

# Ripple Effects: An Introduction

Eco Explorers: Pre Activity

---

## Overview:

Introduce students to the concept of a 'ripple effect' through completing a ripple effect experiment using a bowl of water and 2 different objects (a stone and a bottle cap, etc...). Students will articulate their definitions of a ripple effect, based on their experiment observations, and discuss what a ripple effect might look like outside of that experiment.

## Lesson Planner:

Time Required	8-10 minutes
Key Concepts/terms	Ripple Effect, Cause, Effect, Impact
Setting	Classroom/distanced learning

## Standards:

### NGSS

**4-ESS3-1.A:** Natural Resources- Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.

**5-ESS3-1.C:** Human Impacts on Earth Systems- Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.

### MD Soc. S:

**5.4.A.3.A:** Explain how the development of new products and new technologies affected the way people lived.

**D.C:**

Grades 3-5: Chronology and Cause and Effect

3: Students explain how the present is connected to the past, identifying both similarities and differences between the two, and how some things change over time and some things stay the same

**V.A. Soc. S:**

USI.1:The student will demonstrate skills for historical thinking, geographical analysis, economic decision making, and responsible citizenship by:

g) Explaining connections across time and place

h) Using a decision-making model to identify the costs and benefits of a specific choice made

## Learning Objectives:

After completing this activity, students will be able to...

- define a ripple effect
- demonstrate an example of a ripple effect by completing the science experiment.

## Materials Required:

- Bowl of water
- 2 different small objects (penny, bottle cap, pebble, straw, etc...)
- Towel (or something else to clean up any mess made)

Optional Materials:

- Journal (for noting observations of experiment)
- Writing utensils
- Dictionary

## Procedure:

### Teaching Tips

- Keep this lesson centered around the experiment, what the students physically observed. Having that picture in their heads will help them to recall how the cause=effect relationship works, particularly with regard to the ripple effect. The goal of this lesson is to introduce the students to this concept, causing them to think differently about causes and effects, and provoke them to look at the world around them and identify the ripple effects.
- As time allows, allow students to deepen their understanding of this concept through discussion and further questioning. If, during the video that this activity is preparing them to watch, the students begin discussing to digest the video, facilitate that discussion. Let students ask questions and explore possible solutions/answers.

### Introduction

Instruct students at home (if distance learning) to acquire the appropriate materials for the experiment (listed in the materials section above), or gather the materials (if in class) for the students to use. Tell students that today they will be conducting an experiment to learn about causes and effects.

- Do not provide the objectives for this lesson, since they use the vocabulary you want the students to arrive at on their own.

### Activities

Complete a ripple effect experiment using a bowl of water and 2 different objects (a stone and a bottle cap, etc...).

- Have students make a prediction of what is going to happen to the water when they drop the heavier object into the water.
- Once they drop it, ask them to share aloud what they saw in 1 word (go around the classroom like Boomerang or 1 Word Share)
- Have them do the lighter object next.
- Instead of asking them what they saw the 2nd time, ask them what both objects did to the water (1 word again). Keep going around the class until they say the word 'ripples'.

- Ask students - did both objects make the same size ripple? (thumbs up, thumbs down). (if time allows, ask them why and allow students to articulate their thoughts)

Ask kids to define the Ripple Effect in their own words, based on what they just saw.

- Do this aloud (or have them write it in a journal, on a white board, etc...)
- Basic definition should line up with (an effect that continues after a specific situation, usually long in nature, seldom intentional).
- Their definitions may come from the water experiment they just did, but encourage them to think outside of that as they talk. (as time allows, introduce the idea that everything we do has effects, and can be an example of a ripple effect if it creates enough ripples).

## Conclusion

Confirm students learning by reiterating what a Ripple Effect is: begins with a single cause, and ripples out from that cause in the form of multiple effects. It doesn't just happen in water, but any situation where an action/idea/word is done/thought/said and the effects continue spreading like ripples on water.

Now that the students are familiar with what a Ripple Effect can be, have kids look for ripple effects in the Eco Explorers video as they watch.

### Optional During Video Discussion Questions:

- Is the pesticide better than the mustard seed? Why/why not?
- What was one positive way that the pesticide would've helped Cate Sharper?
- Were all African people living in America during 1770 enslaved? Defend your answer with proof from the video.
- Why do you think Hank decided to take those modern objects to 1770?
- What other modern objects do you think might fit that purpose and Hank might've taken to the Bolton farm too?
- Do you agree with the video's decision to leave behind the mustard seeds and candle? Why or why not?
- Did electricity exist in 1770? If so, why didn't they have flashlights and other electrical things? If not, when does electricity get invented, or was it invented at all?

## Background Information:

<https://westrme.wsu.edu/news/summer-2018-newsletter/ripple-effects-mapping-identifying-expected-and-unexpected-outcomes/>

Why should you have this conversation? Ripple Effects occur everywhere in society, past, present, and future. If we do not learn to identify them and think ahead of the ripples, we will continue to see only the object hit the water (not the possible effects that could destroy/damage the social fabric of our world). Living in a world where we are hearing words, seeing actions, and thinking ideas that can completely change how our current society is structured, we must think ahead to those ripple effects if we want to make long-lasting, positive impacts.

Ripple Effects are natural.

<https://www.extension.purdue.edu/article/34609#:~:text=Most%20people%20understand%20that%20nothing,is%20called%20the%20ripple%20effect.>

We need to understand that ripples in a puddle when you drop something into it are completely natural, but that doesn't mean the effects are natural. Our ideas, actions, and words can counteract nature and damage the ripple effects that were going on. Think about the introduction of plastic into our society - a ripple effect of plastic is pollution. When we fail to identify those negative, and positive, ripple effects, we fail to think long term about our actions/ideas/words. The results can, and possibly will, be monumental.

You are a Ripple Effect. As a teacher, administrator, person, you are the effect of something. Something drew you to the position, the role you currently play. Choices, actions, words, maybe not even your own, have propelled you into this space. You also are inciting a Ripple Effect everyday, when you teach or work. <https://www.youtube.com/watch?v=P1yyQnfrJzs>

It takes one person, willing to grow and think outside of their single drop in the bowl of water, realizing the ripples they have the potential to make and choosing to make them amazing. You can make a positive impact through the Ripple Effect, and by teaching your students about the impacts they can make, you are setting in motion a series of ripples that can revolutionize the world. Don't be a single drop, but a skipping stone, leaving positive, thought-provoking, inspiring ripples everywhere you go.

## Vocabulary

If applicable. lists pertinent vocabulary for the lesson.

Ripple Effect	the continuing and spreading results of an event or action.: "while their marriage made an impact on their friends, the ripple effect on family members was even more profound". Usually unintentional, but can be very impactful. Can be negative, positive, or a mix of the two.
Effect	a change which is a result or consequence of an action or other cause.: "the lethal effects of hard drugs" "politicians really do have some effect on the lives of ordinary people".
Cause	a person or thing that gives rise to an action, phenomenon, or condition.: "the cause of the accident is not clear".
Impact	the action of one object coming forcibly into contact with another.: "there was the sound of a third impact" "bullets that expand and cause devastating injury on impact".

## Modification(s):

If the water based experiment is not available or won't work with the type of classroom you teach, have students complete the above lesson procedure using the video below in place of the experiment.

- <https://www.youtube.com/watch?v=fQSnrB5bso>

Just like a water bottle can have a ripple effect on the community and world around us, there are many different actions, ideas, words, and choices that we do/speak/think/make every day that have a ripple effect on the world around us.

## Extension(s):

Ask kids if they've ever seen a ripple effect in another way (outside of water and objects falling into the water). If so, let them list off other 'ripple effects' they've seen. Capture that list on the whiteboard or in a chat (for distance learning) so students can reference that list during the Post Activity.

## References:

Where did all of the information in the lesson plan come from?

<https://www.teacherspayteachers.com/Product/THE-RIPPLE-EFFECT-A-Counseling-Strategy-for-Processing-Conflicts-1142729>

<https://www.theclasscouple.com/blog/archives/01-2015>

[http://www.scool.scholastic.com.au/schoolzone/toolkit/assets/pdfs/ripple\\_effect\\_blm.pdf](http://www.scool.scholastic.com.au/schoolzone/toolkit/assets/pdfs/ripple_effect_blm.pdf)

<http://www.sharethetouch.com/p/the-ripple-effect.html>

<https://www.npr.org/2019/11/10/777172788/studying-the-ripple-effects-of-shrinking-arctic-sea-ice>

<https://www.nationalgeographic.org/lesson/ripple-effect/>

<https://blog.nationalgeographic.org/2010/04/16/toilet-paper-wipes-out-27000-trees-a-day/>