

# WORM HOLE

## **BENCHMARKS and TASKS**

**SC.F.1.1.1** The student knows the needs of all living things.

**SC.G.1.1.1** The student knows that environments have living and nonliving parts.

- The student recognizes that most living things, including humans, need water, energy, air, shelter, and space.
- The student investigates living and nonliving things in the environment.

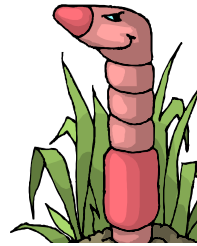
## **KEY QUESTION**

What kind of **environment** do earthworms prefer?

## **BACKGROUND INFORMATION**

Everything with which students come into contact can be classified as either living or nonliving. All these things exist and interact to make up the **ecosystem**. There are five basic processes of living things:

- Metabolism: getting and using food
- Respiration: releasing energy
- Elimination: removing waste
- Growth
- Reproduction



Earthworms are flexible, elongated bundles of muscle, efficiently evolved for life underground. Earthworms help the soil by mixing up the different layers of the soil and letting air in as they crawl around. They add nutrients to the soil by depositing their waste products (called castings) in the soil. Earthworms also help decompose dead plant and animal material, turning it into simpler parts that can be used again by new organisms. Worms eat some of the decaying matter.

Earthworms have two kinds of muscles. When the short muscles that encircle each segment contract, the worms get thinner and longer. When the long muscles that connect all the segments contract, the worm becomes shorter and fatter.

## **MATERIALS**

### **Teacher**

*Wonderful Worms*, Houghton Mifflin

### **Per group**

earthworms in a cup  
moist and dry paper towels  
dirt  
2 trays with sides one inch high  
cardboard to cover half of the tray  
pebbles or fish tank gravel

## **TEACHING TIPS**

1. Review humane treatment of all living things discussion from previous lesson.
2. Prepare the rough/smooth trays for each group by placing pebbles in one half of the tray and dirt in the other half of the tray.

3. Prepare the light/dark trays for each group by covering the entire bottom of the tray with dirt. Distribute the cardboard cover with the tray.
4. Make certain that the ½ sheet cardboard cover is wider than the tray.
5. Vanilla pudding and vanilla wafers (“Nilla” Wafers) can be substituted for students who do not like or are allergic to chocolate in the extension activity.

**ENGAGE**

Read *Wonderful Worms*, Houghton Mifflin

**EXPLORE**

1. Ask: *Are earthworms living or nonliving? How do you know?*
2. Ask: *Since earthworms are living, they need a special space in which to live. What kind of home (environment) might they like?*
3. Have students predict whether worms prefer a wet or dry, light or dark, or a rough or smooth environment.

***Earthworm Environment***

	wet	dry
predict		
actual		
	light	dark
predict		
actual		
	rough	smooth
predict		
actual		

4. Distribute worms and allow 5 – 10 minutes for the students to interact with the worms.
5. Distribute a moist and a dry paper towel to each group for wet/dry experiment. Have students test the prediction. Have the wet and dry paper towels overlap. (See illustration #1 on page 14.) Place worm where the wet and dry paper towels meet. Observe to see where the worm goes.
6. Repeat procedure for light/dark (illustration #2) environments. Place worm in the middle of the tray. Cover one half with the cardboard cover. Observe to see where the worm goes.
7. Repeat procedure for rough/smooth (illustration #3). Push the dirt to one side and put pebbles on the other side. Place the worm in the middle of the tray. Observe to see where the worm goes.

### **EXPLAIN**

Ask and record their responses on the *Earthworm Environment* chart.

*Did your earthworm prefer the wet or dry paper towel? Did the result match your prediction?*

*Did your earthworm prefer a dark or light area? Did the result match your prediction?*

*Did your earthworm prefer the rough or smooth surface? Did the result match your prediction?*

*Since earthworms are living things, what else do they need besides a special place to live? (air, food)*

### **EXTEND/APPLY**

Have students compare the earthworm environment with the environment of other animals such as themselves, a pet, birds, ducks.

### **EXTENSION**

Make "Pudding Dirt Cups." Pour 2 cups of cold milk into a large bowl and add instant chocolate pudding mix. Beat until well blended. Let it sit for 5 minutes. Stir in Cool Whip and  $\frac{1}{2}$  of the cookies ( $\frac{1}{2}$  of a 16 oz. package of chocolate sandwich cookies). Place 1 tablespoon into cups; fill cups  $\frac{3}{4}$  full with pudding mixture. Top with remaining crushed cookies. Refrigerate one hour. Decorate with a gummy worm half buried in the "dirt."

### **ASSESSMENT**

Ask the students to draw a picture of an environment that their earthworm would like. Was their environment drawing reasonable?

Illustration #1 Wet and dry

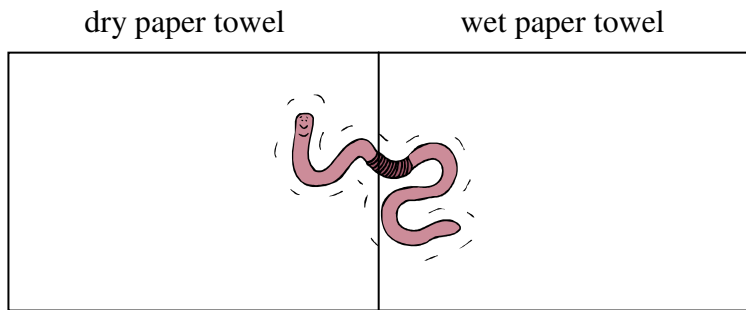


Illustration #2 Dark and light

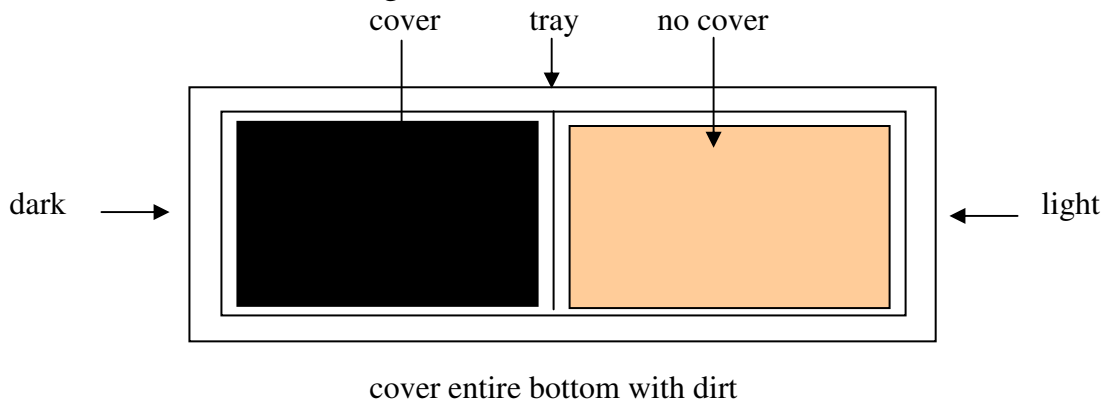


Illustration #3 Rough and smooth

