TEACHER GUIDE

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Age Groups

This exercise teaches students how the world's population is divided by age group today, how it will be in the future and why. This knowledge is vitally important to understand issues such as sustainability, population growth, public health and the future global business market.

Step 1 *(10 min)*
In small groups the students guess how many people there are in each age group in the world today.

Step 2 *(20 min)*
Students work in their groups to learn about how many people there are in each group today and in 2100.

Step 3 *(15 min)*
Students discuss what they have learned about how the world is divided by age today and will be in the future.

Ages: Young to adult learners

Requirements: Printed handouts so there is one per group of 5 students; 11 small props (e.g. Lego blocks) per group

Preparation time: 20 minutes

Exercise duration: Around 45 minutes (depending on the number of groups)

Subjects: Sustainability, economics, demography

About

The Age Groups framework

This framework helps students understand how many of the world's population are children (0-15 years), how many are adults (15-60 years), how many are older (60 and older), and how many of each there will be in the future.

Goal of the exercise

Introduce the class to a simple framework that will enable them to have a global perspective on the population structure today and in the future.

Students will learn:

- How the world's population is divided into different age groups today.
- How the world's population will be divided by age in 2100 (according to United Nations projections).

Preparation

- Read the background information section at the end of this Teacher Guide
- Watch the following short video explanations by Hans Rosling:
  - The rapid growth of the world population, when will it slow down? www.gapminder.org/answers/the-rapid-growth-of-the-world-population-when-will-it-slow-down
  - What makes the world population continue to grow? www.gapminder.org/answers/what-makes-the-world-population-continue-to-grow
  - How Did Babies per Woman Change in Different Regions? www.gapminder.org/answers/how-did-babies-per-woman-change-in-different-regions
  - How Can the World Population Forecasts Be so Good? www.gapminder.org/answers/how-can-the-world-population-forecasts-be-so-good
- Have enough small props (e.g. Lego blocks) so that groups of around five students can each be given 11. Each prop will represent one billion people.
- Print copies of Handout 1 so there is enough for one per group.
- Print Handout 2 so there is enough for one per small group IF you are not showing them the Hans Rosling explanatory video, The rapid growth of the world population, when will it slow down? www.gapminder.org/answers/the-rapid-growth-of-the-world-population-when-will-it-slow-down

Exercise

Step 1: In small groups the students guess how many people there are in each age group in the world today.

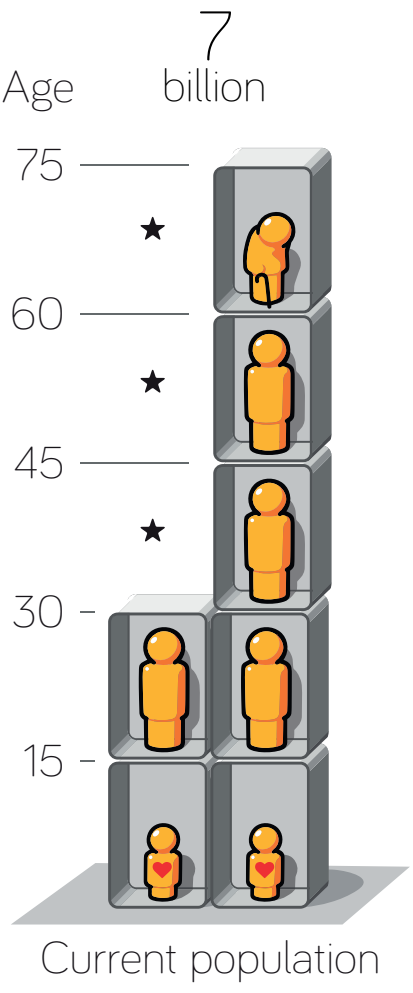
A. Ask the students to work in small groups. Give each group Handout 1 and the 11 props. Explain to the students that the image in the handout is divided into different age groups. In the bottom there are children, aged 0-15, on the next level, people aged 15-30 years old, then 30-45 years old, 45-60 years old, 60-75 years, old and at the top, 75 and older.

B. Tell the students that 7 of the 11 props they have represent the current global population of 7 billion people. Ask them to place the 7 props on the different levels, according to what they think the right answer is. You can help the students by asking: How many billion children aged 0-15 years old are there in the world today? How many young adults aged 15-30 are there and so on. Let them discuss among themselves how to place the 7 props representing different age groups in the world today.

Step 2: Students work in their groups to learn about how many people live in each group today and will in 2100.

A. Tell the students the correct answer can be explained by using the code 2-2-1-1-1. That means:

- 2 billion children aged 0-15 years
- 2 billion young adults aged 15-30 years
- 1 billion people aged 30-45 years
- 1 billion people aged 45-60 years.
- 1 billion people aged 60-75 and older.



B. Tell the students the world's population is forecast to be 11 billion in 2100. Then ask them to place all 11 props on Handout 1 where they think they belong. Give them time to discuss where they think the props should be placed.

C. Give them the the correct answer by asking them to put the props according to the code 2-2-2-2-2-1. That means:
   - 2 billion children aged 0-15 years
   - 2 billion young adults aged 15-30 years
   - 2 billion people aged 30-45 years
   - 2 billion people aged 45-60 years
   - 2 billion older people 60-75 years
   - 1 billion very old people aged 75 and over

D. Ask the students if they can explain why it looks like this.

E. Show the students the 2-minute long Hans Rosling film where he explains why the age structure will be 2-2-2-2-2-1 in 2100 and give them Handout 2 as a guide. www.gapminder.org/answers/the-rapid-growth-of-the-world-population-when-will-it-slow-down

F. If it's not possible to show the video, give the students Handout 2 and explain how and why the population will grow from 7 to 11 billion using the same reasoning as Hans Rosling. According to the United Nation's forecasts, the main reason the population will grow by 4 billion is neither more children nor more old people. It's because there will be 3 billion more adults. The final extra billion is because there will be more people living to an older age. The rate of childbirth will not increase. Indeed, the United Nations experts say the current rate of 2.4 babies per woman on average across the world will fall to 2 babies per woman.

Step 3: Students discuss what they have learned about how the world is divided by age today and will be in the future.

A. Ask the students to show what they have learned by writing the pin-codes down on paper.

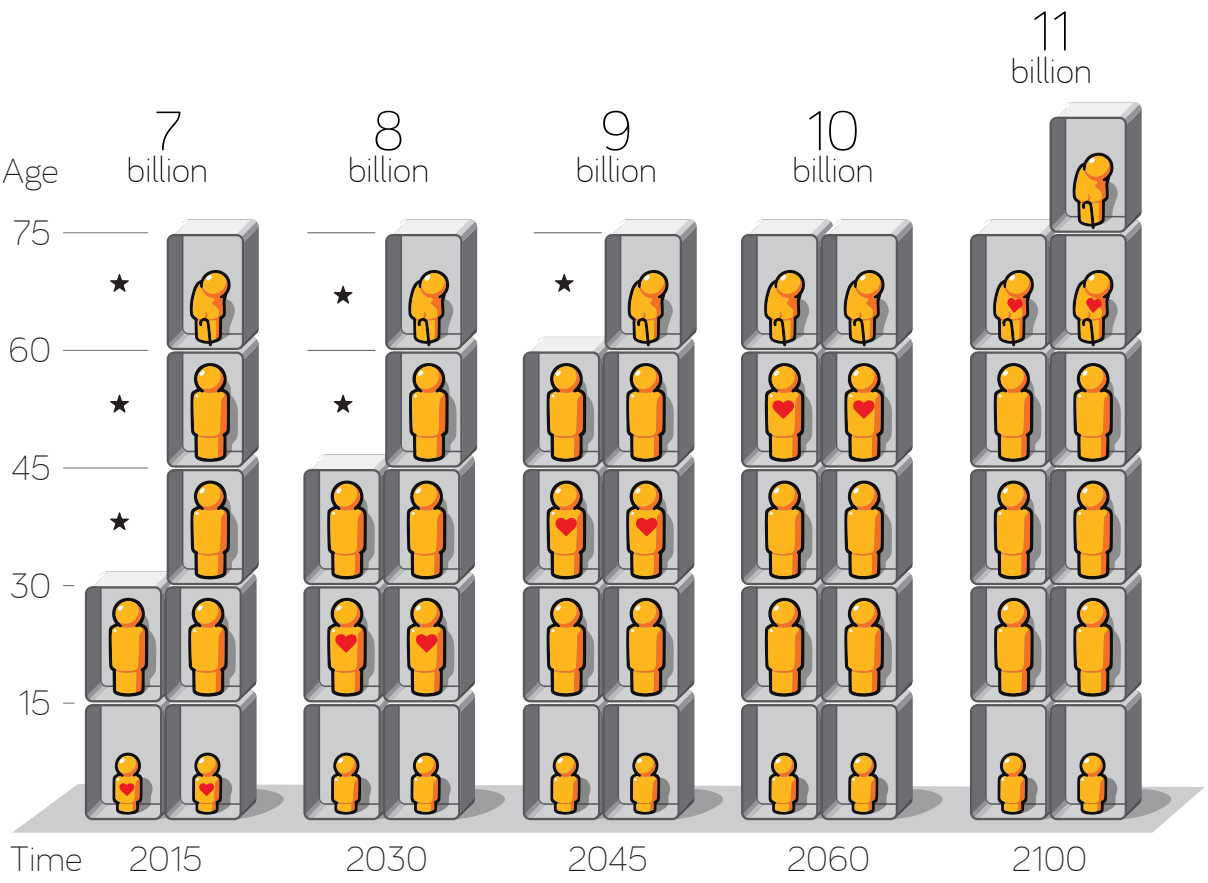
B. Ask them to write down some questions they have about the what they have just learned.

C. Bring the whole class together to discuss their questions and what they have learned.

AGE
+75
60
45
30
15

The world's population in the future

Each figure represents one billion people.
The population is divided in age groups of 15 years each.



Background Information

Description of the United Nations population forecasts up to 2100.

The United Nations forecast that by 2100 the population will increase to 11 billion from the current 7.6 billion. It's not because women will have more babies. The average number of babies per woman is actually expected to drop to 2. And most of the predicted population increase won't be because of more old people either.

Only 1 billion of the extra 4 billion will be because of people living longer lives, the United Nations experts say. Most of the expected population growth will come from today's children becoming adults. It's called the fill-up effect. Hans Rosling explains more here: www.gapminder.org/videos-page/the-fill-up/

The United Nations says population growth will slow down as we reach the end of the century. Of course, forecasts aren't a 100% guarantee of something happening in practice. However these population forecasts have proven to be very reliable in the past.

Why should we have any confidence that United Nations population forecasts that look 50 years into the future will be correct? Weather forecasts and stock market predictions that look only one week ahead are often completely wrong.

The reliability of forecasts depends on how uncertain the variables are. The stock market is volatile and moves quickly. One bad set of results from a company or even one unusual trade can set off a rapid, unpredictable chain of events. There are a huge number of variables when it comes to predicting the weather as it moves over a continent and changes according to air pressure, temperature and moisture.

Population forecasts are way more certain because they depend on three things: age, births and deaths. During a fifty year period, a demographic model only has to be roughly correct in predicting: how old people will be, which is extremely predictable; how many children parents will choose to have, which is quite predictable and what share of people will die at different ages, which is also very predictable.

The previous United Nations forecasts have been reliable and – while not perfect – very close to being correct.

What happened historically to the number of babies per woman?

At the beginning of the 1800s each woman gave birth to an average of 6 babies. That number continued to be high but started dropping rapidly after 1965. Today it is 2.4.

What are the average numbers of babies per woman on the four income levels?

- Level 1: 5
- Level 2: 3
- Level 3: 2
- Level 4: 2

What does it mean being at the “peak child”?

The number of children globally has stopped growing and the experts say it is likely to stay that way.

Additional material

- If you would like to dig into this subject further, Gapminder has more information you can access via www.gapminder.org.
- Hans Rosling’s short video explainers: www.gapminder.org/answers
- Interactive tools: www.gapminder.org/tools
- Videos of our talks, interviews and TV documentaries: www.gapminder.org/videos
- The original source of material is the United Nations and its World Population Prospects, which you can explore here: population.un.org/wpp

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