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ACTIVITY : 1 HR 15 MINS

Create Your Video Storyboard

Students work in their project groups to draft the storyboard for their video challenge that comprises the final product for the unit project. They combine knowledge from activities in this unit with guidelines from the project rubric to create a short, compelling, and impactful video for an identified target audience of their choice.

GRADES

6 - 8

SUBJECTS

Earth Science, Social Studies, Economics, Storytelling, Filmmaking

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3 PDFs

OVERVIEW

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For the complete activity with media resources, visit:
http://www.nationalgeographic.org/activity/create-your-video-storyboard/

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call2recycle
Leading the charge for recycling

DIRECTIONS

***Closing the Loop: Towards a Circular Economy* unit driving question**: How can we make our economy more circular, and why does it matter?

***The Secret Lives of Batteries* lesson driving question**: What are the steps and benefits of recycling lithium-ion batteries?

1. **Review key ideas about how to change the patterns of lithium-ion battery use and disposal to align with a circular rather than linear economy.**

- Prompt students to review their *Circular Economy Analyzer* from *The Second Lives of Batteries* activity. Lead a class discussion to elicit students' ideas about how to make the lithium-ion battery use and disposal process more circular than linear. Record their ideas in a public place, emphasizing the ideas that relate to the recycling of devices that use lithium-ion batteries but also allowing students to share other ideas, such as refurbishing devices or keeping them for longer amounts of time.
- In preparation for transitioning to their final product work, review the steps of recycling lithium-ion batteries (from the *How Call2Recycle Recycles Batteries* video (4:05) and provided on the *Circular Economy Analyzer: Lithium-Ion Batteries Answer Key,* both from *The Second Lives of Batteries* activity):
    - Batteries are crushed, shredded, separated, and melted to recover materials including pure lithium and other component materials that can be used to make new batteries or other products.
- Emphasize that students' final products should include both the ideas that they generated that expand beyond recycling in the first part of this step, as well as communicating these steps of recycling.

2. **Elicit students' ideas about the qualities of effective video messages or memes.**

- Remind students about the details for the final product for the unit project: a video challenge for students to create and share on social media. The aim of the challenge will be to encourage the target audience to take part in the circular economy by recycling used electronics such as cell phones, also known as e-waste. Videos should be 60-90 seconds long and include information about the limitations of linear economies and the solutions

offered by circular economies. The videos will also include information about how, when, and where to recycle electronic waste, with an emphasis on National Battery Day on February 18 and International E-Waste Day on October 14.

- With their final product in mind, ask: *What are some short video messages or memes that have been successful in communicating an important message?*

    - Encourage students to share school-appropriate examples. If time allows, consider showing two to three examples, such as the video *Earth Is Our Home—Let's Protect It* (1:13).

- Lead the class through a brief brainstorm to identify the key qualities that make the video message(s) successful. Highlight responses noting that the videos 1) quickly capture the attention of a target audience; 2) clearly communicate a key takeaway message; 3) provide ideas about how the viewer can take action; and 4) are brief and visually appealing.

    - Align these elements with the criteria that students will address in their own videos: a target audience, action steps for the viewer including relevant resources to do so, citing external sources, and visual appeal.

3. **Prompt project groups to collaboratively identify the main aspects that will be included in their video.**

- Organize students into their project groups from the previous activities in *The Secret Lives of Batteries* lesson. Distribute or provide access to the *Video Storyboard and Script* handout for each group.
- Direct groups to complete the questions on the first page of the handout, in which they will identify the target audience, how to make the video appealing and engaging, key ideas, and sources that they want to include in their video. Highlight the key qualities of a successful video message that the class identified in Step 1.
- Students should have already brainstormed and possibly decided on a target audience for their video during the last step of the *Digging into Lithium* activity. They may still need to finalize their collaborative decision at this point, whether through discussion, ranking, or voting.

    - Encourage students to consider their target audience as they decide how to make their video visually appealing and how to appropriately explain concepts and vocabulary. Point them to previous activities in the unit and the *National Geographic Glossary* for key terms and definitions to include.

    - Point students to resources they have used and created throughout the unit that can be used in their video, especially their *Circular Economy Analyzer* for lithium-ion batteries from *The Second Lives of Batteries* activity. Additionally, students should peruse the resources available on the *Call2Recycle* website, including *The Secret Life of Batteries*infographic that was introduced previously.

- Circulate to support groups as they address the questions. Promote students in collaborating on making decisions about what will be included in their video, even if the group is not able to come to consensus about every detail.

4. **Support project groups as they create their video storyboard.**

- As project groups complete the first page of the *Video Storyboard and Script* handout, have them check in to ensure they are on track and ready to move on to the storyboard and script. Provide additional time and resources from the unit as needed.
- Project groups can then continue with developing their storyboard and script.

    - Consider options to help groups complete the task and promote collaboration, such as having each group member in charge of a different part, or having different group roles (for example: Script Writer, Animator/Illustrator, Fact Checker). Students can divide the storyboard into different sections taking on different roles as they create their video challenge. Ensure students consult the *Final Product Checklist and Rubric* to make sure they structure their storyboard to include the required components.

5. **Direct project groups to identify the parts of their storyboard on which they want to receive feedback.**

- As groups finish up their storyboard and script, distribute the *Video Storyboard and Script: Peer Review Feedback Sheet* to each student. Assist students as they complete a self-evaluation of their storyboard and script using the *Final Product Checklist and Rubric*. They may decide to use highlighters and sticky notes in this step as they find evidence to support where they scored themselves on the rubric.
- Have students record what they want feedback on or assistance with on the top section of their *Peer Review Feedback Sheet*, for use in the next activity, *Peer Review: Video Storyboard.*

Tip

Step 2: Consider having a few school-appropriate examples of compelling video messages or memes ready to share with the class, in place of or in addition to eliciting ideas from students.

Informal Assessment

Students' storyboard drafts demonstrate their ability to communicate scientific information in a clear, coherent, and accurate manner that is appropriate to a purpose and an audience.

OBJECTIVES

Subjects & Disciplines

Earth Science

Social Studies

- Economics

Storytelling

- Filmmaking

Learning Objectives

Students will:

- Generate ideas about how to make the lithium-ion battery use and disposal process more circular than linear.
- Identify the key qualities of effective video messages.
- Collaborate to draft their video storyboard and script using clear, coherent, and precise language in order to inform a specific target audience why and how to recycle electronic devices that contain lithium-ion batteries.

Teaching Approach

- Project-based learning

Teaching Methods

- Cooperative learning
- Discussions
- Self-directed learning

Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
  - Information, Media, and Technology Skills
    - Information Literacy
    - Information, Communications, and Technology Literacy
  - Learning and Innovation Skills
    - Communication and Collaboration
    - Creativity and Innovation
  - Life and Career Skills
    - Flexibility and Adaptability
    - Initiative and Self-Direction
    - Leadership and Responsibility
    - Productivity and Accountability
    - Social and Cross-Cultural Skills
- 21st Century Themes
  - Environmental Literacy
- Critical Thinking Skills
  - Applying
  - Creating
- Science and Engineering Practices
  - Obtaining, evaluating, and communicating information

National Standards, Principles, and Practices

NATIONAL SCIENCE EDUCATION STANDARDS

- **DCI ESS3.A::**

Natural Resources: Humans depend on Earth’s land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

• **CCSS.ELA-LITERACY.WHST.6-8.2.D:**:
Use precise language and domain-specific vocabulary to inform about or explain the topic.
• **WHST.6-8.4:**
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NEXT GENERATION SCIENCE STANDARDS

• **Crosscutting Concept 5:**
Energy and matter: Flows, cycles, and conservation
• **MS-ESS3: Earth and Human Activity:**
MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment
• **Science and Engineering Practice 8:**
Obtaining, evaluating, and communicating information

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Highlighters
- Sticky notes

REQUIRED TECHNOLOGY

- Internet Access: Optional
- Tech Setup: 1 computer per classroom, 1 computer per pair, Projector, Speakers

PHYSICAL SPACE

- Classroom

SETUP

Start to plan for the Video Challenge Festival that will take place at the end of the unit for students to share their final products with peers, community members, and experts. If possible, consider a time of day outside of class time so that other people can attend and students can see videos from students in other class periods. Given that the final product is intended to be digital, a virtual film festival via an online video conferencing platform may be appropriate and simplifies the invitation of outside participants.

Depending on the time of year, plan the festival to promote National Battery Day on February 18 and International E-Waste Day on October 14. Finally, explore different options for sharing students' videos on social media in safe and appropriate ways; this may entail you as the teacher uploading to a shared platform rather than having students share on their personal accounts, especially if not all students have access.

GROUPING

- Large-group instruction
- Small-group work

BACKGROUND & VOCABULARY

Background Information

In today's internet-driven society, short videos are an ideal format for communicating information and ideas, especially in regard to changing individual behaviors to contribute to broader social change. For videos to have maximum impact, they need to:

1. quickly capture the attention of a target audience,
2. clearly communicate a key takeaway message,
3. provide ideas about how the viewer can take action
4. be brief and visually appealing.

Using storyboards to draft the narrative arc is crucial across all types of media, even short videos. The storyboard helps the creators define what the viewer will see and hear at each stage of the video before committing ideas to recording. It can even help groups figure out

their key message and how to best communicate that message. Finally, it will save groups time and energy by knowing ahead of time what they want to say and record to video.

Prior Knowledge

["Environmental and health impacts of mining lithium","How and why to recycle lithium-ion batteries","Circular versus linear economies"]

Recommended Prior Activities

- None

Vocabulary

Term	Part of Speech	Definition
circular economy	*noun*	a system of production that extends the lifespan of consumer goods by maximizing reusing and recycling, and minimizing throwing things away.
linear economy	*noun*	system where raw materials are collected and transformed into products, which are eventually discarded as waste.
recycle	*verb*	to clean or process in order to make suitable for reuse.
storyboard	*noun*	panel or series of panels where sketches are arranged in chronological order; used to prepare for a film, TV show, commercial, etc.

For Further Exploration

Articles & Profiles

- Ellen MacArthur Foundation: A circular economy for batteries to underpin renewable energy growth
- Viral Video Tip: To Make Better Videos, Start with a Storyboard

Video

- How to make a storyboard for a video in six steps