Name:

Earthworm Lab: Characteristics of Life

Skill

SCI 3.1 Create a model to represent a system

Standard:

BIO.A.1.1.1 Describe the characteristics of life shared by all prokaryotic and eukaryotic organisms.

WHAT TO DO

You will examine the seven different characteristics of life through looking at the different ways that earthworms respond. You will look at the earthworm for each characteristic of life. After each investigation, make sure you get a new earthworm.

Investigation #1: Reproduce

All living things reproduce. Do you think the earthworm produces sexually or asexually?

If you choose sexually, how do you think earthworms find their mate?
If you choose asexually, why do you think they produce asexually?

Look at your worm. How do you think the earthworm reproduces?

Read this article (or another article that you google). How do earthworms reproduce?

Investigation #2: Adapt

All animals have the ability to adapt. Animals do not adapt overnight, but rather millions of years as a species. Animal adaptations happen by chance, but stick because it helps them survive.

Look at the worm. What adaptations/special characteristics do you think the worm has to help it survive? (Hint: Think where it lives!)

Feel the worm. What adaptations/special characteristics do you think the worm has to help it survive? (Hint: Think where it lives!)

Directions:

1) Feel the bottom of the worm.
    a) Do you feel something that is sticky? That is called setae. These hairs are an adaptation that allow animals to move through the soil.
    b) Did the worm feel slimy to you? That is because the worm secretes mucus to move through the soil.
    c) The worm's shape helps it move through the soil. It has no antenna, and its body is very streamlined.

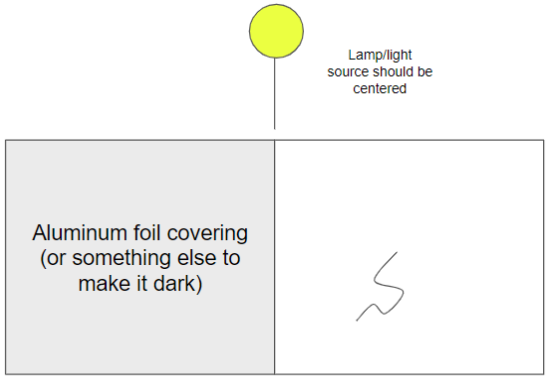
What are some of the adaptations the worm has to help it survive?

Investigation #3: Respond

All organisms respond to outside stimuli. Some living organisms respond differently than others. For this part of the lab, you will look at how the worm responds to different situations.

Response Number 1:

With response #1, you will place a worm in a container that is half dark and half light. You will do this to see which way the worm will go (dark or light). See the MODEL below of the habitat you are creating.



Directions:

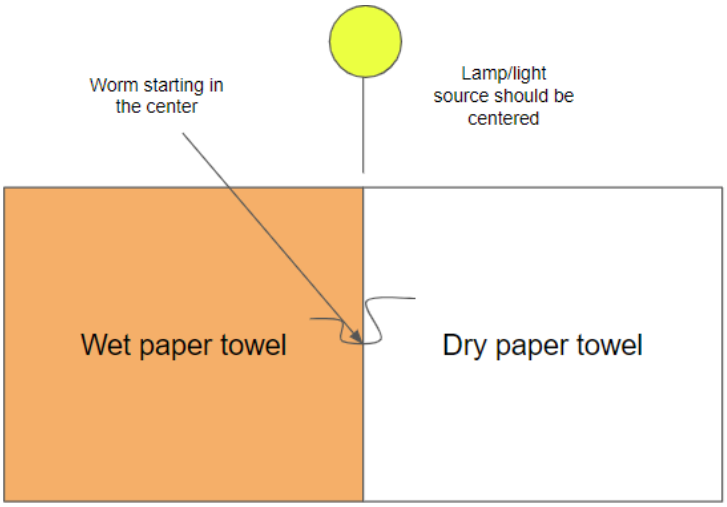
1) Build your model to simulate the earth's response to light
    a) Get materials
    b) Take pan and put moist towel along the bottom of it
    c) Take the aluminum foil and place over half of the container
2) Put the worm on the darkside (under the aluminum foil) watch for 3 minutes and record what happens. Use a stopwatch.
3) Put the worm on the light side (out of the aluminum foil) and watch for 3 minutes and record what happens. Use a stopwatch.
4) Place worm back in soil

Worms Response:

	What did the worm do?
Worm Starting in the dark:	
Worm starting in the light:	

Response Number 2:

With response #2, you will place a worm in a container with a wet paper towel and a dry paper towel to see how the worm responds to the different surface types of wet versus dry



Directions:

1) Build your model to simulate the earthworms response to wet vs dry
    a) Get materials
    b) Take pan and put moist towel along half the bottom and put dry towel along the other half
    c) Make sure the cover is removed from the top that was used for the light/dark reaction
2) Get new worm that you have not used before and place a worm in the middle of both. Observe for 2 minutes. See which side the worm preferred.

Data:

Trial	Worm went to dry or wet side?
Trial 1:	
Trial 2:	

Investigation #4: Energy

A lot of animals and living things get their energy from eating. How does the worm get their energy? Explain the process.

Investigation #5: Homeostasis

How does the worm maintain homeostasis? Click here for help!

Investigation #6: Organization

Look at the earthworms' different segments. How many segments does your earthworm have?

Explain the organization of your Earthworm?

Investigation #7: Growth

How do you think the earthworm grows?

How do earthworms grow and develop?

Earthworm facts:

- An earthworm can grow only so long. A well-fed adult will depend on what kind of worm it is, how many segments it has, how old it is and how well fed it is.
- A worm has no arms, legs or eyes.
- There are approximately 2,700 different kinds of earthworms.
- Worms live where there is food, moisture, oxygen and a favorable temperature. If they don't have these things, they go somewhere else.
- Although earthworms are like other consumers in that they are unable to produce their own food, they are unlike in that they do not eat live organisms. Instead, they extract food energy from **decaying organic matter** (plants and animals that have died).
- In one acre of land, there can be more than a million earthworms.
- The largest earthworm ever found was in South Africa and measured 22 feet from its nose to the tip of its tail.
- Worms are cold-blooded animals.
- Homeostasis is the earthworm's ability to maintain its internal balance. One way earthworms due this is by having a closed circulatory system to circulate the gasses.
- Earthworms have the ability to replace or replicate lost segments. This ability varies greatly depending on the species of worm you have, the amount of damage to the worm and where it is cut. It may be easy for a worm to replace a lost tail, but may be very difficult or impossible to replace a lost head if things are not just right.
- After earthworms mate, their fertilized eggs are held in a protective cocoon. The baby worms (hatchlings) emerge and burrow into the soil, where they grow into juvenile then mature worms.
- Baby worms are not born. They hatch from cocoons smaller than a grain of rice.
- If a worm's skin dries out, it will die.
- Worms can eat their weight each day.