

Guide to Module Investigations



ETS1.B

Systems and system models

Students annotate drawings to explain weather conditions caused by interactions of specific Earth system components.

Defining problems

Students conduct research to help them define the ocean macroplastic pollution problem.

Nature of science

Students discuss how their scientific research into wind and flowing water helped them understand Earth system interactions that contribute to the ocean pollution problem.

NGSS

These NGSS margin notes describe how students are engaging with disciplinary core ideas (DCI); crosscutting concepts (CCC); science and engineering practices (SEP); connections to nature of science (NoS); and connections to engineering, technology, and applications of science. Orange text indicates a DCI. Green text indicates a CCC. Blue text indicates a SEP. Black text indicates an NoS or engineering, technology, and applications of science connection.

Common Core

These icons indicate when students are engaging in activities that prepare them to meet Common Core State Standards in Literacy (broken down by Speaking and listening, Reading, Writing, and Language) and Mathematics for this grade.



Naive Ideas

These boxes alert you to places in the lessons where students may express common Naive ideas.



Naive ideas

Students may suggest that groundwater only exists under a layer of rock as a static lake or flowing river.



Plan Ahead

This icon indicates that you need to plan more than a day in advance for a lesson.



Plan ahead

Before starting *How Can We Protect and Clean Earth's Water?*, share the Family Letter with students' caregivers.

Digital Resources



This icon indicates an online or digital resource.

EL Strategies

These research-based suggestions for EL support are embedded throughout the lessons.

EL strategy

Encourage the use of gestures during classroom discussions to support students in sharing their thoughts, ideas, and experiences.

Series Connections

This text provides information about content connections to other modules within the Smithsonian Science for the Classroom series.

Series connection

If your students used the module *How Do Weather and Climate Affect Our Lives?*, ask them to think about the rainfall data they worked with when planning the Kids Cup soccer tournament.

Teacher Tips and Tech Tips

These practical tips give options for teaching the lesson and suggestions for integration of technology.

Guiding Questions

These guiding questions may be used during student discussion to support sensemaking. Possible student responses are included in parentheses.

- **What are some of the impacts humans have had in Tulare Basin?**
(They changed the directions of rivers. That made the lake dry up. They drained water from wetlands.)

Safety Notes

These warnings keep everyone safe.



Safety

Have students clean up dropped materials and water spills as they happen.

Class Period Breaks

This icon indicates a good point to stop and continue the lesson in the next class period.



Suggested class period break

Teacher tip

Review pie charts during math time prior to this lesson.



Tech tip

Use a projected timer to indicate how long each student has to present their information.

