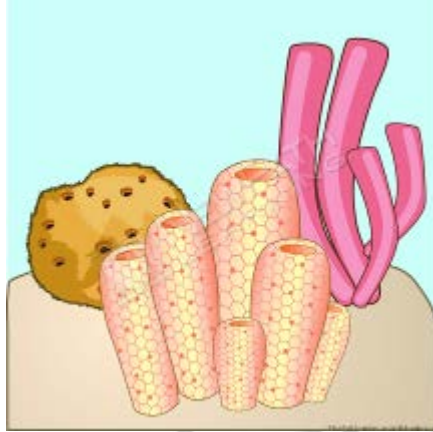


## SPONGES, CNIDARIANS AND WORMS

### Sponges

Sponges are very different than most other animals.



Until recently, people thought that sponges were plants.

The fact that they take in food puts them into the animal kingdom.

When they touch a hard surface, they adhere themselves to a

sponge is very porous and organ of a

and organ of a



**PREVIEW**

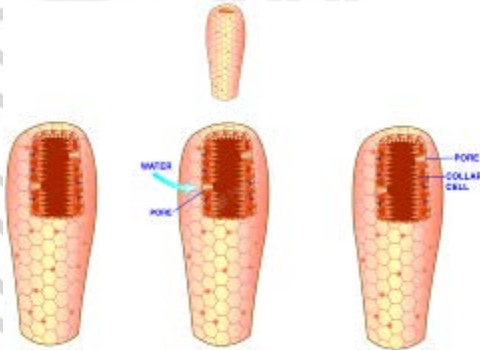
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### Structure

Like the sponge, many holes

in its body that allow water to pass through, called **pores**.



A sponge feeds similar to how a strainer works.

Tiny food particles will pass through the pores and the **collar cells** on the inside of the central cavity will trap and digest them. A sponge will also get oxygen from the water that passes through the pores.

Oxygen will diffuse or pass through the outer tissue and into the sponges' cells. The outside surface of some sponges contains structures known as spikes. Spikes give the sponge its shape and allow it to stay upright. The spikes also give the sponge protection from predators. A sponge reproduces both asexually and sexually.

**Lesson Checkpoint:**  
**What characteristic puts Sponges in the Animal Kingdom?**

**Sponge Reproduction**

When a sponge reproduces asexually, it uses a process known as budding. A sponge is not male or female, but they are able to produce both egg and sperm cells. A sponge will go back and forth producing sperm and egg cells, but will never produce both at the same time. The sperm will enter a sponge through a pore that is producing egg cells fertilize the egg.

After fertilization, the zygote looks very different from the parent. A larva is released and finds a place to settle.

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**Characteristics**

**Cnidarian**

Cnidarians have tentacles that capture their food into a cavity within their body. Jellyfishes, hydra, and coral are examples of cnidarians.

Cnidarians are carnivores with tentacles that help them to capture prey and discourage predators. Cnidarians have specialized tissue that helps them to move in their environment.

This tissue allows them to respond quickly to danger or to capturing prey. All cnidarians have radial symmetry, but they have two types of body plans: **polyp** or **medusa**.

A **polyp** is shaped similar to a vase and has a mouth opening at the top.

The majority of polyps attach themselves to a hard surface where they live most of their lives.

A **medusa** is a cnidarian body plan that is bowl-shaped and a free swimming animal with the mouth opening at the bottom. Some species of cnidarians go through a polyp stage and a medusa stage while some are one or the other.

A cnidarian feeds by using its poisonous stinging cells to inject their prey. The venom usually paralyzes the prey so that they can pull the prey into their mouths and digest it. Cnidarians have only one opening in their digestive tracts so the food that is not digested exits through the mouth. Cnidarians reproduce sexually and asexually. Most polyps reproduce by budding.

Some cnidarian species reproduce sexually. Some species have both male and female reproductive structures, while others only have one. If they have only male or female reproductive structures then they reproduce the same way that humans reproduce.

### Lesson Checkpoint:

What a

idarian



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**Character**  
Scientists  
They are t

d worms.

All worms are **invertebrates**, they all have narrow and long bodies without legs, they all have bilateral symmetry, and they all have tissues, organs, and organ systems. Worms also have a tail end and a head.

A worm's head has a very simple brain that consists of basic nerve tissue. This allows worms to be able to sense their environment quicker. They sense mates, food, and predators. This gives them the ability to respond quickly to their environment. Worms reproduce sexually and asexually. In most worm species there are either male or female individuals, but some species contain both male and female sex organs. There are species of worms that are able to break apart into many pieces and each piece will grow into an identical organism. Other species of worms are able to regenerate.

**Regeneration** is when an organism is able to regrow parts of its body.

## Flatworms

Flatworms are worms that are flat. Most flatworms are too small to be seen, but there are species that can grow up to ten meters long.

Most species of flatworm are parasites and live and feed off of their host, which we learned about in Topic 8.

Flatworms called **planarians** are not parasitic. They live freely in their environment.

Planarians have two dark spots on their head that are called eyespots, which can sense changes in light.

The sense that the planarians rely on most to help them find food is their sense of smell.

## Roundworms

Scientists think that roundworms are the most abundant animal on earth. There could be millions of roundworms in a square meter of damp soil in the forest or any other moist habitat. Roundworms have bodies in t

Roundworms can be parasites. Some of the pests

Roundworms live at both ends. Food will enter the mouth and exit the anus. The anus is an opening that allows digested wastes exit the body of an organism. This allows the food to travel one way in their digestive systems.

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## Segmented Worms

If you have ever been outside in the spring while it was raining, you probably saw an earthworm at some point. Earthworms are called segmented worms. Leeches are another example of segmented worms. Segmented worms inhabit most of the environments on earth. Segmented worms live in burrows in the ground, which give them protection and allow them to hunt for prey.

If you look closely at a segmented worm, you will notice that its body is made up of many rings with grooves in between each ring.

Segmented worms have bodies that are made up of many different sections, which are called segments. Each of the segments contains similar organs while some of them contain other organs like the reproductive organs.

**Lesson Checkpoint:**  
**Why are they called segmented worms?**

The nerve chord and the one-way digestive tract run the entire length of the body.

A segmented worm has a **closed circulatory system**, which allows the blood to move throughout the body in a network of tubes that are called blood vessels. In sections of the segmented worms there are pairs of organs that pump the blood around the body. These structures act like a heart. This allows segmented worms to grow large because oxygen can get to all of the cells easier.



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