

Aquatic Ecosystems
A 40-session unit
Seeds of Science/Roots of Reading Program
Grades 4–5

Seeds of Science/Roots of Reading units provide rich and varied opportunities for students to inquire about important topics in science as they **investigate** through firsthand inquiry, **read** content-rich science books, **talk** with others about their investigations, and **write** to record and reflect on their learning. Students learn important strategies to comprehend science texts and gather information to support their inquiry by reading. As they read and investigate, they develop flexible knowledge of new vocabulary and learn to communicate using the language of science, a significant academic discourse.

The *Aquatic Ecosystems* integrated science-literacy unit immerses students in learning about **ecosystems, flow of matter and energy, human impact on ecosystems**, and other key science concepts. The unit has four investigations—each with 10 sessions, in which students engage in the inquiry processes of making observations, organizing and representing data, conducting systematic observations, making connections and making explanations from evidence. Nine student books engage students in reading and talking about space science. About half of the sessions in the unit have a literacy focus. As students read the books, they work to master the reading comprehension skills of posing questions, making connections, and making explanations from evidence, they write descriptions and scientific explanations, and they learn to use a wide variety of nonfiction text features and visual representations such as diagrams. Throughout the unit, students are provided with opportunities for oral discourse and discussions focusing on the nature and practices of science.

The *Aquatic Ecosystems* Kit includes:

- ✓ 18 copies each of 9 books, for a total of 162 student books
- ✓ Student Investigation Notebooks for each student
- ✓ Materials and equipment for leading the unit with 32 students
- ✓ The *Aquatic Ecosystems* Teacher’s Guide

The *Aquatic Ecosystems* Teacher’s Guide includes:

- ✓ Detailed lesson plans for enacting four inquiry-based science investigations comprised of 10 sessions each
- ✓ Science and literacy assessments and scoring rubrics
- ✓ Instructional scaffolds and accommodations for English Language Learners
- ✓ Background information pertaining to the science content introduced in the unit

Learning Goals in the *Aquatic Ecosystems* unit

Science Learning Goals	Literacy Learning Goals
<p>Science Knowledge</p> <ul style="list-style-type: none"> • Ecosystems • Flow of matter and energy • Human impact on ecosystems <p>Science Inquiry</p> <ul style="list-style-type: none"> • Posing questions • Making observations • Organizing and representing data • Conducting systematic observations • Making connections • Making explanations from evidence <p>Nature and Practices of Science</p> <ul style="list-style-type: none"> • Understanding that science knowledge is based on evidence • Distinguishing observations from inferences • Understanding how scientists engage in the practices of science 	<p>Reading</p> <ul style="list-style-type: none"> • Posing questions • Making connections • Creating and using diagrams • Using nonfiction text features <p>Writing</p> <ul style="list-style-type: none"> • Writing scientific descriptions • Using scientific language and vocabulary <p>Listening/Speaking</p> <ul style="list-style-type: none"> • Participating in scientific discourse • Making explanations from evidence • Using scientific language and vocabulary

Aquatic Ecosystems Science Books

Visit to a Pond

Tabletop Pond Guide

Investigating Crayfish

Dragonfly Explanations

Eat and Be Eaten: How an Ecologist Uses Food Webs

What Makes Living Things Go?

Ecosystems Around the World

Ecosystem News

Making a Difference