

The Art of Light and Sound

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. • 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). • 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: • 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: • 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										
Introduction to the Life Habit	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.										
Literacy Lessons	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.										
STEAM Online Modules & Hands-On Activities	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>What's Being Thrown Away?</td></tr> <tr> <td>Lessons 4-6</td><td>Sensory Bin</td></tr> <tr> <td>Lessons 7-9</td><td>Light Shining Through and Shadow Art</td></tr> <tr> <td>Lessons 10-13</td><td>Upcycled Instruments</td></tr> </tbody> </table>	Online Module	Hands-On Activities	Lessons 1-3	What's Being Thrown Away?	Lessons 4-6	Sensory Bin	Lessons 7-9	Light Shining Through and Shadow Art	Lessons 10-13	Upcycled Instruments
Online Module	Hands-On Activities										
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Lessons 4-6	Sensory Bin										
Lessons 7-9	Light Shining Through and Shadow Art										
Lessons 10-13	Upcycled Instruments										
Take Action, Share and	1. The Take Action Project focuses on how kids can take action as science citizens to better our world.										

Reflect	- Students present what they have learned by sharing with others. - Close out the project through an independent and group reflection on the life habit. .
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Unit Overview:

Driving Question:	Real World Mission:	Take Action Project:
<i>How can people use trash, sound, and light to make something new?</i>	<i>Learn how we can upcycle materials to help address the waste problem.</i>	<i>Host an art show featuring upcycled art to teach others how upcycling can address the world's waste problem.</i>
Learning Goals Character Focus: Creativity Literacy: - Practice tier 2 and tier 3 words related to light, sound and waste in landfills. - Identify the central idea and retell key details for a text. - Distinguish between information provided by pictures or illustrations and information provided by the words in a text. - Use the illustrations and details in a text to describe its key details. - Participate in collaborative conversations about waste, light, and sound. - Use information from texts to ask and answer questions. Science: - Describe the world's waste problem and how it affects living things. - Identify various types of waste and the type of pollution they cause. - Understand the concept of upcycling and create functional objects by upcycling materials. - Describe the properties of various materials. - Select materials for an intended purpose using the properties of those materials. - Use drawings and models to convey ideas. - Create an object using a set of smaller objects. - Differentiate between objects that give off their own light and those that are illuminated. - Explain how shadows are formed. - Identify materials that are translucent, transparent, and opaque. - Conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. - Describe the sounds made by various materials. - Explain how people use devices to communicate over long distances.		Materials - Poster Board/Cardboard (upcycle another poster board when possible) - Drawing Tools - Scissors - Glue - Shadow Art Project - Upcycled Instrument Project

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	Art 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	VA: CR1.1.1a VA: CR1.2.1a VA:Cr2.1.1a VA:Cr2.3.1a	Comprehension and Collaboration 1.2 Presentation of Knowledge and ideas 4-6	1-PS4-1. 1-PS4-2.. 1-PS4-3. 1-PS4-4. K-ESS3-3 K-ESS3-1 2-PS1-1. 2-PS1-2.. SEPs: Asking Questions and Defining Problems / Obtaining, Evaluating, and Communicating Information / Developing and Using Models / Analyzing and Interpreting Data	Focus: Creativity 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 life habit. Students explain what creativity is, why it is important, and different ways that people can be creative. Students understand that creative solutions are needed to solve some of our world's problems, including the waste problem.	Whole Group or Small Group: - Online Modules - Intro Video - Intro Video Observation Activity Independent: - Creativity Activity 1 - Creativity Activity 2	- Computer - Project - Speakers - Online Module - Student Mission
The Waste Problem 2-3 Days	Students investigate the causes and effects of waste dumping and how people can upcycle to help address the waste problem. .	Whole or Small Group: Literacy Lesson #1 Centers:	- Online Module - Student Mission

	Engage: During the first hands-on activity, students collect and analyze data to notice how much trash they see being thrown away throughout a day. Explore/Explain: Students continue to explore the waste problem and upcycling during the literacy lesson. Elaborate/Extend: During the online modules, students extend their understanding of the waste problem by exploring some of the ways waste dumping impacts animals and people in low-income communities.	• Hands-On Activity 1: What's Being Thrown Away? • Online Student Module 1 • Online Student Module 2 • Online Student Module 3	
Upcycling Materials 2-3 Days	Students investigate the properties of materials and explore how materials can be upcycled to make new objects. Engage: Students observe and sort objects based on their properties during the hands-on activity. Explore/Explain: Students practice using text features during the literacy lesson while learning about properties and how the properties of objects are considered when upcycling. Elaborate/Extend: During the online modules, students continue to learn about upcycling. Students also practice identifying properties and using properties to select materials for an intended purpose.	Whole or Small Group: • Literacy Lesson #2 Centers: • Hands-On Activity 2: Sensory Bin • Online Student Module 4 • Online Student Module 5 • Online Student Module 6	• Online Module • Student Mission • Paper Rolls • Cardboard • Scrap Paper • Sticks • Aluminum Cans • Washers, nuts bolts, screws, etc. • Leaves • Plastic Bottles • Crinkle Grass • Feathers • Rubber Bands

The Art of Light 2-3 Days	Students investigate light and how artists use upcycled materials to make different pieces of art. Students use what they've learned about light and the properties of materials to design and build a piece of upcycled shadow art. Engage: Students make predictions about and investigate the amount of light that passes through various objects during the hands-on activity. Explore/Explain: Students continue to explore light and how it interacts with objects during the literacy lesson and online modules. Students are also introduced to an artist who uses upcycling Elaborate/Extend: During the hands-on activity, students extend their knowledge of light, shadows, and objects' properties by building their own piece of upcycled shadow art.	Whole or Small Group: • Literacy Lesson #3 Centers: • Hands-On Activity 3: Light Shining Through • Online Student Module 7 • Online Student Module 8 • Online Student Module 9 • Hands-On Activity 4: Shadow Art	• Online Module • Student Mission • Empty plastic bottle (colored) • Full plastic bottle (colored) • Scrap Paper • Cardboard • Plastic Bags • Scissors • White Glue • Hot Glue • Black piece of paper • Flash light • White piece of paper • Clear glass jar • Book • Clear lamination
Using Sound to Communicate 2-3 Days	Students build an upcycled musical instrument to make initial observations about sound before investigating what causes sound, how sound travels, and how sound waves are related to the volume and pitch of sounds. Engage: Students investigate the sounds of various materials then use their observations to make an upcycled musical instrument. Explore/Explain: During the literacy lesson, students use diagrams to explain how sound is created and how sound travels. During the online modules, students continue to explore upcycled instruments, how sounds are created, and the sounds made by different objects.	Whole or Small Group: • Literacy Lesson #5 Centers: • Hands-On Activity 5: Upcycled Instruments • Online Student Module 10 • Online Student Module 11 • Online Student Module 12 • Online Student Module 13	• Online Module • Student Mission • Paper Rolls • Cardboard • Empty Containers • Sticks • Paper Rolls • Cardboard • Empty Containers • Sticks • Plastic Bottles • Feathers • Rubber Bands • Metal or Plastic Utensils

Take Action Project: Upcycled Art Show 2-3 Days	Students host an art show showcasing their upcycled musical instruments and shadow art. Students share how they selected the materials for their design and explain how upcycling can help with the world's waste problem.	Individual or Small Groups: • Invitational Poster • Art Exhibition • Label Your Art • The Show	• Poster Board/Cardboard (upcycle another poster board when possible) • Drawing Tools • Scissors • Glue • Shadow Art Project • Upcycled Instrument Project
Share and Reflect 1-2 Days	Students reflect on what it means to be a changemaker and how they have grown and practiced creativity throughout this project.	Individual: • Reflection	• Student Mission Log • Writing Tools

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: Spot the Similarities	Objectives: • Build investment in learning about upcycling. Methods: • Image Observations • Upcycled Introduction • Identify the Upcycled Objects	Computer Project Speakers Online Module Student Mission Log pg. 3	Focus: Creativity 21st Century Framework National Art Standards
Your Mission Format:	Objectives: • Build investment in learning about the waste problem and how upcycling can be used to address the world's waste problem.	Computer Project Speakers Online Module	Focus: Creativity 21st Century Framework National Art Standards

Whole Group	- Explain the mission and purpose of the "Art and Light and Sound" project and what students will produce. - Activate prior knowledge to connect what they already know about waste and upcycling. Methods: - Introduction Video - Students record their mission, project, and one way waste can be used to create something new.	Student Mission Log pg. 4	C3 Framework: D2.Civ.14.K-2
Life Habit - Creativity (1 Day)			
What is Creativity?	Objectives: - Explore the life habit of creativity. - Identify true statements about creativity. Methods: - Creativity Introduction (online) - True/False Activity - Being creative means you have to be good at art. (false) - Being creative means you have to be a really good singer. (false) - Being creative means you can invent new ideas. (true) - Being creative means you have to draw really well. (false) - Being creative means you can think of a new way to solve a problem. (true)	Computer Project Speakers Online Module Student Mission Log pg. 5	Focus: Creativity 21st Century Framework National Art Standards
Creative Problem Solving	Objectives: - Practice using creativity to solve a problem. Methods - Waste and upcycling paragraph. - Creative problem solving activity. - Use creativity and upcycling to create a water bowl for a dog.	Computer Project Speakers Online Module Student Mission Log pg. 7	Focus: Creativity 21st Century Framework National Art Standards

The Waste Problem (2-3 days)

Hands On Activity 1 What's Being Thrown Away?	Objective: - Students will use tally marks to record every time they observe trash on the ground. - Students will categorize the type of trash they see on the ground. - Students will create a bar graph to represent the amount of trash they see. - Students explain how waste can be turned into something new. Methods: - Using the tally mark record sheet in the Student Mission Log, students will record the number of times they see trash on the ground marking their tally marks in the correct category of trash. - Students will create a bar graph to represent the different types of trash they observed. - Students will compare the different types of trash found and analyze the graph.	Student Mission Log p.8 Writing Tools Clipboard	NGSS: K-ESS3-3
Literacy Lesson 1 pgs. 2-18	Objectives: - Students identify different types of waste. - Students explain how waste could be turned into something new. - Students use a Table of Contents to make connections. - Students listen to fluent reading and practice reading fluently while participating in reader's theater. Methods: <u>Pre-Reading:</u> - Review the Table of Contents together, p.2. Complete Stop and Jot. - Review the Words to Know. <u>During Reading:</u> - First Read -Teacher reads the first section to model what fluent reading sounds like.	- Index Cards - Student Mission Log p. 12 - Writing Tools - Zine - Anchor Chart Paper	CCSS.ELA-LITERACY: - RI.1.1 - RI.1.2 - RI.1.5 - RI.1.6

	• Second Read - Central Idea - (Upcycling is a way to help solve the world's waste problem.) • Reader's Theater, pg. 20. <u>Post Reading:</u> • Literacy Activity - Types of Waste. • Cut index cards in half. Give each student 4 index cards.. Ask them to write one example of trash on each card. Collect all of the cards. • Group students into groups of 4. Redistribute the cards evenly and pass them out to each group. • Ask students to categorize the types of trash • Students brainstorm what could you create out of different types of waste - draw and write. Extension Ideas: • Collect and redistribute the cards and ask them to sort the cards again. • Glue the cards onto 4 Types of Waste anchor charts and display them around the room.		
Online Module Lesson 1: More about Waste Dumping	Objectives: • Students review key facts about waste and waste dumping. • Students identify examples of construction waste, plastic waste, and run-off waste. Methods: • Waste Dumping Paragraph and Video • Type of Waste Drag and Drop ○ Construction ○ Plastic ○ Household ○ Electronic	Online Module	NGSS: • K-ESS3-3 C3 Framework: D2.Civ.14.K-2

Online Module Lesson 2: Waste Dumping and Animals	Objectives: - Students review the five basic needs of animals and observe photographs of animals in habitats where these needs are met. - Students observe photographs of animals in polluted habitats to decide whether animals can get their needs met when waste has been dumped where they live. Methods: - Needs of Animals Paragraph - Healthy Habitat Collage - Polluted Habitat Image Slider - Record Observations: Draw a picture of an animal in a healthy habitat. Draw a picture of an animal in a polluted habitat. - Reflect and Discuss: Do you think animals can get their needs met in a polluted habitat? Why or why not?	Online Module Mission Log p. 13	NGSS: - K-ESS3-1 - K-ESS3-3
Online Module Lesson 3: Wrongful Waste	Objectives: - Students understand that the waste problem impacts different communities in different ways. Methods: - Waste in Poorer Communities Paragraph - Wrongful Waste Course Presentation - Reflect and Discuss: How are people in poorer communities affected by the waste problem?	Online Module	NGSS: - K-ESS3-1 - K-ESS3-3 C3 Framework: - D2.Geo.5.K-2
Upcycled Objects (2-3 days)			
Hands On Activity 2 Sensory Bin	Objectives: - Students will use their five senses to explore different properties of materials. - Students will sort the materials by one type of property and then resort using a 2nd classification and will explain	Student Mission Log, p.14	NGSS: 2-PS1-1 2-PS1-2

	what properties they used to sort the materials. - Example: paper towel roll, tin can, nails, cardboard box. Sort 1: paper towel roll and tin can (both roll) Sort 2: Tin can and nails (both metal) Sort 3: Cardboard box and paper towel roll (both cardboard and smooth) Methods: - Students will be given a variety of materials to explore. - Each material will have a different property ie: rough, textured, smooth, heavy, light, soft, ribbed, shiny, etc. - After exploring the materials in the sensory bin, students will use the sorting mats in the Student Mission Log to sort the materials by one property. - Students will explain in writing how they chose to sort their materials.	Variety of recycled materials such as: Cotton balls Leaves Sticks Paper Towel Rolls/Toilet Paper Rolls Nails, Screws, Washers, etc. Aluminum Cans (edges taped for safety) Plastic Bottles Bottle Caps Rocks, Pebbles, etc:	
Literacy Lesson 2 pgs. 21-24	Objectives: - Students describe the different properties of an object and its purpose. - Students will use the text feature, bolded words, to identify the unknown words (property) within the text. - Students will hear fluent reading. - Students will use text features to make connections from images to text. Methods: <u>Pre-Reading</u> - Scan through the pages to look for the text feature, bolded words. Read the bolded word and use the glossary to find the definition. <u>During Reading</u> - First Read - Read the entire section, modeling fluent reading. Ask students to pay attention to bolded words		CCSS.ELA-LITERACY: - RI.1.7 - RI.2.1 - RI.2.7 NGSS: 2-PS1-1 2-PS1-2

	- Second Read - Draw attention to the boxes on page (x) with different properties. Ask students what information is within the boxes and where in the text supports their answer? <u>Post Reading</u> - Students will participate in a classroom/home property scavenger hunt. - Think of 5 different properties you want the students to look around the room for. Example: you can ask them to find something soft, red, loud, rough, etc. - Give students 30 seconds for each round and ask them to bring the item to their desk. - After they have brought all of the items back,, have a conversation about the different properties of each item and what they have in common with each other.		
Online Module Lesson 4: Upcycle This!	Objectives: - Students identify what objects were used to create new upcycled objects. - Students explain how upcycling helps address the waste problem. Methods: - Waste and Upcycling Paragraph - Image Pairing: Match the upcycled objects to the old objects that were used to make them. - Playground Toy → Tire - Kids Craft → Plastic Soda Bottle - Dinosaur Costume → Cardboard Box - Wooden Chairs → Pallets - Tote Bag → Jeans - Reflect and Discuss: What is upcycling? How does upcycling address the waste problem?	Online Module	NGSS: - K-2-ETS1-1 - K-ESS3-3
Online Module	Objectives: Students review various properties of materials.	Online Module	NGSS: 2-PS1-1

Lesson 5: Identify the Properties	- Students sort materials based on their properties. Methods: - Property Examples: Color, Texture, Shape, Size - Property Image Choice - Which of these objects are brown and rough? - Which of these objects are round and green? - Written Observations: Use properties to describe each of the objects.	Mission Log p.	
Online Module Lesson 6: Choose the Right Material	Objectives: - Students review how the properties of materials help determine what materials to use when designing a new object. - Students select materials for an intended purpose using the properties of those materials. Methods: - Choosing Materials Paragraph - Upcycled Car Drag and Drop	Online Module	NGSS: 2-PS1-1 2-PS1-2
The Art of Light (2-3 of Days)			
Hands On Activity 3 Light Shining Through	Objectives: - Students will explore the difference between transparent, translucent and opaque by conducting a light investigation. - Students will explain why light can pass through objects, partially pass through an object or not pass through an object.. Methods: - Students will make predictions about various objects to determine if they think light can pass through an object or	Student Mission Log p. 22 Flashlight Dark Room Balloon Empty Plastic Bottle. Full Plastic Bottle White Paper	NGSS: 1-PS4-2 1-PS4-3

	not. - After making their predictions, students will use a flashlight and various objects to determine if light does shine or does not shine through an object. This can be done whole group, student directed small groups or with a teacher/leader small group while other students are working on different activities. - Students will record their observations while conducting the experiment. - After completing the experiment and recording their observations, students will explain why light was able to pass through some objects, partially pass through or not pass through at all.	Dark Colored Paper	
Literacy Lesson 3 pgs. 25-30	Objectives - Students will explain how light casts shadows. - Students will ask and answer questions about shadows. - Students will collaborate with their peers to compare text to information in an image. Methods <u>Pre-Reading</u> - Students will use "question words" such as "how, why, did, when," to write two questions about what they see on pages 29-30. (Diet). They will also write one sentence explaining how Diet has used creativity to create his shadow art. <u>During Reading</u> - First Read - Read this section to model fluent reading. Model self-think by talking through what you've noticed about the photos on pages, 25-26. - Second Read - Think, Pair, Share - ask students to discuss why the bird's shadow is different from the tree's shadow. Have them discuss the reflection of the rainbow and ask students why the rainbow the child is holding has brown cardboard but the ground shows a dark gray/black color instead. <u>Post Reading</u> - Students conclude with Literacy Activity: Roll and	Student Mission Log, p.26 Writing Tools Dice	CCSS.ELA-LITERACY: - RI.1.2 - RI.1.5 - RI.1.6 - RI.2.7 NGSS: 1-PS4-2 1-PS4-3

	Chat where they discuss with one another questions about the text.		
Online Module Lesson 7: Light and Sight	Objectives: - Students review that objects can be seen when they are illuminated or when they give off light. - Students will identify objects that create their own light. Methods: - Light Source Paragraph - Image Choice: Which objects create their own light? - Firefly Joke	Online Module	NGSS: 1-PS4-2
Online Module Lesson 8: Light and Shadows	Objectives: - Students explain how shadows are formed. - Students identify the shape of a shadow for a given object. Methods: - Shadow Joke - Shadow Paragraph and Diagram - Reflect and Discuss: How are shadows created? Why are shadows different shapes, colors, and sizes?	Online Module	NGSS: 1-PS4-2 1-PS4-3
Online Module Lesson 9: The Art of Diet Wiegman	Objectives: - Students watch a video to observe and draw a model of a Diet Wiegman shadow sculpture. - Students explain how Diet Wiegman exhibits the life habit of creativity. Methods: - Diet Wiegman Paragraph and Video - Written Reflection: Draw and label a model of a Diet Wiegman sculpture. How does Diet Wiegman exhibit creativity?	Online Module Mission Log, p. 28	NGSS: - K-ESS3-3 1-PS4-2 1-PS4-3 1-PS4-4

Hands On Activity 4 Shadow Art	Objectives: - Students will use a drawing or physical model to create a piece of art using light to create shadows. Methods - Students will collect transparent and translucent recycled materials from around their homes/school and will use these items for their project. - Students will go through a mini-design process to think through how they will create their shadow art. - Using the recycled materials, students will create a piece of art that uses light shining through the materials to create a shadow on the ground or wall. - After creating the shadow art, students will reflect on their process and decide if they want to make any revisions to their art project.	Materials Student Mission Log, p.29 Transparent and Translucent Recyclable Materials (items can be cut, glued, etc.) Scratch Paper ex: (old worksheets, scraps from previous art projects, packing paper from boxes, etc.) Scissors Hot Glue Gun Writing Utensils	NGSS: 1-PS4-2 1-PS4-3 Art Standards: - VA: CR1.1.1a - VA: CR1.2.1a - VA:Cr2.1.1a - VA:Cr2.3.1a
Using Sound to Communicate (2-3 days)			
Hands On Activity 5 Upcycled Instruments	Objectives: - Students will make predictions based on the properties of the materials to determine which items will vibrate and produce sound. - Students will create an instrument using recycled materials. Methods: - Before students explore the materials, teacher/adult will demonstrate how sound is made by vibrations sending energy waves to our ears by using a rubber band to show students how vibrations work. - Students will be provided with a variety of items with varying properties and will make predictions based on what they know about each object to determine if the object will produce sound.	Student Mission Log p. 31 Writing Tools Scissors Glue Variety of recycled materials such as: Cotton balls Leaves Sticks	NGSS: - K-ESS3-3 1-PS4-1 1-PS4-4 2-PS1-2 Art Standards: - VA: CR1.1.1a - VA: CR1.2.1a - VA:Cr2.1.1a - VA:Cr2.3.1a

	- After they complete their investigation, students will choose which materials they'd like to use to create an instrument. - Students have choice in creating whatever instrument they choose to create. Example: Student could choose to make a rainstick using an old paper towel rolls, scrap paper, rocks, and rubber bands	Paper Towel Rolls/Toilet Paper Rolls Nails, Screws, Washers, etc. Aluminum Cans (edges taped for safety) Plastic Bottles Bottle Caps Rocks, Pebbles, etc.	
Literacy Lesson 4 Pgs. 31-39	Objectives - Students will create a sound pattern to communicate a message. - Students will use diagrams to explain how vibrations create sound waves. Methods <u>Pre-Reading</u> - Ask students to brainstorm ways we use sound to communicate. Encourage students to be creative and think beyond cell phones. Have each student write their idea on a sticky note and then place all of the sticky notes on one chart paper. <u>During Reading</u> - First Read - Read this section to model fluent reading. Point out the diagrams on pages (x) and (x) explaining how sound travels. - Second Read - Draw attention to the description of "hardness" on pages (X) so students understand the hardness of an object affects the way sound vibrates which affects the sound it makes when hit against another object. <u>Post Reading</u> - Students will create their own form of communication using sound patterns. They will think of 2 short	Chart Paper Sticky Notes	CCSS.ELA-LITERACY: - RI.1.2 - RI.1.5 - RI.1.6 - RI.2.7 NGSS: - K-ESS3-3 1-PS4-1 1-PS4-4 2-PS1-2

	directions to give and design a sound pattern to go with each direction. Example: • Come here (clap, stomp) • Take your shoes off. (Clap, Clap, whistle, ding) • Students will teach either the class or a small group what their sound pattern means. The students will listen to the sound pattern and follow the directions the sound pattern represents.		
Online Module Lesson 10: Upcycled Instruments	Objectives: • Students observe images of upcycled instruments. • Students select materials to use in an upcycled drum based on the properties of those materials. Methods: • Upcycled Instruments Image Slide • Choosing Materials Image Choice • Written Response: Explain how you decided which objects could be used to make an upcycled drum. Then draw and label a model of an upcycled drum including upcycled drum sticks.	Online Module Mission Log p. 35	NGSS: • K-ESS3-3 • 1-PS4-1 • 1-PS4-4 • 2-PS1-2
Online Module Lesson 11: How are Sounds Created?	Objectives: • Students observe videos of musical instruments vibrating. • Students review how sound is created and how it travels to a person's ear. Methods: • Musical Instrument Video Observations • How Sound Travels Paragraph and Diagram • Reflect and Discuss: Why does your upcycled instrument make sound? How does the sound of your instrument travel from the instrument to a listener?	Online Module	NGSS: • 1-PS4-1 • 1-PS4-4

Online Module Lesson 12: Sound Waves	Objectives: - Students review that sounds have different volumes and pitches because of the shape and size of the sound waves they produce. - Students identify objects that make loud and quiet sounds. - Students identify objects that make high and low pitch sounds. Methods: - Sound Waves Paragraph - Volume and Pitch Drag and Drop - Loud (drums, lion, helicopter) - Quiet (mouse, rabbit, whisper) - High (crying baby, chirping bird, whistle) - Low (garbage truck, volcano, drum)	Online Module	NGSS: 1-PS4-1 1-PS4-4
Online Module Lesson 13: Time to Take Action	Objectives: - Students review that they will be hosting an exhibit for their Take Action Project. Methods: - Take Action Preview Paragraphs and Images	Online Module	
Take Action Project (2-3 days)			
Poster	Objective: - Students create a poster with information about their art exhibition. Methods: - Students will create a poster to display in their communities and/or on social media. The poster will contain: - Time - Location	- Poster Board/Cardboard (upcycle another poster board when possible) - Drawing Tools - Scissors - Glue	CCSS: Comprehension and Collaboration 1,2 Presentation of Knowledge and ideas 4-6

	○ Date ○ What kinds of art will be on display at the show This is a great opportunity to visit the art room or look through old projects to find recycled cardboard/posterboard to create this poster.		
Art Exhibition	Objective: ● Students will write a 1-2 minute speech teaching others about waste, properties of light and sound and how upcycling can help reduce our waste problem. ● Students will present their art and speech in front of their peers. ● Students will listen to their peers and respond to their peers. Methods: ● Ask students to use the Plan it Out page in their Student Mission Log/Take Action Booklet to plan their speech. ● Students need to list the materials they used to create their instrument and shadow projects along with the categories of waste for each material. ● Have students display their art with the materials list.		CCSS: Comprehension and Collaboration 1,2 Presentation of Knowledge and ideas 4-6
Share & Reflect (1-2 days)			
Share	Art Exhibition Before the event, students will display their posters around their schools, communities, homes, etc. You can share the student's posters on your social media platforms, ex: Class Dojo, Remind 101, Schoology, Twitter, Facebook, Instagram, etc. Encourage students to memorize and practice reciting their 1-2 minute speech about their art projects and how their art projects used upcycling to turn waste into art. The art show can be as elaborate as you wish, but the focus		21st Cent Framework CCSS.ELA-LITERACY:

	should be students displaying their upcycled art projects using both sound and light so that guests can learn how they can help reduce the waste problem by upcycling.		
Reflect	Students complete a reflection to think about ways they can practice creativity, what they have learned throughout this module and then share their responses with a partner.		21st Cent Framework

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)
- 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 Student Mission Log (worksheet size) or Hands-On Activities PDF (center size)	8.5 x 11 paper	Single-Sided