



Shapes, Folding, and Storytelling

STEMAZing Facilitators

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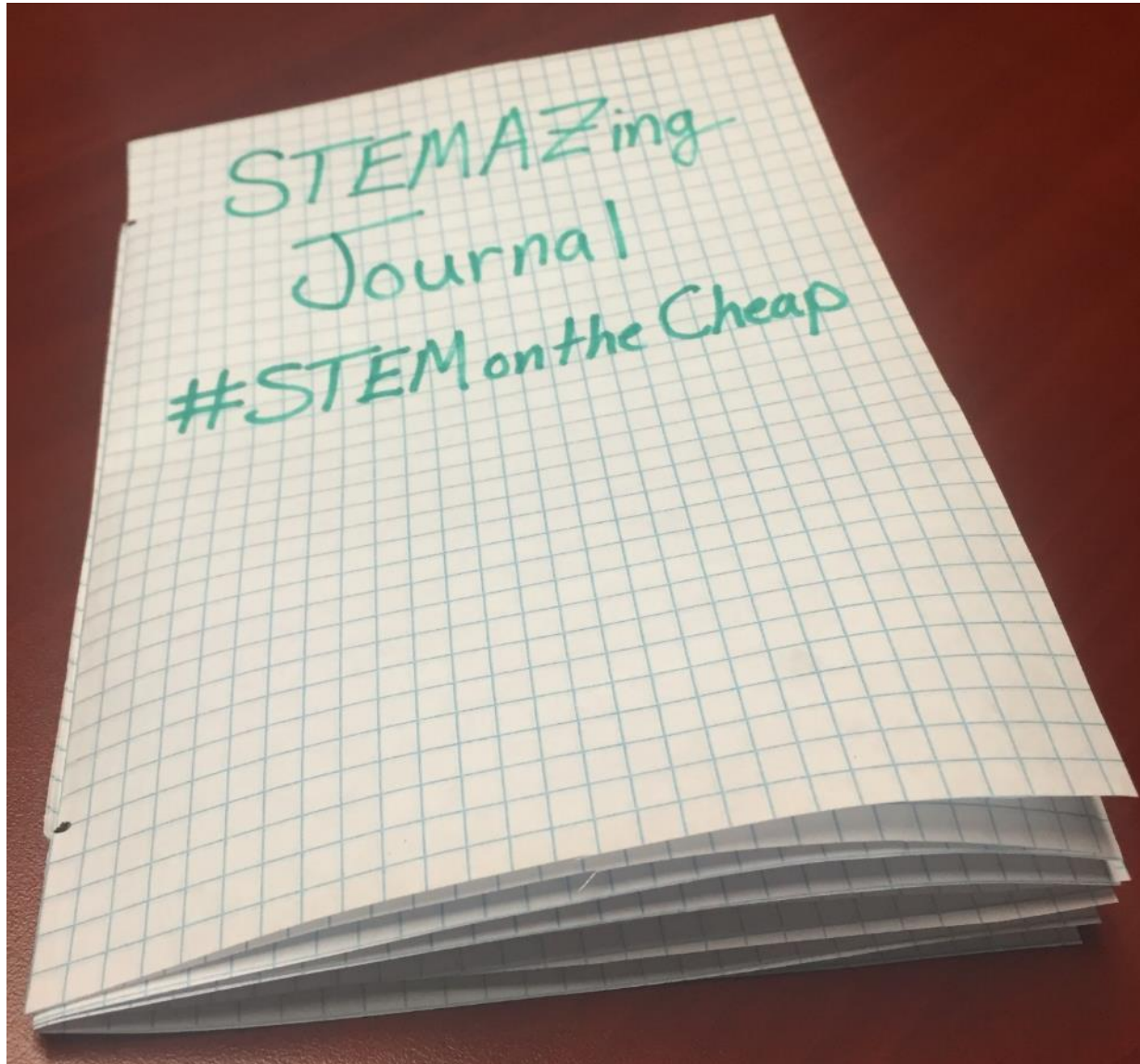
DaNel Hogan, M.A.T.

Director of The STEMAZing Project

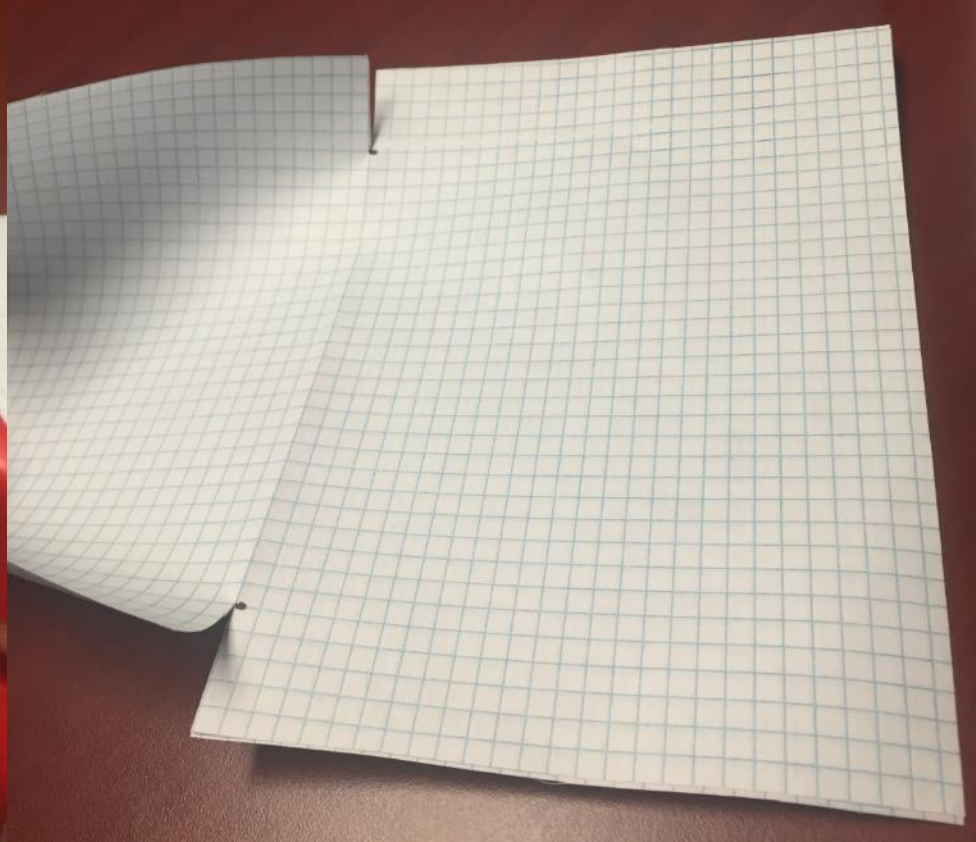
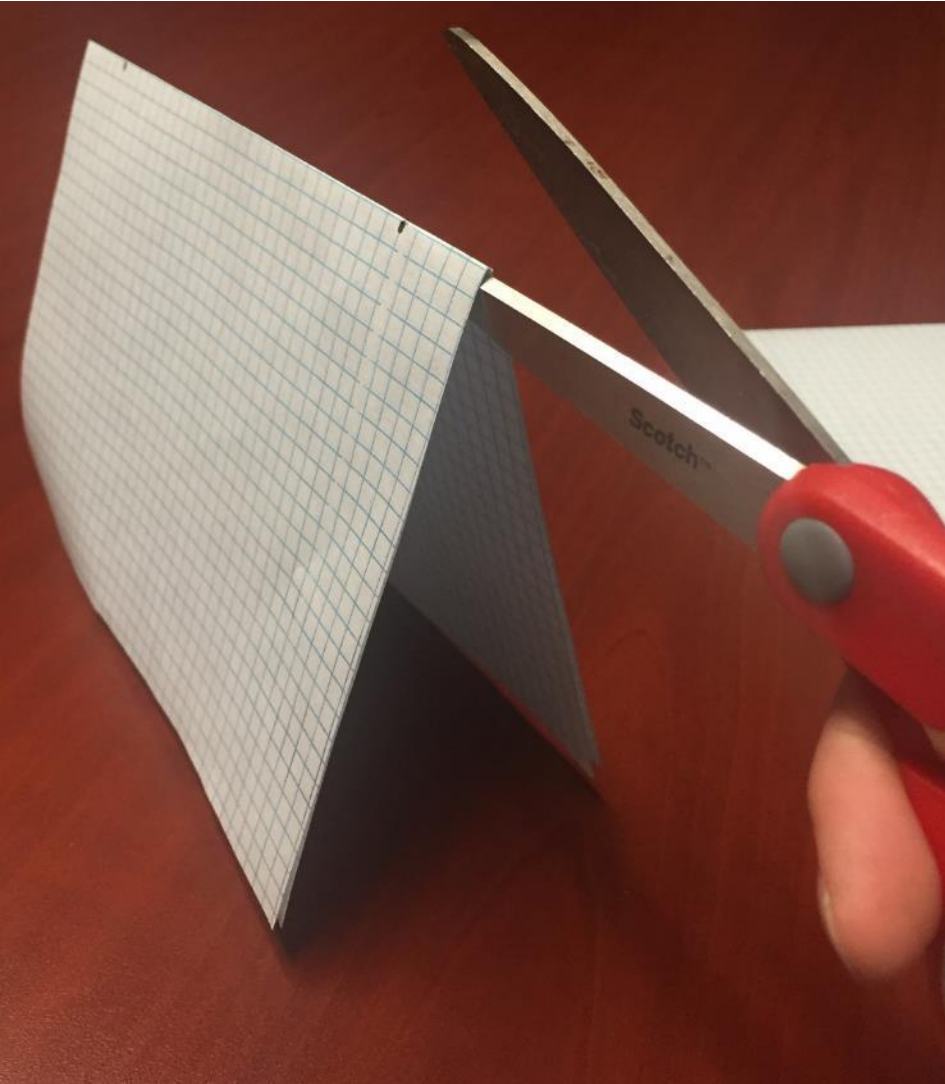
Workshop Objectives

- Use origami and paper folding to build skills of young learners
- Use origami and paper folding to build vocabulary about shapes, directions, patterns
- Using literature and storytelling to facilitate learning

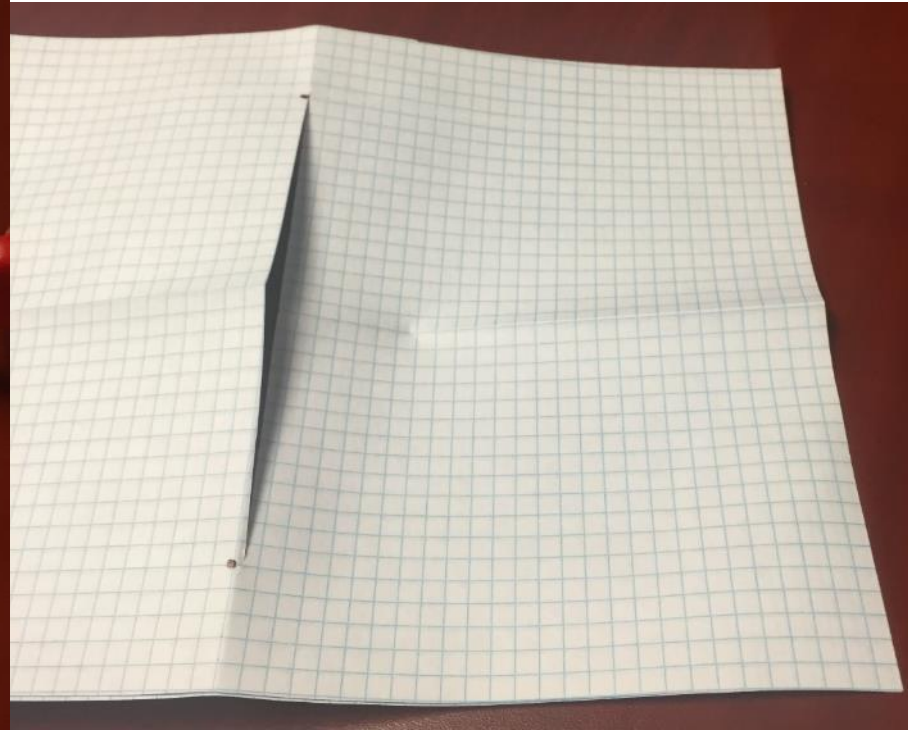
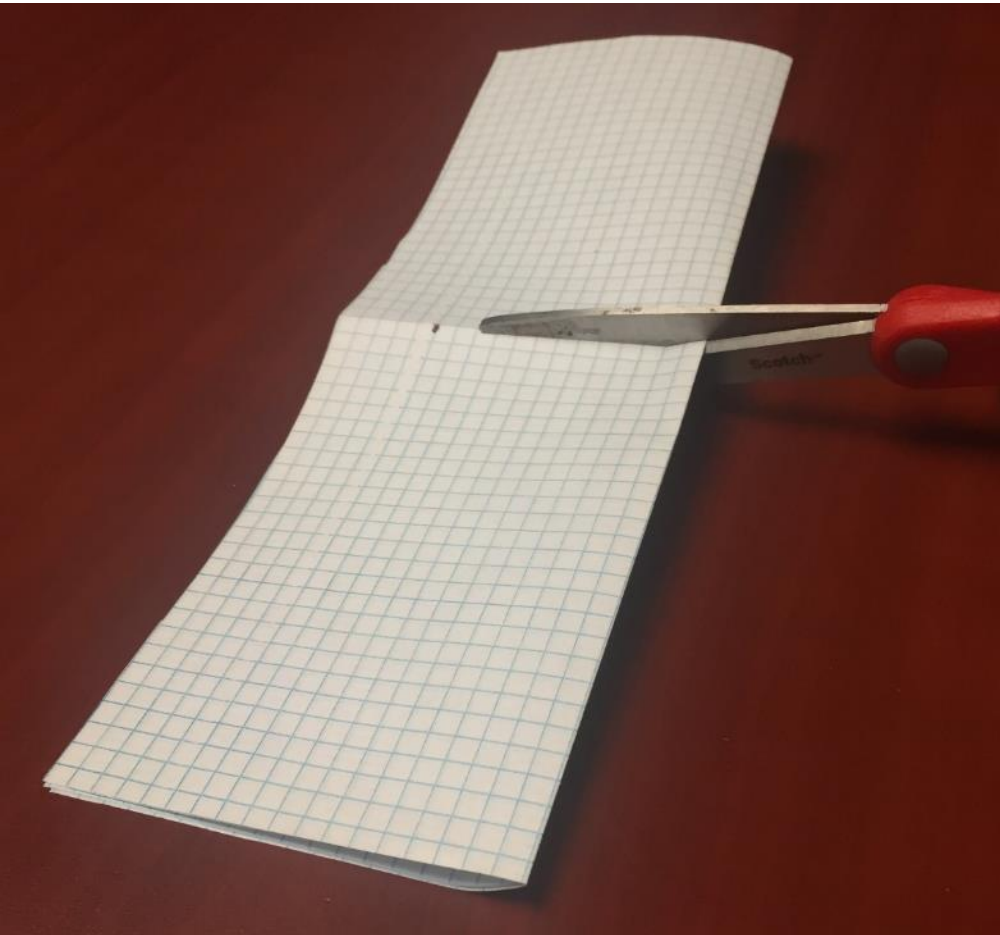
STEMAZing Journal Hack



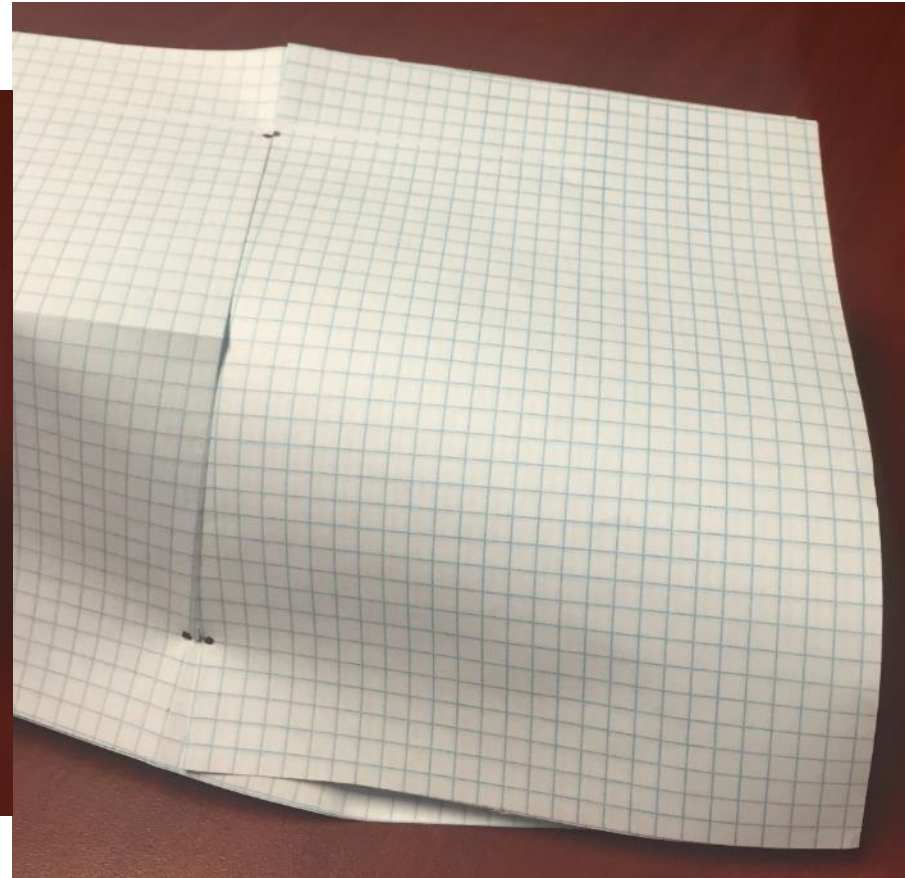
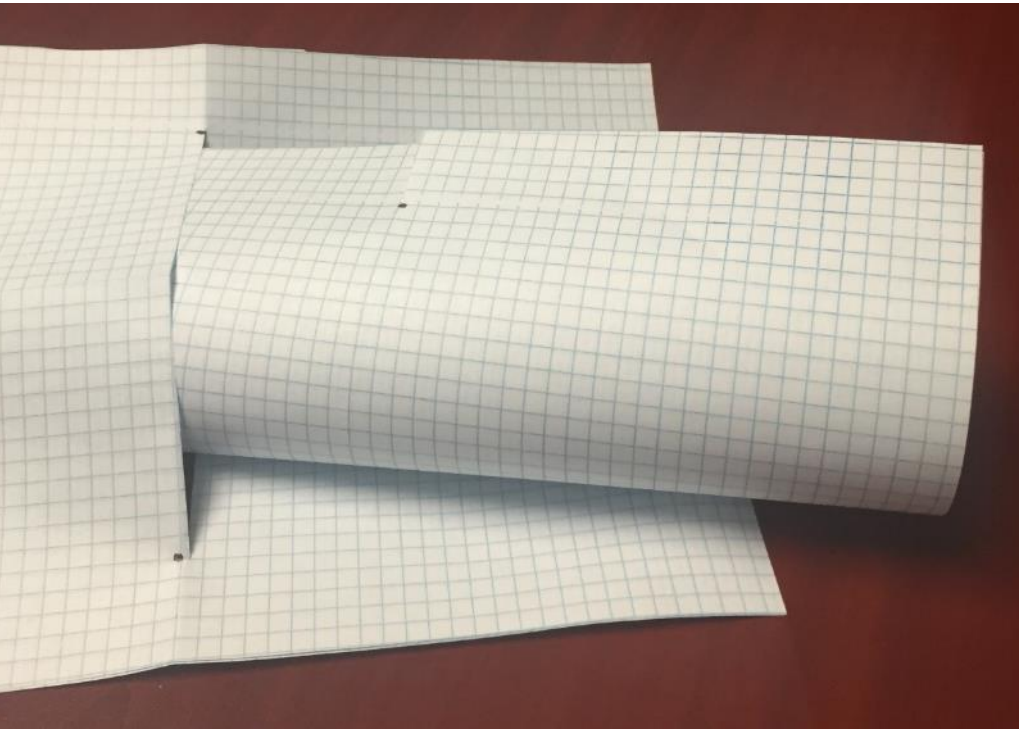
Set 1



Set 2



Nesting



Hello!
My name is

Name Plate Challenge

Problem: It's hard to read your name tags when you're sitting at a table.

Design Challenge:

Design a name plate for your table.

Criteria what it must do | Constraints what can I do or use

- it must stand up on its own

- you must be able to read the name from across the room.

Materials:

- 1 marker
- 1 5x8' notecard

Time:

- 5 minutes



7 Essential Life Skills Mind in the Making

- Focus & Self Control
- Perspective Taking
- Communicating
- Making Connections
- Critical Thinking
- Taking on Challenges
- Self-Directed, Engaged Learning



Digestion Time

- Something new you learned.
- How will you use it?
- When will you use it?
- What else can you do?
- How does it link with what you are already doing?
- Which 7 Essential Life Skills can it be used to develop?

Origami

- Sneakily enhances young learners skills
 - spatial perception
 - logical and sequential thinking.
 - Manual dexterity
- Improves not only 3D perception and logical thinking but also focus and concentration.
- Engineers use origami to:
 - find the right folds for an airbag to be stored in a small space, so that it can be deployed in a fraction of a second
 - medical forceps
 - foldable plastic solar panels

Skills Learned

Origami and Paper Folding

Geometry

- Labeling an origami structure to learn about length, width, and height
- Use a real-world structure to determine area

Thinking Skills

- Allows children to comprehend, characterize, and construct their own vernacular for the world around them
- Find origami or geometric shapes in nature and then describe them with geometric terms

Fractions

- Folding paper can demonstrate the fractions in a tactile way.
- The act of folding the paper in half and in half again and so on can also be used to demonstrate fraction concepts with our youngest learners.

Problem Solving

- Gives young learners a chance to *make friends with failure* (i.e. trial and error).
- Show a shape and ask students to come up with a way to make it
 - various approaches will work
 - no wrong answer

Arizona Early Learning Standards

STRAND 4: GEOMETRY

Concept 1: Spatial Reasoning

- A. use and respond to positional terms (between, inside, above, behind)
- B. Describe the position or location of an object

STRAND 4: GEOMETRY

Concept 2: Shapes

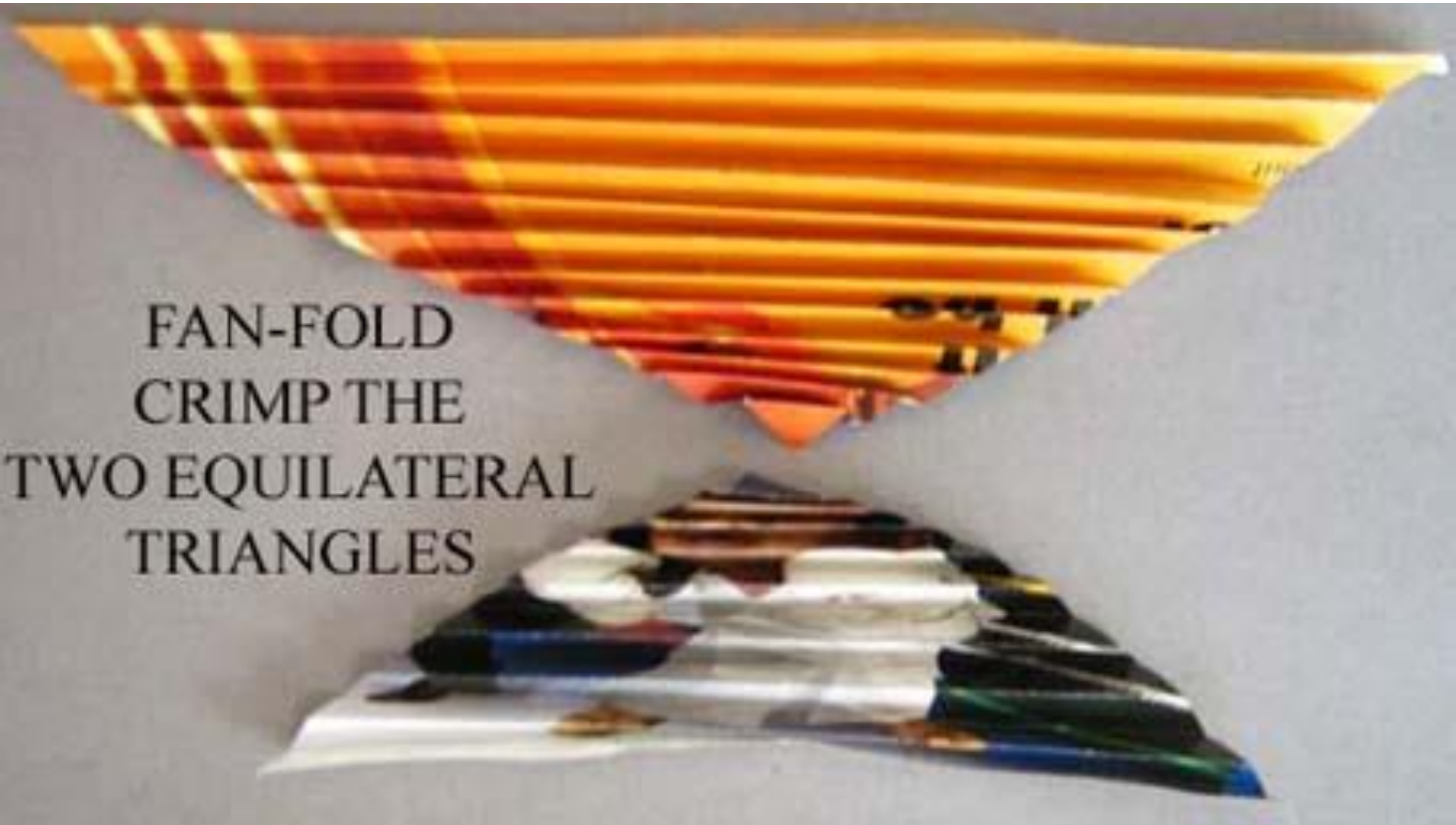
- A. Recognizes basic two dimensional shapes
- B. Uses the name to describe geometric shapes when describing an object
- C. Creates two- and three-dimensional shapes during play
- D. Compares and describes attributes of two- and three- dimensional objects in the environment



Butterflies
for
Kiri

by Cathryn
Falwell

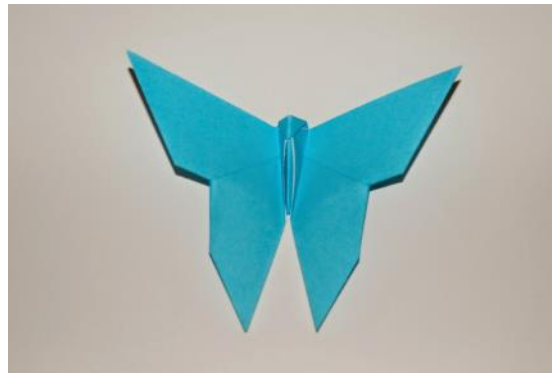
Triangle Butterfly

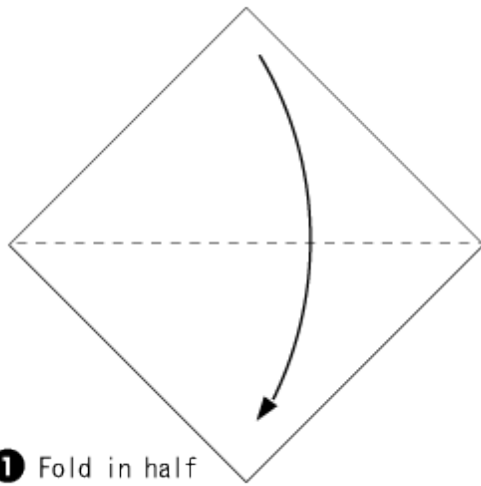


FAN-FOLD
CRIMP THE
TWO EQUILATERAL
TRIANGLES

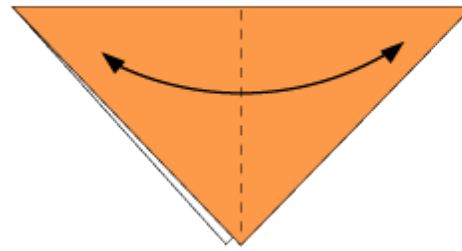
Simple Origami

- Cat
- Butterfly
- Dog

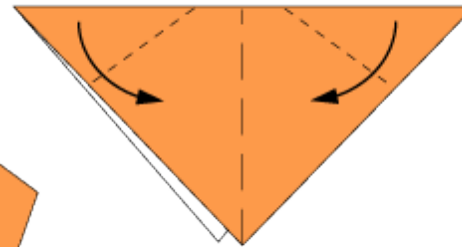




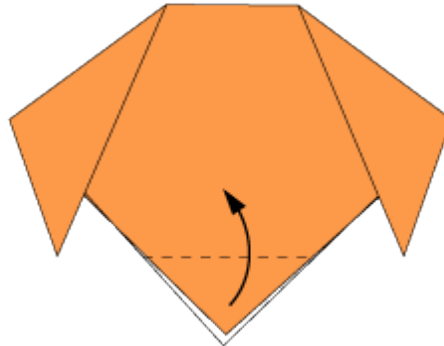
1 Fold in half



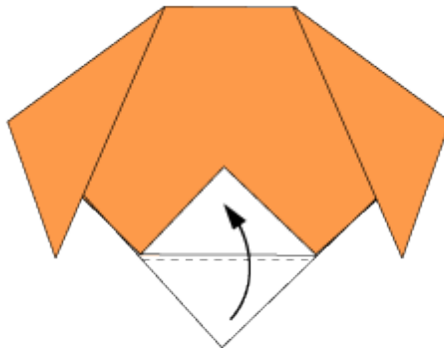
2 Fold in half to make crease



3 Fold in the dotted line

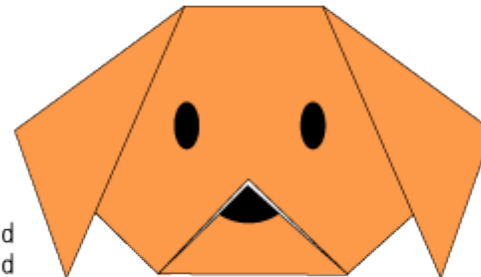


4 Fold in the dotted line



5 Fold in the dotted line

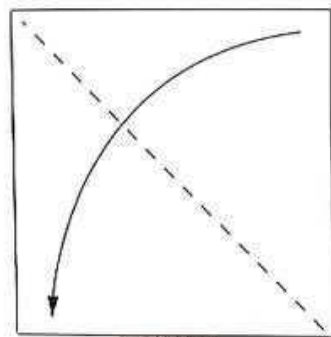
6 Draw a face and finished



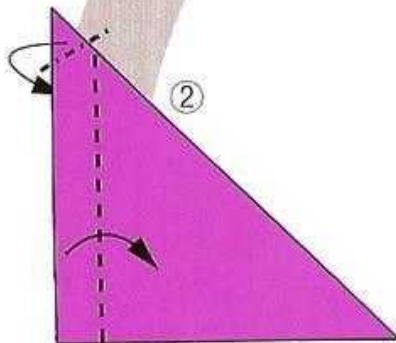
A Dog (face)

dog body

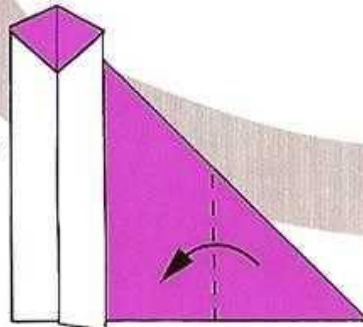
*just slip the dog head
on the body from yesterday



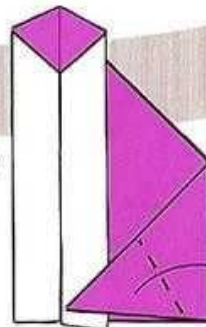
①



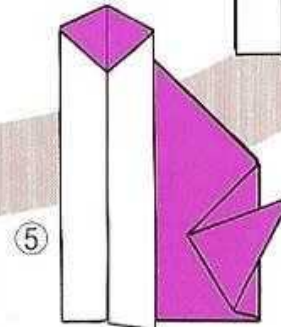
②



③

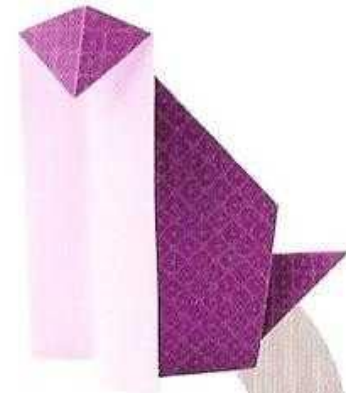


④

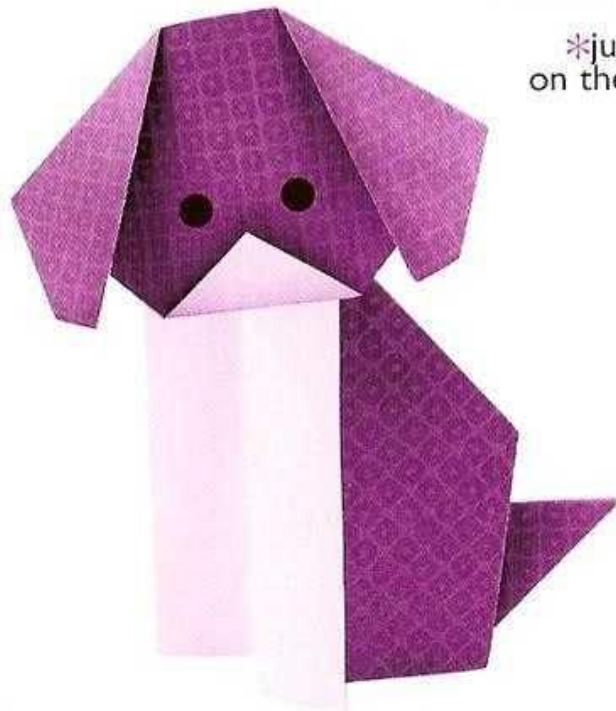


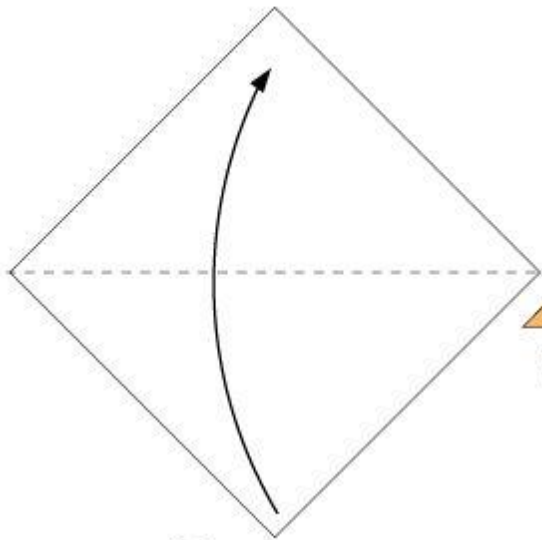
⑤

*unfold tail

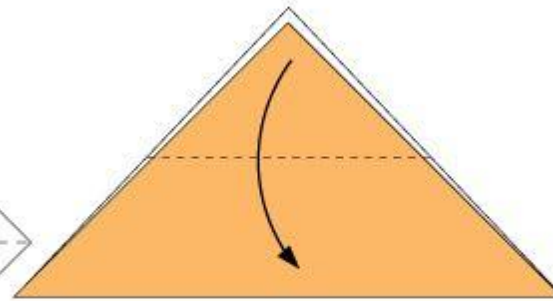


⑥

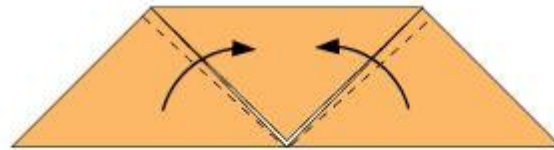




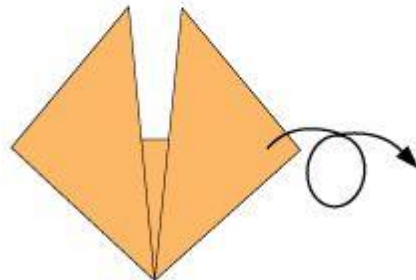
1 Fold in half



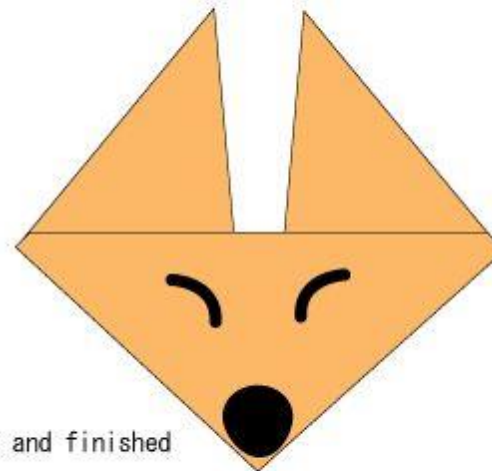
2 Fold in the dotted line



4 Fold in the dotted line



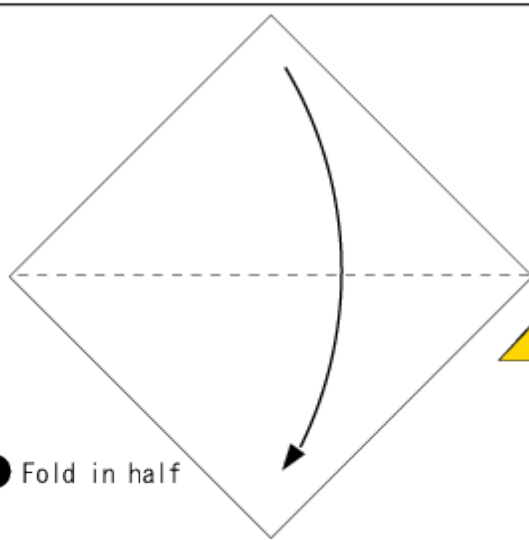
3 Turn over



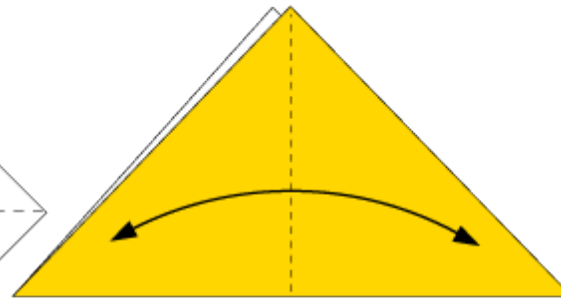
5 Draw eyes, a nose and finished

A Fox (face)

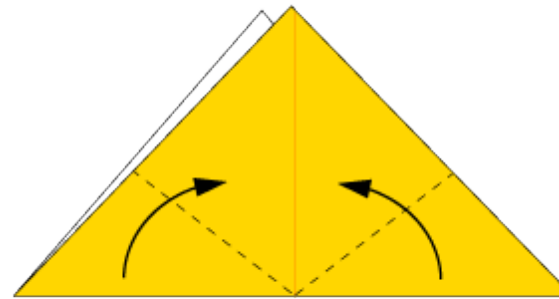
1 Fold in half



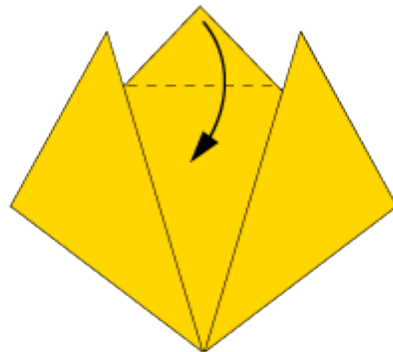
2 Fold in half to make crease



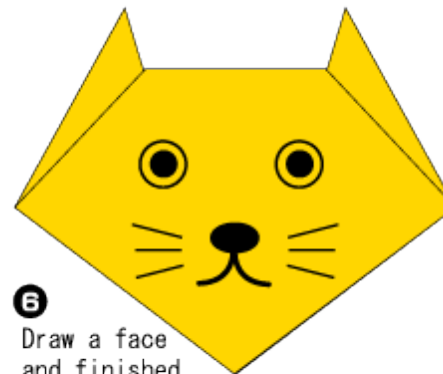
3 Fold in the dotted line



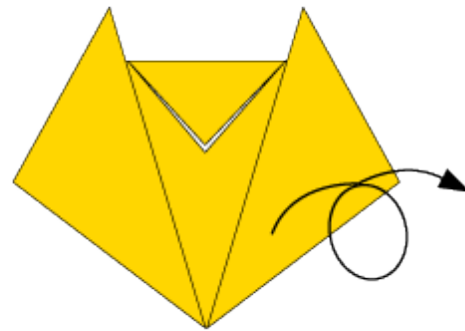
4 Fold in the dotted line



6 Draw a face and finished



5 Turn over





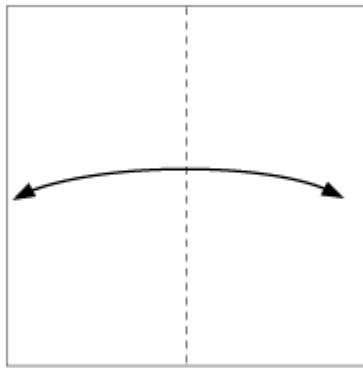
Storytelling

- Create a story using the characters you have just made.
 - What are their names?
 - Where are they going?
 - Who do they meet?

Digestion Time

- Something new you learned.
- How will you use it?
- When will you use it?
- What else can you do?
- How does it link with what you are already doing?
- Which 7 Essential Life Skills can it be used to develop?

Collaborative Origami



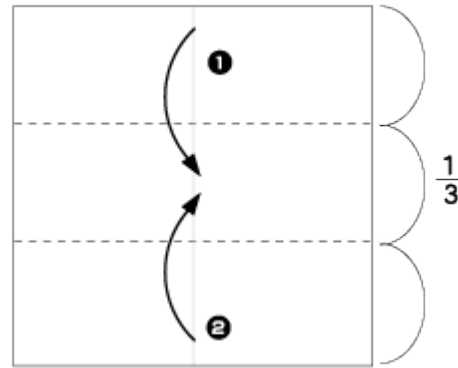
1 Fold in half to make a crease and fold back



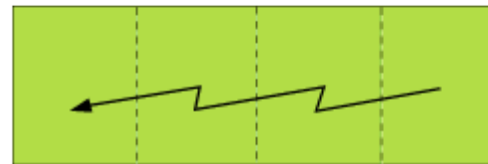
Expansion from here



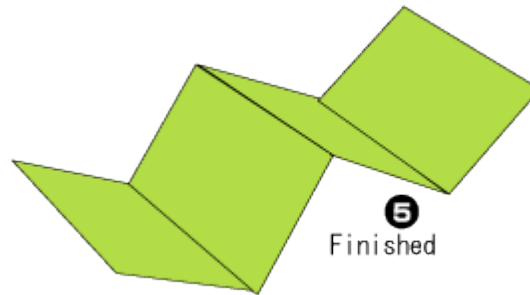
3
Fold to meet the center line
along the crease and fold back



2 Fold in the dotted line



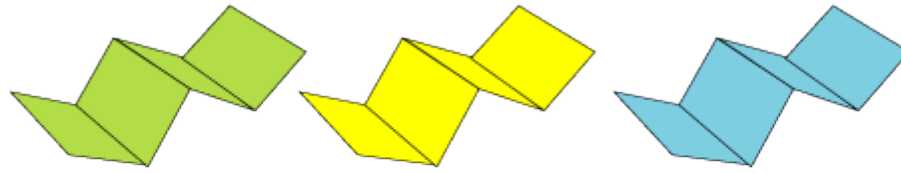
4 Step fold in the dotted line



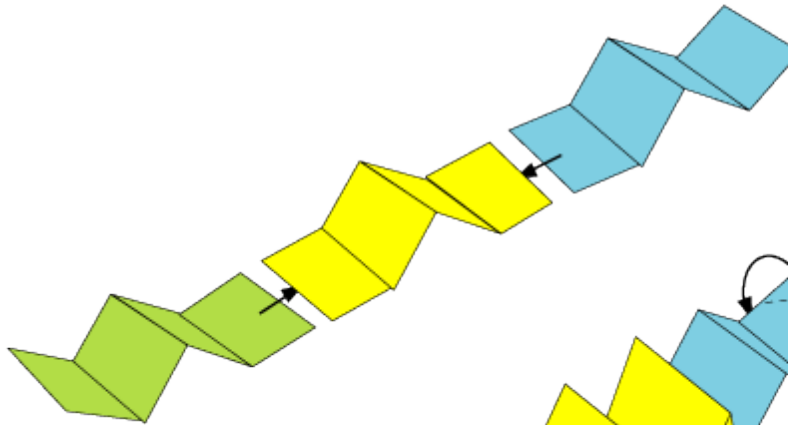
5
Finished

Earthworm unit

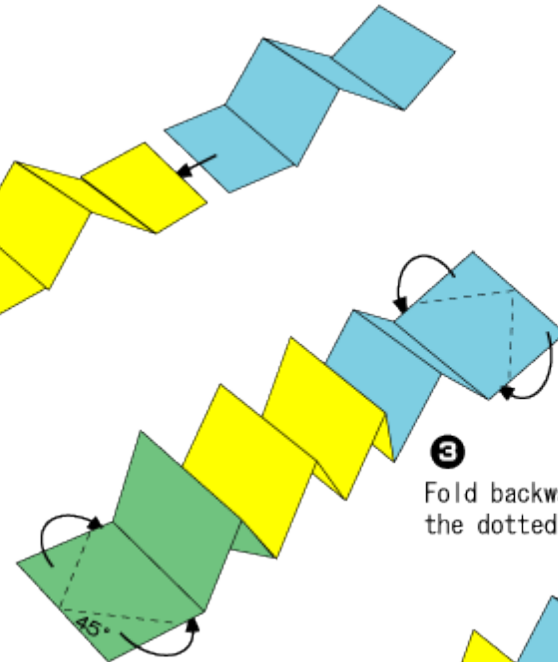
★3 pieces units are used



① 3 pieces units are prepared

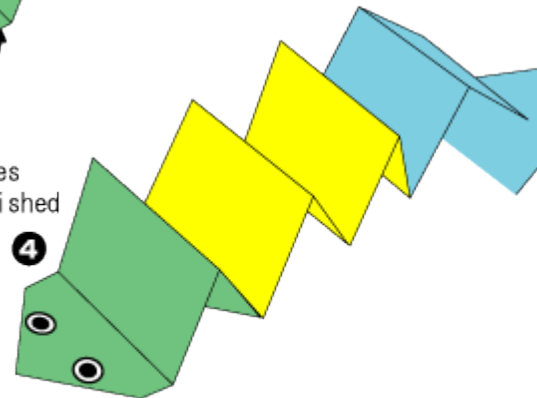


② Inserts it



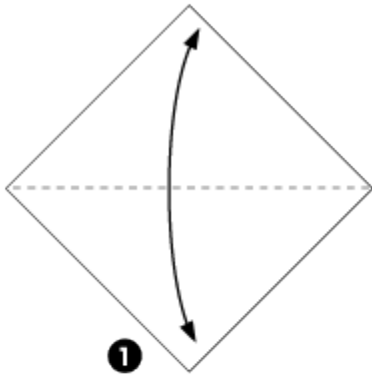
③ Fold backward in the dotted line

Draw eyes and finished

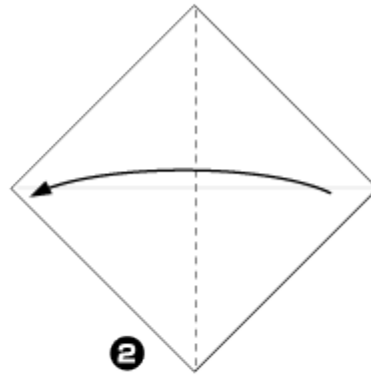


An Earthworm

★folds with 1/4 size paper



1
Fold in half to make
a crease and fold back



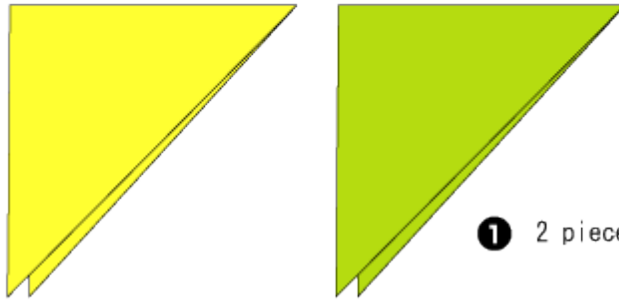
2
Fold in half



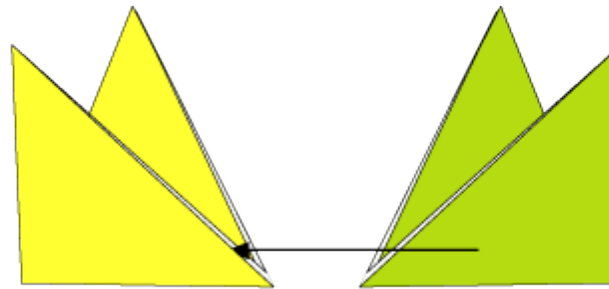
3
Finished

unit **A**

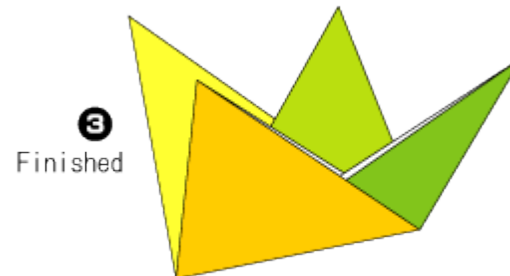
★2 pieces units(1/4 size)are prepared.



① 2 pieces units are prepared



② Inserts it



③
Finished

A Butterfly

Toys from Trash

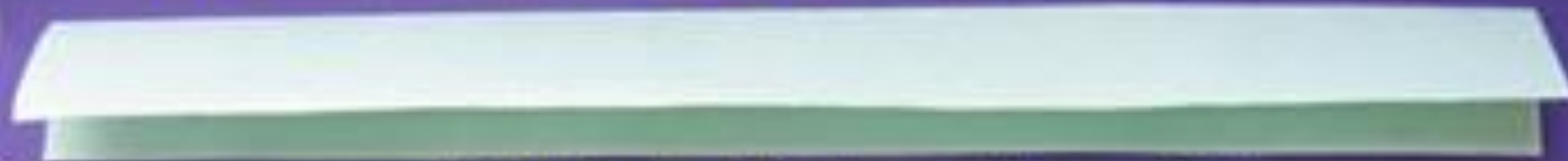
Paper (28-cm long x 6-cm wide)

1 **CLIMBING**
MAN




Marker
Scissors

2

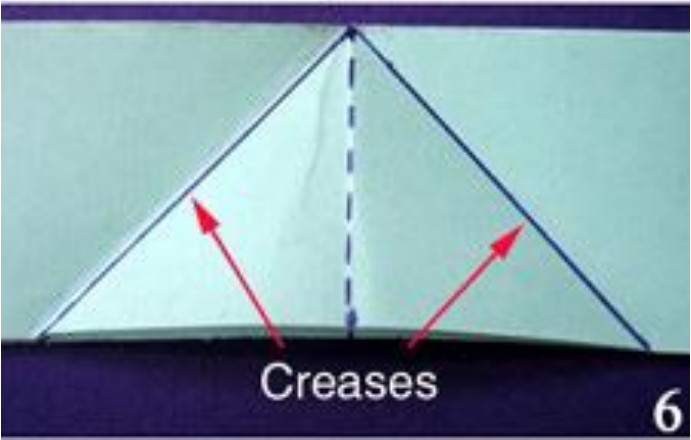
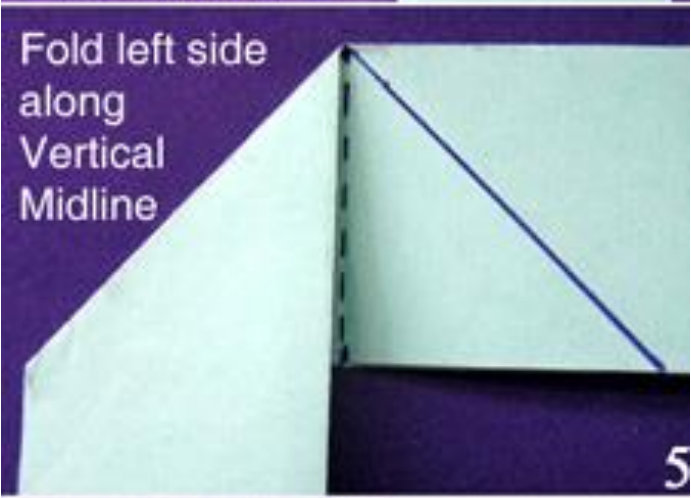
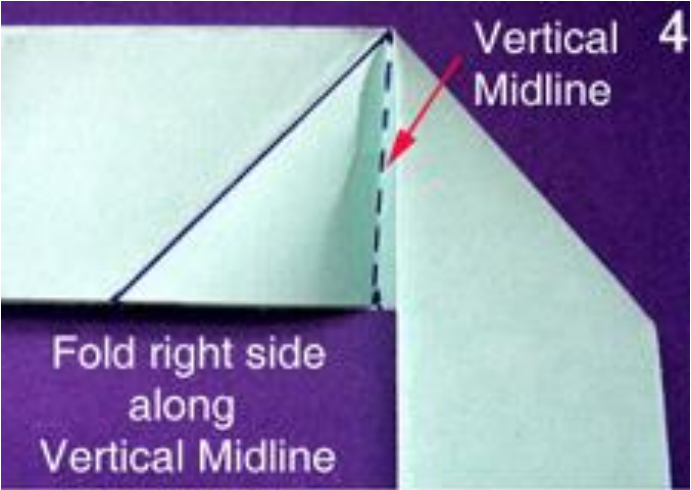


Fold in half along the width

3

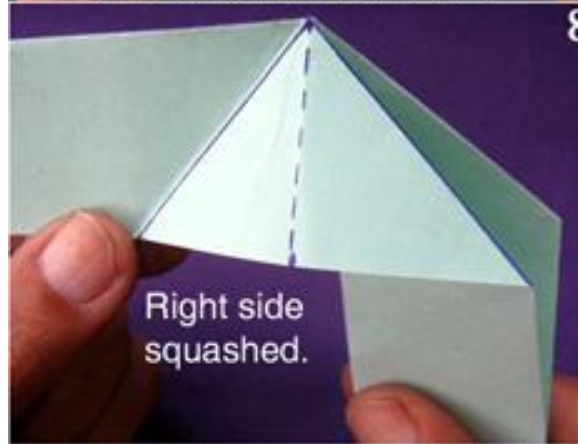


Fold again in half along the length

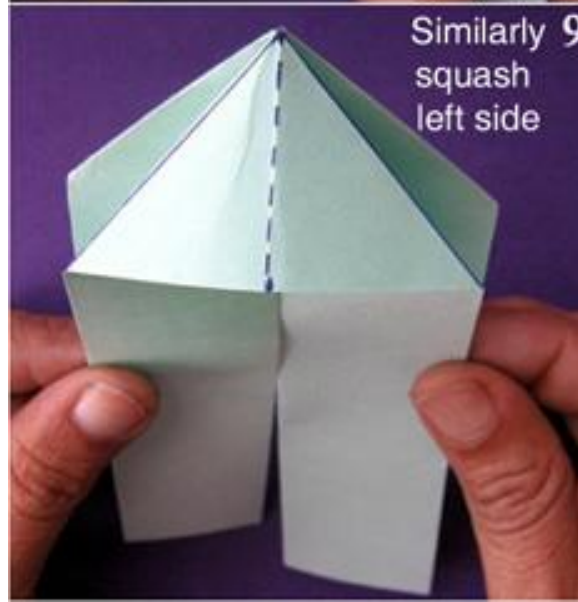




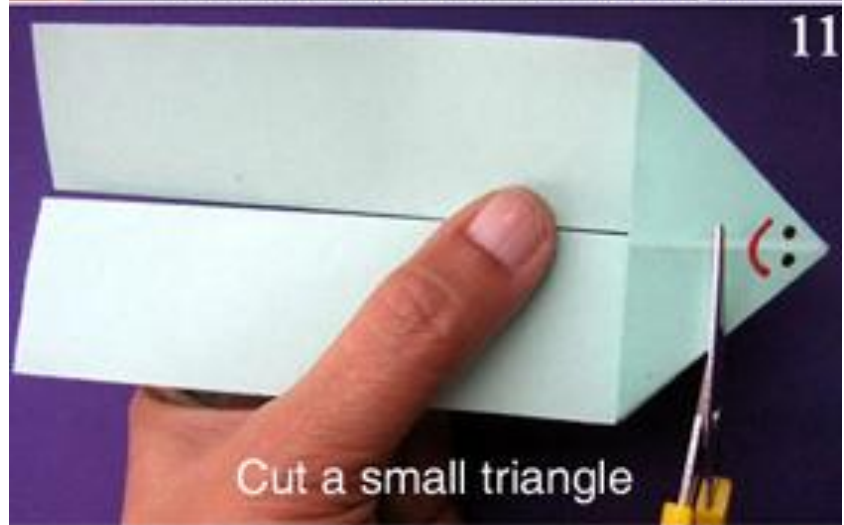
Lift the right hand.
Squash it with your
index finger in the middle.



Right side
squashed.



Similarly
squash
left side





**CLIMBING
BUTTERFLY**

Ice-cream Stick

2 Ballpen refills
at a slant

Butterfly

Strong
Thread



Storytelling

- Create a story using the characters you have just made.
 - What are their names?
 - Where are they going?
 - Who do they meet?

Discovering Shapes and Space in Preschool – NAEYC Article

Annotation Symbols

✓ = I knew that

✗ = This contradicts my expectations

★ = This is important

? = I have a question

?? = I am confused or puzzled

! = This is surprising or exciting to me

L = I learned something new

R = Reminds me...

C = A connection to...

Velcro Craft Sticks



Velcro Craft Stick Ideas

- Alphabet and Number Challenge
 - Can you make all the letters of the alphabet and the numbers 0-9?
- Geometric Shapes
 - Can you match/make a triangle? Square? Rectangle? Pentagon? Hexagon?
- Miscellaneous
 - Can you make a flower? Sun? house? Etc.

Digestion Time

- Something new you learned.
- How will you use it?
- When will you use it?
- What else can you do?
- How does it link with what you are already doing?
- Which 7 Essential Life Skills can it be used to develop?

30-Day DOT and Survey

- **30-Day DOT** – Do One Thing – What is at least one thing you commit to trying in your classroom in the next 30 days?
- **Survey** – tell us how we did. What did you like? How could this workshop be improved?

Don't forget the power of PLAYING in order to LEARN!

Play to Learn, Learn to Play