

# HOW TO GET TO 100 AND ENJOY IT

**What does the future look like to you?**

**Name:** .....

**School:** .....





# HOW TO GET TO 100 AND ENJOY IT

Understanding the size and make-up of the population is important for the supply of housing, goods and services to the people who live in a particular place.

The size and make-up of a population changes through births, deaths and the movement of people between areas. Births and in-migration increase the population, deaths and out-migration decrease it.

Currently the UK population is growing; this is because there are more births than deaths and more people coming in to the country than leaving it. One of the reasons there are more births than deaths is because people are living longer.

This workbook goes with the exhibition on 'How to get to 100 and enjoy it' and describes the increase in the number of people living to older ages. It discusses some related population issues and contains exercises on some of the main population changes occurring today.

# How long will we live?

When we think about how long we might live, we may think about how long our grandparents or great-grandparents lived and imagine that our lives could be of a similar length to theirs. In fact, in the UK, every generation is living longer than the last. One in three people born in 2013 are expected to live to age 100, which is more than ever before.



Life expectancy is the average number of years a person can be expected to live if the levels of death in a population stay the same as they are today. We can measure this for people born in a particular year (a birth cohort) or for everyone living in a current year (e.g. 2013).

## Proportion of people born in 2013 who will live to 100 (estimated)

Source: Historic and Projected Data from the Period and Cohort Life Tables, 2012-based Office for National Statistics

UK:

M 30.1 F 38.7

Scotland:

M 27.0 F 34.4

Northern Ireland:

M 28.9 F 37.0

Wales:

M 29.2 F 37.7

England:

M 30.5 F 39.3

## Soaring Life Expectancies

Thinking back to when our great grandparents were born, at birth a baby boy born in 1901 could expect to live on average for just 50 years, while baby girls born in the same year were expected to live, on average, until they were 57.

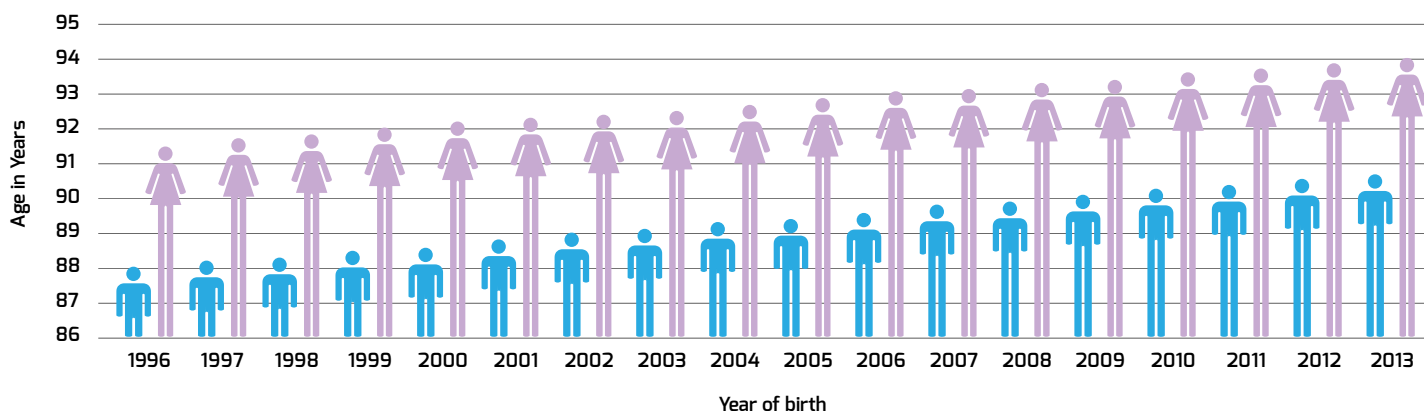
Over the last 100 years in the UK, life expectancy at birth has nearly doubled, meaning that baby boys born in 2013 can expect to live, on average, for 90 years, whereas baby girls can expect to live until they are 94. The rise in average life expectancy across the last century is equivalent to gaining 7 hours of life expectancy a day! The increase in life expectancy is one of the main reasons for the increase in the size of the population.

### Question:

Using the graph below, what is your life expectancy, given the year you were born?

## Life expectancy at birth in the UK, by year of birth

Source: Cohort expectation of life tables, Office for National Statistics, 2013



### Why are we living longer?

The main reasons are:

**Medical interventions** – advances in medicine mean that more people are surviving heart disease, strokes and cancers.

**Fewer smokers** – fewer people are dying from smoking-related illnesses.

**Healthier diets and lifestyles** help to reduce the levels of illness.

As a result of people living longer we now have more people over the age of 90 than ever before. In 1971, 0.2% of the population of the UK was over the age of 90. Current projections tell us that by the year 2027, 1.5% of the population of the UK will be over the age of 90. 1.5% of the population might not sound like a lot but that will be over one million 90th birthdays to be celebrated!

# What influences living long, healthy lives in the UK?

It's good news that we are all living longer, but some people might worry that these additional years will be spent in ill health. We can look at the number of years spent in good health by measuring healthy life expectancy. It is important to measure healthy life expectancy because being healthy influences people's quality of life.

Some groups of people are more likely to be ill in old age than others. Where you live, your gender, the type of job you do and your social class are some of the things that affect this. Social class can affect health because people in lower paid jobs often have less money which leads to limited access to good quality housing, food, education and health care. Often they also have more physically demanding jobs, which can take their toll on long term health and healthy life expectancy.

In the UK, people in lower paid jobs have a higher chance of being overweight or obese. They are also twice as likely to get cancer by age 75 than people in the highest social class. Unfortunately, people in lower paid jobs are also the least likely to go to a doctor or seek out health services.

## Question:

In 2011, a girl born in the richest areas of England could expect to live 20 years longer in "Good" health than a girl in the poorest areas of England. Why do you think this might be?

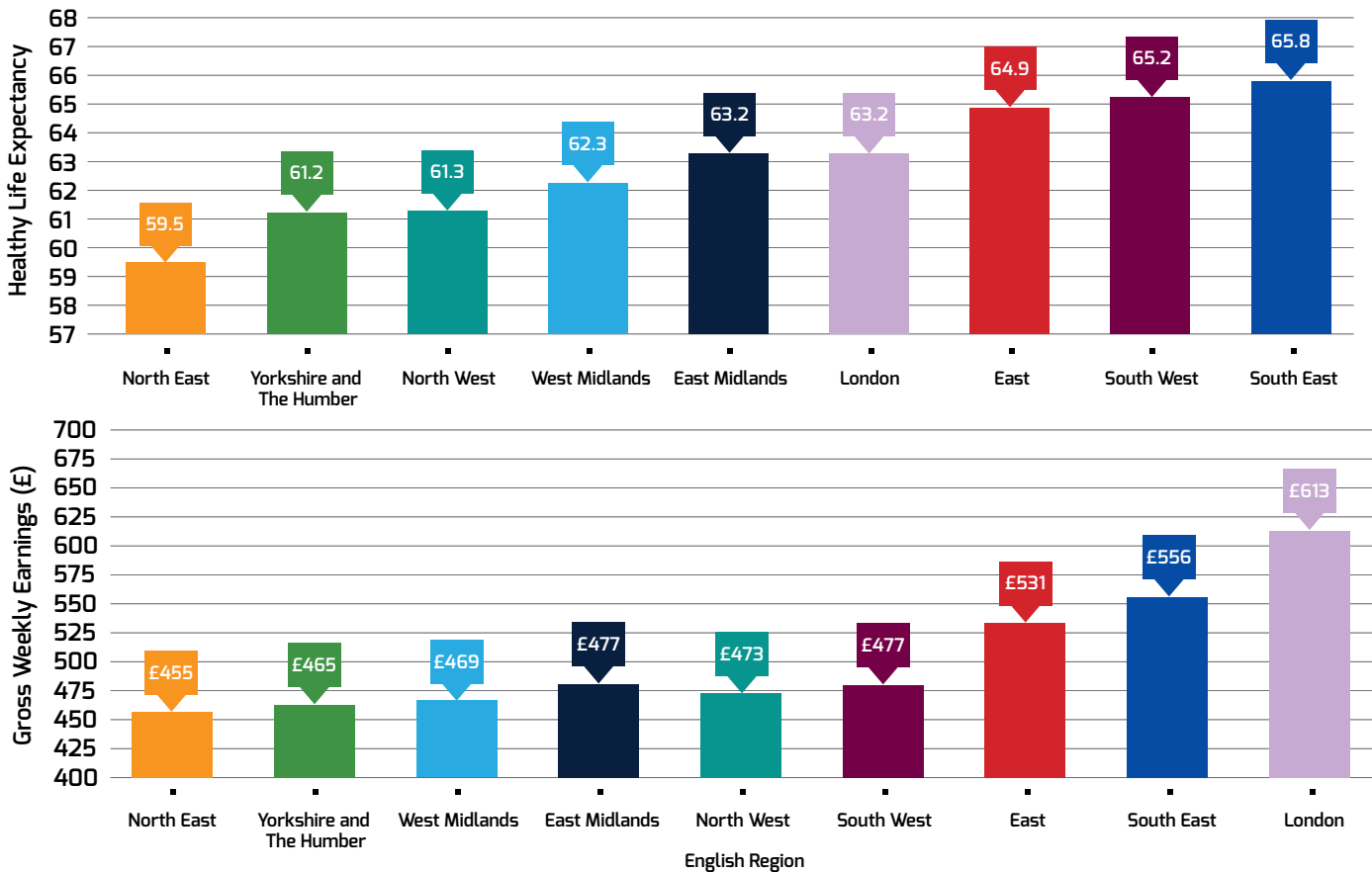
## Top five causes of death in England and Wales, 2013

Source: Office for National Statistics, 2013

Rank	Leading cause of death for men	Leading cause of death for women
1	Heart disease	Dementia and Alzheimer's
2	Lung Cancer	Heart disease
3	Emphysema/bronchitis	Stroke
4	Stroke	Flu/ pneumonia
5	Dementia and Alzheimer's	Emphysema/bronchitis

# Healthy life expectancy for men in English regions, 2010-2012 & Median gross weekly earnings by English region, 2012.

Source: Office of National Statistics. Source: Labour Force Survey, Annual Population Survey and Annual Survey of Hours and Earnings, Office for National Statistics; Department of Finance and Personnel, Northern Ireland; Northern Ireland Statistics and Research Agency



## Question:

What do you notice about the relationship between healthy life expectancy and income at a regional level?



The mean is the total of a set of numbers divided by how many numbers there are, the median is the middle value, and the mode is the number which appears the most. To find out more, see the back page of this workbook.

# Who is going into higher education and why?

In the previous section we have seen that social class and the type of job people have can influence health and life expectancy. Whether you get a job is influenced by your education. In 2011, UK residents who had degree-level education were three times more likely to be working than UK residents who had no qualifications.

Educational attainment can have an impact on how much money people make, both when they leave school, college or university and as they grow older and gain more experience. The chart on the right shows the difference in median hourly pay for people with different levels of education in 2010.

## Median Hourly Pay (£ per hour)

Source: Office of National Statistics



## Question:

What is the difference in median hourly pay between a person with no qualifications and a person who has a degree?

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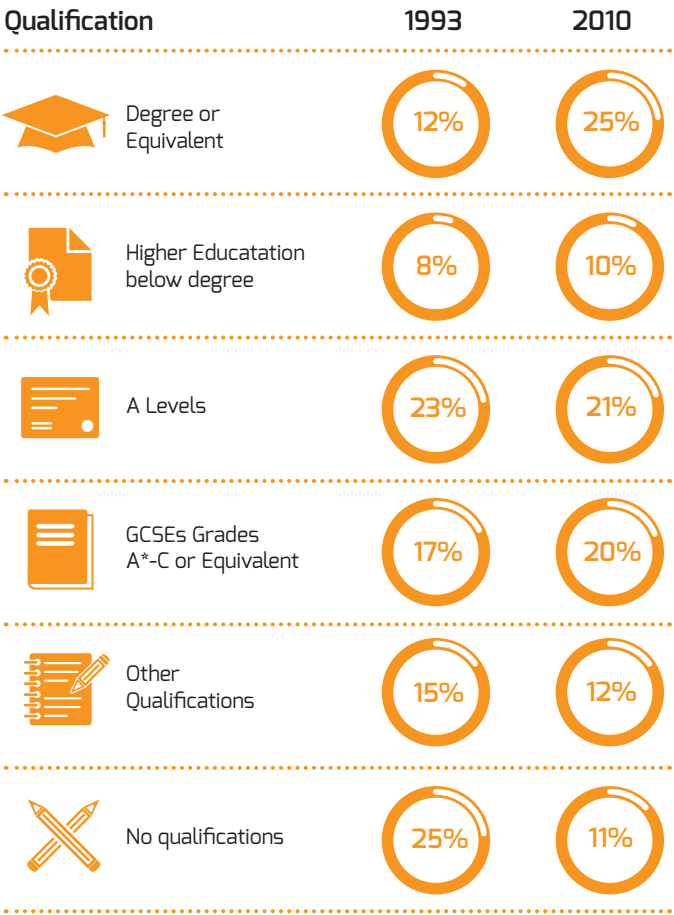
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# Percent of the UK population aged 22-64 by highest educational qualification

Source: Office for National Statistics, 2011



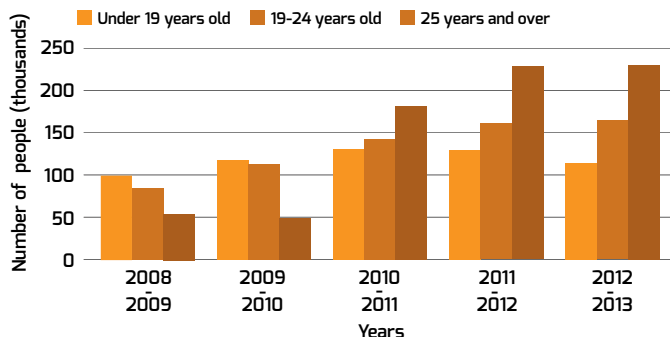
More and more young people are staying in education longer. Between 1998 and 2011, the percentage of young people in higher education in England increased from 30% to 38%. In Wales, the percentage of young people in higher education rose from 31% to 34%, and in Scotland, from 40% to 45%.

The table to the left shows that the percentage of UK citizens with no educational qualifications has fallen considerably in the last twenty years. While the percentage of the UK population with GCSE grades at A\*-C in 2010 is similar to that in 1993, the percentage with a degree (or its equivalent) has grown over the last two decades.

This increase isn't limited to just degree programmes. There has also been an increase in the number of young people starting apprenticeship programmes. An apprenticeship is a training course which is made up of on-the-job training and some classroom study.

## Number of Young People Starting Apprenticeships in the UK

Source: Department for Business Innovation and Skills



### Question:

Since 2009 the number of people aged 25+ starting apprenticeships has increased dramatically, why do you think this might be?

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## Why might people be choosing to spend more time in education or training?

During recessions, when the economy is in decline, it may be that people enrol in degree programs and extended training to increase their chances of getting a job. Evidence suggests this is a good plan: a survey of people who gained a degree in the previous 6 months found that 78% were employed, while 14% had gone on to further study and 6% were working while continuing their education.

We've seen that more young people are staying in education and training after secondary school. This may allow them greater employment opportunities in the long run, because higher education can have a considerable impact on future employment.

**Apprenticeships take between 1 and 4 years to complete depending on their level.**

**An apprentice:**

- works alongside experienced staff
  - gains job-specific skills
    - earns a wage
- studies towards a related qualification



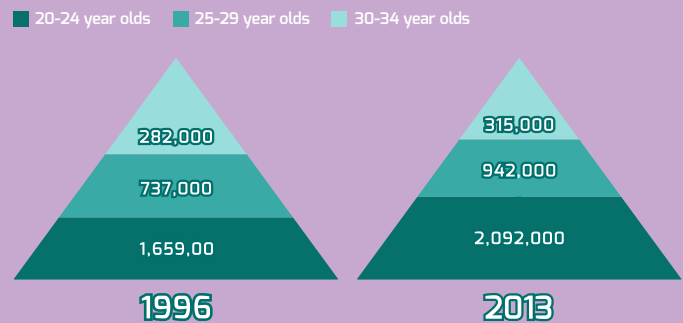
# What does independence mean to you?

One result of people staying in education longer is that in the last 20 years, the number of young adults living at home has increased. Some young people view moving out of their family home as an important milestone on the road to independence. In 2013, almost 3.4 million adults aged 20-34 were living at home with their parents, 25% more than in 1996. Staying in education longer, increased student debt and a difficult job market leave young people with less money to get their own place until they are a bit older. Young people are also getting married and having children later and so may stay living with their parents. Or they may return to the parental home after a relationship breaks up. The increasing expense, and in some cases limited amount of housing has also led to more young adults living with parents for longer.

**Only 6 of the 28 European Union countries had lower percentages of 25-34-year-olds living at home with their parents than the UK. All of these countries were in north western Europe.**

## Number of Young Adults Living With Parents in the UK 1996-2013

Source: Office of National Statistics 2013



### Question:

What age group has seen the largest increase in living at home with their parents since 1996?

It is becoming increasingly more common for young adults to rely on their parents for housing. More young people also depend on money from their parents and grandparents to help them leave home. For example, in 2005, half of first time buyers under 25 were able to buy a property without assistance. In 2011, this number had fallen to less than one in ten. But not every young adult is able to stay at home with their parents or rely on them for financial help.



## Question:

As well as leaving home, what else do you think takes you from being a teenager to an adult? Is it turning 16? Or 18? Or maybe learning how to drive?

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Not all young adults in their twenties who live at home do so for the same reasons. Some young people find themselves living at home in their twenties because they don't have the money to leave home, while others leave to go to university and then return. Unemployment is another key reason young people live with their parents. There is a strong link between becoming unemployed and returning to live with parents, especially among men.

More young adult men than young adult women live with their parents. One reason for this is that when young couples split up, women are more likely to stay in the house they rented or bought as a couple while men are more likely to return to live with their parents. A reason for this is that women are more likely to stay living with any children which makes moving in with parents more difficult. A 2013 study found that for people aged 20-24, for every 10 women living with their parents, 17 men were doing so. However, as we have seen more women are going into higher education and putting off having children to later ages, so the number of young women living in their parents' home is likely to go up and the difference between men and women may get smaller.

Unemployment is one of the main reasons young people live with their parents. In 2013, 13% of young people living with their parents were unemployed compared to only 6% of young people living independently.



# Might you find a partner, marry or have children?

Living longer is having an effect on how people plan their lives and the timing of key life events. We have already seen that people are staying in education longer. The timing of partnership and having children is also changing.

Nowadays it is more popular than ever before for people to live together without being married. In 2011, 12% of the population of England and Wales were living with a partner - this is 5.3 million people.

However, marriage is still popular and the majority of people get married at some point. In the past, the average age of marriage between men and women was considerably younger than it is today. In 1971 when many of our grandparents were getting married, the average age at marriage was 24 for men and 21 for women. By 2013, the average age at marriage was 29 for women and two years older at 31 for men. The age gap between men and women has remained similar.

Civil partnerships tend to be formed at older ages than marriages. The average age of men forming a civil partnership in the UK in 2012 was 40 years, while for women the average age was 38 years. Civil partnerships are a legal recognition of a relationship between two people of the same sex.

The average age at which people become parents is also increasing. In 2013, on average, mothers had their first baby at age 30. Twenty years earlier in 1993, on average mothers were having their first baby at age 28. In 2012 the number of teenage pregnancies hit a record low.

More women and men are choosing to get married and have children at later ages than ever before. Some of the reasons for this are that young people are staying in education longer, costs of day to day living have increased and it may be more difficult to find secure employment.

## Percent of live births to mothers of different ages in the UK, 1973 -2013

Source: Office for National Statistics, 2013



The graph shows us the percentage of babies born to mothers of different ages in 1973-2013. For example, in 1973, about 11% of babies were born to a woman under 20 years old.

### Question:

Look at women aged 30-34 years old in the graph to the left (the purple bars), estimate what percentage of babies were born to women in this age group in 1973 and what percentage were born to women in this age group in 2013? Why do you think this has happened?

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# Why is migration important?

We have seen that the UK population is changing because people are living longer and reshaping the timing of events in their life time. The population also changes due to the movement of people entering or leaving it.



The movement of people between countries is called **migration**, whilst the movement of people within a country is called **mobility**. You can move into a country, known as **immigration** and out of a country, known as **emigration**.

The earliest references to immigration to the UK can be found in English documents dating back to the 1200s. This shows us that immigration has been shaping the population here for hundreds of years! Events like wars and economic crises have influenced who moves where and when. For example, in the early 1900s, an average of 80,000 people per year left the UK, while from 1931 to 1961 the UK gained about 19,000 immigrants per year. From the 1960s to the 1980s, a period when the economy was unstable, the UK was losing around 20,000 people per year. Recently, the UK has been gaining about 100,000 people per year through immigration.

Migrants tend to be young and contribute to the population who are working. Migrants increase the percentages of younger people in the overall population.

Why has there been a recent increase in immigration to the UK?

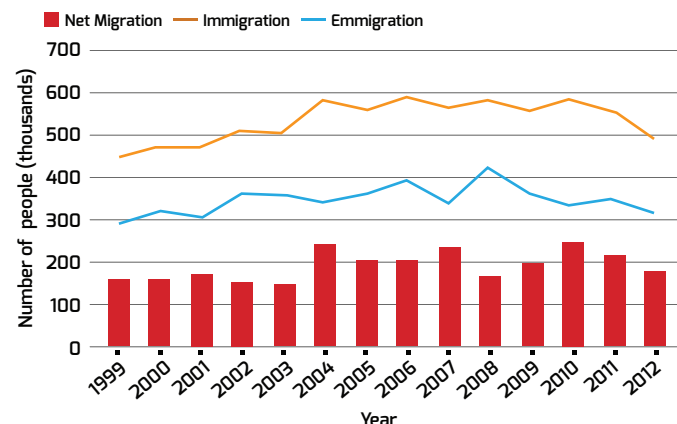
The European Union, or EU, is a group of 28 European countries that work in partnership. People who live in countries that are part of the EU can move from one EU country to another without needing a passport or a visa. This free movement throughout the EU allows migration between the countries of Europe.

In 2004, ten new countries were admitted to the European Union, the majority of which are located in Eastern Europe. The addition of more European nations led to an increase in immigration to the UK. You can see in the first graph on the next page that the net migration increased after 2003. Not all of the increase in migration to the UK is due to increased migration from the EU, people also come from other countries. Because UK universities have been successful in attracting students from overseas, migration of students from outside the EU for education has increased greatly since the 1990s. Armed conflict in some parts of the world has also contributed to immigration to the UK. The UK is a safe place to live for some migrants who were in danger in the country in which they were living.



## Migration in the UK, 1999 - 2012.

Source: Office of National Statistics, 2014



Net migration is the difference between people moving into a country and people moving out of a country (Immigration minus emigration).

### Question:

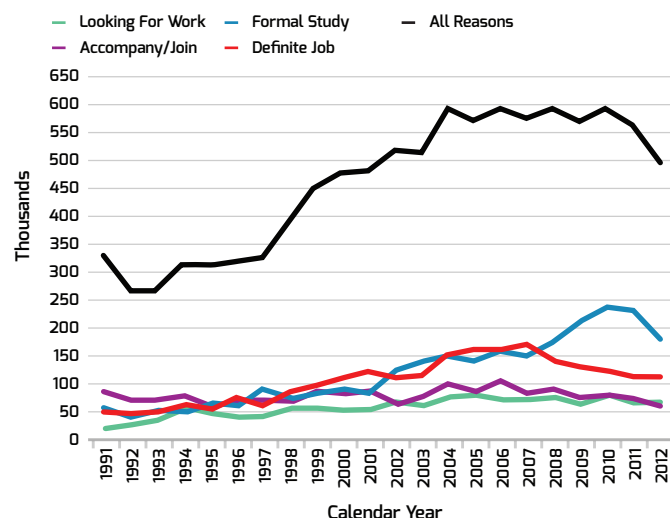
According to the graph above approximately how many people left the UK in 2012? How many joined?

### Why do people migrate?

The number one reason UK-born people leave the UK is to go to a job in another country. Usually, they found the job while they were still in the UK and only move when they definitely have a job to go to. The same is true for people who leave their home countries to come to the UK; one of the most common reasons people come to the UK is to take up jobs. The following graph shows some of the other reasons why people migrate to the UK.

## Immigration to the UK by reason 1991 - 2011

Source: Office of National Statistics, 2013



### Question:

What are the two most common reasons for immigration to the UK after 2004?

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It's interesting to note that employed immigrants tend to be younger than UK-born workers. In 2012, nearly 39% of employed foreign-born residents in the UK were 25 to 35 years old. Less than 24% of employed UK-born residents fell into that age group. This is important because young, working immigrants can help economy grow by being employed, paying taxes, and by being consumers.

# How will the population of the UK change?

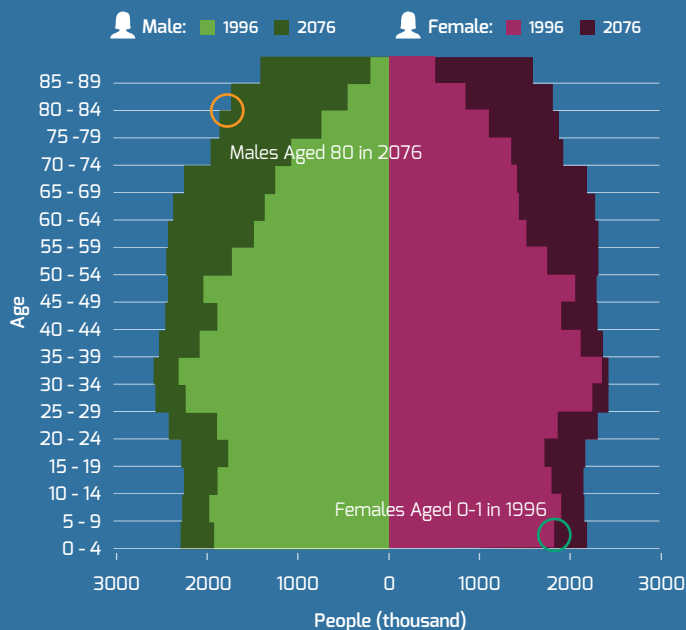
We've seen that we can look forward to living longer, healthier lives. These longer life expectancies will change the population of the UK. By 2035, people over the age of 65 are estimated to make up 23% of the population of the UK. This will be the largest number of over 65's in history. It's also projected that the number of over 85's in 2035 will double compared to the number in 2010 with 5% of the UK population in this group. These increases are the result of large birth cohorts and increasing life expectancies. The number of centenarians (people over the age of 100) has already risen tremendously: in the decade from 2002 to 2012, the number of people over 100 in the UK increased by 73%!



A birth cohort is group of people born during a particular year or group of years.

## Age Structure of UK, 1996 and 2076

Source: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency



In the graph above, known as a 'population pyramid', males are shown in light and dark green and females are in light and dark purple. The people alive in 1996 are shown in the lighter shade and the people alive in 2076 are shown in the darker shade. Imagine you were born in 1996. In the age pyramid for 1996, you would be counted among the people aged 0 at the very bottom of the pyramid. By 2076 you would be age 80 and near the top.

## Question:

What differences do you notice between the pyramids for 1996 and 2076?

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## Question:

Using the age pyramid for 1996, estimate how many men and how many women were aged 80 in that year? Using the age pyramid for 2076, estimate how many men and how many women were aged 80 in that year?

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We have seen that longer life expectancies will change the structure of the UK population and give us more options to change the timing and pattern of our lives. As we live longer, we are likely to also remain healthy for more years. This means we will not only have more time but also more flexibility in how we schedule our lives. We may be able to work less in our younger years, when we are continuing education and starting families, and instead extend our working lives past 65 years old, remaining active, healthy, and engaged for many more years. Given our much longer life spans, we may have the opportunity to change the course of our lives to better suit our long-term needs and personal goals.



# More than Average

When people ask questions about a population, they often want answers that reflect the average, or most typical, responses. That's because these averages help to identify trends in large groups of people. For example, when we say that in 2013, the average age at marriage for women was 28 this doesn't mean that every woman in the UK is 28 years old when she first marries - some women get married younger than 28 and some women get married older than 28.

There are several different types of averages. Three of the most common types of average are **mean**, **median**, and **mode**.

## Mean

The mean is the most commonly used type of average. Let's say we were curious about the mean age of a group of five friends. We'll have to follow two steps to calculate the mean.

First, we need to add up all the friends' ages:

$$12 + 13 + 12 + 14 + 14 = 65$$

Next, we need to divide the total of all the ages by the number of people (which is five, in this case):

$$65/5 = 13$$

The mean age of this group of friends is 13 years old.

## Median

The median is the number that lies directly in the middle of set of numbers. Half the numbers in the set will be smaller than the median and half the numbers will be larger. Suppose we wanted to find the median age for the group of friends above.

**The first step is to put the ages in order, from youngest to oldest:**

12 12 13 14 14

Now that the ages are in order, we can find the age directly in the middle of the set. In this set, the age directly in the middle is 13. This means that the median age in this group of friends is:

13 years old.

We've just found the median in an odd set of numbers, as there were five friends in our group. How would we find the median age if a sixth person, aged 14, joined the group, making it an even set of numbers?

**First, we again need to put the numbers in order, from smallest to largest:**

12 12 13 14 14 14

Now, you can see that we can't find one number directly in the middle of this set, because there are two numbers in the middle: 13 and 14. We need to find a number right in the middle of 13 and 14. To do this, we can add up 13 and 14, and divide by 2:

$$13 + 14 = 27$$

$$27/2 = 13.5$$

**The median age in the group of six friends is 13.5 years old.**

## Mode

The mode is the number in a set that occurs the most. In our example of the group of six friends, their ages were:

12 12 13 14 14 14

In this group, two friends are 12 years old, one friend is 13 years old, and three friends are 14 years old. The age 14 occurs the most times in this group of numbers. In this group of friends, the modal age is 14 years old.

## Useful Links

[www.cpc.ac.uk](http://www.cpc.ac.uk)

[www.ons.gov.uk](http://www.ons.gov.uk)

[www.nrscotland.gov.uk](http://www.nrscotland.gov.uk)

[www.nisra.gov.uk](http://www.nisra.gov.uk)

Additional online resources can be found at:  
[www.liveto100.cpc.ac.uk](http://www.liveto100.cpc.ac.uk)

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