

Lesson Plans



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Symmetry Activity Centre #1 - Complete the Photograph

Materials:

- Magazine Picture
- Glue Stick
- Pencils and Pencil Crayons
- Scissors
- Blank Paper

Instructions:

1. Select one half of a magazine photo
2. Put your name on the top-right corner of a blank piece of paper.
3. Neatly glue your picture onto the page.
**Make sure you leave plenty of room for your drawing.*
4. Examine the features and details of the picture. What are the main parts that you see?
5. With your pencil carefully draw the other half of this picture.
6. Try to make your drawing **symmetrical** with the magazine picture.
7. Your drawing must match the picture as much as possible.
8. Colour as accurately as possible with pencil crayon.

Symmetry Activity Centre #1 - Complete the photograph

If you finish early:

1. Fold a blank piece of paper in half.
2. Using a pencil draw one line that creates an outline shape. Make sure that the beginning and end lines start at the fold. Leave plenty of room in the middle of the shape.
3. Now trim along the outline that you just created.
4. Using scissors cut various small shapes on the fold lines.
5. Unfold. Observe. Was your result what you expected?
6. Place your name in small neat letters on one side of your creation.

Symmetry Activity Centre #2 - Dot Paper Drawings

Materials:

- Dot paper
- Pencils and Gel Pens

Instructions:

1. Write your name with PENCIL in the top-right corner of a blank dot sheet.
2. Turn pages sideways.
3. Use your PENCIL to draw a **horizontal line of symmetry** in the middle of the page. Connect at least 15 dots.
4. This is a borderline between your right-side-up and upside-down worlds.
5. Connect dots with diagonal lines on the right-side-up world to make a mountain range. *Make sure some of the diagonal lines return to the line of symmetry.
6. Create a symmetrical copy of your mountains in the upside-world.
7. With your PENCIL and a NEW BLANK sheet of dot paper draw one line of horizontal symmetry. Draw city buildings in the right-side-up world. Can you make these buildings symmetrical? TIP: See if you can do this with just an invisible line.
8. Create a symmetrical copy of your buildings in the upside-down-world.
9. HINT: You may want to gently fold your paper to double-check your work.

Symmetry Activity Centre #2 - Dot Paper Drawings

10. With your PENCIL and a BLANK sheet of dot paper draw one line of horizontal symmetry. Try to include a second line of symmetry in this picture.
11. TIP: See if you can do this with just an invisible line.
12. HINT: You may want to gently fold your paper to double-check your work.

Symmetry Activity Centre #3 - Symmetry in Nature and Design

Materials:

- 2 work sheets
- Pencil
- Ruler
- Mira

Instructions:

1. Write your name in PENCIL on the top right corner of each page.
2. Examine the page of natural things.
3. Can you find lines of symmetry? Use your ruler to draw the line or lines of symmetry onto the pictures.
NOTE: Remember that objects in nature may not be perfect. Near perfect symmetry is okay for this page.
4. Turn to the page of logos. Can you find the **lines of symmetry**? Use your ruler to DRAW THE LINE OR LINES OF SYMMETRY onto the logos.
5. Rotate this page sideways. Do any of the logos still have the same pattern? If yes they have "**turn symmetry**". DRAW A CIRCLE around these logos
6. Do any logos appear to be **non-symmetrical**? This means that the object does not have a line of symmetry. If so, DO NOT DRAW ANYTHING.
HINT: Use a Mira to double-check your predictions before you start drawing.

Symmetry Activity Centre #4 - Pattern Blocks

Materials:

- 2 worksheets
- Pencil
- Pencil Crayons or Markers

Instructions:

1. Write your name in PENCIL in the top right corner of both your worksheet.
2. Place blocks on the page to cover the shapes of your worksheet. Take a good look.
3. Using the same blocks FLIP the pattern and trace it on the other side of the dotted line.
4. Colour the pattern.

NOTE: Make sure you colour the blocks so that the pattern remains exactly the same on either side of the line of symmetry.

5. Complete the other patterns.

If you finish early: Try creating your own logo on a BLANK PAGE. Create a **symmetrical** shape using pattern blocks. Trace and colour your logo. Make sure to include your name. Can you create a mirror image of your name?

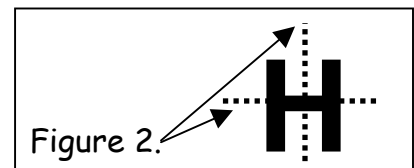
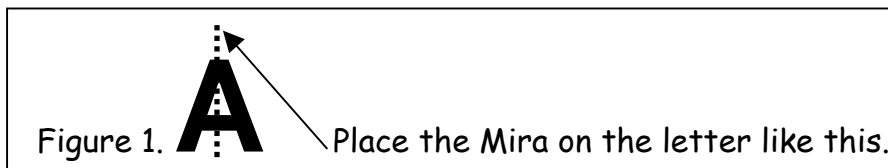
Symmetry Activity Centre #5 - Reflecting Letters of the Alphabet

Materials:

- Mirrors or Miras
- Pencil
- Alphabet sheet
- Chart worksheet

Instructions:

1. Use an alphabet sheet (DO NOT WRITE ON THIS) and a Mira to discover lines of symmetry in the letters of the alphabet.
2. Place the Mira over the "A" (see Figure 1). Do you see how the image appears unchanged? You have discovered a line of symmetry. Since the Mira is facing up-and-down it is called a "vertical line of symmetry". If the Mira is side-to-side it is called a "horizontal line of symmetry". Some letters will have both horizontal and vertical lines of symmetry (see Figure 2).



3. Record your findings on the chart. How many lines of symmetry can you find for each letter?
4. Try to make predictions about each letter before using the Mira.

Symmetry Activity Centre #5 - Reflecting Letters

If you finish early: Count how many letters in your name have "line symmetry". Is there someone else in the class whose name has even more? Using digits from 0-9 make 3 digit numbers that have line symmetry. Record your answers on your worksheet.

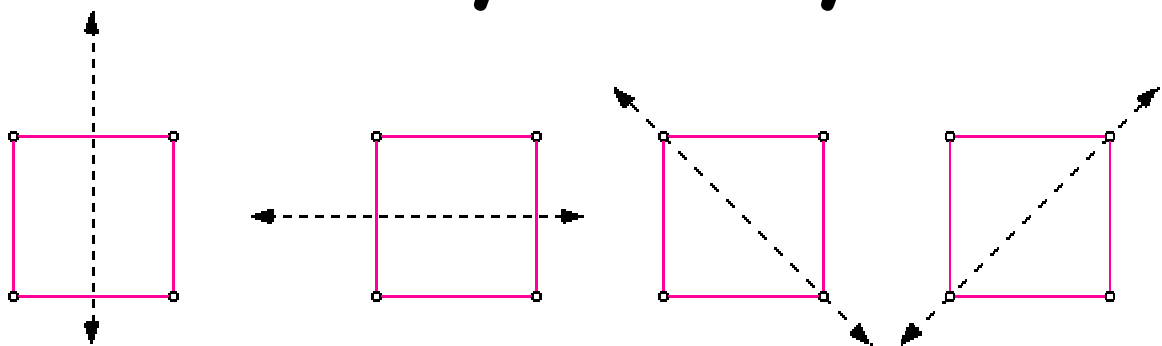
Example: The number 301 has ONE horizontal line of symmetry. The number 181 has TWO horizontal lines of symmetry. It has both a horizontal AND a vertical line of symmetry.

Line of Symmetry:

a line that divides a figure into two parts, each of which is a mirror image of the other.

Line Symmetry:

figures that match exactly when folded in half have line symmetry.



Horizontal Line:
a line that goes left and
right.

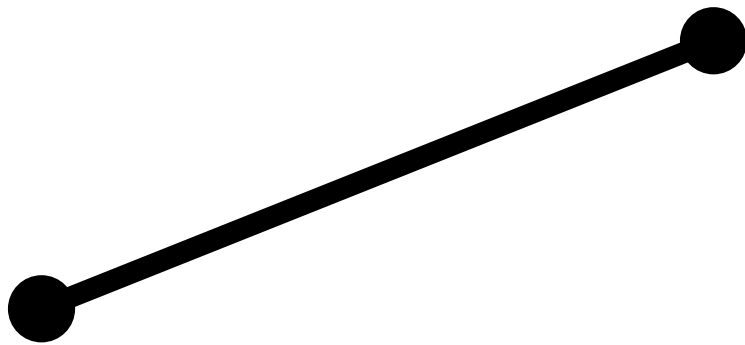


Vertical Line:
a line that goes up and down.



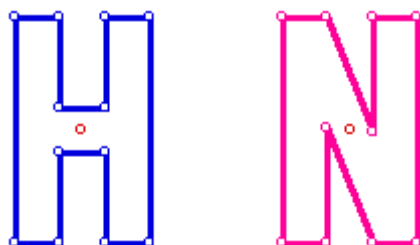
Diagonal Line:

any line that is not horizontal or vertical (i.e., a line that is "slanted").



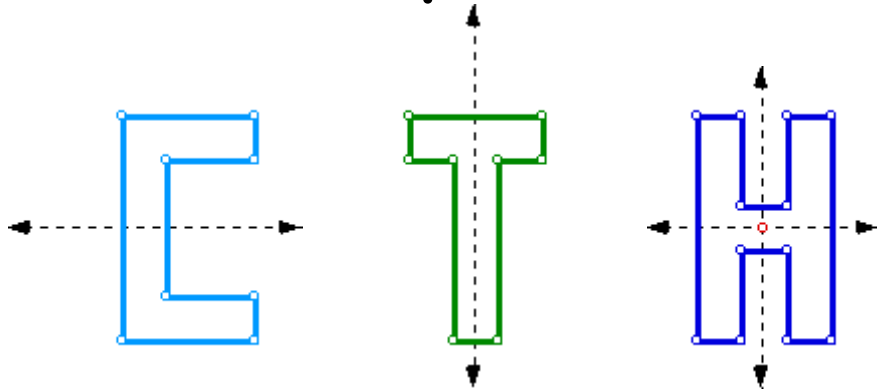
Turn Symmetry:

a figure has turn symmetry if, after turning it about its centre, the figure lines back up with itself.



Reflection Symmetry:

After reflecting the figure over a mirror line, the figure lines back up with itself.



Name: _____

Symmetry Activity #5 - Reflecting Letters of the Alphabet

Record your observations of each letter in the following chart.

0 Lines of Symmetry	
1 Lines of Symmetry	
2 Lines of Symmetry	

If you finish early: write your name and count how many letters are symmetrical. Record your result. List 3 digits numbers that have at least one line of symmetry. Make sure to test your results.
