

Mathemagician #20: Shrinking the World to 100 People

Issue #20: April 2021 multi-concept activity-worksheet for 5-8 graders [An Index of All Math Magic Activities](#)

GOALS: 1) To use a small scale model to help understand about our planet's population today, 2) To learn a bit about religion, geography, history, vocabulary, while you discuss this in a group setting, and 3) To see how to make and use models by using proportion and percents.

SOME FACTS ABOUT OUR WORLD

(An ACTIVITY SHEET will follow)

The population of Earth is around 7.8 Billion (7,800,000,000). For most people, it is a large figure, that is all. However, if you condensed 7.8 billion in the world into 100 persons, and then into various percentage statistics, the resulting model is much easier to understand.

Out of 100 People Worldwide:

11 are in Europe
5 are in North America
9 are in South America
15 are in Africa
60 are in Asia



Enter people in continents. Where you surprised about any facts?

49 live in the countryside
51 live in cities

12 speak Chinese
5 speak Spanish
5 speak English
3 speak Arabic
3 speak Hindi
3 speak Bengali
3 speak Portuguese
2 speak Russian
2 speak Japanese
62 speak their own language.

Where are these Languages spoken? Why do you think they are spoken there? Other questions of your own?

77 have their own houses
23 have no place to live.
Why do you think is this so?
21 are over-nourished
63 can eat full meals

15 are under-nourished
1 ate the last meal, but did not make it to the next meal.

The daily cost of living for 48/100 is < than \$2

87 have clean drinking water
13 either lack clean drinking water or have access to a water source that is polluted.



75 have mobile phones. 25 do not.

30 have internet access, 70 do not

7 received university education, 93 did not.

83 can read, 17 are illiterate.x

33 are Christians
22 are Muslims
14 are Hindus
7 are Buddhists
12 are other religions
12 have no religious beliefs.

Some may explore the main beliefs of the major religions listed here.

26 live less than 14 years
66 died between 15 - 64 years of age
8 are over 65 years old.

If you have your own home, eat full meals and drink clean water, have a mobile (cell) phone, can surf the internet, and have gone to college, **You are in a very small privileged group** (in the less than 7% category).

Among 100 persons in the world, **only 8 can live to the age of 65 or more.**

After discussing this page and maybe taking some notes, go on to the next page and complete the answers there which have to do with PERCENT.

SOME EXAMPLES OF HOW TO USE MATH TO EXPRESS THESE NUMBER FACTS ON PAGE 1.

Percent is just a special kind of a fraction which has a denominator (bottom) of 100. It is also defined as a number (n) out of 100. So n out of 100 also = $n/100$ and also = $x\%$.

So 11 People out of 100 who live in Asia can be written several ways:

- as a word name: 11 out of 100
- as a fraction: $11/100$ (11 hundredths)
- as a percent: 11% (11 percent)
- as a decimal: $.11$ (11 hundredths)
- as a ratio: $11:100$ (11 is to 100)

USE THE FACT SHEET ON PAGE 1 TO ANSWER THESE QUESTIONS BELOW.

- 1) What percent of people live Asia? _____
- 2) Write this as a fraction. _____
- 3) Write this as a decimal. _____
- 4) Write this as a word name. _____
- 5) If the world population was reduced to 100 people, how many would be in North America? _____ South America? _____ Africa? _____ Asia _____ Europe _____
- 6) What percent of people live North America? _____ Write this as a fraction. _____ Write this as a decimal. _____ Write this as a word name. _____ Write this as a ratio. _____
- 7) Extra for experts: If $60/100$ people live in Asia, how many people out of 10 live there? _____, how many out of 5 live there? _____
- 8) What fact or facts did you discover where people live in the world?

9) In our model, how many people live in the country worldwide? _____ In cities? _____
So _____% live in the county and _____% in the cities. Express these as fractions. _____
As decimals _____

10) Discuss and note the advantages and disadvantages of country (rural) and city (urban) life in our country. More so in poorer countries?

11) What are the top three languages spoken in the world and their percents? _____%
_____% _____% Why you think that is so is a great question to discuss.

12) How many people out of a 100 do not get enough food to eat? _____ What percent is this? _____ What fraction is this? _____

13) What percent of people have cell phones? _____ What percent do not? _____ Can all who have cell phones easily connect to the internet? _____ Why or why not? _____

CHANGING THE MODEL TO ACTUAL NUMBERS OF PEOPLE IN THE WORLD

EXAMPLE: We know from the fact sheet there are about 7.8 billion people in the world. This is written as 7 billion, 800 million as a word name, and 7,800,000,000 as a number. Also since 33% of these people are Christians. to figure the actual number of Christians multiply 7,800,000,000 by .33 (use a calculator or by hand if you are brave) to get $7800000000 \times .33 =$ (Leave out the commas) and press the = to get 257,400,000 which is 257 million, 400 thousand people who are Christians in the world.

TRY A FEW YOURSELF BELOW:

How many children never live beyond 14?
26 out of 100, or _____% so $._ _ \times 7,800,000,000 =$
_____, _____, _____ which is spoken here
_____ as a word name.

Compute actual numbers for 5 more facts and show your work. Check your answers with a partner.