



## Connecting Math to Our Lives and Communities

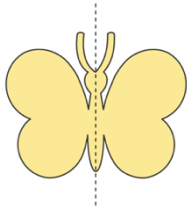
### Searching for Symmetry

#### Introduction:

Today we will learn all about symmetry. What is symmetry? and where can we find it in nature? Symmetry is all around us, and once we start to notice it, it can be hard to stop!

In Mathematics, symmetry is when one shape is exactly like the other shape when it is moved, rotated, or flipped. An object has symmetry when it can be divided into identical pieces or folded onto itself. When we talk about an object's symmetry, we use a term "line of symmetry" to help us describe the symmetry that we are seeing. It is the line where you would fold the image in half. We might think of it as an imaginary line that passes through an object to divide it into two identical halves.

Examples of Symmetry:



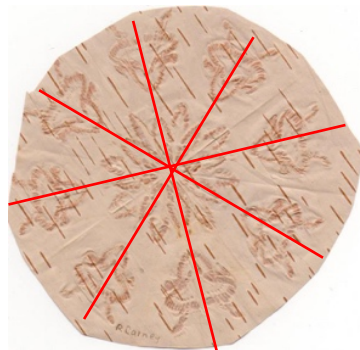
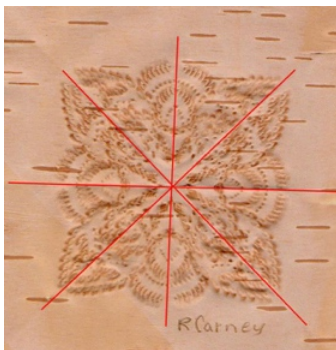
This image of a butterfly has what we call bilateral symmetry. This means that the object can be divided into two identical pieces. In this case the left and right sides of the butterfly are the same! With bilateral symmetry there is only one line of symmetry.



Orange Slice

This image of an orange slice has what we call radial symmetry. This means that the identical pieces are arranged around a central axis (or a central point). With radial symmetry there can be multiple lines of symmetry.

Symmetry can also be found consistently through art. A great example of this can be found in the Mi'kmaq tradition of birchbark biting. This nearly lost art form included folding pieces of birch bark and biting shapes into the bark. This artform required an in-depth knowledge of symmetry to plan the pattern that the artist wished to appear in their final bark pattern.



Lines of symmetry are drawn to demonstrate the radial symmetry shown in the artist's, Rosella Carney's, work.

### **Math Connections:**

- Symmetry
- Geometry

### **Materials**

- Paint
- Markers/ Colored pencils

### **Activity:**

Today we will explore symmetry in nature. If you would like we have included indoor symmetry activities that can be completed before you begin to look outside for symmetry!

### **Lines of Symmetry:**

Draw any lines of symmetry on the flowers that you may see!

- Were you able to find any line of symmetry on the images included?
- Did you notice anything about the lines of symmetry?
- Did any of the flowers have multiple lines of symmetry? (if you didn't catch those the first time have a second look and see if any of the flowers have more than one line of symmetry!)

### **Creating Symmetry:**

Paint the half of the flower that is outlined on the page, then, while the paint is still wet, fold it down the middle so that the paint touches the blank side of the paper. Press down on the folded paper to transfer some of the paint from one side to another. Then, unfold the paper and notice that you now have a symmetrical flower.

- Did folding the paper to transfer the paint complete the flowers image?

## Searching for Symmetry in Nature

Now that you are familiar with symmetry, take a nature walk with a friend or family member.

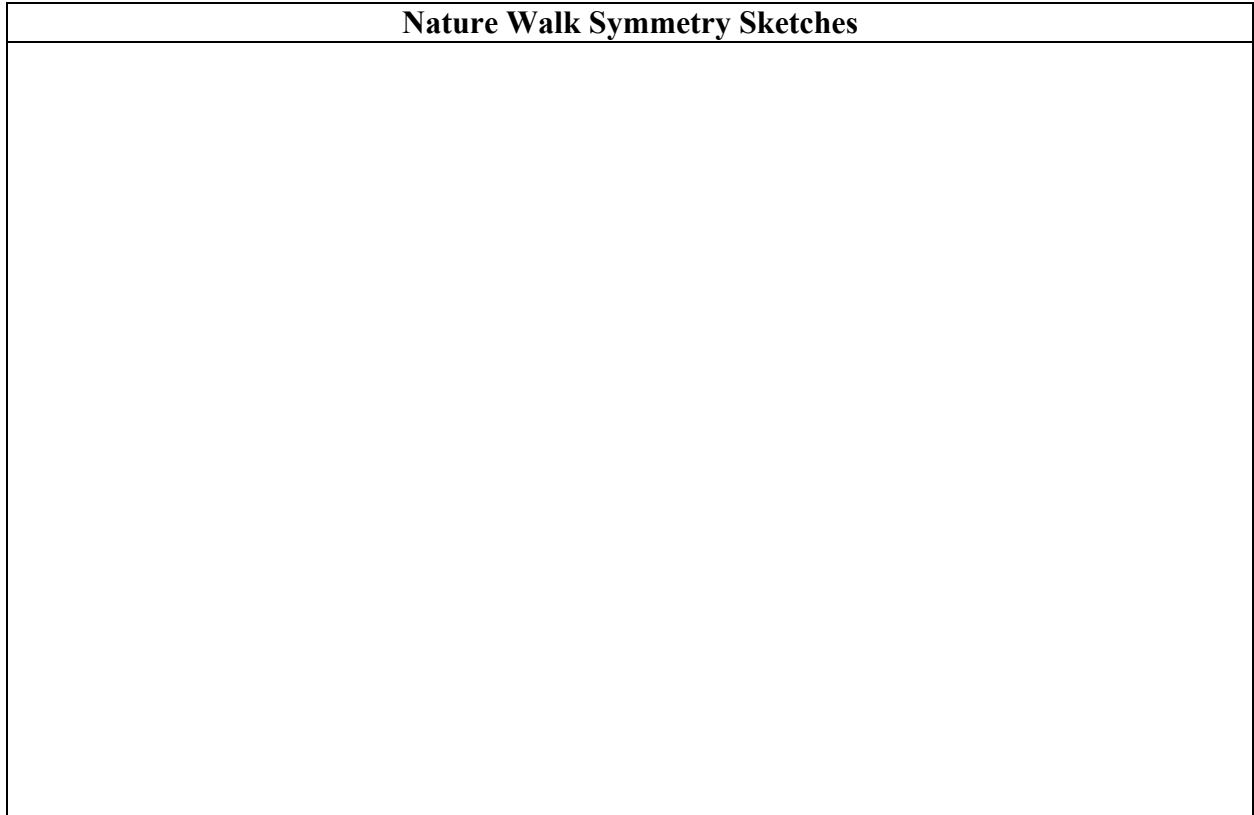
As you look at the world around you think about what shapes or objects are symmetrical. Take pictures of these symmetrical objects or draw them in the space provided below. If you are able to, label the symmetrical items that you find!

You can also head to our CMTOLC website under the Math in Nature module to find the link for a Jamboard where you can share your photos or drawings!

On your walk did you also notice symmetry in buildings, or human-made objects. Maybe now you can take note of any items in your house or bedroom that also contain symmetry!

- If an object has bilateral symmetry, how many lines of symmetry does it have?
- If an object has radial symmetry, how many ways can you rotate it to maintain symmetry?
- Where else do you see symmetry in your everyday life?

### **Nature Walk Symmetry Sketches**



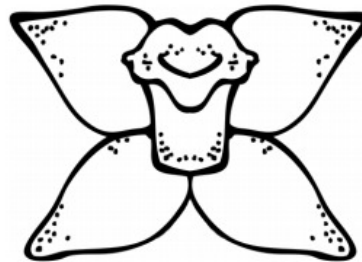
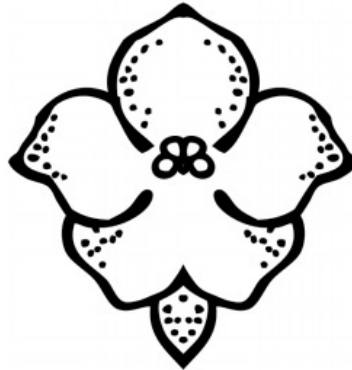
Lines of Symmetry

# Flower

Name: \_\_\_\_\_

## Symmetry

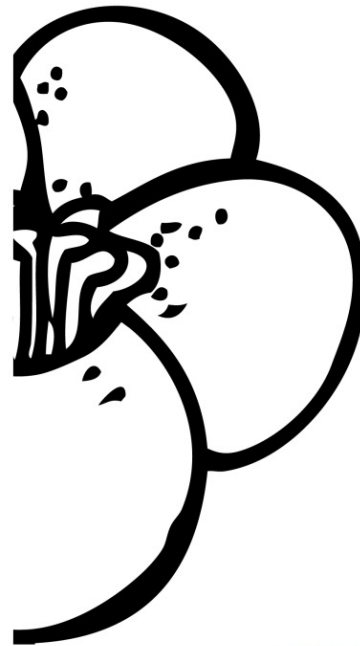
Draw the lines of symmetry on the flowers



Creating Symmetry



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**Send us a photo of your symmetry paintings and drawing at [Connecting Math To Our Lives and Communities](mailto:cmtolcstfx@gmail.ca) email ([cmtolcstfx@gmail.ca](mailto:cmtolcstfx@gmail.ca))**