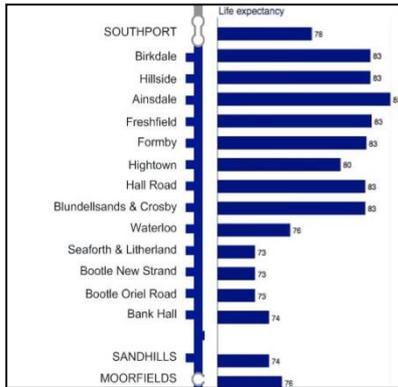




Lesson 1. What is 'life expectancy?' Life Expectancy can be defined as the **average age** to which a person can be **expected to live**.

Life Expectancy in Liverpool and Sefton



Along the train track life expectancy generally increases as you travel northwards out of Liverpool. The highest life expectancy is in Ainsdale (85) and the lowest is between Bootle Oriol Road and Seaforth & Litherland (73).

Life expectancy is lower around Bootle as in general, as people have a

lower income and there will therefore be higher levels of poverty and crime. Around Ainsdale people have a higher income and this leads to a higher standard of living and lower crime rates.

Life Expectancy in the UK

Life expectancy varies around the UK. The highest life expectancy for males and females is in England (79.5/ 83.1) and the lowest is in Scotland (77/ 81.1).

There are many reasons why life expectancy varies around the UK including climate, income, crime rate, lifestyle choices (e.g. smoking/ drinking) and poverty levels.

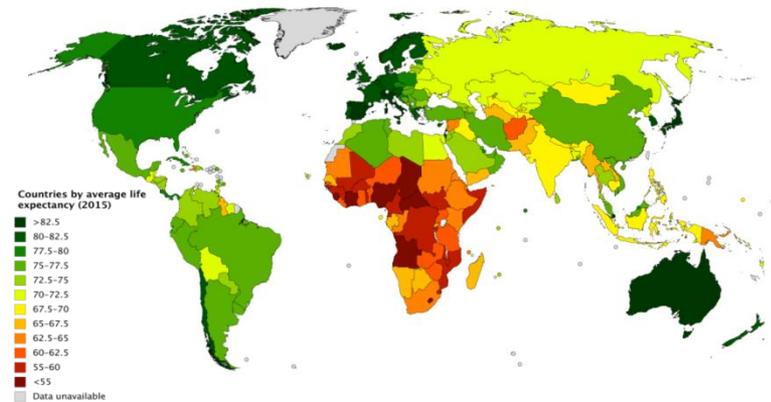
Women live longer than men in all regions. Although there is no proven reason why, it could be due to job type, lifestyle choices and willingness to seek medical care.

	Males	Females
UK	79.2	82.9
England	79.5	83.1
Wales	78.3	82.3
Scotland	77.0	81.1
N.Ireland	78.4	82.3

Global Life Expectancy

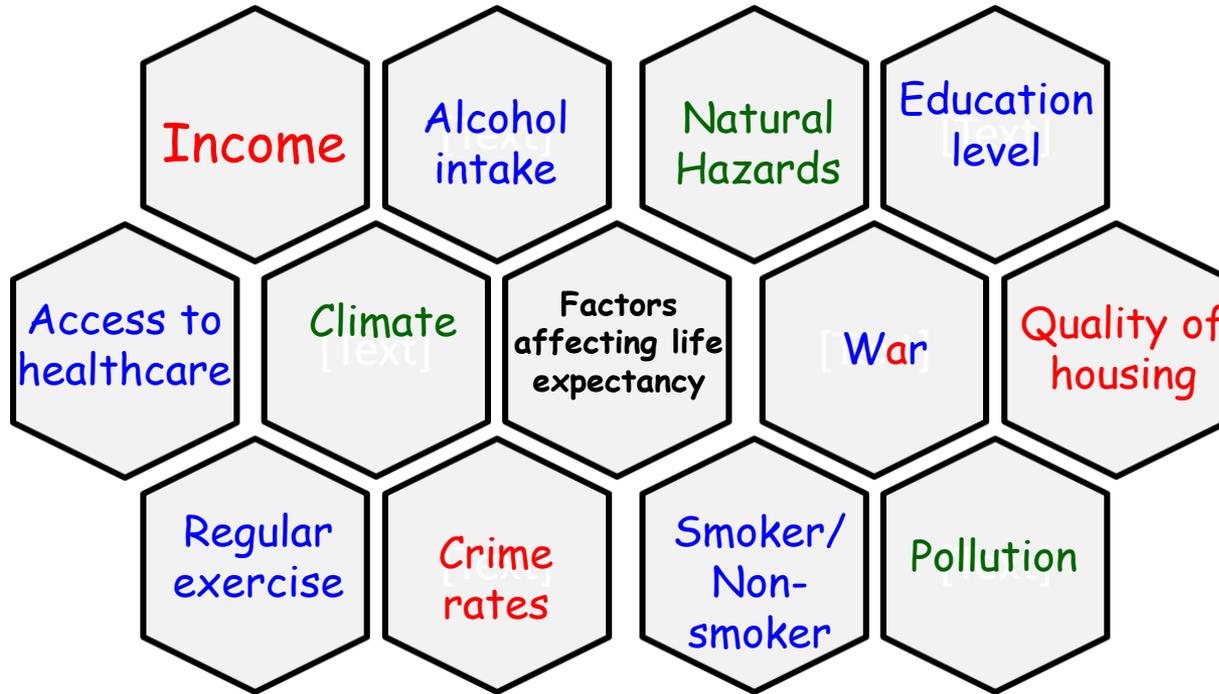
Life expectancy varies greatly around the world. The highest life expectancies are in High Income Countries such as the UK, Canada and Australia. The lowest life expectancies are mainly found in Sub Saharan Africa in countries like Chad and Nigeria.

The main reason for these differences is the level of development and wealth in these countries. Wealthier countries have a higher life expectancy and poorer countries have a lower life expectancy. Countries that have been at war e.g. Afghanistan often have a lower life expectancy as healthcare services have been destroyed and the country's wealth is poured into funding armed conflicts.





Lesson 2. What factors affect life expectancy? There are a range of economic, social and environmental factors that affect your life expectancy.



Sarah, UK - Life Expectancy:82

Baako, South Sudan - Life Expectancy:55

- Excellent education
- Balanced diet
- Good healthcare
- Excellent living conditions
- Regular Exercise
- 8 hours sleep

- 8 hours/ day working on family farm
- One piece of bread to eat per day
- 40 minute walk for clean water
- 6 day walk to hospital
- Country is involved in armed conflicts
- 5 hours sleep



Lesson 3. What deadly killer diseases did we suffer from in the past? The focus of this lesson is on how we found solutions to **smallpox** and **polio** that used to kill hundreds of thousands of people around the world.

	Smallpox	Polio
What is it?	Smallpox is an ancient disease Symptoms included high fever and fatigue, followed by a rash on the face arms and legs. The spots fill with liquid which turns to pus. Smallpox was deadly in 30% of cases.	Polio is an infectious disease that causes paralysis and death. It was very common worldwide in the past. It is most often contracted in children under the age of 5. There is no cure for polio, you need to prevent it occurring by vaccinating babies.
How does it spread?	Smallpox spread through direct contact with infected bodily fluids or contaminated objects.	The virus spreads person-to-person mainly through the mouth or sometimes through contaminated food or water
How can we reduce it?	In 1799 Edward Jenner created a vaccine that made people immune to the deadly virus. The disease was declared eradicated following a worldwide vaccination programme in 1979.	By vaccinating babies we can make them immune to Polio so that they will never catch it. Since 1988 polio cases have decreased by 99%, from 350,000 cases a year to 416 cases in 2013.



Vaccinations

- In 1798 Dr. Edward Jenner studied milkmaids who had contracted cowpox and found that they did not catch smallpox. This was because the cowpox had protected them against the different virus.
- Dr. Jenner infected a human who had had cowpox with smallpox and found that they did not develop in to the disease, showing an immunity to smallpox
- His success led to the smallpox vaccination, in which people were infected with a small amount of cowpox, which only made them mildly ill and built up an immunity to smallpox.

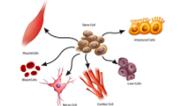


The Polio Comeback

In 2003 99.8% of polio cases had been eradicated by vaccinations. Unfortunately, countries such as Iraq and Afghanistan who were at war failed to immunise many of their people and as a result it has made a comeback. In 2014 cases of Polio were discovered in 11 countries around the world.



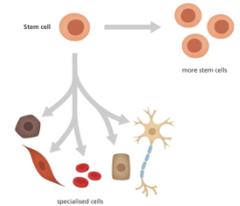
Lesson 4. How is science and medicine prolonging life? One way that science is prolonging life is through **stem cell research** that is constantly finding cures for deadly illnesses and diseases such as paralysis and cancer.

 Antibiotics	 Vaccinations	 X Rays
 Stem Cells	How is science prolonging life?	 Research
 Radiotherapy	 Organ Donation	 Gene therapy

Stem Cell Research

A stem cell is a cell with the ability to develop into other cell types in the body.

The 2 main sources of stem cells are:
Embryos
Adult blood and bone marrow.



The stem cells in embryos are more desirable as they can be turned into a wider variety of different cells compared to adult stem cells.

In the future they may be used to replace cells and tissues that have been damaged or lost due to disease. This may allow us to cure many diseases like cancer, Alzheimer's and Parkinson's disease.

In particular, South Korea is leading the way in Stem Cell Research. Reasons for this include:

- South Koreans don't tend to question the morals of using embryos for research as much as in some other parts of the world.
- South Korean scientists tend to work collectively and collaboratively, sharing their findings.
- There is a strong work ethic in South Korea and scientists work extremely hard.

Why do some people agree with stem cell research?

A foetus **could** become a human and so we should not damage it.

Stem cell research could potentially require **cloning** cells. This is unpopular with many people.

We should not interfere with human life or try to play God

Why do some people disagree with stem cell research?

It is OK if we use adult stem cells

A foetus in its earliest stages is not yet a human - it is simply a collection of cells.

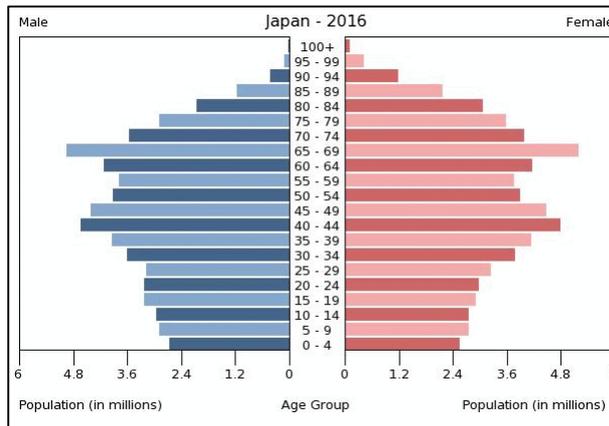
Stem cells could be used to cure cancer in the future.



Lesson 5. What is an 'ageing population?'. An ageing population can be defined as an **increase in the average age** of a population due to a **reduction in birth rate** or an **increase in life expectancy**. **Japan** is our case study of an aging population.



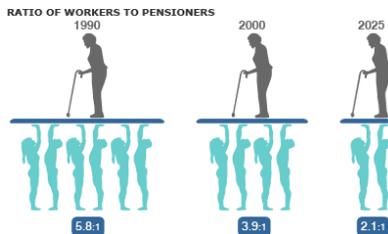
Japan is located in North East Asia. Japan is a group of islands, with over 3000 small islands and four larger, main islands. Japan is located to the east of China, North Korea and South Korea and Russia.



Japan's population is often described as a 'demographic time bomb' due to the high number of elderly. One out of every eight people living in Japan is at least 75 years old. There are twice as many people who are aged 65 or older than the number of children under the age of 15.

Reasons for High Life Expectancy

- Excellent healthcare
- Sociable communities for the elderly
- Very healthy diets
- Elderly are very active - fisherman/farmers.
- Work into old age - a reason to wake up.



Problems with High Life Expectancy

- 20% of elderly on the poverty line
- Poor pensions in Japan - many forced to work until they die.
- Young people are struggling to find jobs due to elders occupying them.
- Homeless elderly often try to get arrested - so they have a bed and food for the night.
- Struggling economy.



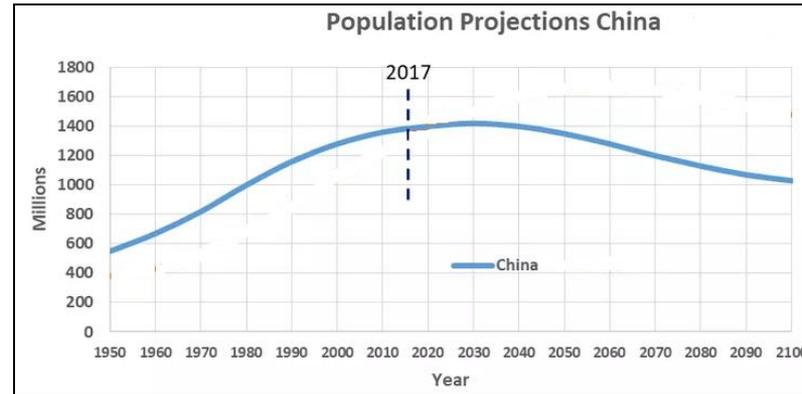
Lesson 6. How has the One Child Policy affected China's population?. China's one child policy was introduced in **1979** and was the **first of it's kind**. The aim was to **reduce population growth** by making it **illegal** for residents to have **more than one child**.

Facts about the policy:

- China's best-known population policy was introduced to limit population growth.
- The majority of people were only allowed to have one child or face heavy fines or lose their jobs.
- China's one-child rule was created in 1979 by Chinese leader Deng Xiaoping to temporarily limit communist China's population growth.
- It was in place until January 1, 2016.
- When the one-child policy was adopted in 1979, China's population was about 972 million people.
- China was expected to achieve zero population growth by 2000, but it actually achieved that seven years earlier.

Positive impacts of the One Child Policy

- ✓ Parents with one child are issued with a "one child" certificate entitling them to cash bonuses.
- ✓ A new generation of highly educated professionals have emerged, which has resulted in a stronger economy.
- ✓ There are more young educated women in Chinese society. Nearly 50% of all undergraduates and graduates are female.



Negative impacts of the One Child Policy

- ✓ By 2030 there will be 30 million more men than women. Many of these men will be unable to find wives.
- ✓ Parents with extra children are fined and if they are unable to pay, their homes are confiscated.
- ✓ Children in China have lots of pressure on them to succeed because they are only children. This has led to high suicide rates.



Who Wants to Live Forever? Topic Glossary

Keyword	Definition
life expectancy	The probable average number of years an individual or class of persons will live to, determined statistically, affected by such factors as heredity, physical condition, nutrition and occupation.
social factors	The lifestyle choices a person makes which could improve or decrease their life expectancy, such as diet, nutrition and exercise. Drinking alcohol, drug taking and smoking are also social factors.
economic factors	How personal wealth/finance affect life expectancy. Generally, the wealthier a person is the longer they live for.
environmental factors	How factors such as climate, pollution and natural hazards affect a person's life expectancy.
vaccinations	Treating patients with inoculation to prevent the spread of a disease and increase immunity.
Smallpox	Smallpox is an ancient disease Symptoms included high fever and fatigue, followed by a rash on the face arms and legs. The spots fill with liquid which turns to pus. Smallpox was deadly in 30% of cases.
Polio	Polio is an infectious disease that causes paralysis and death. It was very common worldwide in the past.
Stem cell research	A stem cell is a cell with the ability to develop into other cell types in the body. On-going research means that stem cells could be used to replace cells and tissues that have been damaged or lost due to disease. This may allow us to cure many diseases like cancer, Alzheimer's and Parkinson's disease.
ageing population	An ageing population refers to a phenomenon in which the age of the population in a region or country rises significantly when compared to the total population. This is caused by a declining birth rate or rising life expectancy.