

## Isopod Behavior

**Grade Level:** Elementary, Middle School

**Ecological Concepts:** [Behavior](#)

**Arizona Science Standards:** Science as Inquiry; Life Science

### Materials:

- 1) Plastic spoons\*
- 2) Clear plastic cups\*
- 3) Hand lenses/loupes\*
- 4) Counters, such as beans in cups
- 5) Measuring tools such as rulers, sticks or string
- 6) 10 small, plastic rectangular containers
- 6) Writing/drawing materials

\*May be borrowed from SCENE.

### BACKGROUND

Isopods are small [crustaceans](#) related to lobsters, crabs and crayfish. Most species of isopods are marine, but some are terrestrial. Common names for terrestrial isopods are pill bug, roly polly, potato bug and sowbug. Some roll up into a ball when disturbed, others crawl away quickly. They generally eat decaying wood, leaves, and other vegetation. Isopods breathe through gills and so must live in moist areas. They prefer darkness, as well. They are part of the nutrient and energy cycles as [detritivores](#).

### GUIDED INQUIRY

**Observation/Exploration Period:** Have students search different areas of the habitat so they can discover on their own where isopods live. Good areas to look are under leaves, rocks, logs, and dry and wet places. Direct children, either individually or in groups, to select an area in which to search. Limit the time to about ten minutes, then regroup and compare discoveries. NOTE: Isopods are delicate and should be scooped up with the spoon and placed in the cup so they are not harmed. Return them to where they came from when finished.

Once some isopods are found, observe their physical characteristics with the naked eye and hand lenses. Examine surface structures such as legs, antennae, and body. Use a measuring instrument such as a ruler, stick, or string to measure body length.

**Group Discussion and Question Period:** Why did we find isopods in the dark places? Why do isopods live where it is wet? How do isopods find food? What do isopods eat? Do isopods prefer certain kinds of habitats? Do they prefer certain kinds of food?

**Important aspects of guided inquiry are encouraging students to generate [multiple hypotheses](#), and letting students make decisions about what data are important and create their own data sheets. Keeping these ideas in mind, the sample in the box below illustrates how ONE OF MANY possible investigations around this topic might develop.**

**Sample Hypothesis:** Let's use the question, "Do isopods prefer certain kinds of food?" Our hypothesis could be, "If isopods prefer a certain food, and we offer two kinds of food, then most of the isopods should choose one kind over the other."

**Sample Experiment Design:** These are outdoor activities for the most part. Some can be done indoors, but it is recommended that you do as much outside as possible for two reasons:

- (1) The less the animals are handled and moved, the better for their well-being.
- (2) The more the children are outside, in the habitat of interest, the more connected they will feel to nature and the explorations they are doing. Besides, they usually love getting outside!

**Randomly** choose ten isopods of the same type and approximately the same size. Keeping type and size

constant will **control** for those **variables**. The **independent variable** will be food type and the **dependent variable** will be how many isopods choose a particular food.

Place each of the ten isopods in the center of a separate rectangular container. This will give you ten **replicates**. At each end of the containers place a different type of potential isopod food. Choose the same two foods for each of the ten containers. Some possible foods are: chips of wood, dry oatmeal, oat bran, dead insects, small pieces of fruit or vegetable matter. Keep the container out of direct light. Place the containers near each other so factors such as temperature and light are controlled. Keep a constant watch on the isopods and see what they do.

If you plan on doing longer-term research projects, you will want to set up an area to keep the isopods. A plastic box with lid with air holes will work fine. Put in some dirt, vegetation like grass or leaves, enough water just to keep it moist, and dry oatmeal or cereal to feed them.

**Sample Prediction:** Most isopods will choose one type of food over the other.

**Record Results:** Record what each isopod chooses to feed on and how long it stays at the food item.

**Sample Analysis of Data and Presentation:** Count the number of isopods choosing each food type. Make a **bar graph** of the numbers with food type listed on the horizontal axis and number of isopods on the vertical axis. For students who can divide, calculate the **average** number of isopods choosing each food type. This is calculated as number of isopods at food A, divided by the number of containers (ten, in this example). Graph the average number on the vertical axis. Students who understand percentage can calculate the percentage of isopods that prefer each food.

**Discussion:** Was your hypothesis supported? If yes, go on to test other hypotheses. If not, why not? What did happen? Why? This is a great opportunity to revise your hypothesis and do another test.

#### **MORE:**

##### **(1) Elementary:**

- (a) Count up how many isopods are found in different areas of your schoolyard. Graph the **raw numbers**.
- (b) Run an experiment similar to the one above using light level or moisture level as the independent variable. Will isopods tend to move towards or away from light? Towards or away from moisture?

##### **(2) Middle School:**

- (a) Find the **mean, median, mode, and range** of the data.
- (b) Categorize the isopods by body length and plot the frequency of sizes on a **bar graph**.

#### **RESOURCES:**

An excellent resource for isopod research is, *The Pillbug Project*, by Robin Burnett. It is published by the National Science Teachers Association, 1742 Connecticut Avenue, NW, Washington, DC 20009. Copyright is 1992. ISBN Number 0-87355-109-5.