

Unit Summary

The hands-on activities in Frey's Inquiry Investigations™ Kingdoms of Life Module link to core science concepts, making them an excellent complement to existing curricula. Students investigate classification schemes, food webs, bacteria, fungi, protists, plants, animals, and field collection techniques.

The Inquiry Investigations™ Kingdoms of Life Module consists of three investigative units featuring seventeen hands-on laboratory activities. Each unit begins with a thorough introduction of the science skills and concepts presented in the lab activities that follow. The lab investigations can be performed in sequence (see pacing chart) or separately based upon the time available.

Suggested *Going Further* investigations allow students to design and carry out their own investigations, expanding their knowledge and understanding of the kingdoms of life.

Unit 1: Classifying Life

Lab 1: Classification of Living Things and Food Webs

In **Activity 1**, students learn how to use a dichotomous key. They use the dichotomous key to classify various organisms.

In **Activity 2**, students model a food web for a specific community.

Suggested *Going Further* investigations encourage students to investigate and research different biomes and compare the species associated with each biome.

Unit 2: Life's Kingdoms

Lab 2: A Closer Look at Microbes

In **Activity 1**, students culture microorganisms from different microhabitats. They observe various types of bacteria and fungi. They also prepare and examine bacterial and fungal microscope slides.

In **Activity 2**, students sample and identify microorganisms collected from rehydrated microlife pond samples.

Suggested *Going Further* investigations direct students to sample local ponds and streams and examine microhabitats in their own home by making swabs of various surfaces and incubating them on nutrient agar plates.

Lab 3: A Closer Look at Plants

In **Activity 1**, students observe dormant seeds, plant seeds, and observe germination and growth of seedlings.

In **Activity 2**, students identify parts of a flower and perform pollination.

In **Activity 3**, students remove new plant growth in order to help plants use their energy for the development of seeds.

In **Activity 4**, students harvest seeds from plants and perform quantitative assessments of plant growth and seed production.

Suggested *Going Further* investigations ask students to develop different experiments to test various hypotheses about plant growth.

Lab 4: A Closer Look at Animal Behavior

In **Activity 1**, students observe and record the activity of pill bugs exposed to three similar environments.

In **Activity 2**, students study the activity of pill bugs when they are exposed to moist and dry environments.

In **Activity 3**, students design their own experiment to test an environmental variable of their choice.

Suggested *Going Further* investigations use the choice chambers to design more experiments to test the preferences of different animals for various foods and environmental conditions.

Unit 3: Comprehensive Inquiry Investigation

Lab 5: Culminating Lab

In **Activity 1**, students identify ecosystems near their school. Students visit selected ecosystems, making general observations of the flora and fauna.

In **Activity 2**, students explore and collect specimens from a forest (wooded) ecosystem. They identify their specimens using dichotomous keys and field guides.

In **Activity 3**, students explore and collect specimens from a grassland (grass) ecosystem. They identify their specimens using dichotomous keys and field guides.

In **Activity 4**, students explore and collect specimens from a stream or river ecosystem. They identify their specimens using dichotomous keys and field guides.

In **Activity 5**, students examine pond water samples collected from a local pond. They identify their specimens using dichotomous keys and field guides.

In **Activity 6**, students collect soil samples from two habitats and use a Berlese apparatus to extract the organisms from the soil samples.

Suggested *Going Further* investigations allow students to conduct a bird census and create a poster that displays the information they have collected from their visits to various ecosystems.