



Theme 1: Population and Settlement

1 World population increase

Population explosion

The population of the world is ‘exploding’. It is growing by 78 million people every year, which means an extra 215 060 people every day. There are 150 more people now than there were one minute ago! If there are 30 people in your class, the world’s population increases by this amount every 12 seconds.

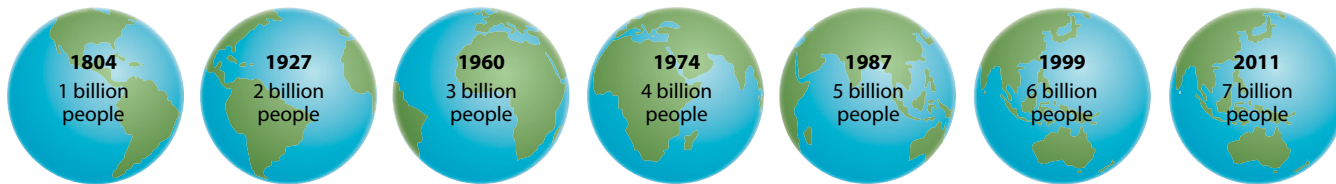
Recently the **United Nations (UN)** released a report which said that the world’s population was likely to be more than 10 billion people by 2100, over 3 billion more than live in the world today. It took until 1804 for the world to reach its first billion people, and a century more until it hit 2 billion in 1927. However, due to reductions in the death rates

in many countries during the 20th century the population had risen to 6 billion in 1999 and by 2011 it had reached 7 billion.

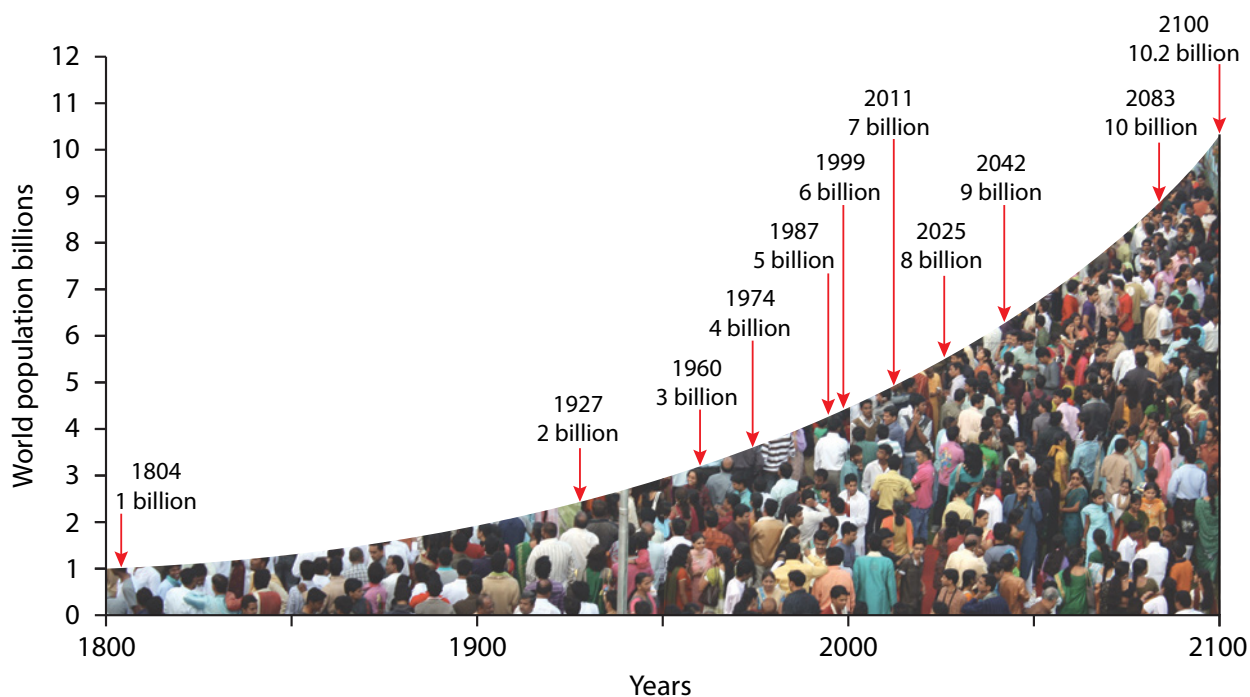
The UN is forecasting that the world’s population will reach 8 billion by 2025 and 10 billion by 2083, but these numbers are estimates. The size of the increase during the rest of the 21st century will depend on whether the number of deaths continues to fall and whether the number of births can be reduced in those parts of the world where they still remain much higher than death rates.

All of those extra people mean more living space will be needed, and many parts of our planet are already becoming more and more crowded. There will be a lot more mouths to feed and more water will be needed. More energy will be required and there will also be a lot more waste to dispose of. More people will mean that more transport is needed and more roads, railway lines and airports will need to be built.

A From 1 to 7 billion



B World population growth



C The world's 7 billionth baby



POPULATION REACHES 7 BILLION

Countries around the globe marked the world's population reaching 7 billion on Monday, with lavish ceremonies for newborn infants symbolising the milestone and warnings that there may be too many humans for the planet's resources.

Festivities are being held worldwide, with a series of symbolic seven-billionth babies being born. The celebrations began in the Philippines, where baby Danica May Camacho was greeted with cheers at Manila's Jose Fabella Memorial Hospital.

'She looks so lovely,' the mother, Camille Galura, whispered as she cradled the baby, who was born about a month premature.

The baby was the second for Galura and her partner, Florante Camacho, a struggling driver who supports the family on a tiny salary.

Dr Eric Tayag of the Philippines' Department of Health said later that the birth came with a warning.

'Seven billion is a number we should think about deeply,' he said.

'We should really focus on the question of whether there will be food, clean water, shelter, education and a decent life for every child,' he said. 'If the answer is no, it would be better for people to look at easing the population explosion.'

Adapted from *NBC World News*, 31 October 2011

TASK 1: Study Sources A and B

- How many years did it take the world's population to increase from:
 - 1 to 2 billion?
 - 6 to 7 billion?
- By 2100 there are likely to be over 3 billion more people living in the world than today. Choose **two** problems which you think will be caused by this. Explain why you think each of these problems will be difficult to solve.
- The figures for 2100 are estimates. Explain why it is difficult to predict exact population numbers for the future.

TASK 2

World population growth is worked out by subtracting the number of people who die from the number who are born (births minus deaths).

With a partner, use the Internet to find information to explain the following facts.

- People lived longer on average at the end of the 20th century than at the start of it.
- In some parts of the world there has been no reduction in the numbers of children being born.

When you have found out the answers, write a paragraph in your own words to explain why world population grew so much in the 20th century.

TASK 3: Study Sources C and D

- Do you agree with the warning given by Dr Eric Tayag? Explain your view.
- Suggest **three** things that could be done to 'ease the population explosion'.
- What message do you think the cartoon in Source D is giving about the world's 7 billionth baby?

D Look what the stork has brought!



2 Over-population and under-population

Too many or too few?

Source A shows part of Jakarta, a city on the Indonesian island of Java, which is **over-populated**. Source B shows part of Australia, an **under-populated** country.

If the number of people living in an area is greater than the resources and technology available to maintain an adequate standard of living for the population, it is over-populated. A large population in a country does

not mean that it is over-populated. For example, there are many people living in Germany but it has enough resources to support its population. However, some rural communities in parts of Africa are over-populated. This isn't because they are crowded with people but because there are not enough resources to support the population living there.

If the number of people living in an area is less than is needed to make full use of the resources available, then the area can be described as under-populated. For example, Australia has many resources but it is not using them fully. The country could support a higher population, which means that it is under-populated.

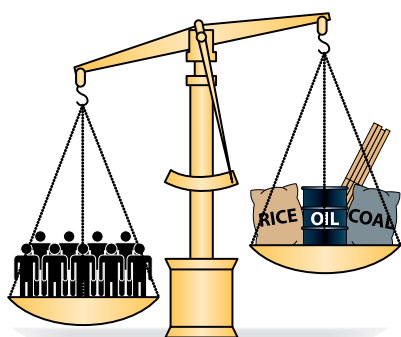
A Over-populated or ...



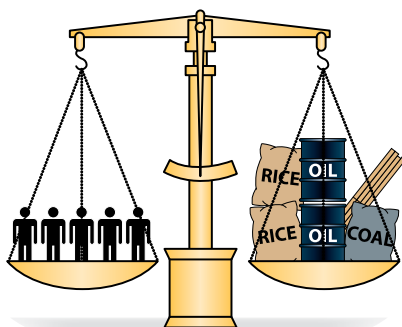
B ... under-populated?



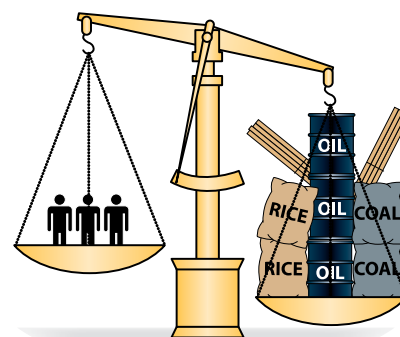
C Population and resources



Over-population



Optimum population



Under-population

D New index highlights most over-populated countries

Singapore is the world's most over-populated country, followed by Israel and Kuwait, according to a new league table ranking countries by their degree of over-population. The Overpopulation Index, published by the Optimum Population Trust to mark World Population Day, is thought to be the first international 'league table' to rank countries according to the sustainability of their populations. It examines data for over 130 individual countries and concludes that 77 of them are over-populated – they are consuming more resources than they are producing and are dependent on other countries. These include China and India, along with many Middle Eastern and European countries.

Adapted from Population Matters

E Consequences of over-population and under-population

Over-population	Under-population
■ not enough housing	■ shortage of workers
■ water and air pollution	■ low level of production
■ shortage of food and water	■ resources underused
■ high crime rates	■ high taxes
■ not enough health care and education	■ lack of government income
■ lack of employment	■ small market for goods and services
■ poverty	■ low value of exports

TASK 1: Study Sources A and B

Use the evidence in the photographs to help you write definitions for over-population and under-population.

TASK 2: Study Source C

- a Use the diagrams to explain what is meant by optimum population.
- b Explain why a country with a large population may not be over-populated.
- c Explain why a country with a small population may be over-populated.

TASK 3: Study Source D

- a Name the **three** most over-populated countries according to the Optimum Population Trust.
- b Choose **one** of the countries named in Source D. Use the Internet to find out why your chosen country is over-populated.

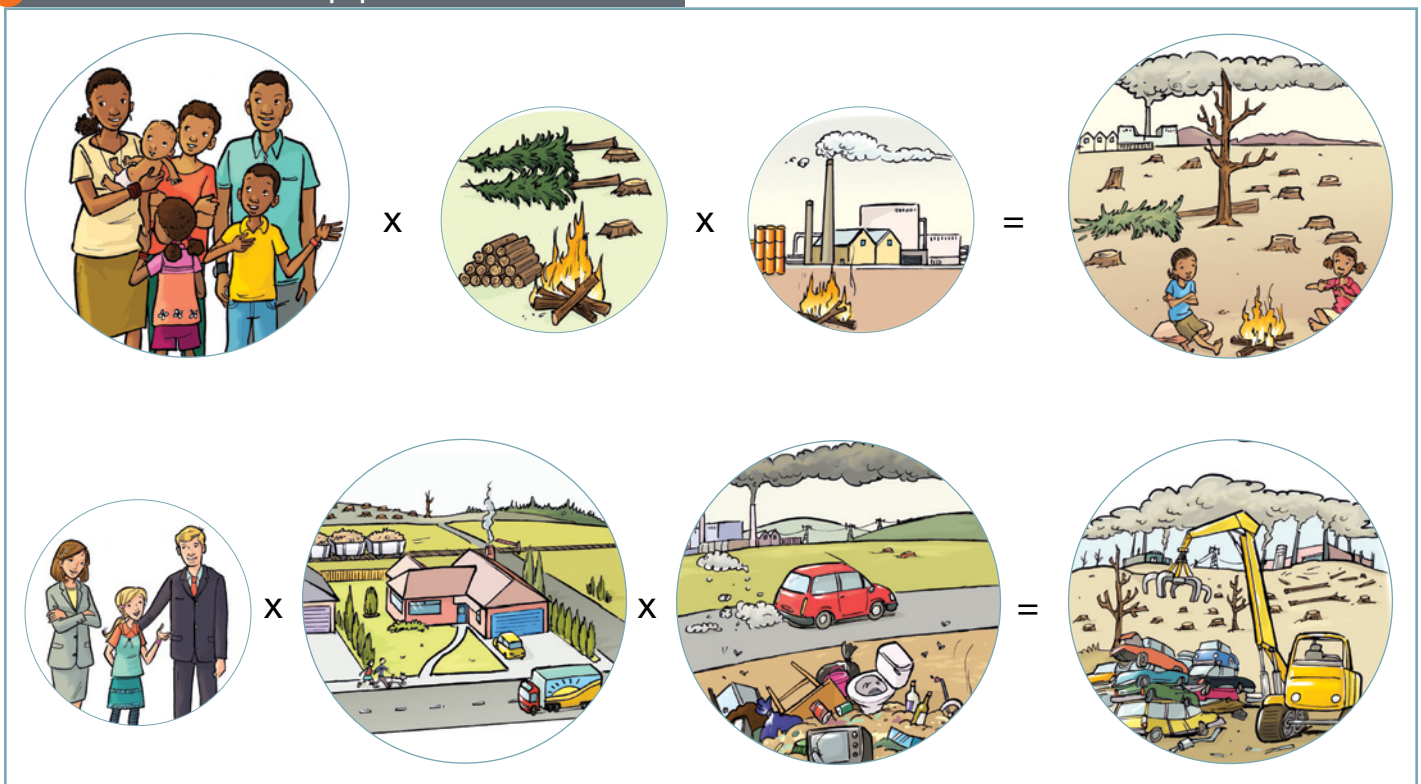
TASK 4: Study Source E

Describe the problems caused by over-population and under-population. For each problem you should add extra detail to the simple ideas listed in Source E.

TASK 5: Study Source F

Explain how the two types of over-population shown have different causes.

F Different causes of over-population





Case Study

Over-population – Nigeria

Nigeria’s population – a silent killer

In 2013 Nigeria had a population of 175 million people with over 60% living on less than one dollar a day. It occupies only 3% of Africa but is home to over 15% of its people. Over-population means pressure on natural resources, high levels of air and water pollution, and a lack of essential services such as health care and education. Overcrowding and lack of accommodation have resulted in increased disease levels, inadequate sanitation and scarcity of resources for medical care and education. Lack of employment and poverty, and the desperation to survive have increased the crime rate and the country now experiences serious over-congestion of public transport, roads and bridges.

B Lagos according to *Lonely Planet*

Lagos is the largest city in Africa, it has wall-to-wall people, bumper-to-bumper cars, noise and pollution beyond belief, an intimidating crime rate, and the public utilities cannot cope with the number of people who need to use them. Elevated motorways ringing the city are jammed with speed freaks and absurd traffic jams (‘go-slows’) on top, and tin-and-cardboard shacks underneath.

Named after the Portuguese word for lagoon, Lagos, the economic and cultural powerhouse of the country, has been a major port, a British political centre and, until 1991, Nigeria’s capital.

Adapted from Lonely Planet

A Some problems caused in Nigeria by over-population

Not enough housing in Kano



Pollution of air and water in Port Harcourt



Shortage of food and water in Yola



High crime rates in Jos



Not enough health care and schools in Ibadan



Congested roads in Lagos



Case Study: Over-population – Nigeria

C Problems in Lagos

Lagos, Nigeria: The maze of shacks on stilts stretch out across the filthy water's surface, canoes colliding as they hustle between them in Makoko, a slum that serves as a warning for the world's fastest growing continent.

Tens of thousands of people live in unhygienic conditions with no public services in this water-top neighbourhood in Lagos, the largest city in Africa.

'I'm just like the other people. I don't have shelter anywhere else,' Friday Gezo, a 25-year-old teacher at a school started through donations, said from his wood-frame classroom when asked why he lived in the slum.

Adapted from *Gulf News*, 30 October 2011

Nnamdi Elendu, an electronics trader has just moved into an apartment in Ijesha, a Lagos suburb. The gutter that runs in front of his entrance gate is constantly filled with rubbish made up of soggy paper, bulging black nylon bags, and empty water bottles. A plastic pipe sticks out of a hole in his neighbour's fence. 'Four different families live in that house, and all of them wash their plates and pots and clothes and empty the water and mess through this pipe.'

'When I was a kid, only two families lived here, but now we have six different tenants sharing the facilities,' said Shalewa Omoluabi, a retired teacher who lives in Surulere.

Adapted from *Osun Defender*

TASK 1

- Using your own words, write **two** sentences using Nigeria's population statistics to show that the country is over-populated.
- Define the following terms:
 - pressure on natural resources
 - lack of essential services
 - inadequate sanitation.

TASK 2: Study Source A

Look at the six problems shown on the spider diagram.

- For each problem explain how it can be caused by over-population.
- Choose **one** of the problems. Use the Internet to write a paragraph about your chosen problem in any named town or city in Nigeria.

TASK 3: Study Sources B, C and D

Quality of life is a measure of the happiness, well-being and satisfaction of a person. It is affected by many factors – for example family, income and access to services.

Use the evidence in the photographs and extracts to write a short newspaper article about how over-population in Lagos affects the quality of life of its people.

D Life in Lagos





Case Study

Under-population – Australia

Under-populated Australia

The United States of America and Australia are not very different in size, but the USA has over 300 million people and Australia fewer than 25 million. Many areas of Australia are empty and the resources are not being used fully, so the

country could support a higher population. This means that Australia is under-populated. Indeed, successive Australian governments have tried to increase its population, to develop the country economically, by attracting migrants from other countries. From only 3.7 million in 1901, the population has increased to its current 23 million.

A Australia



FACTFILE AUSTRALIA

- Area: 7 686 850 km²
- Population: 23 344 735 (2013)
- Main agricultural products: wheat, barley, sugarcane, fruits; cattle, sheep, poultry
- Main industries: mining, industrial and transportation equipment, food processing, chemicals, steel
- Oil production: 482 500 billion barrels/day
- Natural gas production: 44.99 billion m³
- Value of exports: US\$258.8 billion
- Cost of imports: US\$239.7 billion

B USA



FACTFILE USA

- Area: 9 826 630 km²
- Population: 316 668 567 (2013)
- Main agricultural products: wheat, corn, other grains, fruits, vegetables, cotton; beef, pork, poultry, dairy products; fish; forest products
- Main industries: petroleum, steel, motor vehicles, aerospace, telecommunications, chemicals, electronics, food processing, consumer goods, timber, mining
- Oil production: 9.023 billion barrels/day
- Natural gas production: 561.3 billion m³
- Value of exports: US\$1.564 trillion
- Cost of imports: US\$2.299 trillion

Case Study: Under-population – Australia

C Under-populated Australia?



We're in a drought, so to invite more people to share in the limited water supply on the driest continent on Earth doesn't make much sense.

Give benefits to people having children and the benefits should increase depending on the number of children.

Who says Australia is under-populated? Sure, it's a whole continent but most of it's desert where no one wants to live. And there's not all that much land for farming.

Australia is a beautiful country, and one of its great attractions is that there are so many wide open spaces, and so few people in them. I would hate Australia to become like China or the USA! We already have heaps of people here from other countries who can't speak English, and this causes problems in many areas.

How should Australia solve its under-population problem? By relaxing the visa rules so that more immigrants can get citizenship, and by expanding the economy. If the economy is prosperous more people will move here for job opportunities.

D Migration to Australia

The face of Australia is changing – and it starts at our borders. Whereas Australia's migrant population once came mainly from Europe, now many come from countries in Asia to fill skills gaps in the workforce. In 2011–12, India (29 018) and China (25 509) were ahead of Australia's traditional source country for permanent migrants, the United Kingdom, which dropped to fourth on the list with 25 274 migrants.

The Conversation, 8 June 2013

The Australian Industry Group wants the government to increase the number of immigrants from 190 000 this financial year to 220 000 in 2014–15, especially skilled migrants. Chief Executive Innes Willox says 'now is the right time to increase skilled migration given Australia's ageing workforce and skills shortages in industries including mining, construction, engineering and health care. The Australian Workplace Productivity Agency has calculated that Australia will need an increase of about 2.8 million people with quite specific skills over the next decade to fill some of those gaps.'

ABC, 13 January 2014

TASK 1: Study Sources A and B

Use the evidence in the maps and factfiles to explain why Australia can be considered to be under-populated compared with the USA.

TASK 2: Study Sources C and D

- Identify **three** methods which could be used to solve the under-population problem in Australia.
- Identify **three** problems which may be caused if more people are encouraged to migrate to Australia.
- Explain why some people think that Australia is not under-populated.

3 Causes of a change in population size

Calculating population change

Natural population change is calculated by subtracting the **death rate** from the **birth rate**. Malta's birth rate in 2013 was 10.3 per 1000 and its death rate was 8.8 per 1000. So its natural population change in 2013 was:

$$10.3 - 8.8 = 1.5 \text{ per } 1000 \text{ people (i.e. } 0.15\%).$$

To calculate the overall population change, the **net migration** must be considered. If more people per 1000 move into the country than move out of it, this is added. If more move out of the country than into it, this is subtracted. Malta's net migration in 2013 was 2.4 per 1000. So its overall population change was:

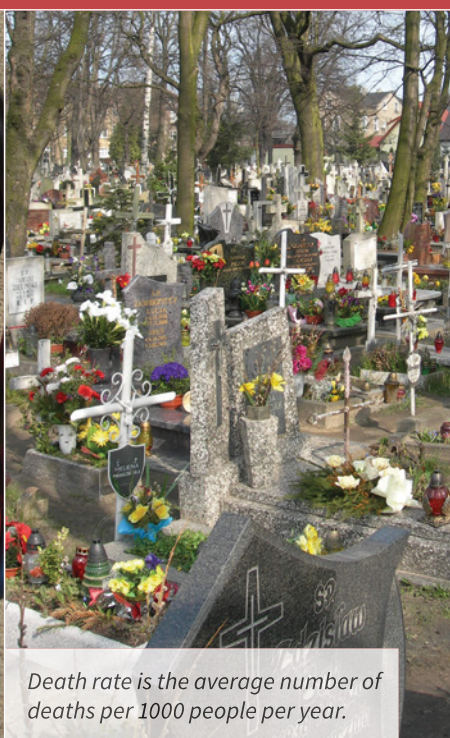
$$10.3 - 8.8 + 2.4 = 3.9 \text{ per } 1000 \text{ people (i.e. } 0.39\%).$$

If the answer is positive the population is growing, if it is negative it is getting smaller.

A Birth rate, death rate and migration



Birth rate is the average number of births per 1000 people per year.



Death rate is the average number of deaths per 1000 people per year.



Net migration is the average number of people moving into a country minus those moving out of it per 1000 people per year.

B Population change

Country	Birth rate (per 1000 people)	Death rate (per 1000 people)	Net migration (per 1000 people)
Belgium	10.0	10.7	+1.2
Greece	8.9	10.9	+2.3
India	20.2	7.3	-0.1
Morocco	18.7	4.8	-3.7
Poland	9.9	10.3	-0.5