

Worms at Work

SIXTH GRADE

By 6th grade, EUSD students have had an opportunity to explore their school's garden and compost areas. They know their school collects food scraps during lunch for composting. They may not know too many details about the stars of the composting team: the worms. Students participating in this activity will have an opportunity to explore worms up close and learn a bit about their anatomy.

SUBJECT

EXPLORE/SCIENCE

TIME

30 - 45 MIN

MATERIALS

Worms from the worm bin

Bucket or bin for worms

Worm Information Sheet, 1 per student or group

Magnifying lenses, 1 per student

Newspaper, several to share

Qtips, 1 per student

DIRECTIONS

- Ask students if they know why we keep a large worm bin in our garden? (to help us reduce food waste from the landfill) Ask if worms have teeth to chew the food scraps we put inside the bin? (they don't have teeth, but they do have mouths) Ask if they know how the worms process the food scraps that we put in the worm bin? (most people don't)
- Hand out the worm information sheet and ask students to read through it. While students are reading, go to the worm bin and put a large scoop of worms into a bucket.
- Next, hand each student some newspaper, a magnifying lens, a Qtip, and a worm from the worm bin. Invite students to try and identify some of the main parts of the worm listed on the information sheet.
- Remind students to be gentle with the worms, and try to keep worms out of the sun.
- When the observation activity has ended:
 - Return the worms to the worm bin.
 - Wash hands.

SOURCE

- BCK Programs

RESOURCE

- Edible Learning Lab | [Anatomy of the Red Wiggler Worm](#)



Worm Information Sheet

Segments

Adult redworms can have 200 to 400 ringed segments. This set of stacked circular muscles gives the worm its ring segments and works in concert with a set of longitudinal muscles, contracting and expanding to provide the worm with movement.

Each ring segment has a set of little hair-like appendages, known as *setae*, which help it move through soil and allow the worm to grip the surrounding soil when grasped by a predator. The *setae* are very strong and are formed from the same material that makes up our fingernails and the exoskeletons of insects.

Brain and Nervous System

The worm has a simple nerve bundle called the *cerebral ganglion*, which serves as its brain. The worm uses the *cerebral ganglion* to collect sensory input from the world around them, such as light, temperature, moisture, and vibrations.

Digestive System

Without teeth, worms cannot really chew food. Instead, a muscle near the mouth called the pharynx pulls food through their body and into the gizzard. The gizzard is where food mixes with sand and soil and pulverizes food particles so they can be digested. Food can then move into the *intestine*, which takes up nearly two-thirds of the worm's body and is where final digestion and nutrient absorption occurs before waste is expelled through the *anus*. This waste is called worm castings and is what we put directly into our garden beds as compost.

Circulatory System

The worm's circulatory system is powered by five hearts that regulate blood flow and push blood through a set of blood vessels. The *ventral and dorsal vessels* carry oxygen-rich blood throughout the body.

Respiratory System

Worms have no specialized respiratory organs, but they do breathe. Oxygen and carbon dioxide are diffused through the skin. Lack of moisture in the worm's environment restricts the breathing process. Prolonged dryness will cause death by suffocation. Exposure to direct sunlight can lead to death in less than three minutes.

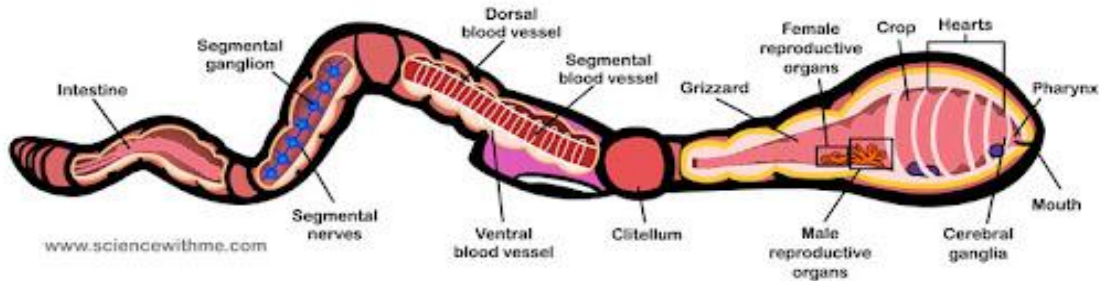
Reproductive System

When a redworm is immature, its body segments are uniform throughout its entire length. As it matures, it develops a bulbous gland about one-third of the way down its body called the *clitellum*. The clitellum produces mucus needed for cocoon production to hold the eggs. Worms have both male and female organs, so they can lay eggs and fertilize them, too. When they mate, they join together at the clitellum and create cocoons to deposit, fertilize, and store eggs. Each cocoon can have as many as five worms. It only takes a few weeks for the baby worms to hatch.

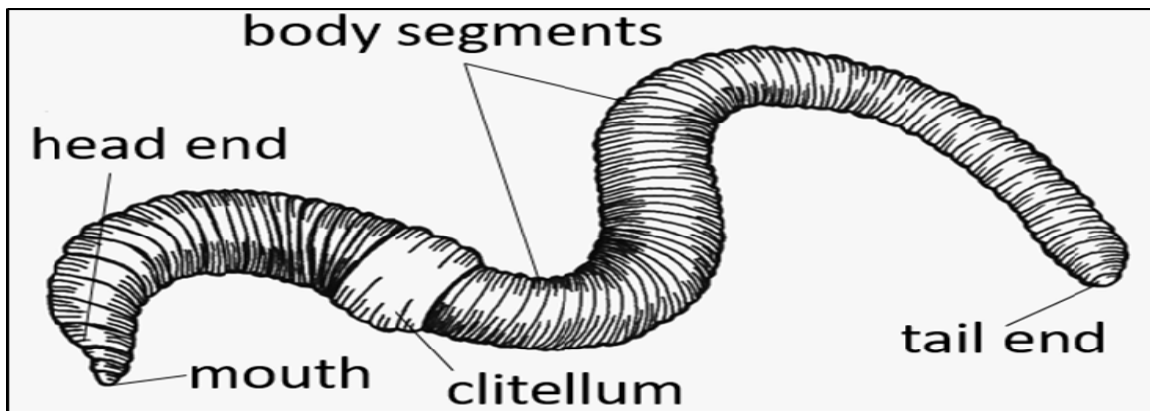
Source: *Edible Learning Lab*



Worm Diagrams



Source: sciencewithme.com



Source: https://www.kindpng.com/imgv/iRTbmJb_collection-of-free-worm-drawing-download-on-ui/

