

TEKS-Based Activity Starter for Grade 3

From Eggs to Frogs

Description:

In this activity, students observe a tadpole habitat and the life cycle of frogs.

Time Frame:

2 lessons (45 minutes each), plus 15 minutes once a week for 4 weeks

Correlation to Texas Essential Knowledge and Skills:

During this activity, students will be exposed to the following Texas Essential Knowledge and Skills:

Note: Some TEKS statements below end with a ; or *and* and nothing thereafter—this indicates that further TEKS statements follow but are not included here.

(3.8) Science concepts. The student knows that living organisms need food, water, light, air, a way to dispose of waste, and an environment in which to live. The student is expected to:

- (B) observe and identify organisms with similar needs that compete with one another for resources such as oxygen, water, food, or space;

(3.9) Science concepts. The student knows that species have different adaptations that help them survive and reproduce in their environment. The student is expected to:

- (A) observe and identify characteristics among species that allow each to survive and reproduce; and

Note: The TEKS listed here are the main content TEKS for this activity; however, this activity may also cover additional content and process skills included in other TEKS.

Materials:

Tadpoles (4 or more)
Shoebox-sized clear plastic containers (2)
Large stones for each container (2 or 3)
Sprigs of elodea or other aquatic plant (4–5 sprigs)
Tapioca pudding (5–6 teaspoons per student)
Small containers to hold tapioca (1 per student)
Small plastic spoons (1 per student)
Approximately 2 gallons of unchlorinated water
The Magic School Bus Hops Home (1 copy)
Tadpoles, Frogs, and Habitats chart (included at the end of this activity)

Materials Notes:*Tadpoles*

Order tadpoles from a biological supplier, or purchase them from a bait shop. If ordered, the tadpoles should arrive in 3–5 days. The tadpole habitats need to be prepared 2–3 days prior to introducing them to your students. Be sure to purchase tadpoles that can be released in your area once they become frogs.

To prepare a tadpole habitat, fill each shoebox-sized clear plastic container with about three inches of chlorine-free water. Place several large stones inside each container. The stones should extend above the water so that the developing frogs can climb on them to be out of the water. Add aquatic plants, such as elodea, which can be purchased from an aquarium supplier or pet store. Add a few tadpoles. Tadpoles will nibble on the plants, but you should add fish food every other day or so as an additional food source for the tadpoles. Don't overfeed, as this will dirty the water. Keep the water at a constant level, and change it if it gets murky. As in an aquarium, the water should be kept at about room temperature.

Responsible Use of Live Animals in the Science Classroom:

These guidelines are part of the National Science Teachers Association's Position Statement "Responsible Use of Live Animals and Dissection in the Science Classroom," adopted by the NSTA Board of Directors in June 2005. The full statement is available online at www.nsta.org/positionstatement&psid=44.

NSTA supports the decision of science teachers and their school or school district to integrate live animals and dissection in the K–12 classroom. Student interaction with organisms is one of the most effective methods of achieving many of the goals outlined in the National Science Education Standards (NSES). To this end, NSTA encourages educators and school officials to make informed decisions about the integration of animals in the science curriculum. NSTA opposes regulations or legislation that would eliminate an educator's decision-making role regarding dissection or would deny students the opportunity to learn through actual animal dissection.

NSTA encourages districts to ensure that animals are properly cared for and treated humanely, responsibly, and ethically. Ultimately, decisions to incorporate organisms in the classroom should balance the ethical and responsible care of animals with their educational value.

While this position statement is primarily focused on vertebrate animals, NSTA recognizes the importance of following similar ethical practices for all living organisms.

Including Live Animals in the Classroom

NSTA supports including live animals as part of instruction in the K–12 science classroom because observing and working with animals firsthand can spark students' interest in science as well as a general respect for life while reinforcing key concepts as outlined in the NSES.

NSTA recommends that teachers

- Educate themselves about the safe and responsible use of animals in the classroom. Teachers should seek information from reputable sources and familiarize themselves with laws and regulations in their state.
- Become knowledgeable about the acquisition and care of animals appropriate to the species under study so that both students and the animals stay safe and healthy during all activities.
- Follow local, state, and national laws, policies, and regulations when live organisms, particularly native species, are included in the classroom.
- Integrate live animals into the science program based on sound curriculum and pedagogical decisions.
- Develop activities that promote observation and comparison skills that instill in students an appreciation for the value of life and the importance of caring for animals responsibly.
- Instruct students on safety precautions for handling live organisms and establish a plan for addressing such issues as allergies and fear of animals.
- Develop and implement a plan for future care or disposition of animals at the conclusion of the study as well as during school breaks and summer vacations.
- Espouse the importance of not conducting experimental procedures on animals if such procedures are likely to cause pain, induce nutritional deficiencies, or expose animals to parasites, hazardous/toxic chemicals, or radiation.
- Shelter animals when the classroom is being cleaned with chemical cleaners, sprayed with pesticides, and during other times when potentially harmful chemicals are being used.
- Refrain from releasing animals into a non-indigenous environment.

Resources:

Pat Relf. *The Magic School Bus Hope Home: A Book About Animal Habitats*. New York: Scholastic Inc, 1995.

Advance Preparation:

1. Make or buy enough tapioca pudding for each student to have a small sample.
2. Prepare copies of the Tadpoles, Frogs, and Habitats chart for each student group.
3. Prepare two tadpole habitats 2–3 days prior to this activity.

SAFETY: Nothing should ever be tasted in a science investigation without the teacher’s supervision. Check student allergies before using the tapioca.

Procedures:

1. Give each student a small container of tapioca pudding and a spoon, and ask them to pretend that the tapioca pudding is frog eggs.
2. Ask the students to pretend they are birds that have seen some frog eggs. Tell them to swoop down and get a spoon full of eggs. Ask students, “Are there more or fewer eggs now? Now suppose a hungry snake comes by and gobbles up another spoonful. Are there more or fewer eggs now? Then a science teacher comes by and gets a spoonful. Do you have more or fewer eggs now? Finally, a large mouth bass come swimming by and snatches a spoonful of eggs. Do you have more or fewer eggs now?”

Note: If students do not want to eat the pudding, they may take the pudding out of the container and place it into another.

3. Ask students what would happen if these were really frog eggs. Tell students that a frog can lay as many as 3,000 to 8,000 eggs at one time. Ask them why they think a frog might lay so many eggs.
4. Display the tadpole habitats, and hand out a copy of the Tadpoles, Frogs, and Habitats chart to each student. Tell the students that starting today, they will use the chart to record observations of the changes they see in the tadpoles and the tadpole habitats over the next four weeks. After the four weeks, students should answer the questions at the end of the activity.
5. Read *The Magic School Bus Hops Home* aloud to the students. Ask the students, “What did a good frog habitat look like? What kind of frog was in the story? Are all frogs the same? What did the frog need in her habitat? Do all frogs have the same needs? What were the frog’s enemies in the story?”
6. Ask students to describe the food chains that are described in *The Magic School Bus Hops Home*. Ask the students for examples of food chains that might be seen in their schoolyard, and have them describe the food chain.

Tadpoles, Frogs, and Habitats

Each time you record your observations, describe the changes you observe in the tadpoles and in the habitats.

	Container 1	Container 2
Week 1		
Week 2		
Week 3		
Week 4		

