



Program Components and Standards

Students complete short digital interactives tools focused on one learning objective. Each tool is grounded in both Next Generation Science Standards (NGSS) and Common Core Standards (CCSS).

Trash Analysis

Learning Objective: Students first investigate a piece of trash and understand how trash travels around the world through ocean currents via the Global Conveyor Belt.

Tool Description: Students first investigate a piece of trash and map its route through the ocean's currents.

Standards:

NGSS 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Beach Cleanup

Learning Objective: Students will understand how debris is sorted into trash, recyclable, or compostable.

Tool Description: They will examine many pieces of debris to determine if each piece should be thrown away, recycled, or composted.

Standards:

NGSS 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Food Chain

Learning Objective: Students will be able to track energy through a food chain.

Tool Description: Students will put a food chain in order and see how energy, starting from the Sun, travels through it.

Standards:

NGSS 3-LS2-1 Construct an argument that some animals for groups that help members survive.

CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

Ocean Acidity

Learning Objective: Students will be able to understand how carbon dioxide affects the acidity of the ocean.

Tool Description: Students will see how changes in acidity impact animals and coral reefs in the ocean.

Standards:

NGSS 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

Phytoplankton

Learning Objective: Students will use their knowledge of food chains to see how ocean acidification impacts phytoplankton, a producer at the beginning of the food chain.

Tool Description: Students will increase acid levels to see the impact on phytoplankton.

Standards:

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

Healthy Coral

Learning Objective: Students will investigate the effect of unhealthy coral on the ocean ecosystem.

Tool Description: Students will see the impact of increasing ocean temperatures on coral bleaching. They will then see how bleached coral impacts the larger ecosystem.

Standards:

NGSS 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

Rising Ocean Levels

Learning Objectives: Students will understand what causes water level rise.

Tool Description: Students will investigate the cause of rising water levels and how melting land ice causes the water level to rise.

Standards:

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

Toolkit Selection

Learning Objective: Students will communicate with others to reach a consensus on which equipment should be selected.

Tool Description: They will examine different equipment options and select the kit that provides the necessary capabilities.

Standards:

NGSS 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Coding Repair Equipment

Learning Objective: Students will communicate with others to reach a consensus on how to code the rescue equipment.

Tool Description: Students will code equipment to assist with the repairs necessary to save the research lab.

Standards:

NGSS 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Eric Tracker Map

Learning Objective: Students will communicate with others to reach a consensus on Eric's new habitat.

Tool Description: They will review class contributions and determine the location of Eric the Seal's new habitat.

Standards:

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

NGSS 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

CCSS.MATH.CONTENT.5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.

Team Tracker Maps

Learning Objective: Students will learn about the factors that influence Eric’s habitat.

Tool Description: Students will enter coordinates to locate the factors that influence Eric’s habitat.

Standards:

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

NGSS 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Engineering Activity

Learning Objective: Students will be able to use the engineering design cycle to build a tool related to the story line of the Adventure.

Tool Description: Students learn the components of the engineering design cycle. They will then use recycled materials and materials found in classrooms to create a tool that can collect trash from water.

Standards:

3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Nonfiction Science Writing Exercise

Learning Objective: Students will be able to communicate the information they learned in the Adventure through nonfiction writing.

Tool Description: Students will be able to choose between several nonfiction writing styles with suggested prompts and use a provided graphic organizer to write a reflection of what they learned.

Standards:

CCSS.ELA-LITERACY.W.5.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

CSS.ELA-LITERACY.W.5.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Acidity (Extra Activity Tool)

Learning Objective: Students will understand how hydrogen ions are formed and will make the ocean acidic if too many are present.

Tool Description: Students will investigate how carbon dioxide enters the ocean and simulate chemical reactions that take place to make the ocean more acidic.

Standards:

NGSS 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

NGSS 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

CCSS.ELA-LITERACY.RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.