



Go Global Quiz

The world's population has grown significantly since 1900 and this is predicted to continue to 2050.

Ring or Underline Your Answers

1) What do you think the world's population was in 1900?

- a) 500 million b) 1 billion c) 1.2 billion d) 1.6 billion e) 2 billion

By 2000 how many people were there in the world?

- a) 2 billion b) 4 billion c) 5 billion d) 6 billion e) 7 billion

How many are predicted for the year 2050?

- a) 4 billion b) 6 billion c) 7 billion d) 8 billion e) 9 billion

2) What percentage of the world's population lived in the following continents in 1900?

- a) Africa_____ b) Asia_____ c) Europe_____ d) Latin and Central America_____ e) North America_____

What percentage of the world's population lived in the following continents in 2000?

- a) Africa_____ b) Asia_____ c) Europe_____ d) Latin and Central America_____ e) North America_____

What percentage of the world's population are predicted to live in the following continents in 2050?

- a) Africa_____ b) Asia_____ c) Europe_____ d) Latin and Central America_____ e) North America_____

3) The World Bank has defined the Poverty Line (those living in extreme poverty) as anyone living at or below \$1.25 per day.

In 2008 what percentage of the world do you think were living below the Poverty Line?

- a) 5% b) 10% c) 15% d) 20% e) 25%

In 1981 what was this percentage?

- a) 10% b) 20% c) 30% d) 40% e) 50%

Which countries or parts of the world have large numbers living at or below the Poverty Line?

4) What are some of the implications of rising world populations and continuing poverty among so many people across the globe?

How can scientists and engineers provide solutions to some of these challenges?

5) 'The World in 2010' published by the Economist gives details of the size of countries' economies. Can you rank in order the world's largest economies in the Autumn of 2009?

a) Brazil_____ b) Canada_____ c) China_____ d) France _____ e) Germany_____ f) Italy_____

g) India_____ h) Japan_____ i) Russia_____ j) USA_____ k) UK_____

6) The economic intelligence unit of the company Goldman Sachs in 2004 made predictions on which would be the world's largest economies in 2050. Try ranking their predictions from the following countries:

a) Brazil_____ b) China_____ c) France_____ d) Germany_____ e) India_____ f) Japan_____

g) Mexico_____ h) Russia_____ i) USA_____ j) UK_____

7) Which two of these countries do you think produced the most CO₂ emissions in 2009?

a) Brazil b) China c) France d) Germany e) Japan f) India g) Russia h) USA i) UK

8) Countries vary massively in the amount of CO₂ emissions per head of population. Can you identify from this list 2 countries with the highest emissions per head of population?

a) Australia b) Brazil c) China d) France e) Germany f) India g) Japan h) Malawi

i) Saudi Arabia j) USA k) UK

Can you identify from this list 2 countries with the lowest emissions per head of population

a) Australia b) Brazil c)China d) France e) Germany f) India g) Japan h) Malawi

i) Saudi Arabia j) USA k) UK

9) The world's temperature has risen by 0.8 degree Centigrade or 1.7 degree Fahrenheit since 1890, this is predicted to increase in the 21st Century.

The amount of CO₂ in the atmosphere has risen from 315 parts per million in 1958 to a current level of 387 parts per million.

Can you think of some of the implications of rising temperatures and CO₂ levels on the world's climate and humanity?

10) With the prediction of global CO₂ emissions rising by 60% up to the year 2050 on current policies, combating the effects of climate change is likely to be one the world's major growth industries. In the 2006 Stern Report on the Economics of Climate Change how much business could be generated by 2050 on developing green and other related technologies?

- a) £ 150 million b) £ 1 billion c) £100 billion d) £200 billion b) £250 billion

11) Fresh water makes up only 3% of the world's water - 97% being salt water in the oceans and sea. Which of the following uses up the most fresh water ?

- a) agriculture and irrigation b) sanitation c) household use d) industrial production processes
e) power stations and energy production.

12) The demand for water is predicted to grow by how much by the year 2030?

- a) 10% b) 20% c) 30% d) 40%

13) The demand to produce more energy for a growing population with rising aspirations and living standards is a major challenge in the 21st Century. By 2030 this demand is expected to rise by

- a) 10% b) 20% c) 30% d) 40% e) 50%

14) These are the main fuels used across the world for transport, heating etc. Can you rank them in order of usage?

- a) Coal_____ b) Gas_____ c) Oil_____ d) Nuclear_____ e) Renewable Sources_____

15) In order to feed the growing world population by 2030, how much more food will have to be produced?

- a) 20% b) 30% c) 40% d) 50% e) 60%

16) Which of the following strategies are likely to be used in producing more food?

- a) Better use of water and irrigation
b) producing drought resistant crops
c) Using mixed crops rather than a monoculture (e.g. only having cereals in a field)
d) targeted breeding of crops using technologies such as genetic modification
e) promoting leaner and healthier diets like moving away from dairy products and red meat to vegetables and fruit
f) better food waste management

17) The University of Reading in 2009 predicted that the UK's food and drinks industry would need how many science based jobs by 2020?

- a) 25,000 b) 30,000 c) 45,000 d) 65,000 e)100,000

18) By 2009 were there more people across the world living in cities and urban areas or in rural areas?

- a) More in Urban Areas b) More in Rural Areas

19) What are the implications of more people living in towns and cities?

20) What subjects do you think will be in demand to meet these challenges in the 21st Century?

Further information on jobs and careers in an increasingly global economy can be found on the Future Morph website www.futuremorph.org and the Jobs4U website on www.connexions-direct.com/jobs4u Also check out www.mathscareers.org.uk and www.tomorrowengineers.org.uk



Go Global Quiz; Answers

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- a) 2 billion b) 4 billion c) 5 billion **d) 6 billion** e) 7 billion

How many are predicted for the year 2050?

- a) 4 billion b) 6 billion c) 7 billion d) 8 billion **e) 9 billion**

2) What percentage of the world's population lived in the following continents in 1900?

- a) Africa 8% b) Asia 57% c) Europe 24% d) Latin and Central America 4.5% e) North America 5%

What percentage of the world's population lived in the following continents in 2000?

- a) Africa 14% b) Asia 60% c) Europe 11% d) Latin and Central America 8% e) North America 5%

What percentage of the world's population are predicted to live in the following continents in 2050?

- a) Africa 20% b) Asia 60% c) Europe 7% d) Latin and Central America 9% e) North America 4%

China's population has risen from 500 million in 1900 to 1.3 billion today, while India, Pakistan, Bangladesh, Sri Lanka and Burma (British India) totalled 250 million compared to over 1.4 billion in 2010. The population of the USA in 1900 was 80 million compared to 300 million in 2010. The population of the UK in 1900 was 40 million, it now stands at 60 million.

3) The World Bank has defined the Poverty Line (those living in extreme poverty) as anyone living at or below \$1.25 per day.

In 2008 what percentage of the world do you think were living below the Poverty Line?

- a) 5% b) 10% c) 15% **d) 20%** e) 25%

In 1981 what was this percentage?

- a) 10% b) 20% c) 30% **d) 40%** e) 50%

The decline in overall world poverty is mainly due to China, in 1980 64% lived below the poverty line, by 2004 this was at 10%, India has also seen a net decline from 60% to 42% in the same period.

Which countries or parts of the world have large numbers living at or below the Poverty Line?

Most countries in sub Saharan Africa (highest levels being in Guinea, Democratic Republic of the Congo,

Liberia, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, Zambia and Zimbabwe), as well as India, Bangladesh, Pakistan, Haiti, Laos, Vietnam, Indonesia, Philippines, Tajikistan, Turkmenistan and Uzbekistan.

In 2009 - 880 million are calculated to live below \$1 per day, 1.4 billion on \$1.25 per day and 2.6 billion on \$2 per day (38% of world's population).

4) What are some of the implications of rising world populations and continuing poverty among so many people across the globe?

How can scientists and engineers provide solutions to some of these challenges?

Pressure on food supplies, health, education, infrastructure, employment, housing, social cohesion, mass emigration, water supplies. Improvement of infrastructures, better irrigation, transport, education, family planning, education especially girls, medicine and health provision etc.

5) 'The World in 2010' published by the Economist gives details of the size of countries' economies. Can you rank in order the world's largest economies in the Autumn of 2009?

- a) Brazil 8 b) Canada 10 c) China 2 d) France 5 e) Germany 4 f) Italy 7
g) India 9 h) Japan 3 i) Russia 11 j) USA 1 k) UK 6

The UK by 2010 was judged to be ranked below Italy owing to the decline of the £ compared to the Euro. In 2004 the UK was ranked 4th in the world's economies.

6) The economic intelligence unit of the company Goldman Sachs in 2004 made predictions on which would be the world's largest economies in 2050. Try ranking their predictions from the following countries:

- a) Brazil 5 b) China 1 c) France 9 d) Germany 8 e) India 3 f) Japan 4
g) Mexico 6 h) Russia 7 i) USA 2 j) UK 10

7) Which two of these countries do you think produced the most CO₂ emissions in 2009?

- a) Brazil **b) China** c) France d) Germany e) Japan f) India g) Russia **h) USA** i) UK

By 2010 China has overtaken the USA as the world's largest emitter of CO₂ (however 30% of China's emissions is due to its exports to USA and Europe) China and the USA produce around 40% of the world's total of CO₂.

8) Countries vary massively in the amount of CO₂ emissions per head of population. Can you identify from this list 2 countries with the highest emissions per head of population?

- a) Australia** b) Brazil c) China d) France e) Germany f) India g) Japan h) Malawi
i) Saudi Arabia **j) USA** k) UK

Highest - Australia and USA at around 19 /20 tonnes per head.

Can you identify from this list 2 countries with the lowest emissions per head of population?

- a) Australia b) Brazil c) China d) France e) Germany **f) India** g) Japan **h) Malawi**
 i) Saudi Arabia j) USA k) UK

India has just over 1 ton per head and Malawi 0.001.

The UK is the 8th largest emitter in the world, on 9/10 tons per head (2% of emissions with 1% of world population) while China comes out at around 5 tons per head.

9) The world's temperature has risen by 0.8 degree Centigrade or 1.7 degree Fahrenheit since 1890, this is predicted to increase in the 21st Century.

The amount of CO₂ in the atmosphere has risen from 315 parts per million in 1958 to a current level of 387 parts per million.

Can you think of some of the implications of rising temperatures and CO₂ levels on the world's climate and humanity?

Rising sea levels hitting countries like Bangladesh, Maldives with increased risk of flooding in low lying areas.

Thinning of the Arctic ice shelf and glaciers with an implication for water supplies, irrigation and agricultural production.

Temperature rises (double the world average in Arctic region), increase in frequency of droughts (especially in parts of Africa), forest fires, decline of agricultural production in many but not all parts of the world.

Rise of world temperatures by 2 degrees would result in a depletion of animal species by 20 -30%.

Massive emigration from areas of the world most affected by climate change (94% of current impact on Africa, Latin America and parts of Asia).

Debate on the contribution of man made emissions to over all temperature rise continues. However only approximately a rise of 0.2 of a degree has been calculated to natural causes since 1890 (Earth's orbit, tilt and rotation plus strength of Sun's rays coupled with volcanic activity). This leaves 0.6/7 of a degree unaccounted for, with the only added factor - human intervention, predominantly since the Industrial Revolution.

10) With the prediction of global CO₂ emissions rising by 60% up to the year 2050 on current policies, combating the effects of climate change is likely to be one the world's major growth industries. In the 2006 Stern Report on the Economics of Climate Change how much business could be generated by 2050 on developing green and other related technologies?

- a) £ 150 million b) £ 1 billion c) £100 billion d) £200 billion **b) £250 billion**

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- a) 10% b) 20% c) 30% d) 40% **e) 50%**

14) These are the main fuels used across the world for transport, heating etc. Can you rank them in order of usage?

- a) Coal 25% b) Gas 21% c) Oil 34% d) Nuclear 7% e) Renewable Sources 13%

Heavy dependency on high polluting hydro carbons will continue well into 21st Century. UK expects green fuels to be majority component of its fuel mix only around 2050.

15) In order to feed the growing world population by 2030, how much more food will have to be produced this growing demand?

- a) 20% b) 30% c) 40% **d) 50%** e) 60%

16) Which of the following strategies are likely to be used in producing more food?

- a) Better use of water and irrigation**
- b) producing drought resistant crops**
- c) Using mixed crops rather than a monoculture (e.g. only having cereals in a field)**
- d) targeted breeding of crops using technologies such as genetic modification**
- e) promoting leaner and healthier diets like moving away from dairy products and red meat to vegetables and fruit**
- f) better food waste management**

All of the above and more

17) The University of Reading in 2009 predicted that the UK's food and drinks industry would need how many science based jobs by 2020?

- a) 25,000 b) 30,000 **c) 45,000** d) 65,000 e) 100,000

18) By 2009 were there more people across the world living in cities and urban areas or in rural areas?

- a) More in Urban Areas** b) More in Rural Areas

19) What are the implications of more people living in towns and cities?

Impact on surrounding agricultural and other land, with greater reliance of food supplies having to be brought in from rural areas or abroad, pollution levels rising especially with increase of vehicles, infrastructure demands of housing, roads, power supplies, water, education, population density and health issues with contagious diseases etc. Cities also tend to be hotter than surrounding areas by at least 1 degree. Improved town planning will be required as some cities are expected to have over 20 million people.

China is now developing an eco - friendly city at Dongtan, reliant on wind and solar power, limitation of buildings to 8 stories and emphasis on minimum pollution. Ove Arup, the British civil engineering consultancy firm is leading the design in this project.

Currently China has 5 out of the 10 cities most affected by pollution in the world.

20) What subjects do you think will be in demand to meet these challenges in the 21st Century?

Mathematics, ICT, Physics, Chemistry, Engineering Science, Design and Technology, Biology, Geography, Environmental Science, languages as well as English.

Sources -

'The Challenges of the 21st Century' Presentation by Professor Beddington, UK Government's Chief Scientific Adviser. Campaign for Science and Engineering Annual Distinguished Lecture held in London - December 2009

'The World in 2010' - The Economist published in 2009

International Energy Agency reports on energy usage and CO₂ levels.

New Scientist October 3rd 2009' Future Earth'

Met Office - Warming Climate Change - The Facts 2009.

World Bank statistics on Poverty Level.