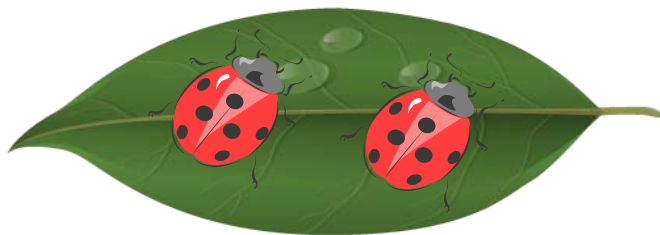


Ladybugs



Suggested Group Size

Individual; Small Group

Objective

The children will analyze and construct examples of simple symmetry and non-symmetry in two dimensions, using concrete objects.

Activity

Children will analyze pictures of objects to see if they are examples of symmetry or non-symmetry. Each child will construct a ladybug and explain whether or not it is an example of symmetry or non-symmetry.

Targeted Florida Early Learning and Developmental Standards for Four-Year-Olds

- **V. Cognitive Development and General Knowledge**
 - **A. Mathematical Thinking**
 - **A.d. Geometry**
 - **A.d.4.** Analyzes and constructs examples of simple symmetry and non-symmetry in two dimensions, using concrete objects.

Materials

- Picture cards with examples of symmetry and non-symmetry (at end of lesson)
- Poster board
- Markers
- Velcro or tape
- Index cards (4 x 6)
- Glue stick
- A variety of art materials for children to make their own ladybugs
- Books: *The Ladybug and Other Insects* by Pascale de Bourgoing
A Ladybug's Life by John Himmelman
- Supplemental Book(s):
Are You a Ladybug? by Judy Allen
The Grouchy Ladybug by Eric Carle
Eye Spy a Ladybug! by Melinda Lilly
Ladybugs by Martha E. H. Rustad
Ladybug, Ladybug by Ruth Brown
Lucky Ladybug by Muff Singer

Procedures

Day 1

1. Before you begin the lesson, create the table below. Use the markers to draw the chart and write the terms (e.g., symmetry and non-symmetry) on the poster board.

Symmetry	Non-symmetry

2. Cut out the picture cards and glue them onto the index cards. You may consider laminating the picture cards and poster to make them more durable. If you choose to laminate, then attach a piece of Velcro (hook side) to the back of each picture card and six pieces of Velcro (loop side) in each column on the poster.
3. Explain to the children that today you are going to learn two new words. Show a symmetry picture card (e.g., ladybug) and say, "Our first word is '**symmetry**'. Say, 'symmetry'. (Wait for the children to respond.) Yes, that's right '**symmetry**'. Symmetry is when you have parts that are exactly the same on both sides of a line that divides an object down the middle. When an object has symmetry we say that it is symmetrical. Now, I am going to show you some pictures of symmetry." Show children the other picture card examples of symmetry.

Day 1

4. Show a non-symmetry picture card (e.g., teddy bear) and say, "Our second word is '**non-symmetry**'. Say, 'non-symmetry'. (Wait for the children to respond.) Yes, that's right '**non-symmetry**'. Non-symmetry is when you **do not** have parts that are exactly the same on both sides of a line that divides an object down the middle. When an object does not have symmetry we say that it is **not** symmetrical. Now, I am going to show you some pictures of non-symmetry." Show children the other picture card examples of non-symmetry.
5. After the children have seen all of the picture cards, explain that now you will analyze (look at) some picture cards to determine if they show examples of symmetry and non-symmetry.
6. Pass out a picture card to each child. Ask the children to look at their picture card and decide if it shows an object that has symmetry or non-symmetry. Have the children choose which column (e.g., symmetry or non-symmetry) their picture card should go under on the poster. Allow each child to put his/her picture card on the poster.
7. Repeat step eight until all of the picture cards have been sorted.

Procedures (continued)

Day 2

8. Review the definitions of symmetry and non-symmetry.
9. Read *The Ladybug and Other Insects* by Pascale de Bourgoing and point out pictures that show the symmetry of the ladybug's wings as you go through the book.
10. Allow the children to create their own ladybugs and use the spots on the wings to create a ladybug that has symmetry or non-symmetry.
11. Ask each child to explain if their ladybug has symmetry or non-symmetry and how they know (e.g., "The ladybug has symmetry because it has the same number of spots on each wing. The ladybug has non-symmetry because it has a different number of spots on each wing.").
12. Create a classroom display that sorts the ladybugs into the categories of symmetry or non-symmetry.

Adaptations

- Allow children to create their own examples of symmetry and non-symmetry.
- Use a magnetic dry erase board and magnets instead of the poster board and Velcro.
- To increase the difficulty of the lesson, create your own picture cards and use a horizontal line of symmetry to analyze objects and determine if they are examples of symmetry and non-symmetry.

Extensions

- You can ask the children to bring in two-dimensional examples of symmetry or non-symmetry.
- Add related materials to classroom centers:
 - **Reading/Literacy:** Include insect hand puppets and a variety of fiction and non-fiction books about ladybugs and other insects.
 - **Listening:** Add books about ladybugs and other insects.
 - **Art:** Show children how to fold paper in half and cut on the fold to create symmetrical shapes or objects.
 - **Science:** Provide magnifying glasses and picture cards with examples of symmetry and non-symmetry for the children to analyze.

Checking for Understanding

Children will demonstrate their understanding of the lesson by:

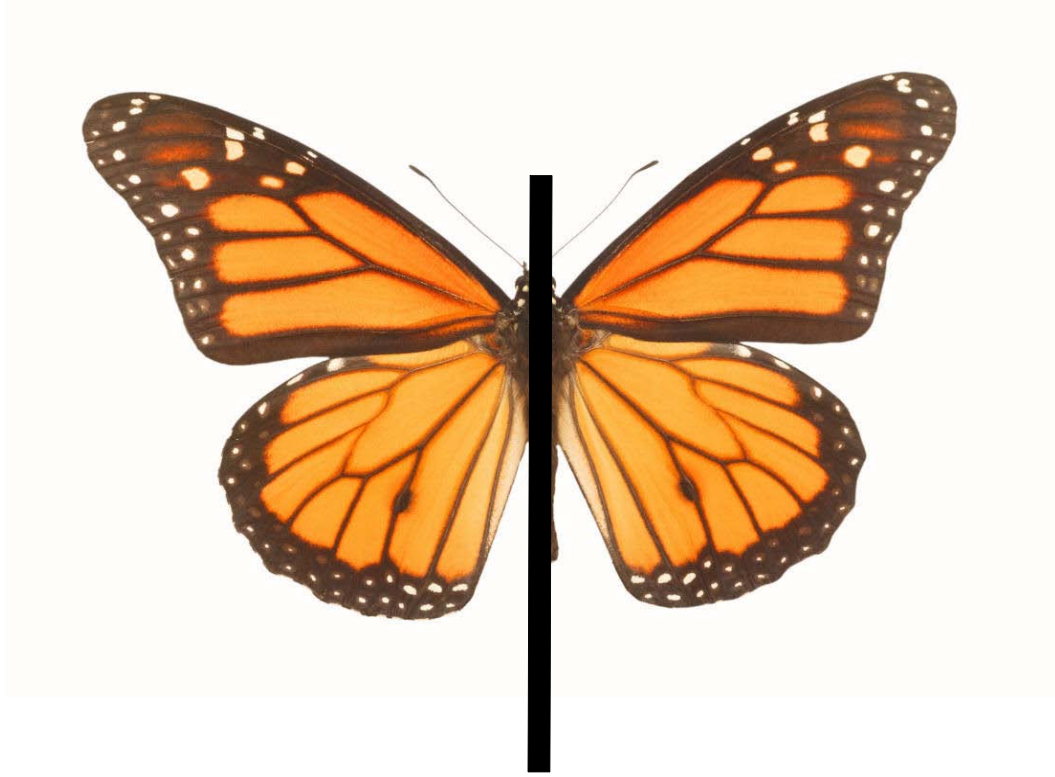
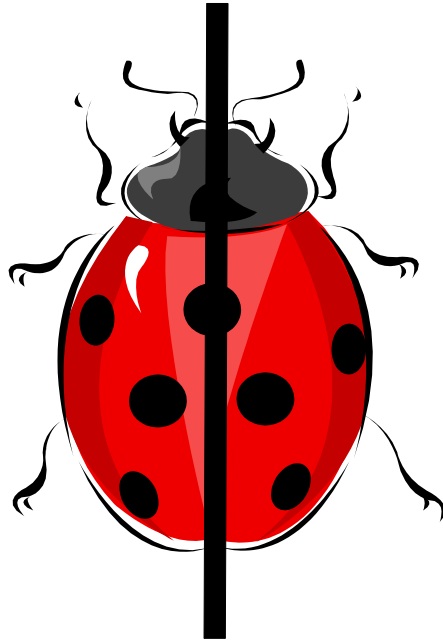
- analyzing pictures of objects to see if they are examples of symmetry or non-symmetry
- constructing examples of symmetry and non-symmetry.

Related Standards for Four-Year-Olds

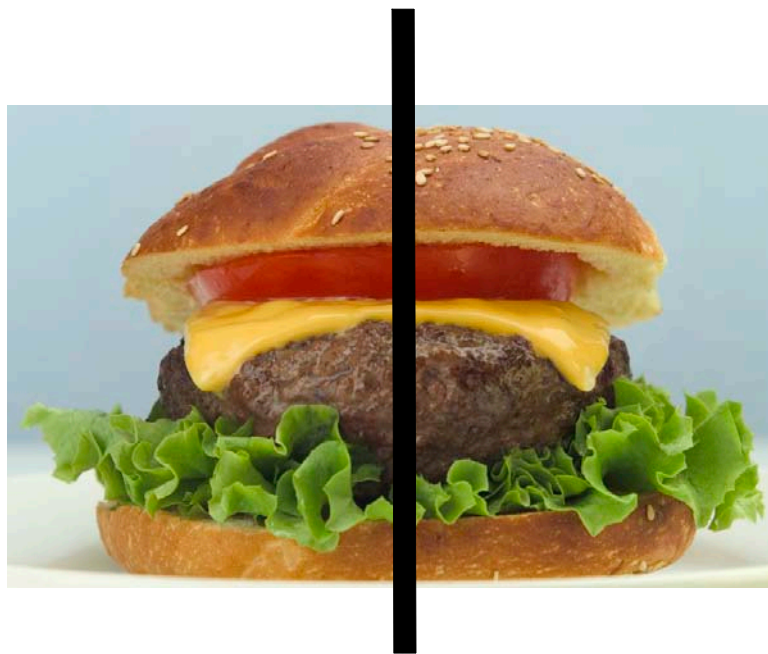
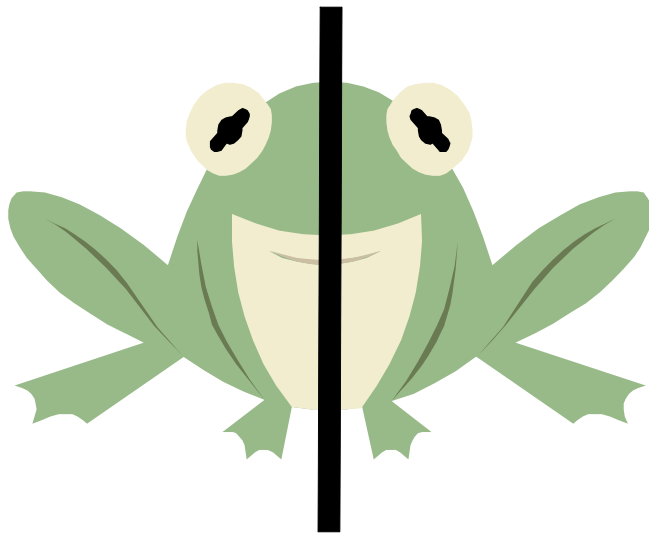
- **I. Physical Development**
 - **D. Fine Motor Development**
 - **D.2.** Uses eye-hand coordination to perform fine motor tasks
 - **D.3.** Shows beginning control of writing by using various drawing and art tools with increasing coordination

- **V. Cognitive Development and General Knowledge**
 - **B. Scientific Inquiry**
 - **B.a. Investigation and Inquiry**
 - **B.a.1.** Demonstrates the use of simple tools and equipment for observing and investigating
 - **D. Creative Expression Through the Arts**
 - **D.a. Visual Arts**
 - **D.a.1.** Explores visual arts

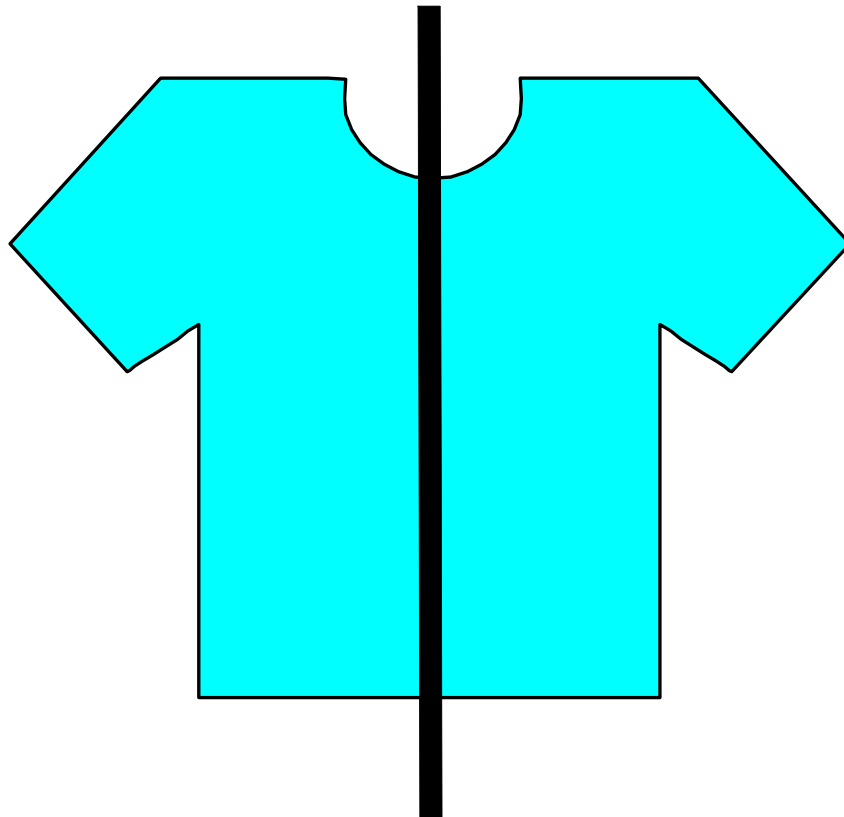
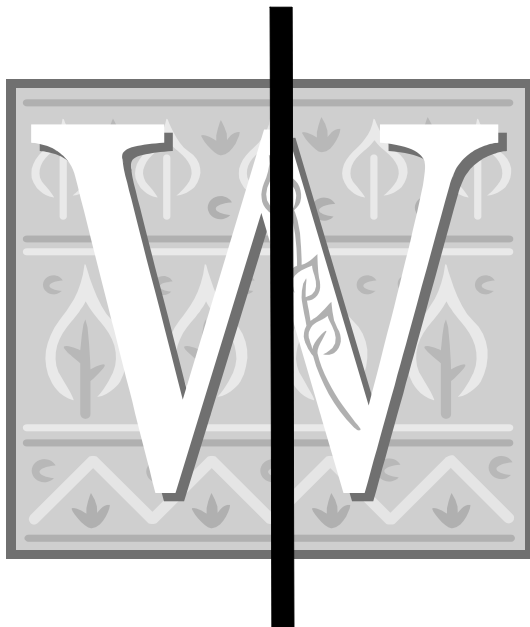
Symmetry Picture Cards



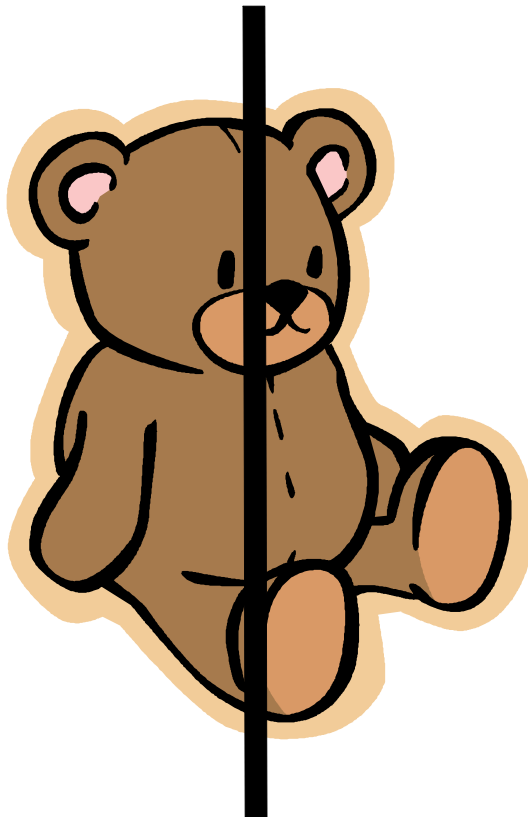
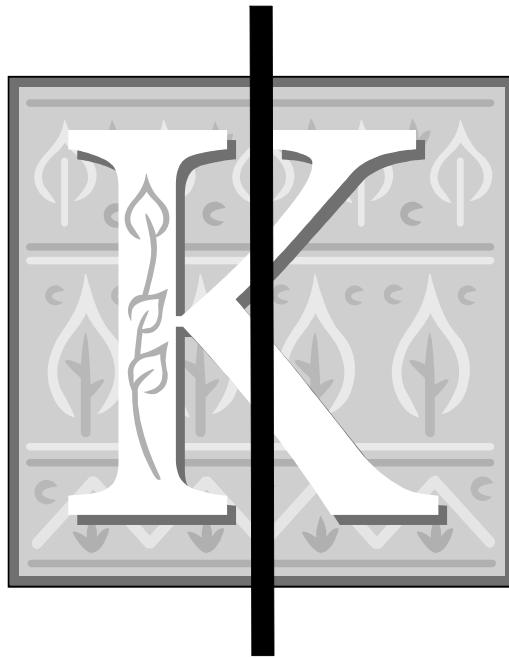
Symmetry Picture Cards (continued)



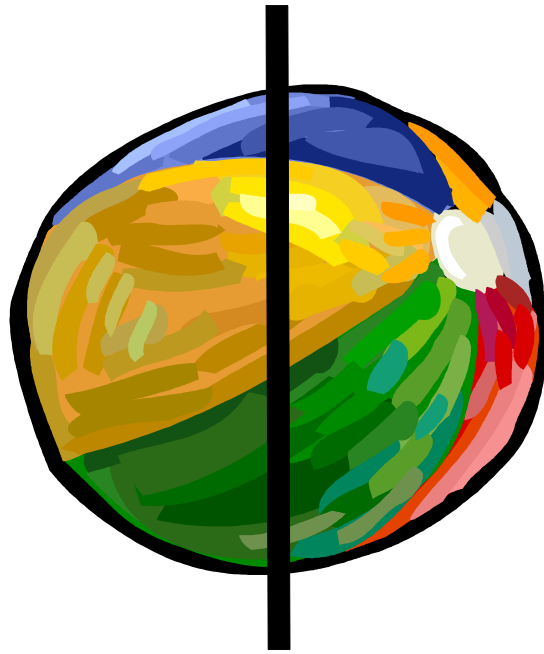
Symmetry Picture Cards (continued)



Non-Symmetry Picture Cards



Non-Symmetry Picture Cards (continued)



Non-Symmetry Picture Cards (continued)

