



# LESSON PLAN

## REDUCING OUR IMPACT ON EARTH GRADES K-2

### SUMMARY

Students will observe the effect of pollution on our water supply, evaluate the causes and develop possible solutions to reduce our impact. Duration: 45 minutes.



**K-ESS3-3.** Communicate solutions that will reduce the impact of humans on the land, water, air and/or other living things in the local environment.

Science & Engineering Practices	Connections to Classroom Activity
<p><b>Obtaining, Evaluating and Communicating Information</b></p> <p>Obtaining, evaluating and communicating information in K-2 builds on prior experiences and uses observations and texts to communicate new information.</p> <p>Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas.</p>	<ul style="list-style-type: none"> <li>Students will observe the effect of trash on our water supply through experimentation, evaluate the causes and develop possible solutions to reduce our impact.</li> </ul>
Disciplinary Core Ideas	Connections to Classroom Activity
<p><b>ESS3.C: Human Impacts on Earth Systems</b></p> <p>Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air and other living things.</p>	<ul style="list-style-type: none"> <li>Students will observe the effect of trash on our water supply, evaluate the causes, and develop possible solutions to reduce our impact.</li> </ul>

### ETS1.B: Developing Possible Solutions

Designs can be conveyed through sketches, drawings or physical models. These representations are useful in communicating ideas for a problem's solution to other people. (secondary)

#### Crosscutting Concepts

##### Cause and Effect

Events have causes that generate observable patterns.

#### Connections to Classroom Activity

- Students will observe the effect of trash on our water supply and evaluate the causes and effects.



## ENGAGE

Before the lesson mix up two cups of water, one with regular water and another that looks disgusting (mix in dirt, plastic, paper, etc.). Ask students which one would be safe to drink? Why? Ask students how water in our environment can get dirty. Tell them that we all need clean water, air and land to live on. If we do not take care of our air, water and land, it might not be usable for everyone. Tell students that today we will learn about how water can be affected by pollution and how we can keep it clean.



## EXPLORE

### Steps

1. Arrange students into four groups.
2. Fill four plastic containers 3/4 full of water.
3. Students can add trash to the water (oil, paper, plastic and dirt).
4. Students record and illustrate changes to the water after each item is added, for example the dirt makes the water muddy, the oil floats on top, the paper falls apart into tiny pieces, plastic floats at the top, etc.
5. Ask students for ideas on how it can be cleaned up.
6. Use tongs to remove large pieces of trash.
7. Filter the water into a new container to remove more trash.
8. Ask students if they have removed all the pollution. (Some, but not all.)
9. Since it is hard to remove all the pollution, brainstorm ways to prevent that water from being polluted in the first place.

## MATERIALS

- 8 Large clear plastic containers
- 4 Tongs
- 4 Funnels
- 4 Coffee filters
- Bottle of vegetable oil
- Pieces of plastic
- Paper
- Dirt
- Water
- Science journals

### DIY Activity

- Cup of glue
- 1/2 Cup of water
- Measuring cup
- Newspaper
- Brush
- Small bowl
- Paper plate
- Roll of plastic wrap
- Set of paint and a brush



## EXPLAIN



### WATCH THE GENERATION GENIUS REDUCING OUR IMPACT ON EARTH VIDEO AS A GROUP

Facilitate a conversation using the Discussion Questions.



## ELABORATE

Students can work in groups to create a poster for the school highlighting the 3 R's: Reduce, Reuse and Recycle. Posters should show the recycling symbol to look for and include drawings and labels of what common items should be recycled (paper, glass, plastic, aluminum cans). Include a drawing of a recycling bin, which is blue in most countries. If there is room, you can include ways to reduce such as taking shorter showers and shutting off the water when washing your hands or brushing your teeth.



## EVALUATE

Students can play the online Kahoot! quiz game located below the video which provides downloadable scores at the end of the quiz game. Alternatively, you can use the paper quiz or the exit ticket questions. All these resources are located below the video in the Assessment section.



## EXTENSION

Take a walk through the school grounds and see where people have made a negative impact on their school environment (ex: littering, not recycling certain items) and make a plan to correct that problem through an informational announcement, flyer or poster.

