Option 10: Design Your Own Assignment- 5E Lesson Plan/Design Challenge
Save the Ocean T-Shirt Design Challenge
Jenny Eades

Big Concept/The Challenge:

First grade students will study ocean pollution, design a t-shirt to showcase how to help protect our oceans and ocean life, and will then present their design in front of a green screen creating "save the ocean" videos. Students will be given time to do ocean research as well as study ocean topics and will be given the freedom to use any of their sources while creating their t-shirt designs. Students will follow the design process, write their own scripts for the green screen, and complete their projects on their own, yet will share completed videos with one another.

This activity was retrieved from (see references for full reference):
https://www.teacherspayteachers.com/Product/Save-the-Oceans-and-Ocean-Animals-PROJECT-BASED-LEARNING-SCIENCE-PBL-2546521

NGSS Learning Standards:

K-2-ETS1-1   Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2   Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Colorado Academic Standards:

Science: Standard 2: Life Science
An organism is a living thing that has physical characteristics to help it survive.
*Analyze the relationship between structure and function in living systems at a variety of organizational levels and recognize living system's dependence on natural selection.

Disciplinary Core Ideas:

ETS1.A: Defining and Delimiting Engineering Problems
- A situation that people want to change or create can be approached as a problem to be solved through engineering.
- Asking questions, making observations, and gathering information are helpful in thinking about problems.
- Before beginning to design a solution, it is important to clearly understand the problem.

ETS1.B: Developing Possible Solutions
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ides for a problem's solutions to other people.

ETS1.C: Optimizing the Design Solution
- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

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Crosscutting Concepts:
Cause and Effect
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.

Problem Solving:
In order to solve this problem/design challenge, students will have to consider all the different research. Students will have to decide on the best possible solution and design to share with their given audience (parents and peers).

Declarative Knowledge Needed:
- The definition of pollution.
- Humans cause pollution.
- We (humans) are the only solution to pollution.

Procedural Knowledge Needed:
- Students will need to know how to draw and write.
- Students will need confidence to speak to a camera.
- Students will need to understand that designs sometimes need to be adjusted or altered when the first attempt does not turn out as anticipated.

Objectives:
1. I can research ocean pollution and the needs of ocean life.

2. I can ask and answer questions in written form about ocean pollution.

3. I can design using a sketch and create an image that shows ideas on saving oceans and ocean life.

4. I can present my design using green screen technology.

Engineering Design Process to be Used:
PBS Design Squad and NASA Design Process Model (Combined):
- Identify the Problem
- Brainstorm/Research
- Design/Ideate
- Build
- Redesign
- Share Solution

Timeline and Documentation:
Day One:
- Introduction and Identifying the Problem: 20 Minutes
- https://www.youtube.com/watch?v=xFPoIU5iiYQ
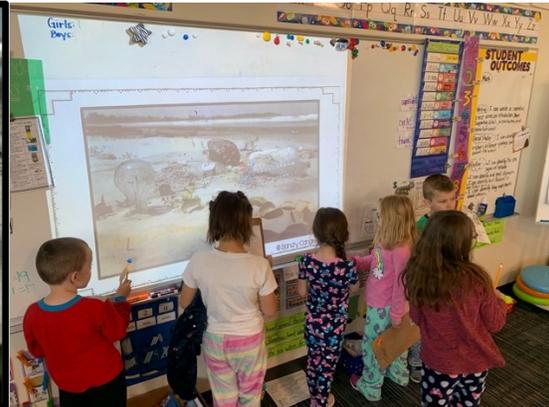
Day Two:

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- Show Ocean Pollution Photo and Discuss: 5 Minutes
- Students answer questions (writing) about the polluted photograph with partners (35 minutes).
- Students share answers on online platform- Seesaw (10 minutes).

Picture Used

Students Working

Students Working

Student Example

Template

During Stations: Students will research ocean pollution and the needs of ocean life (15 minutes). They will save all pictures and information to their individual I-Pad.

Day Three:
- Show Ocean Pollution Photo (different one) and Discuss: 5 Minutes
- Students answer questions (writing) about the polluted photograph with partners (35 minutes).
- Students share answers on online platform- Seesaw (10 minutes).

Picture Used   *Student Working*
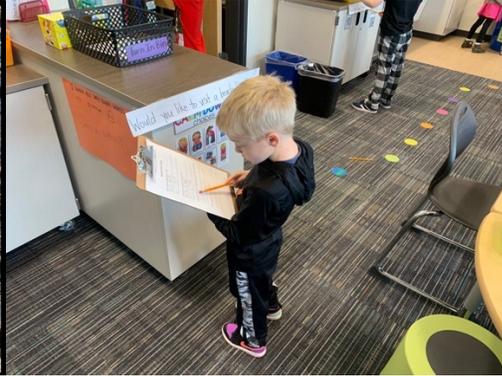
Student Example

During Stations: Students will research ocean pollution and the needs of ocean life (15 minutes). They will save all pictures and information to their individual I-Pad.

Day Four:
- Show Clean Ocean Photo and Discuss: 5 Minutes

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- Students answer questions (writing) about the clean ocean photograph with partners (35 minutes).
- Students share answers on online platform- Seesaw (10 minutes).
- Together as a class, compare answers from polluted pictures to answers from the clean ocean photo (10 minutes).

Picture Used	*Students Working*

During Stations: Students will research ocean pollution and the needs of ocean life (15 minutes). They will save all pictures and information to their individual I-Pad.

Day Five- Makerspace:
- Students will brainstorm t-shirt design ideas as a class (10 minutes).
- Students will ideate their own t-shirt design including a sketch (10 minutes).
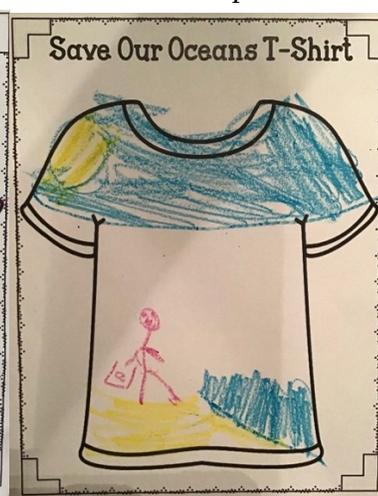- Students will design or create their own t-shirts (30 minutes).

Template	*Student Example One*	*Student Example Two*

Day Six- Writing
- Students will complete green screen writing template explaining their t-shirt design (30 minutes).

Student Example One   *Student Example Two*

Day Seven- Green Screen (Makerspace)
- Students will complete green screen videos and post to Seesaw accounts where peers and parents can view.
- Students will view one another's videos and comment any feedback.
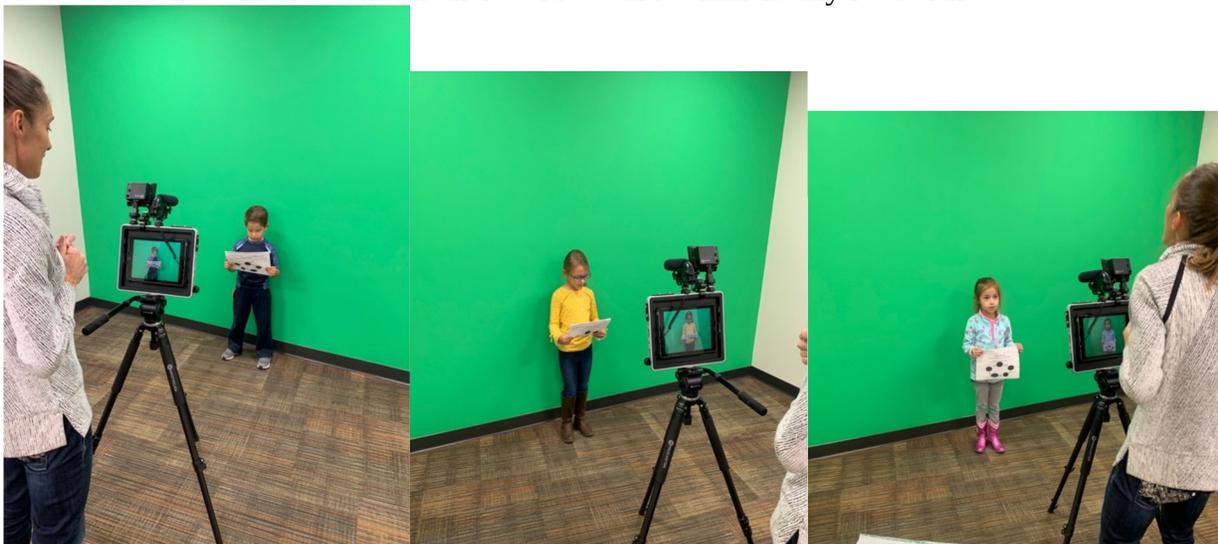
Here is a YouTube link to a completed video. We actually had to finish this video at home (using my first-grade daughter) because all the work we had done was on a video camera that got left at school when schools were closed. Our green background wasn't the exact color needed, but the concept is there.

https://www.youtube.com/watch?v=1R53sXoW4xE

References:

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