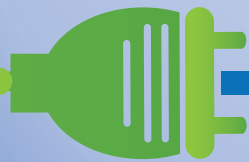


**TEACHER
GUIDE**

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Introduction

April 22, 2020 marked the 50th anniversary of Earth Day. Even after 50 years of celebrating Earth Day, there is still much to do. However, according to the Earth Day Network (earthday.org), there is great hope for “a global outpouring of energy, enthusiasm and commitment to create a new environmental paradigm.” This generation can be the driving force behind this renewed enthusiasm, and can bring others, such as parents and teachers, along with them! In these lessons, you get to excite students about the ways they can make a difference.

Students will:

-  **prepare** themselves by learning about energy efficiency, renewable energy and environmental conservation, and what their peers are already doing to take action in these areas.
-  select a topic and craft a message in the form of a Public Service Announcement (PSA) to **inspire** others to take action to save the environment.
-  be **EM-powered** to take their message into the community and invite others to take action to preserve the Earth!

The lessons are aligned to both the Science and Engineering Practices from the Next Generation Science Standards (NGSS), the Ten Themes of Social Studies from the National Council for Social Studies (NCSS), the NYS Social Studies Practices and themes, the New York State English and Language Arts (ELA) standards and the Core SEL Competencies from the Collaborative for Social, Academic and Social Learning (CASEL).



Lesson One - Prepare

Overview: 90-120 minutes

Alignment to National Standards:

[NGSS Practice 1](#): Asking questions and defining problems

[NGSS Practice 8](#): Obtaining, evaluating and communicating information

[NGSS MS-ESS3](#): Earth and Human Activity

[NCSS Theme 3](#): People, places and environments

[NCSS Theme 5](#): Individuals, groups and institutions

[NCSS Theme 8](#): Science, technology and society

[CASEL Core Competencies](#): Social Awareness and Responsible Decision-Making

[NYS ELA Standard 4W5](#): Draw evidence from literary or informational texts to respond and support analysis, reflection and research by applying grade 4 reading standards.

If using EXTENSION ACTIVITY in Activity 2, the following standards are also covered:






[NYS ELA Standard 3W3](#): Write narratives to develop real or imagined experiences or events using effective techniques, descriptive details and clear event sequences.

[NYS ELA Standard 5W3c](#): Use a variety of transitional words, phrases and clauses to manage the sequence of events.

[NYS ELA Standard 6W3c](#): Use a variety of transitional words, phrases and clauses to convey sequence and signal shifts from one-time frame or setting to another.

FACILITATION TIPS:

Activity 1: GATHER INFORMATION AND EVIDENCE

-  Students will explore three main areas related to saving the environment. Some useful online resources are listed below, but you may want to collect other resources in advance to have available for students. Not all the online resources provided are geared towards students, so consider reviewing them before the students to collect useful information.
Students are instructed to work with a partner to select and explore one of the suggested websites. Feel free to assign students to larger groups to accommodate your classroom size and needs.
-  Students will use the table provided to collect information from their selected site. Each website presents a significant amount of information and students will not be able to explore everything in one class period. Encourage students to do a high-level review of the information presented.
-  Consider setting a time limit and prompting students to complete each section of the table at set times. For example you can provide 35 minutes for the overall activity.
 - **Review Website** - 10 minutes - Instruct students to spend the first 10 minutes reviewing the website.
 - **Review and Notice** - 10 minutes - Have students spend the next 10 minutes going over the site again and looking specifically for information for the “notice” column.
 - **Wonder** - 5 minutes - Next, have students spend 5 minutes and move onto completing the ‘Wonder’ column.
 - **Review Findings** - 5 minutes - The last five minutes can be spent collecting any final thoughts from their final review.
-  After reviewing their selected websites, students will explore the three main concepts using the information they collected and any additional resources such as textbooks, other websites, etc. While defining these terms, students may encounter words they do not know. Consider keeping a running list of these words on display in the classroom and with their definitions for future reference.
-  Students will submit a summary of their research to be shared with the class. The summary can be in the form of a written paragraph, tables or charts or even a creative drawing. Depending on your classroom setting, these can be submitted in person or electronically. All submissions can be compiled in one document and distributed to students to review and discuss. (If you have a larger class size, consider dividing the submissions into 3-4 separate

documents and distributing them randomly to the other students.) You can facilitate a class discussion based on the students' summaries using a variety of formats - as a full class in-person, in small groups using breakout rooms in a virtual meeting or using a discussion board or similar platform.

- 💡 COVID-19 CONSIDERATION: While the global pandemic has significantly impacted our daily lives and made them more challenging in some ways, there is also a lot of data showing a reduction in air pollution and improvement in other environmental areas. Consider taking additional time to explore this effect with students and discuss how changing the way we work, commute and live overall for just six months can have a significant and positive impact on the environment. This discussion can be a nice way to debrief Activity 1 together as a class and transition to the next activity.

Useful Online Resources:

<https://www.eia.gov/kids/index.php>

<https://www.conserve-energy-future.com/>

<https://www.energy.gov/eere/education/eere-energy-101-video-series>

<https://www.energy.gov/science-innovation>




Activity 2: IMAGINE THE FUTURE

- 💡 This activity can be completed individually, in pairs or small groups.
- 💡 Consider having a group discussion to think about what a day without power might be like before having students complete the activity. This will help students brainstorm ideas and think about all the many ways their daily life might be affected by a loss of power.
- 💡 Allow time for students to share their "imaginary day" with the class.
- 💡 EXTENSION ACTIVITY: Consider asking students to use their imaginary day timeline to create a cartoon strip of a day in the future without power. Students could create just one cartoon strip that would illustrate a day in the future without power, or they could create two cartoons (one representing a current day with power and another for a future day without power) in order to compare the two. This extension activity gives students an opportunity to use chronological reasoning as they place events in the order they would



happen and explore the concepts of correlation and causation. [This website from NCTE](#) has many examples of comic strip lessons and additional resources to support you in this extension activity:

Activity 3: LEARN THE ISSUES

-  You may want to refer back to the resources used in Activity 1 to help students explore the three main areas further.
-  Encourage students to think about examples of environmental conservation and efficiency from their own daily lives and the community around them.
-  As students share the points from each of the three main areas, consider making a list on the whiteboard or a poster in the classroom to refer to throughout the project.

Lesson Two - Inspire

Overview: 60-90 minutes (with individual student work outside of class)

Alignment to National Standards:

[NGSS Practice 1:](#) Asking questions and defining problems

[NGSS Practice 6:](#) Constructing explanations and designing solutions

[NGSS Practice 8:](#) Obtaining, evaluating and communicating information

[NCSS Theme 3:](#) People, places and environments

[NCSS Theme 5:](#) Individuals, groups and institutions





[NCSS Theme 7:](#) Production, distribution and consumption

[NCSS Theme 8:](#) Science, technology and society



[CASEL Core Competencies:](#) Social Awareness and Responsible Decision-Making

FACILITATION TIPS:






Activity 1: FIND SOURCES OF INSPIRATION

-  Several stories of young, inspirational leaders have been included in this lesson. Consider asking students to find more examples to share with the class.
-  You could add more examples of young leaders working for different causes and ask students to determine what they have in common with the leaders in the stories from this activity.
-  You may have all students read all the stories, or you can divide students into small groups and assign each group a story. If they read the stories in small groups, allow time for each group to share the leader from their story with the class.
-  After students have read the stories, leave time to discuss the listed questions as a class. Review the questions in advance so you are prepared to prompt students if they are hesitant to share or unsure how to answer the questions.

Activity 2: SELECT YOUR TOPIC

-  Students may have varying levels of experience with research and exploring topics. You may want to provide extra scaffolding and/or more detailed instructions for students who may struggle with this activity.
-  Consider reviewing topics with students before they begin their research. If you feel the topic they have selected is too broad, facilitate a discussion to help them select a specific topic on which they can focus for the PSA. Videos should be 30 seconds long, so focused topics will be important. (official submissions must be 45 seconds or less)

Activity 3: CREATE YOUR MESSAGE

-  While the first two activities can be completed during a regular class period, students will need more time to complete this activity. Plan time for students to work on their PSAs both in and out of class.
-  Consider having students work in small groups to create their PSAs. Each group can select a common topic and create a PSA to share with the class.
-  Be available throughout the process to assist students as needed. Creating the PSA requires multiple steps and it will be important to keep students focused and on task so they can create a high-quality product.
-  Consider using the Problem, Solution, Challenge/Action model presented in the Student Guide to facilitate a discussion to guide students as they are crafting their PSAs.
-  Encourage students to think creatively about their PSAs. The videos will be short and students will need to capture the audience's attention quickly.



Consider showing examples (provided below) of popular PSAs to inspire your students. These PSAs are not about the environment, rather they are meant to show students how they can share a very strong message in a very short period of time. As you share, encourage students to focus on the production elements used, rather than the message itself.

Fatherhood.gov

<https://www.youtube.com/watch?v=QPwIWDA6Brs>

U.S. Department of Transportation

"You could learn a lot from a dummy."

<https://www.youtube.com/watch?v=C5h2NF2xMYI&feature=youtu.be>

Partnership for a Drug Free America

"This is your brain on drugs."

<https://www.youtube.com/watch?v=GOnENVyIxPI>

NYC Emergency Management

"Don't wait, communicate."

<https://www.youtube.com/watch?v=tms-54eNlf8>

National Runaway Safeline

<https://www.youtube.com/watch?v=uDojWAtbOzU>

*OPTIONAL SOCIAL STUDIES LESSON

Lesson Three - *A Focus on Conservation*

Students will:



Prepare by learning about

- Human Interactions with the Environment including human adaptations and modifications.
- The negative consequences of human actions to the environment
- The impact on energy conservation and efficiency by human actions
- Conservation efforts made to protect the environment



Select a topic and create a message to **inspire** others to **take action** to save the environment.



Be **EM-powered** to take your message into the community and invite others to **take action** to preserve the Earth!

Overview: 90-120 minutes

Alignment to Social Studies Practices:

1. Gathering, Interpreting and Using Evidence,
2. Chronological Reasoning and Causation,
3. Comparison and Contextualization,
4. Geographic Reasoning,
5. Economics and Economic Systems
6. Civic Participation

<http://www.nysed.gov/common/nysed/files/programs/curriculum-instruction/ss-framework-k-8a2.pdf>

Alignment to Social Studies Practices:




Theme 4: Geography, Humans, and the Environment (GEO)

Theme 7: Civic Ideals and Practices (CIV)





Theme 9: Science, Technology, and Innovation (TECH)

Theme 10: Global Connections and Exchange (EXCH)

Activity 1: GATHER INFORMATION AND EVIDENCE

-  Students will explore three main areas related to human interaction with the environment and use of energy.
-  Students will use the graphic organizers to explore vocabulary terms associated with this theme (Human Interaction with the Environment). They should fill in the “vocabulary word map” following the directions for each phrase. They may use the internet to research the terms and teachers have the option to do it online.
-  Consider setting a time limit to complete the vocabulary based on age level.

Activity 2: HUMAN-ENVIRONMENTAL INTERACTION PICTURE CHART

-  Students will view each picture of Human-Environment Interaction on the chart. (Alternatively, click on the link for a picture.)
-  Students should decide which type of interaction is demonstrated in the description/ picture and explain their choice. Note: there may be more than one answer for each picture but students must explain their choice.
-  Keep the following definitions in mind in evaluating student responses:
 - Depend - people need things from the environment
 - Modify - people change the environment
 - Adapt - people adjust to the environment
-  Website for additional information <https://www.nationalgeographic.org/standards/national-geography-standards/14/>

Activity 3: LEARN THE ISSUES

A. Consequences of Adaptations and Modifications to the Environment

- Students will respond to each True or False statement. This can be done as a class as a way to assess prior student knowledge on the topic. The class can then brainstorm evidence to support or refute each response. Some possible responses are provided below.

Answer Key: Note there may be other acceptable evidence

1. We are not able to repair the negative impacts humans have had on the planet.

TRUE or FALSE

Evidence to support or refute the claim above:

- Modifying human behaviors.
- Conservation efforts and changing the energy consumption habits of humans
- New technologies such as biodegradable plastics made of plants rather than fossil fuels will also help solve some of our planet's environmental problems

2. Human activities have been linked to climate change.

TRUE or FALSE

Evidence to support or refute the claim above:

- Use of fossil fuels has been linked to climate change

3. Environmental conservation refers to efforts by humans to protect our planet and preserve its natural resources.

TRUE or FALSE

Evidence to support or refute the claim above:

- Recycling
- Energy conservation
- Any conservation effort would be acceptable as a response

4. Laws written to protect the environment have had no benefit.

TRUE or FALSE

Evidence to support or refute the claim above:

- Clean Air act, Marine Mammal Protection, Endangered species act

B. Be inspired to do something! (Silent Spring and/or the Majestic Osprey Readings)

- Teachers have the option to use one or both of the activities listed in the student guide depending on age level. Both activities are intended to demonstrate real solutions to environmental challenges.
- Steps for identifying a topic for further study on **conservation and protection of the environment**:
 - Problem
 - Solution
 - Challenge/Action

Note: Students and teachers may enjoy watching the osprey cameras live (or recorded) on Long Island:

<https://www.psegliny.com/wildlife/ospreycam>

PSEG Long Island Public Service Announcement Rubric

Instructions: Indicate the number of points awarded for each Section. For Section 1 and Section 2, the highest points awarded for each area assessed would be 12. For Section 3, the highest points awarded for each area assessed would be 8.

Section 1 Content	12	9	6	3
Effectiveness Score_____	creates a compelling story beyond facts and figures, makes a personal connection	creates a compelling story beyond facts and figures, does not make a personal connection	shares only facts and figures with no story, makes a personal connection	shares little facts and figures, does not make a personal connection
Presentation Score_____	graphics and setting are appealing, overall image coincides with message, students demonstrate use of presentation skills	graphics are appealing, setting is realistic, overall image coincides with message, presentation skills are average (not speaking enthusiastically)	graphics are mediocre, the overall image does not connect with message, students do not speak loudly and confidently	there are no graphics/student is difficult to hear
Message Score_____	targets appropriate audience, inspires viewers to take action to protect the environment and promote energy efficiency in recognition of Earth Day, students seem genuine in their message	targets appropriate audience, inspires viewers to take action to protect the environment and promote energy efficiency in recognition of Earth Day, however, lacks a connection to the audience	targets appropriate audience, lacks enthusiasm and therefore does not inspire viewers to take action to protect the environment and promote energy efficiency in recognition of Earth Day	does not have a target audience, fails to inspire viewers to take action to protect the environment and promote energy efficiency in recognition of Earth Day
Originality Score_____	PSA reflects original ideas while creating a fresh, unique product. The creativity is exceptional	PSA reflects an average degree of student creativity and use of original ideas	PSA reflects minimal creativity and minimal originality.	PSA is missing creativity and originality

Section 2 Technical Aspects	12	9	6	3
Visual Score_____	images are clear and crisp, lighting is appropriate and effective, students present themselves as rehearsed and ready	images are good, lighting is average, students present themselves as rehearsed and ready	images are shadowy, lighting is dull, students present themselves as needing more time to rehearse	images are unclear, lighting is dark, students seem unprepared
Audio Score_____	all dialogue is clear and easily heard	most dialogue is clear and easily heard	most dialogue is not clear but easily heard	dialogue is inaudible
Editing Score_____	edits are seamlessly made throughout to create a logical progression of story, audio and video are well-synced	edits are made throughout with little interruption to create a logical progression of story, audio and video are well-synced	edits are made throughout, but it is choppy with little progression of story, audio and video are well-synced	edits are made but it creates a choppy effect, it lacks sequence and cohesiveness
Section 3 Contest Rules	8	6	4	2
Score_____	PSA is 30-45 Seconds	PSA is 46-55 Seconds	PSA is less than 30 Seconds	PSA is more than 55 seconds
Score_____	PSA is created by team of 2-4 members and complies with all other Official Rules, It is clear that this is a team effort, with everyone contributing equally.	PSA is created by team of 2-4 members and complies with all other Official Rules, but does not appear to be an equal team effort		PSA is created by 1 person
Total Points				



How to upload your PSA video via Google Form

1. Go here: <https://forms.gle/Vwm4XwPkXfrg6Haz9>
2. Sign in
3. Fill out the form
4. Upload your student videos
5. Hit submit



Notes:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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