55



56

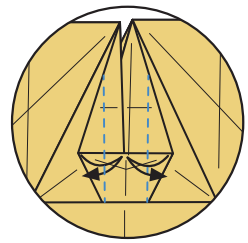


57

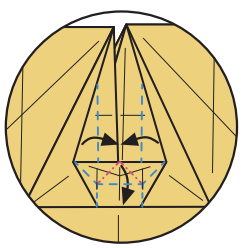


C

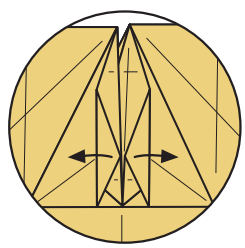
58



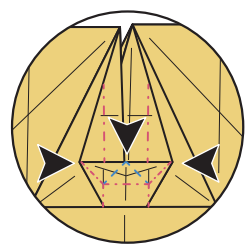
59



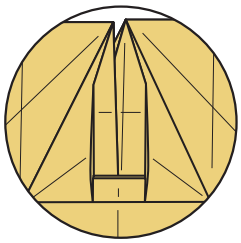
60



61

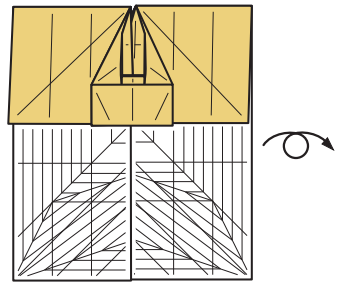


62



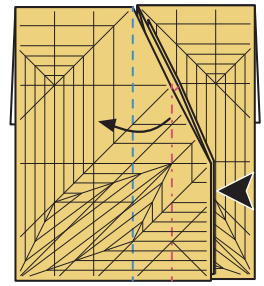
.

63



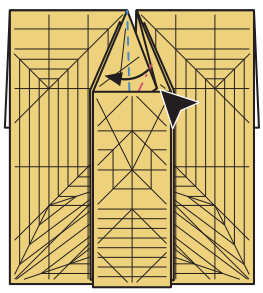
.

64



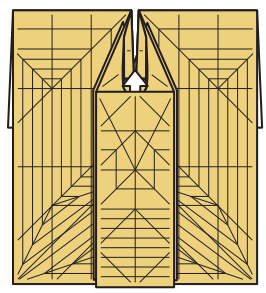
.

65



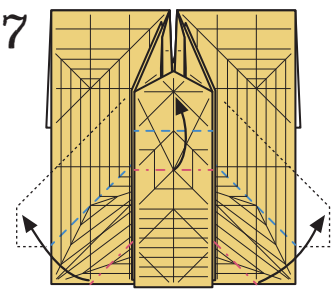
.

66



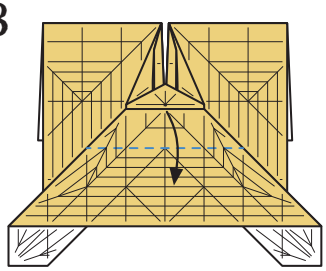
C .

67



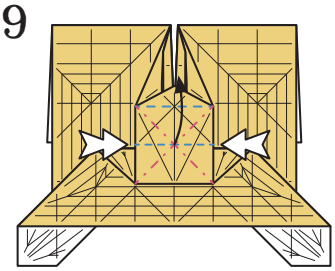
.

68



.

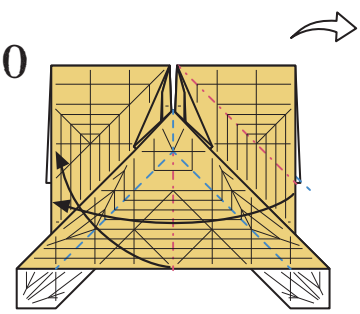
69



C

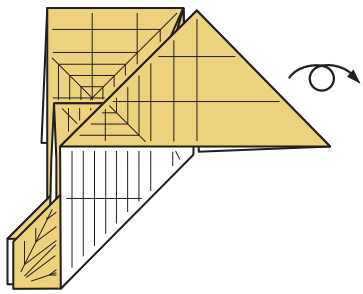
.

70

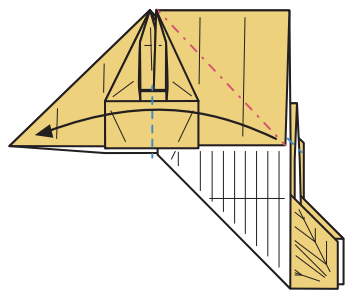


.

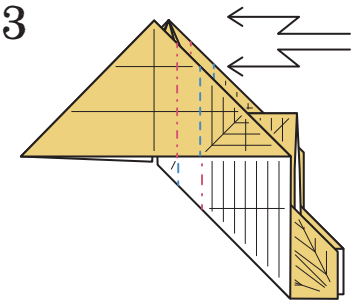
71



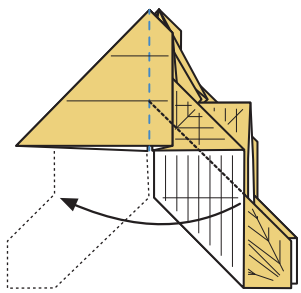
72



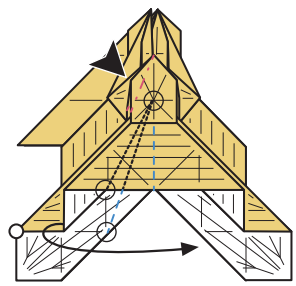
73



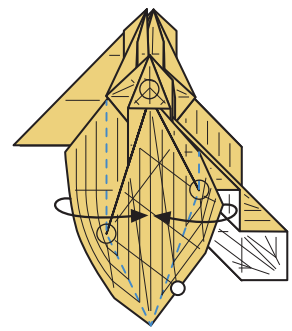
74



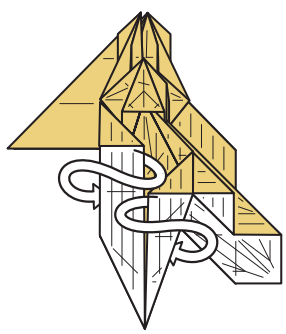
75



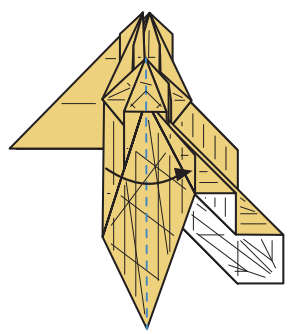
76



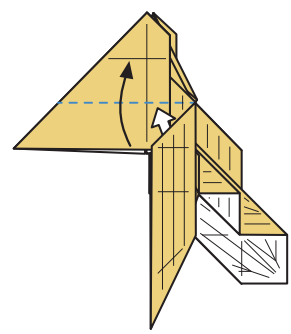
77



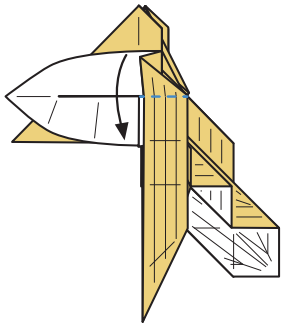
78



79

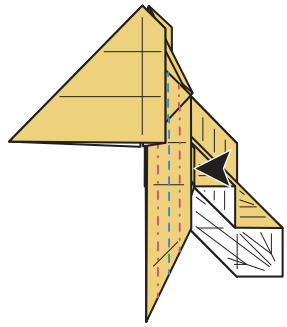


80



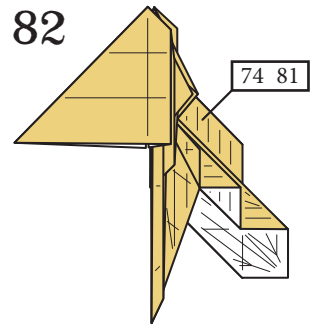
.

81



.

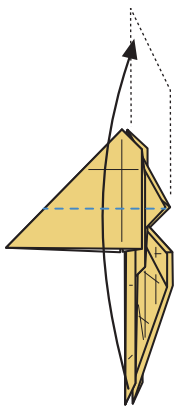
82



74 81

.

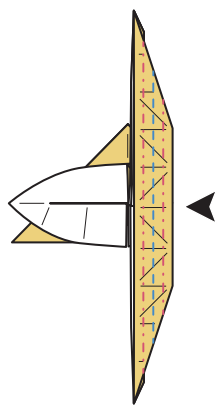
83



.

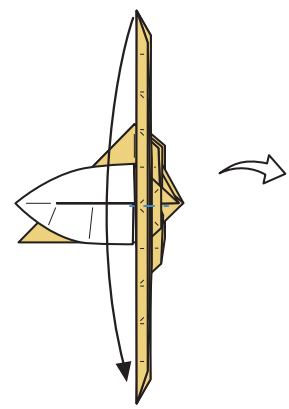
.

84



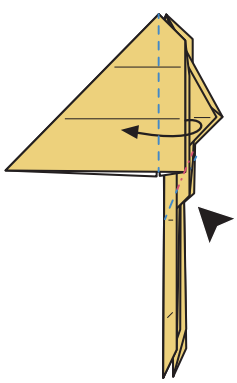
.

85



.

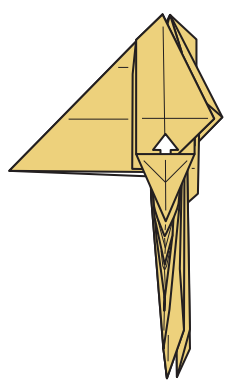
86



.

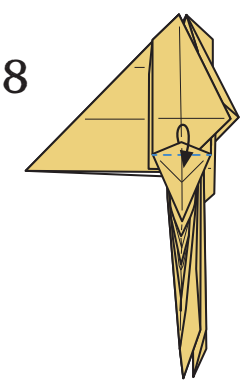
.

87



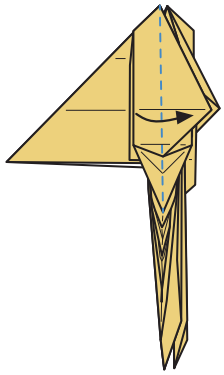
C .

88



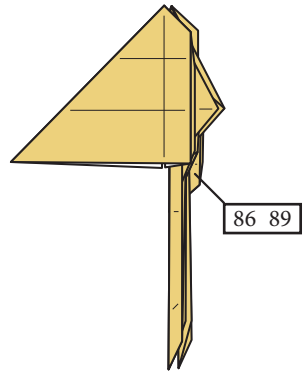
.

89



.

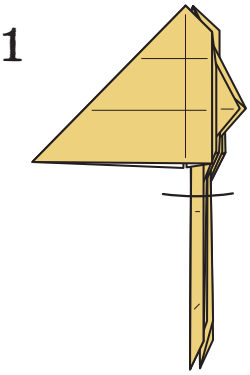
90



86 89

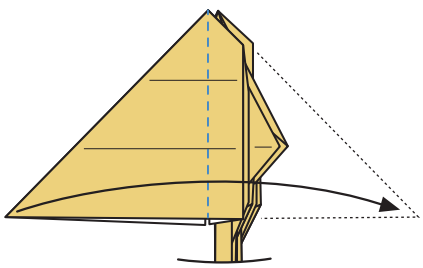
.

91



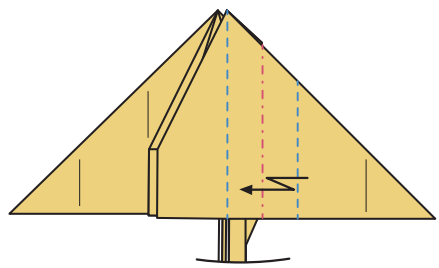
C .

92



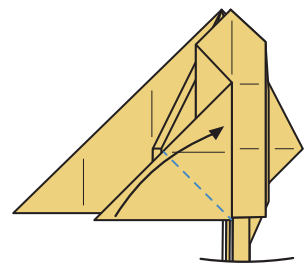
.

93



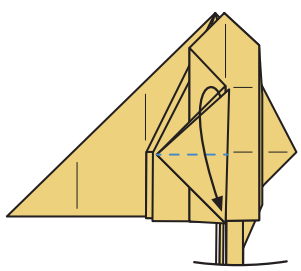
.

94



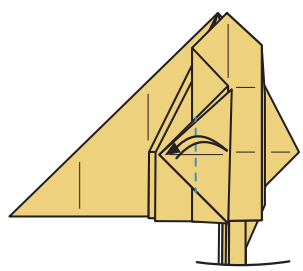
.

95



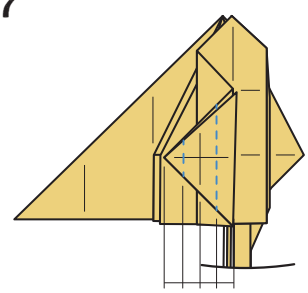
.

96



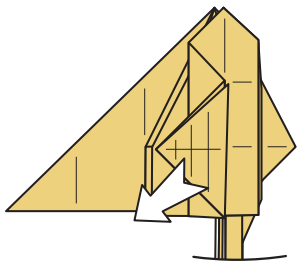
.

97



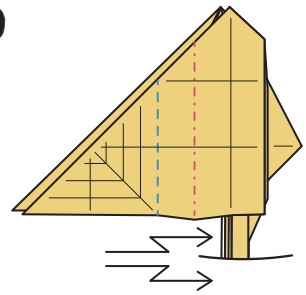
F .

98



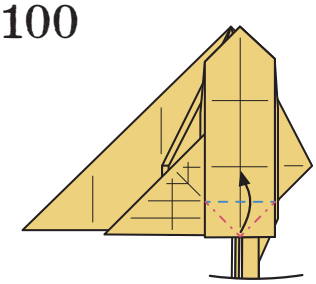
.

99



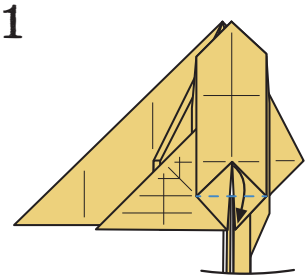
C .

100



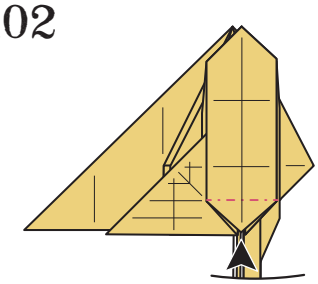
.

101



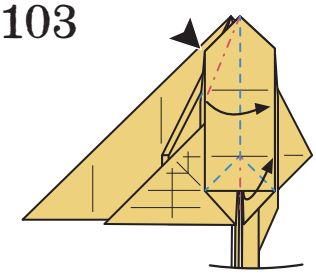
.

102



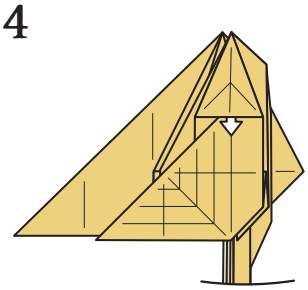
.

103



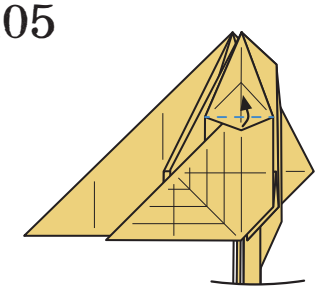
.

104



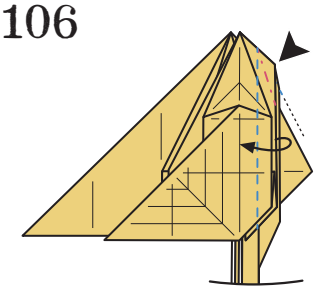
C .

105



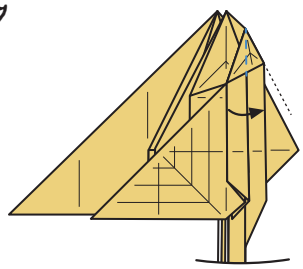
.

106



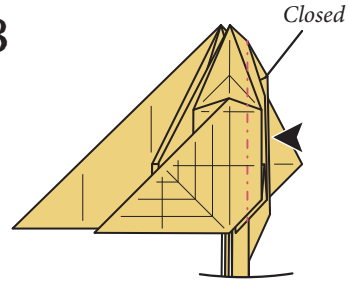
.

107



.

108

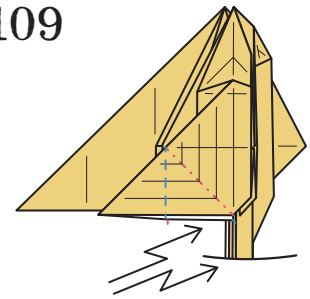


,

,

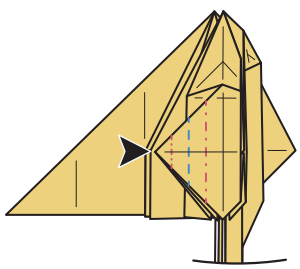
.

109



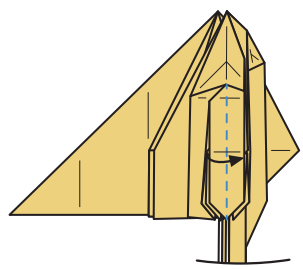
C .

110



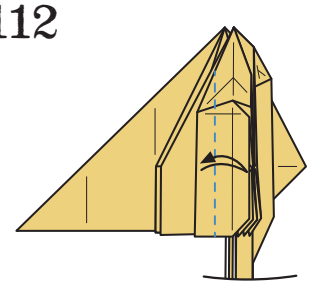
.

111



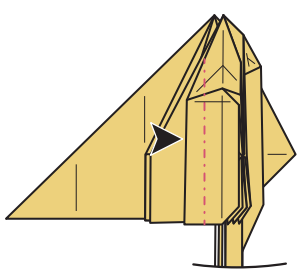
.

112



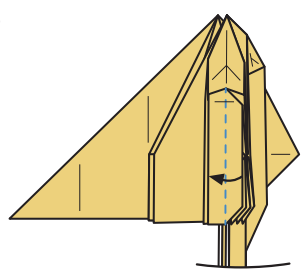
.

113



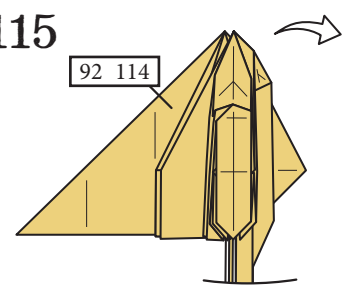
.

114



.

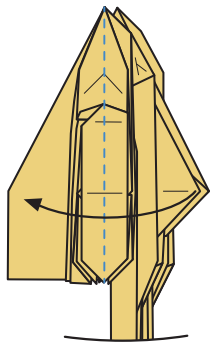
115



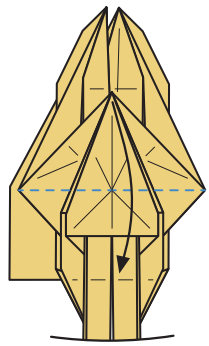
92 114

.

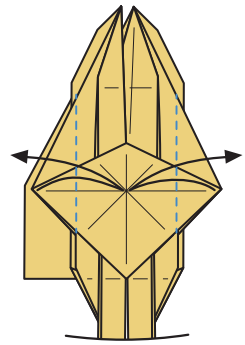
116



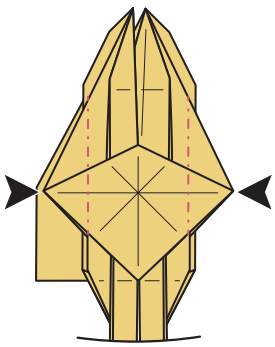
117



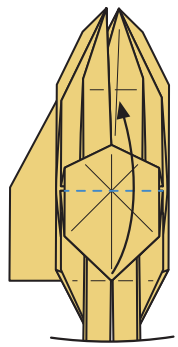
118



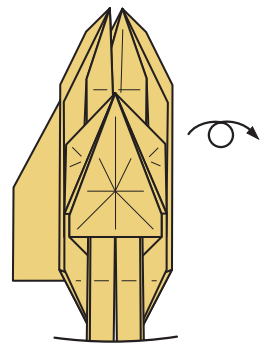
119



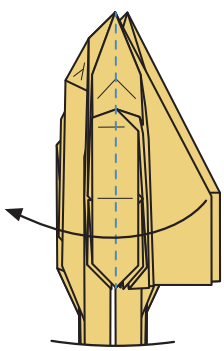
120



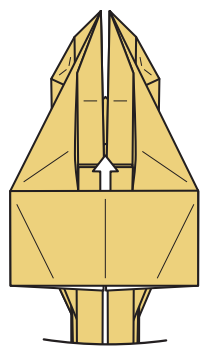
121



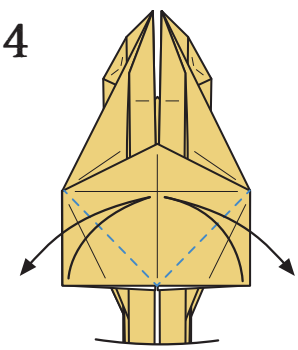
122



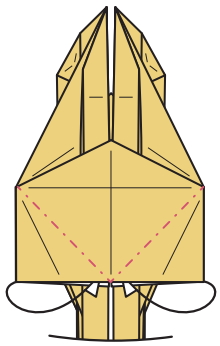
123



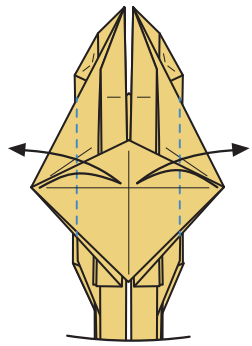
124



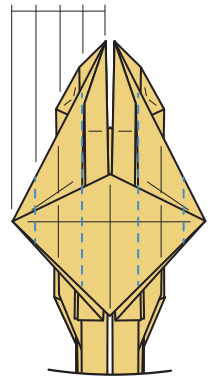
125



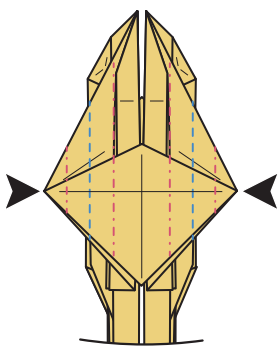
126



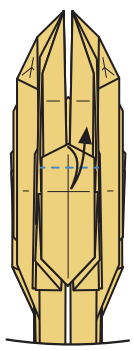
127



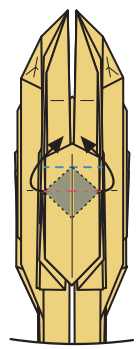
128



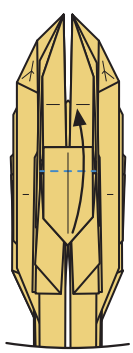
129



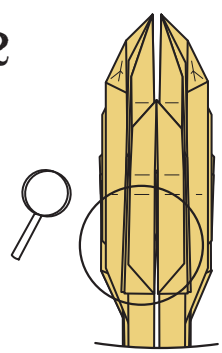
130



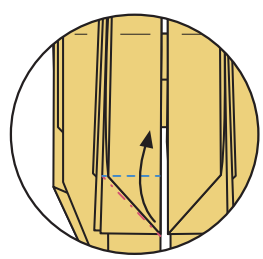
131



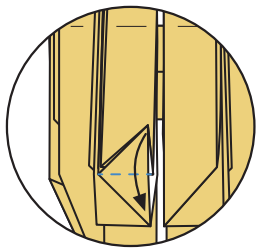
132



133

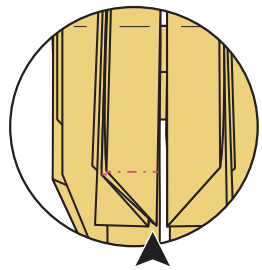


134



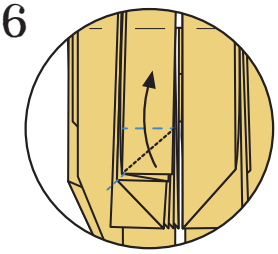
.

135



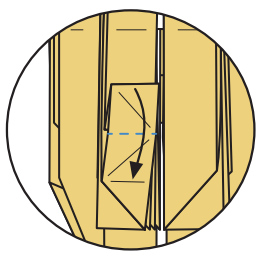
.

136



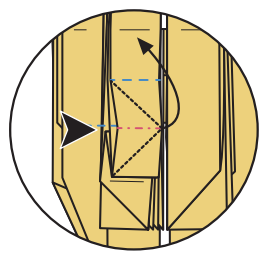
.

137



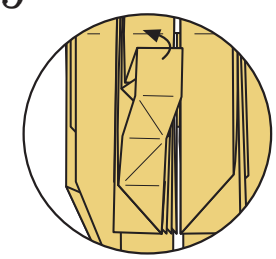
.

138



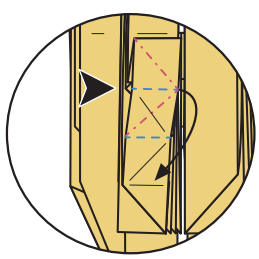
.

139



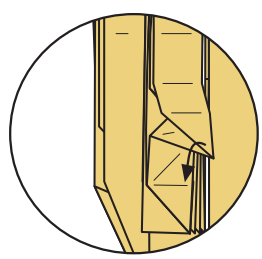
I .

140



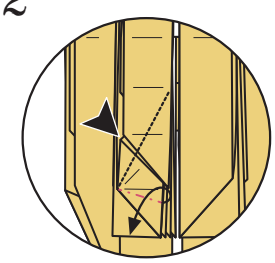
.

141



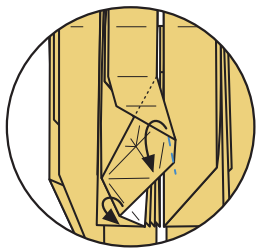
I .

142



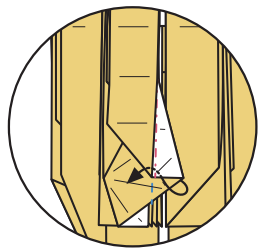
.

143



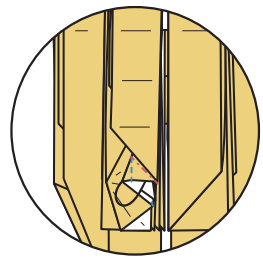
I .

144



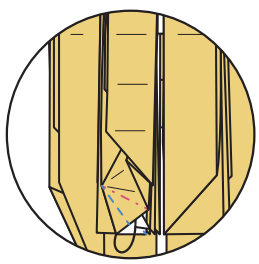
.

145



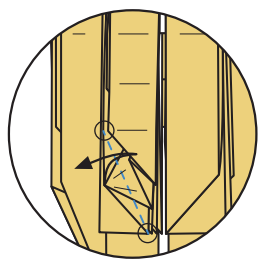
.

146



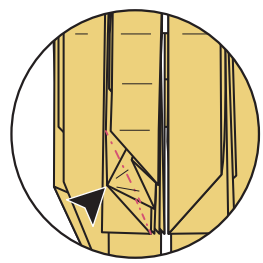
.

147



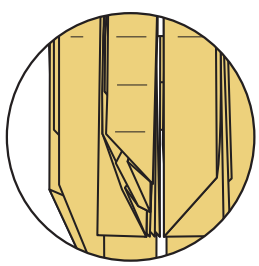
.

148



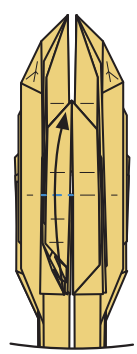
H (,
).

149



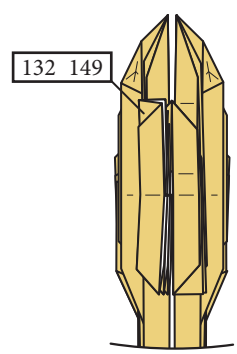
.

150



.

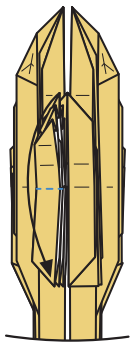
151



132 149

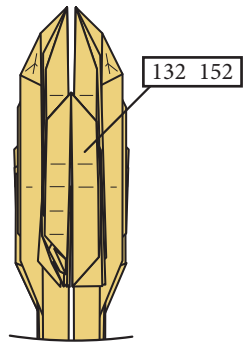
.

152



.

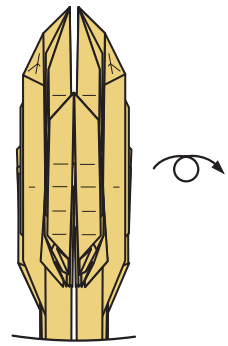
153



132 152

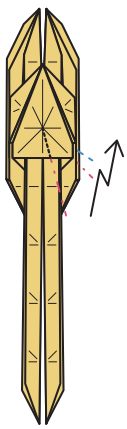
.

154



.

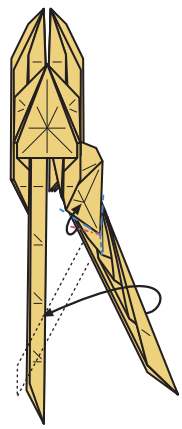
155



.

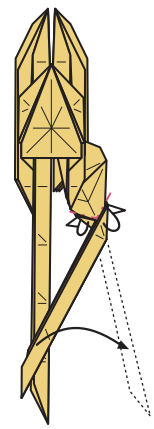
.

156



- .

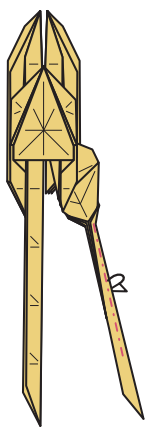
157



F

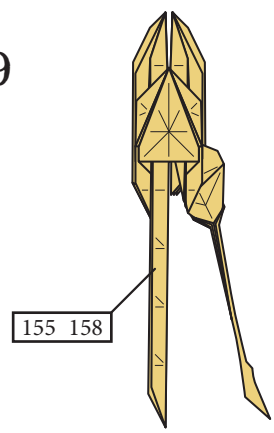
.

158



.

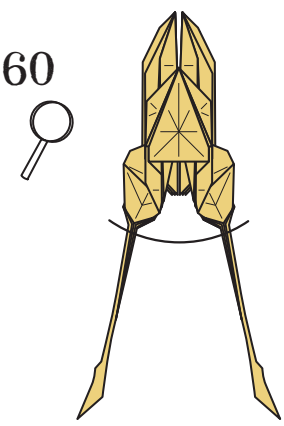
159



155 158

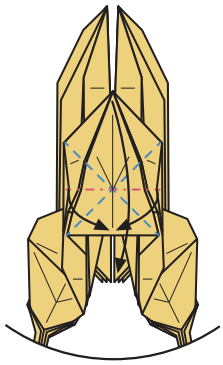
.

160

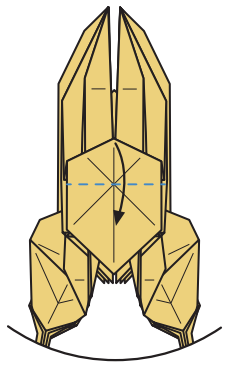


C .

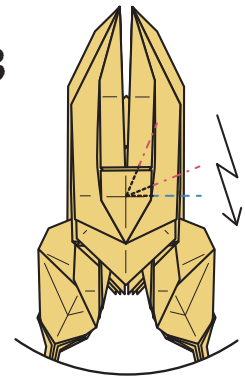
161



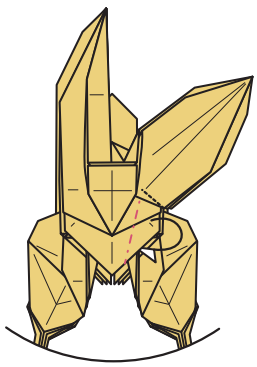
162



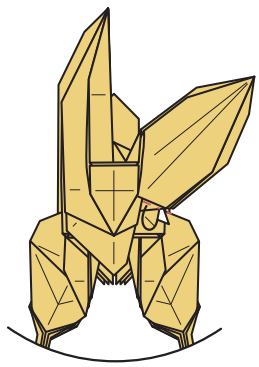
163



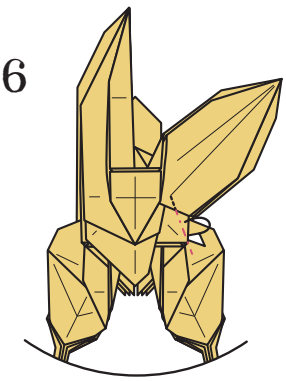
164



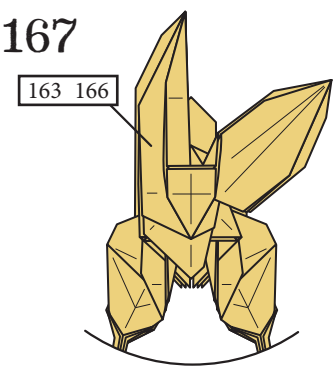
165



166

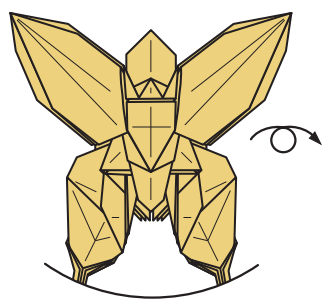


167

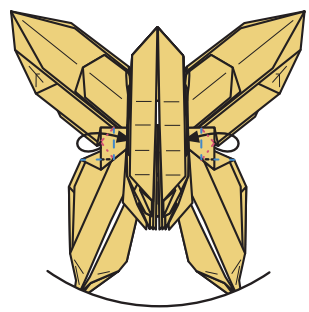


163 166

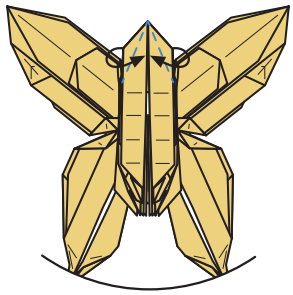
168



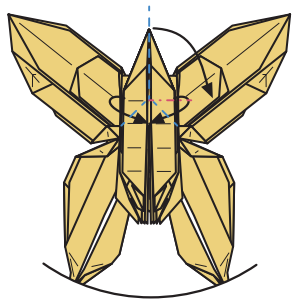
169



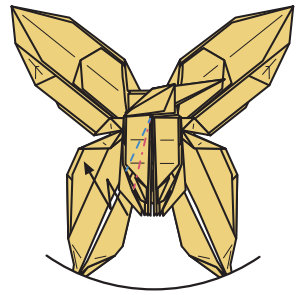
170



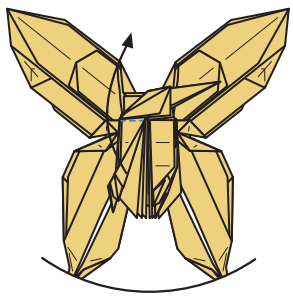
171



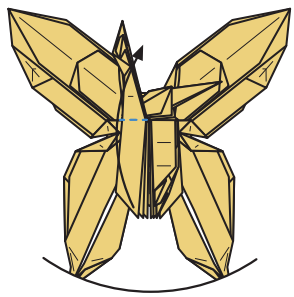
172



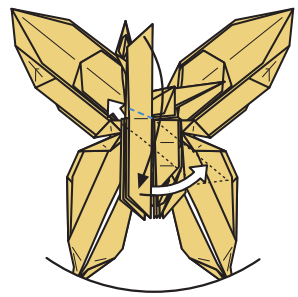
173



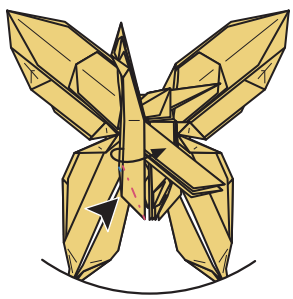
174



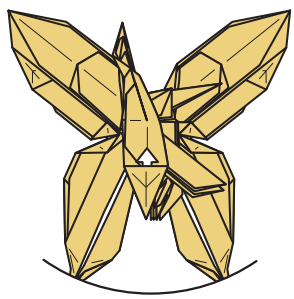
175



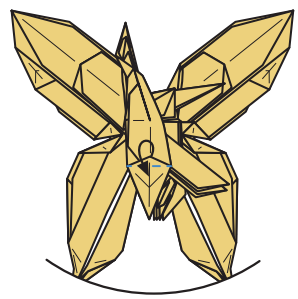
176



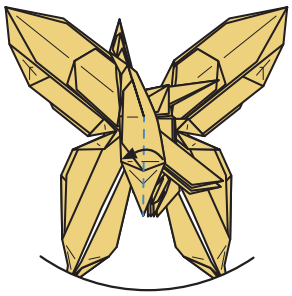
177



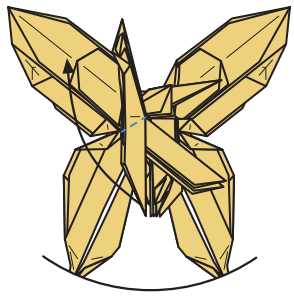
178



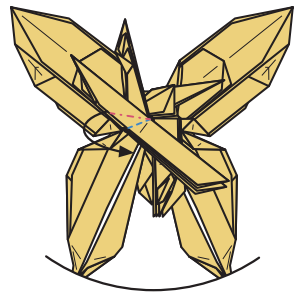
179



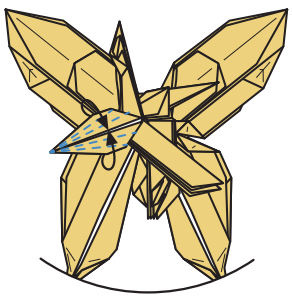
180



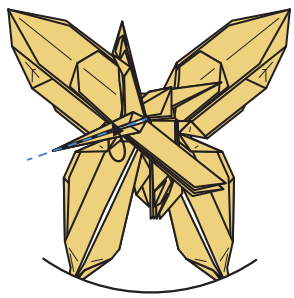
181



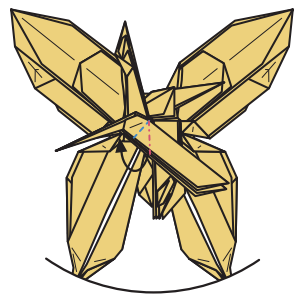
182



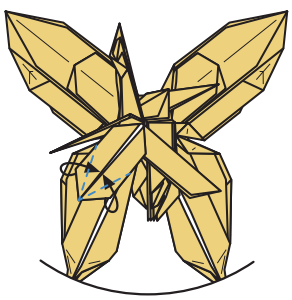
183



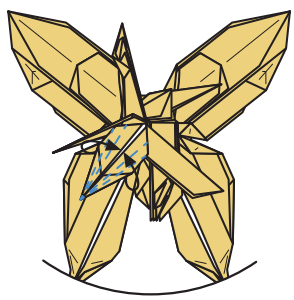
184



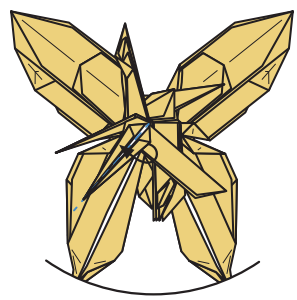
185



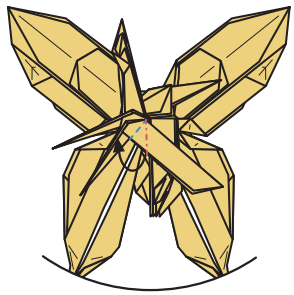
186



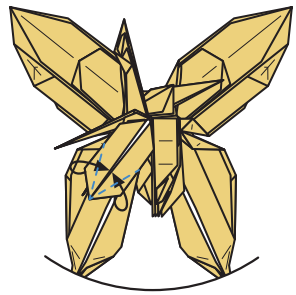
187



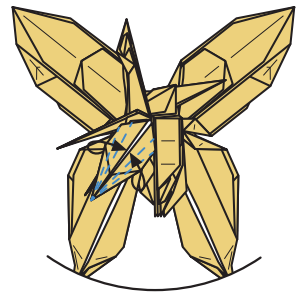
188



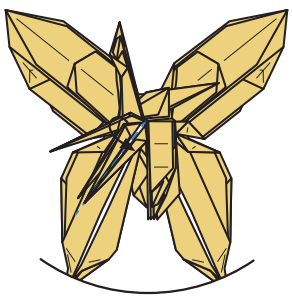
189



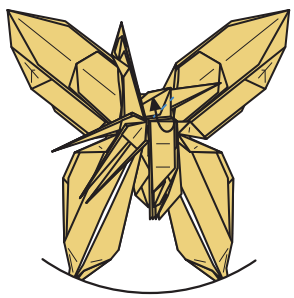
190



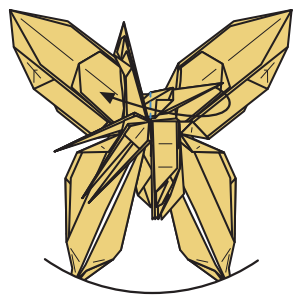
191



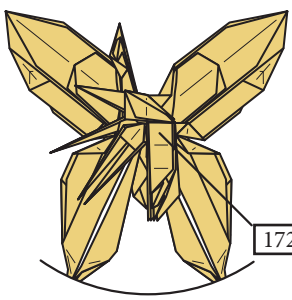
192



193

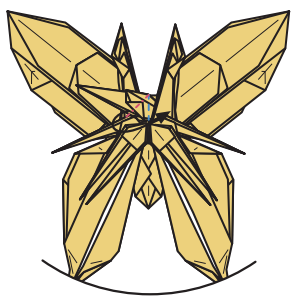


194

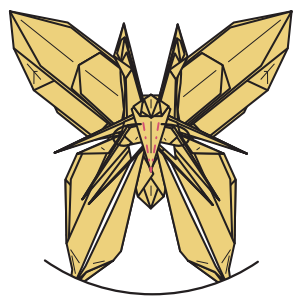


172 192

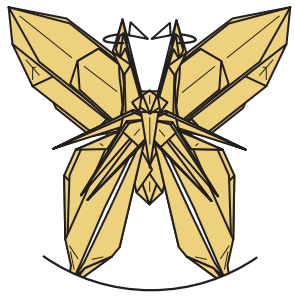
195



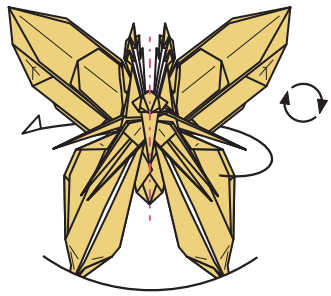
196



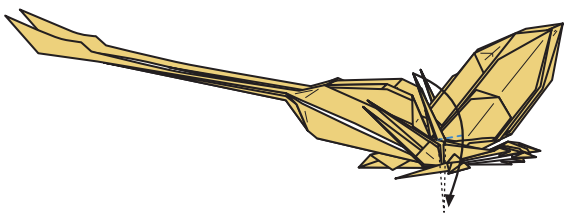
197



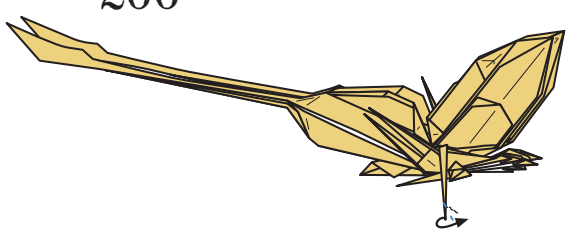
198



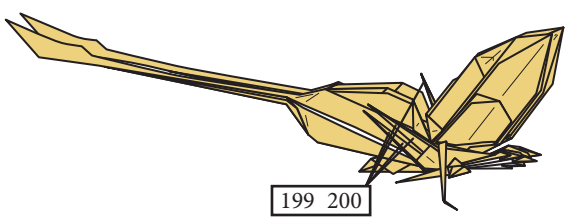
199



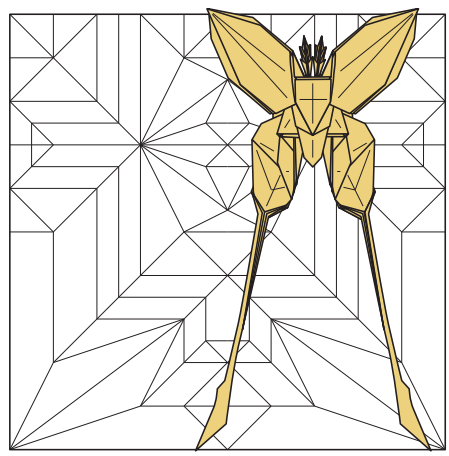
200



201



199 200



Folded luna moth set against the crease pattern for this model.

SHUKI KATO

Flying Hercules Beetle

Titan Beetle

J , , *Origami for the Enthusiast,* 6. , . I 2000 A .

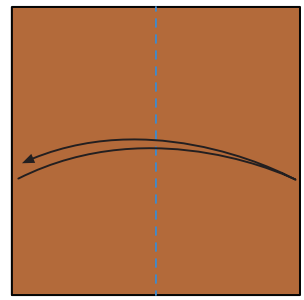
A , ( ) J . , , . , , F : . . / / - - /

TITAN BEETLE

I first designed a version of this model in 2008 and revised it in 2012. I like to use tracing paper to fold this model. I recommend starting out with a 25-inch square, which results in a finished piece of about 6¼ inches. It takes me 7 hours to fold this particular model.

Whenever I fold with tracing paper, I use a wet finish. At the last point where the model still lies flat, I spray the model with water, flatten and dry it somewhat, and then complete the final steps. This process works best if you work on one section at a time. If you apply too much water or spray the whole model at once, then the paper will likely sag and wrinkle.

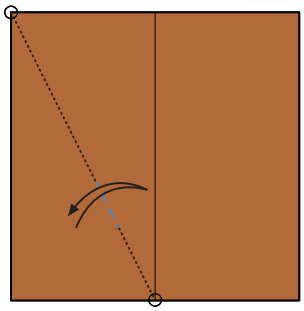
1



. F

.

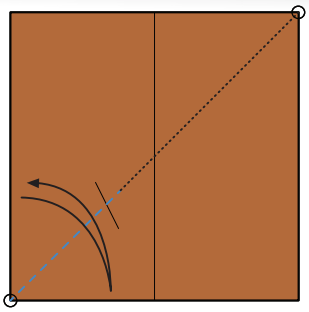
2



F ,

.

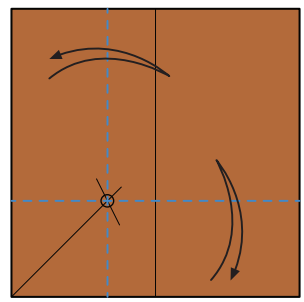
3



F ,

.

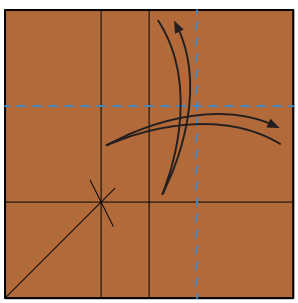
4



F

.

5

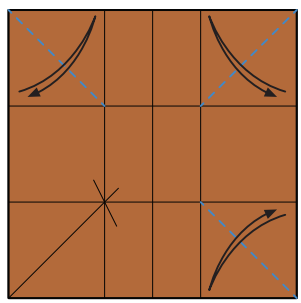


F

.

.

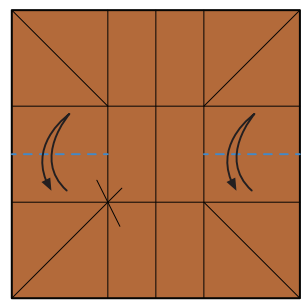
6



F

.

7



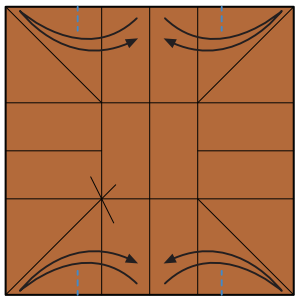
F

.

D

.

8

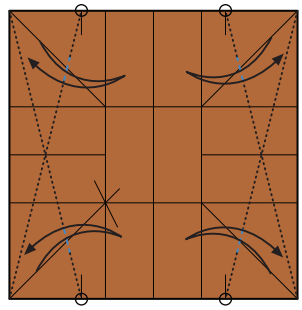


F

, ,

.

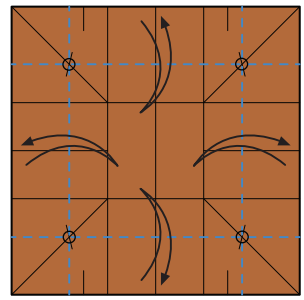
9



A ,

.

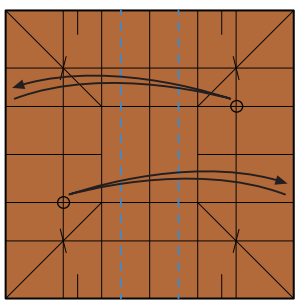
10



F

.

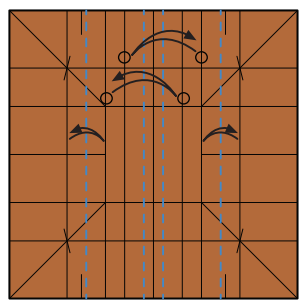
11



F

.

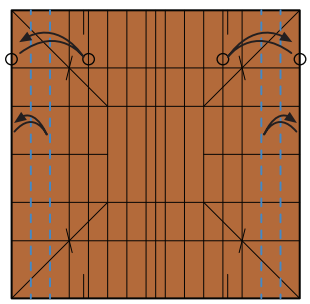
12



F

.

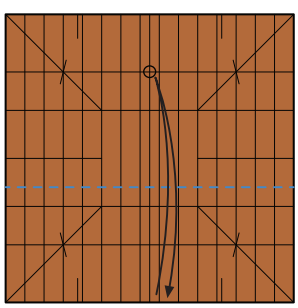
13



F

.

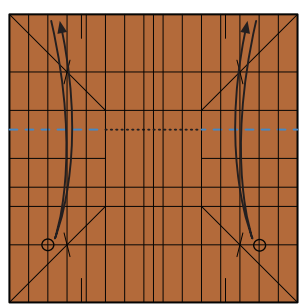
14



F

.

15

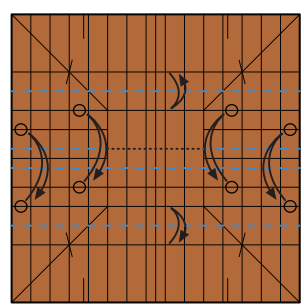


F

, ,

.

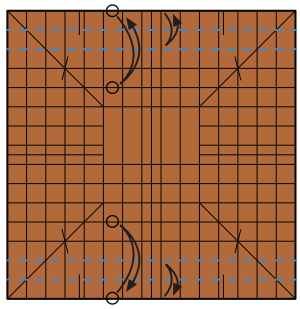
16



F

.

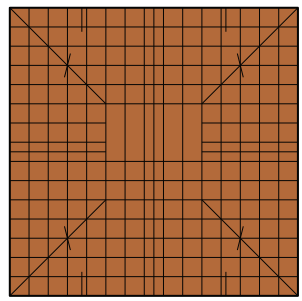
17



F

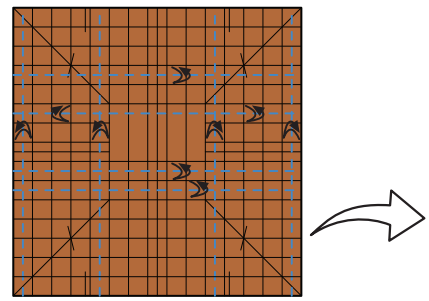
.

18



15 15 .

19

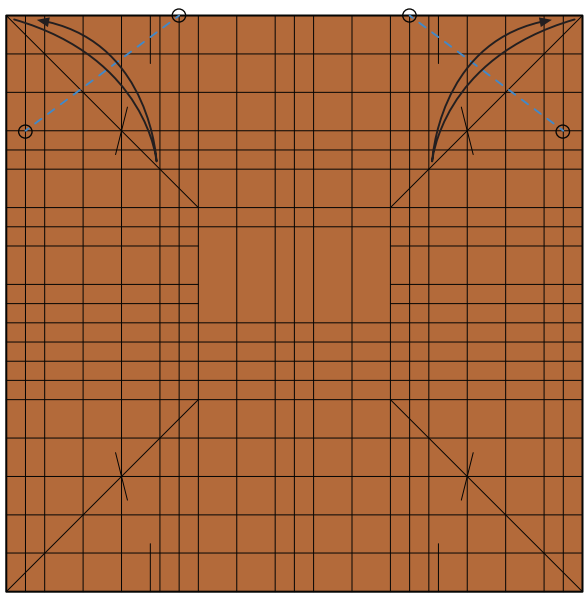


,

,

.

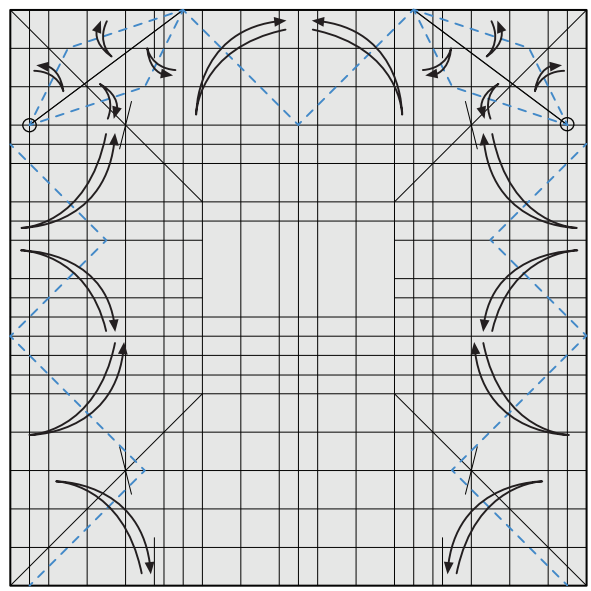
20



F

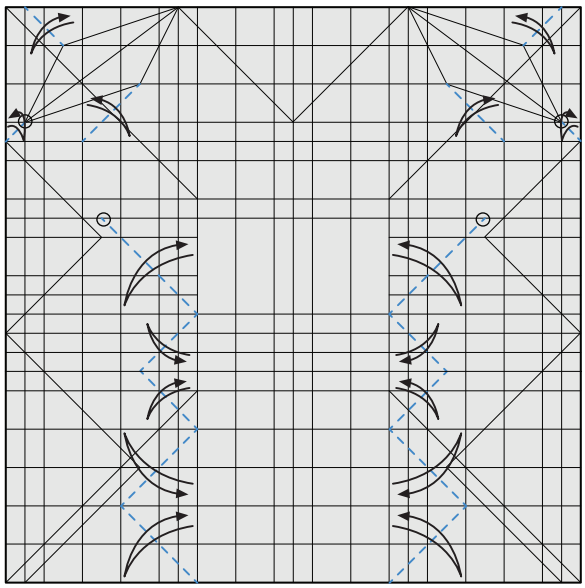
. .

21



F 18 .

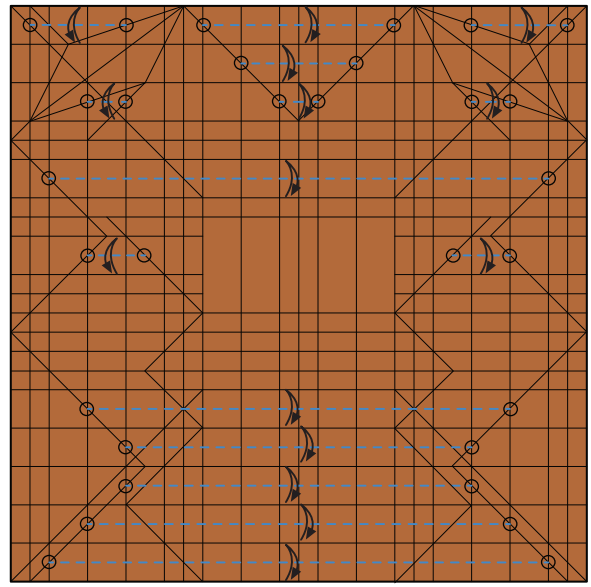
22



F 16 .

.

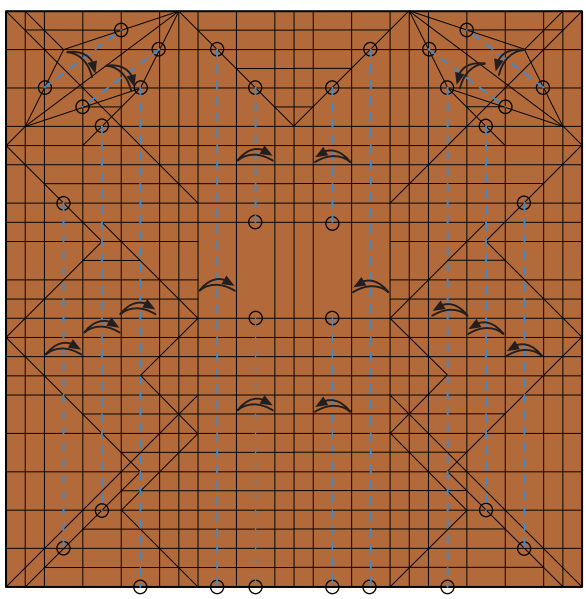
23



D ,

, .

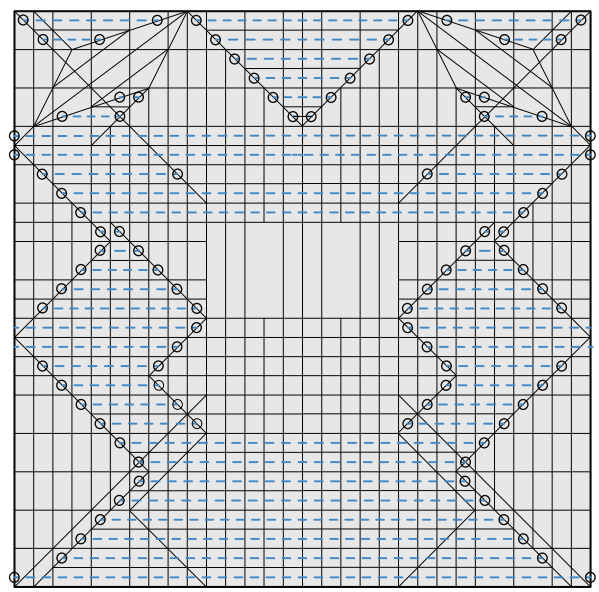
24



D ,

. .

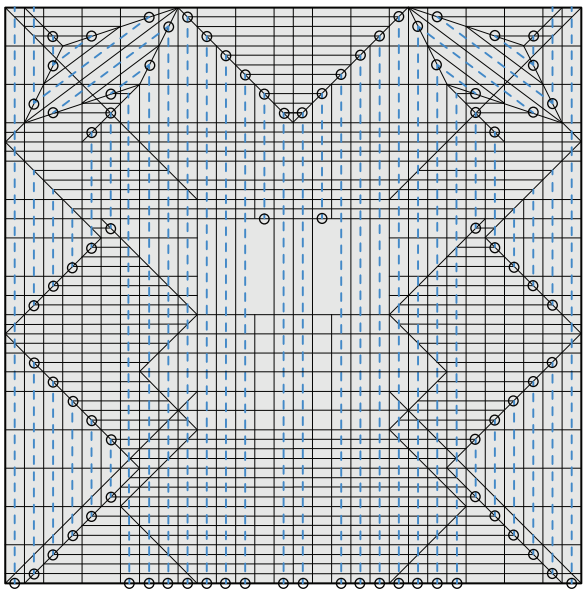
25



C ,

.

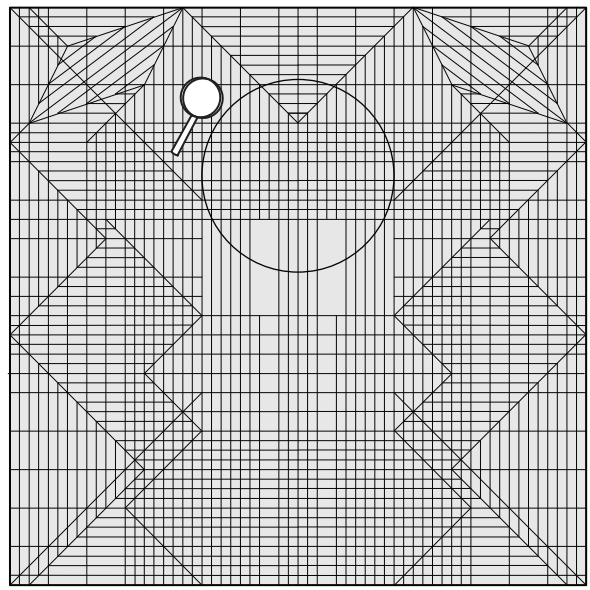
26



C ,

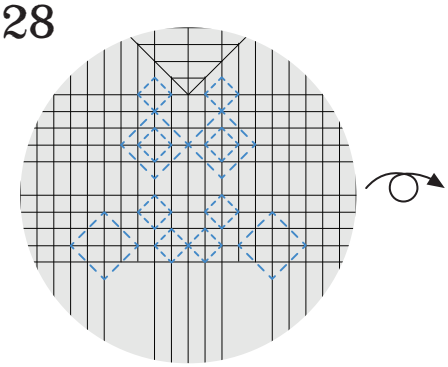
.

27

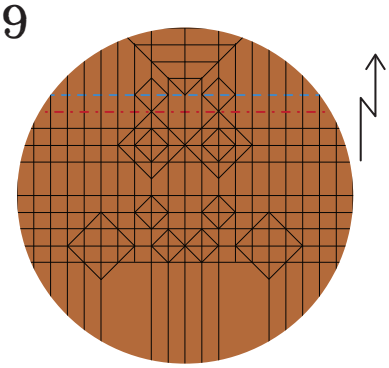


F .

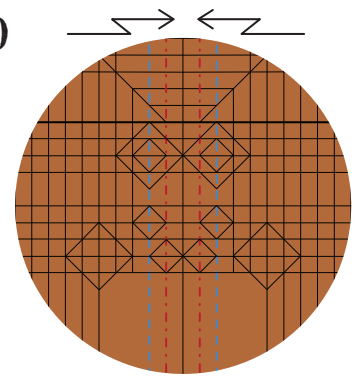
28



29



30

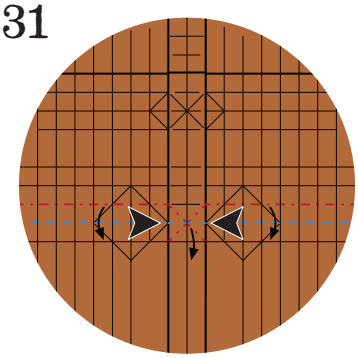


C , .

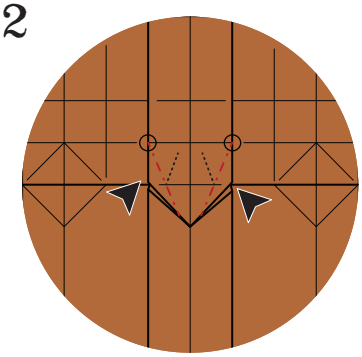
. .

.

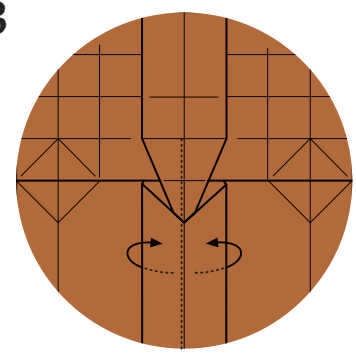
31



32



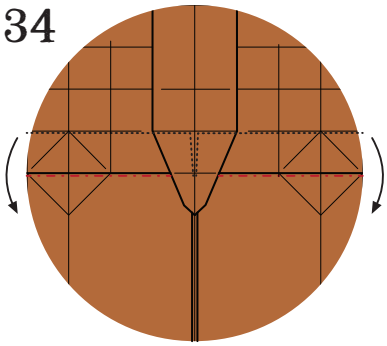
33



C . .

. .

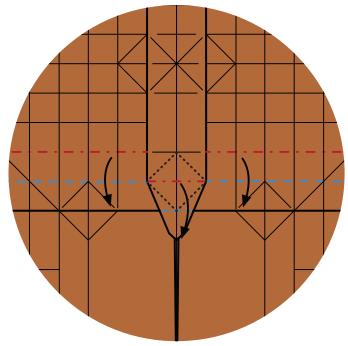
34



F

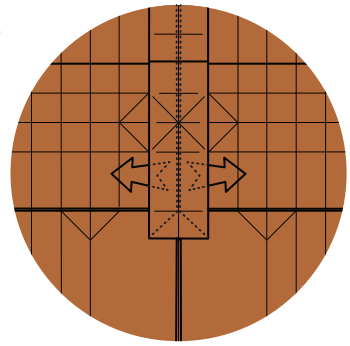
.

35



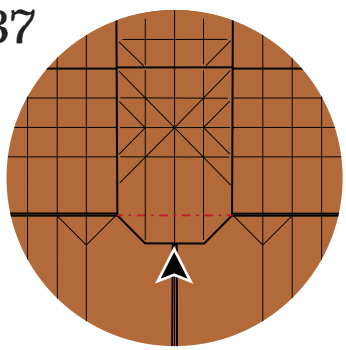
.

36



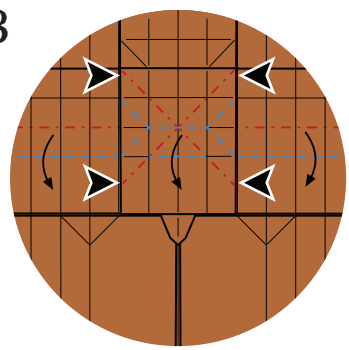
.

37



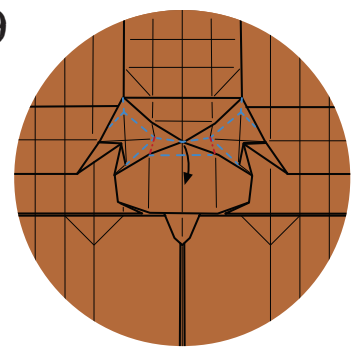
C .

38



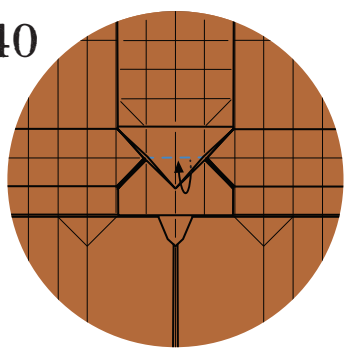
.

39



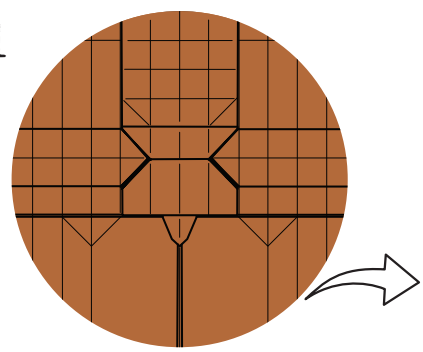
I .

40



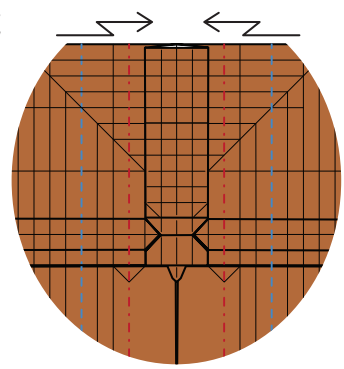
B
( ).

41



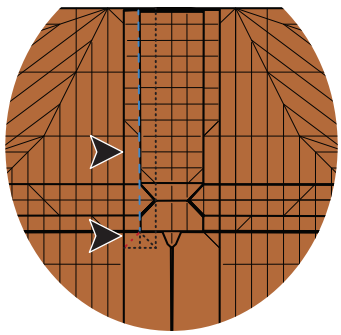
.

42

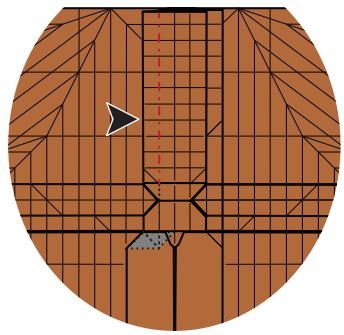


.

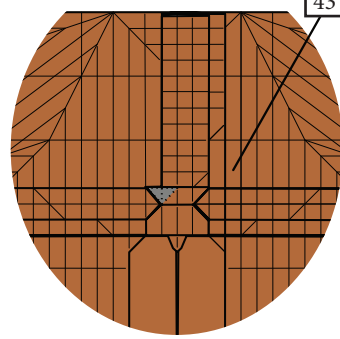
43



44



45



43 44

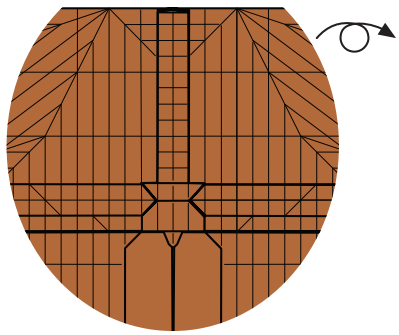
.

.

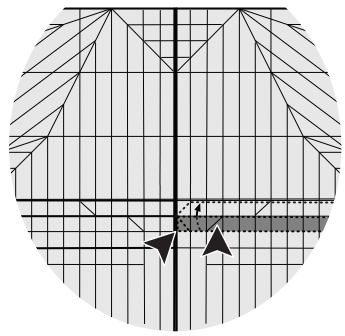
.

.

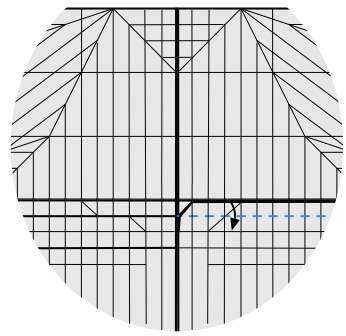
46



47



48



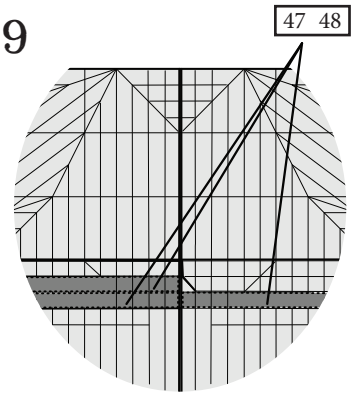
.

.

F

.

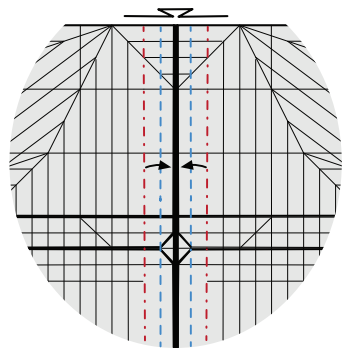
49



47 48

.

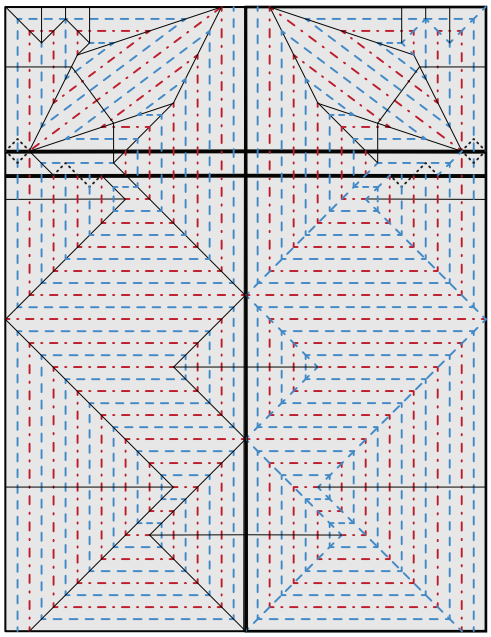
50



,

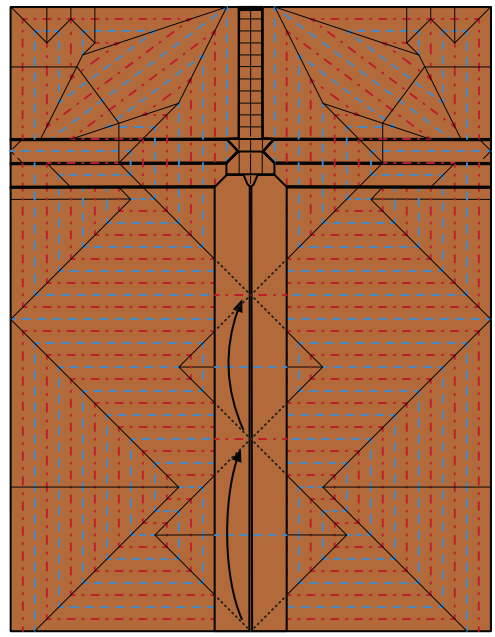
.

51



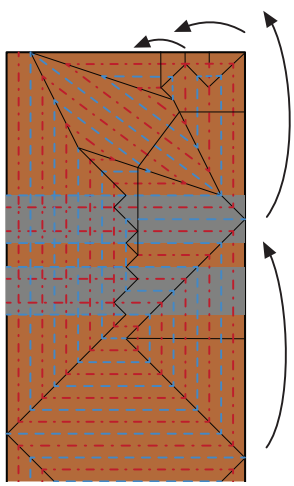
C .
( )
.
: !

52



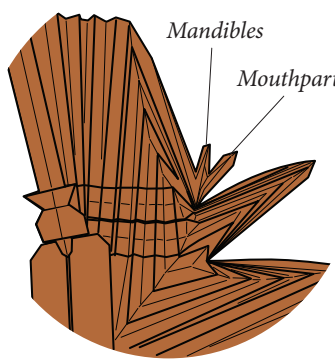
.

53



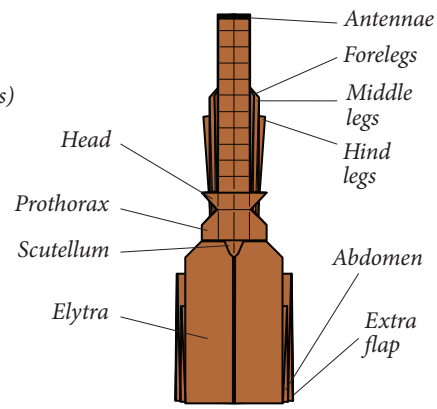
.

54



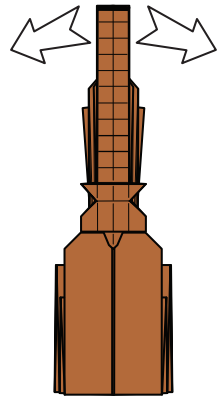
I .
,
.

55

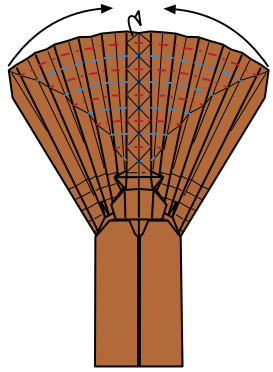


I .
.

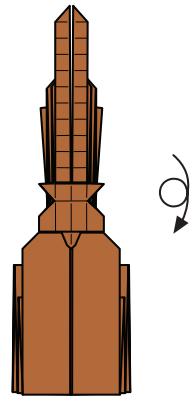
56



57



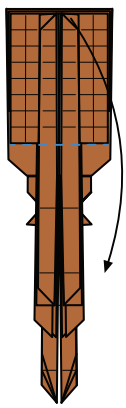
58



B -

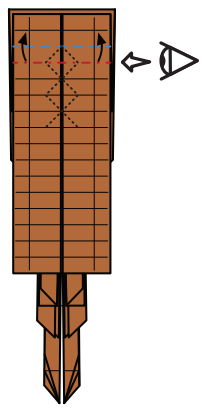
. . .

59



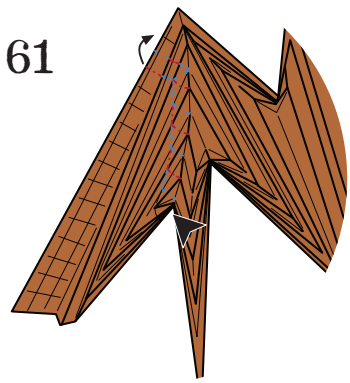
F . .

60



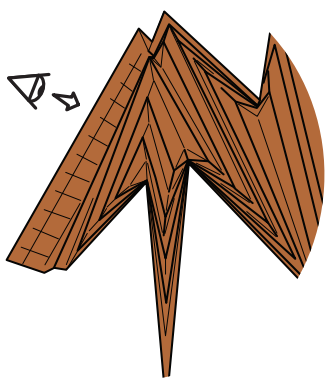
. .

61



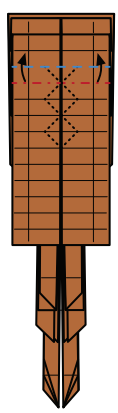
. .

62

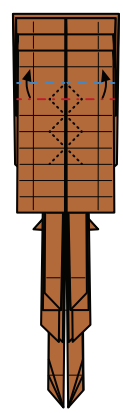


. 60. . .

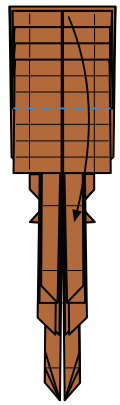
63



64



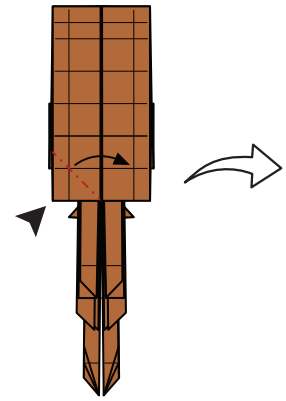
65



F

.

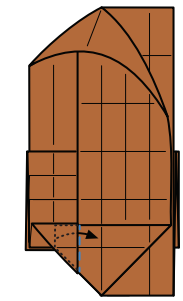
66



F

.

67

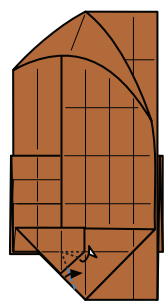


,

.

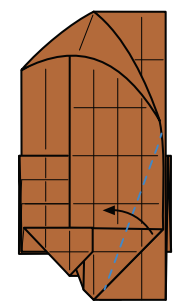
( ).

68



.

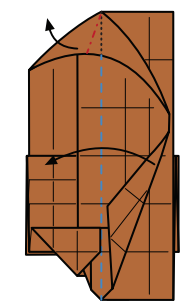
69



F

.

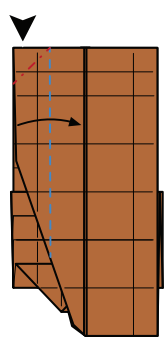
70



C

.

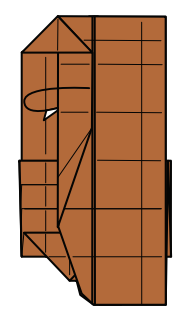
71



F

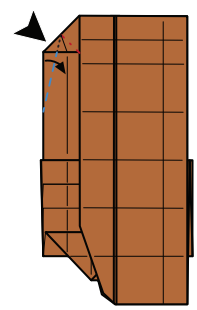
.

72



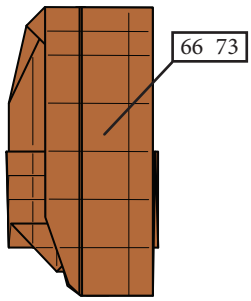
.

73



.

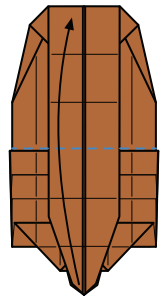
74



66 73

.

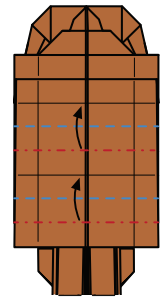
75



F

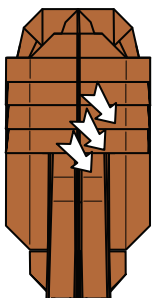
.

76



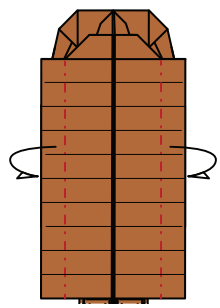
.

77



.

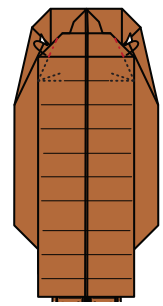
78



F

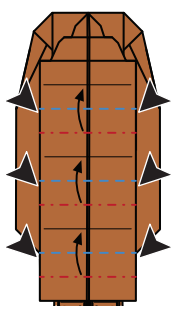
.

79



.

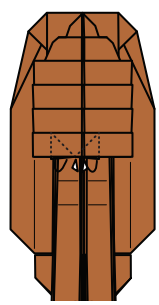
80



,

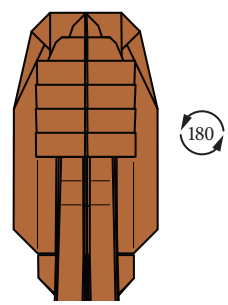
.

81



.

82

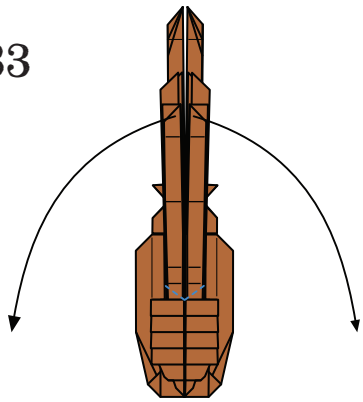


.

180

.

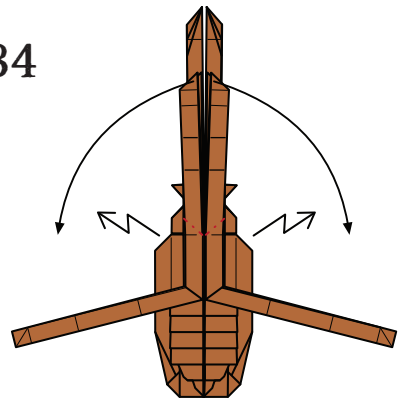
83



F

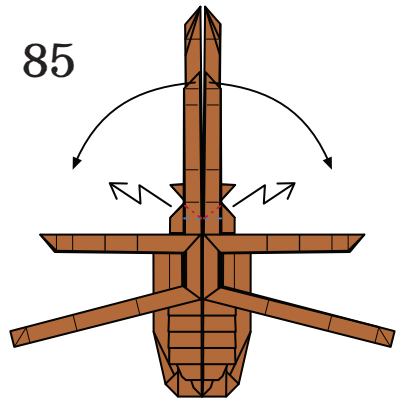
.

84



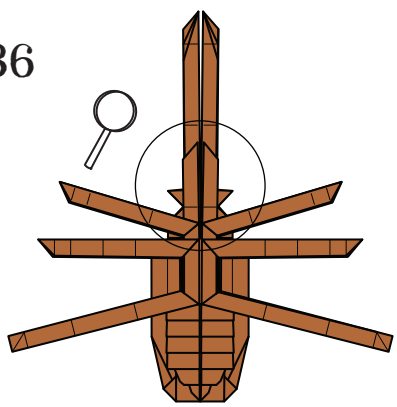
.

85



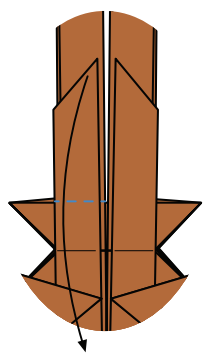
.

86



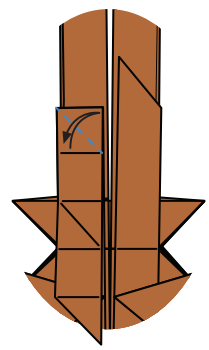
C .

87



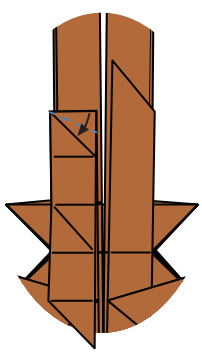
F .

88



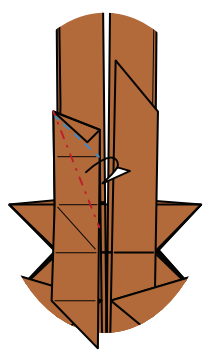
F .

89



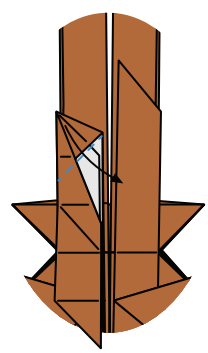
F .

90



F .

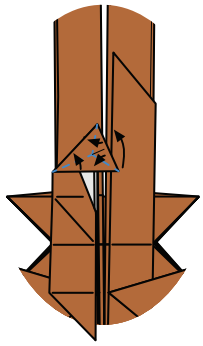
91



F

.

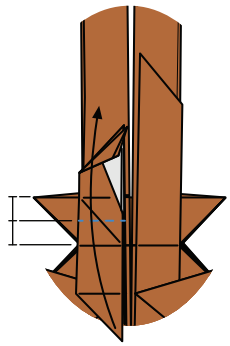
92



-

.

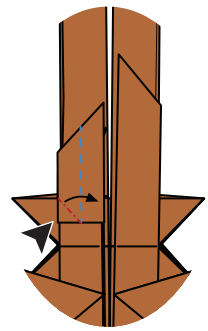
93



,

.

94

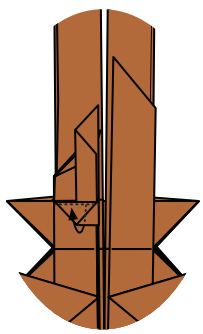


F

,

.

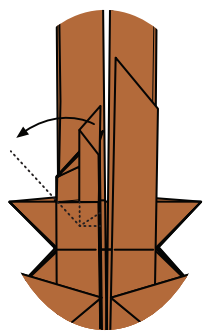
95



B

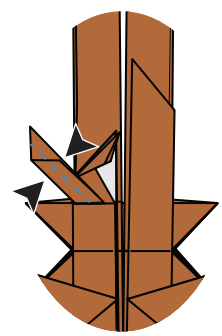
.

96



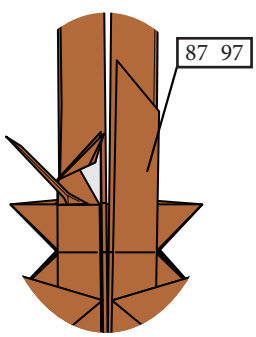
.

97



.

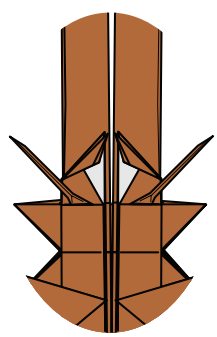
98



87 97

.

99

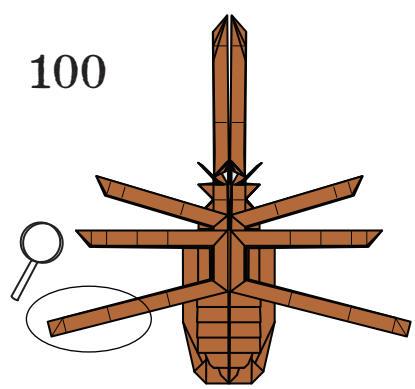


I

.

.

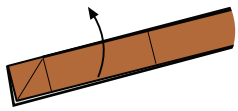
100



F

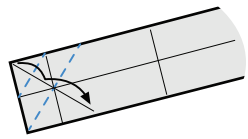
.

101



.

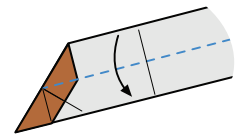
102



F

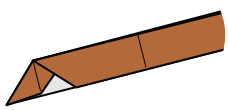
.

103



F .

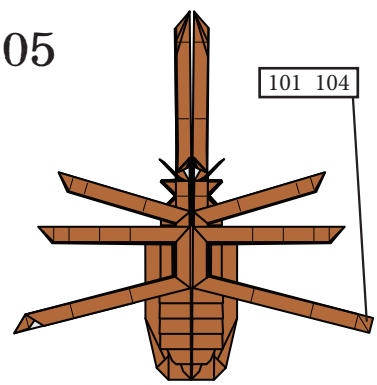
104



.

.

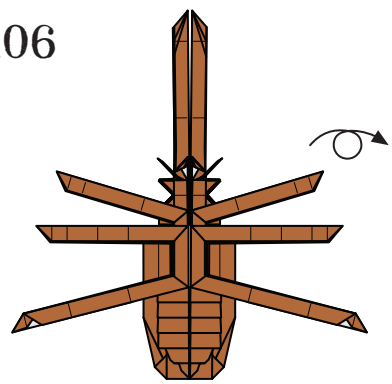
105



101 104

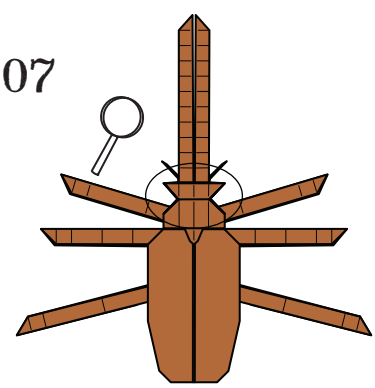
.

106



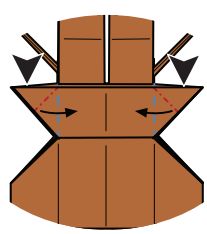
.

107



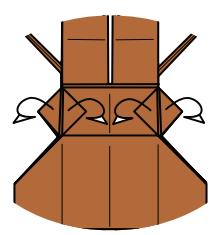
F .

108



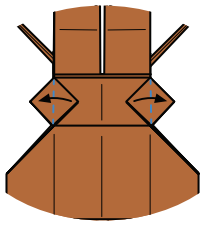
.

109



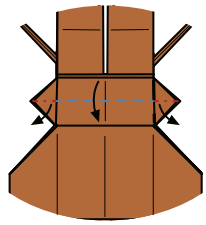
.

110



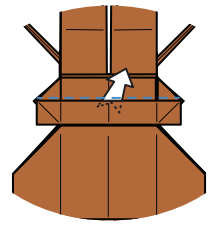
F

111

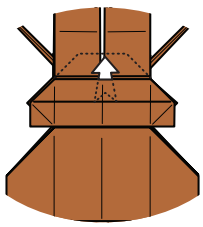


F

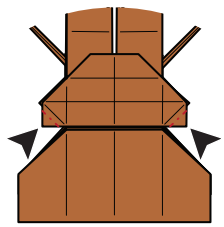
112



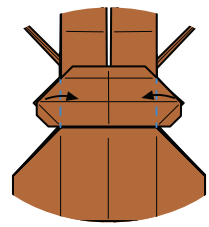
113



114

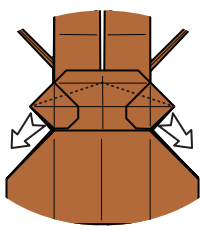


115



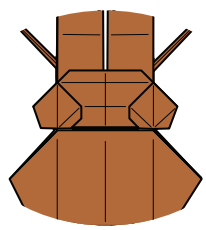
F

116

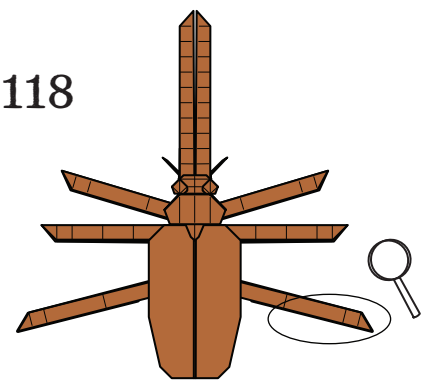


F

117

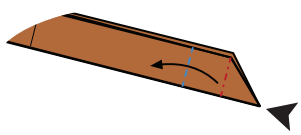


118

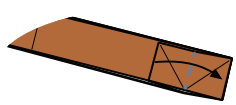


F

119

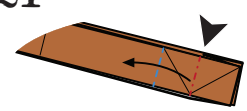


120

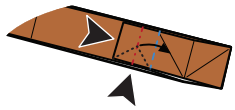


F

121

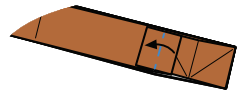


122



.

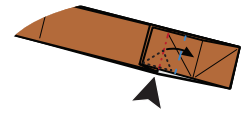
123



F

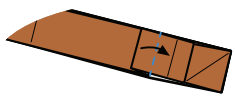
.

124



.

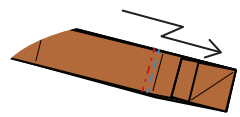
125



F

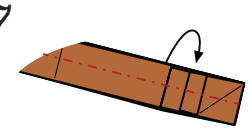
.

126



.

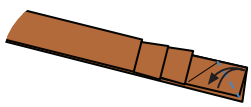
127



F

.

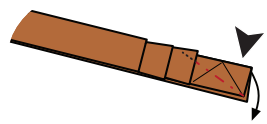
128



F

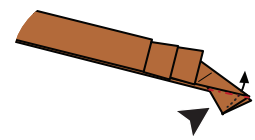
.

129



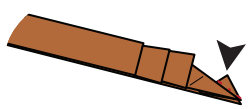
.

130



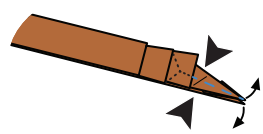
.

131



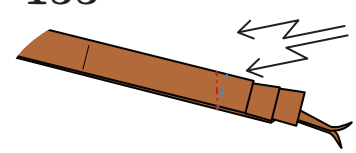
.

132



.

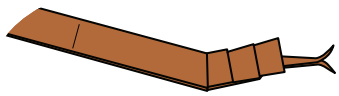
133



C

.

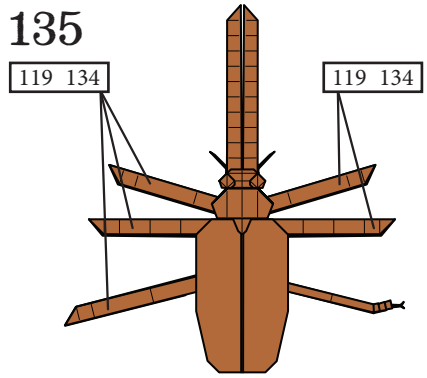
134



I .

.

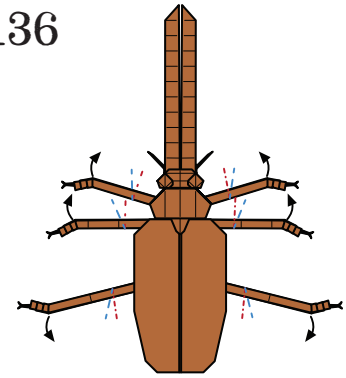
135



119 134

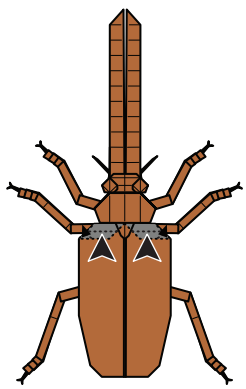
.

136



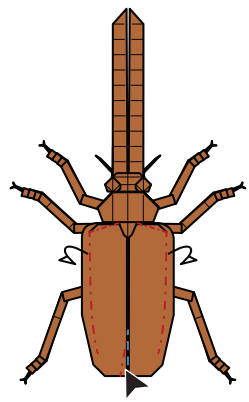
C .

137



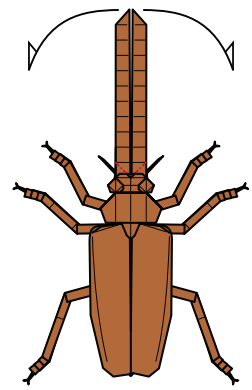
.

138



( ).

139

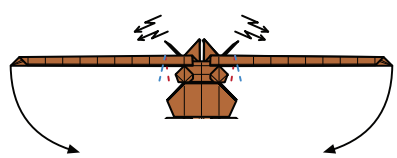


.

140

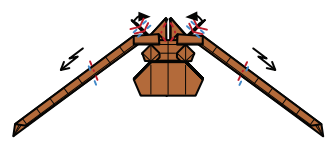
.

141



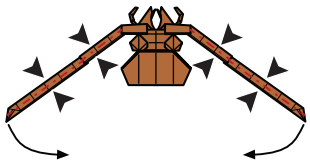
C .

142

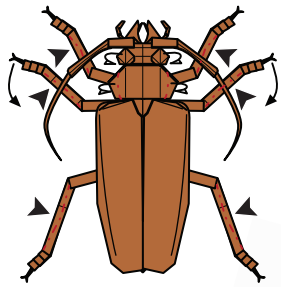


, , .

143



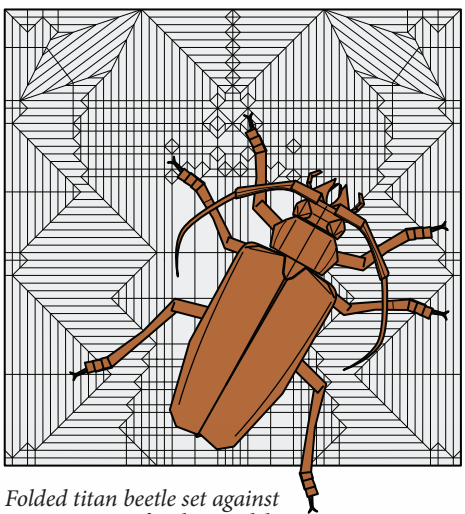
144



C

.

.

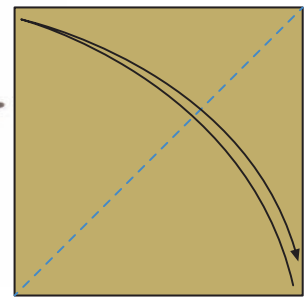


Folded titan beetle set against crease pattern for this model

FLYING HERCULES BEETLE

This is a recent (2012) revision of a model I first created in 2005. I folded the model you see here with O-gami, but basically I would advise using the thinnest paper available. Tracing paper is 41 gsm, so try anything thinner than 50 gsm. To get a finished model with a 6½-inch wingspan, I started with a 17-inch square. Leave yourself at least 5 to 7 hours to fold this model.

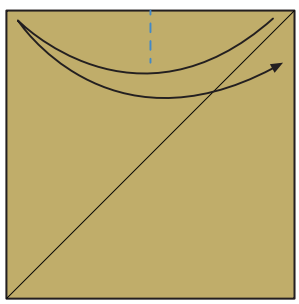
1



. F

.

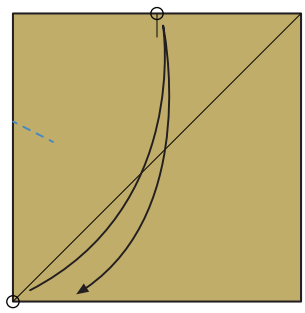
2



F ,

.

3

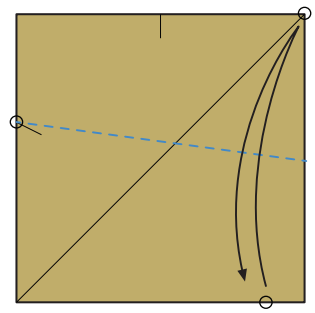


F

,

.

4

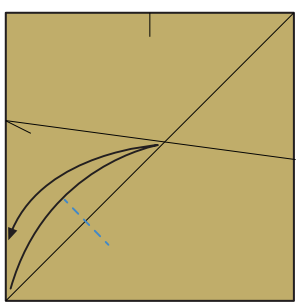


F

,

3, .

5

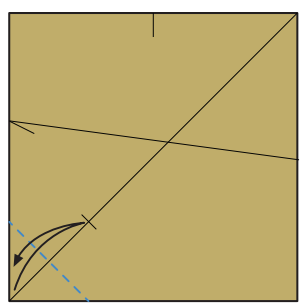


F

,

, .

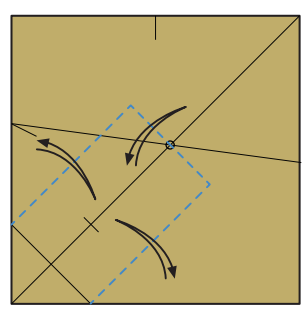
6



F

.

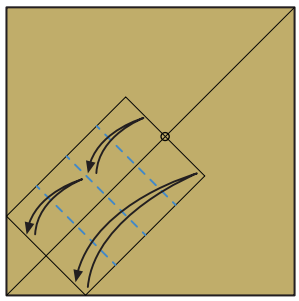
7



F .

.

8



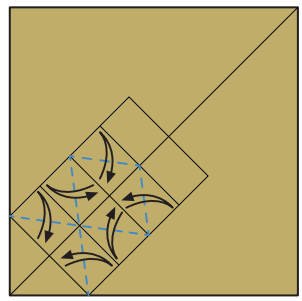
D

.

2 5

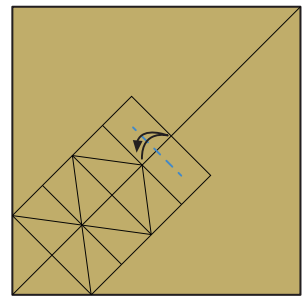
.

9



F .

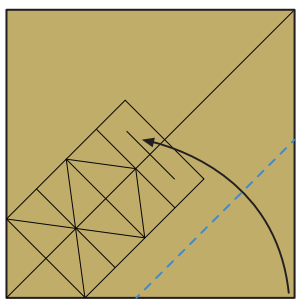
10



F ,

.

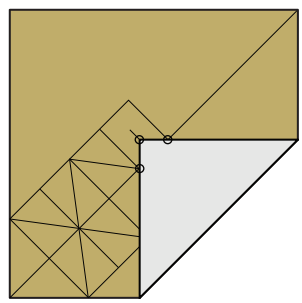
11



. C

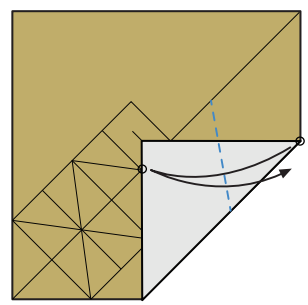
.

12



.

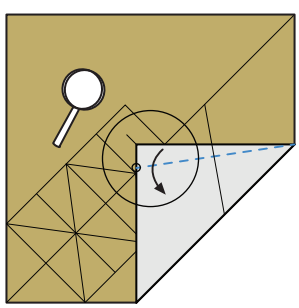
13



F ,

, .

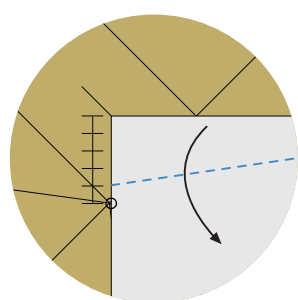
14



F ;

.

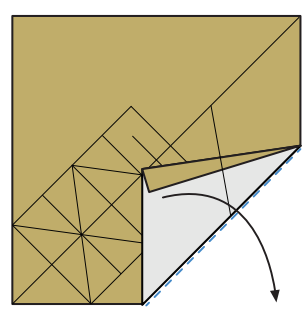
15



C

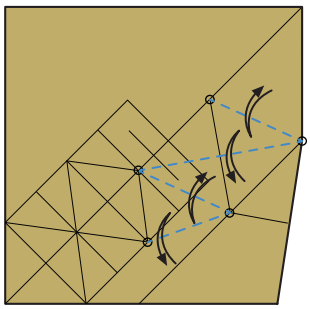
/ .

16



F .

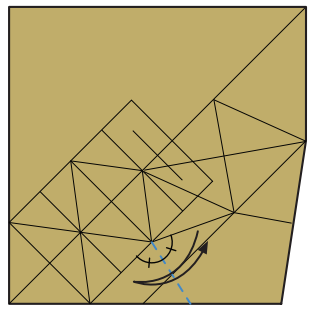
17



F

.

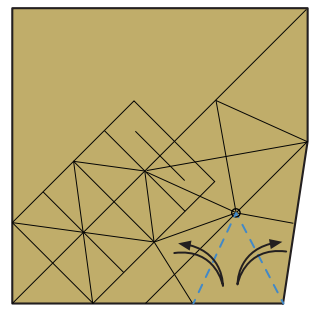
18



F

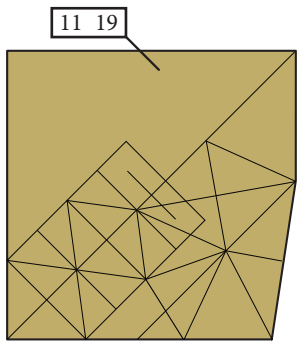
.

19



F .

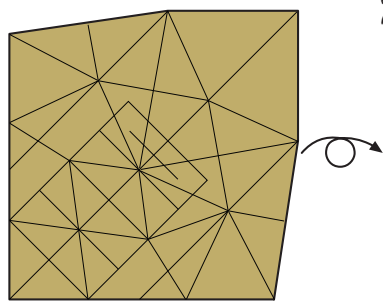
20



. 11 19

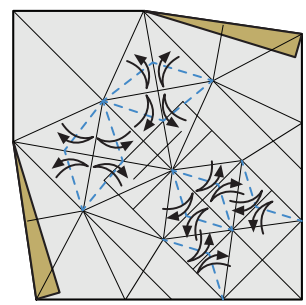
.

21



.

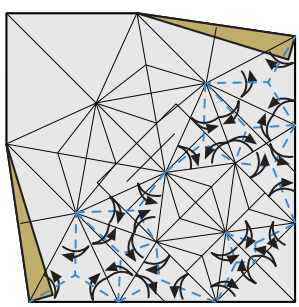
22



F 16

.

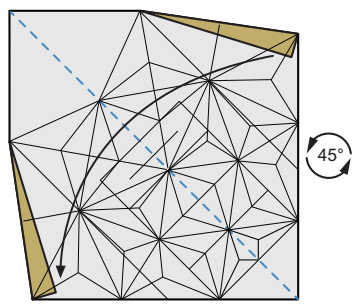
23



F 30

.

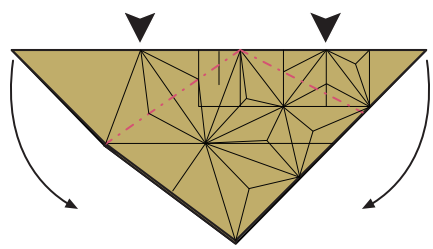
24



F .

45 .

25

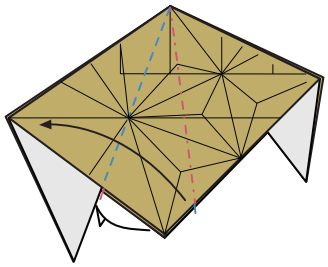


. F ,

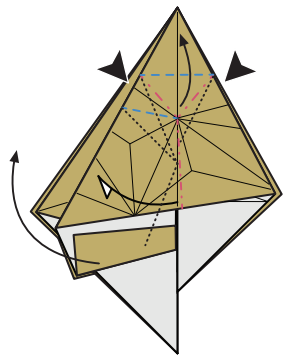
36

.

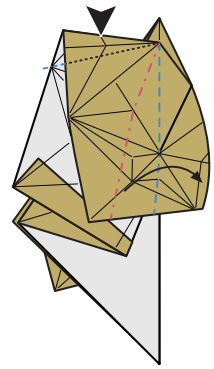
26



27



28

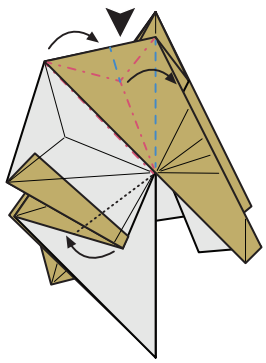


. .

, . .

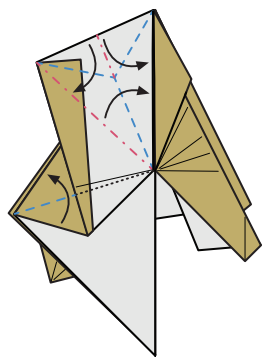
.

29



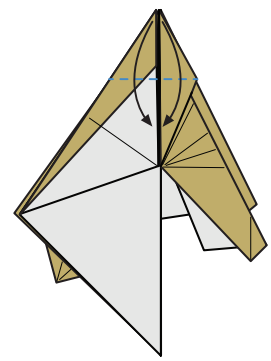
.

30



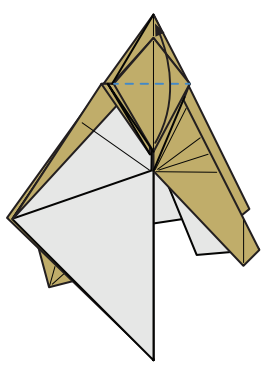
- .

31



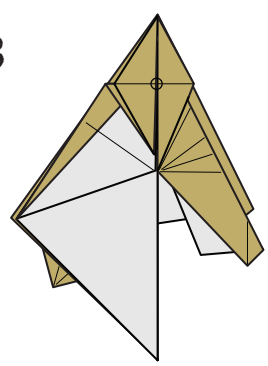
F .

32



F .

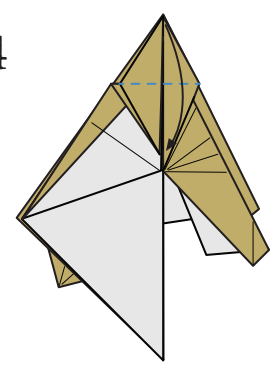
33



(

15).

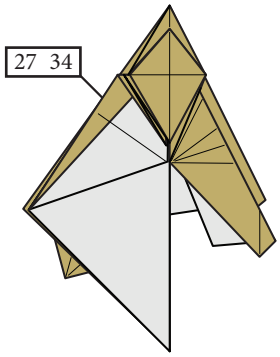
34



F .

.

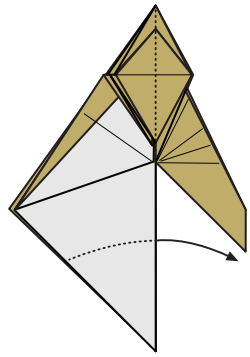
35



27 34

.

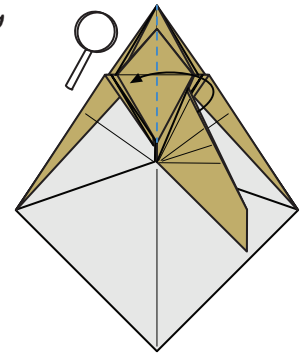
36



F

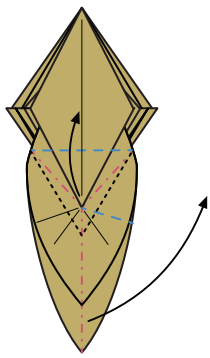
.

37



.

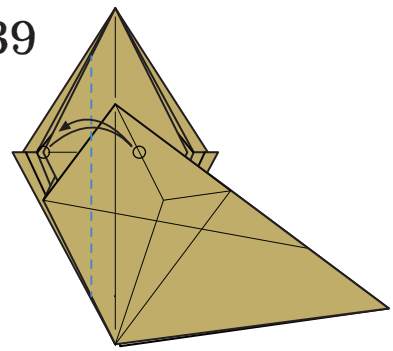
38



I

.

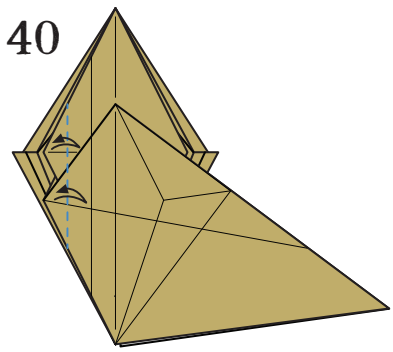
39



F ,

.

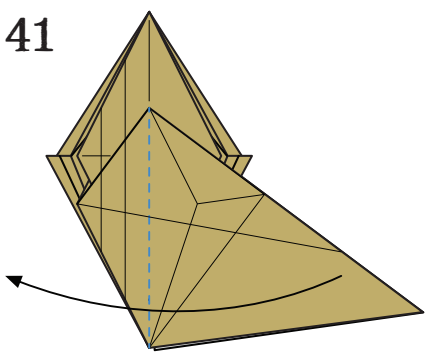
40



F .

.

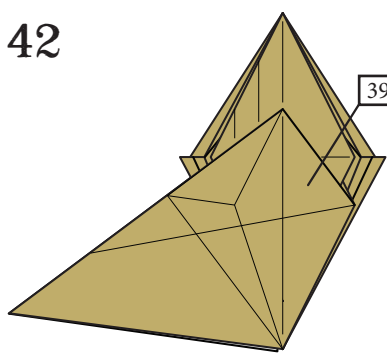
41



F

.

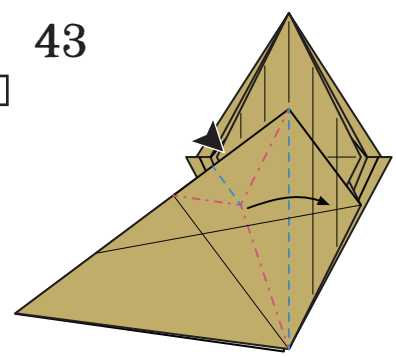
42



39 40

.

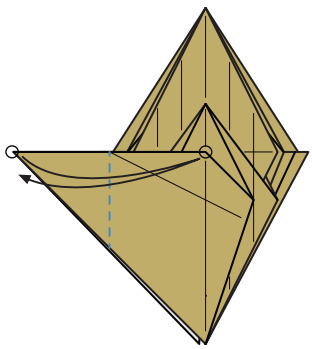
43



C . I

.

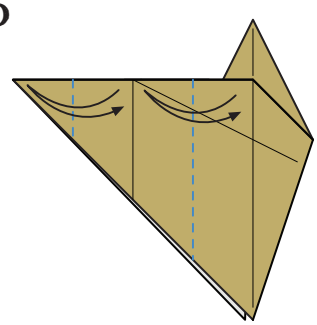
44



F

.

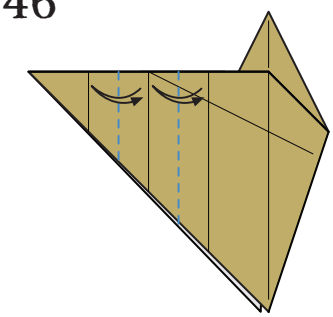
45



F

.

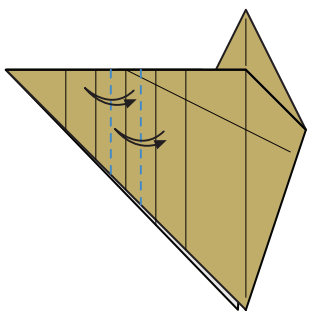
46



D

.

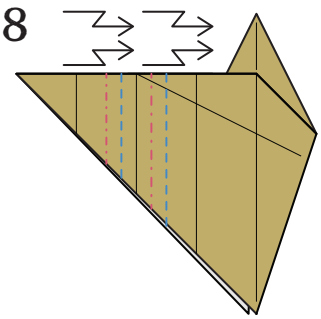
47



D

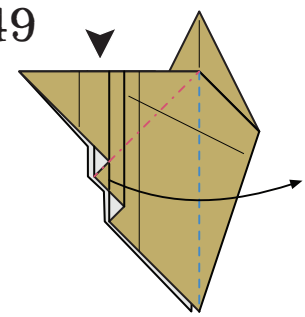
.

48



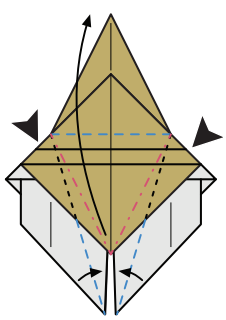
.

49



.

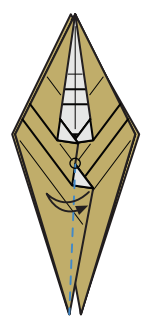
50



,

.

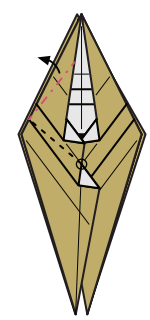
51



F

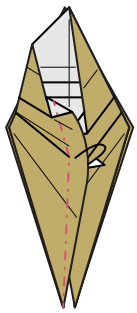
.

52



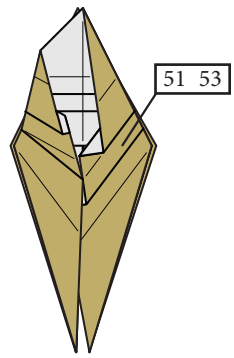
.

53



.

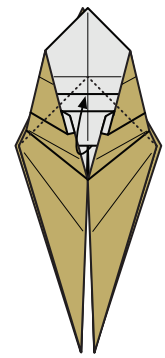
54



51 53

.

55

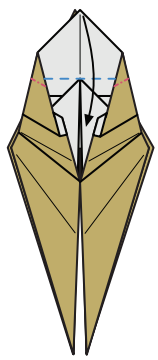


B

(

).

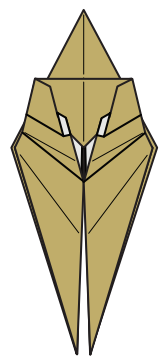
56



F

.

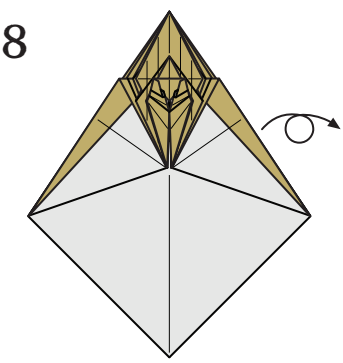
57



I

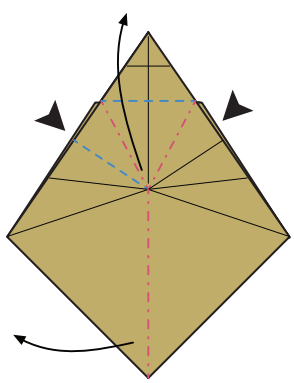
.

58



.

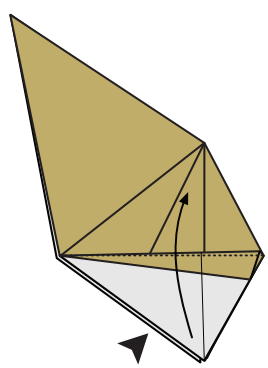
59



,

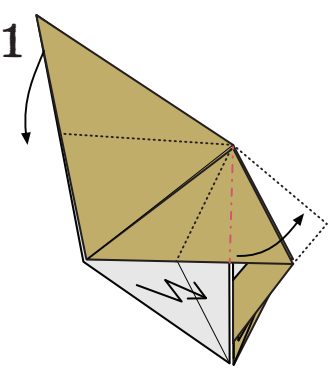
.

60



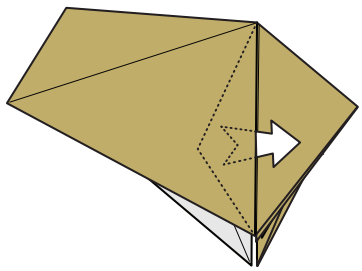
I ( ).

61



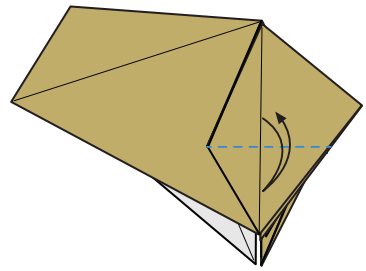
.

62



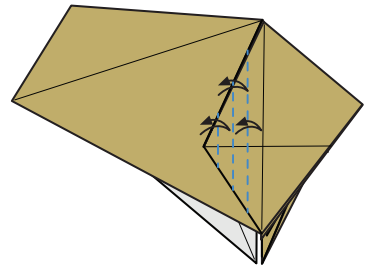
B
( ).

63



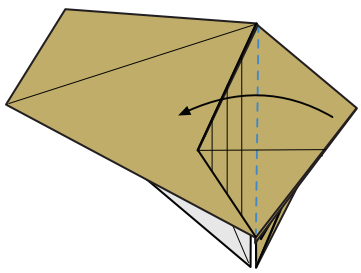
F .

64



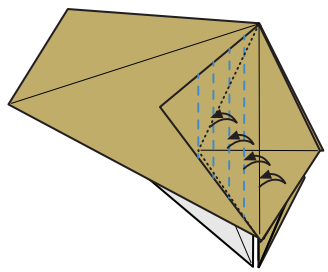
D .

65



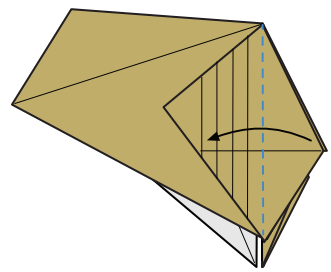
F .

66



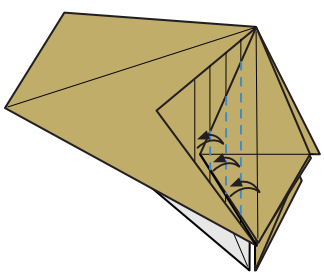
F ,
.

67



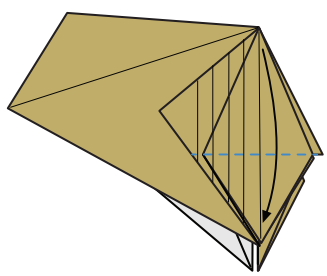
F .

68



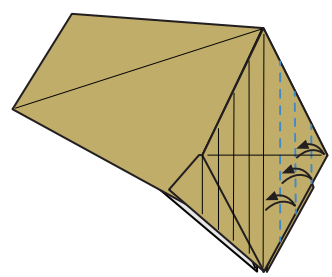
F ,
.

69



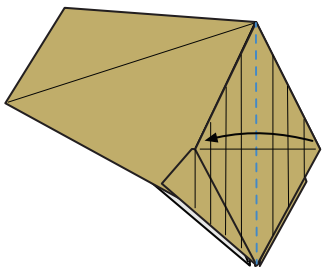
F .

70



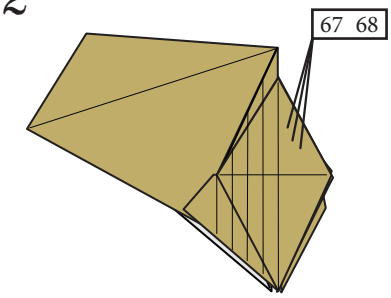
D .

71



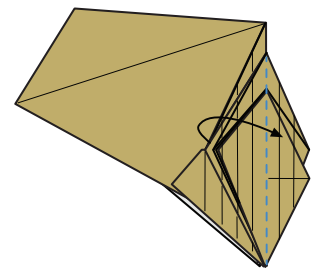
F .

72



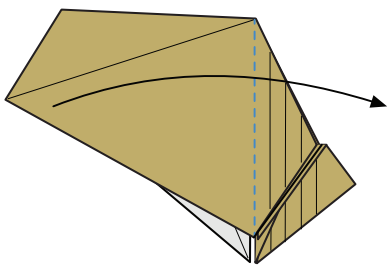
67 68 .

73



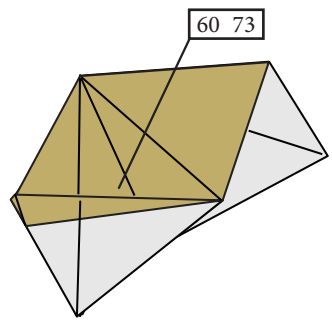
F .

74



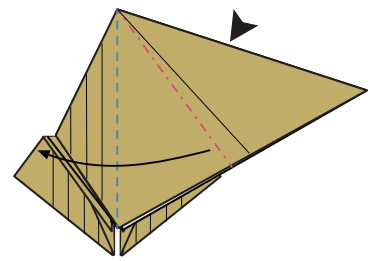
F .

75



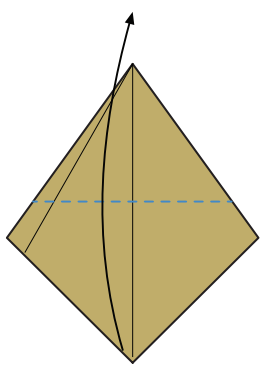
60 73 .

76



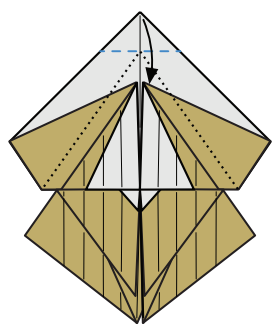
.

77



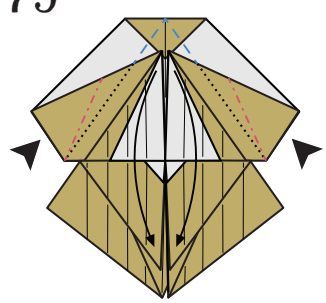
F .

78



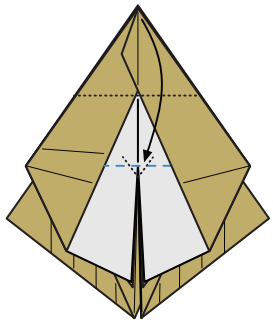
F .

79



.

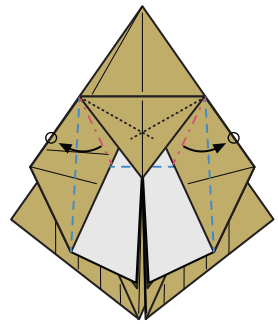
80



F

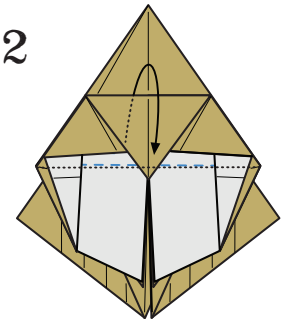
.

81



.

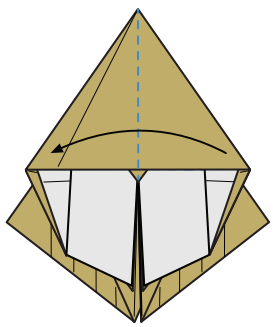
82



B

.

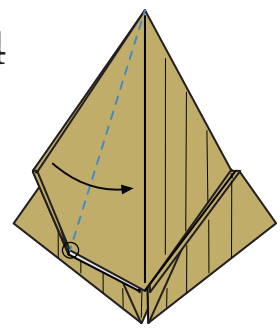
83



F

.

84



F

. I

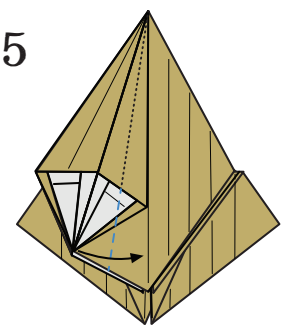
,

,

,

.

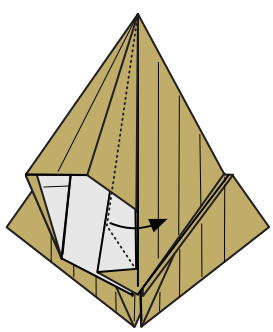
85



F

.

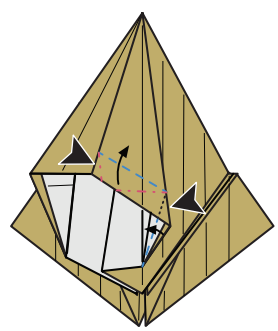
86



B

.

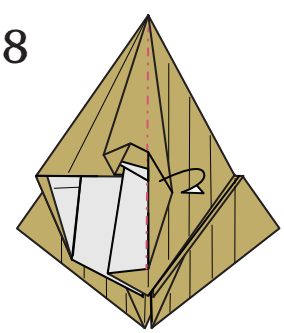
87



. C

.

88

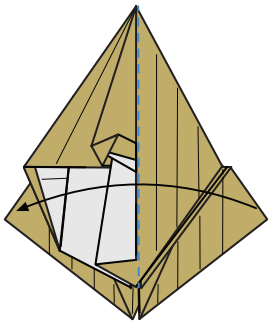


I

. F

.

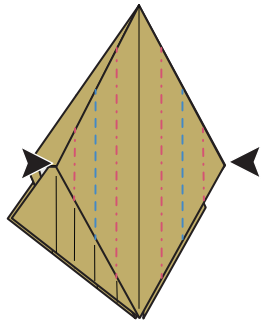
89



F

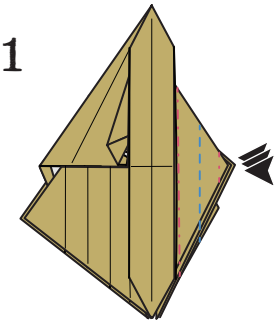
.

90



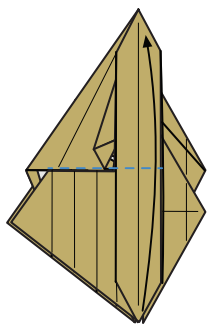
.

91



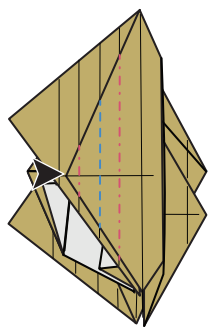
.

92



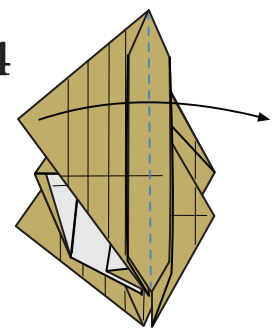
F .

93



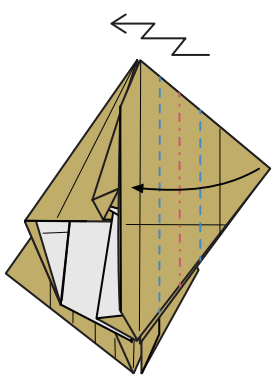
.

94



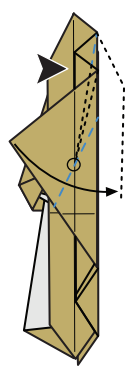
F .

95



.

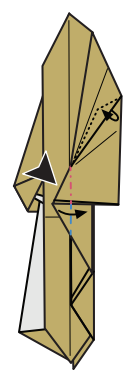
96



F

.

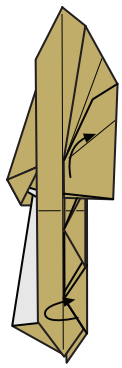
97



B

.

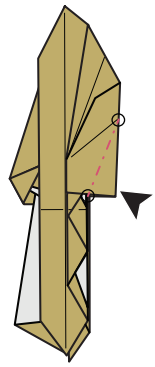
98



G

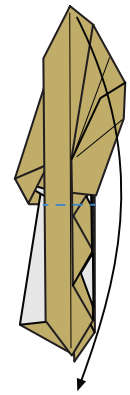
.

99



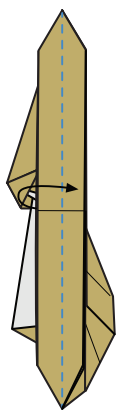
.

100



F .

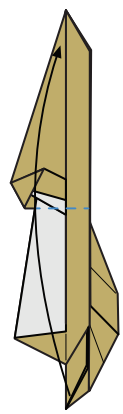
101



F

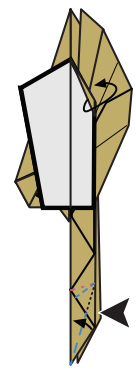
.

102



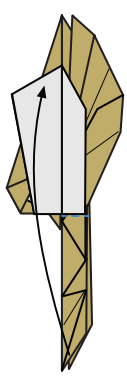
F .

103



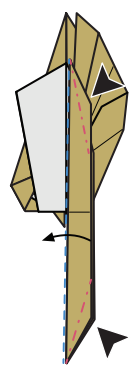
.

104



F .

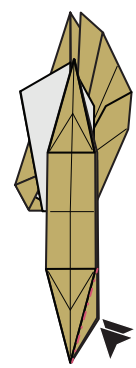
105



F ,

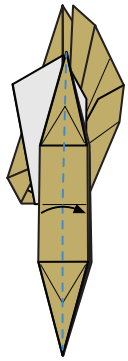
.

106



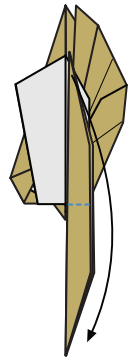
.

107



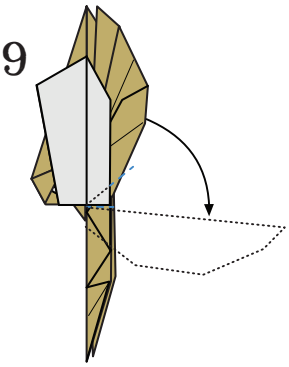
F .

108



F .

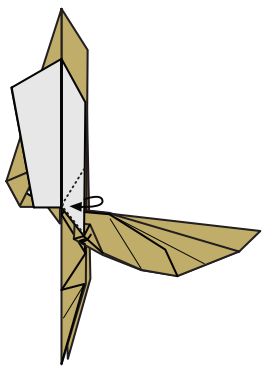
109



. I

.

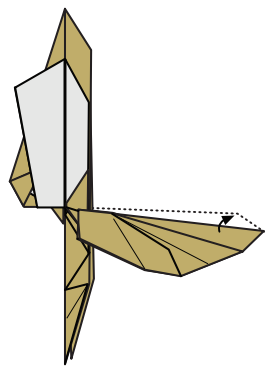
110



B

.

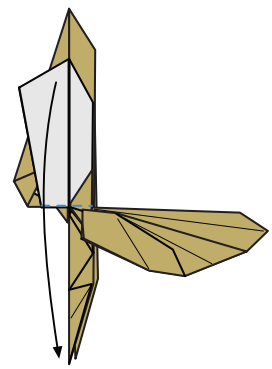
111



B

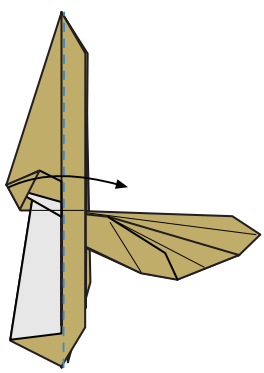
.

112



F .

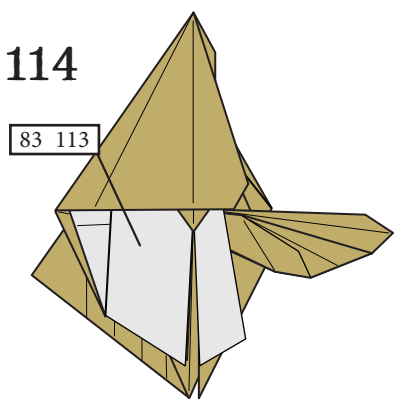
113



F .

114

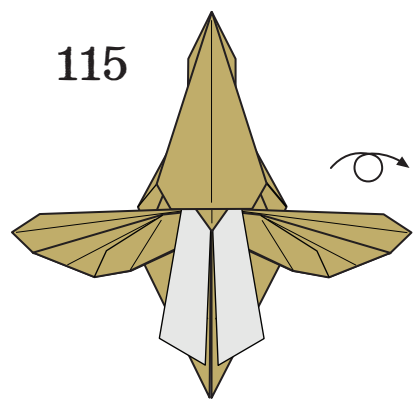
83 113



83 113

.

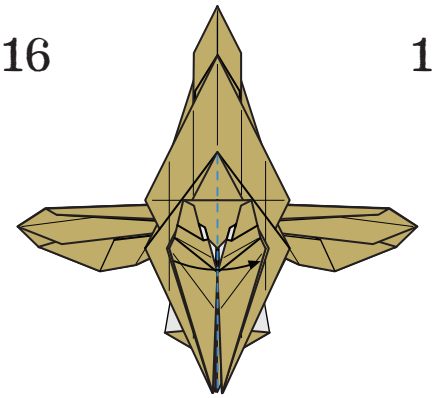
115



I .

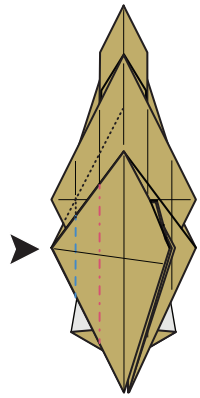
.

116



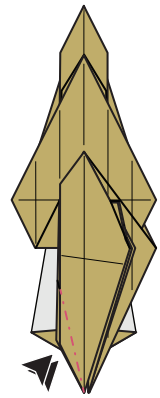
F . .

117



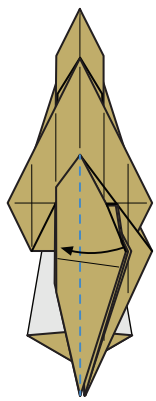
- .

118



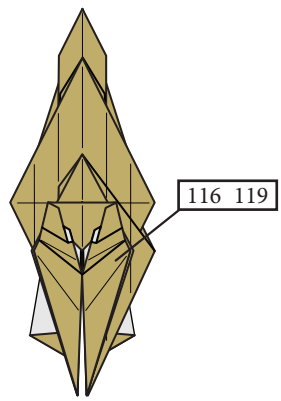
.

119



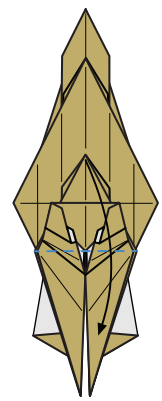
F .

120



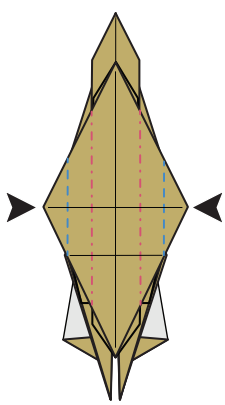
116 119 .

121



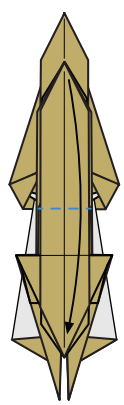
F .

122



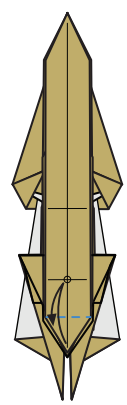
.

123



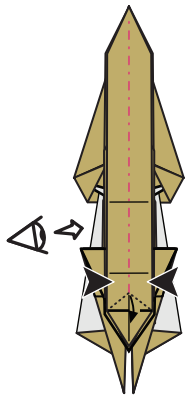
F .

124

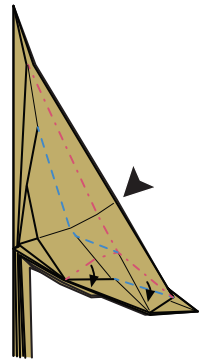


F .

125



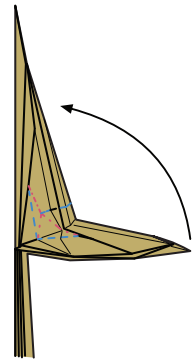
126



. B

.

127

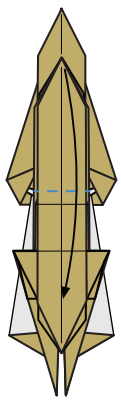


C .

.

.

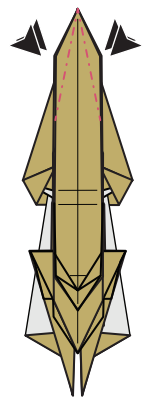
128



F

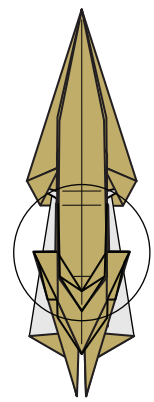
.

129



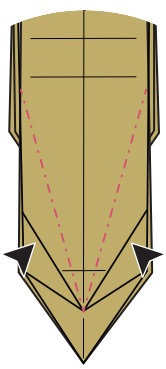
.

130



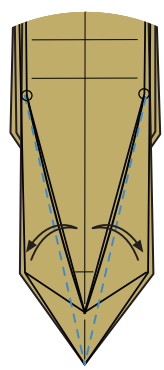
F .

131



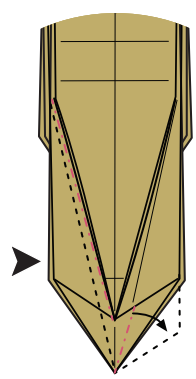
.

132



F .

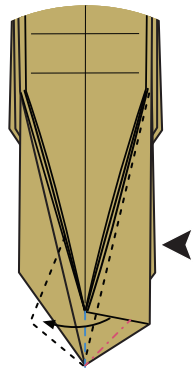
133



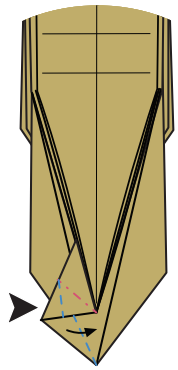
A

.

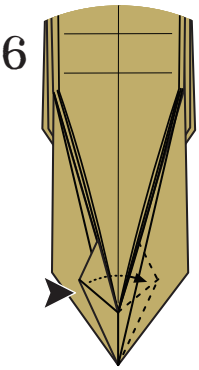
134



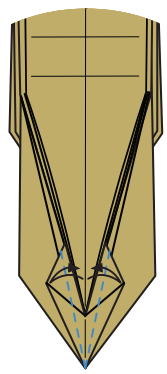
135



136

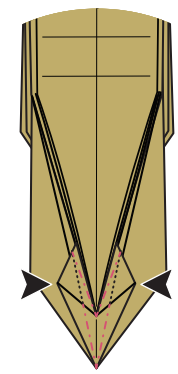


137

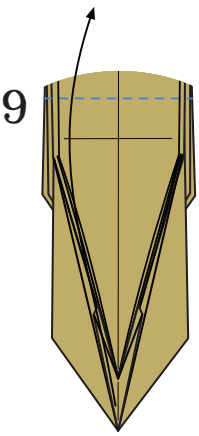


F

138

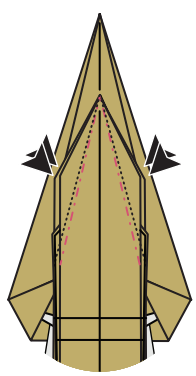


139

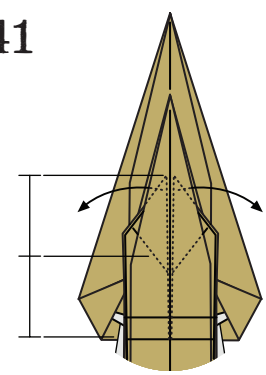


F

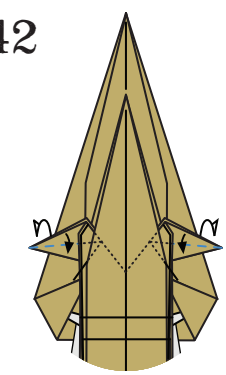
140



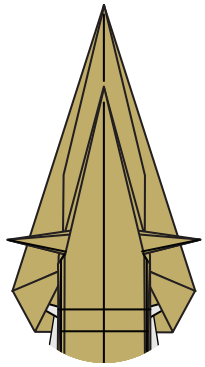
141



142



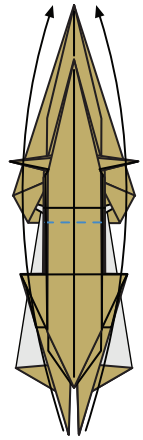
143



I .

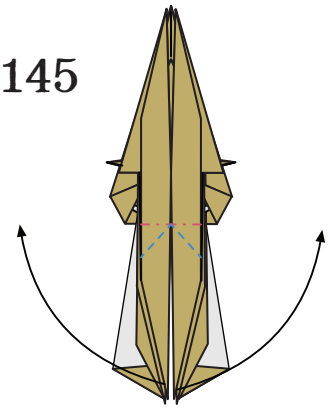
.

144



.

145

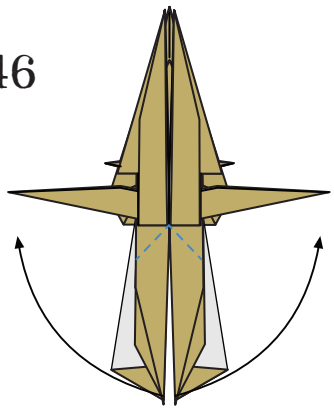


C

,

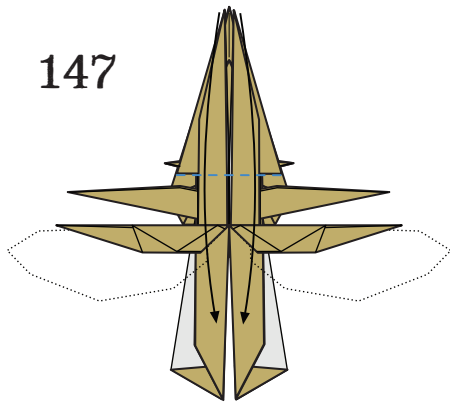
.

146



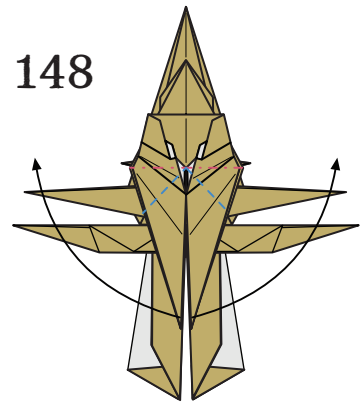
.

147



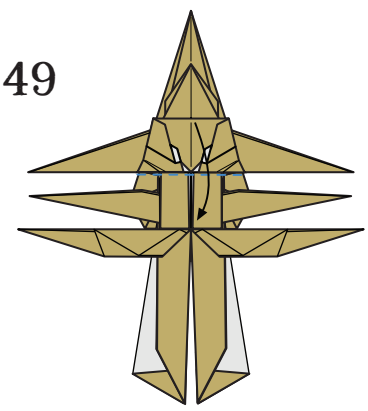
.

148



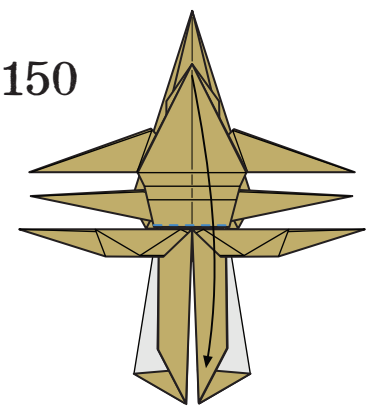
C .

149



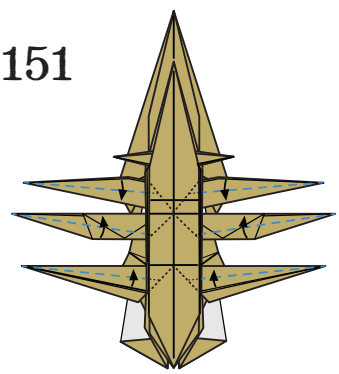
F .

150



F .

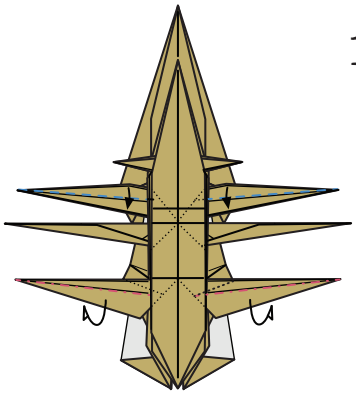
151



.

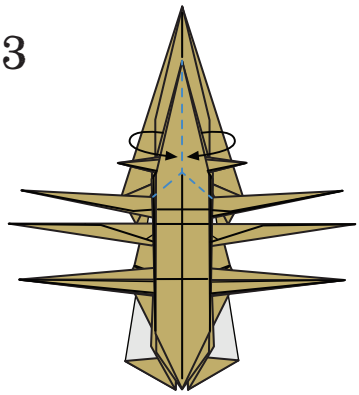
.

152



.

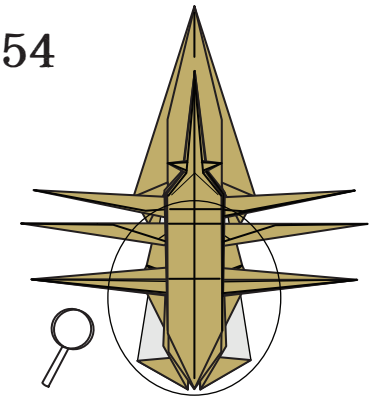
153



,

.

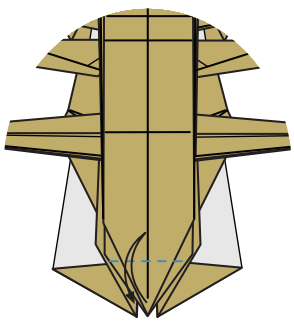
154



F

.

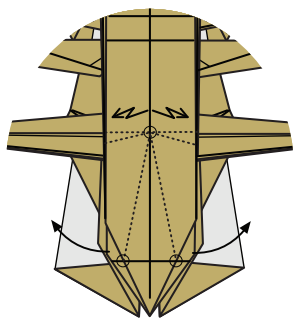
155



F

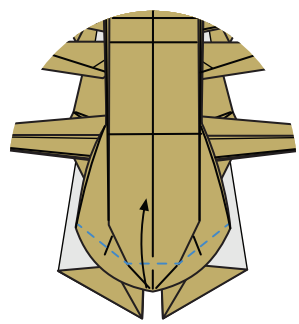
.

156



.

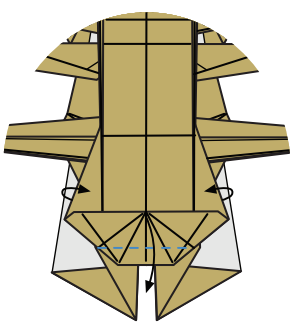
157



F

.

158

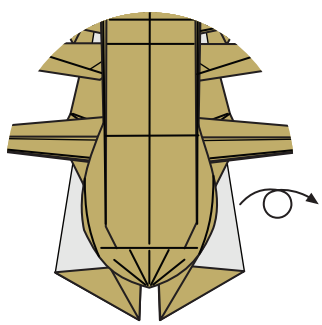


F

,

3D.

159

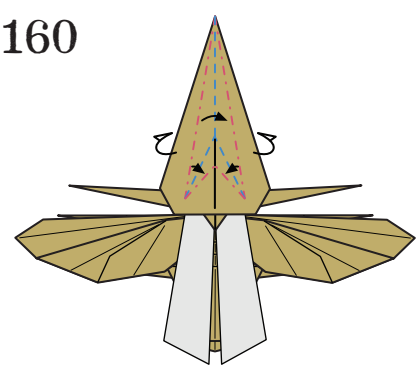


I

.

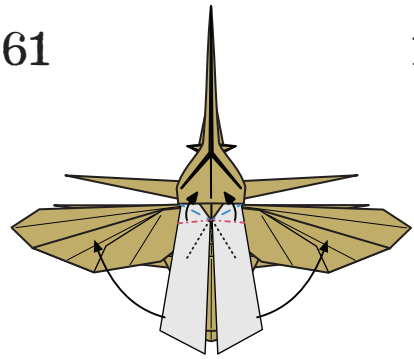
.

160



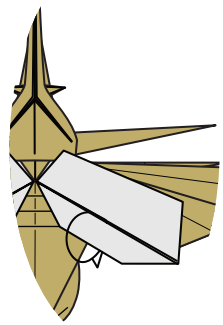
.

161



.

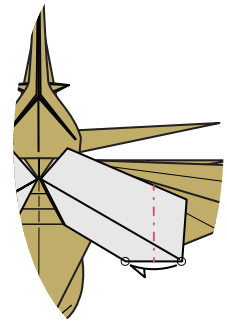
162



.

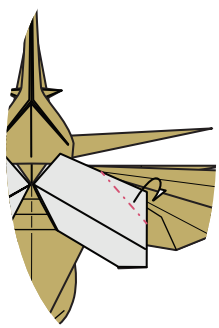
.

163



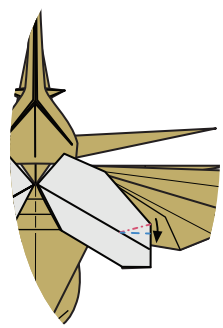
, .

164



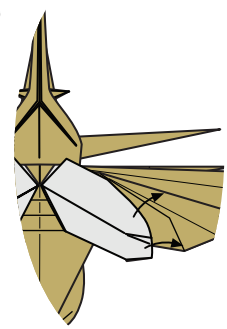
.

165



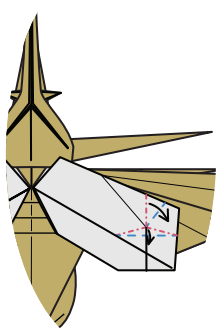
.

166



164.

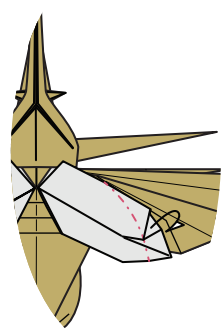
167



C

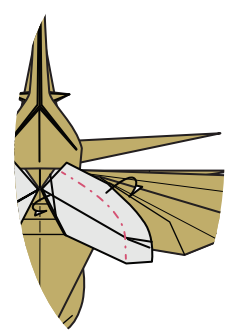
.

168



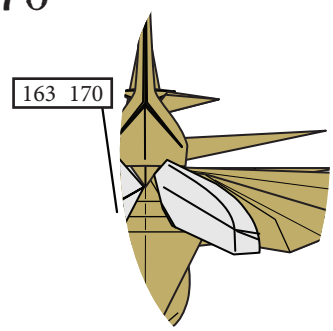
.

169



.

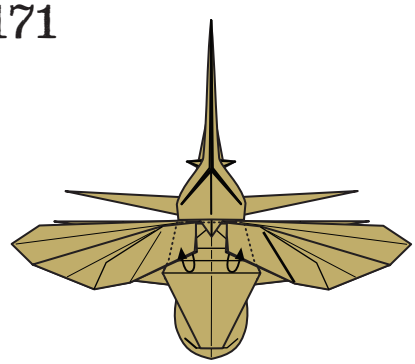
170



I .

163 170 .

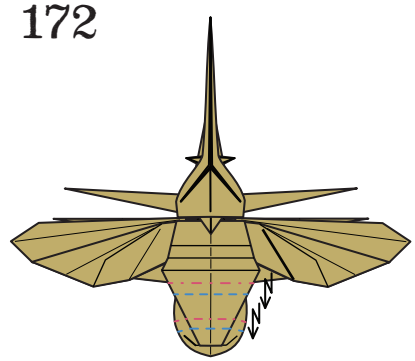
171



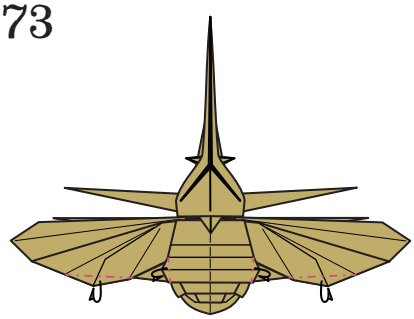
. B .

.

172

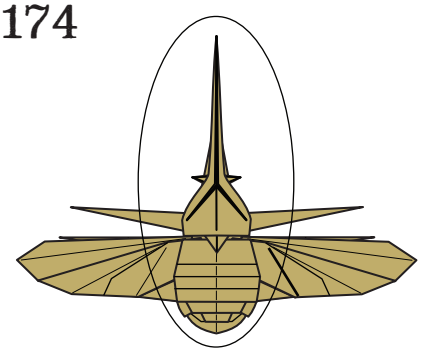


173



.

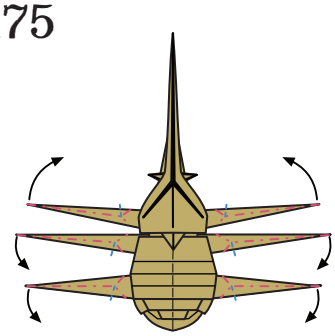
174



I . .

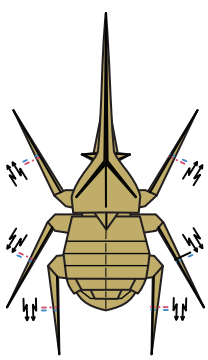
F .

175



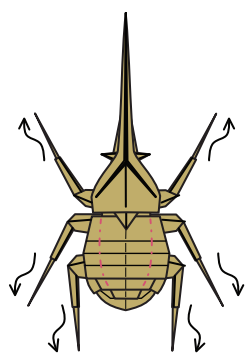
- .

176



C .

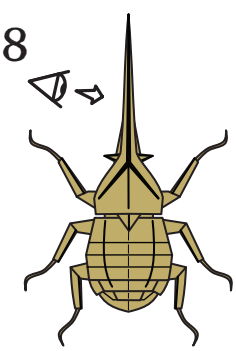
177



-

.

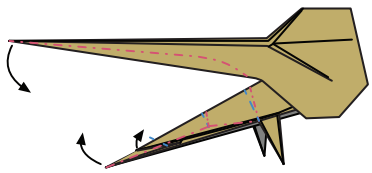
178



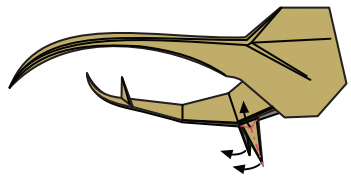
I .

.

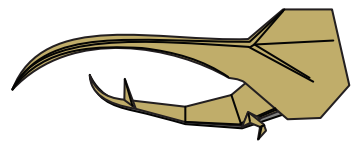
179



180



181

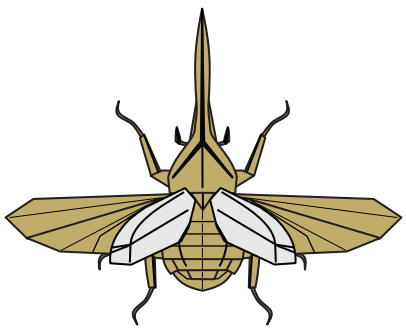


.

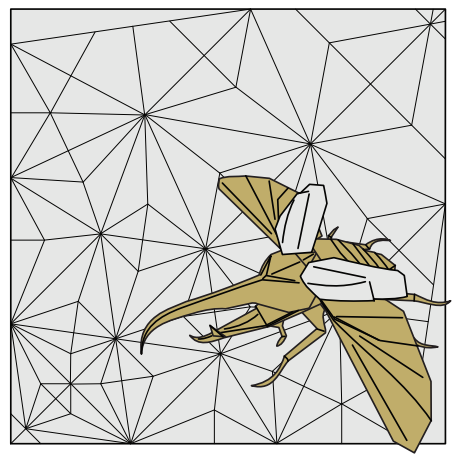
-

I .

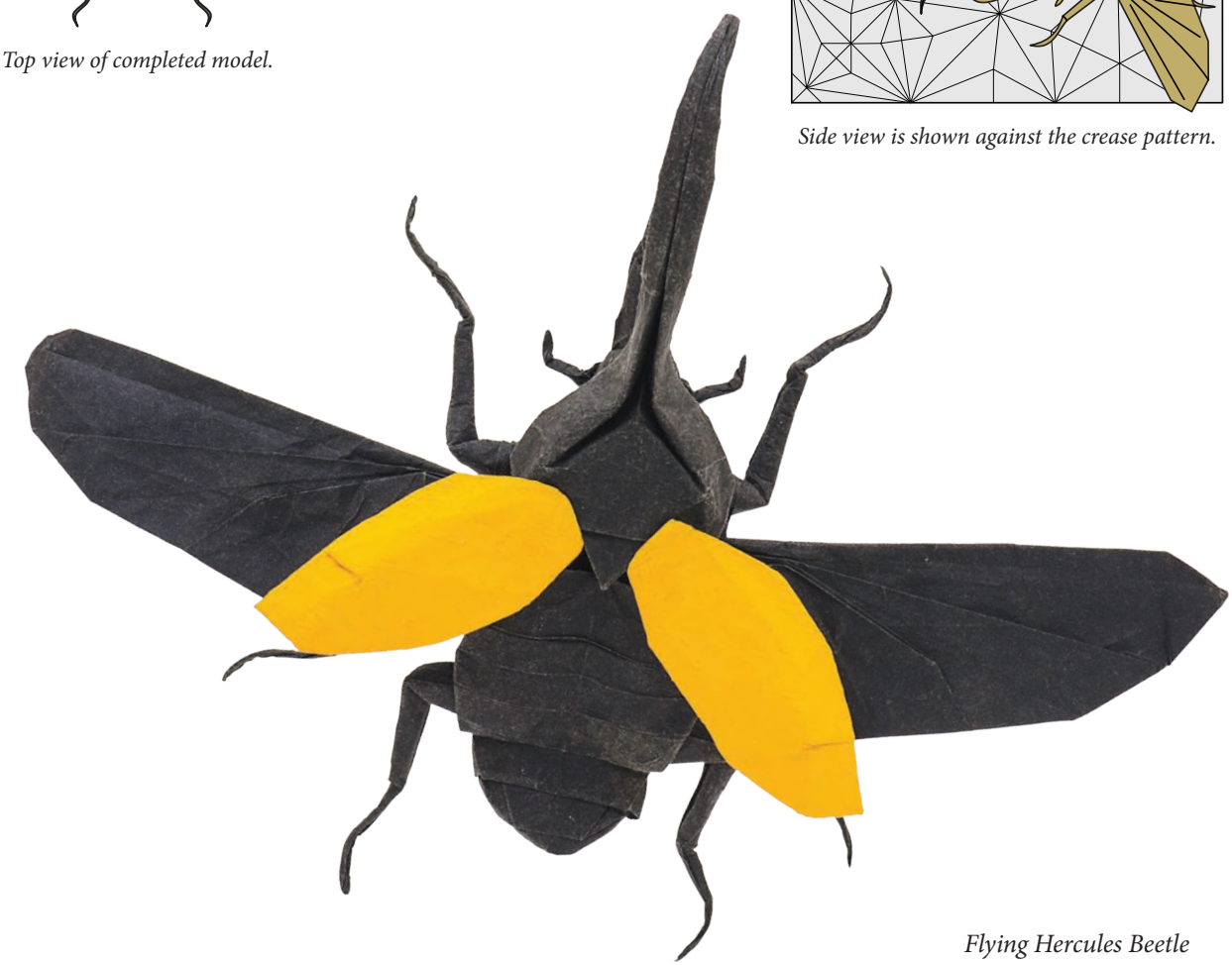
. .

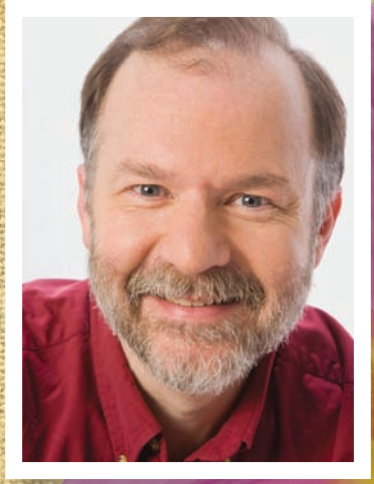


Top view of completed model.



Side view is shown against the crease pattern.





ROBERT J. LANG

B A , G , J.

.

D .

-

. H

. H

,

A

J .

D .

. A F

A ,

IEEE ,

E - -C

IEEE *Journal of Quantum Electronics,*

F

A .

H 14

. H

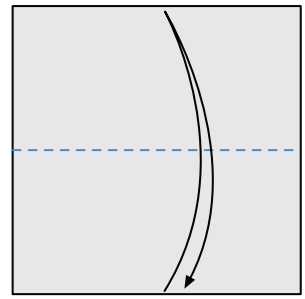
A , C .

Yellow Jacket

YELLOW JACKET

For best results, I recommend folding this from a sheet of sized paper (as thin as you can find), ideally 40 cm or larger (the photographed piece was from a 40 cm (16 inches) square). You should start with dry paper and fold it dry up to the point that it starts to become 3D. At that point, I recommend using a small paintbrush and a dish of water to selectively dampen legs, wings, body segments, etc., for shaping, taking breaks to let one part dry before moving on to the next.

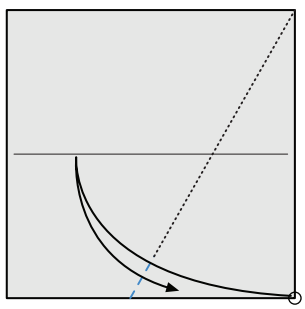
1



F

.

2

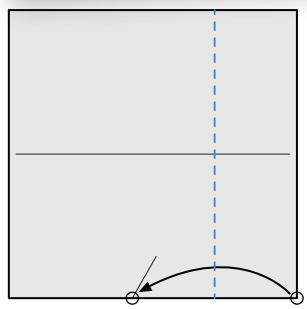


B

,

.

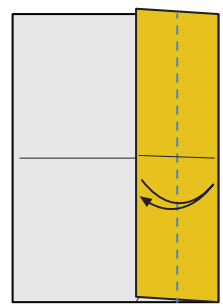
3



F

.

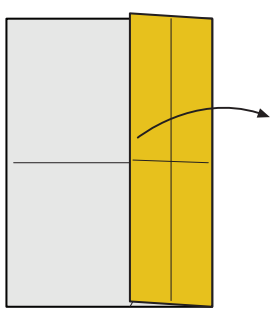
4



F

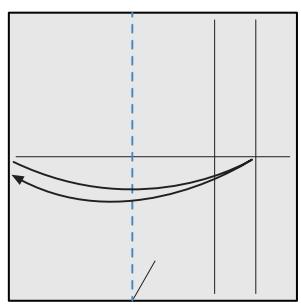
. .

5



.

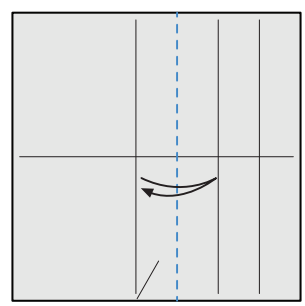
6



F

. .

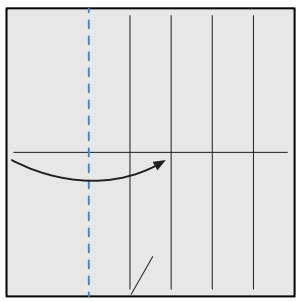
7



F

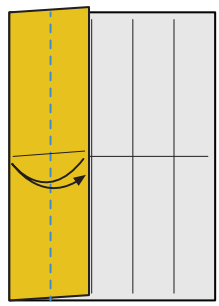
. .

8



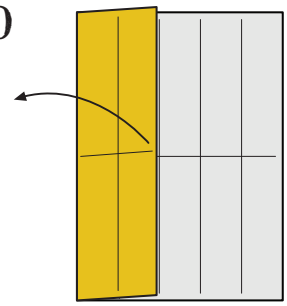
F . .

9



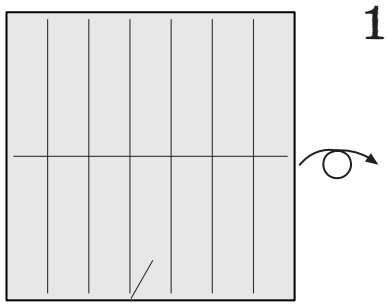
F . .

10



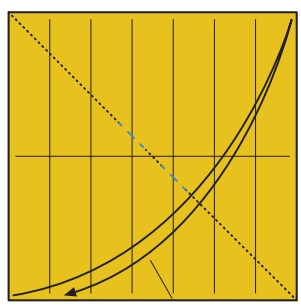
.

11



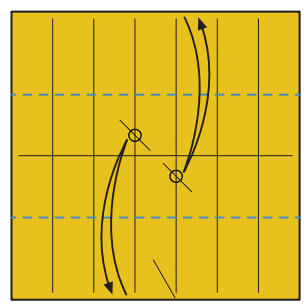
.

12



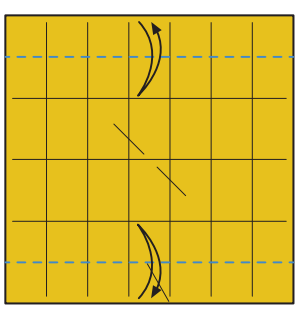
F , ( ).

13



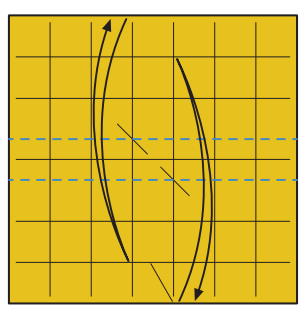
F . .

14



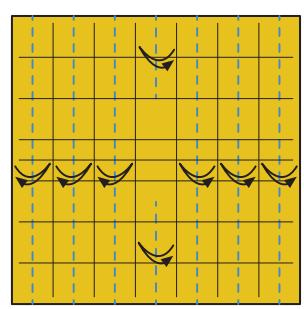
F . .

15



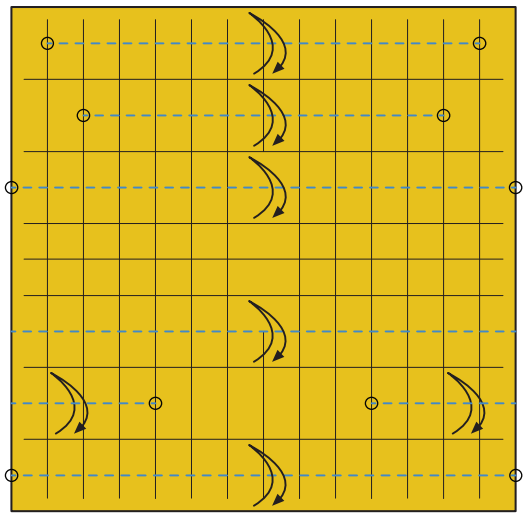
F . .

16



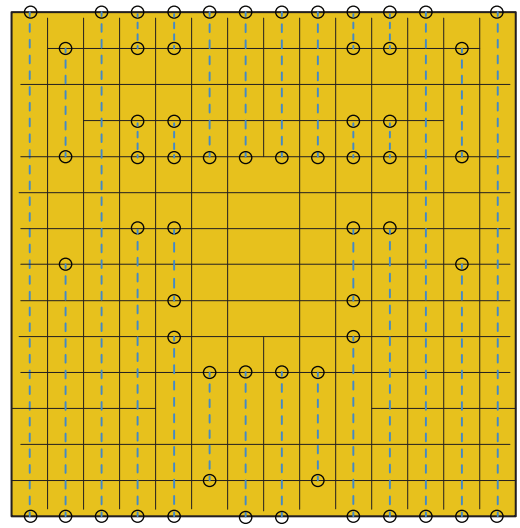
C . : .

17



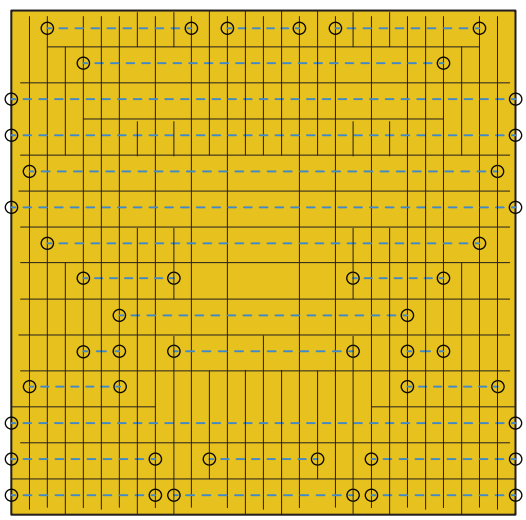
C .

18



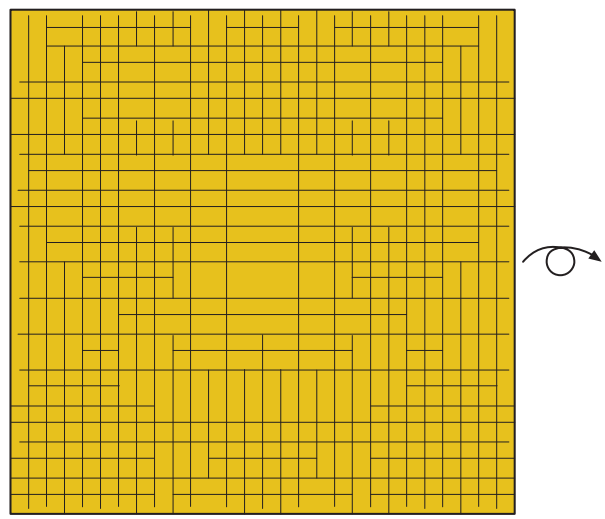
C .

19



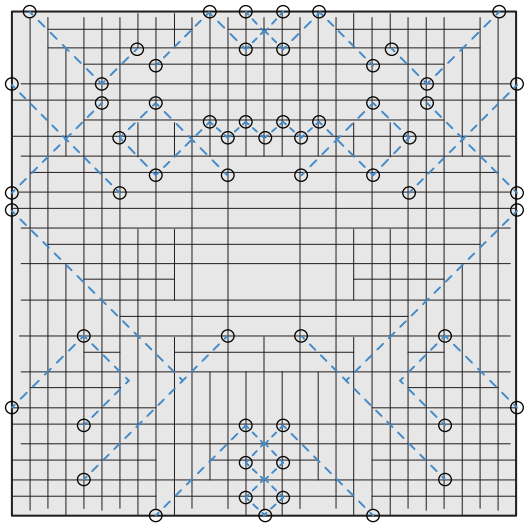
C .

20



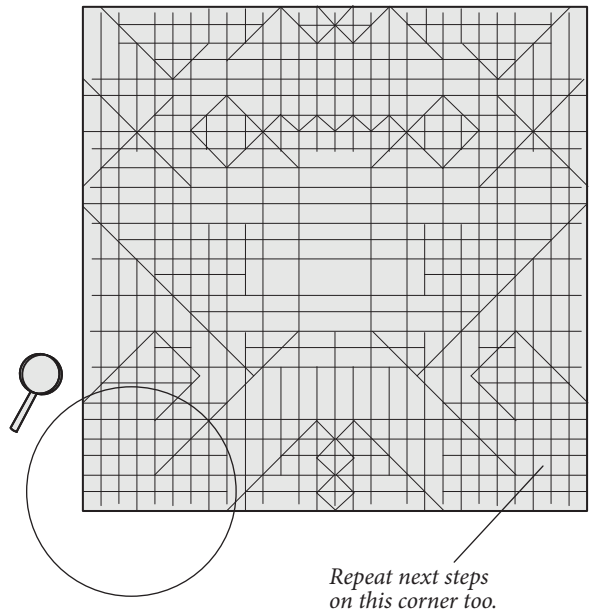
.

21



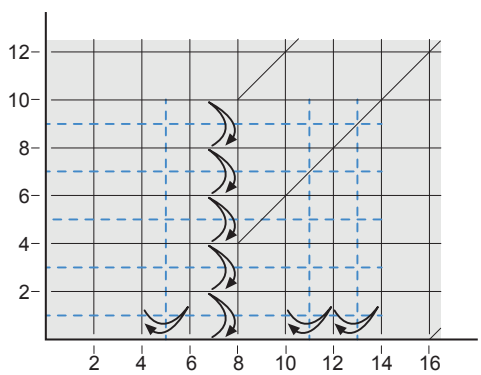
C .

22



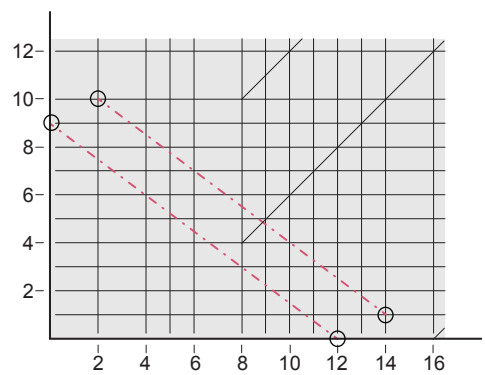
, .
: 23 27
.

23



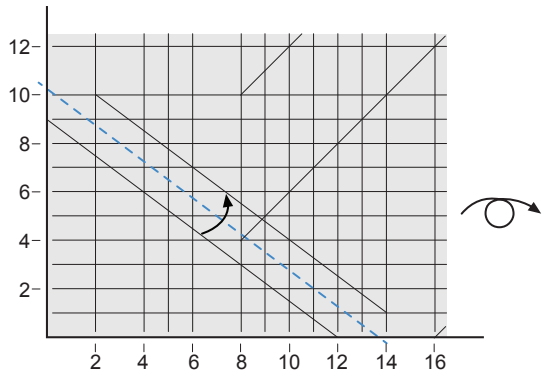
C . :
1/56 .

24



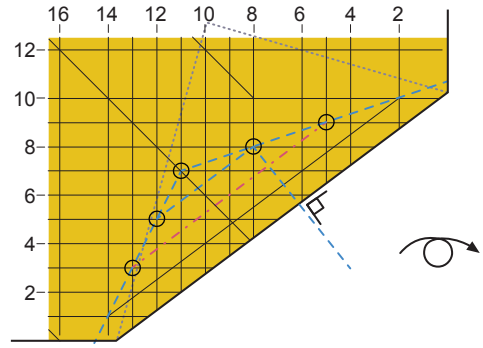
.

25



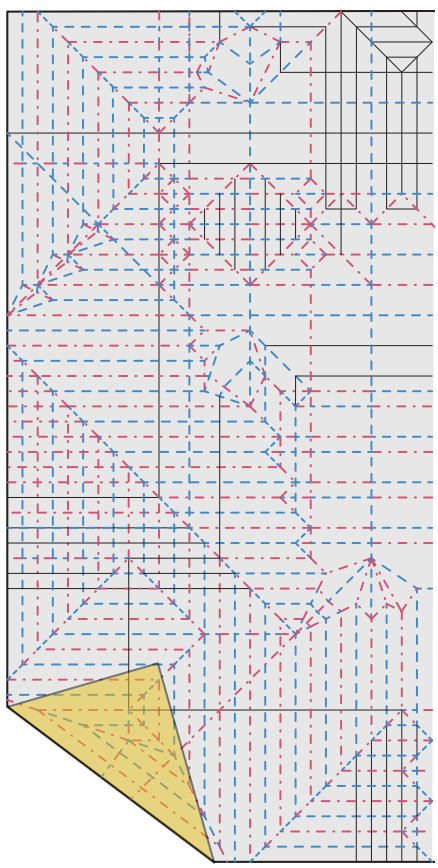
F (
). .

26



C .
.

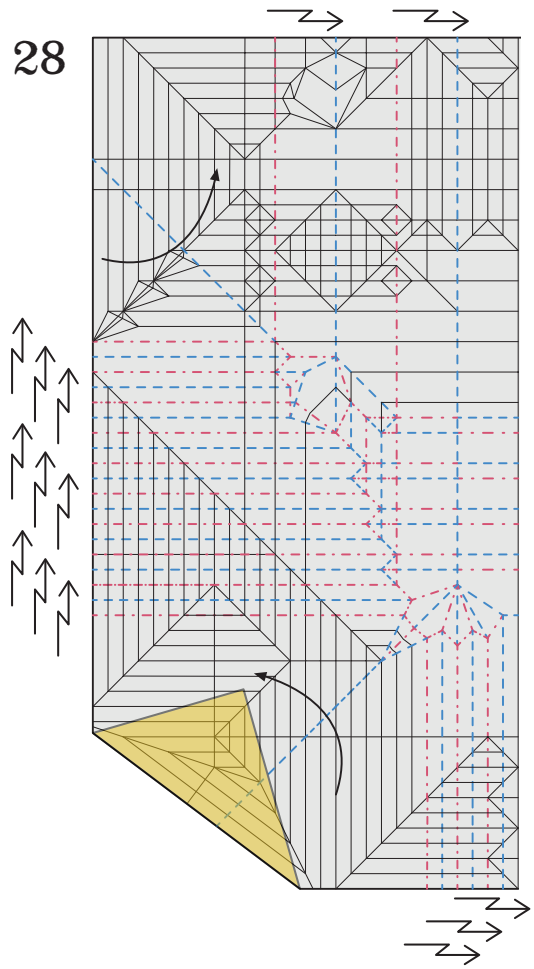
27



C .
A .

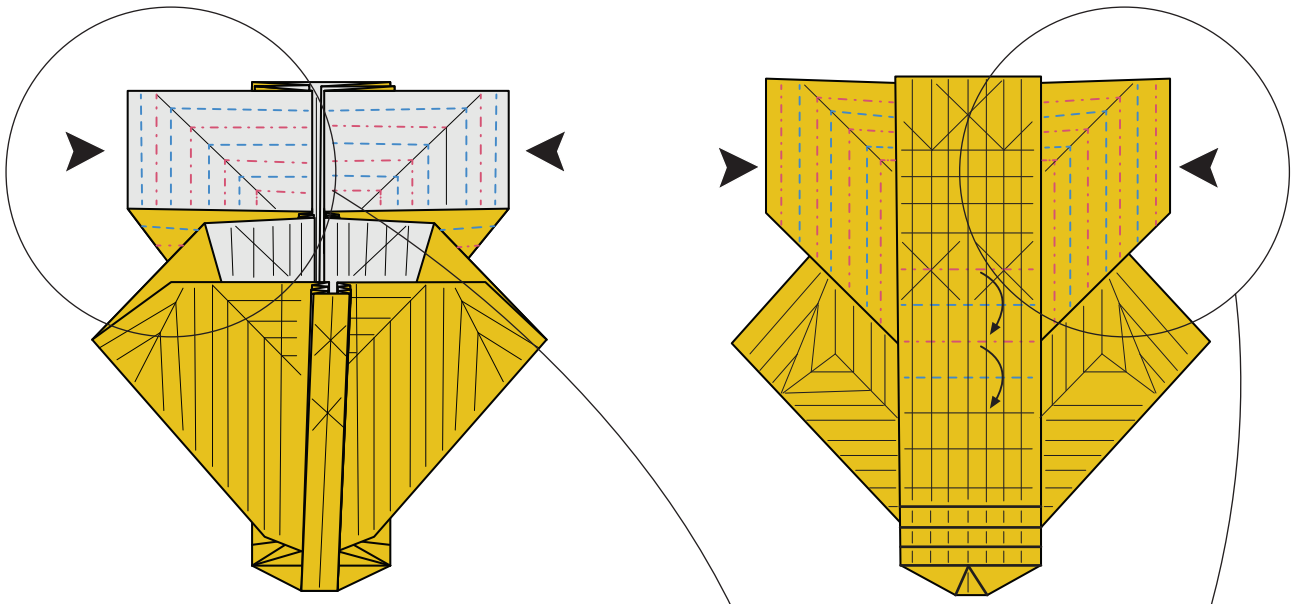
. A
,
.
.

28



A ,
.
,
.

29



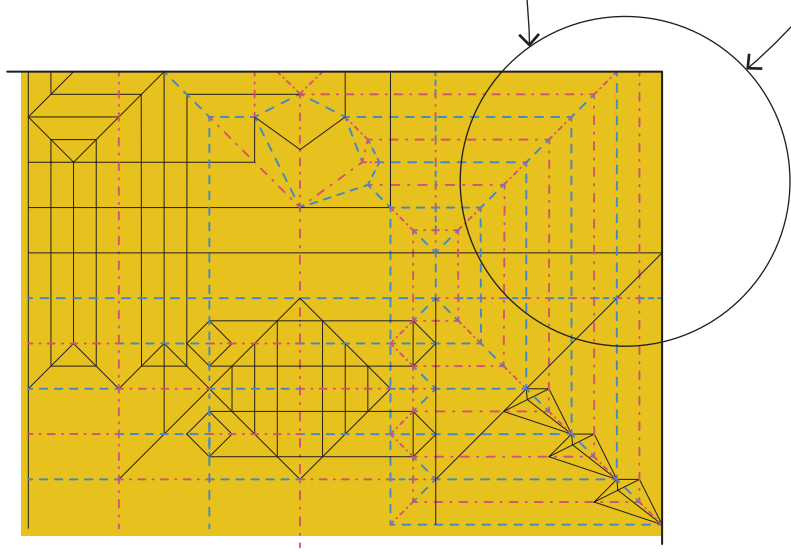
Top view

C

.

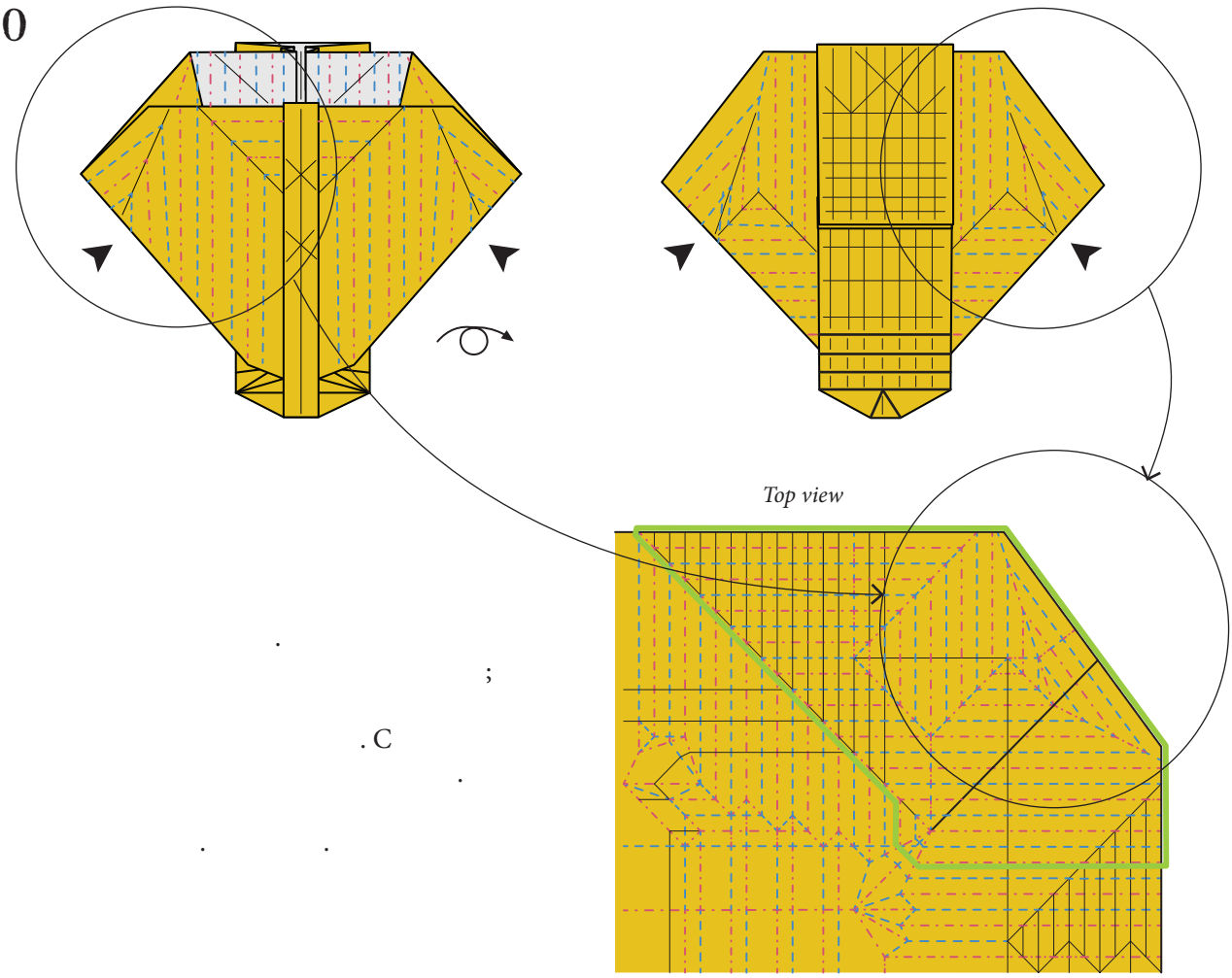
;

.



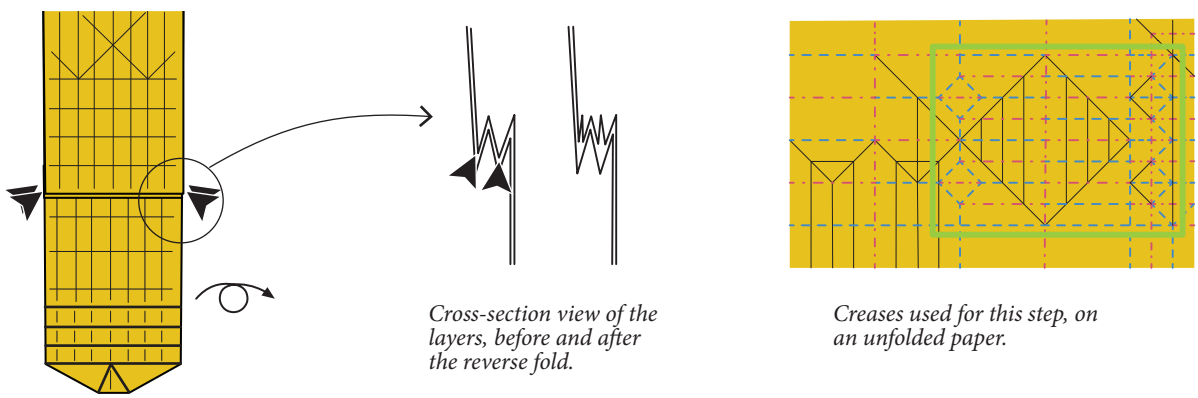
Creases used for this step, shown on unfolded paper for clarity.

30



Top view

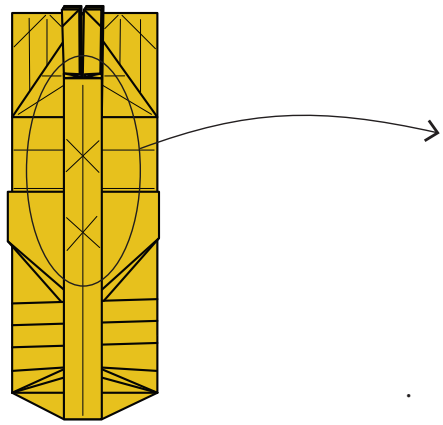
31

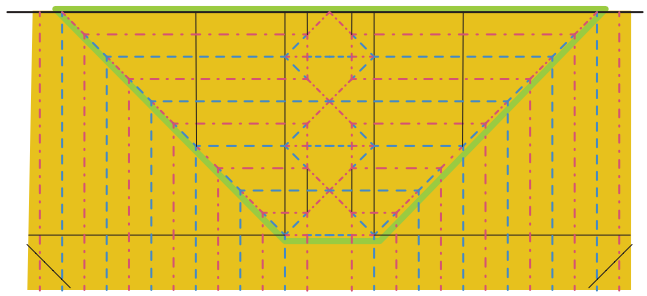


Cross-section view of the layers, before and after the reverse fold.

Creases used for this step, on an unfolded paper.

32

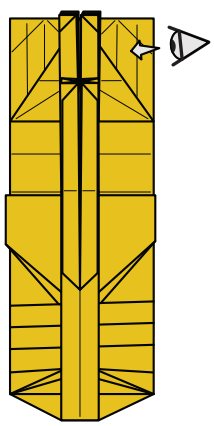




Creases used for this step, on an unfolded paper.

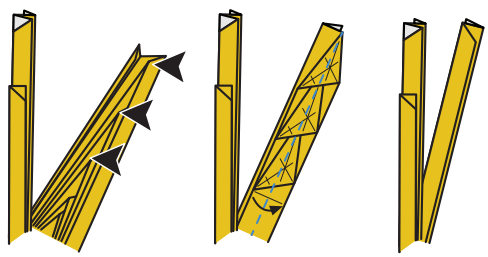
C

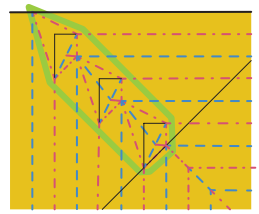
33



34

a. *b.* *c.*



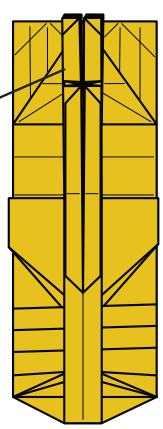


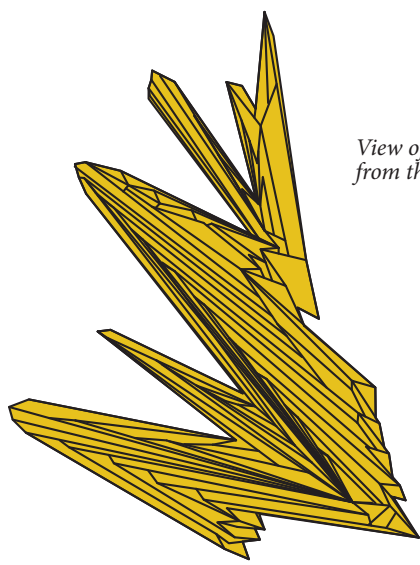
Creases used for this step, on an unfolded paper.

A

35

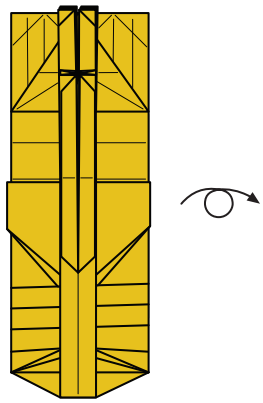
33 34



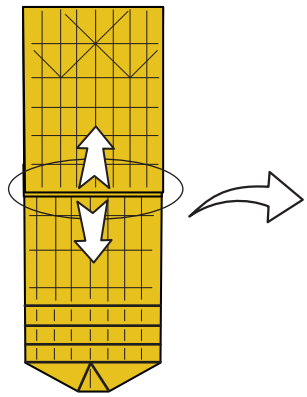


View of the pleats from the side.

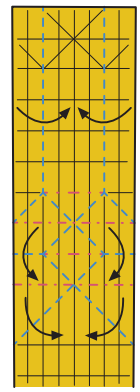
36



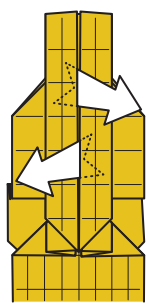
37



38

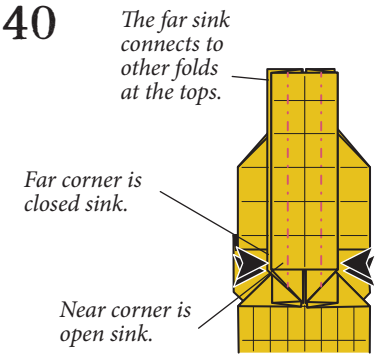


39



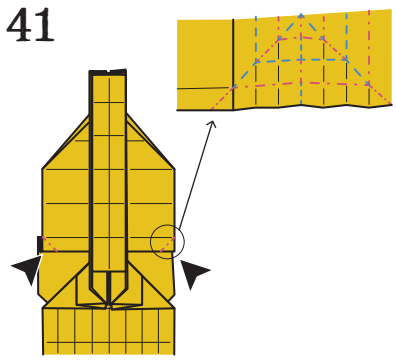
B .

40



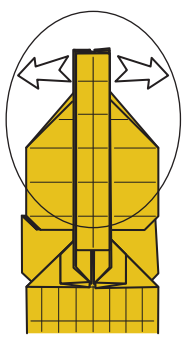
.

41



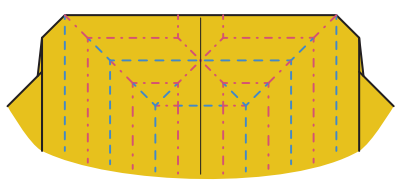
F E - .

42



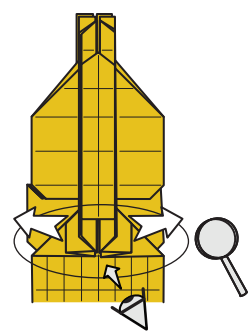
.

43



.

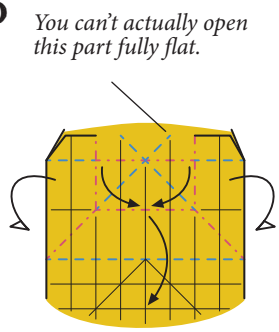
44



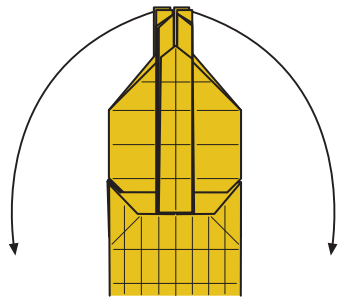
I .

.

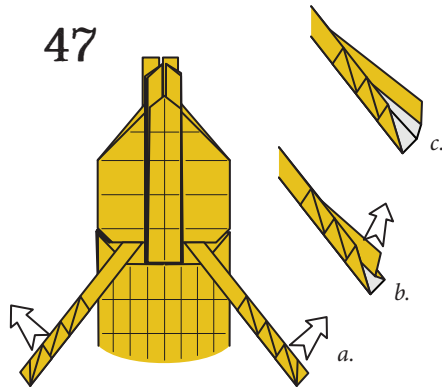
45



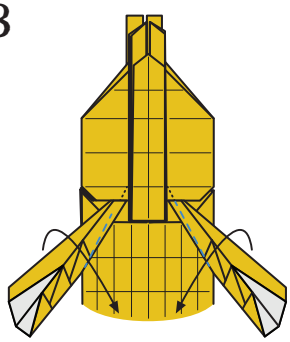
46



47

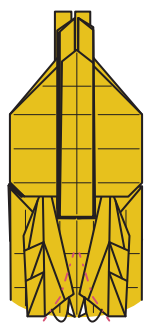


48

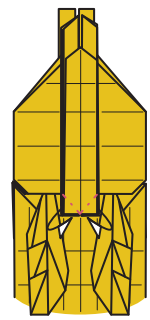


F

49

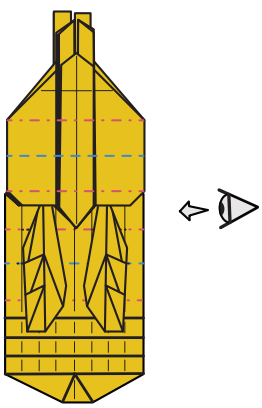


50

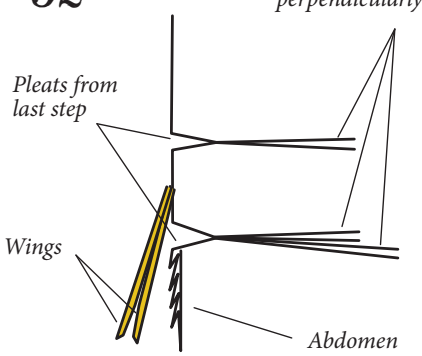


F

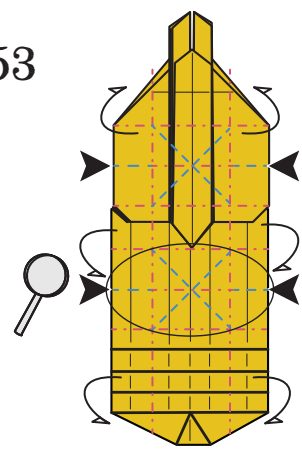
51



52



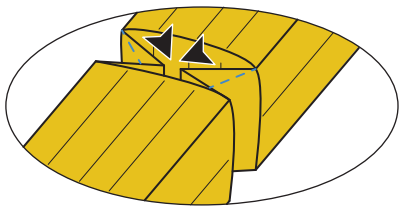
53



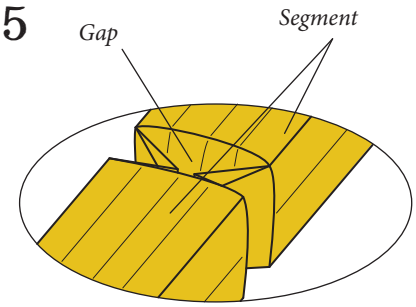
3D

D

54



55

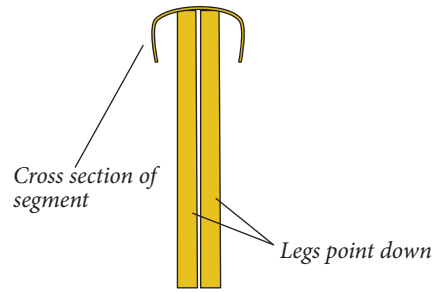


. F

-

.

56



,

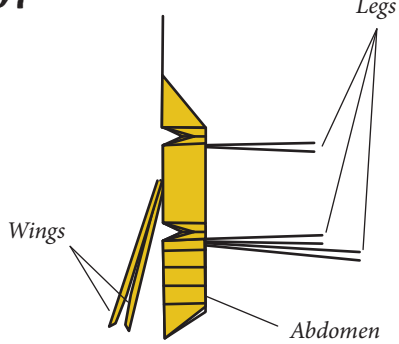
-

(

).

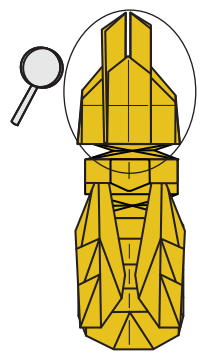
.

57



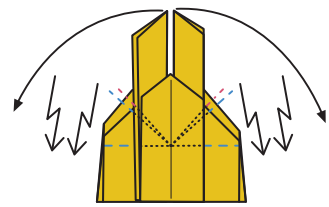
3D .

58



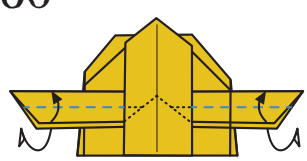
D .

59



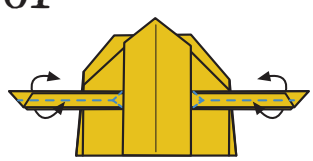
C .

60



.

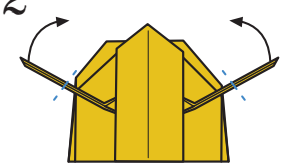
61



-

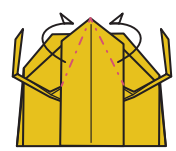
3D.

62



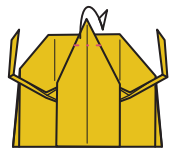
B .

63



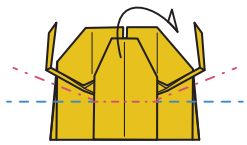
F .

64



F .

65

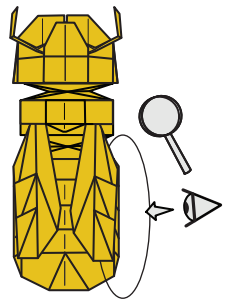


F

. C

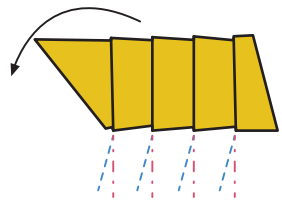
.

66



.

67

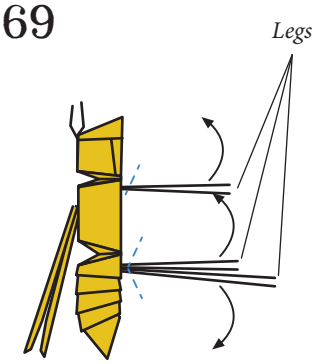


C .

68

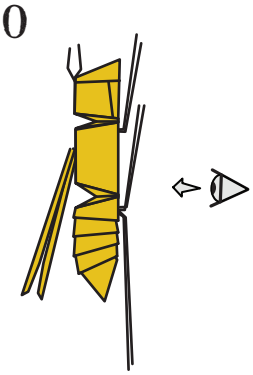
I .

69



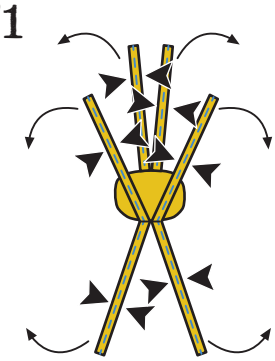
. F . .

70



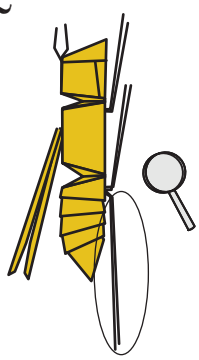
, .

71



, .

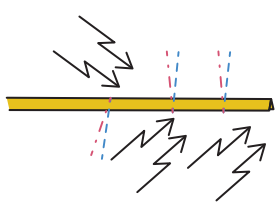
72



D

.

73

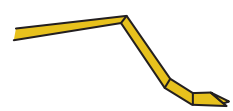


C .

74

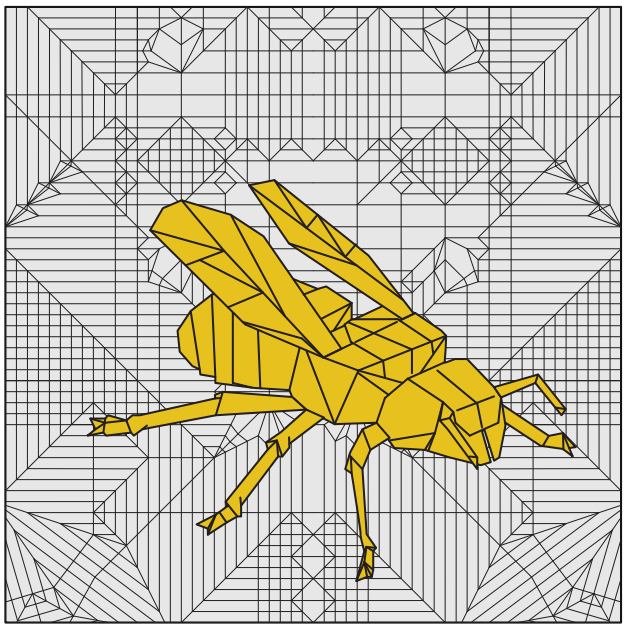
( ).

75



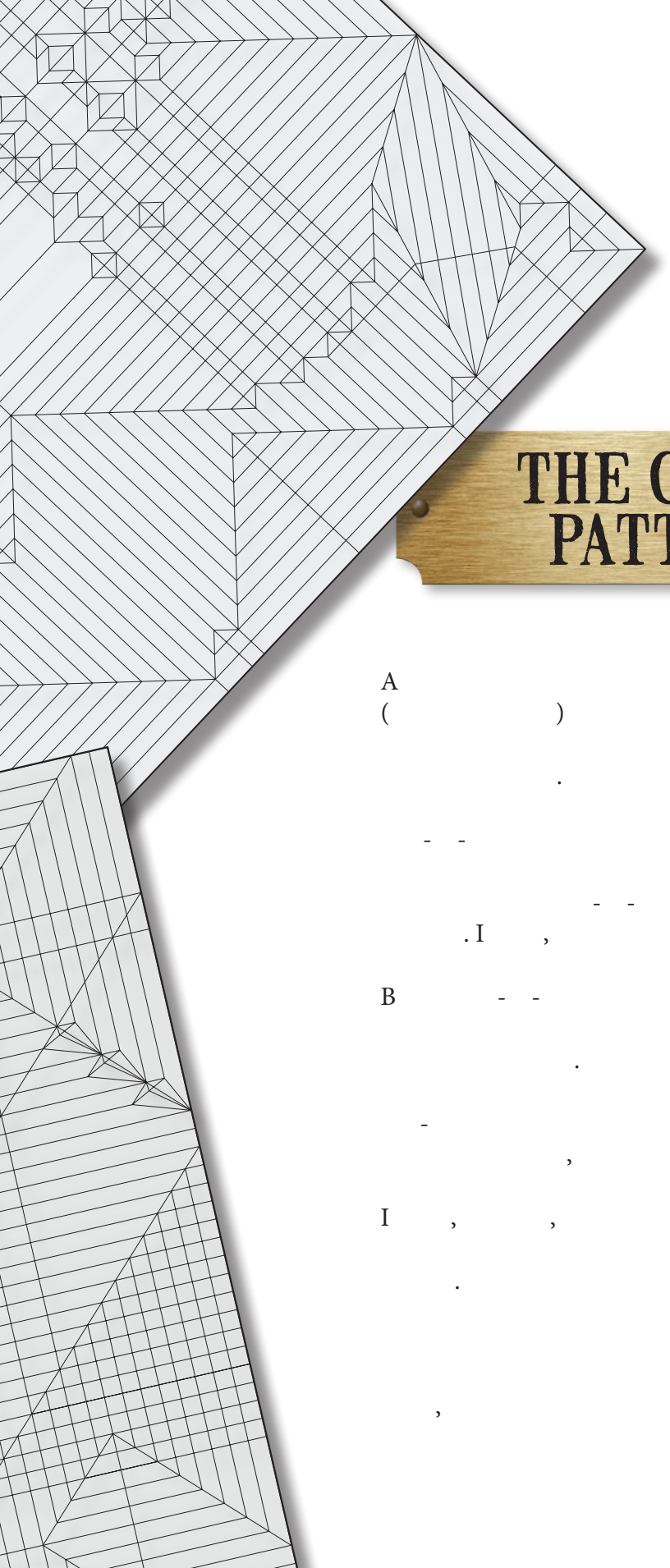
F .
C

.



Folded yellow jacket set against the crease pattern for the model.

View from the underside



THE CREASE PATTERNS

A ,
( )

. ,

C

- - - .

C ,

- - -

. I , .

B - - ,

. ,

- .

, .

I , , C .

,

. , ,

,

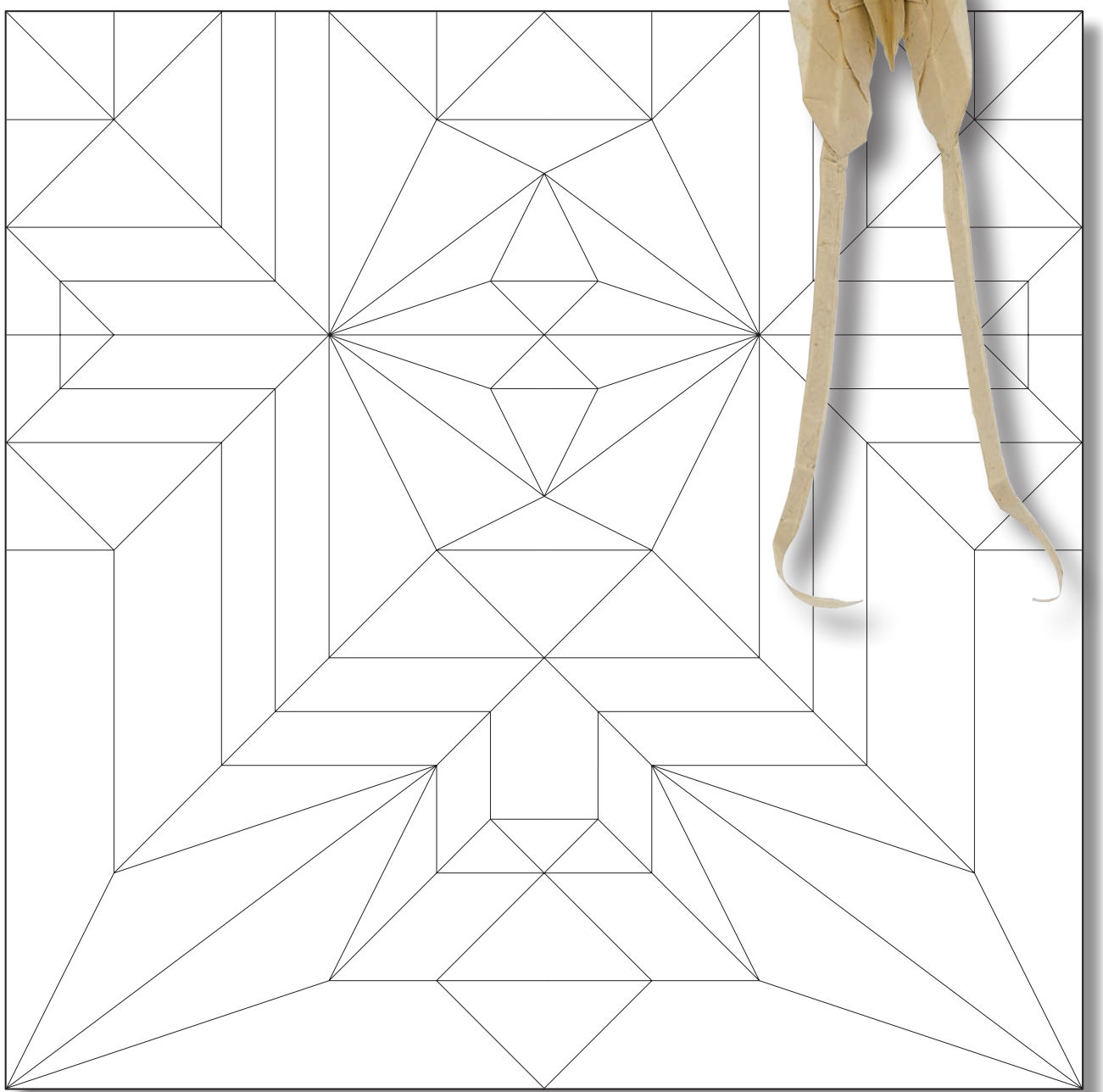
. F

,

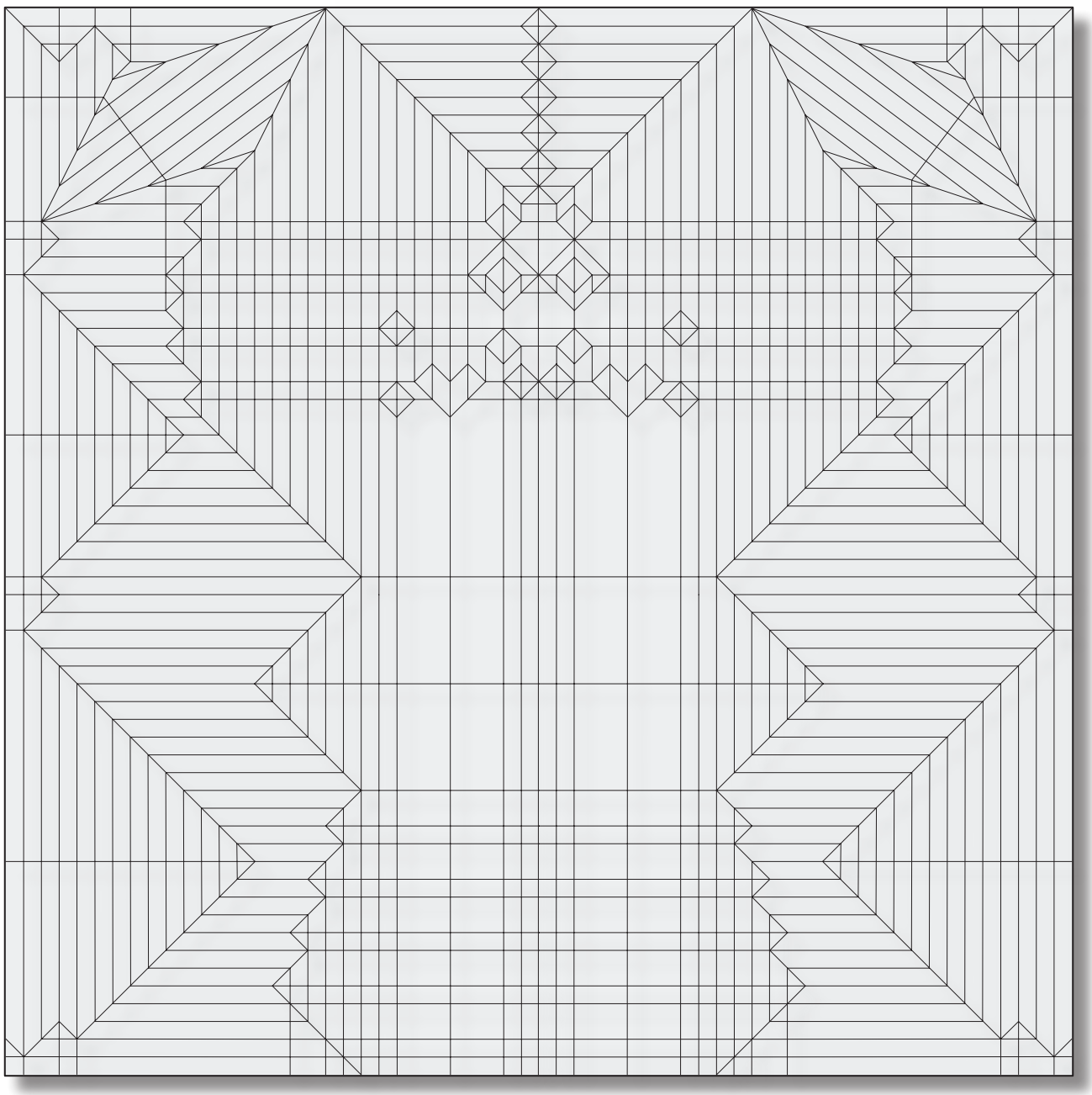
, .

RHINOCEROS BEETLE

LUNA MOTHX-IMPOS

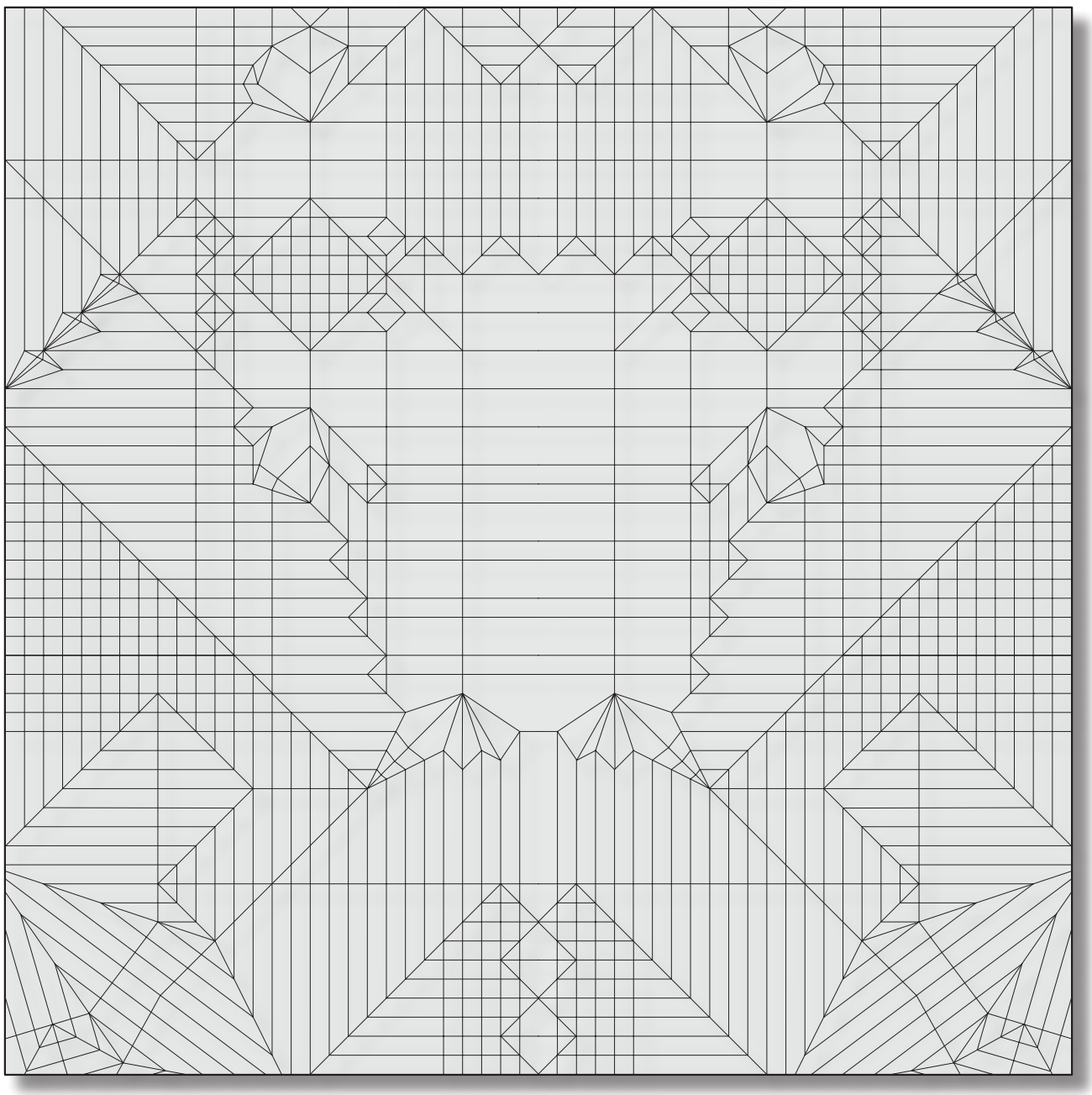


TITAN BEETLEUR



FLYING HERCULES BEETLE

YELLOW JACKET



ABOUT THE EDITOR

G

7

MARCIO NOGUCHI

;

.

I

, ,

. ,

.

F , ;

.

,

- . A ,

.

,

:

/ , .

B B J ,

.

B ,

-2000 , .

,

.

;

, , J . , E

. E ,

. I

, - .

,

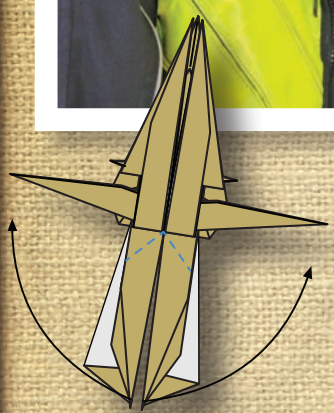
,

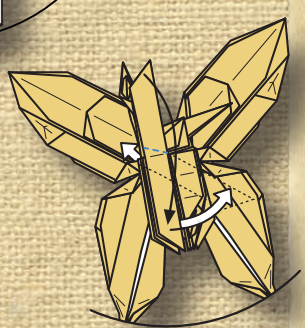
.

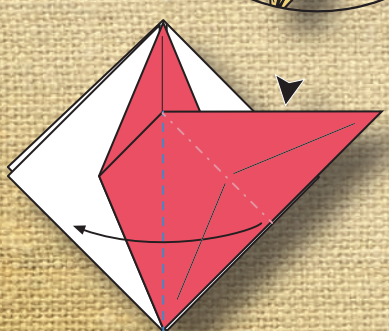
H J A

A E B

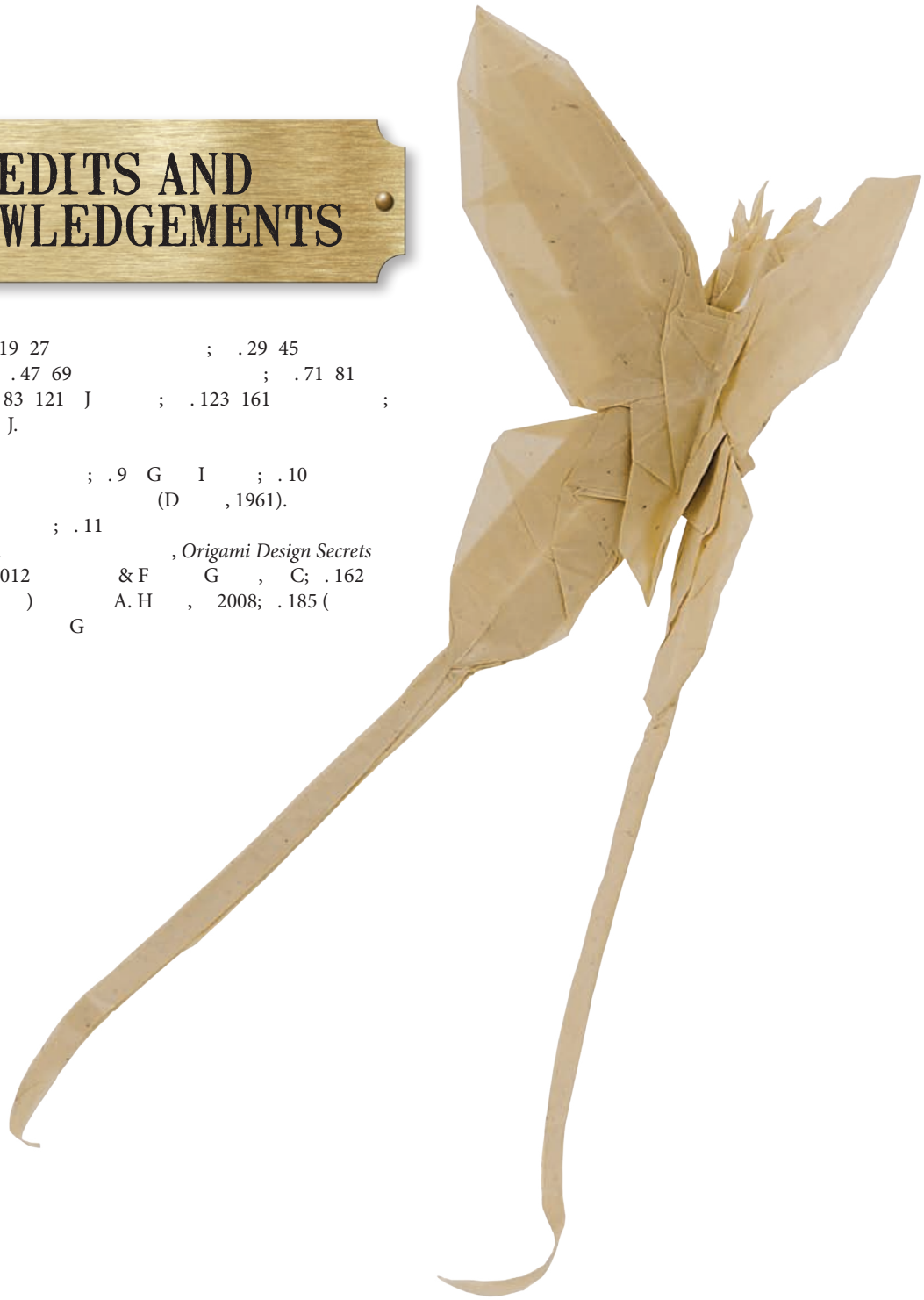
D . H C , .







CREDITS AND ACKNOWLEDGEMENTS



D : . 19 27 ; . 29 45
A ; . 47 69 ; . 71 81
A H ; . 83 121 J ; . 123 161 ;
. 163 174 J.

: . 8 ; . 9 G I ; . 10
The Art of Origami (D , 1961).
; . 11
J. , *Origami Design Secrets*
( ). 2012 & F G , C; . 162
(J.) A. H , 2008; . 185 (
) G

A B , I .
276 F A 206
, 10001

ACE I B I HI G
B , I .

2013 B , .
7 C
, 10010

2013
B , .

A . , ,
, , , , , ,
, .

G
C
A

I B -13: 978-1-937994-10-5

D : 978-1-627880-00-8
: 978-1-937994-10-5

C

2 4 6 8 10 9 7 5 3 1

. .

In this tribute to the so-called "Bug Wars" of the 1980s and 1990s—the informal competition between top-tier folders of super-complex origami models—seven different artists present a menagerie of 12 insect models. Including offerings from some of the most exciting names in modern origami—Won Park, Dan Robinson, Jason Ku, and Robert J. Lang, as well as fresh new talents—the book features step-by-step instructions for creating complex works of art from a single piece of paper, geared for the advanced folder. Crease patterns for the most complicated models are also included.

$25.00 US
£16.99 UK
$28.00 CAN

Race Point
PUBLISHING
www.racepointpub.com
New York, NY

ISBN - 978-1-937994-10-5
EAN
52500
9 781937 994105