

4. Compare the materials available to you to create a blackworm habitat. Record any similarities and differences in the physical characteristics of the various habitat materials.
5. With your group, design an investigation to determine which type(s) of material provide a good blackworm habitat.

When designing your investigation, think about the following questions:

- What is the purpose of your investigation?
  - What variable are you testing?
  - What variables will you keep the same?
  - What is your initial idea based on your initial observations?
  - How many trials will you conduct?
  - Will you collect qualitative and/or quantitative data? How will these data help you to make a conclusion?
  - How will you record these data?
6. Record your ideas and your planned procedure in your science notebook.
  7. Make a data table in your science notebook that has space for all the data you need to record. You will fill it in during your experiment.
  8. Obtain your teacher's approval of your investigation.
  9. Conduct your investigation and record your results.

### Part B: Reading

You have been investigating the blackworm's **habitat**, which is the location in an environment where an organism lives. Using sand, gravel, and leaf litter, you created a habitat. Then you observed blackworms interacting with that habitat. A group of blackworms living in the same habitat is known as a **population**. The total of all the areas where a species lives is its geographic **range**. In one habitat, there may be numerous populations of various species. For example, in a freshwater pond, there might be populations of blackworms, snails, water plants, and fish.

All of the living and nonliving components, and all of the interactions among them, are known as an **ecosystem**. Anything that does not interact with the components is considered outside the boundary of that ecosystem. An ecosystem can be as small as a puddle or as large as planet Earth. An ecosystem that supports lots of types of organisms has a high biodiversity. **Biodiversity** is the variety of life at every level, from genes to species to ecosystems.

Ecosystems are constantly changing. Take, for example, the effects on the ecosystem if a pond fills with sediment from soil erosion. If resources decrease, the populations that depend on them decrease. A **resource** is any factor that can be consumed or used by an organism. In this case, a decrease of water in the pond means that aquatic animals and water plants would die. Even birds and insects that depend on the pond for food would disappear. Eventually, a new ecosystem would develop based on the grasses that would sprout from the new sediments.

Organisms have adaptive characteristics that help them to survive in a particular ecosystem. For instance, water is scarce in the desert. Cacti and other desert plants have thick, waxy surfaces that hold water inside. Animals have adaptive characteristics and behaviors as well. To avoid the heat, many desert animals hunt only at night.



*This pond is filling with sediment and will eventually disappear. What will happen to the aquatic organisms that depend on the pond?*