

Animal Interdependency

Investigation Data Sheet



Symbiotic Relationships Between Fish

When two organisms share a relationship, it is called symbiosis. These relationships can relate to food, shelter, defense, reproduction or a combination of these needs. Parasitism is a symbiotic relationship in which only one creature, the parasite, benefits, while the other, called the host, is harmed. Commensalism is a partnership in which one creature benefits without harming the other animal. Mutualism is a relationship in which both organisms benefit.

Objective

Observe the relationship between a goldfish and a freshwater fish known as the plecostomus.

Materials

- gravel
- fish food
- 2 goldfish
- 1 plecostomus
- water conditioner (if using tap water)
- 2 small aquariums with lids, filled with water
- aquarium plants
- algae growth stimulator
- 2 aquarium thermometers
- an adult helper

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure

- Set up the two tanks in a warm area. If you are using tap water to fill the tanks, be sure to add some water conditioner. Place the thermometers on the tanks. The water temperature must remain around 72°F. Add equal amounts of gravel and plants to both tanks. Also add some algae growth stimulator to both tanks. Let the tanks sit for an hour before adding the fish.
- If your goldfish came in plastic bags, let them sit in their bags at the surface of the water for ten minutes so that they can get accustomed to the temperature of their new aquarium. After you have added a goldfish to each tank, you can introduce the plecostomus into one of the tanks. Be sure to let its bag float for ten minutes in its tank, just as you did with the goldfish.
- For one week, you will observe the behavior of the fish and the condition of both tanks every other day. How much fish food are the goldfish eating compared to the plecostomus? How are the goldfish in both tanks behaving? Where does the plecostomus spend most of its time? What is the algae growth like in both tanks? Record all of your observations in the table. Be sure to feed the goldfish a pinch of food each day.

	Tank 1: Goldfish	Tank 2: Goldfish & Plecostomus
Day 1		
Day 3		
Day 5		
Day 7		

- At the end of one week, sketch and label the two tanks in the space below.

Tank 1	Tank 2

Is there a noticeable difference in the condition of the two tanks? Why or why not?

Compare and contrast the behavior of the two goldfish. In what ways were they similar? How did they differ?

Conclusions

- Was the relationship between the goldfish and plecostomus symbiotic? If so, was it an example of parasitism, commensalism or mutualism? Explain.
