

NAME _____

DATE _____

Investigating Hatching of Brine Shrimp Eggs

Brine shrimp live in saline environments such as the Great Salt Lake. They produce two different types of eggs. One type, with a thin shell, develops at a steady rate and then hatches. In the other type, with a thick shell, the embryo stops development at a certain stage and can then survive for months or even years before encountering environmental conditions that induce further development and hatching. In this activity, you will study the hatching of these dormant brine shrimp eggs, or cysts, and design an experiment to investigate a factor that may influence hatching success.

Designing the investigation

List below some things you think might influence the hatching of brine shrimp eggs and give a brief explanation of the expected influence.

Choose a factor from your list and develop a question about the hatching of brine shrimp eggs that you can answer through experimentation.

The question we will investigate is _____

State a hypothesis for your experiment. State your hypothesis in the form of “if ..., then ... because”—that is, if this variable is changed in this way, it will produce this change for this reason. A hypothesis is not a guess; it is a predicted outcome based on prior knowledge.

Below are the instructions for making and using the hatching chambers needed for your experiment. Add to these instructions to make them specific to the procedures you will use to test your hypothesis. Include a list of the materials required, how the materials will be prepared and used, what data you will collect, how you will analyze and display the data, and what outcomes you expect. Once your teacher has approved your plans, conduct your experiment and report your results.

Making a hatching chamber

Cut a 2.5-cm (1") length of double-sided tape and adhere it smoothly to the inside bottom of a petri dish. Do not wrinkle the tape or trap an air bubble under it. Cut a piece of transparency film the same size as or slightly larger than the tape. Use a hole punch to make a hole near the center of the piece of film. Stick the film over the strip of tape so the tape is completely covered except for the hole. This small circle provides a sticky surface to receive the eggs.

Picking up eggs

Touch the tip of a paintbrush lightly into a container of dried brine shrimp eggs so that you pick up only a few eggs with the bristles. If too many eggs attach, tap the brush against the lip of the container to dislodge excess eggs. Drag the tip of the brush back and forth across the exposed sticky surface of the tape in the bottom of the petri dish. Repeat if needed until you estimate that there are between 20 and 50 eggs stuck to the tape. Place any unattached eggs back into the container.

Return to your desk and examine and count the eggs and record the initial number.

Add 30 mL of salt solution to the dish and cover it with the lid.

Counting hatchlings

At the same time each day, use a dropper to remove hatched brine shrimp from the hatching chamber. Record the number hatched for that 24-hour period.

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