

# *Plant and Animal Relationships: Investigating Systems in a Bengali Forest (Grade 2)*

## Opportunities for Unit Extensions

### **Field Trips and Other Resources**

If time allows, you may wish to complement the content of this unit by organizing a student experience such as a field trip, a guest speaker, or even a virtual field trip. For the content of the *Plant and Animal Relationships: Investigating Systems in a Bengali Forest* unit, we recommend the following:

- Take a walking field trip to a nearby park that has plants and animals such as squirrels and birds. Have students sit quietly and observe and record their observations. Include time to discuss the plant and animal interactions that students observe. Alternatively, plan a field trip to a nature park or protected area in your region. This may be done toward the beginning of the unit in conjunction with the partner activity in Chapter 1, Lesson 1.3, Activity 2: Investigating a Sample Site. Or, you can plan the visit later in the unit and ask students to relate their observations to what they have learned about habitats, plant growth and needs, and seeds.
- Visit a botanical garden and focus on observing plant parts during Chapter 2, seed growth during Chapter 3, seed dispersal during Chapter 4, and habitats anytime during the unit.
- Take a virtual field trip to a Bengali forest through images or videos that bring to life the atmosphere of the Bengal Tiger Reserve.
- Invite an expert to visit your classroom, such as a habitat scientist, botanist, wildlife biologist, or environmental scientist. Inform your visitor ahead of time about the particular focus of students' science investigations at the time of the visit so they can build on students' current understanding. Guest speakers should be selected in such a way as to represent diverse demographic groups in terms of sex, gender, culture, ethnicity, race, sexual orientation, and persons with disabilities.
- Organize a field trip to a museum that has a natural science exhibit about plant development, plant and animal interactions, or effects of human interactions and impact on natural systems.

The experiences above could support the disciplinary ideas addressed in this unit, as well as practices such as Planning and Carrying Out Investigations and crosscutting concepts such as Systems and System Models.

# Media and Library Research Extension

## Part 1: Information Literacy and Library/Media Research

Information literacy involves students' facility with identifying points at which additional information is needed and subsequently seeking out, assessing, and making use of relevant information to further understanding. Information literacy is particularly beneficial in the domain of science learning as it enables students to extend their understanding of a phenomenon under investigation.

Supporting students with effective use of library and media resources within and beyond your school setting is a key avenue for cultivating information literacy skills. Students' development of information literacy includes the following four components (Note: These are adapted from the Model School Library Standards for California Public Schools):

- Component 1: Accessing information
- Component 2: Evaluating information
- Component 3: Using information
- Component 4: Integrating information literacy skills into all areas of learning

In the next section, we offer suggestions for instructional strategies and learning activities as part of a research project to support students with these components of information literacy and to enhance students' learning about the central phenomenon they investigate in this unit.

## Part 2: Research Project

At the end of the unit, students can work together in various grouping options to conduct a research project. You may choose to have students work together as a class, in small groups, or with partners.

Identify what additional information is needed.

- Ask students to share the sources of information they have used to figure out the central phenomenon in the unit (e.g., texts, photos, videos).
- Select a question for further research.
  - **Option A:** Share a question relevant to the phenomenon that students have been investigating in this unit. For example: *What types of habitats exist in our area? What are some plants and animals that live within that area? How does one of those plants disperse its seeds?* Have on hand library or classroom books that describe different plants and animals within a variety of habitats. Guide students in an online exploration of the questions, guiding students to discover not only the habitats but also some of the plants and animals that make up the system.
  - **Option B:** Invite students to generate questions they are still wondering about with respect to the central phenomenon they investigated. Then, have individual students, each pair of students, or each small group of students select the

question they are most interested in researching. Guide students in selecting a question or questions they are most interested in researching. Gather resources that will support students in answering the selected question(s) and guide them in using the resources to identify the information that answers their questions.

#### Access information (Component 1)

- Invite students to share where they think they could find information to answer that question.
- Provide access to these sources (e.g., texts, magazines, newspapers, photos, videos, Internet) in your classroom, at your school library, or at the local public library. You might choose to collaborate with your school librarian on this project so he/she can support your students in finding the resources most relevant to their research question.

#### Evaluate information (Component 2)

- Have students evaluate the information from each source by addressing the following questions as the information is collected:
  - *Does this help us answer our question?*
  - *Which information that we collected is the best for answering our question? Why do you think this?*
  - *What additional information do we need to help answer our question?*

#### Use information (Component 3)

- Provide students with a culminating opportunity to use the information they have gathered to answer their questions. You might choose to create your own culminating project or choose from the following suggestions:
  - Have the class create posters or a newsletter for the school.
  - Have the class create an informational video or performance for the school, their families, or the community.
  - Have students use the information they collect to create a specific project related to the content they are studying (e.g., If students are studying habitats and collecting information about this topic, you might ask them to think about the information they have collected and decide together how to use this information to help them decide where to place new plants on the school grounds to support the local habitat.).

#### Integrate information literacy skills into all areas of learning (Component 4)

- Invite students to think of questions they have that are related to learning happening across other disciplines (e.g., math, social studies, art) and provide opportunities for them to engage in library and media research in these domains.

## STEAM Extension

STEAM—science, technology, engineering, art, and mathematics—is an educational approach of integrating art and design into science, technology, engineering, and mathematics (STEM) disciplines. This integration is a natural extension of the ways that art and design overlap with

STEM. Observing, visualizing, communicating, and problem-solving are all areas in which students can authentically engage in both art and STEM. A growing body of evidence shows that for students who are socially and economically disadvantaged, authentic engagement in the arts not only increases motivation and engagement, but also leads to greater academic achievement in STEM subjects. Integrating art and science can provide new opportunities for students who are typically underrepresented in STEM to understand and communicate science concepts, thus helping to address inequities in science and engineering.

Opportunities to engage in art and design happen naturally as students engage in science and engineering practices. Students engage in art as they draw careful observations of natural objects and events, develop models to communicate meaning, and think creatively to design solutions. When these natural connections to art arise in the STEM classroom, students should have the opportunity—supported through instruction—to create work of high artistic quality and to reflect not only on their science learning but also their artistic process. The following extension activity provides an additional opportunity for students to engage in STEAM.

By the end of the unit, students have gained an understanding that Earth is made up of many different habitats comprised of animals; plants; and the water, food, and sunlight they need to grow and live. Allow students an opportunity to express their new understanding of habitats in a visual and creative manner by creating a collage of a habitat. Discuss how this habitat will represent the same types of systems of plant and animal interactions as in the habitat pictures from the unit (e.g., page 49, Broadleaf Forest Habitat Diagram, in the Investigation Notebook or the mountain habitat on page 12 of *Habitat Scientist*). Brainstorm ideas of different habitats, including animals and plants. In addition to your classroom art supplies, you could provide students with a variety of materials from nature (which you may want to request from families) such as twigs, leaves, moss, and feathers. As students work on their habitats, encourage discussion about how the different plants and animals in their habitats interact. When students complete their creations, ask them to label the parts and add a title for the type of habitat they created.