

Facts are Stubborn Things

Grade Levels: 9-12

Time Commitment: 50 Minutes

Subject(s): World History, American History, Civics, Economics

Overview: This lesson focuses on facts, data, and their usefulness in civil discourse, politics, and public policy. Students will be given a quick quiz (not for a grade) to assess their knowledge of several world trends. Students will then use a specific data set from the Our World in Data website to explain one particular aspect of our world.

Materials:

- Smartboard
- Student Handouts
- Computers
- Paper
- Printer
- Colored Pencils
- [Our World in Data](#)

Opener (10 Minutes):

1. Have students complete the Factfulness Quiz (Pages XX-XX) (based on the work of Hans Rosling, Ola Rosling, and Anna Rosling Ronnlund). Project the questions and have students write their answers on a piece of paper.
2. Go over the answers and have students check their responses.
3. Say: Many of us answered based on intuition or what we've heard in the news. Today we're going to investigate what the data actually says.
4. Ask students: Do you think people tend to be overly optimistic or pessimistic about global trends? Why is it important to base decisions on FACT rather than opinions or intuition?

Activity (25 Minutes)

1. Provide this prompt and ask students to think/pair/share what they think this means: John Adams said, "Facts are stubborn things."
2. Tell the students that they will work with a partner to research a dataset from the website [Our World in Data](#).
3. Assign each pair one of the popular pages on the webpage (CO2 Emissions, Population Growth, Life Expectancy, Poverty, Impacts of Food, War & Peace, Global Education, Artificial Intelligence, and Democracy).
4. Tell students they must select a data set from their assigned category. Give students the Facts are Stubborn Things Handout (Pages 3-4) to complete.

Closer (15 Minutes)

1. Ask partner pairs to team up with another pair and share their research.
 - a. While listening to the other team's research, they should record the topic, what they find most interesting, and why this data matters.
 - b. Then, ask for 3-4 pairs to share their research with the whole class.
 - c. Ask: Whom would you like to share your research with and why? (voters, politicians, volunteer organizations, etc.)

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Tips & Tricks for the Activity

- Have students complete the Factfulness quiz on personal whiteboards, or have them use the [online version](#).

Extension Activity Ideas

- If there is time for extended discussion:
 - Say: Hans Rosling said factfulness is “The stress-reducing habit of only carrying opinions for which you have strong supporting facts.”
 - Ask students to discuss how our interpersonal, community, and national discussions could be improved if we followed Rosling’s advice
 - Ask students: How might things improve? Is there any danger of relying only on facts when it comes to making decisions?
 - The late Senator Daniel Patrick Moynihan said, “Everyone is entitled to their own opinions, but not their own facts.” Do you agree? Why or why not?
- Use the data sets to make specific policy recommendations to a local elected official.

Modified Activity Ideas

- This lesson is a basic introduction to the importance of using data, research, and facts. This lesson could be easily modified to have a focus on any content area.
- Students who may struggle with abstract concepts could use data related to sports statistics or other more relatable topics.
- Pair students with other learners who have different strengths
- Assign more rigid roles to each group member to ensure everyone has a chance to participate.

Facts are Stubborn Things

Activity Handout

Name: _____

Block: _____

Category Assigned: _____

Data Set Selected: _____

What does your data set measure?

What conclusions can you draw?

What conclusions CAN'T you draw?

Choose ONE to answer:

- Did anything about this data surprise you? Explain why or why not.

OR

- What do you think people might be wrong about if they made an assumption about this topic without looking at the facts?

Pretend you had to explain the meaning of this chart/graph to everyone in your family/household—parents, grandparents, siblings, etc. In 2-3 complete sentences, how would you explain this to them? (Use your own words.)

Facts are Stubborn Things

Activity Handout

Name: _____

Block: _____

Why does this information matter?

Using colored pencils, draw your Data Set HERE

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Factfulness Quiz

Do your best to answer these questions about global trends

1. In all low-income countries across the world today, how many girls finish primary school?
 - a. 20%
 - b. 40%
 - c. 60%

2. Where does the majority of the world population live?

- a. Low-Income countries
- b. Middle-Income countries
- c. High-Income countries

3. In the last 20 years, the proportion of the world population living in extreme poverty has...

- a. Almost doubled
- b. Remained more or less the same
- c. Almost halved

4. What is the life expectancy of the world today?

- a. 50 years
- b. 60 years
- c. 70 years

5. There are 2 billion children in the world today, aged 0 to 15 years old. How many children will there be in the year 2100, according to the United Nations?
- a. 4 billion
 - b. 3 billion
 - c. 2 billion

6. The UN predicts that by 2100 the world population will have increased by another 4 billion people. What is the main reason?

- a. There will be more children (age below 15)
- b. There will be more adults (age 15 to 74)
- c. There will be more very old people (age 75 and older)

7. How did the number of deaths per year from natural disasters change over the last hundred years?

- a. More than doubled
- b. Remained about the same
- c. Decreased to less than half

8. There are roughly 7 billion people in the world today. Where do they live?

- a. 1 billion in the Americas, 1 billion in Europe, 1 billion in Africa, 4 billion in Australia and Asia
- b. 1 billion in the Americas, 1 billion in Europe, 2 billion in Africa, 3 billion in Australia and Asia
- c. 2 billion in the Americas, 1 billion in Europe, 1 billion in Africa, 3 billion in Australia and Asia

9. How many of the world's 1-year-old children today have been vaccinated against some disease?

- a. 20%
- b. 50%
- c. 80%

10. Worldwide, 30-year-old men have spent 10 years in school, on average. How many years have women of the same age spent in school?

- a. 9 years
- b. 6 years
- c. 3 years

11. In 1996, tigers, giant pandas, and black rhinos were all listed as endangered. How many of these three species are more critically endangered today?

- a. Two of them
- b. One of them
- c. None of them

12. How many people in the world have some access to electricity?

- a. 20%
- b. 50%
- c. 80%

13. Global climate experts believe that, over the next 100 years, the average temperature will...

- a. Get warmer
- b. Remain the same
- c. Get colder

Let's Check Your Answers!

1. In all low-income countries across the world today, how many girls finish primary school?
 - a. 20%
 - b. 40%
 - c. **60%**

Source: World Bank (63.2%)

2. Where does the majority of the world population live?

- a. Low-Income countries
- b. Middle-Income countries**
- c. High-Income countries

According to the World Bank, the **low-income countries** represent **9 percent** of the world population. **Middle-income** countries represent **76 percent** of the world population, and the **high-income countries**, **16 percent** of the world population.

3. In the last 20 years, the proportion of the world population living in extreme poverty has...

- a. Almost doubled
- b. Remained more or less the same
- c. **Almost halved**

The share of people living on less than \$1.9/day fell from **34 percent in 1993 to 10.7 percent in 2013**, according to the World Bank.

4. What is the life expectancy of the world today?

- a. 50 years
- b. 60 years
- c. 70 years**

The average global life expectancy for those born in 2016 was **72.48 years**, according to the Institute for Health Metrics and Evaluation. The United Nations population estimate is slightly lower, at 71.9 years.

5. There are 2 billion children in the world today, aged 0 to 15 years old. How many children will there be in the year 2100, according to the United Nations?

- a. 4 billion
- b. 3 billion
- c. **2 billion**

The UN Population Division predicts that the number of children in the year 2100 **will not be higher** than it is today.

6. The UN predicts that by 2100 the world population will have increased by another 4 billion people. What is the main reason?

- a. There will be more children (age below 15)
- b. There will be more adults (age 15 to 74)**
- c. There will be more very old people (age 75 and older)

In their forecasts, the UN experts calculate that just **1 percent** of the population increase will come from 0.37 billion **more children**(age 0 to 14).

69 percent from 2.5 billion **more adults** (age 15 to 74).

And **30 percent** from 1.1 billion more very **old people** (age 75 and older). The data comes from UN Population statistics.

7. How did the number of deaths per year from natural disasters change over the last hundred years?

- a. More than doubled
- b. Remained about the same
- c. Decreased to less than half**

Annual deaths from natural disasters have decreased by 75 percent over the past 100 years, according to the International Disaster Database.

8. There are roughly 7 billion people in the world today. Where do they live?

- a. **1 billion in the Americas, 1 billion in Europe, 1 billion in Africa, 4 billion in Australia and Asia**
- b. 1 billion in the Americas, 1 billion in Europe, 2 billion in Africa, 3 billion in Australia and Asia
- c. 2 billion in the Americas, 1 billion in Europe, 1 billion in Africa, 3 billion in Australia and Asia

9. How many of the world's 1-year-old children today have been vaccinated against some disease?

- a. 20%
- b. 50%
- c. 80%**

88 percent of 1-year-old children in the world today are vaccinated against some disease according to the World Health Organization.

10. Worldwide, 30-year-old men have spent 10 years in school, on average. How many years have women of the same age spent in school?

- a. 9 years**
- b. 6 years
- c. 3 years

Worldwide, women aged 25 to 34 have an average of 9.09 years of schooling, and men have 10.21. This is based on Health Data estimates from 188 countries.

11. In 1996, tigers, giant pandas, and black rhinos were all listed as endangered. How many of these three species are more critically endangered today?

- a. Two of them
- b. One of them
- c. **None of them**

None of the three species are classified as more critically endangered today than they were in 1996. The data is based on the IUCN Red List of Threatened Species

12. How many people in the world have some access to electricity?

a. 20%

b. 50%

c. 80%

A majority of the world population, 85.3 percent, had some access to the electricity grid in their countries (World Bank and IEA)

13. Global climate experts believe that, over the next 100 years, the average temperature will...

- a. **Get warmer**
- b. Remain the same
- c. Get colder

The correct answer is A. “Climate experts” refers to the 274 authors of the IPCC’s Fifth Assessment Report (AR5), published in 2014 by the Intergovernmental Panel on Climate Change.

42%

is the average score on this quiz, so don't feel bad if you didn't do well

Do you think people tend to be overly OPTIMISTIC or PESSIMISTIC about the state of the world?

Why is it important to base decisions based on FACTS instead of opinions or intuition?

Factfulness:

“The stress-reducing habit of only carrying opinions for which you have strong supporting facts”

-Hans Rosling

There are many reasons
people get stuff wrong.

Focusing on the FACTS
helps.



“Facts are Stubborn Things”- John Adams

With your partner, research a dataset using the Our World in Data website.

Complete the graphic organizer.

The screenshot shows the homepage of the 'Our World in Data' website. The header is dark blue with the site's logo on the left and navigation links in the center. On the right of the header are 'Subscribe' and 'Donate' buttons. Below the header is a horizontal bar with 'POPULAR PAGES' and a list of topic buttons. The main content area features a world map background with a large yellow text block and a search bar at the bottom.

Our World in Data

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