Pop-Outs

7th Grade

This slide deck is intended to help guide you and your students through the sequence of each pop-out lesson, which focus on issues of social justice and the nature of science. Each pop-out may be implemented at any point throughout the corresponding unit as the content is intertwined with, yet independent of, the unit concepts; however we offer a timing recommendation in each teacher guide. While you may choose to use these slides as a helpful tool to prompt and facilitate students, all detailed information for each pop-out is in the student and teacher unit booklets.

Pop-Out 1: Environmental Ethics

Unit 1:
A Balanced Biosphere

How can humans interact ethically with ecosystems?

In Unit 1, you learned that humans change environments...

This poses ethical dilemmas. What are “ethics”?

Engage

Imaginary Case - Medicinal Flower in the Amazon

Individually,

1. Read about the imaginary case of the medicinal flower in the Amazon.

In groups,

2. Discuss the questions on your student guide and record in the table.

Would you make the medicine? Why or why not?

Explore

The Wolves in Yellowstone

Individually,

1. Read the article about the Wolves in Yellowstone.
2. Annotate using the strategies provided by your teacher.

How do wolves affect ecosystems?

https://www.youtube.com/watch?v=ysa5OBhXz-Q

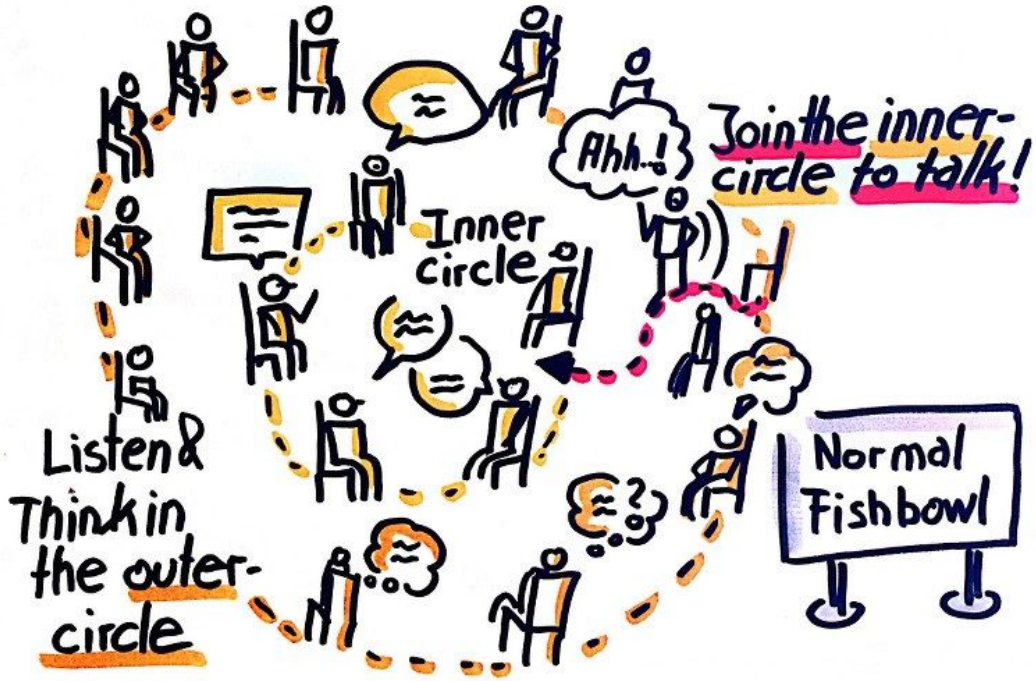
What would you do about the wolves in Yellowstone?

Discuss and respond to the questions in your student guide.

Explain

Fish Bowl - What would you do about the wolves in Yellowstone?

1. Group 1: In the inner circle, have a discussion about the wolves.
2. Group 2: Sitting in the outer circle, listen and take notes in your student guide.
3. Switch!



Elaborate

What are invasive species?

Invasive Species - New species that are purposely or accidentally introduced into an ecosystem that are not native to that region and can “take over” the ecosystem.

What should we do about invasive species?

Individually,

1. Read the Zebra Mussel Case Study.
2. Answer the questions in your student guide and prepare to share with a partner.

Evaluate and Reflection

Write an argument about ethics

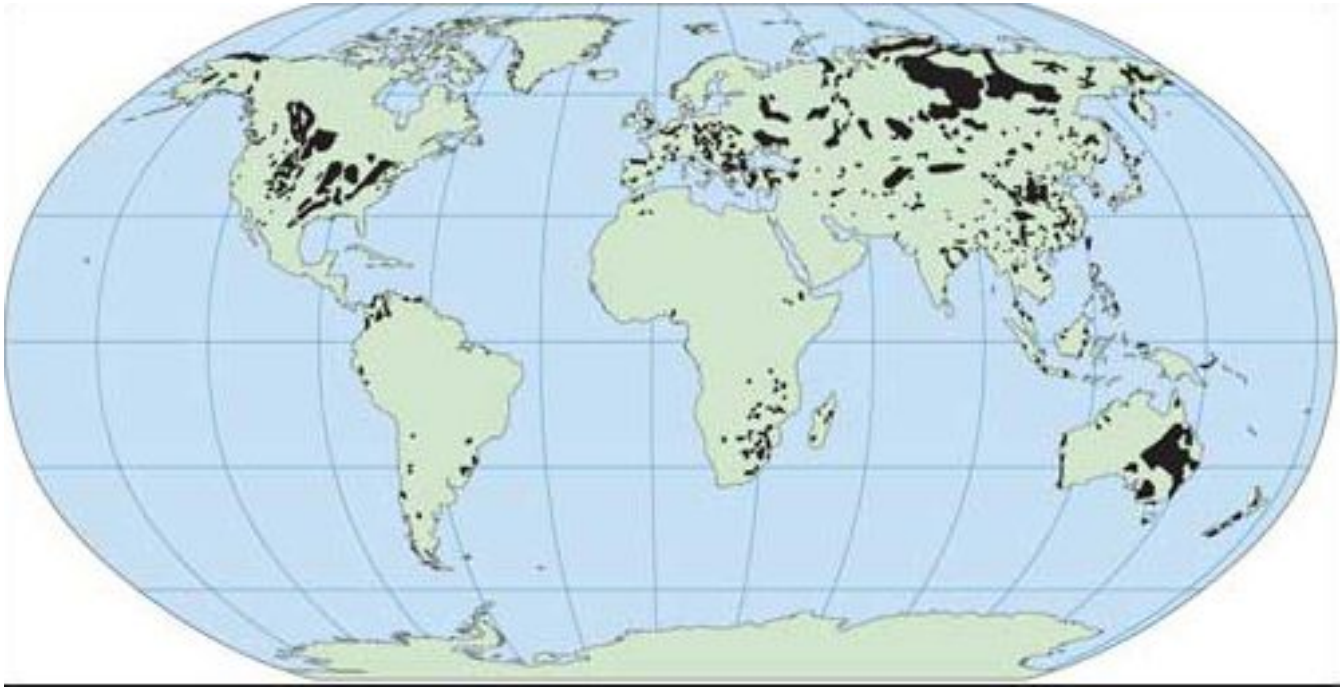
In these ethical situations, is the answer always black and white? Should we always side with the environment or always side with people? Why or why not?

Pop-Out 2: Natural Resources, Wealth, and Fairness

Unit 2:
Matter Matters

How do natural resources affect the wealth of a region and are they distributed fairly?

In Unit 2, you learned that natural resources are unevenly distributed around the world...



Who lives in the areas with the most resources? Are they being shared in a way that is fair?

Engage

Guess - Which income matches which continent?

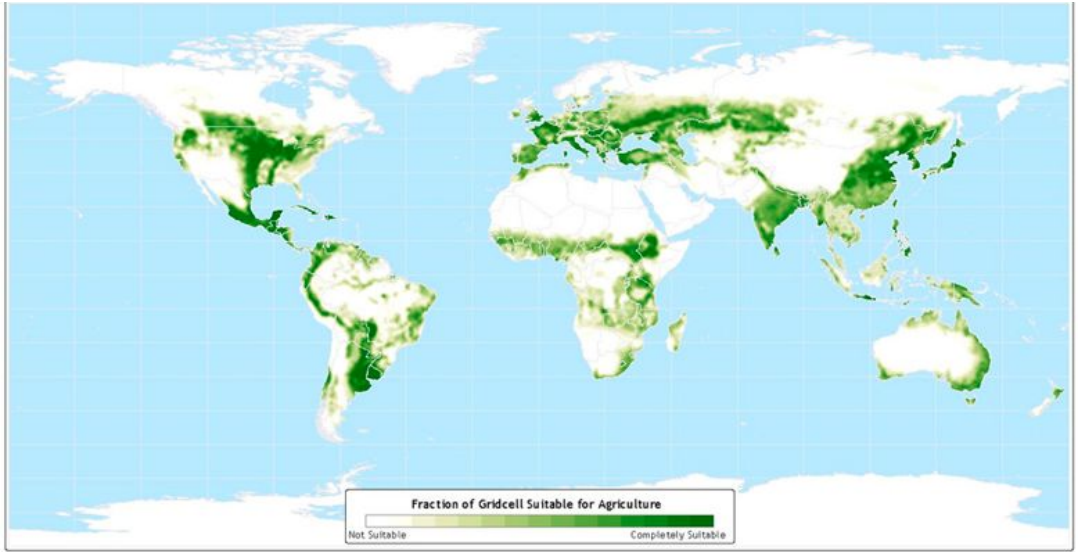
Continent	Income Per Person ($)
1	$5,441
2	$1,755
3	$27,242
4	$9,449
5	$49, 804

Why do you think this is the way it is?

Continent	Data Set	Income Per Person ($)
North America	5	$49, 804
South America	4	$9,449
Africa	2	$1,755
Europe	3	$27,242
Asia	1	$5,441

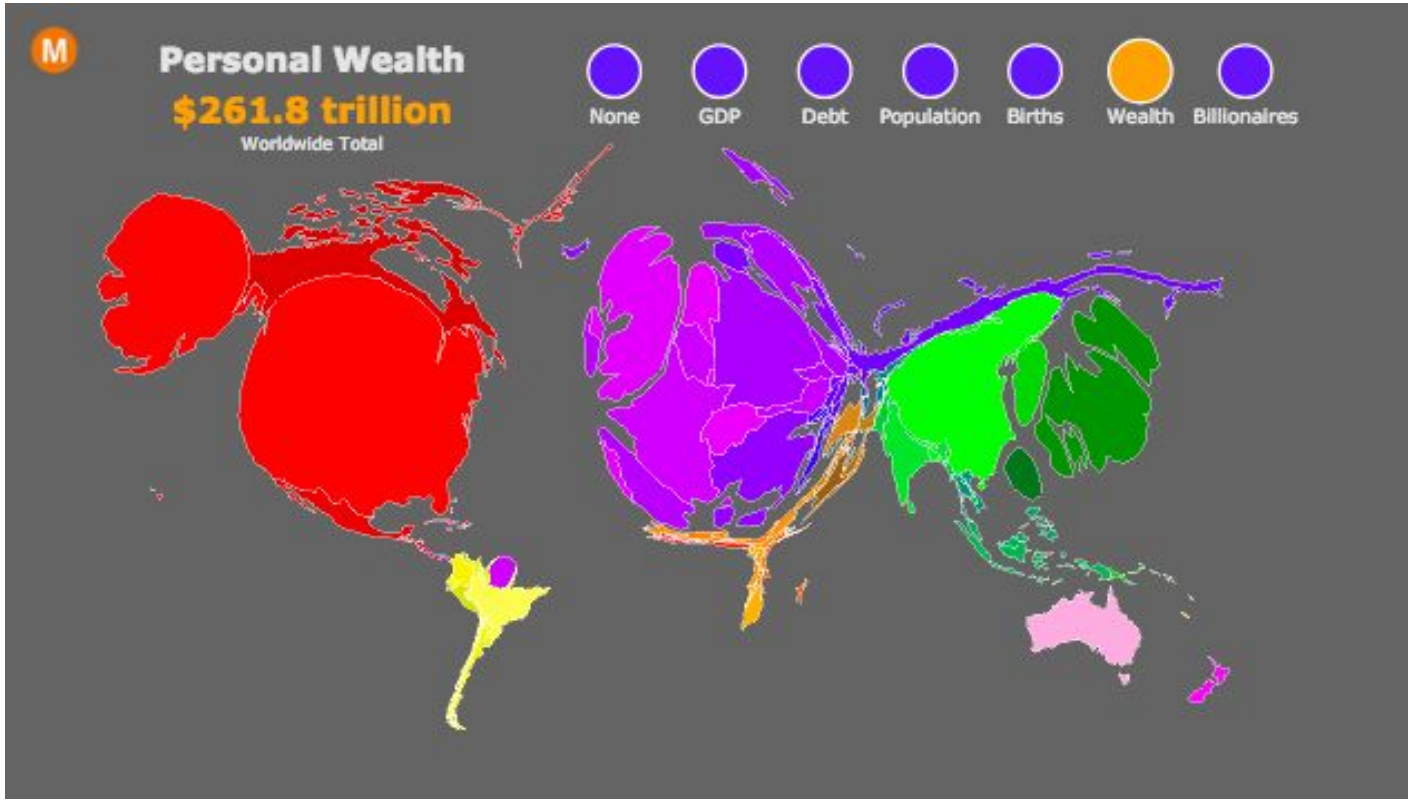
Explore

World Map - According to how well regions can grow crops



Agricultural Suitability - Represents the quality of the natural resources, water and soil, in an area

World Map - According to Wealth



Why do some areas have more wealth than others?

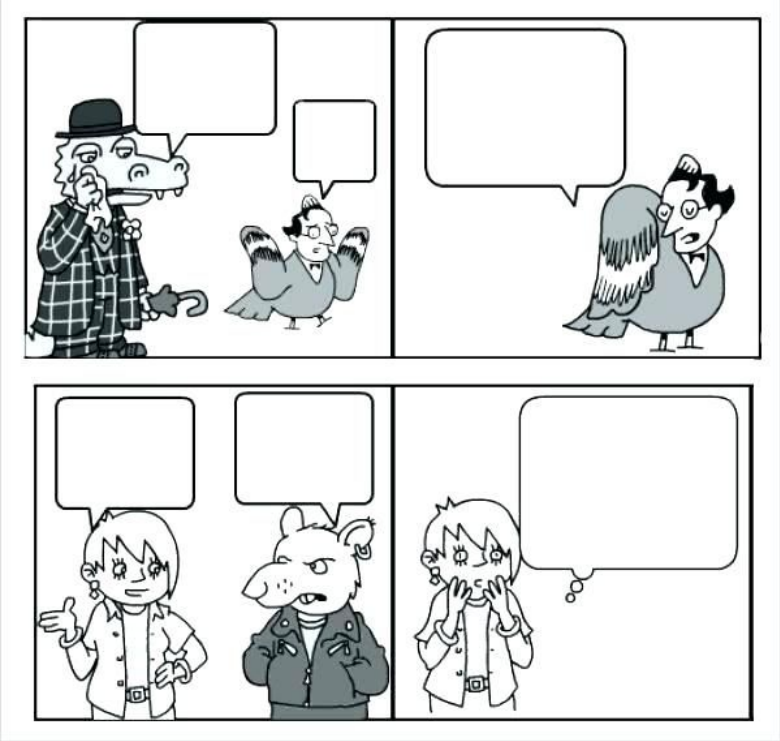
As a group,

1. Explore the article, map, and website.
2. Discuss and answer the questions in your student guide

Explain

Comic Strip - Are countries with more water and soil wealthier?

In partners, make a comic strip to share what you have learned about the question above. Remember, you can be creative!



Elaborate

How we choose to share resources also affects access

Food Desert - An urban area where it is really hard or really expensive to find fresh nutritious food

Food Deserts in Los Angeles

https://vimeo.com/39981136

As a class,

1. Watch the video about food deserts in Los Angeles.

Individually,

2. Discuss and answer the questions in your student guide.

Evaluate and Reflection

Connection Between Natural Resources and Wealth?

Individually reflect:

1. Is there a connection between location of natural resources and the wealth of those regions? Why do you think this is?

2. Is there a connection between the communities that have money and their access to natural resources like food? Explain.

Pop-Out 3: How Science Works

Unit 3:
Mimicking Nature's Design

In the scientific process, how does new evidence dispel misconceptions and change scientific knowledge over time?

This year, you have constructed lots of scientific explanations using evidence...

How can the availability of new evidence change our explanations of science over time?

Engage

True or False?

1. Plants breathe.
2. Plants only do photosynthesis.
3. Things just disappear (like rocks from a million years ago, or a sock in the dryer).
4. When something changes, it just changes--there are not different types of changes.
5. Plants get everything they need from the soil.
6. Sunlight helps plants grow by keeping them warm.
7. Plants need “plant food” to eat.
8. All rocks are the same, and we can’t tell where different rocks came from.
9. When someone burns a log, the log simply disappears.
10. Plants are not alive.

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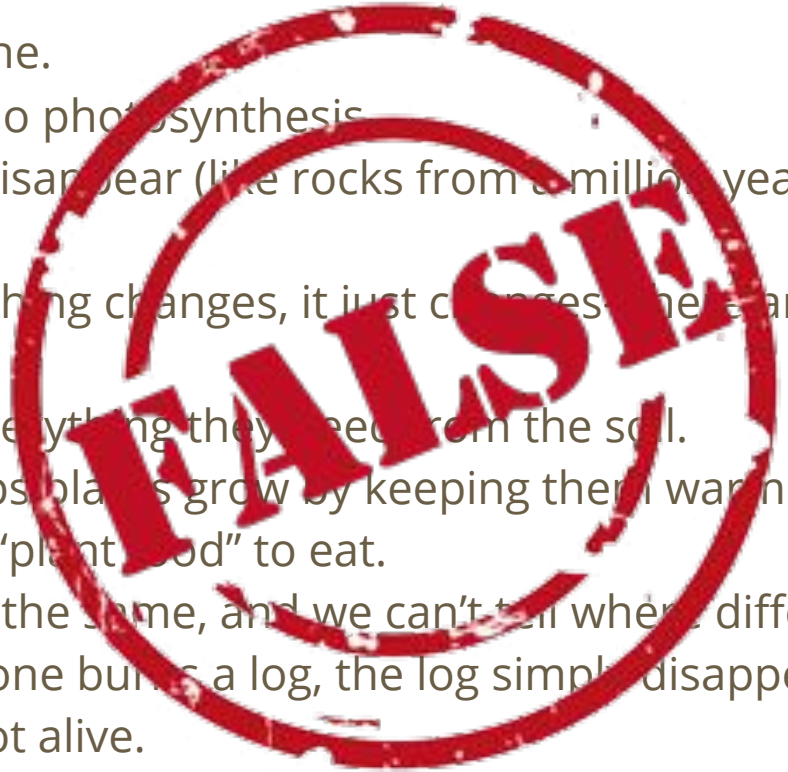
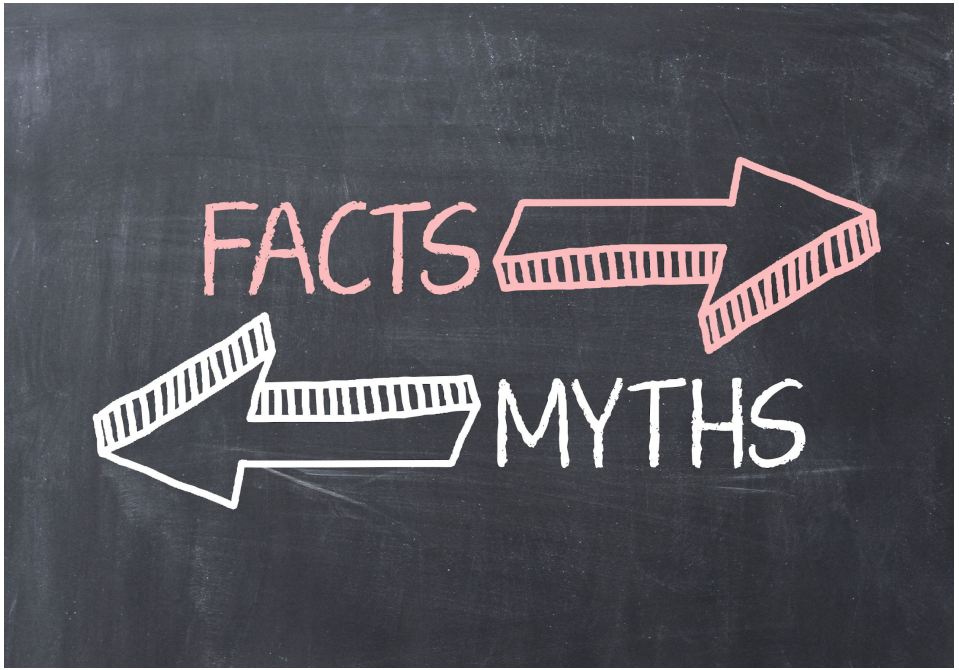


Explore

How do we discover that these are misconceptions and not scientific truths?



The Scientific Process: Using Available Evidence

As a group,

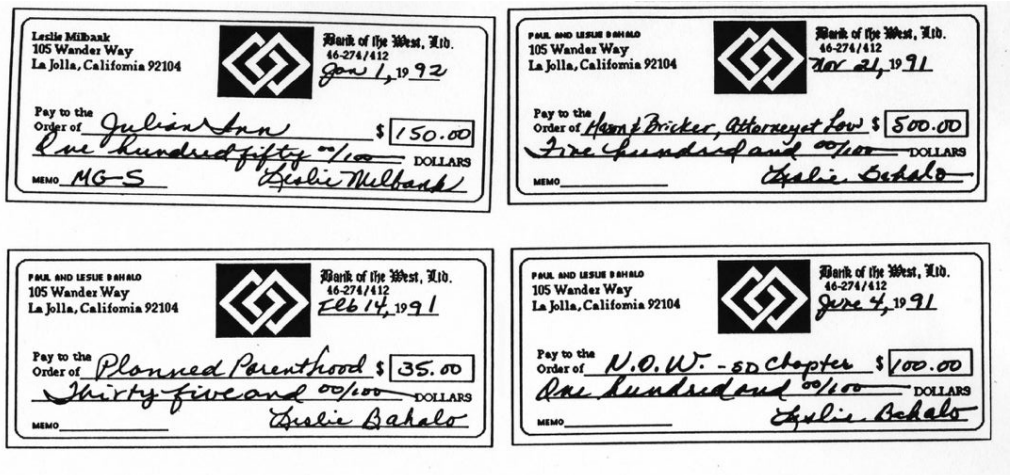
1. Pick **four** checks from your envelope.
2. Construct a reasonable explanation based on the evidence you have available. Record in your student guide.

3. Repeat twice, revising your explanation each time you pick four more checks.

Explain

Collaborate within a community of scientists

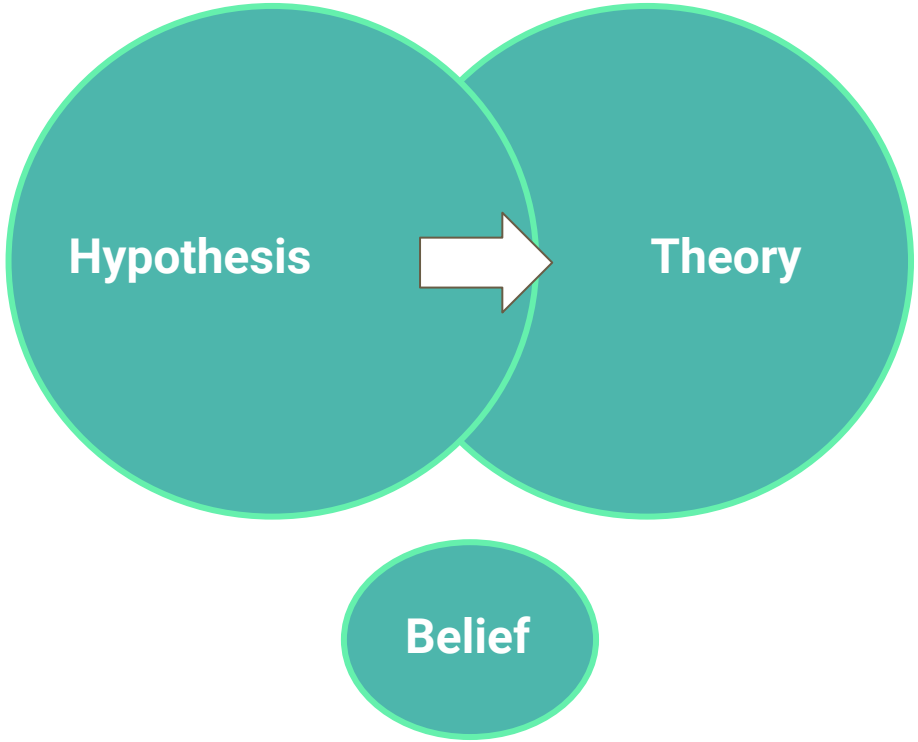
1. With other groups, discuss your explanations to gather more evidence.



2. Individually, write a final scientific explanation using all the evidence.

Elaborate

What did this teach us about the scientific process?



With your group, discuss and answer the questions in your student guide to reflect on the activity and think about the scientific process.

Evaluate and Reflection

What have you learned about how science works?

Individually reflect:

1. How do we use evidence to decide what is happening?

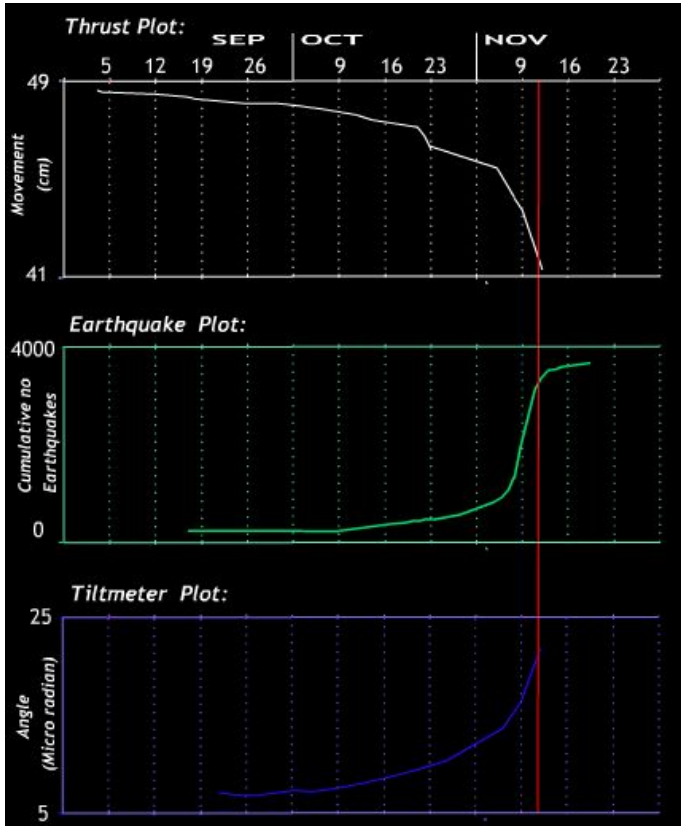
2. Is it possible to get different ideas from the same pieces of evidence?
    a. How does this lead to misconceptions in science?
    b. How do scientific ideas change over time?

Pop-Out 4: Who is At Risk in Natural Hazards?

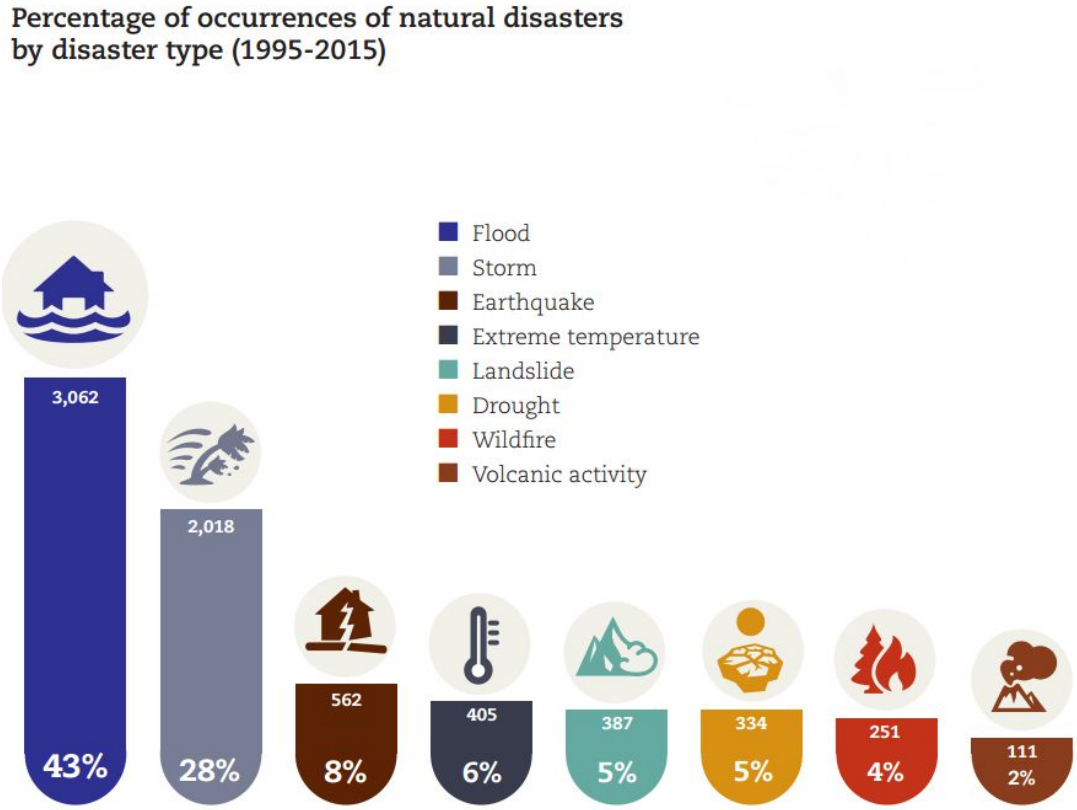
Unit 4:
Save the Andes!

Are different groups of people affected fairly by the aftermath of natural hazards?

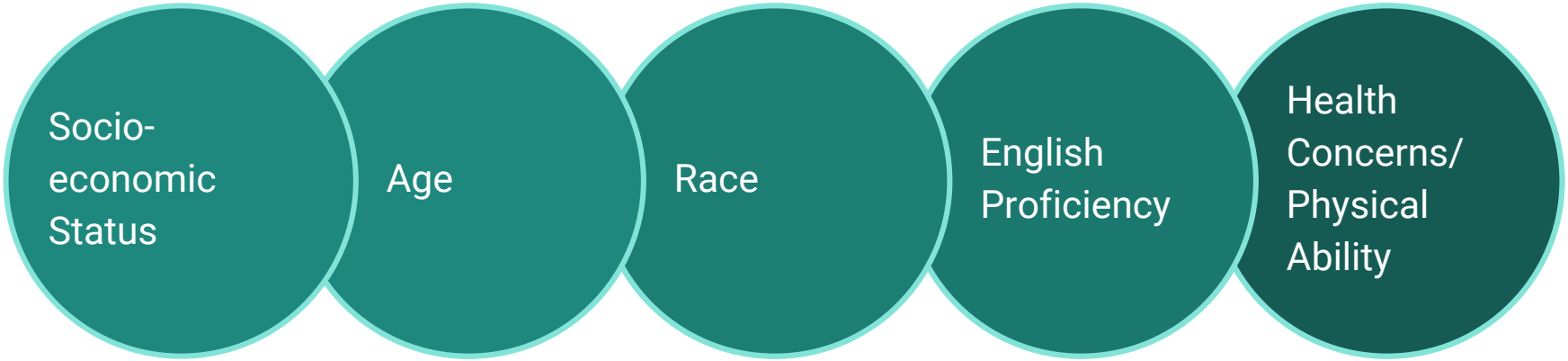
In Unit 4, you learned that we can forecast some natural hazards...



Natural hazards are happening more and more!



After a natural hazard, aid is not given equally



At-Risk Populations - People who need extra support in certain situations, like during and after natural hazards.

Engage

During a wildfire, why can’t some people evacuate?

Discuss with a partner and make a prediction in your student guide.

Explore

Why weren't some people able to evacuate during the Northern California wildfires?

LeRoy and Donna Halbur, the couple mentioned in the article.

1. Listen carefully to the article your teacher reads aloud.
2. In partners, discuss and answer the questions in your student guide.

Explain

Think-Pair-Share

First with a partner and then as a class, discuss:

1. What at-risk populations do you know are unfairly affected during fires and why?

2. You know from the introduction that there are other at-risk populations not mentioned in the Engage article. Which of these groups do you think might also be affected during fires and why?

3. There are other natural hazards, such as hurricanes, volcanic eruptions, tornadoes, etc. How do you think these groups might be affected during these types of natural hazards? Why?

Elaborate

Hurricane Katrina - New Orleans, LA

https://www.youtube.com/watch?v=HbJaMWw4-2Q

Who was unfairly affected after Hurricane Katrina?

Individually,

1. Read through the Hurricane Katrina Situation, using annotation strategies.

As a group,

2. Discuss the questions in your student guide.

What can we do better during and after natural hazards?

Individually write a letter to the New Orleans Mayor that includes:

1. An overall statement explaining what groups of people are more vulnerable in natural hazards.
2. Examples of how certain groups of people were impacted by the hurricane.
3. Ideas for how to address the problems in the future.

Evaluate and Reflection

Are different groups affected fairly during and after natural hazards?

Individually reflect:

1. Which populations are often more at-risk during and after natural hazards? Why?

2. In your opinion, is it fair that some populations are more impacted by natural hazards than others?