



PATTERN HEAD – Pattern, Space, Contrast

Students use markers to create a small never-ending card filled with patterns and connections to nature.

Required Time

80 Minutes

Grade Level

Grade 3 to Grade 8

Subject

Language Arts
Mathematics
Science
Visual Arts

Vocabulary

centre
colour
contrast
diagonal
pattern
rectangle

Materials

Crayola Fine Line Markers

Cardstock Paper - 10.8 cm x 14 cm (4.25" x 5.5")

Rulers

Pencils

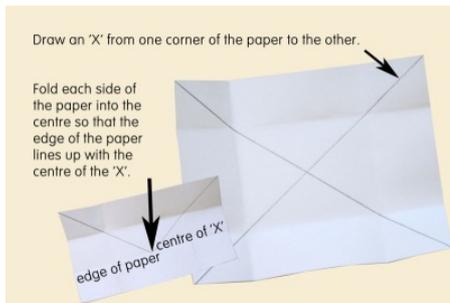
Erasers

Box Cutter

Cutting Board

Shop Crayola
Products

Steps



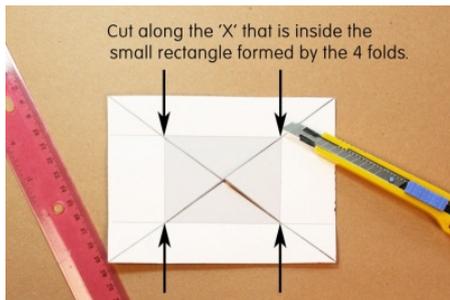
Step One

1. Draw an 'X' from one corner of the paper to the other.
2. Fold each side of the paper into the centre so that the edge of the paper lines up with the centre of the 'X'.



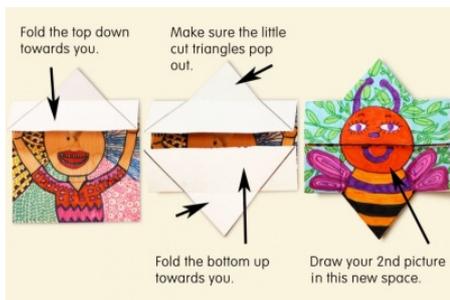
Step Two

1. Turn the paper over so the 'X' is facing down.
2. Draw your first picture on the side that does NOT have the 'X' on it.
3. Draw the face and shoulders of an imaginary person who loves nature.
4. Draw lines from the head to the outer edges of the card to divide up the space.
5. Fill each section with a pattern that might be found in nature.
6. Think of fractals, spirals, waves, tessellations, spots and stripes.
7. Use more than one colour in each pattern.



Step Three

1. Place the drawing on a cutting board face down.
2. Make sure the 'X' is facing up.
3. Use a box cutter and a ruler to cut along the 'X' that is inside the small rectangle formed by the 4 folds.

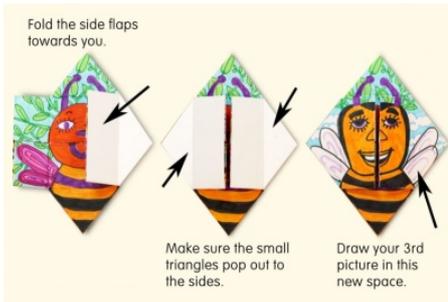


Step Four

1. Hold the card with the picture facing you.
2. Gently fold the top down towards you.
3. Be sure the little cut triangle pops up.
4. Fold the bottom up towards you.
5. Be sure the little cut triangle pops down.
6. Flatten the paper and draw an imaginary creature in this new space.
7. Fill the background with new patterns found in nature.

Step Five

1. Hold the card with the new picture facing you.
2. Fold the side flaps in towards you.
3. Make sure the little triangles pop out to the sides.
4. Flatten the paper and draw a new imaginary creature in this new space.
5. Fill the background with new patterns found in nature.
6. Notice how the top and bottom of picture number 1 and picture number 2 are the same.



Step Six

1. Repeat the folds over and over again to view the never-ending card.
2. Make up a short story or poem to go along with the changes and practice telling it with the card facing an audience.

Learning Goals

Students will be able to:

- create 10 different patterns based on nature;
- create a never-ending card using markers;
- smoothly fold the card from one picture to the next to get back to the beginning;
- demonstrate technical accomplishment and creativity.

Extensions

Have students:

- research a 3 or 4 step metamorphosis process, for example, the stages of the monarch butterfly, or 4 seasons;
- use a full sheet of cardstock paper to make this never-ending card, making sure the pictures they draw flow from one step to the next;
- include written text along with the drawings to present their research;
- present their research to students in other grades.

Prepare

1. Prior to this lesson you may want students to explore pattern using the **Patterns** worksheet available on this website.
2. If possible take students outside to look at their environment closely, or use photographs of nature.
- Have them make small sketches and make notes describing how to produce 6 - 10 patterns they see in nature.
3. Review or teach patterning in nature focusing on fractals, spirals, waves, tessellations, spots and stripes.
4. Gather and make available books about patterns in nature, for example, *Fractals--Seeing Nature's Hidden Dimension: An Interactive Book for Children and their Parents*, by Sara Deutsch; *Growing Patterns: Fibonacci Numbers in Nature*, by Sarah C. Campbell; *Mysterious Patterns: Finding Fractals in Nature*, by Sarah C. Campbell; *Swirl by Swirl: Spirals in Nature*, by Joyce Sidman; *Looking Closely along the Shore*, by Serafini; *Looking Closely Inside the Garden*, by Serafini; *Looking Closely through the Forest*, by Serafini.
5. Download images of nature from the Internet, for example,
Leaf
Flower
Grass
Yucca
Plantlets
White Oak
Butterfly
Fern Fronds
Millipede
Theba

Introduction

1. View an image of patterns in nature, for example, fern fronds.
2. Ask students to identify the patterns they see and take turns drawing an idea to represent it on a sketchbook, and then share with each other.
3. Discuss how each person might make a slightly different version of the spiral, but that for it to be a spiral it has specific characteristics.
4. Repeat this activity with several other images.
5. Have students share some of the ideas they captured in their sketchbook earlier.
6. Introduce the challenge.

Activities

The Challenge

1. Create 10 different patterns based on nature.
2. Create a never-ending card using markers.
3. Smoothly fold the card from one picture to the next to get back to the beginning.
4. Demonstrate technical accomplishment and creativity.

The Process

1. Make sure everyone understands the challenge.
2. Establish success criteria with your students, for example,
I know I am successful when I have:
 - *folded the paper accurately*
 - *created at least 6 different patterns*
 - *use 2 colours in each pattern*
 - *kept the paper in good condition*
 - *smoothly folded the card from one picture to the next to get back to the beginning*
3. Demonstrate how to fold the cardstock.

4. As students finish their first picture have them come to a designated spot.
5. Cut the 'X' for them using a box cutter.
6. Demonstrate how to fold the paper for the 2nd drawing.
7. Remind students that the top and bottom triangles of this picture will also be the top and bottom triangles of the last picture.
8. As students finish the 2nd drawing demonstrate how to make the last fold.
9. Continue to guide students through the steps outlined in this lesson plan.
10. Observe students as they work.
11. Provide individual assistance and encouragement.

Sharing

Have students work in pairs.

1. Demonstrate how to flip through the card continuously while telling a story based on the card.
2. Ask students to use their cards to take turns telling something interesting about each picture to their partner.
3. After everyone has had a chance to share in partners have some students flip through their entire card telling stories to the whole class.
4. Ask students to reflect on the experience:
 - *What was challenging?*
 - *What was the best thing about it?*
 - *What was the worst thing about it?*

Assessment

1. Observe students as they work – thoughtful focus, discriminating, seeking more information, elaborating, experimenting.
2. Observe students as they discuss their artworks – speaks with a clear voice, looks at audience while speaking, holds cube to the side, provides accurate information, answers questions from the audience effectively.
3. Observe students as they listen – looks at presenter, asks effective questions, supports ideas with evidence found in the artwork.
4. Use a checklist to track progress. (Downloads - Patternhead_tracking.pdf)
5. Have students use the self-assessment form to evaluate their work. (Downloads - Patternhead_self-assessment.pdf)