World Wealth
Grades 9-12

Introduction

In this activity students will experience mathematics as a powerful tool for understanding the world and making sense of data. Students will simulate the distribution of wealth throughout the world by dividing up cookies to model the amount of wealth on each continent. We like to use cookies for this activity. You can substitute some other model for the representation if cookies aren't your best option.

Agenda

Activity	Time	Description	Materials
Introduction and Work time	20 min	• Show students the map of the continents. • Ask each student to individually list the order of the continents by world wealth from greatest to least in their notebooks. Ask them to list the percent of world wealth they think is contained within each continent. • In this activity, we are going to consider 6 of the 7 continents; Asia, Africa, North America, South America, Europe and Oceana/Australia. • Share the World Wealth handout and ask students to calculate the missing percentages in World Wealth Table 1 Handout. We don't review how to calculate percentages. We let students work together in groups to figure it out. They can do it! • Make Table 1 on the board and ask students to fill in the percentages. If there is more than one answer for a given box pause and ask students to come to consensus on the answer for that box. • Have students work in their groups to complete Table 2.	• Continent Map, pg. 6 • World Wealth Table 1 and Table 2 Handouts

Whole Class Simulation	10 min	• Share the data as a class for Table 2. • Assign students to the different continents to represent the population in the class. • Once you have the correct number of students on each continent, hand out cookies based on the numbers students calculated to represent the wealth in the country. • Have a conversation with students: How many cookies does each student get on any given continent? What do you notice? What questions do you have?	80 – 100 cookies that are easy to cut into pieces. Vanilla wafers is a good option. Note, you can use a model other than cookies. It will need to be something that can be broken into pieces. Plastic knives

Activity

Introduce the World Wealth activity by asking your students what they know about the distribution of wealth throughout the world. Ask students to list 6 of the 7 continents in their notebook in order them from continent containing the most wealth to the least wealth. We are not considering the 7th continent of Antarctica in this activity.

Give students World Wealth Table 1 Handout. Ask them to complete the table. We don't review how to calculate percentages before the activity. If students work together in small groups they can discuss questions and figure out the calculations together.

At this time you have the option of collecting student responses to table 1 as a whole class. We like to collect student responses for each area and we hope that there will be more than one answer for a given box. More than one answer in a box can lead to a great conversation and often helps students make sense of the mathematics. We don't let on about which answer may be wrong or right. Students can figure this out for themselves and come to consensus on the values for each box.

Have students complete World Wealth Table 2 Handout. Let students know how many cookies you will be using. We recommend 80-100 cookies. A cookie like vanilla wafers work well for this activity.

You can substitute some other model for the cookies. It will need to be something that can be broken or cut into equal pieces.

As a whole class, share out the table as a whole class. What do students notice about the percent of wealth on each continent? Put the names of the continents around the room. Have the appropriate number of students in the class move to different continents to represent the population in the class. Once you have the correct number of students on each continent, hand out cookies based on the numbers students calculated to represent the wealth in the country.

Have a conversation with students: How many cookies does each student get on any given continent? What do you notice? What questions does it make you ask? What would you want to explore further?

Debrief the mindset message for the day.

Extensions
- Create a poster with a visual representation that communicates the data. Include what you noticed, what surprised you, and what questions you have.

Materials
- Continent Map, pg. 6
- World Wealth Table 1 and Table 2 Handouts
- 80 – 100 cookies that are easy to cut into pieces. Vanilla wafers is a good option. Note, you can use a model other than cookies. It will need to be something that can be broken into pieces.
- Plastic knives

Adapted from Charmaine Mangram

World Wealth
Table 1 Handout

1. Find the percentage of the world's population living on each continent.

2. Calculate the number of people in our class who would correspond to the percentages found.

3. Caluclate the percentage of the world's wealth for each continent.

4. Calculate the wealth of each continent in cookies.

Table 1: World Wealth Data				
Continent	Population (in millions) 2000	Percent of Population	Wealth (GDP in trillions of dollars)	Percentage of Wealth
Africa	1,136		2.6	
Asia	4,351		18.5	
N. America	353		20.3	
S. America	410		4.2	
Europe	741		24.4	
Oceania/Aust.	39		1.8	
Total	7,030	100%	71.8	100%

Population data According to: Population Reference Bureau (prb.org)
Wealth data according to: International Monetary Fund

World Wealth
Table 2 Handout

Table 2: Classroom Data				
Number of People in Classroom _____			Total Number of Cookies _____	
Continent	Population %	# of People in Class	Wealth %	# Cookies
Africa				
Asia				
N. America				
S. America				
Europe				
Oceania/Aust.				
Total	100%		100%	

World Wealth
Continent Map