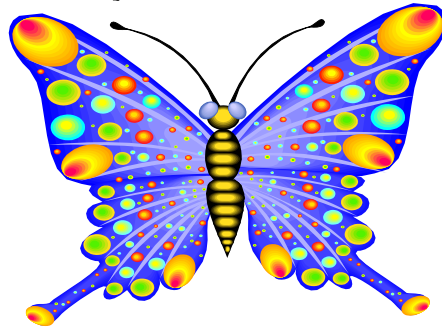


# Tie-Dyed Butterflies



## **Suggested Group Size**

Small group

## **Objective(s)**

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

## **Activity**

Children will create a tie-dyed butterfly using finger paint paper and assorted colors of finger paint. The children will analyze their butterfly 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**
    - **d. Geometry**
      - **A.d.4.** Analyzes and constructs examples of simple symmetry and non-symmetry in two dimensions, using concrete objects.

## **Materials**

- Finger paint paper (a piece for each child)
- Assorted colors of finger paint
- Plastic spoons (one for each color of paint)
- Scissors (a pair for each child)
- Aprons/paint smocks (one for each child)
- Marker
- Poster board or cardboard

## Procedures

### Before You Begin the Lesson

1. Create a butterfly template by drawing half of a butterfly on a piece of cardboard (see Figure 1). Cut out the template (see Figure 2).

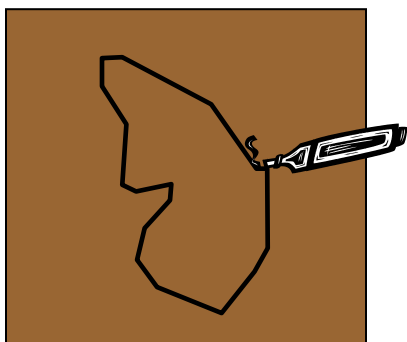


Figure 1

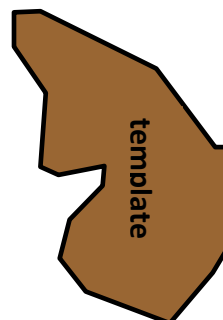


Figure 2

2. Fold each piece of finger paint paper in half (see Figure 3). Place the template on the fold of the paper. Then trace around the template (see Figure 4). Trace a butterfly for each child.

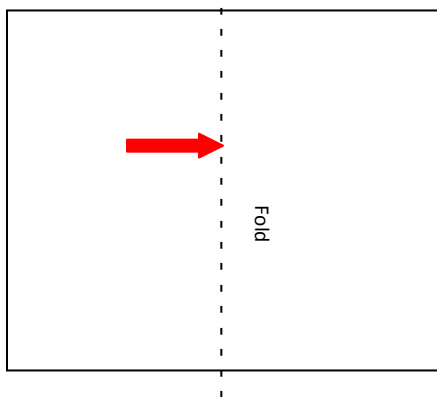


Figure 3

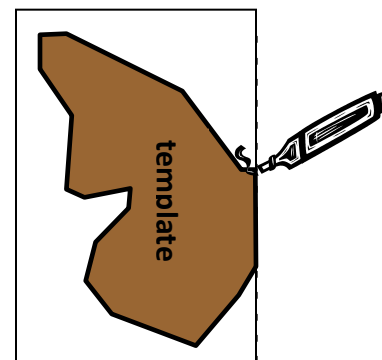
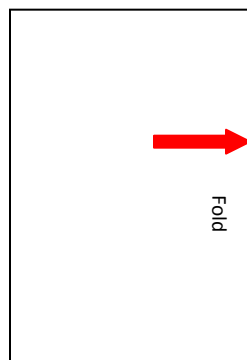


Figure 4

3. Keep the paper folded as you begin cutting out the butterfly shape on the fold (see Figure 5). Use the butterfly shape as a sample to share with the children (see Figure 6).

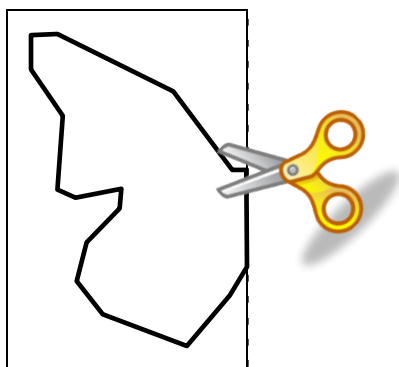


Figure 5

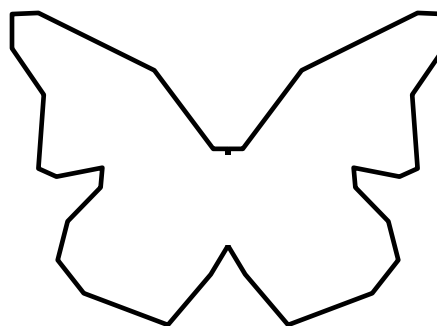


Figure 6

## Procedures (continued)

### Tie-Dyed Butterflies (Small Group)

1. Ask the children if they remember what the words symmetry and non-symmetry mean.
2. Review the definitions of symmetry and non-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. Show the children the sample of the folded butterfly (see Figure 7). **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. Show the children the sample of the unfolded butterfly (see Figure 8).

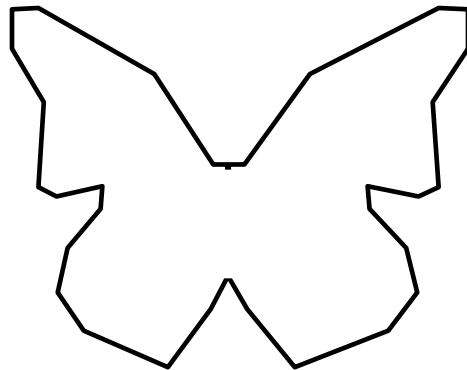


Figure 7

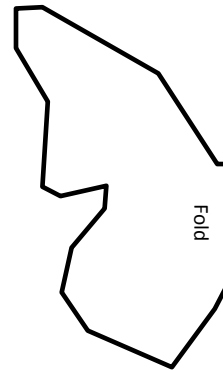


Figure 8

3. Give each child a folded piece of paper with the butterfly traced on it (see Figure 9).

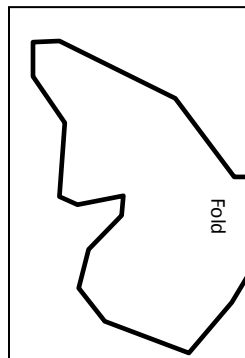


Figure 9

4. Show the children how to keep the paper folded as they begin cutting out the butterfly shape. Allow each child to cut his/her butterfly starting at the black line on the fold (see Figure 10).

## Procedures (continued)

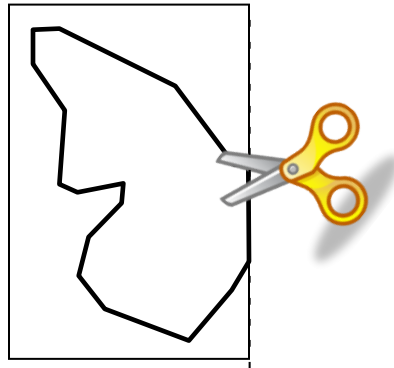


Figure 10

5. Ask each child to unfold his/her butterfly. Keep in mind that some of the butterflies may not be exactly symmetrical (e.g., uneven/misshapen wings), but that is okay.
6. Allow the children to choose the colors of paint they would like to use on their butterflies. Apply a spoonful of each color chosen on one side of the butterfly shape (see Figure 11).

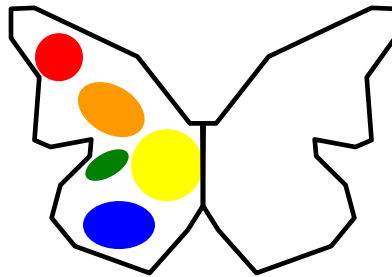


Figure 11

7. Ask the children to fold their butterfly in half (see Figure 12) and then press down and smooth out the paint bubbles/clumps with their hand (see Figure 13).

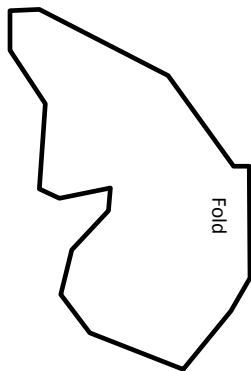


Figure 12

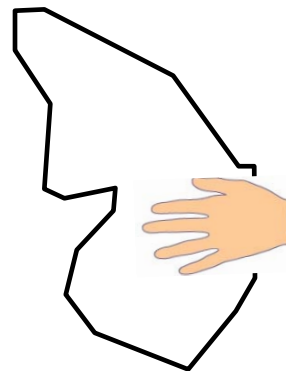


Figure 13

### Procedures (continued)

8. Ask the children to unfold their butterfly and analyze (look at) it, then decide if it has symmetry or non-symmetry (see Figure 14). Next ask the children to explain how they know if the butterfly has symmetry or non-symmetry (e.g., “My butterfly has symmetry because it has the same number of spots on each wing. My butterfly has non-symmetry because each wing is a different shape/size.”).

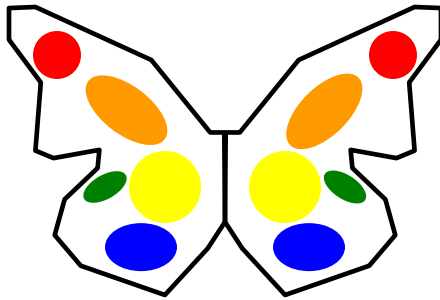


Figure 14

### Adaptations

- Allow each child to trace and cut out their own butterfly.
- The teacher models how to trace and cut out the butterfly for the children.

### Extensions

- Create a classroom display and ask the children to help you sort their butterfly into the category of symmetry or non-symmetry.
- **Art area:** add folded paper with various shapes trace on them, precut tissue paper pieces (instead of paint), glue and scissors. Allow the children to use the tissue paper pieces to create symmetry or non-symmetry on their butterfly.

### Checking for Understanding

Children will demonstrate their understanding of the lesson by:

- constructing examples of simple symmetry in two dimensions, using concrete objects
- analyzing their butterfly and explaining whether or not it is an example of symmetry or 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

## **Related Standards for Four-Year-Olds (continued)**

- **V. Cognitive Development and General Knowledge**
  - **A. Mathematical Thinking**
    - **d. Geometry**
      - **A.d.4.** Analyzes and constructs examples of simple symmetry and non-symmetry in two dimensions, using concrete objects.
  - **D. Creative Expression Through The Arts**
    - **a. Visual Arts**
      - **D.a.1.** Explores visual arts