FLYING HIGH – Symmetry, Shape, Mirror Image

Students use markers and water to create a mirror image print and fold the paper into a kite.

Required Time
80 Minutes

Grade Level
Grade 1 to Grade 3

Subject
Language Arts
Mathematics
Visual Arts

Vocabulary
irregular polygon
line of symmetry
mirror image
printing plate
printmaking
triangle
Materials

White Paper - 22.9 cm x 30.5 cm (9" x 12")
Markers, Broad Line
Spray Bottles
Plastic Page Protectors
Scissors
Ribbon
White Glue
Glitter Glue
Bamboo Skewers
Clear Tape

Shop Crayola Products

Broad Line Markers, 8 Count
Ultra-Clean Washable Broad Line Markers, Assorted Colours, 16 Count
Marker & Watercolour Pad, 60 Pages
Blunt Tip Metal Scissors
Washable Glitter Glue, 5 Count
Washable No-Run School Glue, 236 ml
Steps

Step One
1. Fold your paper lengthwise - long end to long end.
2. The fold is the line of symmetry.

Step Two
1. Use markers to draw a design on half the paper.
2. Make sure you stay on one side of the line of symmetry.
3. Draw shapes and lines close to the line of symmetry.

Step Three
1. Spray a fine mist of water over both sides of the paper.

Step Four
1. Fold the paper in half along the original fold.
2. Gently rub the entire surface of the paper.

Step Five
1. Open the paper to see your mirror image print.
Step Six
1. Place the print good side down on your table.
2. Make sure it is in the vertical position with the top of your design pointing up.
3. Fold one top corner over so the top edge of the paper lines up with the fold.
4. Press the paper in place to form a triangle.
5. Repeat with the other corner.

Step Seven
1. Turn the paper sideways.
2. Fold one bottom corner over so the outside edge of the fold lines up with an imaginary line that runs from the vertex of the small triangle to the line of symmetry fold at the bottom of your design.
3. Press the paper in place to form a triangle.
4. Repeat with the other corner.

Step Eight
1. Turn the paper over to see the front of your kite.

Step Nine
1. Place the plastic printing plate on your desk with the rectangle facing up.
2. Use the flat side of the markers to draw lots of colours on the plastic surface.
3. Draw the colours to fill the rectangle.

Step Ten
1. Lightly spray a fine mist of water over the marker design.
   - the more water you apply, the more the colours will bleed together
Step Eleven
1. Place a piece of paper 13.9 cm x 21.6 cm (5.5” x 8.5”) on top of the wet ink.
   - be sure to line the paper up with the rectangle
2. Gently rub the entire surface of the paper to pick up the wet ink.
3. Remove the paper.
4. Allow the paper to dry for about 30 seconds.

Step Twelve
1. Fold the paper in half lengthwise - long end to long end.
2. Start cutting at the fold.
3. Cut on an angle to make an irregular polygon in the shape of half a bow.
4. Open the symmetrical shape.
5. Make several different sized bows.

Step Thirteen
1. Use a hole punch to make a small hole at the bottom vertex.
2. Tie a ribbon through the hole.
3. Use washable glue to attach the bows at intervals along the ribbon.

Step Fourteen
If you want to fly the kite:
1. Use lots of clear tape to attach bamboo sticks to the back of the kite.
2. Place one stick along the line of symmetry.
3. Place another stick along the bottom of the small triangles at a right angle to the first stick.
4. Use clear tape to fasten any loose edges.
5. Attach kite string to the centre of the cross formed by the bamboo sticks.
6. Go outside and see if it will fly.
Learning Goals

Students will be able to:
- identify and use mathematical terms line of symmetry, mirror image, triangle and irregular polygon;
- use a variety of shapes to create a design;
- create a mirror image print using marker and water;
- construct a kite by folding paper accurately;
- demonstrate technical accomplishment and creativity.

Extensions

Have students:
1. Explore other printmaking projects using lesson plans available on this website, for example:
   - **Small Box With a Lid**
   - **A Tale For All**
   - **Book in a Box**
   - **Exploring Line**

Prepare

1. You may want to photocopy the printing plate template on sheets of cardstock paper 21.6 cm x 27.9 (8.5" x 11") 1 per student, and place them into plastic sheet protectors. (Downloads - MonoprintTemplate.pdf)
2. Place students into groups of about 6 so they can share markers and spray bottles.
3. Download and display the **Shape poster** available on this website.
4. Introduce or review the following mathematical concepts:
   - line of symmetry - an imaginary line through an image where if you fold it both halves are exactly the same only reversed
   - mirror image - an image which is the same except everything is reversed
   - triangle - a 3-sided polygon
   - irregular polygon - a 2-dimensional shape with straight sides that does not have all sides and angles equal
5. Gather and make available, books about kites, for example, **A Kite Chase for Myrtle**, by Leela Hope; **Tiny Kite Of Eddie Wing**, by Maxine Trottier, and Al Van Mil; **Henry & the Kite Dragon**, by Bruce Edward Hall, and William Low; and **Night Sky Dragons**, by Mal Peet, Elspeth Graham, and Patrick Benson.

Introduction

1. Conduct a read-aloud using a book such as **A Kite Chase for Myrtle**, by Leela Hope.
   - share ideas about kites and experiences students may have had with them
   - discuss the shape of a kite and what makes it beautiful
2. Ask what types of prints students might know about.
3. Explain that there are many different ways to make prints including monoprints, which are unique because they only produce one image of the print, rather then many.
4. Demonstrate how to make a mirror image print and how the paper can be used to make a small kite.
5. Introduce the challenge.

Activities

The Challenge

1. Use a variety of shapes to create a design.
2. Create a mirror image print using marker and water.
3. Construct a kite by folding paper accurately.
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 along the line of symmetry
   - created a mirror image print
   - folded the paper to make a kite
   - used a variety of shapes to make a design
   - created a kite that is in good condition
3. Guide students through the steps outlined in this lesson plan.
4. Observe students as they work.
5. Provide individual assistance and encouragement.

Sharing
1. Place students into small groups.
2. Ask them to share their kites and take turns discussing the things that are especially effective and why.
   
   Talk about:
   - how the shapes used make the design effective;
   - what was difficult to do, and how they solved their problems;
   - what they liked best about making the kite.
3. Share ideas with the whole class.

Assessment

1. Observe students as they work – thoughtful focus, discriminating, seeking more information, elaborating, experimenting
2. Observe students as they share and discuss their kites – active listening, insightful contributions, supporting idea with evidence found in the artwork and from personal experience.
3. Use a checklist to track progress. (Downloads - Kite_tracking.pdf)
4. Have students use the self-assessment form to reflect on their work. (Downloads - Kite_self-assessment.pdf)