

## **Brine Shrimp**

Supplies needed for this activity:

- Start the culture of brine shrimp at least 3-5 days before your activity – earlier if you want mature brine shrimp to examine.
  - Use **1 quart canning jar, airline, and air pump** for best results. Temperature should be around 70F.
  - For best results, stir in **Instant Ocean** (1/2 teaspoon of Instant Ocean in every cup of water) and allow water to sit with lid open a few hours to overnight to come to room temperature. If making up extra salt water, either leave lid off to allow chlorine to dissipate, or use dechlorinator.
  - Connect airline tubing to air pump and put airline tubing in jar with open tube at the bottom of the jar. Turn on air pump to circulate and aerate water.
  - Add 1/8 teaspoon of **brine shrimp eggs** for every cup of water.
  - Place jar under a lamp.
- 1 plastic well slide per 2 students
- 1 hand lens, 1 dissecting microscope and 1 compound microscope per 2 students
- Droppers or plastic transfer pipettes
- “What to Do” and “Questions” sheets glued onto file folders for display if this is for an event.
- 1 copy of Brine Shrimp worksheet for each student. Use modified worksheet or pre- early reader worksheet for in-class use.
- 1 hole punch slide with brine shrimp eggs per 2 students
- Place 2 or 3 drops of newly hatched brine shrimp in a plastic well slide for each group
- 1 adult brine shrimp per 2 students. Place the adult in a small Petri dish or in plastic well slide just prior to examination.
- To keep brine shrimp alive and allow them to reach adulthood, put them in an aerated container at room temp (at least 70 degrees F) ¼ to 1/3<sup>rd</sup> full of

saltwater. Feed with a sprinkle of powdered fish food, spirulina, or a few drops of yeast suspension (1/4 teaspoon of yeast in ½ cup of water). The key is to not overfeed.

#### Directions:

For older students (3<sup>rd</sup> grade and up), start with asking students about life cycles they have studied. The goal is to find an example of a life cycle that is like humans in which the young resemble the parents in many ways and mature into adults and an example of a life cycle like many insects in which the young go through a larval stage (and even pupal stage) that does not resemble the adult. Ask them which they think will be most like the brine shrimp life cycle. You can record a class hypothesis, if appropriate.

Introduce students to brine shrimp. Start by asking, since some students may be familiar with them. What are they? Where do they live? As you go through the lesson, relate what you see back to what you know about brine shrimp. For example, many students will comment on the fact that the eggs look damaged, cracked, or caved in. Guide them to the idea that the eggs are normally found in water. What happens to things that are normally in water when they are brought out to dry land?

Depending on the age and level of the students, a good way to start out the exercise is to have them use their hand lenses to look at the diagrams of adult brine shrimp. This teaches them how to focus on something with a hand lens. Ask them to circle at least two things that are different about the male and female brine shrimp. This will focus them on the diagram for later use when determining the gender of the live brine shrimp they will examine, and can be used to talk about the fact that the first step in doing any type of scientific experiment is to gather background information.

If you do not have an adult brine shrimp for every student group, one strategy is to have all of the class examine brine shrimp eggs and learn how to use the hand lenses and dissecting microscopes with these non-motile samples, then have half of the student examine adult brine shrimp and half examine juvenile brine

shrimp. Give them about 15 minutes to examine the life stage they have, then either have them get up and switch places with another group that has the other life stage, or facilitate switching slides.

A good way to wrap up is to have volunteers draw examples of each life stage on the board - Eggs, juvenile, and adult female and male. Compare you these data to the class hypothesis or statements made at the beginning of class. What type of life cycle is this?