Gapminder Quiz about global development
Teachers' guide

This quiz gives a quick introduction to global development
and generates interest in using statistics to understand the world.

This is a teachers' guide to a quiz about global development.

The quiz uses the Gapminder World graph, which animates statistics. You need a computer, a screen and a projector.

It is tailored to secondary school students in history and social studies. Preparation time: 15 minutes.

A teacher displaying the quiz graph for the first quiz question

In brief

The Gapminder World graph is available on-line through links on the following pages. Project the graph for the class. The graph displays the level of development in three countries in the past.

Ask the students which of the three is the most developed today. Click play and the answer is revealed through an animation.

Pages 1 to 4 give additional details, but you can skip that and go directly to the quizzes on page 5 to 11.

How to use the quizzes in teaching

All the quizzes can be used to stimulate the interest in using statistics to understand the world. The sometimes surprising answers contained in the quiz can challenge the students' world view.

You can also use it to introduce more specific subjects, e.g. global health, the effects of HIV, population growth and carbon dioxide emissions. Furthermore, you can use it as starting point to discuss what development is. What do the indicators in these quizzes say about the world?

Several of the quizzes illustrate the so-called demographic transition: most countries in the world have gone from having many children and high mortality to few children and low mortality. You can do the quizzes related to fertility and mortality, and then move on to discuss the global pattern.

How to set up the game

You need a classroom with a computer and a projector. The graph is available on-line (see "About the Gapminder Graph").

1. Preparations: In the quiz questions on page 6 to 12 you find a link to a graph. If you click on the link, a graph will open in your browser with everything set up for the specific quiz question.

You can open each quiz graph in a separate tab in your browser. Use control+tab to go between the quiz graphs in the browser. Click "full screen" for each tab. Divide the class into teams of 3-5 persons.

2. Display the first quiz graph and explain it. Explain that the bubbles represent countries and that the horizontal axis shows time. Then explain what the vertical axis shows (this axis changes with the different quiz questions.

Point at each country bubble and give a quick background information for each (just a sentence or so), e.g. where the country is located.

3. Ask the groups the quiz question.

4. Click play. The bubbles will start to move. Comment on the movements. Give one score to the groups that gave the right answer. Go to the next quiz graph.

There is also an *"if students ask"* box for each quiz. This is intended to help you answer questions from students, not for lecturing.

About the Gapminder World Graph

The quiz is based on the interactive and animated bubble graph called Gapminder World. The figure on the next page explains how you use Gapminder World. The graph is available on-line at www.gapminder.org/world. However, for each quiz (on the following pages) you find a link to the graph in which the graph has been adjusted to fit the quiz.

If you have problems in following links in the quizzes you can adjust the graph manually. Open one graph for each quiz question and:

- Select "time" for the x-axis
- Make sure the trails-box is tick-marked
- Make the adjustments described for the quiz in question
- Once you selected some bubbles: Pull the opacity bar to the left so that only the selected bubbles are visible.
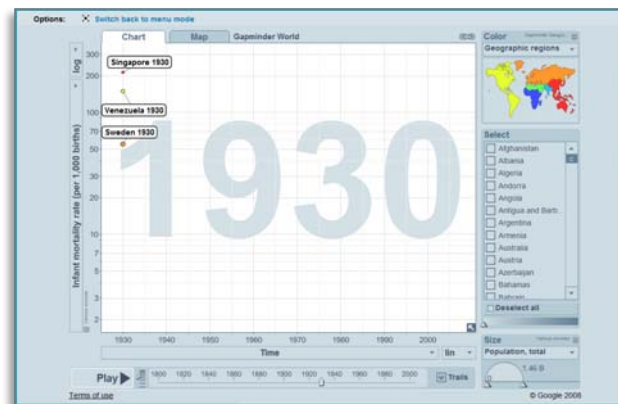
A screen cast of the quiz graph of quiz 1, as it look when you ask the quiz question.

To reload the default graph click the "Gapminder World" heading at the top of the page (not shown here).

Select between Chart and Map view.

Click here for a short tutorial video.

Click here to get a short link to the specific graph you have created.

Click here if you are using the graph in a lecture. The graph will cover the whole screen.

Click here to select indicators for the y axis.

Hover your mouse over the bubble to reveal the names of the countries.

If you want information about the sources you can click on the small text next to the axis.

Watch the graph change over time by using these buttons.

Change the speed of the graph here.

Click here to select indicators for the x axis. You can also choose to display time on this axis.

Click Trails to track a selected country while an animation plays.

The countries on the graph are colour coded by continent. Here you can choose to colour code them by other indicators.
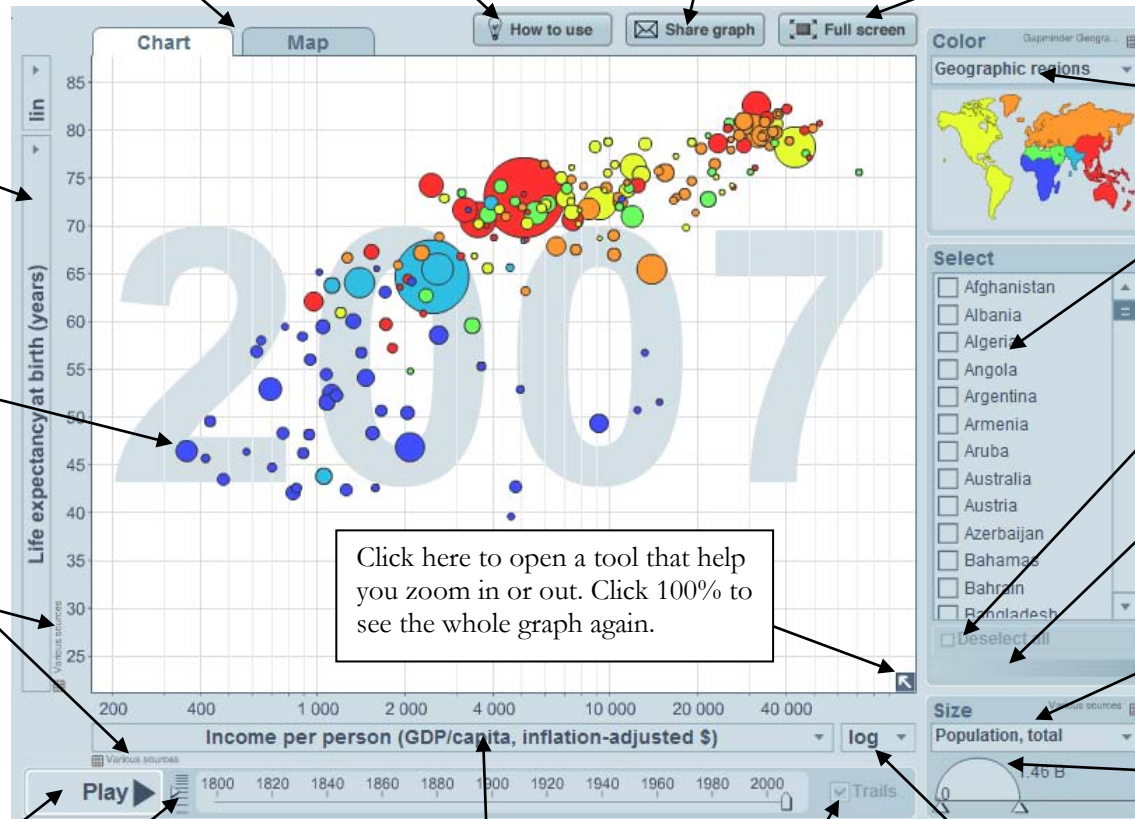
Select individual countries here by clicking the boxes. You can also click on the bubbles.

Deselect all countries here.

Remove all countries other than those selected here.

The size of the bubble normally represents the population of the country. Click here to make the size proportional to another indicator.

Change the size of the bubbles here.

Both the x and y axis scales can be linear or logarithmic. Choosing a log scale may make it easier to see the trends on the graph.

Chart | **Map** | How to use | Share graph | Full screen

Color — Geographic regions

Select
- Afghanistan
- Albania
- Algeria
- Angola
- Argentina
- Armenia
- Aruba
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh
- Deselect all

Life expectancy at birth (years)

85 80 75 70 65 60 55 50 45 40 35 30 25

200 400 1 000 2 000 4 000 10 000 20 000 40 000

Income per person (GDP/capita, inflation-adjusted $) — log

Click here to open a tool that help you zoom in or out. Click 100% to see the whole graph again.

Play ▶ | 1800 1820 1840 1860 1880 1900 1920 1940 1960 1980 2000 | Trails

Size — Population, total

3

About the data

The data in the quizzes are compiled from a variety of sources. Data from high-income countries are mainly from registers, whereas surveys are a common source in low- and middle-income countries. Such surveys are based on interviews with a representative sample of the population.

The sources for the data can be found by clicking on the small name-tag next to the axis, as shown in the screen cast to the right. You can also look under "data" on our homepage.

Sometimes the data display a straight line for a few years. This is due to rounding. Yearly fluctuations in the data are often smoothed out in many sources. Hence, temporary crisis are not always clearly visible.

The uncertainty of the data varies, but there is a consensus regarding the general trends displayed.

Many graphs use a so-called log-scale, which expand the scale at low values and compress the scale at high values. This does not affect the answers. The log scale gives a more correct picture in many cases.

For example, 100 extra dollars per year makes a huge difference for a person earning 400$. The same 100$ addition might not even be noticed by someone earning a 100.000$.

Many countries had different borders or did not exist at all in the past. The data concerns the area of the present day borders of the country.
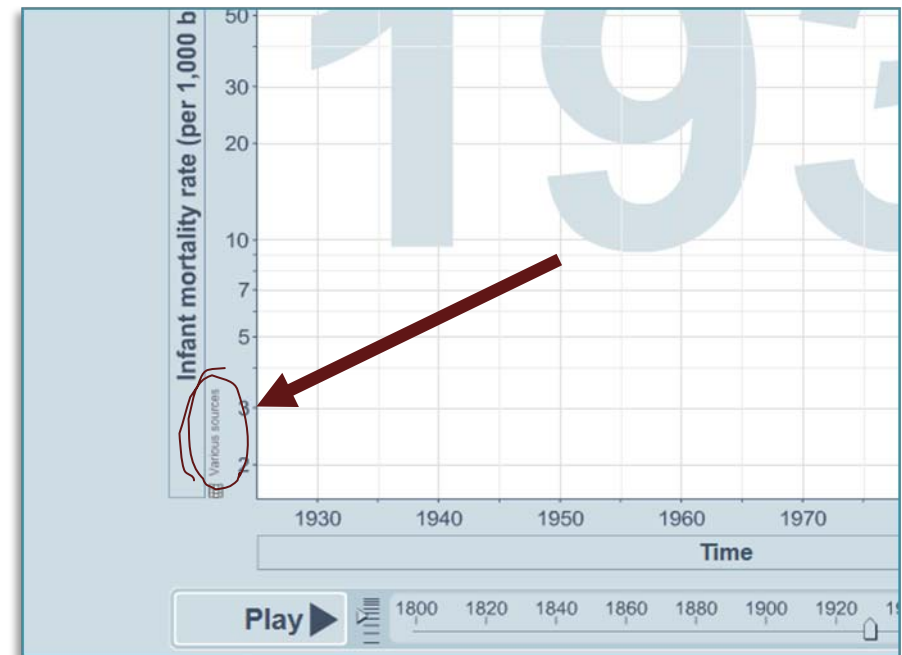
A screen cast of a part of the quiz graph.

QUIZ 1 (Global Health)

The Quiz

Ask the students: Which country has today the lowest death rate during the 1st year of life (i.e. infant mortality): Singapore, Sweden or Venezuela?
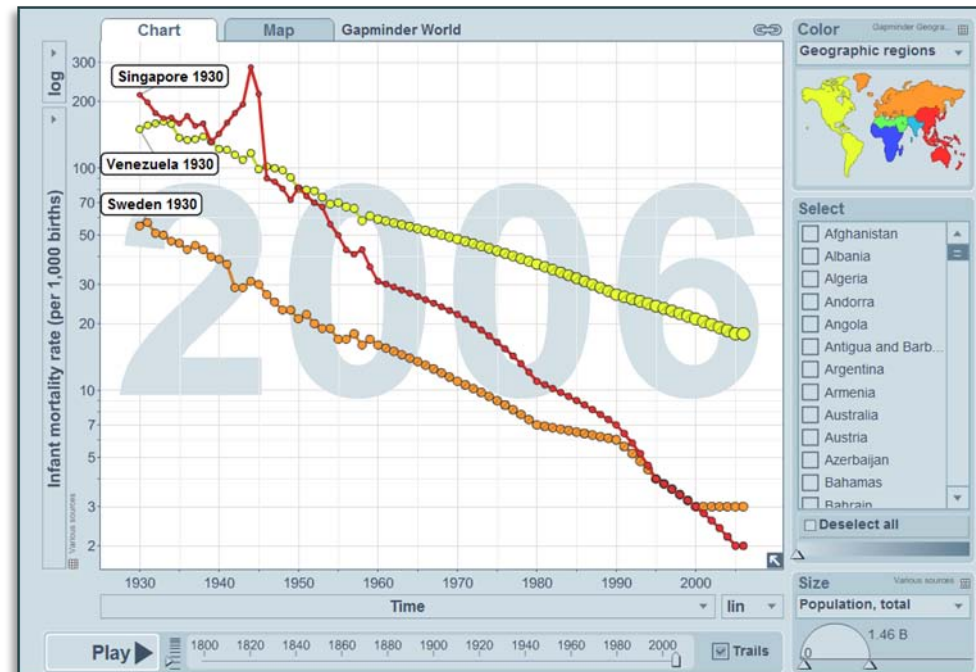
Answer: Singapore

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz01

Or adjust the graph manually:
- For Y-axis select: "Infant mortality rate (per 1,000 births)"
- Select Singapore, Sweden and Venezuela
- Pull back the time bar to 1930

If students ask

Singapore in 1930 was still a British colony. The infant mortality was four times as high as in Sweden. Since well before that year Venezuela had been an independent nation and was already a major exporter of oil.
World War 2: Singapore was occupied by Japan and the population suffered severely from the war. The war had minor effects on the health of children in Sweden and Venezuela.
After the war: Singapore quickly regained its pre-war health.
1950s and onwards: economic development and health improvements were fast in Sweden and even faster in Singapore.
In the 1990s: Singapore becomes richer than Sweden. Infant mortality becomes lower in Singapore around the year 2000.

Singapore had high economic growth, high and effective investments in health and also benefited from being a compact city state. The health improvements were part of a global pattern of improving health.

QUIZ 2 (Global Health)

The Quiz

Ask the students: Which country has the lowest infant mortality today: Nicaragua, Sri Lanka or Turkey?

Answer: Sri Lanka

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz02

Or adjust the graph manually:
- For Y-axis select: "Infant mortality rate (per 1,000 births)"
- Select Sri Lanka and Turkey
- Pull back the time bar to 1960

If students ask

Nicaragua, Sri Lanka and Turkey are all middle income countries that have made significant progress in the areas of health and economics. Sri Lanka, however, has had better health than the other two countries for many years. This is partly due to widespread literacy and access to health care.

QUIZ 3 (Economic Growth)

The Quiz

Ask the students: In which country is the average income per person highest today: Botswana, Egypt or Moldova?

Answer: Botswana

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz03

Or adjust the graph manually:

- For Y-axis select: "Income per person (GDP/capita, inflation adjusted $)"
- Select Botswana, Egypt and Moldova
- Pull back the time bar to 1950

If students ask

Botswana experienced a slow, but positive, progress as an English colony. They became independent in 1966 and has since been a stable democracy. Well-managed diamond mines have given the country one of the highest economic growth rates in the world and made it one of the wealthiest countries in Africa.

Egypt before 1954 was a semi-democracy, constrained by British colonial interventions. Attempts to industrialise were not very successful. In 1954 the military took power in a coup. From the 1960s and onwards the economy has progressed.

Moldova was one of the Soviet Republics up to 1991. At independence the economy collapsed, but it is now slowly recovering.

The indicator "Income per person" is the same as GDP per capita. We call it "income" in Gapminder World to make it easier to understand. The "income per person" has been adjusted for inflation and for differences in living costs across countries. The adjustment for living costs is based on so-called purchasing power parities. The income per person in a county cannot be much lower than $300 US per year for any longer time. The reason is that below that level of income almost everyone would be starving to death. Hence, the $800 US per person that people in Botswana had in 1950 was a very low income.

QUIZ 4 (HIV/AIDS)

The Quiz

Ask the students: In which country do people live the longest on average today: Botswana, Egypt or Moldova?

Answer: Egypt

Do this quiz directly after quiz 3. You can use this quiz to contrast the economic success of Botswana with their HIV/AIDS problems.

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz04

Or adjust the graph manually:
- For Y-axis select: "Life expectancy at birth (years)"
- Select Botswana, Egypt and Moldova
- Pull back the time bar to 1950

If students ask

Egypt has made continuous improvements in health. Fairly good economic growth is part of the explanation. Furthermore, more and more people have clean water to drink and foreign aid has helped to fund vaccination and healthcare throughout the country. They have also eradicated malaria.

Moldova started off quite well, but has only made slow progress during recent years due to many economic and social problems. The economic collapse after independence in 1991 is a major explanation for this.

Botswana initially made good progress in health, based on good economic growth and a well functioning government. In the 1980s, however, the HIV/AIDS epidemics hit the country hard. Treatment for AIDS has become available, but the country still has high transmission of HIV.

QUIZ 5 (Population growth)

The Quiz

Ask the students: In which country today do women on average marry at the oldest age: Algeria, Canada or the Philippines?

Answer: Algeria

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz05

Or adjust the graph manually:
- For Y-axis select: "Age at 1ˢᵗ marriage (women)"
- Select Algeria, Canada and the Philippines
- Pull back the time bar to 1966

If students ask

Girls in Canada, like in most western countries, historically married at a relative high age. However, the age at marriage was at an all-time low in the decades after World War II. Canadian women have since reverted back to a higher age at marriage in the last decade.

In Algeria girls used to marry at a relative young. In the 1960s Algerian women started to marry at an increasingly higher age. This happened partly because it became the norm across the Arab world that a couple should have their own home. This meant that they had to save for a long time before they could get married. Another factor was the longer time girls spent in school.

In the Philippines the age at marriage have not changed much in the last 50 years.

QUIZ 6 (Population Growth)

The Quiz

Ask the students: Which country has the fewest number of children per woman today: Tunisia, Bangladesh or Argentina?

Answer: Tunisia

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz06

Or adjust the graph manually:
- For Y-axis select: "Children per women (total fertility)"
- Select Argentina, Bangladesh and Tunisia
- Pull back the time bar to 1950

If students ask

Argentina, in 1950, had already changed to small families and women, on average, had a bit more than three children per woman. The number of children per woman has decreased further in the last decades.

In Bangladesh in 1950 girls married very early, had few rights and gave birth to an average of 6 to children. In the 1980s Bangladesh initiated an effective family planning program. Female family planners reached out to women in their homes and family planning services were provided in rural areas. Political and religious leaders supported the idea of small families. Together these actions helped to decrease the fertility rate very fast, even though the improvements for women have been relatively limited.

In Tunisia in 1950 girls married relative young and had many children. In the 1960s Tunisian women gradually started to marry at a higher age. This happened partly because it became the norm across the Arab world that a couple should have their own home. This meant that they had to save for a long time before they could get married. Another factor was the longer time girls spent in school. In the 1980s family planning services started to have an increasing impact as well, so the number of children decreased fast.

QUIZ 7 (CO2 emissions)

The Quiz

Ask the students: Which country emits most tones of CO2 per person today: China, France or USA?

Answer: the USA

The quiz graph

Link to quiz graph: http://tinyurl.com/gapquiz07

Or adjust the graph manually:
- For Y-axis select: "CO2 emissions (tonnes per person)"
- Select Argentina China, France and USA
- Pull back the time bar to 1900

If students ask

China is today the country that emits most CO2 in total, but that is because it has such a large population. Each American still emits almost four times as many tonnes CO2 as each Chinese person do. In 1900 China emitted negligible amounts of CO2 per person and it increased very slowly. From the 1970s, the emissions had started to grow faster, as economic growth accelerated.

The US and France were both industrialised by 1900. Various energy sources were more readily available in the US than in France. Hence, the energy system was more energy intensive from an early date in the US.

Income per person grew strongly during the 20th century in both countries, and the CO2 emissions followed this pattern. Numerous crises affected the emission of CO2: the 1st world war (mostly in France), the depression after 1929 (with the strongest effect in the US) and the 2nd world war (mainly seen in France).

In the 1970s the oil prices increased massively at two occasions. These events are known as the 1st and 2nd oil crisis. They provoked actions to use the energy more efficient and to switch to energy sources with less emission of CO2, e.g. nuclear power. Many of these changes remained even after the oil-price dropped again in the 1980s. Furthermore, the production in the high income countries became more focused on producing things that required less energy (e.g. producing medicines, just to take one example).