A Hill of Beans

Student Activity

Method:

Students compare the lifetime use of resources of an average American, an average human, and an average person from one of the poorest nations in the world, Malawi.

Introduction:

People use different amounts of resources over their lifetimes. In the U.S., we use a lot of resources, but how does the typical American compare to the average person in the world today? How do we compare to the average person in one of the poorest countries of the world? If we actually used beans to compare the amount of resources that different people use over their lifetimes, what would we discover?

Procedure:

1. Label each cup and can with the name of the area it represents: U.S., World, and Malawi.

2. Explain to students that we can use a variety of economic indicators to compare the standard of living from one region to another. One such indicator presently in common use is the **Gross Domestic Product**, or GDP, at **Purchasing Power Parity,** or PPP. GDP is a measure of all the goods and services produced in a country in a given year, a good measure of the economy of a country. PPP is a method of converting international currency to show its value in U.S. dollars. The GDP PPP divided by the population of a country provides insight into the general wealth of individuals within a country and can be used to approximate how much someone could spend. In the U.S., the per capita GDP PPP in 2014 was $54,629.[1] Some Americans spend more, and some less, than that over the course of a year.

3. We can estimate the amount of resources we will consume over our lifetimes by multiplying our annual spending by our life expectancy. The average American presently has a life expectancy of 79 years. So, assuming that the trend holds over time, the average American would spend $54,629 for 79 years, or a total of $4,315,691 over his lifetime.

4. How do we compare to other regions? Share the following chart with the class:

Region	Per capita GDP-PPP (2014 est.)	Life expectancy (2014 est.)	Lifetime resource use
United States[1]	$54,629	79	$4,315,691
World[1]	$16,400	71	$1,164,400
Malawi[1]	$821	61	$50,081

5. Now for the beans… of the three regions, people of Malawi, in Eastern Africa, have the lowest lifetime resource use: $50,081 over their 61-year lives. If the average person of Malawi gets one bean, how many, proportionately, would a person in the world as a whole the U.S. get?
(*23 and 86, respectively; 1/50,081 = x/4,315,691 to determine beans for U.S., for example.*)

6. In three separate cups, place 1, 23, and 86 beans.

7. Ask the students to close their eyes. Tell them that they're going to be listening for the lifetime resource use of the average citizen of Malawi. Drop the single bean into the jar labeled "Malawi."

8. Tell students to keep their eyes closed, and now you want them to listen for the lifetime resource use of an average person alive in the entire world today. Drop the 23 beans into the jar labeled "World."

9. Again, ask the students to keep their eyes closed, and now you're going to compare those people to the average American. Slowly drop the 86 beans into the jar labeled "United States."
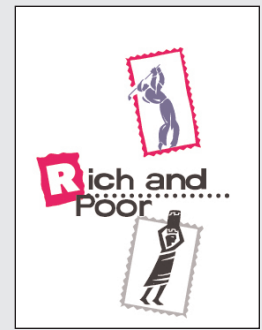
Concept:

The 321 million Americans accumulate more wealth, live longer, and consequently use more resources than people in other nations. This activity allows students to project the average American income over our lifetime and compare that to others.

Objectives:

Students will be able to:
• Compare demographic statistics.
• Understand "averages."
• Interpret the social and economic significance of disparities in quality of life indicators.

Subjects:

Social studies, economics, civics/government, mathematics

Skills:

Arithmetic, listening, critical thinking

Materials:

Dry beans (large beans such as kidneys or limas work best)
3 cups
3 large clear jars

Key Terms: **Gross domestic product, Purchasing Power Parity**

10. Display the jars with the beans in them so students can see the representations of the lifetime resource use of the different regions.

Discussion Questions:

1. What did you observe as we compared the resource use of Americans, average humans, and citizens of Malawi? *(Americans use far more resources than either of the other groups. Citizens of Malawi use far less than the average person in the world as a whole.)*

2. How would your life be different if you only had the resources of a person in Malawi? *(You would not be able to afford many of the luxuries that most Americans enjoy today. You may not have access to medical care or enough food to lead a healthy life. Many things we take for granted in our lives would not be affordable. For example, 47% of Malawians[2] have access to improved sanitation facilities and only about 2.2% have Internet access.[3] In comparison, nearly all Americans have modern sanitation facilities and 86% have Internet access (as of 2014).[3]*

3. Could the Earth support more people if we all lived like the people of Malawi? *(Yes, if people used fewer resources, our environment would support more people.)*

4. Would we be better off if we all lived like the average person in Malawi? *(No. The standard of living for the average person of Malawi is very low, and there are many deleterious effects of this standard of living on the health and welfare of the citizens of Malawi. For example, people in Malawi are at a very high risk of contracting major infectious diseases such as malaria, typhoid fever, and hepatitis A. Over 10% percent of Malawians have HIV[1]. We would also miss some of the things that are a part of our daily lives, such as toys, computers, phones, and televisions.)*

5. Why do Americans have a lifetime resource use so much higher than the other regions? *(We live longer and have more money to spend on goods and services.)*

6. Why do Americans live longer than the average people in our other categories? *(Many reasons, including better nutrition; better access to vaccinations, antibiotics, and other benefits of modern medicine; safer living and working conditions; increased access to clean water; nearly universal access to education.)*

7. Why do we have more money to spend than the other regions? *(Reasons include a relative abundance of natural resources, a highly educated population, an industrial infrastructure, a stable political system, etc.)*

8. Are there any ways that we, as Americans, could reduce our hill of beans without harming our quality of life? *(By finding ways to conserve resources like water, fossil fuels, food, paper products, etc.)*

9. Are there any ways that we could increase the hill of beans for other countries, such as Malawi? *(Malawi and other nations currently receive support from major international development agencies such as the World Bank and the International Monetary Fund, as well as from individual countries. The United States gave $35 billion in non-military foreign aid in 2015. This is more money than any other country, but a smaller percentage of its GDP than most other developed countries. There are many private groups working to improve access in other countries to lower-cost health care services and help the citizens of those countries to improve their economies.)*

Follow-up Activity:
Allow students the opportunity to calculate lifetime resource use and bean quantities for some additional regions of the world. Sample statistics appear below

Additional Regions

Region	Per capita GDP-PPP (2014 est.)	Life expectancy (2014 est.)	Lifetime resource use (using Malawi's LRU)	Beans
China[1]	$13,206	75	$990,450	20
Portugal[1]	$28,392	80	$2,271,360	45
India[1]	$5,700	68	$387,600	8
Mexico[1]	$17,107	75	$1,283,025	26

Assessment Ideas:
The follow-up activity described above offers concrete evidence of the students' grasp of the concept of *A Hill of Beans*.

[1] The World Bank, http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD

[2] World Health Organization, Joint Monitoring Programme for Water Supply and Sanitation http://www.wssinfo.org/data-estimates/tables/

[3] CIA, The World Fact Book, https://www.cia.gov/library/publications/resources/the-world-factbook/index.html