

Designing Effective Projects: Characteristics of Projects Inside Projects: Grades K-2

Pond Water and Pollywogs: A K-2, Life Science Project

Primary students rear frogs from eggs, and share their expertise in an informative brochure for visitors at a new amphibian's exhibit at the local zoo. You may want to print this page as you view the entire [Pond Water and Pollywogs Unit Plan](#).

Student-Centered

This project is made relevant to students' lives by asking the Essential Question: *Why do people say there is no place like home?* Students study frogs and create a newsletter about an artificial frog habitat, make observations, and create a slideshow of their findings.

Aligns with Standards

Project work is central to the curriculum. The topic of organisms and their environment is often part of the kindergarten through fourth-grade life science curriculum and addresses state and district standards. It involves key science processes of observing, creating, and comparing habitats.

Important Questions

The Essential and Unit Questions lead to interesting discussions that have relevance beyond the classroom. The question, *Why do people say there is no place like home?* helps kindergarten through second-grade students connect their own lives to the content of the unit. Content Questions such as, *What is needed for a healthy frog habitat?* prompt students to think about relevant facts and information that lead to the higher-level questions. Students have many opportunities to address the Essential Question throughout the unit and reflect individually, in pairs, and discuss it with the larger group. This not only gives the students opportunities to think about the content at higher levels but gives the teacher information on the students' understanding of the content and how to direct and redirect discussions and instruction.

Multiple and Ongoing Assessments

Assessment is embedded throughout the unit with an observation journal to record ideas through writing and pictures. Students also respond to questions posed by the teacher in the journal. Many of these questions are Content and Unit Questions. The science content rubric is used to assess journals and students have an opportunity to receive ongoing feedback. The teacher uses a slideshow scoring guide to assess the final product. Students check on project expectations throughout the project with this same scoring guide.

Authentic Work

The students make real-world connections through the Essential Question, which asks them to make observations and comparisons within their own home and frogs' homes. The unit also makes community connections by having the students visit a local zoo and create a newsletter for visitors.

Demonstrations of Learning

Students complete several products: a mural or field guide as well as a final slideshow and newsletter. The products are intrinsically engaging and authentic to the task.

Technology-Enhanced Learning

Students use technology to create the newsletter and slideshow presentation, allowing them to share their learning with a wider audience. They take pictures for the slideshow and newsletter with a digital camera, and Internet research informs their learning.

Higher-Order Thinking Skills

After collecting information on a frog's natural habitat, students synthesize information by completing one of the two tasks; a mural or a field guide. Students use knowledge and take what they have learned from the natural habitat and apply it to the creation of an artificial habitat. Students use higher-level thinking to answer the Essential and Unit Questions within their final slideshow presentation. A K-W-L chart prompts thinking and investigation throughout the unit, while the teacher encourages students to elevate thinking with the journal questions.

Varied Instructional Strategies

- **Prior Knowledge:** Students access prior knowledge at the beginning of the unit with a Know-Wonder-Learn chart. This graphic organizer elicits questions that students are curious about. The K-W-L chart is referred to throughout the unit and then revisited when the unit is over to celebrate the knowledge gleaned about frogs and habitats.
- **Graphic Organizers:** The unit begins with a K-W-L chart that students add to throughout the unit. A T-chart compares what frogs and people need to grow. A diagram logically lays out the life cycle of a frog, and storyboard planning sheets help students to design their slideshow presentations.
- **Cooperative Grouping:** Students work in collaborative teams to create a slideshow and a newsletter. Each is assigned a role to contribute to the project's completion. Students work in pairs, as well, to complete the frog life cycle puzzle.
- **Peer and Teacher Feedback:** Students receive teacher feedback throughout the unit through their observation journal writing. Students give peer feedback as they collaborate and share drafts of their newsletter writing.
- **Recognition:** Students get recognition through the publication of their newsletter and slideshow scoring guide. The slideshow is shared with other classes, and students work with adults and upper-grade buddies who affirm and help guide student work.
- **Questioning:** The journal questions, as well as discussion of Essential, Unit, and Content Questions provide questioning throughout the unit. As students fill out the K-W-L chart they are repeatedly asked, What do you know?, What do you wonder?, What did you learn? further probing them to think at higher levels.
- **Modeling:** The teacher models how to collect information and pull out main points. There are models for exemplary work: a student sample slideshow and a real-life example of frog habitats at the zoo.
- **Classroom Management:** Students work in pairs and in groups to manage the completion of technology products. Because this is a kindergarten unit, students also work with adults and upper-grade buddies to manage tasks such as reading, writing, and computer use.