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# How to use this book

## PEARSON geography 10 Activity Book

PEARSON geography 10 Activity Book is an integral part of the Australian Curriculum series PEARSON geography. It caters for a variety of learning styles and will reinforce, extend and enrich learning initiated through the Student Book. Clear references within the Student Book indicate when a worksheet is best completed.

PEARSON geography 10 Activity Book is designed for independent use by students and is suitable for in-class use or as a complete homework program.

Worksheet number and title

9.2

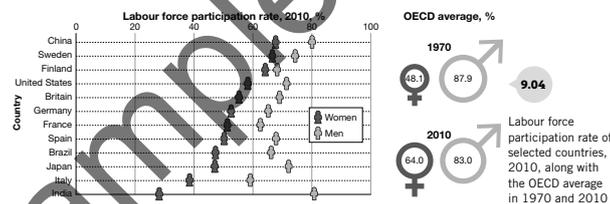
### Patterns of human wellbeing in India

Indicates the curriculum strand or strands targeted by the worksheet

Knowledge and understanding • Geographical skills  
 visual-spatial • logical-mathematical • verbal-linguistic

Indicates the learning style or styles the worksheet is focusing on

Study the information below about labour force participation rates for men and women and answer the questions that follow.



1 What does the graph indicate about inequality in the Indian economy?

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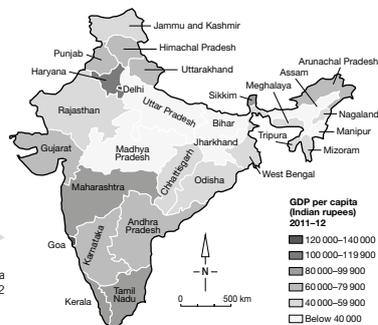
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2 How might the wellbeing of women be affected by labour force participation?

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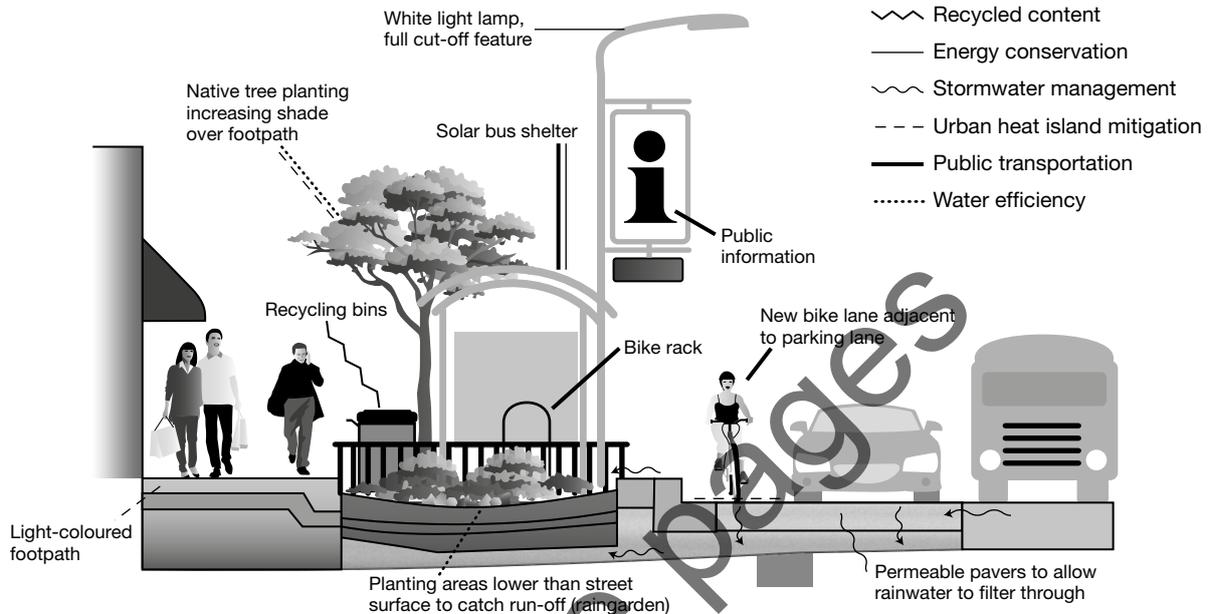


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## Knowledge and understanding • Geographical skills

**mi** visual-spatial • logical-mathematical



### 1.01 Design for an environmentally sustainable streetscape

1 Study Figure 1.01.

- a Complete the table below by explaining how the design aids each of the four functions of the environment.

| Function  | How the design aids the function |
|---|----------------------------------|
| Source: the environment's ability to supply naturally occurring resources to support life |                                  |
| Sink: the environment's ability to break down harmless waste/ pollution                   |                                  |
| Service: the environment's ability to support life without human action                   |                                  |
| Spiritual: the cultural and recreational value of the environment                         |                                  |

**b** How might the design on page 5 contribute to sustainability and improve the environment?

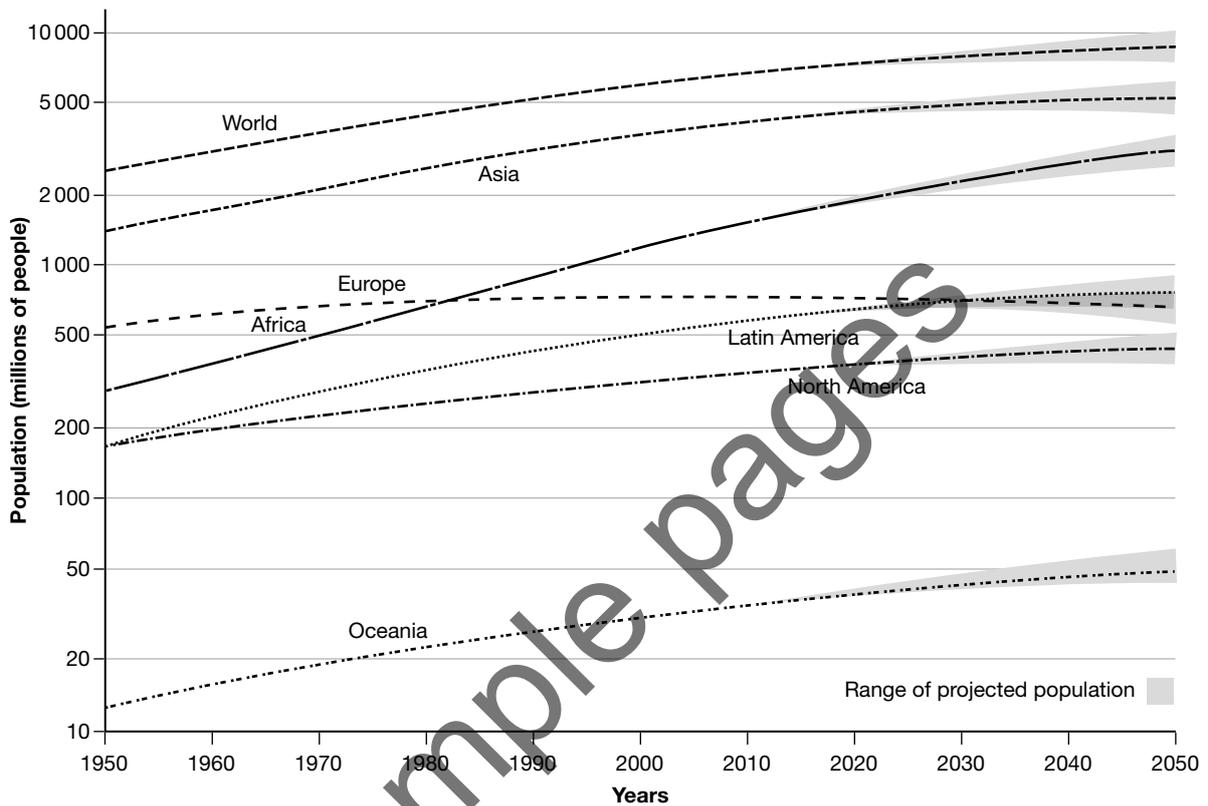
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**1.02** World and regional population, 1950–2050

**2** Study the graph in Figure 1.02.

**a** What type of graph is this?

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**b** Which region had the highest population in 1950?

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**c** Which region had the lowest population in 1950?

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**d** What is the expected population of the region in question 2b in 2050?

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**e** What is the expected population of the region in question 2c in 2050?

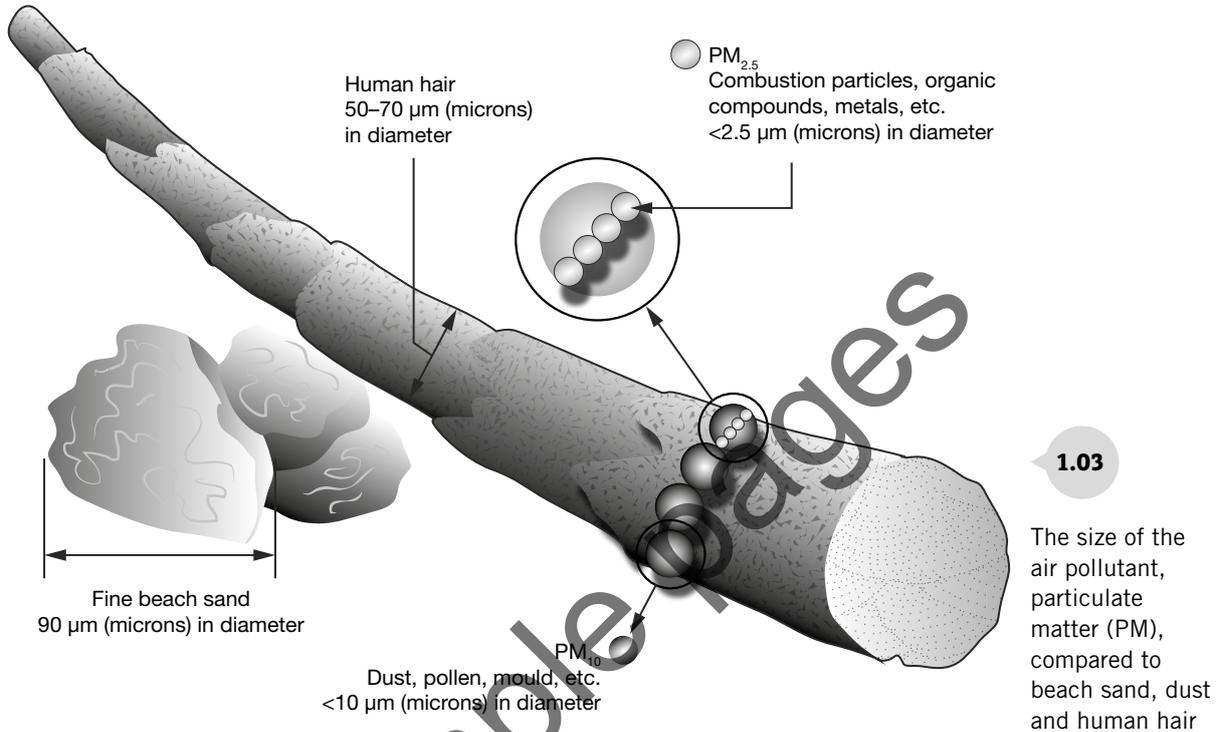
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**f** Which region had the highest population growth rate between 1950 and 2010?

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## Knowledge and understanding • Geographical skills

**mj** verbal-linguistic • logical-mathematical



1 Use Figure 1.03 to complete the following passage about particulate matter.

|         |            |                   |          |         |         |             |
|---------|------------|-------------------|----------|---------|---------|-------------|
| microns | pollution  | lungs             | droplets | natural | variety | health      |
| sources | classified | PM <sub>2.5</sub> | diameter | mould   | hair    | smokestacks |

Particulate matter (PM) is a type of air \_\_\_\_\_. PM may consist of solid particles and liquid \_\_\_\_\_. There are numerous \_\_\_\_\_ of PM. These include \_\_\_\_\_ processes such as wind erosion, but PM also comes from human sources such as \_\_\_\_\_, car emissions and construction. They come in a \_\_\_\_\_ of sizes and are often \_\_\_\_\_ into two main groups: PM<sub>2.5</sub> and PM<sub>10</sub>. \_\_\_\_\_ includes organic compounds and metal particles. PM<sub>10</sub> includes dust pollen and \_\_\_\_\_. The numbers 2.5 and 10 refer to the \_\_\_\_\_ of the particle and is measured in \_\_\_\_\_. Human hair is about 50–70 microns in width, so a particle of 10 microns is between one-fifth to one-seventh the width of a strand of your \_\_\_\_\_. PM<sub>2.5</sub> is very small and can get deep into human \_\_\_\_\_. This is of great concern as it can cause serious \_\_\_\_\_ problems.

Read the extract below and answer the questions that follow.

### Air pollution dangerously high in hundreds of world cities

Dirty air is a fact of life for most city dwellers around the world. Research on the true scale of urban air pollution problems is still necessary for policy reasons. A study by the World Health Organization (WHO) shows that air pollution levels are dangerously high in hundreds of world cities.

The WHO collected PM<sub>2.5</sub> particulate data from 1600 cities in 91 countries. PM<sub>2.5</sub> is the diameter in microns of particulates of ammonia, carbon, nitrates and sulfate that are small enough to pass into the bloodstream through the lungs and cause diseases, including cancer and emphysema.

The survey found that air quality in most cities that monitor their air pollution is higher than the WHO considers safe. The WHO collected data on particulate matter, known as PM<sub>2.5</sub> from the size of the particles. PM<sub>2.5</sub> is considered the [particulate size] most dangerous to human health.

Half of the 20 dirtiest cities are in India. Delhi, India came out the worst in the survey, with

the highest level of particulate pollution with 153 micrograms per cubic metre of air. Patna, India was in second place with 149 micrograms. Both figures are approximately six times the 25 micrograms that the WHO considers a 'safe' level of PM<sub>2.5</sub> exposure.

India's Center for Science and Environment, a public interest organisation, cites weak enforcement of pollution control laws as one reason for Delhi's air pollution.

Maria Neira, Director for Public Health, Environmental and Social Determinants of Health at the WHO, said that the study was meant as a 'challenge' to cities. She thought the results would help cities become more open about air pollution, which comes from a combination of traffic, coal-burning power plants and heavy industries. Burning wood, dung and charcoal for heat and cooking also contributes to urban air pollution in the world's cities.

Source: Adapted from Chester Davis, *Liberty Voice*, 8 May 2014

**2 a** Name some examples of air pollution.

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**b** Name some sources of air pollution.

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**c** Name the cities with the worst air pollution.

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**d** Identify reasons for high levels of pollution. What sort of measures will need to be put in place to reduce air pollution?

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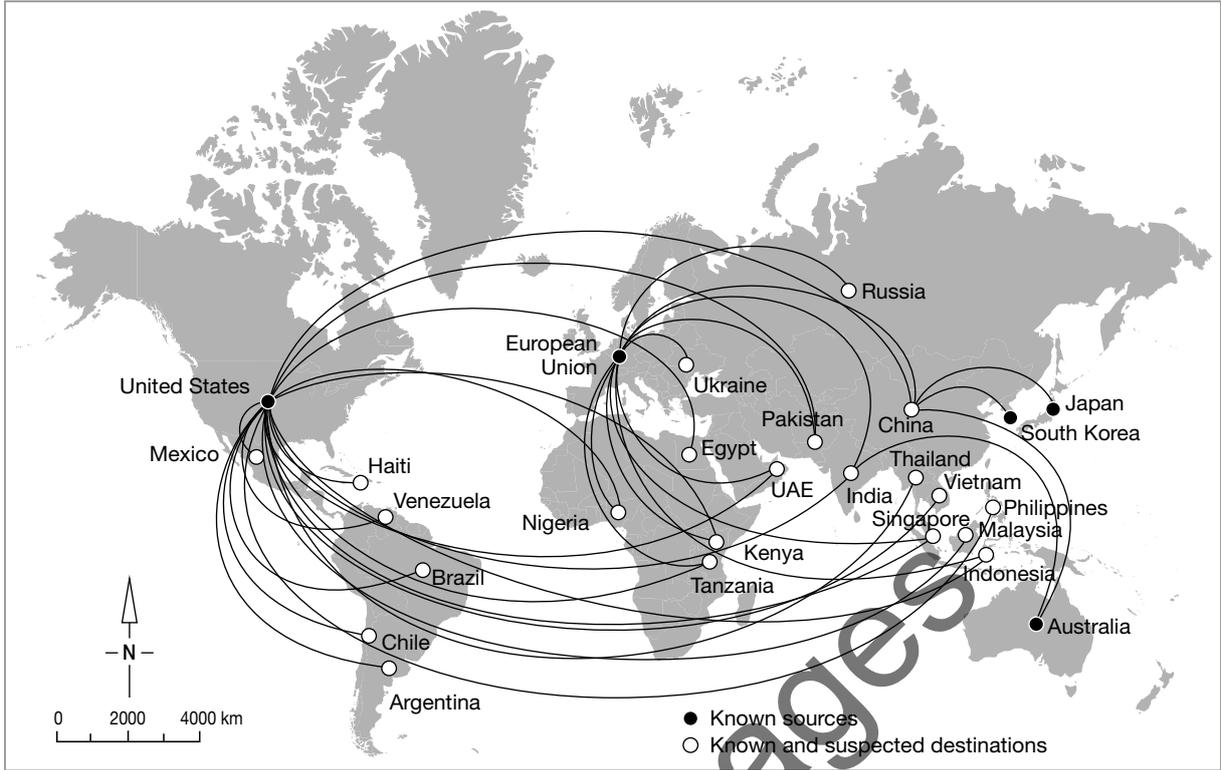
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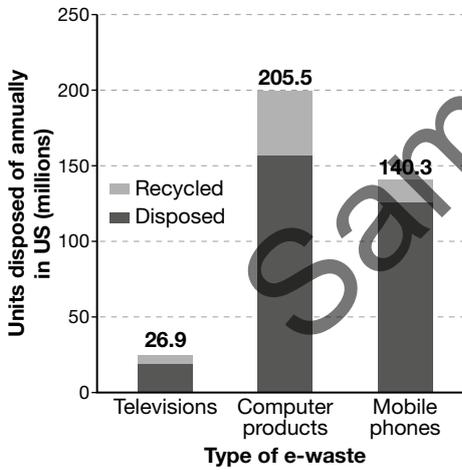
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**1.04** About 40 million tonnes of e-waste is generated per year, with 3.3 million tonnes from the United States and 2.6 million tonnes from China. This map shows the locations and destinations for e-waste.



**1.05** The graph shows what happens to different types of e-waste.

**3** Study Figures 1.04 and 1.05.

**a** Discuss the differences between the location of e-waste sources and e-waste destinations.

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**b** Explain why certain categories of e-waste might continue to increase in quantity and how increasing recycling of e-waste might be beneficial.

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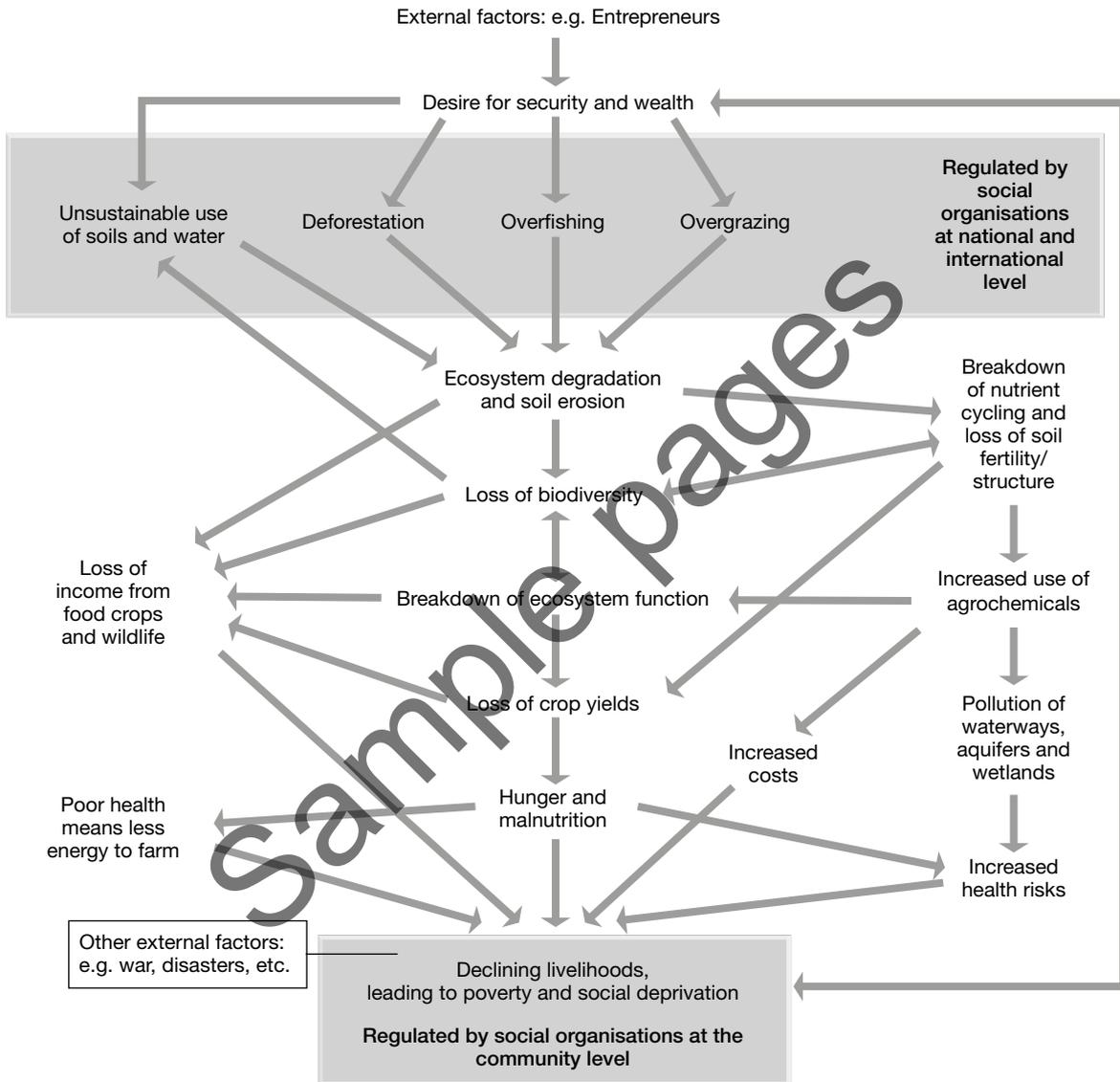
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# 1.3

## Land degradation

### Knowledge and understanding

**mi** verbal-linguistic • visual-spatial



**1.06** The factors affecting and the consequences of land degradation

1 Study the diagram in Figure 1.06 and answer the following questions.

a Describe the factors that cause ecosystem degradation.

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b Explain why land degradation is a concern for humans.

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2 Read the article below, which links poverty with land degradation. Then use the diagram that follows to explain how the two ideas are linked.

**Poverty is a major cause of land degradation in Upper West Region—NGO**

Mrs Salifu Ayi, the Upper West Regional Coordinator for Rural Urban Partnership for Africa (RUPFA), an NGO, has said the main cause of land degradation in the region is poverty.

She said human activities responsible for the fast degradation of the land were shifting cultivation, intensive farming on a piece of land, indiscriminate felling of trees for fuel and charcoal production, bush burning, overgrazing and small-scale mining.

Mrs Ayi said poverty in the region was severe and the people had to devise means for living and therefore engaged in these activities for their livelihood.

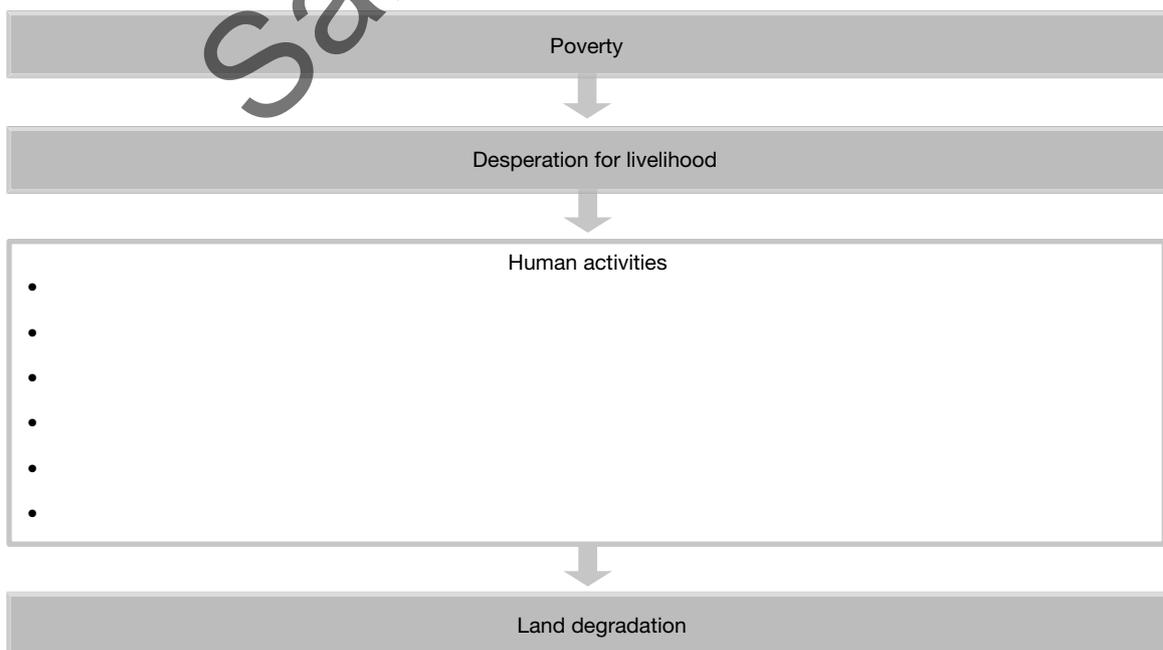
‘Gold mining is certainly one of the reasons for the enormous land degradation in the region; gold was mined during the colonial

administration and continued to be mined around Nangodi (Talensi-Nabdam District), about 24 kilometres from Bolgatanga on the Bolgatanga-Bawku road,’ she said.

Mrs Ayi said soil erosion, a widespread form of soil degradation, could have negative effects on economic development in the country, which depended heavily on land, forests and water bodies for agricultural growth and development.

She said human factors driving long-term soil and vegetation degradation in the region were reflected in unsustainable farming practices, removal of vegetation cover, mining activities, urbanisation and industrial activities caused by increased population growth pressures.

Source: Adapted from *Modern Ghana*, 31 August 2011



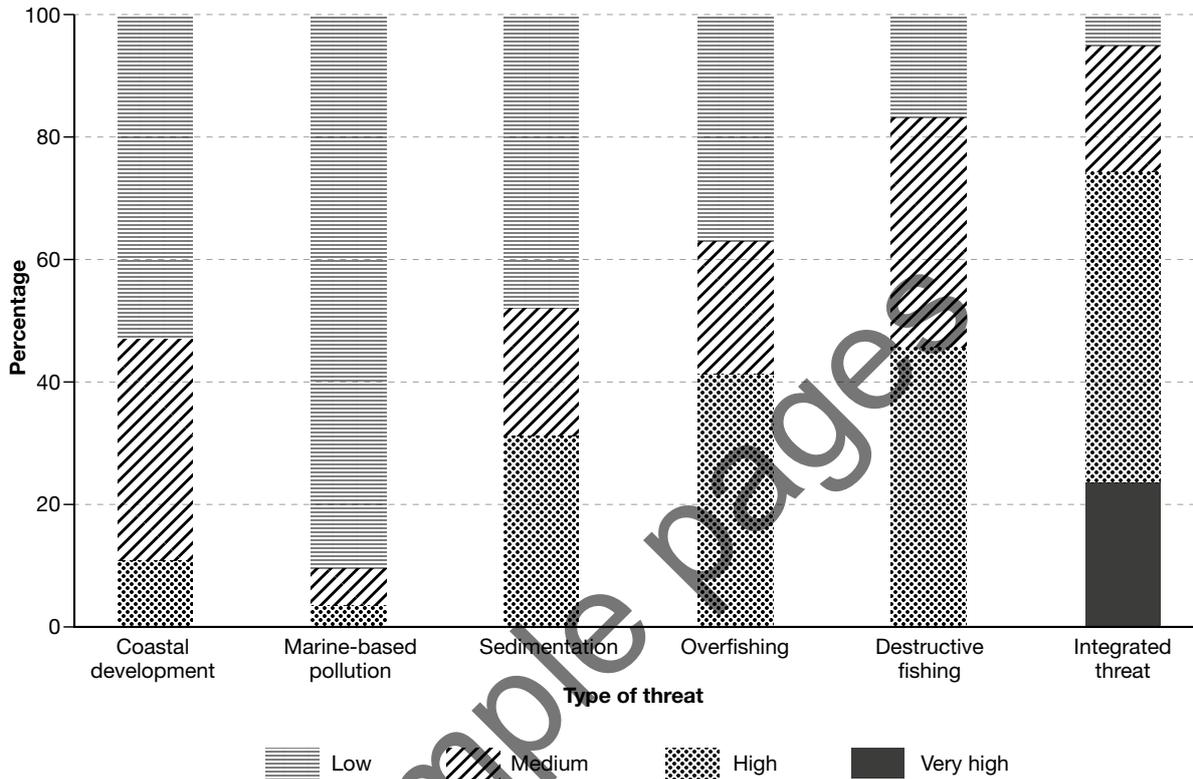
1.07 The links between poverty and land degradation

# 1.4

## Exploited oceans

Knowledge and understanding • Geographical skills

mi visual-spatial • logical-mathematical



**1.08** Threats to Vietnam's coral reefs. The percentage value is the proportion of the reef in Vietnam affected by this level of threat.

**1** Study the graph in Figure 1.08. Determine whether the following statements are true or false, based on the information in the graph. Tick or highlight the correct answers.

- a** Marine-based pollution presents the least risk to reefs in Vietnam.  True  False
- b** Destructive fishing is the greatest single threat to reefs in Vietnam.  True  False
- c** Coastal development has no impact on reefs in Vietnam.  True  False
- d** Approximately 25 per cent of reefs are at risk because of an integrated threat.  True  False
- e** Sedimentation has a high to medium impact on most reefs.  True  False

**2** Suggest why the category of 'integrated threat' is included in the graph.

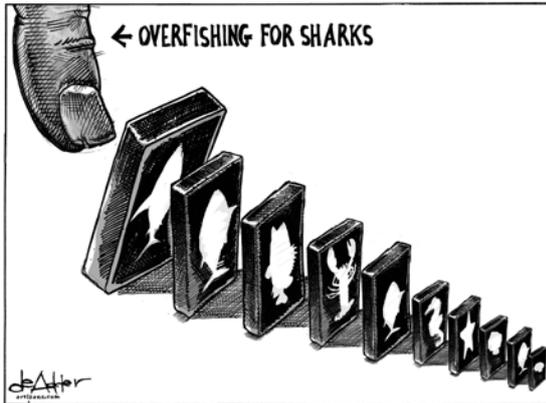
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1.09 Cartoonist's view of shark overfishing

- 3 Study the cartoon in Figure 1.09. What is the cartoonist attempting to convey?

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- 4 Read the following extract. On the next page, draw two food webs showing the impact of the decline in shark numbers on coral reefs. The first food web should show the normal situation and the second should show the changes that occur as a result of loss of sharks.

#### Overfishing of sharks is harming coral reefs, study suggests

A team of scientists from Canada and Australia has discovered that a decline in shark populations is detrimental to coral reefs.

'Where shark numbers are reduced due to commercial fishing, there is also a decrease in the herbivorous fishes which play a key role in promoting reef health,' said Jonathan Ruppert, a recent University of Toronto PhD graduate. Ruppert was part of a team engaged in long-term monitoring of reefs off Australia's north-west coast.

Team leader Mark Meekan, of the Australian Institute of Marine Science (AIMS), said that the results might, at first glance, seem strange.

'[And] where shark numbers are reduced, we see a fundamental change in the structure of food chains on reefs,' he said. 'We saw increasing numbers of mid-level predators—such as snappers—and a reduction in the number of herbivores such as parrotfishes,' said Meekan. 'The parrotfishes are very important to coral reef health because they eat the algae that would otherwise overwhelm young corals on reefs recovering from natural disturbances.'

According to Ruppert, the study comes at an opportune time—coral reefs are facing a number of pressures from direct human activity, such as overfishing, as well as from climate change.

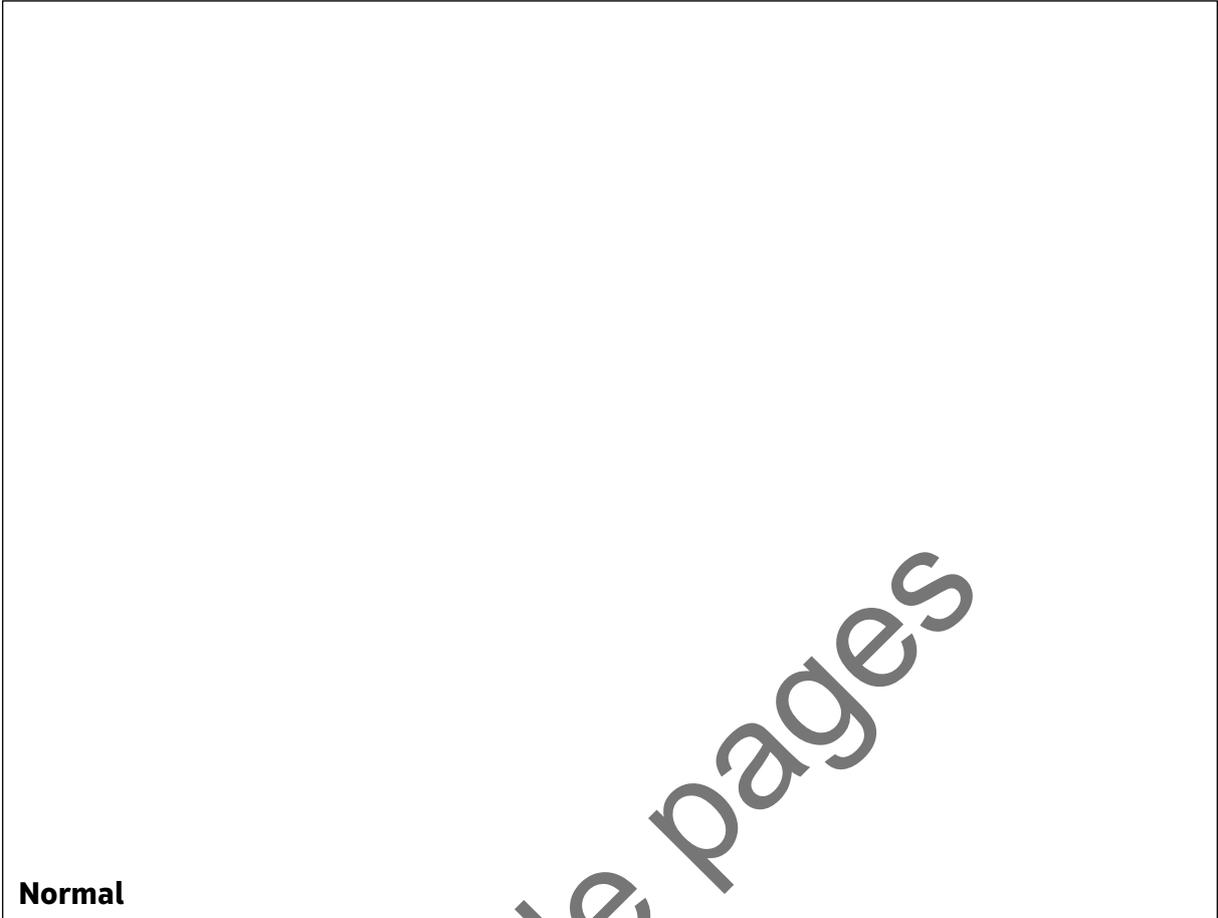
The reefs studied are about 300 kilometres off the coast of north-west Australia where Indonesian fishers target sharks—a practice stretching back several centuries and which continues under an Australian–Indonesian memorandum of understanding.

'The reefs provided us with a unique opportunity to isolate the impact of overfishing of sharks on reef resilience, and assess that impact in the broader context of climate change pressures threatening coral reefs,' said Ruppert. 'Shark fishing appears to have quite dramatic effects on coral reef ecosystems.'

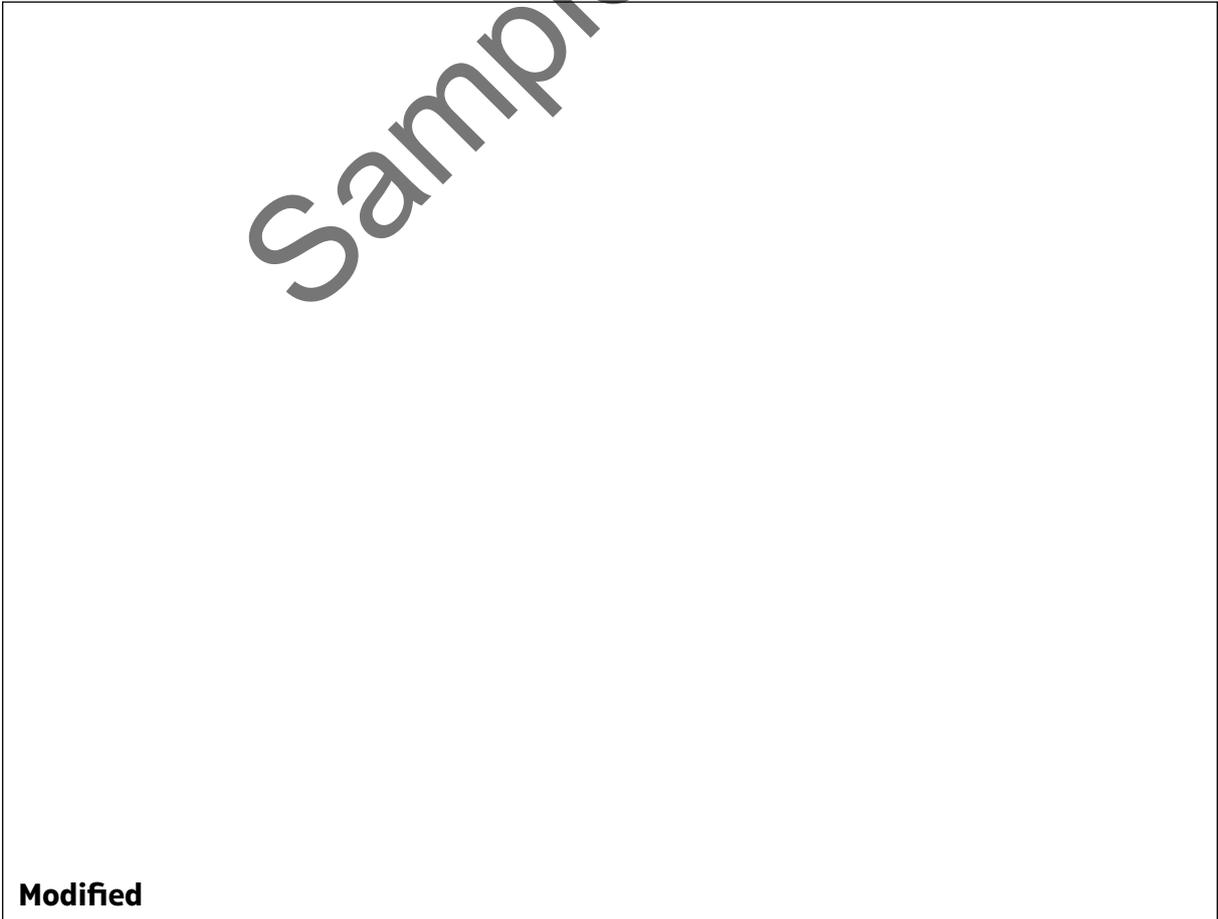
'Given that sharks are in decline on reefs worldwide, largely due to the shark fin trade, this information may prove integral to restoration and conservation efforts.'

Tracking studies show that, in many cases, individual reef sharks are closely attached to certain coral reefs. This means that even relatively small marine-protected areas could be effective in protecting the top-level predators and allowing coral reefs to more fully recover from coral bleaching or large cyclones, which are increasing in frequency due to the warming of the oceans as a result of climate change.

Source: Adapted from *Science Daily*, 18 September 2013



**Normal**



**Modified**

# Case study: Iberian lynx, habitat destruction and species loss

## Geographical skills



verbal–linguistic • visual–spatial • logical–mathematical

### Iberian lynx (*Lynx pardinus*): Critically endangered

The Iberian lynx occurs only in isolated pockets of south-western Spain, and its continued survival in Portugal is uncertain. There are only two known breeding populations in Spain, and the latest survey results suggest a minimum of 84 and a maximum of 143 adults surviving. Current numbers are not sufficient for the survival of the species in the long term, and experts agree the cat is now on the brink of extinction. There has been a continuing decline due to depletion of its prey, the European rabbit, by disease and over-hunting, as well as high rates of non-natural lynx mortality, and habitat destruction and fragmentation.

#### Geographic range

The Iberian lynx is confined to scattered groups in the south-western quadrant of the Iberian peninsula as a result of the fragmentation of its natural habitat by agricultural and industrial development. Only two or three groups in Spain are considered to have populations which could be viable in the long term. It is possibly extinct in Portugal (IUCN 2007).

#### Habitat and ecology

The Iberian lynx occurs in Mediterranean woodland and maquis thicket. It is generally absent from cropland and exotic tree plantations (eucalyptus and pine), where rabbits are also scarce.

The Iberian lynx is a specialised feeder, with rabbits (*Oryctolagus cuniculus*) accounting for 80–100 per cent of its diet.

#### Threats

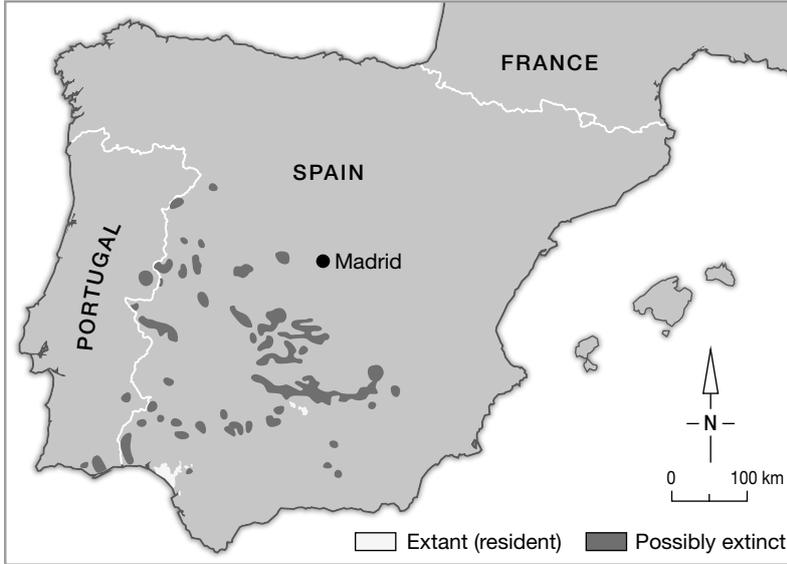
The Iberian lynx is a naturally vulnerable species because of its dependence on only one prey species, the rabbit, and its narrow habitat spectrum. The dramatic decline in rabbit populations, caused by habitat changes and myxomatosis since the 1950s and Rabbit

Haemorrhagic Disease (RHD) since the late 1980s, has therefore had a direct impact on lynx numbers. Over-hunting of rabbits and other human activities have further compounded the problems of prey scarcity.

Habitat destruction, deterioration and alteration have impacted negatively on the lynx for centuries. Notable examples since the middle of the twentieth century include the planting of Mediterranean scrublands with pines and eucalyptus, and more recently the overstocking of deer and livestock on private estates and the opening up of roads and forest tracks in previously remote areas. The lynx's preferred habitat mosaic has also suffered at the hands of afforestation and scrub clearance schemes, road building, dam construction, and the building of holiday homes. New infrastructure projects continued to fragment lynx populations and created new barriers in corridor areas between the remaining populations in the 1960s. More than 40 separate lynx populations in Spain and Portugal appear to have collapsed since the early 1980s. The World Wildlife Fund (WWF) Spain/Adena has identified 53 different public works that will affect important areas for the Iberian lynx. Heavier and faster traffic is also taking an unacceptably high toll on lynx each year as juveniles venture away from their areas of birth in search of new habitats. This high mortality has been an important factor in the decline of the species.

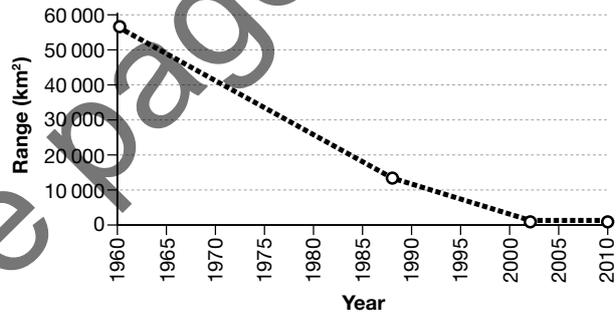
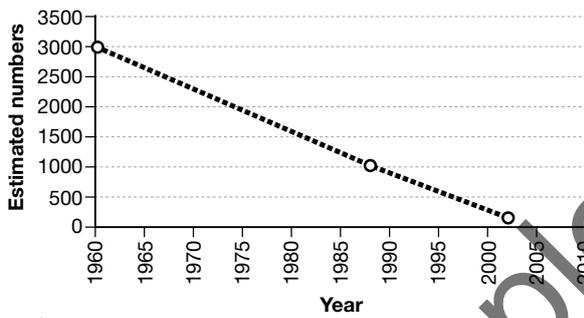
The Iberian lynx received protection against hunting in the early 1970s and since then hunting has dropped off. However, some lynxes are still shot and killed.

Source: Adapted from the International Union for Conservation of Nature Red List of Threatened Species, 2008

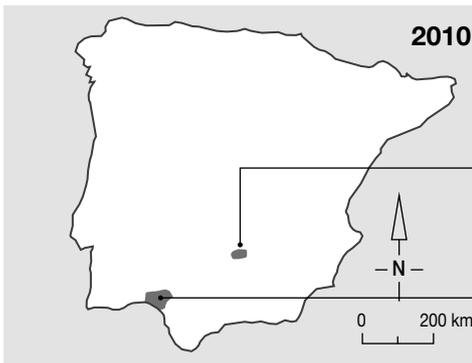
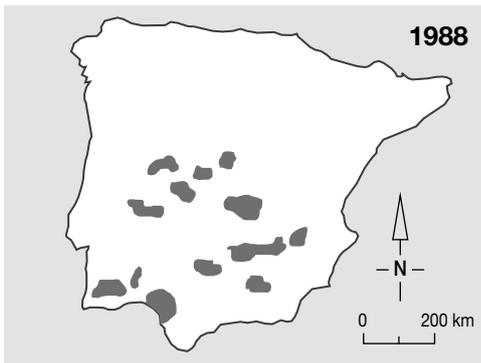
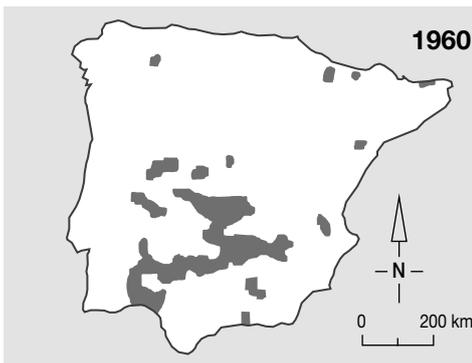
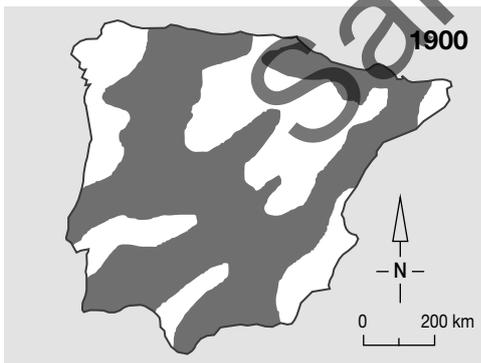


1.10 Locations of populations of the Iberian lynx

1.11 Iberian lynxes



1.12 The decline of the Iberian lynx's numbers and range



1.13

These maps show rapid decline and fragmentation of the Iberian lynx population.

Iberian lynx habitat area

**Sierra Morena**  
173 individuals  
43 females

**Doñana**  
73 individuals  
20 females

1 Why does species loss matter?

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2 Explain why the distribution of the Iberian lynx makes it likely to be a critically endangered species.

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3 Explain the factors contributing to the decrease in Iberian lynx numbers.

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4 Write recommendations for conservation of the Iberian lynx. Provide the details of at least two clear strategies to maintain or increase the numbers of Iberian lynx.

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5 Evaluate one of the strategies you have outlined above by considering the likely problems or constraints in implementing it.

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Sample pages

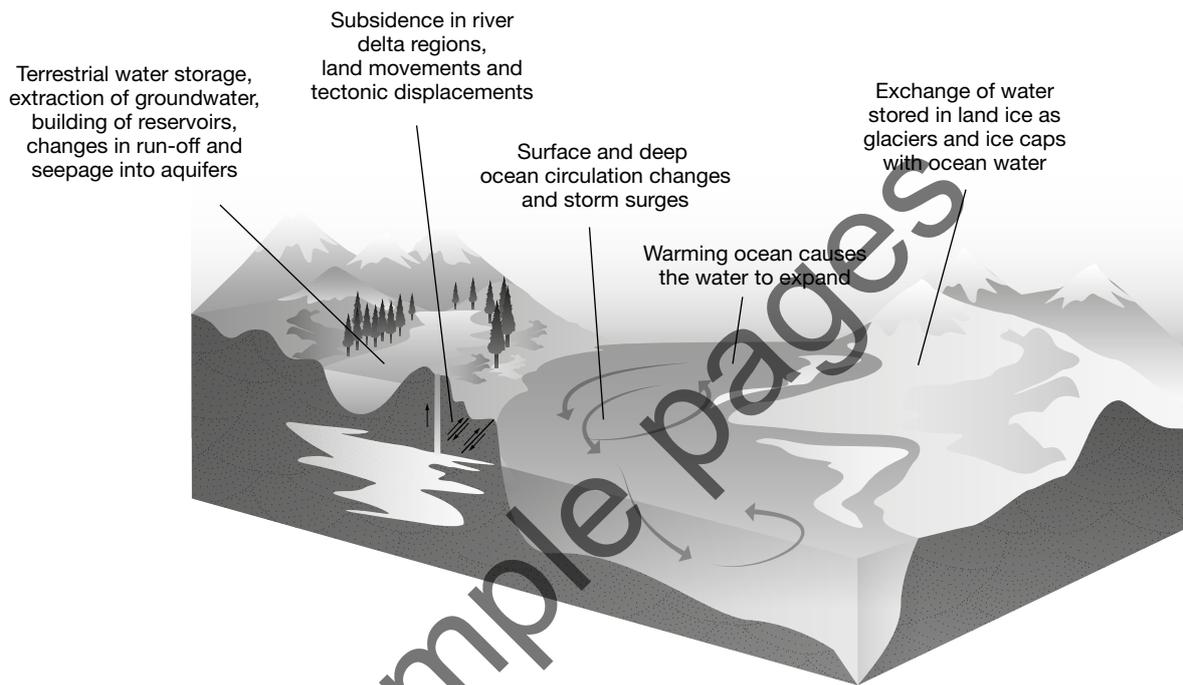
# 1.6

## Climate change

### Knowledge and understanding

**mi** visual-spatial • verbal-linguistic

Climate change is associated with rising sea levels. But what exactly causes sea levels to rise? Study the following diagram outlining some of the factors that cause sea levels to rise, then complete the table below.



**1.14** The causes of sea-level change

1 Place the causes of sea-level change shown in Figure 1.14 into the correct column in the table below.

| Climate change causes | Non-climate change causes |
|-----------------------|---------------------------|
|                       |                           |

2 Select one climate change cause of sea-level change and describe the potential medium to long-term impacts upon coastal environments.

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**Knowledge and understanding****mj** verbal–linguistic

Circle the most accurate word for each of the following sentences.

- 1 The variety of all life forms (species) found on earth is referred to as **bioaccumulation** / **biodiversity**.
- 2 The ability to understand and share the feelings of another is called **perception** / **empathy**.
- 3 The naturally occurring processes in which carbon is exchanged between organisms and the environment is the **greenhouse effect** / **carbon cycle**.
- 4 A natural fuel, such as coal or gas, formed in the geological past from the remains of living organisms is a **fossil fuel** / **geological fuel**.
- 5 The relationship between living things (including people) and their physical environment is termed **environmental** / **ecological**.
- 6 Lack of access to the minimum necessities or essentials for living is **human wellbeing** / **absolute poverty**.
- 7 The totality of our surroundings is our **environment** / **habitat**.
- 8 The recognition that we are all citizens of this planet and should behave in ways that demonstrate a respect for the earth and all its people is known as **global citizenship** / **global responsibility**.
- 9 Change that creates a better quality of life for people is known as **development** / **degradation**.
- 10 A species of animal or plant that no longer exists is called an **extant species** / **extinct species**.
- 11 The downgrading of the productive capacity of land due to the activities of people is called **land degradation** / **development**.
- 12 When some people are poorer than others in the community, but still have access to necessities of life, they are said to live in **relative poverty** / **absolute poverty**.
- 13 When an activity is able to be carried on into the future, it can be termed **interdependent** / **sustainable**.
- 14 Any hazardous, or potentially hazardous, substance released into the environment is called **pollution** / **fossil fuel**.
- 15 The atmospheric process that maintains an average surface temperature of 15°C is called **the greenhouse effect** / **global warming**.