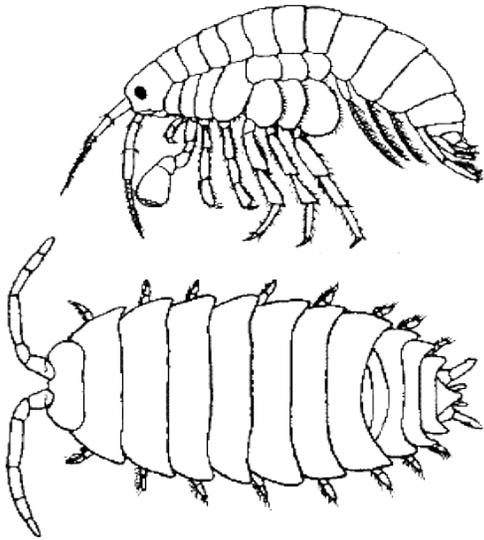


# Isopod Behavior



## Objectives:

- Observe various aspects of a terrestrial isopod
- Conduct experiments examining the responses of isopods to various environmental factors
- Design and conduct an investigation of animal behavior

## Background Information

Terrestrial isopods are land dwelling crustaceans, commonly known as sow bugs or pill bugs (or roly pollys). They are related to lobsters, crabs, and shrimp and terrestrial isopods breathe with gills. While they look similar, sow bugs are different from pill bugs. Pill bugs will curl into a ball when threatened whereas sow bugs will attempt to flee. Since your isopods are caught from the wild,

make sure you are using the same type for your experiments.

Etiology is the study of animal behavior. Many behaviors involve movement of the animal within its environment. In this exercise, you will investigate some innate (instincts) behaviors of isopods.

Orientation is a process by which animals position themselves with respect to spatial features of their environments. Taxis involves the turning of an animal's body relative to a stimulus - either toward or away. Kinesis is a random turning or movement of an animal in relation to a stimulus.

Consider the following example: A researcher places a dead rotting mouse in the center of a test area and adds a carrion beetle (an insect that eats dead animals) somewhere on the surface. The beetle crawls forward for three seconds, turns and crawls in a different direction for three seconds, and so on. The researcher concludes that the beetle is moving randomly in relation to the dead mouse. Continued observation reveals that the beetle crawls faster (and covers more ground) when it happens to turn in the direction of the dead mouse. In addition, the beetle crawls more slowly (and covers less ground) when it happens to crawl away from the mouse. In this way, the beetle's random movements will eventually bring it to the dead mouse. It is important to take in details such as time spent crawling in one direction or another when observing the movements of the animals.

## Part A: Isopod Observations

In the first part of this exercise, you will observe pill bugs and record what you see.

Analysis (include in lab report)

- How do the pillbugs seem to sense their environment?
- Are they all the same species?
- Can you tell the difference in males and females?
- How many eyes do they have?
- How many legs
- Do they exhibit dominance behaviors?
- How do they respire?
- What are some stimuli they seem to respond to?

## Before you begin the laboratory exercise...

Be sure to write the title, date, purpose, background information (do some extra research to add to above), and procedure of the laboratory exercise in your notebook.

## Scientific Sketching – be sure to add to your data section

When you make a sketch of a pillbug, don't just draw an oval with a few squiggly legs - you are expected to do a scientific illustration similar to the sketch of an earthworm below.



Here are some tips for making an accurate sketch (include in your lab report)

- Determine the relative proportions (length, width, height as well as lengths of body parts)
- Locate and label the body parts
- Note the size of the pillbug

## Part B - Response to Moisture

Procedure: Set up your behavior chamber so that you have one side moist and one side dry (using paper towels). Transfer 10 isopods to the chamber. Count and record the number of animals in each of the chamber every 30 seconds for **10 minutes**, using a data table.



Time (min:sec)	# in Wet	# in Dry	Other Notes
0:00			
0:30			
1:00			
1:30			
2:00			
2:30			
3:00			
3:50			
4:00			
4:30			
5:00			
5:30			
6:00			
6:30			
7:00			
7:30			
8:00			
8:30			
9:00			
9:30			
10:00			

## Part C - The Behavior Chamber (Inquiry Lab)

For the experiments you design, you will use the same chamber used in part B. Discuss with your lab partners regarding what factors might affect your isopods' movement. Please check with your instructor regarding the lab design (procedure) before starting.

### Lab write up in your notebook

- Follow the protocol on your Biology Lab paper. Be sure to include your observations and sketches. Prelab will be required and discussed by your teacher.
- Write a proper hypothesis for both choice chambers.

Poor: I think pillbugs will move toward the wet side of a choice chamber.

Better: If pillbugs are randomly placed on both sides of a wet/dry choice chamber and allowed to move about freely for 10 minutes, then most will be found on the wet side.

Best: If pillbugs are randomly placed on both sides of a wet/dry choice chamber and allowed to move about freely for 10 minutes, then most will be found on the wet side because pillbugs' habitat is damp soil.