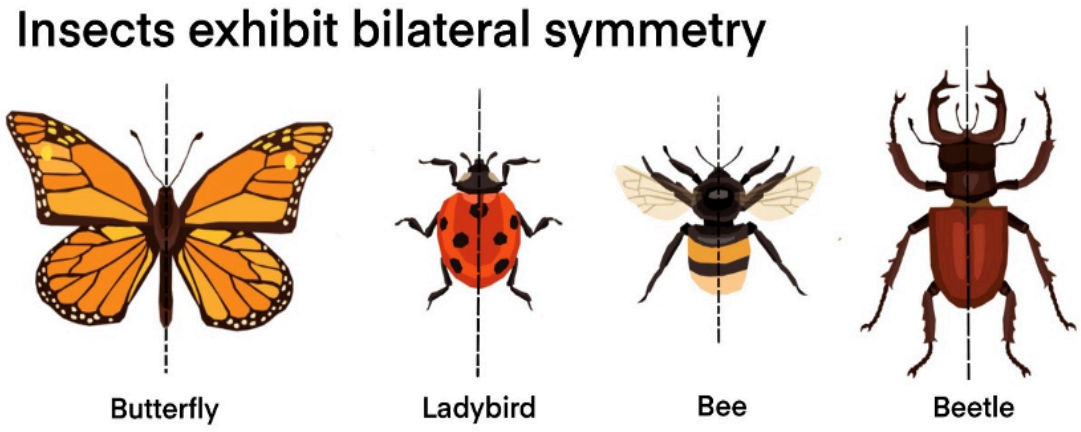
Learning About Symmetry in Nature

Symmetry is when an object or organism can be divided into identical pieces. This means that it would stay the same if rotated or flipped on an axis (imaginary line).

Symmetry exists all around us in the natural world. If you look carefully, you will find symmetry in people's faces, food, leaves, flowers, even insects. Scientists believe that nature favors symmetry because it calls for simplicity and balance. Think of how much easier it would be to recreate something if you had a repeating pattern rather than a different design every time!

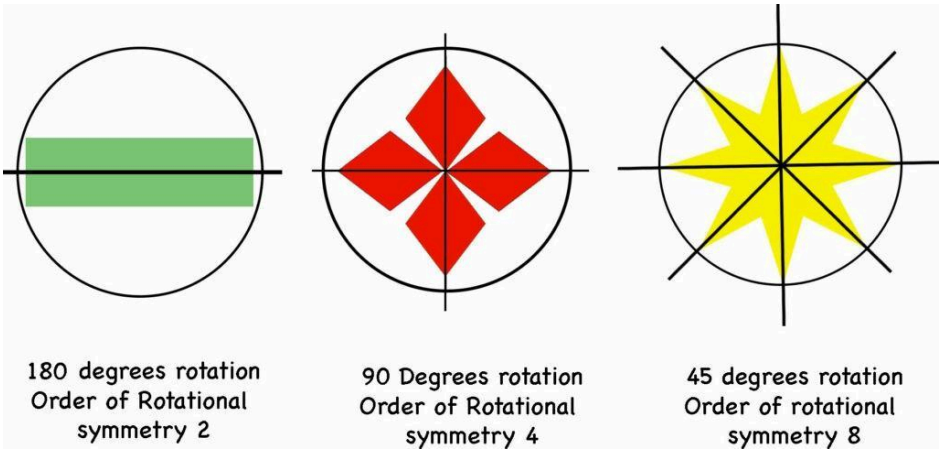
When it comes to organisms you might find in the garden, most have **bilateral symmetry**. This means that if you drew an imaginary line or axis through the center of their body, creating halves, you would find that both halves are the same.



Source: Esplora.org

When understanding bilateral symmetry, think of a mirror image. What other insects might have bilateral symmetry?

Another example of symmetry is **rotational symmetry**. This is when sides of an object or organism have a repeating image when moved around a center point. The **order of rotational symmetry** is the number of times that it can be rotated and still appear the same.



This is a four-leaf clover! Can you tell that this clover leaf can be rotated and still appear the same? This means it has rotational symmetry.

What is the order of rotation? Tip: the answer is the same as the number of times it can be folded and still look the same.

Answer: A four-leaf clover has 4-fold or 4-order rotation.

Task 1: Look at these images that were taken in our park by our Ecologist! Decide whether it has bilateral or rotational symmetry. If it does not have any symmetry, write that it is **asymmetrical.**

Least Skipper _____

Jewelweed _____

Jewelweed Leaf _____

Sneezeweed _____

Mushroom_____

Common Buckeye _____

Task 2 Go on a scavenger hunt around the garden and look around for objects and organisms. Separate what you can find into two categories below.

Symmetrical	Asymmetrical

For the objects you find that are asymmetrical, what would need to change about the design to make it symmetrical?

If you want to go for the extra challenge, figure out if it has bilateral or rotational symmetry. Feel free to pick up leaves or flowers (if they are already on the ground) and fold them to get a better idea.