





	<p><b>How do variations in life expectancy occur according to income, occupation and gender?</b></p>	<p><a href="http://www.pm.gov.uk/files/pdf/health%20inequality%20map.pdf">www.pm.gov.uk/files/pdf/health%20inequality%20map.pdf</a></p> <p>According to the charity Help the Aged, there are two main reasons why women live longer than men:</p> <ol style="list-style-type: none"> <li>1. <b>Lifestyle differences:</b> women are generally more physically active than men and are less likely to smoke or drink excessively.</li> <li>2. <b>Biological differences:</b> there is growing evidence that women are biologically tougher than men and female hormones offer protection against some diseases.</li> </ol> <p><a href="http://www.helptheaged.org.uk/en-gb/AdviceSupport/HealthAdvice/HealthyAgeing/AllAboutAgeing/as_ageing_160106_3.htm">www.helptheaged.org.uk/en-gb/AdviceSupport/HealthAdvice/HealthyAgeing/AllAboutAgeing/as_ageing_160106_3.htm</a></p> <p>Some occupations have a greater risk to health than others, for example manual jobs or those where employees are exposed to harmful chemicals or pollutants.</p> <p>Variations in income can affect an individual's access to healthcare, education, housing and a healthy diet, all of which can impact on life expectancy.</p>
<p><b>Lesson 2: Why are people living longer?</b></p>	<p><b>What changes have occurred which mean we are now living longer than previous generations?</b></p>	<p>During the twentieth century, life expectancy rose dramatically amongst the world's wealthiest populations from around 50 to over 75 years. This increase can be attributed to a number of factors including improvements in public health, nutrition and medicine. Vaccinations and antibiotics greatly reduced deaths in childhood, health and safety in manual workplaces improved and fewer people smoked. As a result of this – coupled with a decline in the fertility rate (the average number of children that women have in their lifetime) – many major industrial countries are facing an ageing population.</p> <p>It is likely that life expectancy of the most developed countries will continue to slowly advance and then reach a peak in the range of the mid-80s. According to UN statistics for the period 2005 – 2010, Japan (82.6 years) has the world's highest life expectancy followed by Hong Kong (82.2 years) and Iceland (81.8 years). The world average is 67.2 years and the UK average is 79.4 years.</p> <p>In the U.K, Life expectancy at birth increased by almost a decade in the first 50 years of the NHS (established in 1948). In 1948, 40% of people died before reaching pensionable age, but by 1996 this was reduced to just 7%.</p> <p>During the Roman Empire, Romans had a approximate life expectancy of 22 to 25 years. In 1900, the world life expectancy was approximately 30 years and in 1985 it was about 62 years, just five years short of today's life expectancy.</p> <p>Life expectancy changes as you get older. By the time a child reaches their first year, their chances of</p>



**Are we now more informed about how to prolong our lives?**

living longer increase. By the time of late adulthood, your chances of survival to a very old age are quite good. For example, although the life expectancy from birth for all people in the United States is 77.7 years, those who live to age 65 will have an average of almost 18 additional years left to live, making their life expectancy almost 83 years.

<http://unstats.un.org/unsd/demographic/products/socind/health.htm>

[http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_life\\_expectancy](http://en.wikipedia.org/wiki/List_of_countries_by_life_expectancy)

The three big reasons that people in the UK are living increasingly longer lives are:

1. Food supply and nutrition
2. Health
3. Hygiene

These three things have all seen marked improvements in standards since the nineteenth and early twentieth centuries. However, another important factor is our knowledge of their importance to our health and life expectancy, and of the steps we can take to ensure that we lead a healthy lifestyle. Our access to relevant information has also improved dramatically as a result of scientific research and methods of information dissemination (e.g. the Internet).

For example:

The packaging of food products at increasing numbers of shops and supermarkets displays the nutritional content of food and uses colour coding so that we know whether it is good for us. The importance of eating a balanced diet is widely known.

Government and charity websites provide information about the lifestyle choices we can make in order to reduce our risk of developing diseases. The effect that smoking cigarettes can have on our health is widely advertised, and warnings included on packaging. In the UK, a smoking ban in public places has been introduced and the age at which young people can buy cigarettes has been raised to 18 years.

Adverts on buses and tubes inform us of the importance of washing our hands and covering our mouths when we cough or sneeze in order to reduce the spread of illnesses and diseases. Health and safety legislation provides strict regulations for hygiene in restaurants, hospitals and factories.

But following a healthy lifestyle is still a choice that we make, and not everyone chooses or is able to do so.



**Lesson 3: Long life futures**

**What are the biggest killers in the UK today?**

Causes of death in the UK have changed over time. Until around 50 years ago, one of the major causes of death amongst the adult population was tuberculosis. For children under the age of 5, the main cause of death in 1949 was premature birth. Today it is motor vehicle accidents.

Today, the main causes of death for people in the UK are as follows:

**Men**

- Heart disease - 20.2%
- Cerebrovascular diseases - 7.9%
- Lung cancer - 6.9%
- Chronic lower respiratory disease - 5.6%
- Flu/pneumonia - 5%
- Prostate cancer - 3.7%
- Colon cancer - 3.1%
- Lymph cancers - 2.3%
- Alzheimer's disease/dementia - 2.1%
- Aortic aneurysm - 2%

**Women**

- Heart disease - 16%
- Cerebrovascular disease - 12.9%
- Flu/pneumonia - 7.9%
- Alzheimer's disease/dementia - 5.2%
- Chronic lower respiratory disease - 5.2%
- Lung cancer - 4.9%
- Breast cancer - 4.5%
- Heart failure - 3%
- Colon cancer - 2.7%
- Urinary diseases - 2.5%

<http://news.bbc.co.uk/1/hi/health/5016720.stm>

**What is science doing about old age?**

Diseases like smallpox and polio used to kill millions of people in the UK, but scientific developments have resulted in their eradication in the UK. Edward Jenner developed the first vaccination for smallpox in 1796. The disease was officially declared globally eradicated in 1979. The first polio vaccinated came much later, in 1952. This disease was eradicated from the Americas in 1994 and Europe in 2002. It now remains endemic in only 4 countries: India, Pakistan, Afghanistan and Nigeria. Even the flu vaccine has resulted in a dramatic decrease in the number of deaths from this illness, particularly amongst the elderly.



**Who is helping in the fight against old age?**

Charities like the British Heart Foundation and Cancer Research as well as research councils such as the Wellcome Trust and the National Institute for Medical Research fund ongoing scientific investigations to find treatments, cures and vaccines for diseases still prevalent in the UK.

For example, breast cancer rates have increased by over 50% in the UK over the past 20 years, but due to developments in screening for and treating the disease, survival rates are improving. In the 1970s, only 50% of people survived for more than 5 years after diagnosis. Now it's 80%

<http://info.cancerresearchuk.org/cancerstats/types/breast/>

Recently, advances in stem cell therapy in conjunction with gene therapy have created the potential to treat genetically inherited diseases. Scientists think that conditions like Parkinson's disease, Alzheimer's disease, heart disease, stroke, arthritis, diabetes, burns and spinal cord damage have the potential to be treated using stem cell therapy. However, their use is controversial because stem cells are usually taken from lab-created human embryos 4 or 5 days old and many people believe that even at such a young age the embryos have a right to life and hence that it is morally wrong to experiment on them.

[www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Human-Fertilisation-and-Embryology-Bill/Stem-cell-basics/WTD040069.htm](http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Human-Fertilisation-and-Embryology-Bill/Stem-cell-basics/WTD040069.htm)

All of these advances in medical research aim to keep people alive, with the result that they increase life expectancy.

It is no longer just Europe, Japan and North America that lead the way in science and medicine. The economic rise of Asia has meant that countries like South Korea, as well as China and India, are now as likely to make breakthroughs as some of the longer developed countries. South Korea in particular has become associated with stem cell research.

There are a number of reasons suggested for why this is the case:

- 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.
- Major advances have been made in IVF in South Korea, meaning that many scientists are trained in the intricacies of this related area.
- There is a strong work ethic in South Korea and scientists work extremely hard.
- Scientists are revered in South Korea. It is a popular and trendy subject which attracts the best students.
- In 2002 the government funded Stem Cell Research Centre (SCRC) was opened in South Korea.
- Many South Korean women volunteer to donate their eggs for research for free, resulting in a large



<p><b>Lesson 4: Where is Granny going?</b></p>	<p><b>What percentage of the UK population is over 65?</b></p> <p><b>Why do some places have higher numbers of old people than others?</b></p> <p><b>What challenges and opportunities do these high numbers of older people bring?</b></p>	<p>supply. There is even a waiting list for donations. In the US and UK eggs are paid for.</p> <ul style="list-style-type: none"> <li>• 17% of the UK population is over 65 years</li> <li>• 20% of the UK population is under 16 years</li> </ul> <p>Together, these form the 'dependent' population (economically inactive). The economically active population (between 16 and 65 years, thus forms 63% of the population).</p> <p>Some places in the UK, particularly on the south coast (e.g. Eastbourne and Worthing) have a reputation as being "retirement towns". And the reality may not be too far from this. In both Eastbourne and Worthing, 23% of the population is over 65 (6% more than the country average). If you compare this with the London Borough of Wandsworth, where only 10% of the population is over 65, this difference is quite significant.</p> <p>There are many reasons why the over-65s might choose to retire to some areas over others, and it is important not to generalise. Some 'pull factors' (reasons attracting people to an area) might include:</p> <ul style="list-style-type: none"> <li>• People are living longer and want to move somewhere pleasant and peaceful for their retirement.</li> <li>• Flat land close to the sea is often accessible for older people.</li> <li>• Coastal towns and cities can be more peaceful to live in than large cities.</li> <li>• The scenery and views of the sea might attract older people.</li> <li>• Services and healthcare for the elderly may be well established in these so-called "retirement towns".</li> <li>• Cleaner air and less pollution may have health benefits.</li> </ul> <p><b>The potential challenges of an ageing population:</b></p> <ul style="list-style-type: none"> <li>• The average age of the area's population will start to increase, resulting in a larger population of dependents.</li> <li>• Local councils may need more money to pay for the cost of housing, services and healthcare for the elderly so may need to raise taxes.</li> <li>• Young people may begin to leave the area as they feel that it no longer caters for them.</li> <li>• Shops and services for young people may start to close down if young people leave the area.</li> <li>• The area may get stuck in a 'time warp' as older people may be more resistant to change.</li> </ul> <p><b>The potential opportunities arising from an ageing population:</b></p> <ul style="list-style-type: none"> <li>• The grey pound! Shoppers aged 65 – 74 splashed out an average of £4,379 each in 2007 and this is predicted to rise to £6,055 by 2017. Much of the money was spent on beauty, fashion and electrical goods.</li> </ul>
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<p><b>Lesson 6: Staying alive</b></p>	<p><b>How are our lives regulated by health and safety legislation?</b></p>	<p>The Health and Safety Executive (HSE) was originally set up in 1974 as part of the Health and Safety at Work Act. Its job is to protect people from risks to health and safety arising from work activities. The HSE sets out legislation and guidelines for workplaces and beyond. Their website (<a href="http://www.hse.gov.uk">www.hse.gov.uk</a>) has sections for every possible type of industry.</p> <p>Many people think that Health and Safety legislation in the UK has gone too far, and the HSE have often been accused of being "killjoys". However, many of the rumours that are banded about concerning what the HSE is going to ban next – donkey derbies, egg boxes, step ladders, etc. – are actually unfounded. The HSE website includes a section on "Myth of the Month", which makes an entertaining read!</p> <p><a href="http://www.hse.gov.uk/myth/index.htm">http://www.hse.gov.uk/myth/index.htm</a></p> <p>In this lesson, students will reveal the health and safety advice and regulations that they have come across in their daily lives while completing their risk diaries. There is a great opportunity here to discuss the balance between safety, responsibility and fun.</p>