

Symmetry in Animals

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¹ You probably know what symmetry means in math class. When a figure can be divided along a line or plane, and the two halves are congruent, we say it has symmetry. In nature, too, symmetry can be seen in plants and animals. One way biologists describe animals is the type of symmetry the animal's body has. Here are some of the different types of symmetry.



² Animals with **bilateral symmetry** have one line that divides them into two mirror images. Look at a butterfly. If you drew a line exactly down the center of its body from its head to its tail, the two halves would be the same, but mirror images of each other. There is only one line of symmetry where this is true. In spite of the complexity of some butterflies' patterns, symmetry exists. People, dogs, cats, and elephants all have bilateral symmetry.

³ Animals with **radial symmetry** have body parts arranged around a central point. Any line drawn from one side through the center to the opposite side will divide the animal into two symmetrical halves. Animals with radial symmetry have many lines of symmetry. Because of the circular arrangement of their parts, radially symmetrical animals do not have distinct front or back ends. They may have distinct top and bottom sides. Some examples of these animals are jellyfish, sea urchins, corals, and sea anemones. A bicycle wheel also has radial symmetry.

⁴ There are a few animals, like most sponges, that don't have any type of symmetry. These asymmetrical animals have very simple body plans. Sponges have no brains, nerve cells, or any internal organs. They are the simplest multicellular animals. The bodies of more complex animals have either radial or bilateral symmetry.

⁵ Animals with radial symmetry all live in water. Most of them can't move very quickly. They rely on water currents to bring food to them. One advantage of having radial symmetry is that the animal can get food from any direction.

⁶ Larger, more complex animals all have bilateral symmetry. They have very different front and back ends. Different parts of the body are specialized to do different jobs. Sense organs around the front end or head help bilaterally symmetrical animals find food. Bilateral symmetry also helps animals avoid enemies. Most animals you know have bilateral symmetry.

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<p>1. What does "congruent" mean?</p> <ul style="list-style-type: none"><input type="radio"/> A Coinciding; identical<input type="radio"/> B Alike in shape, but not size<input type="radio"/> C Similar in size and shape<input type="radio"/> D Alike in size, but not shape	<p>2. How many types of symmetry do biologists recognize in plants and animals?</p> <ul style="list-style-type: none"><input type="radio"/> A Three<input type="radio"/> B Two<input type="radio"/> C One<input type="radio"/> D Four
<p>3. More complex animals tend to have which type of symmetry?</p> <ul style="list-style-type: none"><input type="radio"/> A Asymmetry<input type="radio"/> B Radial symmetry<input type="radio"/> C Bilateral symmetry	<p>4. Animals that have radial symmetry tend to have which type of body design?</p> <ul style="list-style-type: none"><input type="radio"/> A Distinct front and back ends<input type="radio"/> B Distinct top and bottom<input type="radio"/> C Circular arrangement; no distinct front or back
<p>5. What is one animal that has neither radial nor bilateral symmetry?</p> <ul style="list-style-type: none"><input type="radio"/> A Butterfly<input type="radio"/> B Sea anemone<input type="radio"/> C Sponge<input type="radio"/> D Jellyfish	<p>6. What does "bilateral" mean?</p> <ul style="list-style-type: none"><input type="radio"/> A Having symmetry<input type="radio"/> B Two sided<input type="radio"/> C Having two lines of symmetry