

LESSON 4: SOLUTIONS



**JESSICA SEGALL
SAY WHEN**

OVERVIEW

Artist Jessica Segall's short film *Say When* is set throughout the United States' Solar Energy Zones—250,000 acres of public land designated for solar infrastructure that is almost entirely unused. There, Segall walks through the desert landscape, holding a mirror to the sky to personify a heliostat, a centuries old technology that can be used to generate energy from the sun. Through dialogue and an activity, students will work to imagine a solar powered world.

Objectives:

1. Students will learn about the untapped potential of the Solar Energy Zones.
2. Students will imagine potential uses for solar energy.
3. Students will consider their ability to work collaboratively towards regenerative solutions.

Lesson Plan:

1. Introduction: 5 minutes
2. Screen Film: 5 minutes
3. Group Discussion: 15 minutes
4. Partner Talk: 10 minutes
5. Activity: 20 minutes
6. Conclusion: 5 minutes

Key Terms & Vocabulary:

Climate Change, Energy, Heliostat, Regenerative, Solar Power, Solar Energy Zone

Materials:

1. Provided activity sheets (to be printed)
2. Writing tools (pens, (colored) pencils, markers)

1 INTRODUCTION (5 MINUTES)

Welcome students.

Today, we will explore the untapped potential of solar energy and begin to imagine a solar powered world.

Q: What does the word solar mean or refer to?

A: The sun, energy, heat, warmth, light, sunrays

Q: Now let's merge the terms. What do you know about solar energy?

A: Energy from the sun, replacement for fossil fuels

Solar energy is light from the sun that can be used for anything that requires electricity in today's world. Before we continue our conversation on solar energy and solutions, let's watch the film.

2 SCREEN FILM (5 MINUTES)

We will now watch *Say When*, by filmmaker Jessica Segall. While the artist is based in Brooklyn, New York, this video was captured in the Southwest United States.



ACTION: As we watch the film together, please consider:

1. How would you describe the land and setting of the film?
2. How would you describe the artist's actions and movements?

3 GROUP DISCUSSION (15 MINUTES)

Take a moment to recall what we just saw in the film.

Q: What details did you notice in the film?

Q: What is happening?

The film is set throughout the Southwestern United States in the Solar Energy Zones, which are 250,000 acres of land designated by the federal government for solar infrastructure, but remain almost entirely unused.

Q: If active, what could the energy from the solar panels in the film potentially produce?

A: Heat, electricity, energy

Q: What are some benefits to the use of solar energy?

A: Reduce emissions, improve human health, fight climate change, reduce electricity costs, generate backup power for outages, support energy for marginalized communities, strengthen an electrical grid, contribute to a regenerative and energy efficient world, create jobs, etc.

Let's take a moment to consider the figure in the film, the filmmaker, Jessica Segall.

Q: How would you describe the figure's actions, garment, and relationship to objects?

Q: How did the artist interact with the sun?

Filmmaker Jessica Segall personifies a heliostat by holding a mirror and positioning it to reflect back the sun. This simple act in the film serves as a reminder of our collective ability to work towards sun-powered realities.

Q: If given the ability to activate or access energy from currently unused solar zones, what would you do with that energy? How would you use that energy to improve upon your community or the environment at large?

4 **PARTNER TALK: SOLUTIONS** (10 MINUTES)

Pair up with a partner sitting next to you. Work together to **interpret** the following quote by the artist, then **consider** the questions.

“ Artists have skills in visual storytelling, and in forging unexpected connections. We access the unexpected and illogical, opening up new ways of thinking.

- *Jessica Segall*

Q: How does the artist use visual storytelling to communicate with the viewers?

Q: What do you think the artist might be communicating about solar energy through her actions?

Ask pairs to share their response to the questions.

5 **ACTIVITY: HOME IS WHERE THE SUN IS** (20 MINUTES)

Students will learn a technique to track the sun in order to optimize use of sunlight for daily tasks.

While learning about solar energy as a solution can seem removed from everyday life, there are ways that we can use the sun in our daily routines. The sun is a resource that can be accessed from all over the world. Together, we will now learn how to track the sun as it moves across the sky throughout the day.

Q: Why might we want to learn how to track the pattern of sunlight?

Q: What are ways that we can use solar energy in our daily lives?

Q: Grow plants; dry clothing, food, etc.; treat water; generate heat; charge solar panels

Exactly! Each of these activities requires a different amount of sunlight. In this activity, we'll practice tracking how much sunlight you have access to in a given location so that you can determine how best to use it.

Step 1 Prepare your materials. Students will need the attached activity sheet (or graph paper) and colored pencils.

Step 2 Help students identify a location where they will **track the sun**. Students should choose a place where they can observe the sun for several hours.

Note: You will not be able to track the sun during this one-hour lesson. Ask students to track the sun as a take-home assignment and return it to class.

Step 3 Instruct students to draw the location where they will be tracking the sun. Instruct students to include all objects that cast a shadow at the site, including trees, plants or structures.

Step 4 Ask students to return to the location every hour for several hours.

1. Instruct the students to update their drawing every hour, recording where the sunlight hits (or is most prominent).

2. Students should mark the time of day for each recording

Step 5 Invite students to share their work with the class.

Closing Questions:

Q: How are our drawings similar or different?

Q: What did you learn by tracking the sun?

Q: What will you use this information for?

6 CONCLUSION (5 MINUTES)

Today we learned about solar energy through the film *Say When*. We discussed potential uses for solar energy and began to imagine a solar powered world.

Concluding Questions:

Q: What is something new or exciting that you learned about energy?

Q: How has this lesson impacted your relationship to the sun, if at all?

Q: What challenges do we face as we work towards a solar powered planet?

Q: What can we do in small ways to work towards that goal?

Q: Does anyone have any other questions before we conclude the lesson?

GLOSSARY

Climate Change (noun): A change in global or regional climate patterns, in particular a change beginning in the 20th century and attributed largely to the increased levels of atmospheric carbon dioxide produced by humans using fossil fuels.

Energy (noun): Power derived from the utilization of physical or chemical resources, especially to provide light, heat or electricity.

Heliostat (noun): An apparatus containing a movable mirror, used to reflect sunlight in a fixed direction. Heliostats can be used to generate solar energy.

Regenerative (transient verb): To regrow or be renewed or restored, with the intention to improve upon what has been damaged or lost.

Solar Power (noun): Solar power is energy from the sun that is converted into thermal or electrical energy. Solar energy is the cleanest and most abundant renewable energy source available.

Solar Energy Zone (noun): Areas of land protected by the government and designated for collecting renewable energy.

MAPPING THE SUN (ACTIVITY)

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1. Identify a location where you will track the sun (i.e. a windowsill, garden, or yard). draw the area below including any objects.
2. Track the sun by marking where the sunlight hits (is most prominent) every hour, for several hours.
Record the time of day with each mark.
3. Brainstorm activities that make use of the available sunlight (i.e. dry clothing, dry food, grow plants)