

Weathering the Storm

Educator's Guide

Welcome to our Hybrid Learning Series.

The Rock by Rock Hybrid Learning Series is a great addition to science and literacy instruction either as a whole class or small group interdisciplinary unit or as a self-directed learning opportunity. Each project includes character growth, reading, writing, science, social studies and the arts.

At Rock by Rock, we believe children learn best when they are having fun and are deeply engaged in rigorous, hands-on learning with real-world application. That is why our projects:

- **Focus on building literacies for life:** We design our modules to prioritize both the consumption and production of modern day applications of 21st century literacies such as text messaging chats, shorter texts, short-form multimedia, podcasts, etc....
- **Are hybrid (blend of offline and online learning):** We leverage technology to present engaging content and couple that with real world hands-on projects and activities to provide a multimodal learning experience to meet every learner's needs.
- **Develop life habits and character:** We believe habits and character education are a core part of instruction. By infusing habits with academics, we can better prepare children to thrive in our ever-changing world and help make the world a better place.



Each project in the K-2 Series can be done together as a class, in small groups or individually as a self-directed project. Each mission is focused on a real world challenge and how we can take small actions each day to help. Each project positions students to:

1. **Life Habit:** Reflect on the focus life habit (Learner, Creativity, Curiosity, Empathy, Courage, Kinship, Impact Awareness).
2. **Explore:** Understand the mission or challenge students will address through reading, social studies and science and connect personally to the issue or problem through writing and art.
3. **Take Action:** Engage in a take action project that involves writing and art (art, performance, etc.).
4. **Share:** Enlist others to work towards or rally around a cause.
5. **Reflect:** Reflect on how the project taught about the subject and life habit. Set habit goals for future growth.

Sample Classroom Applications: There are two ways that you can use this project based learning bundle.



Integrated/Centers: You can integrate the project across your day. This looks like implementing a topical unit that ties together different learning blocks around one topic/theme. Below is a table that illustrates one way you can integrate the project across your days including in self-directed centers.

Time of Day	Component and Description
Morning Meeting or Community Time	Introduce the topic and theme of the project. <ul style="list-style-type: none"> ● Introduce the life habit. ● Discuss the habit and engage in life habit activities. ● Complete the weekly reflections of the life habit each week.
Humanities/Literacy	Supplement literacy (i.e. once a week for reading aloud/shared reading in science or social studies time). <ul style="list-style-type: none"> ● Engage in the literacy lessons and post-reading activities. ● Student's spend time explaining and internalizing important scientific concepts. ● Students gain a deeper understanding of the problem so they can apply what they have learned to their take action projects.
Centers Time	Set up a rotation of centers to include: <ul style="list-style-type: none"> ● Self-Directed Computer Center - Complete the social studies and science modules ● Hands-On Activities: Set out different activities for students to engage in each week.
Science or Project Time	Take Action project: <ul style="list-style-type: none"> ● Engage in the project as a full class. ● Provide an opportunity for students to present and share what they have learned with their community. ● Reflect on their life-habit and what they have learned.



Project-Based Learning Time: If you have a dedicated project based learning time each week or science/social studies time you can do this set of lessons as a whole group/class learning journey. This is recommended for the homeschool setting. After you have downloaded the materials you can start with the "Introduction to the Life Habit" activity and work through to the "Take Action Project." Below explains the component parts of the project journey.

Week	Description										
<p>Introduction to the Life Habit</p>	<ol style="list-style-type: none"> 1. Set the stage for the topic and excite students about the project. 2. Watch the introductory video together. 3. Introduce the life habit and engage in the life habit activities as a whole group. 4. Set up the weekly reflection. 										
<p>Literacy Lessons</p>	<ol style="list-style-type: none"> 1. We have provided a non-fiction magazine to explore and read aloud with your child/students. 2. Each section has a literacy lesson that you can explore together to explain each of the concepts. 										
<p>STEAM Online Modules & Hands-On Activities</p>	<ol style="list-style-type: none"> 1. STEAM Activities: Each week we have paired a hands-on activity with the topic of the week. At times it may be good to start with these experiments so students are exploring and discovering the content they will later learn about when reading The Zine. 2. Online Modules: You can review these lessons together as a group or have students log-in to explore in pairs/individually. Each module lesson reinforces and extends key ideas shared in the literacy lessons. <table border="1"> <thead> <tr> <th>Online Module</th> <th>Hands-On Activities</th> </tr> </thead> <tbody> <tr> <td>Lessons 1-3</td> <td>Hurricane in a Bowl</td> </tr> <tr> <td>Lessons 4-7</td> <td>Coral Reef in a Box</td> </tr> <tr> <td>Lessons 8-10</td> <td>Fossil Fuel Graphs</td> </tr> <tr> <td>Lessons 11-12</td> <td>Hurricane Safety Kit</td> </tr> </tbody> </table>	Online Module	Hands-On Activities	Lessons 1-3	Hurricane in a Bowl	Lessons 4-7	Coral Reef in a Box	Lessons 8-10	Fossil Fuel Graphs	Lessons 11-12	Hurricane Safety Kit
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<p>Take Action, Share and Reflect</p>	<ol style="list-style-type: none"> 1. The Take Action Project focuses on how kids can take action as science citizens to better our world. 2. Students present what they have learned by sharing with others. 3. Close out the project through an independent and group reflection on the life habit. . 										

Unit Overview:

Driving Question: <i>How can we help prevent more hurricanes?</i>	Real World Mission: <i>Learn how we can prevent hurricanes and help those affected by hurricanes.</i>	Take Action Project: <i>Build a Category 5 hurricane diorama and give a news report to teach others about hurricane damage and climate change.</i>
<p>Learning Goals Character Focus: Kinship</p> <p>Literacy:</p> <ol style="list-style-type: none">1. Practice tier 2 and tier 3 words related to hurricanes, climate change, and coral reefs.2. Identify the main idea and retell key details for a text.3. Distinguish between information provided by pictures or illustrations and information provided by the words in a text.4. Use the illustrations and details in a text to describe its key details.5. Participate in collaborative conversations about hurricanes and climate change.6. Use information from texts to ask and answer questions. <p>Science:</p> <ol style="list-style-type: none">1. Identify various bodies of water, including oceans, rivers, lakes, and ponds.2. Identify water in solid and liquid form.3. Explain hurricanes need warm water and warm air to form which is why they typically form in the tropics.4. Describe where and how hurricanes form.5. Explain how hurricanes impact people, places, and ocean life.6. Explain how wind and water change the shape of land over time.7. Model how hurricanes impact coral reefs and the animals living in this ecosystem.8. Understand hurricane intensity has recently increased due to climate change.9. Differentiate between climate and weather.10. List the causes of climate change and recognize human actions as the key driver of climate change.11. Explain how humans can help prevent natural disasters through conservation and sustainability.		<p>Materials:</p> <ul style="list-style-type: none">• The Zine (online or printed)• Hands-On Activity Handouts (also included in Mission Log)• Student Mission Log• Literacy Lessons• Take Action Project Booklet (also included in Mission Log) <p>Activity Specific Materials:</p> <ul style="list-style-type: none">• Hot Glue Gun• Post-It Notes• Cardboard Boxes• Craft Sticks• Modeling Clay• Clear Bowl• Food Dye• Stirring Stick• Sand• Oscillating or Box Fan• Index Cards• Shaving Cream• Natural Art Materials (sticks, dirt, rocks, etc.)• Calculate• Art Supplies (pipe cleaners, tissue paper, etc.) <p>General Materials</p> <ul style="list-style-type: none">• Markers, Poster Paper, Crayons, Scissors, Glue

Standards Alignment:

Each project meets reading and writing standards in most states and is aligned to national standards for science and social studies, 21st century skills and the arts. This module specifically supports:

Reading CCSS	Writing CCSS	Listening and Speaking CCSS	Science NGSS	SEL 21st Century Skills
Key Ideas and Details: 1-3 Craft and Structure: 4-6 Integration of Knowledge 7-9 Text Complexity - 10	Text Types and Purposes 2 Production and Distribution of Writing 5,6 Research and Build to Present Knowledge 7-8	Comprehension and Collaboration 1,2 Presentation of Knowledge and ideas 4-6	K-ESS2-1, K-ESS2-2, K-ESS3-2, K-ESS3-3, K-LS1-1, 2-ESS1-1, 2-ESS2-1, 2-ESS2-2, 2-ESS2-3, 2-LS4-1 SEPs: Asking Questions and Defining Problems / Obtaining, Evaluating, and Communicating Information / Developing and Using Models / Analyzing and Interpreting Data CCCs: Cause and Effect / Stability and Change / Patterns	Focus: Kinship 21st Century Framework National Art Standards C3 Framework: D2.Civ.14.K-2

At-A-Glance

The table below provides an overview of how you can implement this project. For online centers, kids can move at their own pace or move ahead. As a class or group you may go deeper into the content together. The online lessons can be an additional resource material for group lessons. Our hope is all of these materials provide additional opportunities for kids to explore the content, answer the driving question, and apply it to the take action project at the end.

Module	Description	Activities	Materials
Intro + Life Habit 1-2 Days	Students are introduced to their mission and learn about what it means to show kinship. Students engage in 2 activities that help them dig deeper into kinship by working together as a team to solve a problem.	Whole Group or Small Group: <ul style="list-style-type: none"> Intro Video Intro Video Observation Activity Independent: <ul style="list-style-type: none"> Kinship Activity #1 "What is Kinship?" Kinship Activity #2 "Draw/Write about Kinship." 	<ul style="list-style-type: none"> Introductory Video Learner Activity or Student Mission Log
Hurricane Formation	Students learn where hurricanes form, how hurricanes form, and the three main parts of hurricanes. Engage: Students view a hurricane satellite image, then	Whole or Small Group: <ul style="list-style-type: none"> Literacy Lesson #1 Literacy Lesson #2 	

<p>2-3 Days</p>	<p>create and observe a model to predict what causes hurricanes to rotate over oceans. Explore: During the first literacy lesson, students identify central ideas and details and use text features to begin answering their questions about hurricanes. Explain: Students continue to investigate hurricanes during the second literacy lesson and online modules when they learn where and how hurricanes form. Elaborate/Extend: Students revisit their hurricane in a bowl model and use what they have learned to explain what causes hurricanes to rotate over the ocean.</p>	<p>Centers:</p> <ul style="list-style-type: none"> ● Hands-On Activity 1: Hurricane in a Bowl ● Online Student Module 1 ● Online Student Module 2 ● Online Student Module 3 ● Online Student Module 4 ● Online Student Module 5 	
<p>Effects of Hurricanes</p> <p>2-3 Days</p>	<p>Students investigate how hurricanes affect landforms and people, as well as coral reefs and the plants and animals found near coral reefs. Engage: During the literacy lesson, students view images of hurricane damage while wondering how hurricanes affect people and ocean animals. Students begin to explore these effects while using images and illustrations and identifying the central idea. Explore: For the hands-on activity, students create a model of coral reef and observe what happens when strong winds from a fan are blown on it. Explain: Students further explore coral reefs and how they are affected by hurricanes while completing the online modules. Students make observations of coral reefs and the animals that live in these ecosystems before learning more about how wind and water changes landforms. Elaborate/Extend: During the last online module, students extend their knowledge of how coral reefs are affected by hurricanes. In this module, students learn how clownfish and sea anemone exhibit kinship and how each are potentially impacted by hurricane damage.</p>	<p>Whole or Small Group:</p> <ul style="list-style-type: none"> ● Literacy Lesson #3 <p>Centers:</p> <ul style="list-style-type: none"> ● Hands-On Activity 2: Coral Reef and Hurricane Damage ● Online Student Module 6 ● Online Student Module 7 ● Online Student Module 8 	<ul style="list-style-type: none"> ● Online Module ● Student Mission Log
<p>Climate Change and Hurricanes</p> <p>2-3 Days</p>	<p>Students learn about climate change and how it impacts hurricanes. Engage: In the literacy lesson, students use text features and graphics to start learning about climate change. Explore/Explain: Students gain additional knowledge about climate change, the causes of climate change, and how climate change affects hurricanes while completing online modules.</p>	<p>Whole or Small Group:</p> <ul style="list-style-type: none"> ● Literacy Lesson #4 <p>Centers:</p> <ul style="list-style-type: none"> ● Hands-On Activity 3: Fossil Fuels Data Analysis ● Online Student Module 9 ● Online Student Module 10 	<ul style="list-style-type: none"> ● Online Module ● Student Mission Log

	Elaborate/Extend: Students analyze fossil fuel usage data and graphs during the hands-on activity to extend their learning of the causes of climate change.	<ul style="list-style-type: none"> ● Online Student Module 11 ● Online Student Module 12 	
Fighting Climate Change 2-3 Days	<p>Students discover what can be done to fight climate change and help people who have been affected by hurricanes.</p> <p>Engage: Students begin to think about what it means to be a “changemaker” and what changemakers are doing to address climate change and hurricane damage during the literacy lesson.</p> <p>Explore/Explain: During the online modules, students continue to learn more about what people and organizations are doing to fight climate change and help those impacted by hurricanes.</p> <p>Elaborate/Extend: For the hands-on activity, students use kinship, decision-making, and math skills to create a Hurricane Preparedness kit.</p>	<p>Whole or Small Group:</p> <ul style="list-style-type: none"> ● Literacy Lesson #4 <p>Centers:</p> <ul style="list-style-type: none"> ● Hands-On Activity 4: Hurricane Preparedness Kit ● Online Student Module 13 ● Online Student Module 14 	<ul style="list-style-type: none"> ● Online Module ● Student Mission Log
Take Action Project: Category 5 Hurricane Damage Live on the Scene 2-3 Days	Students build a diorama to show damage caused by a Category 5 hurricane. Students write a news report to explain why hurricanes are getting more intense every year and what people can do to address this issue.	<p>Individual or Small Groups:</p> <ul style="list-style-type: none"> ● Category 5 Hurricane Diorama ● Live on the Scene 	<ul style="list-style-type: none"> ● Student Mission Log or Take Action Project Booklet ● Diorama Materials
Share and Reflect 1-2 Days	Students share their news reports with others. Students reflect on what it means to be a changemaker and how they have grown and practiced kinship throughout this project.	<p>Individual:</p> <ul style="list-style-type: none"> ● Reflection 	<ul style="list-style-type: none"> ● Student Mission Log

Authentic Text Lists: Each of our projects includes a non-fiction text/magazine that is the anchor text for this unit. We have also included a recommended text list online if you are looking for additional text to have available for students as well. Please go to the project overview page to download this list.

Lesson Sequence

The light orange shaded rows indicate the student online module and the light blue shaded rows indicate the aligned hand-on activity.

Lesson	Objective and Description	Materials Needed	Standards Alignment
Engage (1 Day)			
Introduction: Video Observations	Objectives: <ul style="list-style-type: none"> ● Build investment in learning about hurricanes. Methods: <ul style="list-style-type: none"> ● Hurricane Video Observations ● Record Observations <ul style="list-style-type: none"> ○ What did you notice? ○ What did you wonder? 	Computer Project Speakers Online Module Student Mission Log pg. 3	CCSS.ELA-LITERACY: <ul style="list-style-type: none"> ● SL k.1 1.1, 1.4, 2.1, 2.4 21st Century Framework.
Your Mission Format: Whole Group	Objectives: <ul style="list-style-type: none"> ● Build investment in learning how climate change impacts hurricanes and how hurricanes impact coral reefs. ● Explain the mission and purpose of the "Hurricanes and Coral Reefs" project and what students will produce. ● Activate prior knowledge to connect to what they already know about hurricanes. Methods: <ul style="list-style-type: none"> ● Watch the introduction video. ● Students record their mission, project, and two things they already know about hurricanes. 	Computer Project Speakers Online Module Student Mission Log pg. 4	CCSS.ELA-LITERACY: <ul style="list-style-type: none"> ● SL k.1 1.1, 1.4, 2.1, 2.4

Life Habit - Kinship (1 day)

<p>Kinship after a Storm</p>	<p>Objectives:</p> <ul style="list-style-type: none"> ● Explore the Life Habit, "Kinship." ● Explain kinship as, "working together to solve a problem." <p>Methods:</p> <ul style="list-style-type: none"> ● Introduce the kinship habit (online activities). ● Activity 1: Students look at two pictures of damage caused by a hurricane. They think about why it is important to show kinship to people after a hurricane has destroyed a town. ● Encourage students to use sentence stems to define kinship in their own words: <ul style="list-style-type: none"> ○ It is important to show kinship because... 	<p>Computer Project Speakers Online Module Student Mission Log pg. 5</p>	<p>21st Century Framework NGSS:</p>
<p>Showing Kinship</p>	<p>Objectives:</p> <ul style="list-style-type: none"> ● Practice the habit of kinship by thinking about kinship in three parts: being kind, sharing and cooperating. . <p>Methods</p> <ul style="list-style-type: none"> ● Activity 2: Draw and Write - Students think about kinship as having 3 components: sharing, being kind, cooperating ● Encourage students to either write or draw about a time they showed kinship for each of the components. For students who prefer to draw, encourage them to label their drawing. For students who are ready to write, encourage the usage of complete sentences such as, <ul style="list-style-type: none"> ○ I was kind when... ○ I shared when... ○ I cooperated when... 	<p>Computer Project Speakers Online Module Student Mission Log pg. 6</p>	<p>21st Century Framework</p>

Hurricane Formation (2-3 days)

<p>Hands On Activity 1</p> <p>Hurricane in a Bowl</p>	<p>Hurricane in a Bowl</p> <p>Objective:</p> <ul style="list-style-type: none"> • Create and observe a hurricane model based on satellite images. • Predict what causes hurricanes to rotate over the ocean. <p>Methods</p> <ul style="list-style-type: none"> • Decide how you will complete this Hands on Activity. <ul style="list-style-type: none"> ○ <u>Whole Group</u> Teacher does a demonstration in front of the class using a projector, sitting in a circle, etc., while the class watches. ○ <u>Group Demonstration</u> Teacher puts students into groups around the classroom and gives each group a set of materials. The small groups complete the demonstration simultaneously as the teacher does the demonstration. ○ <u>Small Group</u> Teacher completes the demonstration with a small group of students while the rest of the class works in centers or completes independent work. • Satellite Introduction and Image Observations • Hurricane Satellite Image Drawing • Hurricane Model Creation • Reflections and Prediction: <ul style="list-style-type: none"> ○ What did the water in your model represent? What did the shaving cream in your model represent? ○ What happened to your model when you stirred it? ○ In what ways does your model look similar to a satellite image of a hurricane? ○ What might cause clouds and ocean water to spin during a hurricane? 	<p>1 Medium sized clear bowl.</p> <p>Stirring Stick</p> <p>Food dye (any color)</p> <p>Water</p> <p>Shaving Cream (NOT gel)</p>	<p>NGSS:</p> <ul style="list-style-type: none"> • K-ESS2-1 • K-ESS3-2
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<p>Literacy Lesson 1</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students identify the central idea and supporting details by reading informational text. • Students use bolded words to identify the meaning of new words. <p>Methods:</p> <p><u>Pre-Reading:</u></p> <ul style="list-style-type: none"> • Students play, "What am I" by hearing clues for words related to weather. • Think, Pair, share - students discuss what words they used to help them figure out the clues. <p><u>During Reading: pg 4-6</u></p> <ul style="list-style-type: none"> • First Read - students listen to the first section for fluent reading. They complete Literacy Lesson 1 notating what they heard, noticed and saw. • Second Read - students participate in a Reader's Theater and look for the central idea while paying attention to bolded words for new vocabulary. <p><u>Post Reading:</u></p> <ul style="list-style-type: none"> • Students conclude with Literacy Activity: Roll and Chat where they discuss with one another questions about the text. 	<p>Student Mission Log</p> <p>Writing Tools</p> <p>The Zine</p> <p>Dice</p> <p>Crayons</p>	<p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> • RI.1.1 • RI.1.2 • RI.1.5 • RI.1.6
<p>Literacy Lesson 2</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students use text features: table of contents, heading, subheadings, diagrams and maps to learn new information about where and how hurricanes are formed. • Students use illustrations in a text to describe where hurricanes are formed. • Students use a diagram to label the parts of a hurricane. <p>Methods:</p> <p><u>Pre Reading:</u></p> <ul style="list-style-type: none"> • Students identify different bodies of water in the Student Mission Log and make predictions about where hurricanes form. Literacy Activity 2. • Students use the Table of Contents to find information 	<p>Student Mission Log</p> <p>Writing Tools</p> <p>The Zine</p>	<p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> • RI.1.7 • RI.2.1 • RI.2.7 <p>NGSS:</p> <ul style="list-style-type: none"> • 2-ESS1-1 • 2-ESS2-2 • K-LS1-1 • 2-LS4-1

	<p>within the text.</p> <ul style="list-style-type: none"> Think, Pair, Share highlighting maps, images and diagrams. <p><u>During Reading:</u></p> <ul style="list-style-type: none"> First Read - teacher reads through pages 9-21 to model fluent reading and model self thinking while reading. Second Read- text feature highlight - maps, p12-14. Students use the maps in The Zine to obtain information related to the central idea. Students make connections to their predictions about where hurricanes form. <p><u>Post Reading:</u> Students label the parts of the hurricane they previously made during their Hurricane in a Bowl activity.</p>		
<p>Online Module</p> <p>Lesson 1: Water, Water Everywhere</p>	<p>Objectives:</p> <ul style="list-style-type: none"> Students review various bodies of water found on Earth, including glaciers. . Students use their knowledge of glaciers and solid liquids to identify water in solid form. <p>Methods:</p> <ul style="list-style-type: none"> Bodies of Water Review and Photo Collage Glacier Introduction and Photo Observation Image Choice: Which shows water in solid form? 	Online Module	<p>NGSS:</p> <ul style="list-style-type: none"> 2-ESS2-2 2-ESS2-3
<p>Online Module</p> <p>Lesson 2: Location of Hurricanes</p>	<p>Objectives:</p> <ul style="list-style-type: none"> Students identify true facts about hurricanes. Students locate areas where hurricanes can form on a world map. <p>Methods:</p> <ul style="list-style-type: none"> Hurricane Review and Video Hurricane Facts True or False Flip Cards <ul style="list-style-type: none"> True: Hurricanes only form over oceans. 	Online Module	<p>NGSS:</p> <ul style="list-style-type: none"> K-ESS2-1 2-ESS2-3

	<ul style="list-style-type: none"> ○ False Hurricanes form in very cold places. ○ True: Hurricanes form near the equator. ○ False: Hurricanes form over land. ● Find the Hurricanes Hotspot 		
Online Module Lesson 3: Hurricane Formation	Objectives: <ul style="list-style-type: none"> ● Students demonstrate how hurricanes form by sequencing a series of events. ● Students label the eye, eyewall, and rainbands on a hurricane diagram. Methods: <ul style="list-style-type: none"> ● How do Hurricanes Form Sequence of Events slide show. ● "Hurricane Formation" Presentation ● Parts of a Hurricane Drag and Drop 	Online Module	NGSS: <ul style="list-style-type: none"> ● K-ESS2-1

Effects of Hurricanes (2-3 days)

Literacy Lesson 3	Objectives: <ul style="list-style-type: none"> ● Students use images and illustrations to draw conclusions about hurricane damage. ● Students use images to sequence events and compare written text to the images. ● Students identify the central idea within a text section. Methods: Pg 21-31. <u>Pre-Reading</u> <ul style="list-style-type: none"> ● Photo Walk - students walk through this section of The Zine paying close attention to the last sentence on page 25 and the title on page 25. They make a connection between these two things and think about what the author wants the reader to know. <u>During Reading</u> <ul style="list-style-type: none"> ● First Read - read aloud to model fluent reading. While reading, call attention to photos showing damage hurricanes can cause. Ask students why the author chose 	The Zine Glue (stick) Scissors Writing Tools Student Mission Log	CCSS.ELA-LITERACY: <ul style="list-style-type: none"> ● RI.1.2 ● RI.1.5 ● RI.1.6 ● RI.2.7 NGSS: <ul style="list-style-type: none"> ● K-ESS3-2 ● 2-ESS1-1
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	<p>these pictures.</p> <ul style="list-style-type: none"> ● Second Read - Stop and ask students to look at the images on page 29-30, and ask them how the images connect to the text on the page. As what happened to the coast line in the illustration and how the text supports the answer. <p><u>Post Reading</u></p> <ul style="list-style-type: none"> ● Students complete the erosion sequencing activity in the Student Mission Log, pg 14. ● Class discussion about the pace of erosion. 		
<p>Hands On Activity 2</p> <p>Coral Reef in a Box</p>	<p>Objectives:</p> <ul style="list-style-type: none"> ● Create a model of a healthy coral reef. ● Observe and reflect on the damage a hurricane causes to coral reef. <p>Methods:</p> <ul style="list-style-type: none"> ● Determine whether students will work individually, with a partner, or in small groups ● Design a diorama of coral reef inside a box. ● Pour sand onto the bottom of the box after they create their coral reef. ● Replicate the wind damage a hurricane can cause by placing a fan on top of the box and adjusting the fan speeds incrementally. <p>Reflections and Predictions:</p> <ul style="list-style-type: none"> ● What surprised you? Did the sand do what you predicted it would once you turned on the fan? ● What do you think would happen if a large wave crashed into the coral reef? ● How do you think hurricanes affect ocean animals who depend on coral reefs for food or shelter? 	<p>Cardboard box Recycled Materials Colorful artificial plants 2-3 cups of sand Construction Paper Oscillating Fan/Box Fan Hot Glue Gun Pipe Cleaners Coloring Tools Scissors Glue Stick/White Glue Modeling Clay</p>	<p>NGSS:</p> <ul style="list-style-type: none"> ● 2-ESS1-1 ● 2-ESS2-2
<p>Online Module</p> <p>Lesson 4: Kinship after a</p>	<p>Objectives:</p> <ul style="list-style-type: none"> ● Students observe the path of a hurricane and describe what happens when a hurricane makes landfall. 	<p>Online Module Mission Log pg. 18</p>	<p>NGSS:</p> <ul style="list-style-type: none"> ● K-ESS3-2 ● 2-ESS1-1

Hurricane	<ul style="list-style-type: none"> • Students learn how people exhibited kinship after Hurricane Katrina. • Students explain why it is important to exhibit kinship after a hurricane. <p>Methods:</p> <ul style="list-style-type: none"> • The Path of a Hurricane and Map Reading • "Kinship After Katrina" Presentation • Written Reflection: Explain why it is important to exhibit kinship after a hurricane. 		
<p>Online Module</p> <p>Lesson 5: In and Around Coral Reefs</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students make observations to discover the living and nonliving things found in and around coral reefs. <p>Methods:</p> <ul style="list-style-type: none"> • Coral Reef Image Slider • Coral Reef Video Observations • Reflect and Discuss: Imagine you are snorkeling, or swimming near a coral reef. What would you expect to see? 	Online Module	<p>NGSS:</p> <ul style="list-style-type: none"> • K-LS1-1 • 2-LS4-1
<p>Online Module</p> <p>Lesson 6: Hurricanes and Coral Reefs</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students observe images to see how wind and water affect the shape of land. • Students review how hurricanes impact coral reefs and use this information to identify damaged coral reef. <p>Methods:</p> <ul style="list-style-type: none"> • Weathering and Erosion Introduction and Image Slider • Hurricanes and Coral Reefs Paragraph • Image Choice: Which shows damaged coral reef? 	Online Module	<p>NGSS:</p> <ul style="list-style-type: none"> • K-LS1-1 • 2-ESS1-1

<p>Online Module</p> <p>Lesson 7: Kinship in the Ocean</p>	<p>Objective:</p> <ul style="list-style-type: none"> • Students learn how animals in symbiotic relationships exhibit kinship. • Students discuss how animals that live near coral reefs might be affected by hurricanes. <p>Methods:</p> <ul style="list-style-type: none"> • Symbiotic Relationships Paragraph • Examples of Symbiotic Relationships Near Coral Reefs <ul style="list-style-type: none"> ○ Clownfish and Anemone ○ Surgeon Fish and Sea Turtles • Reflect and Discuss: How might these animals be affected by a hurricane? What might happen if one animal in the symbiotic relationship was harmed by the hurricane but not the other? 	<p>Online Module</p>	<p>NGSS:</p> <ul style="list-style-type: none"> • K-LS1-1 • 2-LS4-1 <p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> • SL1.1
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Climate Change and Hurricanes (2-3 Days)

<p>Literacy Lesson 4</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students use headings and subheadings to locate information about climate change. • Students answer questions about climate change and weather. • Students use the text and graphics to explain why hurricanes are increasing in intensity. <p>Methods:</p> <p><u>Pre-Reading</u></p> <ul style="list-style-type: none"> • Students use the headings to determine what the next section of The Zine is about. • They cut out the key words for the Climate vs. Weather activity in their Student Mission Log, pg 19. <p><u>During Reading</u></p> <ul style="list-style-type: none"> • First Read - Read fluently to model what good reading sounds like. Remind students to listen for important words to help them complete the climate vs weather 	<p>The Zine</p> <p>Student Mission Log</p> <p>Scissors</p> <p>Glue (stick)</p> <p>Sticky Notes</p>	<p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> • RI.1.1 • RI.1.2 • RI.1.5 • RI.1.6 <p>NGSS:</p> <ul style="list-style-type: none"> • K-ESS2-1 • K-ESS2-2 • K-ESS3-2
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	<p>activity.</p> <ul style="list-style-type: none"> ● Second Read - While reading, stop and ask students the following questions <ul style="list-style-type: none"> ○ How did scientists learn our planet is heating up? (33) ○ What/who is causing climate change?(35-36) ○ If there are fewer trees to absorb gasses, what is happening to those gasses? (36) ● Review the Climate vs. Weather word sort with the students, ensuring their words are placed in the correct categories. Encourage students to use The Zine to explain how they decided to put the words in each category. <u>Post Reading</u> ● Students write 1 new fact they learned about climate/weather on a sticky note and as a class organize the sticky notes into categories such as, climate change, climate, hurricanes, weather, etc. 		
<p>Online Module</p> <p>Lesson 8: What is Climate Change?</p>	<p>Objectives:</p> <ul style="list-style-type: none"> ● Students differentiate between weather and climate. ● Students create an illustration to depict climate change. <p>Methods:</p> <ul style="list-style-type: none"> ● Weather and Climate Change Review ● Climate Change Illustrations Image Slider ● Illustration Creation 	<p>Online Module</p> <p>Mission Log pg. 20</p> <p>Crayons, Markers, or Colored Pencils</p>	<p>NGSS:</p> <ul style="list-style-type: none"> ● K-ESS2-1 ● K-ESS2-2 ● K-ESS3-2
<p>Online Module</p> <p>Lesson 9: Causes of Climate Change</p>	<p>Objectives:</p> <ul style="list-style-type: none"> ● Students list the causes of climate change. ● Students recognize human actions as the key driver of climate change. <p>Methods:</p> <ul style="list-style-type: none"> ● Causes of Climate Change Drag and Drop ● Reflect and Discuss: Which of these actions can you stop or start doing to help reduce strong hurricanes? 	<p>Online Module</p>	<p>NGSS:</p> <ul style="list-style-type: none"> ● K-ESS2-2 <p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> ● SL.1.1

<p>Online Module</p> <p>Lesson 10: Climate Change and Hurricanes</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students sequence images of the five hurricane categories. • Students identify true statements about climate change and hurricanes. <p>Methods:</p> <ul style="list-style-type: none"> • Hurricane Categories Sequencing • True/False Questions: <ul style="list-style-type: none"> ○ False: The strongest hurricanes are Category 1. ○ False: Hurricanes are getting weaker. ○ True: Climate change is making hurricanes stronger. 	<p>Online Module</p>	<p>NGSS:</p> <ul style="list-style-type: none"> • K-ESS2-1 • K-ESS3-2
<p>Hands On Activity 3</p> <p>Fossil Fuel Graphs</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students create a bar graph demonstrating how the use of oil, gas and coal have increased over a 100 year time frame by using data provided in a table. • Students analyze the data by answering reflection questions. <p>Methods:</p> <ul style="list-style-type: none"> • Use the data provided in 3 separate tables (coal, oil and gas) to create bar graphs representing the increase of fossil fuels over the last 100 years. • Depending on the student, support may be needed to analyze the table and create the bar graph. • Analyze the data and draw conclusions about the use of fossil fuels. 	<p>Student Mission Log</p> <p>Coloring Tools</p>	<p>NGSS:</p> <ul style="list-style-type: none"> • K-ESS2-2 • CCSS.MATH.CONTENT.T.2.MD.D.10
<p>Fighting Climate Change (# of Days)</p>			
<p>Literacy Lesson 5</p>	<p>Objectives</p> <ul style="list-style-type: none"> • Students use illustrations of damage caused by hurricanes to make connections to the text. • Students read fluently. 	<p>The Zine</p> <p>Sticky Notes</p> <p>Writing Tools</p>	<p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> • RI.1.1 • RI.1.2 • RI.1.5 • RI.1.6

	<ul style="list-style-type: none"> • Students use the text to answer questions about hurricanes. • Students write with the purpose to inform while using dialogue. <p>Methods</p> <p><u>Pre-Reading</u></p> <ul style="list-style-type: none"> • Students use sticky notes to write adjectives about the word changemaker. • They use the adjectives to describe what is happening in the photos on pages 37-38. <p><u>During Reading</u></p> <ul style="list-style-type: none"> • First Read - read fluently to model what good reading sounds like. Encourage students to think about the adjectives they used to describe changemakers while listening. • Second Read - students work in partners and practice reading this section of The Zine. They pay close attention to the dialogue on page 39, within the text chat. Students practice reading fluently while reading the dialogue. • Call attention to the way we can help fight climate change and ask students to think of ways they can add to the list. <p><u>Post Reading</u></p> <ul style="list-style-type: none"> • Text Chat - students work with their reading partner to write their own text chat on page 27 in the Student Mission Log. They can choose from the following topics: <ul style="list-style-type: none"> ○ Why are hurricanes getting stronger each year? ○ What are the effects of hurricanes? ○ What is climate change? ○ What can we do about it? <p>After they finish writing their dialogue they practice reading it fluently and can share with the class.</p>	Student Mission Log	<p>NGSS:</p> <ul style="list-style-type: none"> • K-2-ETS1-1 • K-ESS2-2 • K-ESS3-3
<p>Online Module</p> <p>Lesson 11: Who is helping?</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • Students understand the reasons people protest. • Students explain how protests help fight climate change. <p>Methods:</p>	Online Module	<p>NGSS:</p> <ul style="list-style-type: none"> • K-2-ETS1-1 • K-ESS2-2 • K-ESS3-3 <p>C3 Framework:</p>

	<ul style="list-style-type: none"> ● Protest Paragraph and Image ● Fridays for Future Paragraph ● Discuss and Reflect: What is a protest? Do you think protests help climate change? Why or why not? 		<ul style="list-style-type: none"> ● D2.Civ.14.K-2
Online Module Lesson 12: You Can Fight Climate Change	Objectives: <ul style="list-style-type: none"> ● Students identify actions that help fight climate change. ● Students draw an image to show what they can do to fight climate change. Methods: <ul style="list-style-type: none"> ● Image Choice: Which images show a way to fight climate change? ● Fighting Climate Change Drawing 	Online Module Student Mission Log pg. 29	NGSS: <ul style="list-style-type: none"> ● K-2-ETS1-1 ● K-ESS2-2 ● K-ESS3-3 C3 Framework: <ul style="list-style-type: none"> ● D2.Civ.14.K-2
Hands On Activity 4 Hurricane Safety Kit	Objectives: <ul style="list-style-type: none"> ● Students determine the difference between needs and wants. ● Students use addition and subtraction to determine which items they can buy while staying within their \$100 budget. ● Students practice kinship while preparing a hurricane safety kit. Methods: <ul style="list-style-type: none"> ● Explain to students the difference between needs and wants to build their background knowledge. ● Use the needs and wants sheet to determine which items they need and which items they want to include in their hurricane safety kit. ● "Shop" for the items using the budget worksheet. Adult support or calculator support may be needed. ● Reflect on the process. 		NGSS: <ul style="list-style-type: none"> ● K-ESS2-1 ● K-ESS3-2 ● K-2-ETS1-1 ● CCSS.MATH.CONTENT.T.2.OA.A.1

Take Action Project (2-3 days)

<p>Category 5 Hurricane Diorama</p>	<p>Objective:</p> <ul style="list-style-type: none"> Students create a diorama of the damages a Category 5 hurricane can cause. <p>Methods:</p> <ul style="list-style-type: none"> Hurricane Diorama: <ul style="list-style-type: none"> Students use a range of materials to represent the damages a Category 5 hurricane can cause by creating a diorama inside a box. 	<p>Take Action Booklet or Student Mission Log.</p> <p>Diorama materials/Art materials.</p>	<p>NGSS:</p> <ul style="list-style-type: none"> 2-ESS1-1 2-ESS2-1 K-ESS3-3 SEP: Create a model. Communicate Ideas.
<p>Live on the Scene</p>	<p>Objective:</p> <ul style="list-style-type: none"> Students deliver a news broadcast teaching people about hurricane strength and frequency. Students draft a news report about the impact of category 5 hurricanes using their diorama. <p>Methods:</p> <ul style="list-style-type: none"> Students write a news broadcast script outlining the 3 Big Questions <ul style="list-style-type: none"> What type of damage happens after a Category 5 hurricane hits land? Why are hurricanes getting stronger every year? What can we do to help lower the strength and the frequency of Category 5 hurricanes? Ask students to practice delivering their news broadcast and receiving feedback from each other (i.e. one glow, one grow). Invite students to share their broadcasts and dioramas with the class. <p>Note: Some students may need note cards for their presentations, others may be ready to memorize their scripts.</p>	<p>Take Action Booklet or Student Mission Log</p>	<p>CCSS.ELA-LITERACY:</p> <ul style="list-style-type: none"> SL k.1 1.1, 1.4, 2.1, 2.4 W2.1, 2.5, 2.7, 2.8

Share & Reflect (1-2 days)

<p>Share</p>	<p>Live and on the Scene Encourage students to practice their news broadcast in front of each other and/or the class. You can get as elaborate as you desire. One idea is to have the students design a “news set” where they can give their presentations. You can also have students record themselves giving the news broadcast and involve different forms of online media for them to edit their videos (time permitting).</p> <p>Students can deliver their broadcast over the morning announcements or display their dioramas with their written broadcast in a common space.</p> <p>Some students may want to work together and deliver a newscast in tandem with one another. There are a variety of ways for students to share what they’ve learned.</p>		<p>21st Cent Framework CCSS.ELA-LITERACY: • SL k.1 1.1, 1.4, 2.1, 2.4</p>
<p>Reflect</p>	<p>Students complete a reflection to think about ways they can practice kinship, what they have learned throughout this module and then share their responses with a partner.</p>	<p>Student Mission Log</p>	<p>21st Cent Framework</p>

Printing Directions:

Below is our printing recommendation. Please note, we have provided optional materials which can be used for centers, as needed.

Essential Items:

- Educator's Guide
- Student Mission Log
- Literacy Lessons

Optional Items:

- Life Habit Activities (these are also located in the Student Mission Log)
- Take Action Booklet
- Hands-On Activities. Available in two printing sizes:
 - Landscape - For centers or loose handouts
 - Portrait - Student Mission Log

Essential (Recommend Printing)		
Item	Size of Paper	Single or Double-Sided
Educator's Guide	8.5 x 11 paper	Double-Sided (Landscape)
Student Mission Log	8.5 x 11 paper	Double-Sided
Literacy Lessons	8.5 x 11 paper	Single-Sided (Landscape)
Optional (Printable or Projectable)		
Item	Size of Paper	Single or Double-Sided
Life Habit Activities	8.5 x 11 paper	Single-Sided (Landscape)
Hands-On Activities Take Action Booklet (worksheet size) or Hands-On Activities PDF (center size)	8.5 x 11 paper	Single-Sided