Where people live

The world's **population** (the total number of people) is now almost 8 billion (or 8,000 million). There are two main facts to remember about the world's population. The first is that it is rising very qucikly and is likely to reach 11bn by year 2100. The second fact is that the world's people are not evenly spread out across the planet. Some areas, as shown in figure 111, are crowded. Other areas are almost empty with hardly anyone living there.

The **density of population** (that is to say, how crowded or empty an area is) can be worked out by dividing the number of people by the size of the area, in square kilometres. If this is done for the world, a **population density map** (figure 112) can clearly show the crowded areas (where over 100 people live in every square kilometre) and the almost empty areas (where there is less than one person per square kilometre).
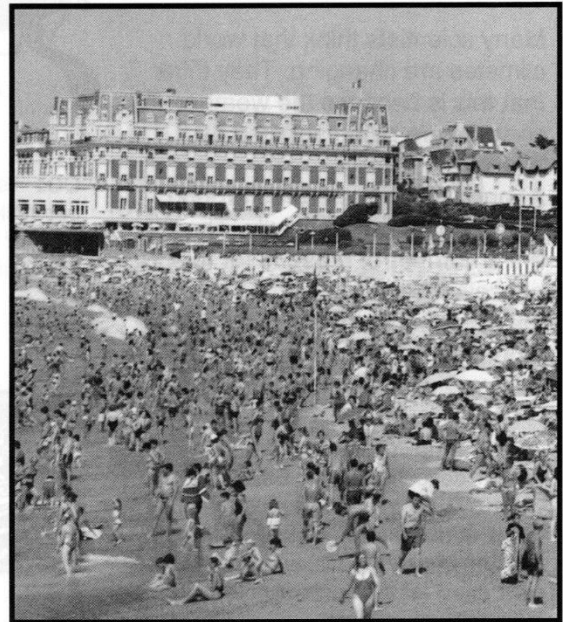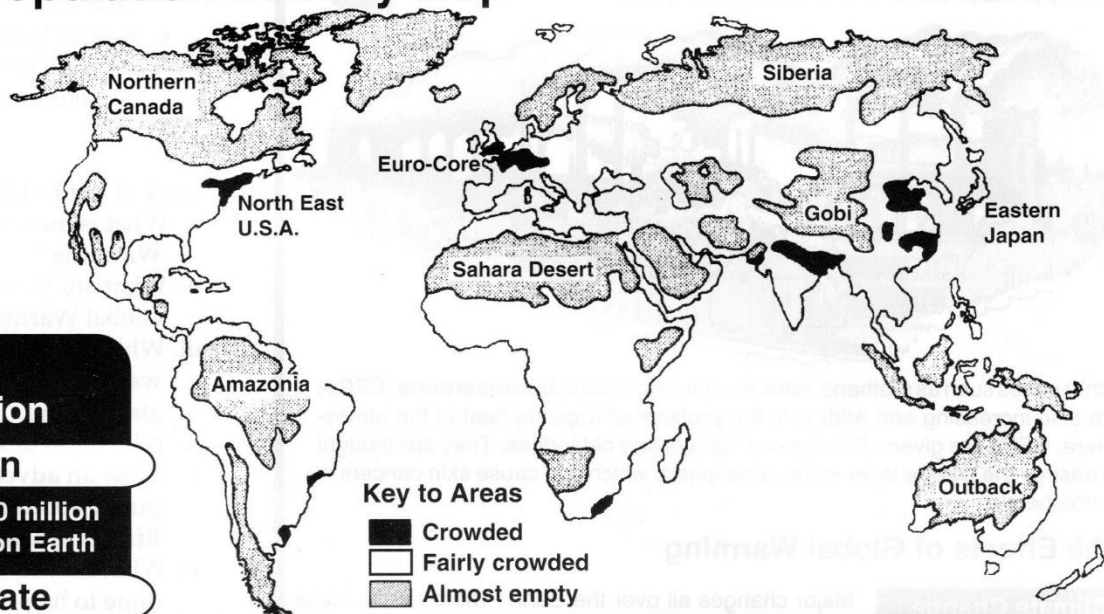

Fig.111 Busy beach in Southern France

World Population Density Map

Fig.112

Northern Canada

Siberia

Euro-Core

North East U.S.A.

Gobi

Eastern Japan

Sahara Desert

Amazonia

Outback

Key to Areas

- ■ Crowded
- □ Fairly crowded
- ▨ Almost empty

World Population

Population

Almost 8,000 million people live on Earth

Growth Rate

Every second 4 extra human beings are added to the world's population.

Spread

People are very unevenly spread out across the Earth.

Density

Some areas are very crowded whilst others are almost empty (see map)

Crowded Areas - Areas with over 100 people per square kilometre

Crowded Areas are those where there are more favourable living conditions for people. These include some or all of the following - **pleasant climate; flat land to build towns and cities on; fertile, well-drained soils; easy lines of communication (roads, rail, ports, etc); goods and services easily available, such as foodstuffs & shops, etc.**
The **most crowded areas** include **The Euro-Core around Brussels (Belgium), Eastern China and parts of the Ganges valley in India.**

Almost Empty Areas - Areas with less than one person per sq.km

Almost Empty Areas are those where there are less favourable living conditions for people. These include some or all of the following - **harsh climate, too cold or hot, too dry or wet; land too steep to build on; poor, infertile soils; difficult lines of communication; areas that are very remote; goods and services unavailable.**
The **emptiest** areas include **Antarctica, the Himalayas and Northern Canada.**

People in Scotland

A population density map of Scotland (fig.113) shows clearly where most and fewest people stay in the country.
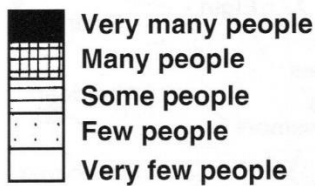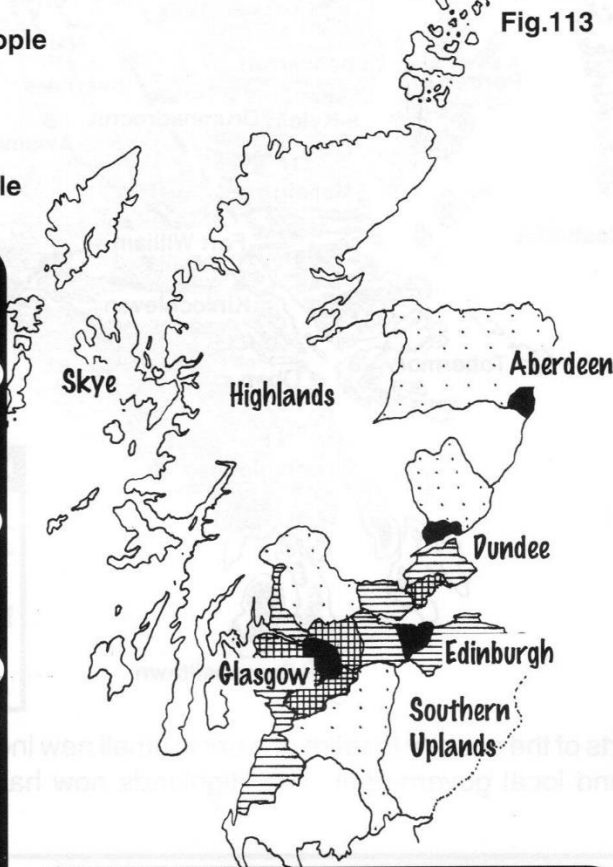
Scotland Population Density Map

Fig.113

- ■ Very many people
- ▦ Many people
- ▤ Some people
- ⠂ Few people
- □ Very few people

Scotland's Population

Total Population

5,450,000 people live in Scotland

Growth Rate

Scotland's population is slowly decreasing

Age

Scotland's population is ageing. About 20% of people are over 65 19% are under 19 years old.

Spread

Scotland's population is very unevenly spread out across the country (see map)

Origins

Scotland's population is made up of people from many different countries and religions with people from the E.C. (the European Union), Eastern Europe, Asia, Africa and the United States.

Scotland's population is, like world population, very unevenly spread out. The most crowded areas are those found around the industrial areas of the Central Lowlands. Some areas such as Edinburgh, Aberdeen and north Glasgow have over 1,000 people per square kilometre. The areas with the fewest people are found in the Highlands and Southern Uplands.

Although Scotland's total population has dropped slightly on recent years, there are still some areas which have gained people. The Isle of Skye, parts of north Fife and areas in and around Aberdeen have gained most. The most remote areas, together with our four main cities have all lost population.

Most Scots still live and work in the Central Lowlands, mostly in large towns and especially in the four main cities of Glasgow, Edinburgh, Aberdeen and Dundee.

1   i. What is **population**?
    ii. What is the world's present population?

2   Look at figure **112**.
    i. Write down **4** main points about the world population.
    ii. How quickly is the world's population growing?

3   i. What does **Population Density** mean?
    ii. How is population density worked out?
    iii. How would you describe the population density shown in figure **111**?
    iv. What is another name for an area with
        a. High population density
        b. Low population density?

4   Look at figure **112** carefully. Use an atlas to help you answer the following questions.
    i. Name six crowded areas
    ii. Name six almost empty areas
    iii. Why are some areas of the world crowded and other areas almost empty?

5   Look at figure **113**.
    i. Write a front page newspaper story about Scotland's population.
    ii. Name **4** Scottish areas with **high** population density.
    iii. Name **3** Scottish areas with **low** population density.
    iv. What **changes** are taking place in the population of Scotland?

Summary

The world's population is almost 8 billion and is rising very quickly. The world's population is very unevenly spread out. Some areas are very crowded and others are almost empty. Population density is a measure of how crowded or empty an area is.

THE HIGHLANDS

The Highlands of Scotland have less than 6 people living in each square kilometre. The area is one of the emptiest in Europe.

In some areas of the Highlands, there are less than 2 people per square kilometre. These are the areas of high hills and mountains which are almost empty of people. Where there are people, they live in the glens and around the coast (fig.115). Inverness is the largest and most important settlement but there are many important, small towns such as Dingwall, Elgin, Oban and Fort William.

Not only has the area the lowest population density in the U.K. but for a long time its population was declining (losing people). In recent years, however, some areas of the Highlands have had an increase in population. The Aberdeen area has gained people in search of work during the oil boom. People have moved into the Highlands from other parts of the country to retire or work in small new industries such as print and publishing., telecomms, tourism and local government. The Highlands now has population of over 300,000 people.
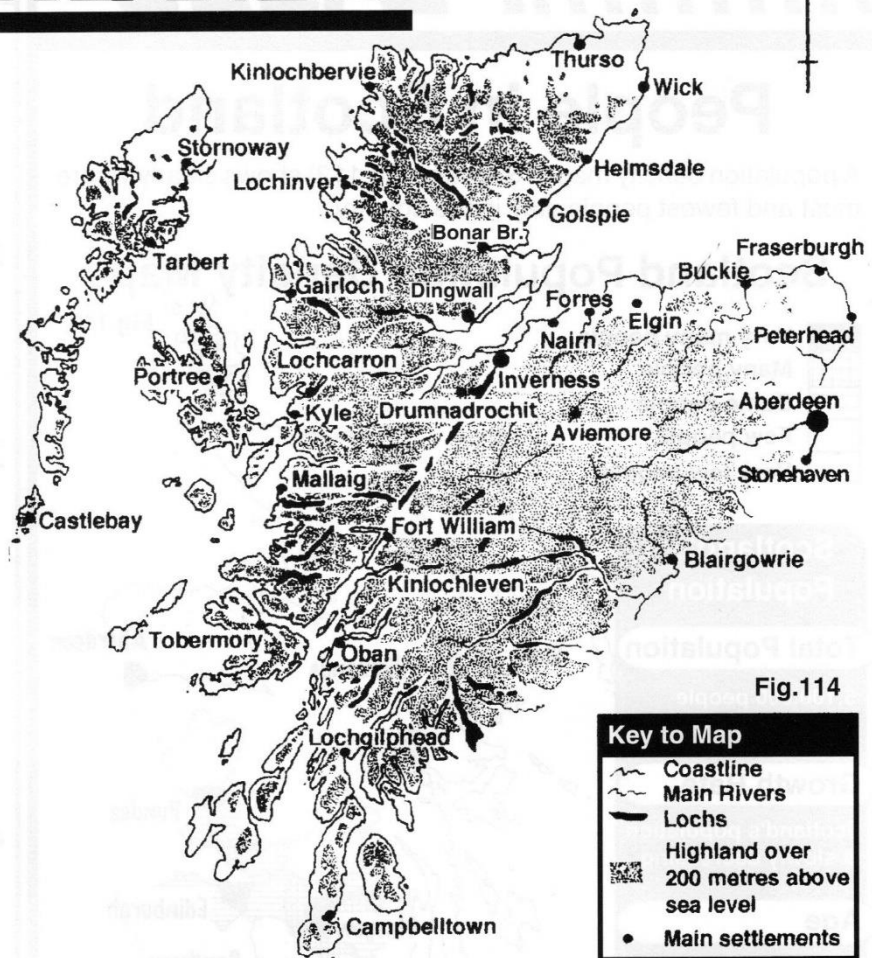
N

Fig.114

Key to Map

∼	Coastline
∼	Main Rivers
▬	Lochs
▒	Highland over 200 metres above sea level
•	Main settlements

Difficulties of living in the Highlands

Fig.115

### Why is the Population Density so low ?

1. Cool climate with long, cold winters and short, cool summers
2. Precipitation can be heavy and falls all year round
3. Snowfalls can be very heavy and causes major transport problems
4. Most of the area is over 200 metres above sea level
5. Steep slopes with poor thin soils
6. Peaty soils form in flat, poorly drained areas
7. Few areas of flat, fertile land
8. Single track roads in many remote areas make travel by vehicle slow and difficult
9. Isolated areas in glens and on islands have higher living costs due to more expensive transport and foodstuffs
10. Lack of resources for a large population - no coal, gas or oil
11. Important - no single reason leads to low density of population. It is a combination of reasons.
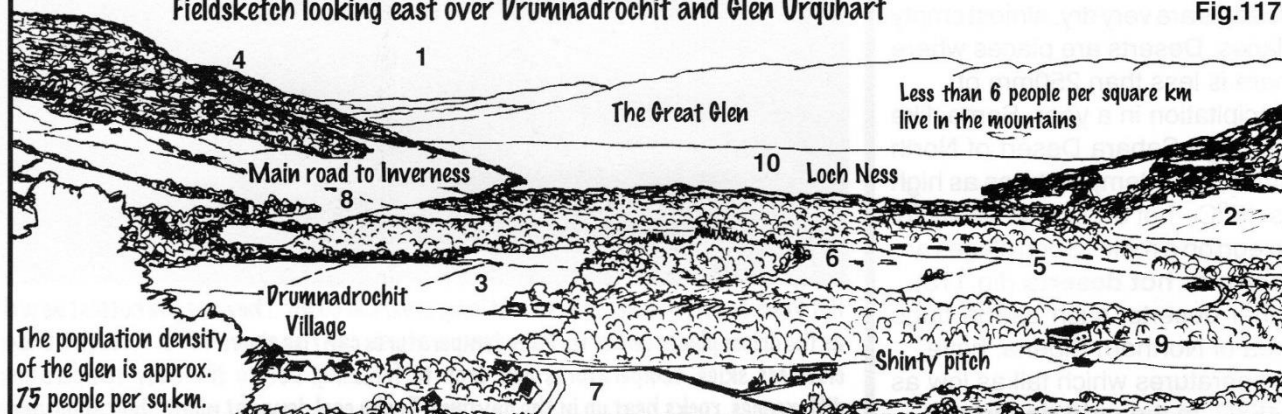
Attractions of the Highlands for people ?

A. Beautiful area in which to live and work

B. Clean and quiet places

C. New communications - bridges, roads, TV masts and telecom lines - have improved contact

£. Grants & loans from the E.U. and Highlands Islands Enterprise

D. New jobs in fish farming, tourism and tele-offices
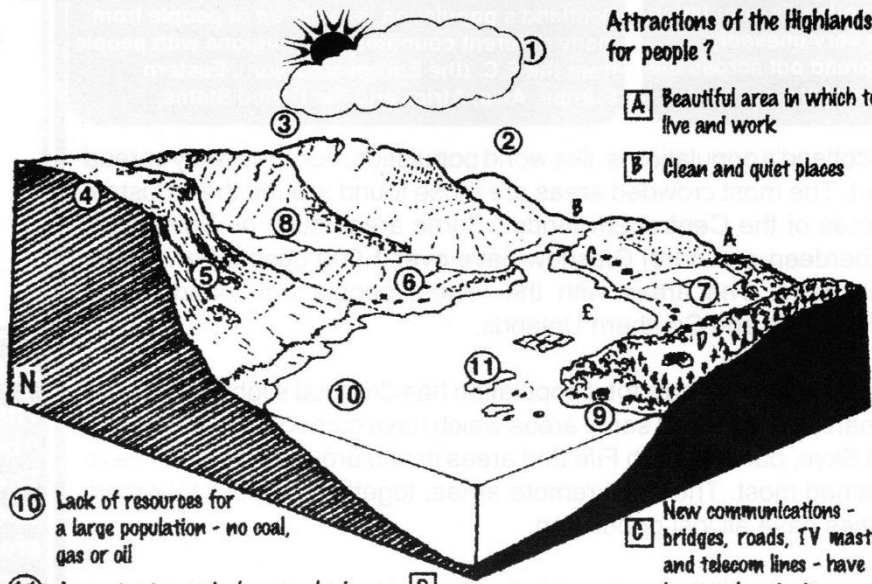
A Highland Glen - Drumnadrochit and Glen Urquhart   Fig.116

Fieldsketch looking east over Drumnadrochit and Glen Urquhart   Fig.117

4   1

The Great Glen

Less than 6 people per square km
live in the mountains

Main road to Inverness

8

10   Loch Ness

2

Drumnadrochit
Village

3

6

5

The population density
of the glen is approx.
75 people per sq.km.

Shinty pitch

9

7

Problems of living in the area

1   Climate : long cold winter with frost
    and snow. Short, cool summer.

2   North-facing slopes are colder with
    less sunshine in the year.

3   Lack of flat, fertile land for farming.

4   High, steep slopes make travel and
    communications difficult

5   Rivers threaten to flood houses and
    farmland

The village of Drumnadrochit sits on the floor of Glen Uruqhart by Loch Ness, 15 kilometres from Inverness. Just as there are many difficuies for living in the Highlands (fig.115), there are many problems for people living in the Drumnadrochit area. The glen is a frost hollow and there are sometimes problems of flooding on the valley floor. The population of the area is slowly growing. People moving into the village are attracted by its beauty and cleanliness and the closeness of the shops, services and work in Inverness (figs.116 - 117).

Attractions of living in the area

6   A beautiful area around the glen. Many
    houses have open, scenic views.

7   Peace and quiet. way of life is slow and
    safe for children.

8   Closeness to Inverness for shopping,
    entertainment and work.

9   Clean environment with little
    pollution.

10 Thriving tourist trade creates jobs
    and wealth for the area.

The Highlands

Tasks

1   Look at figure 114.
    i.   Where are the main settlements in the
         Highlands ?
    ii. Why is this the case ?
    iii. Why is the population of some Highland
         areas growing ?

2   Either
    i.   Make your own copy of figure 116.
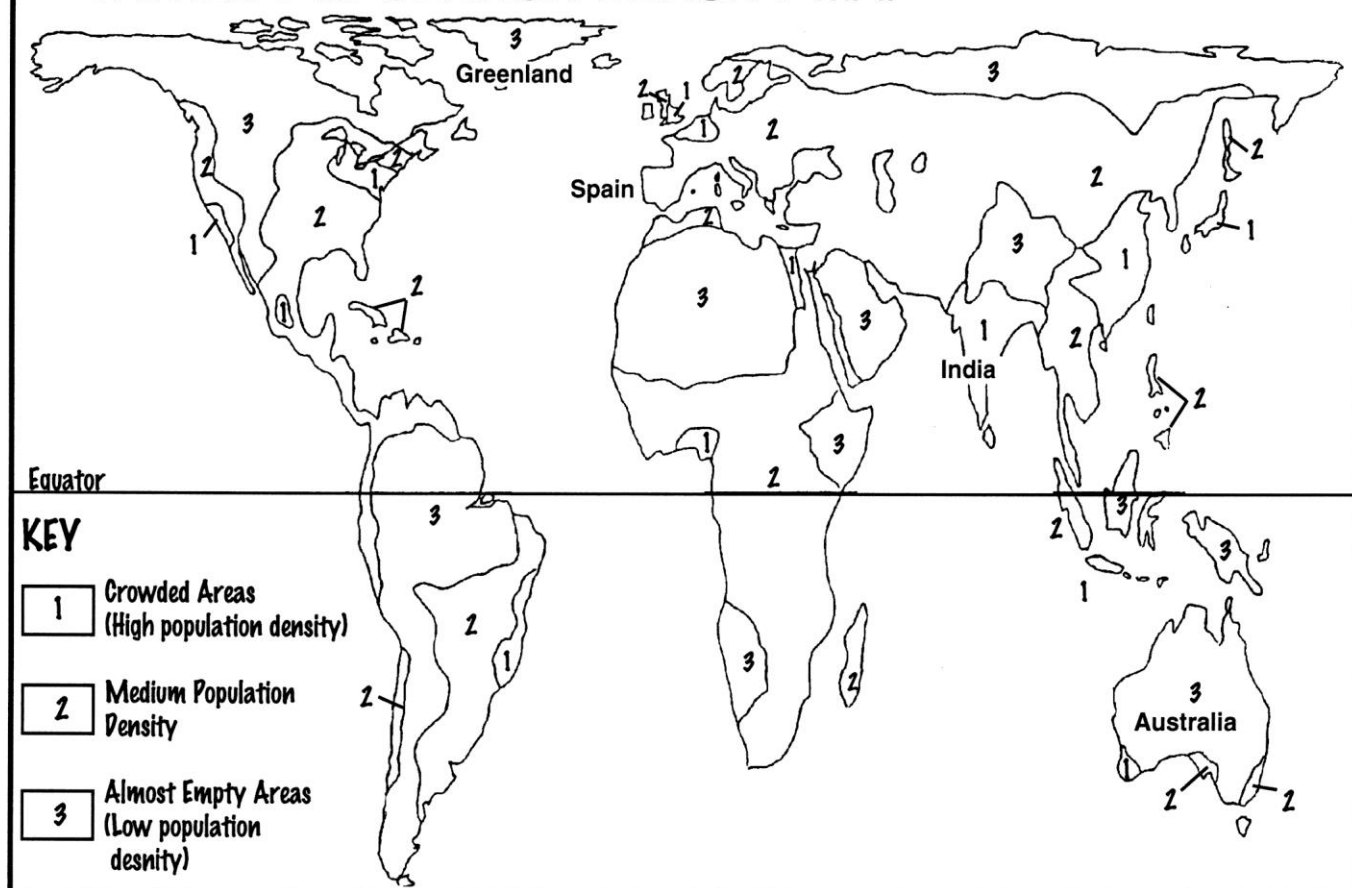
    Or
    ii. Write answers to the following
         questions -
         a. Why is population density
            so low in the Highlands ?
         b. What attracts people to live there ?

4   Look at figures 116 and 117.
    Write a one minute radio report on the
    difficulties and the attractions of living in the
    area around Drumnadrochit.

5   Make a copy of the summary below.

Summary

There are many difficulties of living in the Highlands which is an area of low population density. Despite the problems of the landscape, most people live in the glens and around the coast.

WORLD POPULATION DENSITY MAP

Greenland

Spain

India

Equator

Australia

KEY

| 1 | Crowded Areas (High population density) |

| 2 | Medium Population Density |

| 3 | Almost Empty Areas (Low population desnity) |

1. Fill in the missing words in the following sentences.
   Choose from : **empty   high population density**

   Some areas of the world are very crowded. These are known as areas of _____ _____
   _____. Some areas are almost _____. These areas are known as areas of
   Low Population Density.

2. Shade in the Population Density Map above by colouring
   - the areas of **high** population density in **red**;
   - the areas of medium population density in **orange**
   - the areas of **low** population density in **yellow**.

   Remember to shade in the **key** correctly too !

3. Look at the map above carefully.   For each of the places listed below say if they have high, medium
   or low population density. You may need to use an atlas to help you.

Place	Population Density	Place	Population Density
Greenland		Australia	
Spain		India	

1. The **population density** of a place is worked out by using the following formula :-

| Population Density | = | Number of People / Area in km² |

Area A

Area is 1 square kilomtre
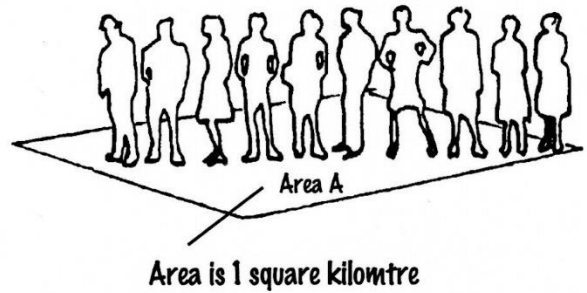
i. What is the population density of Area A above ?   P.D. = _____

ii. Work out the population density for each of the following places :-

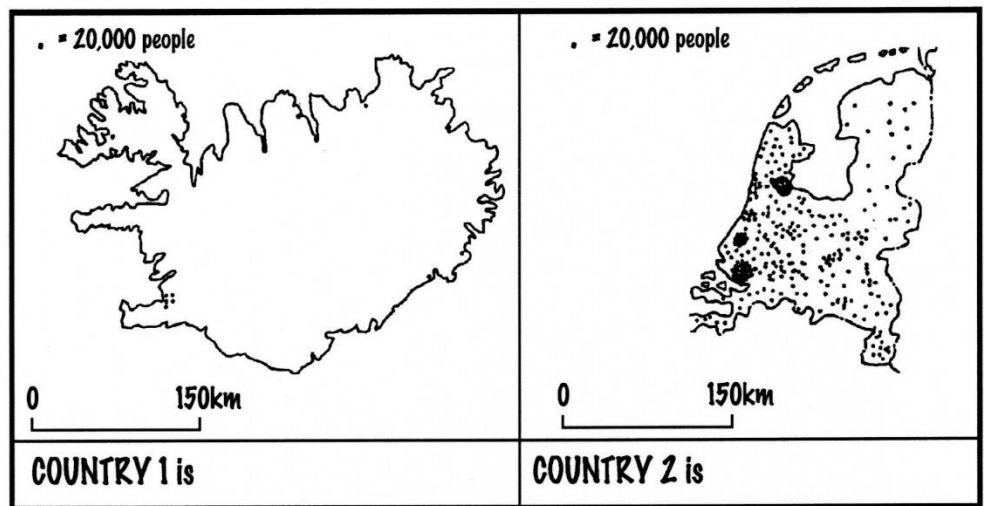**Area B** has 200 people and is 25 square kilometres in area   P.D. = _____

Area C has 100,000 people living in 250 square kilometres   P.D. = _____

2. Look at the following maps.

For both countries, one dot on the map equals 20,000 people.

Look at where the people live within both countries.

. = 20,000 people	. = 20,000 people
0 150km	0 150km
COUNTRY 1 is	**COUNTRY 2 is**

This type of map shows the **distribution** (or spread) **of population** within a country.

i. Use an atlas to help you name both countries. Write their names in the boxes above.
ii. Work out the **population density** for both countries :-

| **Country A** | Area   100,000 square kilometres
 Population 250,000 | **P.D.** = |
| **Country B** | Area   40,000 square kilometres
 Population 15,000,000 | **P.D.** = |

iii. Write a sentence to compare the population density of both countries **A** and **B**.

_____

_____

The Highlands of Scotland

N

Use an atlas map of Scotland.

1. Finish the map of the Highlands by naming the main settlements Write their names on the map below.

Key
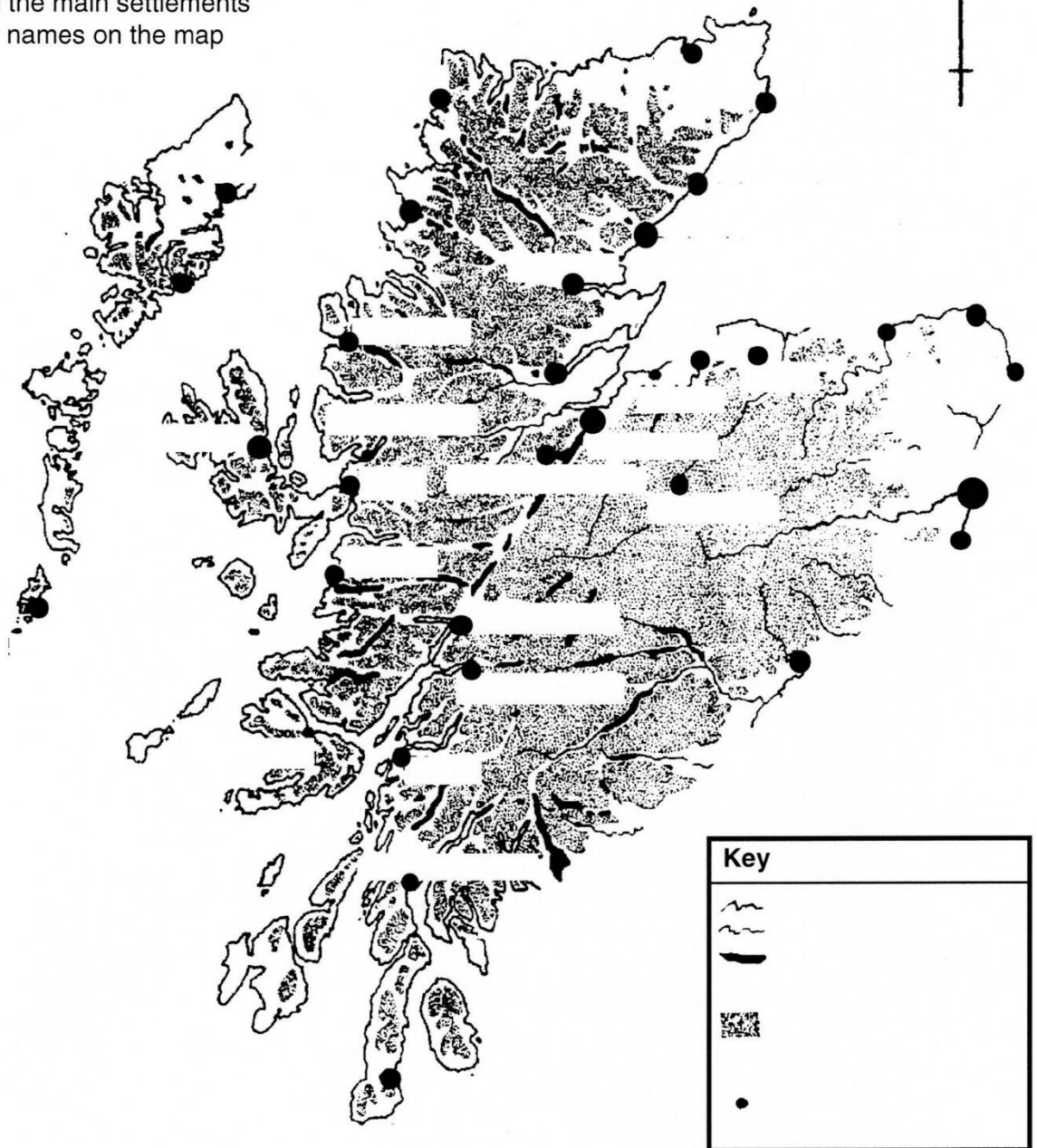
2. Fill in the missing information from the **key**.

3. Where are the main settlements in the Highlands ?   Why ?   _____

_____

_____

Answer the following questions on the back of this sheet.

4. Why are the Highlands an area of **low population density** ?   What makes living difficult in these areas of Scotland ?

5. What attracts people to live in the Highlands ?

Population Density Test

Name	Class	Date	/20

Answer the following questions
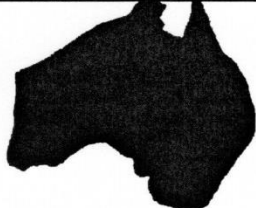
1. What is **population density** ? _____

_____

_____ ②

2. For each of the following **circle** the correct answer :-

i.	A place with **high** population density is called	**Average**	**Medium**	**Empty**	**Crowded**	①
ii.	Empty areas often have population density which is	**High**	**Low**	**Average**	**Medium**	①
iii.	An area of **low** population density is	**India**	**France**	**Siberia**	**California**	①
iv.	An area of **high** population density is	**Zaire**	**Alaska**	**The Sahara**	**Belgium**	①
v.	If 100 people live in an area of 10 sqaure kilometres, the population density is	**200**	**10** people per square kilometre	**100**	**1000**	②
vi.	If 800,000 people live in an area of 200 square kilometres then the population density is	**400**	**4000** people per square kilometre	**40,000**	**40**	②

3. Look at the information table below then answer the questions.

Map				
Country	Sweden	Mexico	India	Australia
Area (km)	0.5 million	2 million	3 million	7 million
Population	10,000,000	129,000,000	1,380,000,000	25,600,000

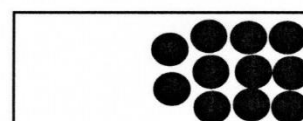Fill in the missing words in the following sentences :-

    a. The largest country is _____ ①
    b. The country with the largest population is _____ ①
    c. The most crowded country is _____ ②
    d. The least crowded (almost empty) country is _____ . ②

3. Look at the diagrams alongside.

  i. What is Population Density of Places
    A and B ?

    _____ ②
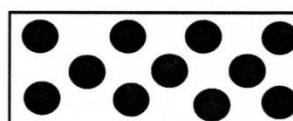
Place A
Area is 10 square kilometres
Population is 11

Place B
Area is 10 square kilometres
Population is 11

  ii. Why can the population density sometimes
    be misleading ? Answer on the back. ②

HOT AND COLD DESERTS

There are some places on Earth where it is very difficult for people to live. These are areas of very low population density - lower even than parts of the Highlands of Scotland! Like most plants and animals, people need warmth, water and food in order to stay alive. Without them they cannot survive.

Deserts are very dry, almost empty places. Deserts are places where there is less than 250mm of precipitation in a year. Some, like the huge Sahara Desert of North Africa, have temperatures as high as 45^0C - hot enough to easily fry an egg on a rock! Such places are known as **hot deserts** (fig.118). Other deserts, such as the huge area of Northern Siberia, have temperatures which fall as low as - 45^0C. In the **cold deserts or tundra areas** water is permanently frozen. Diesel engines freeze solid even whilst running at - 40^0C (fig.119).

Many of the areas of low population density are also the last great **wildernesses** left on Earth. Many contain **natural resources** such as oil, gas or precious gemstones. Although life is very difficult, some people live and work in such areas. To survive they have had to adapt their lifestyles to the harsh climate and difficult **environment** (surroundings).

Even with modern technology, these areas still present people with a great challenge.

Summary

Hot and cold deserts are almost empty areas with less than 250mm of precipitation in a year. To survive in deserts people, plants and animals must adapt to the environment. Deserts are some of the last true wildernesses left on Earth.

## Hot Deserts or Arid Lands   Fig.118

Hot Deserts suffer searing heat and long, severe drought. They are the hottest as well as the driest places on Earth. Daily temperatures can rise above 45^0C. At night, under cloudless skies, temperatures can drop to freezing. Due to the daily temperature differences, rocks heat up in the daytime. Rocks cool down at night. Over thousands of years, desert rocks break down into sand.

Cold Deserts or Tundra Areas   Fig.120

Tundra means 'treeless plain'. In the cold deserts of Alaska, Northern Canada, Scandinavia and Siberia, the harsh climate is both very dry and very, very cold. Winters are very long and can last 7 months. Summers are very short and cool. The ground can be permanently frozen all year round. The large photo shows a tundra area in Northern Canada in summer.
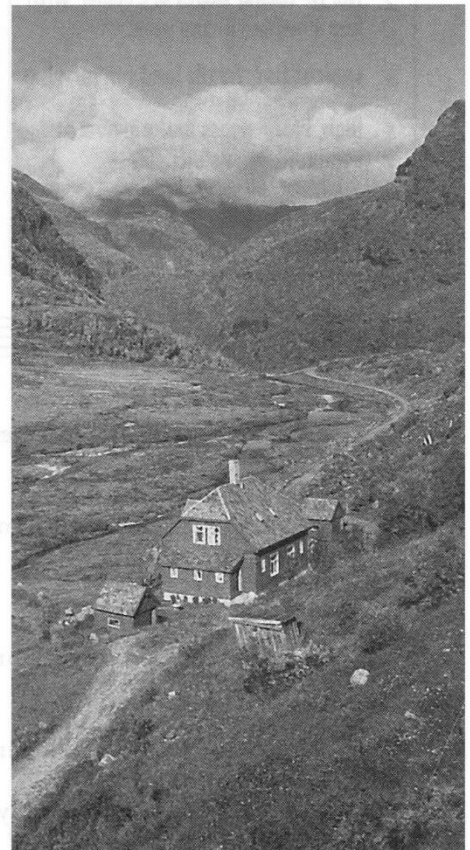
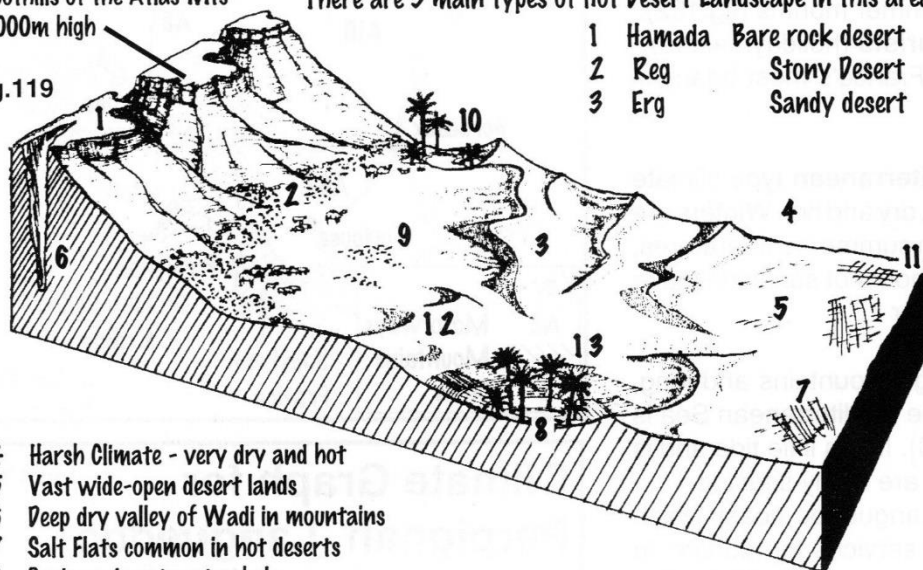| Climate Data for Taghit Oasis, Algeria, Africa	Month	J	F	M	A	M	J	J	A	S	O	N	D
	Temperature °C	21	24	29	33	39	41	43	44	44	35	27	22
	Precipitation (mm)	0	0	4	15	21	2	0	0	0	0	0	1

A Hot Desert Landscape around Taghit, Algeria

Foothills of the Atlas Mts 1,000m high

Fig.119

There are 3 main types of Hot Desert Landscape in this area

1 Hamada   Bare rock desert
2 Reg   Stony Desert
3 Erg   Sandy desert

4 Harsh Climate - very dry and hot
5 Vast wide-open desert lands
6 Deep dry valley of Wadi in mountains
7 Salt Flats common in hot deserts
8 Oasis or desert water-hole
9 Nomads (desert travellers) herd camels and goats
10 Common plants in hot deserts are Date Palms, Cactus and Desert Shrubs

11 Vast distances and difficult travelling conditions make most areas remote and isolated
12 Lack of water and grazing land cause major problems for farmers

13 Recent changes in the Taghit area include 200 new jobs in oil drilling and 2 new desert roads

| Climate Data for Fairbanks, Alaska, USA	Month	J	F	M	A	M	J	J	A	S	O	N	D
	Temperature °C	-29	-26	-21	-16	-9	-0	11	9	3	-5	-18	-27
	Precipitation (mm)	2	0	7	9	19	4	32	11	7	0	10	11

A Cold Desert Landscape around Fairbanks, Alaska

Foothills of the Alaskan Mts 800m high

Fig.121

The main types of Cold Desert Landscape in this area

1 High snowy mountains
2 Flat, frozen plains and rivers
3 Frozen marshes and coastal areas
4 Bare rock areas
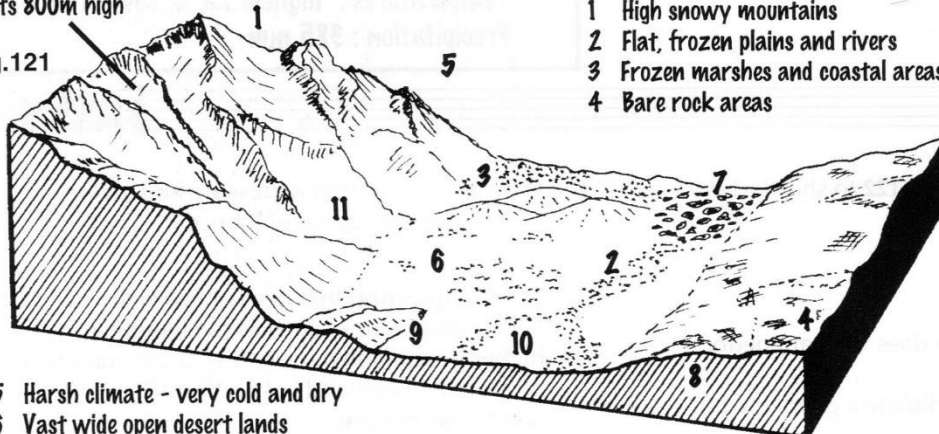
5 Harsh climate - very cold and dry
6 Vast wide open desert lands
7 Surface thaws in summer to form Muskeg - uncrossable swamp
8 Permafrost is permanently frozen soil and rock under the surface
9 Few plants survive the tundra climate some lichens and moss grow on rocks; heathers and sedges grow on humps dwarf trees grow in hollows

10 Tundra easier to cross in winter as summer surface is too wet and marshy
11 Recent changes in the area include new roads and 50 extra jobs in oil mining.
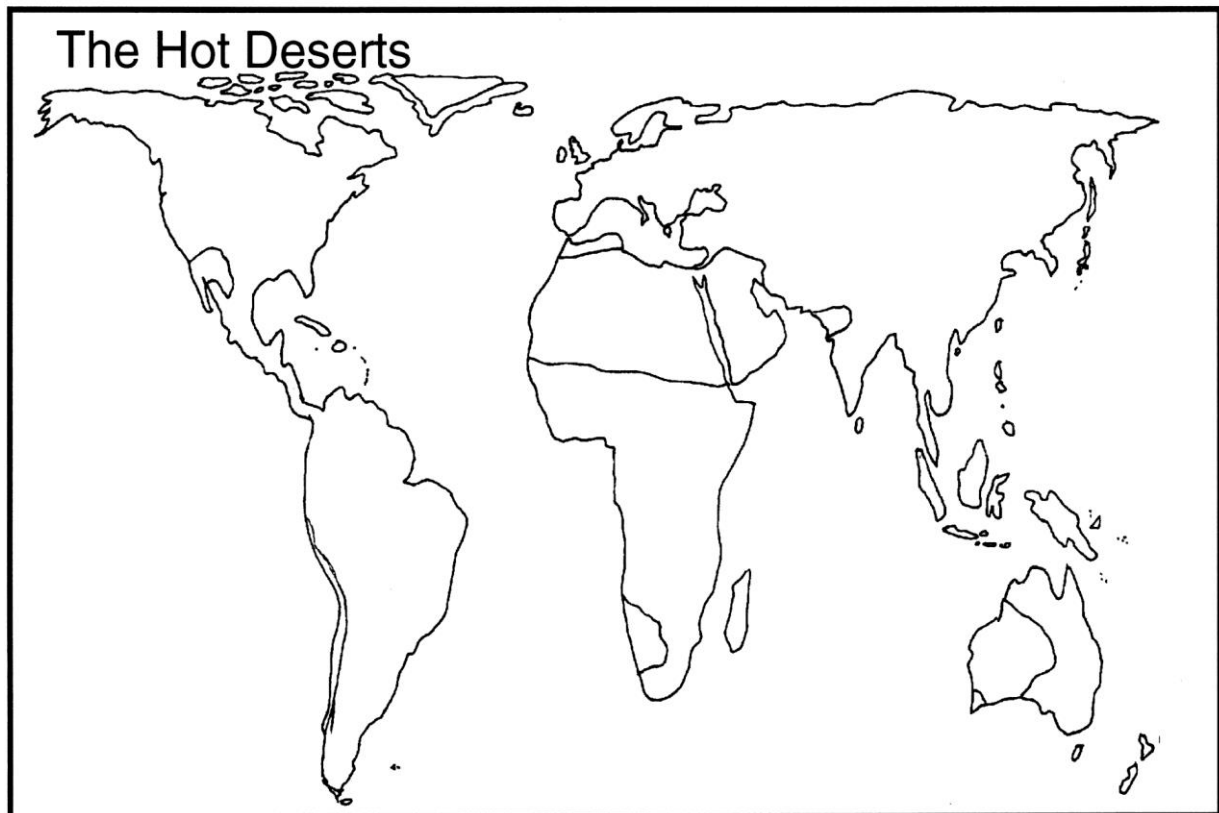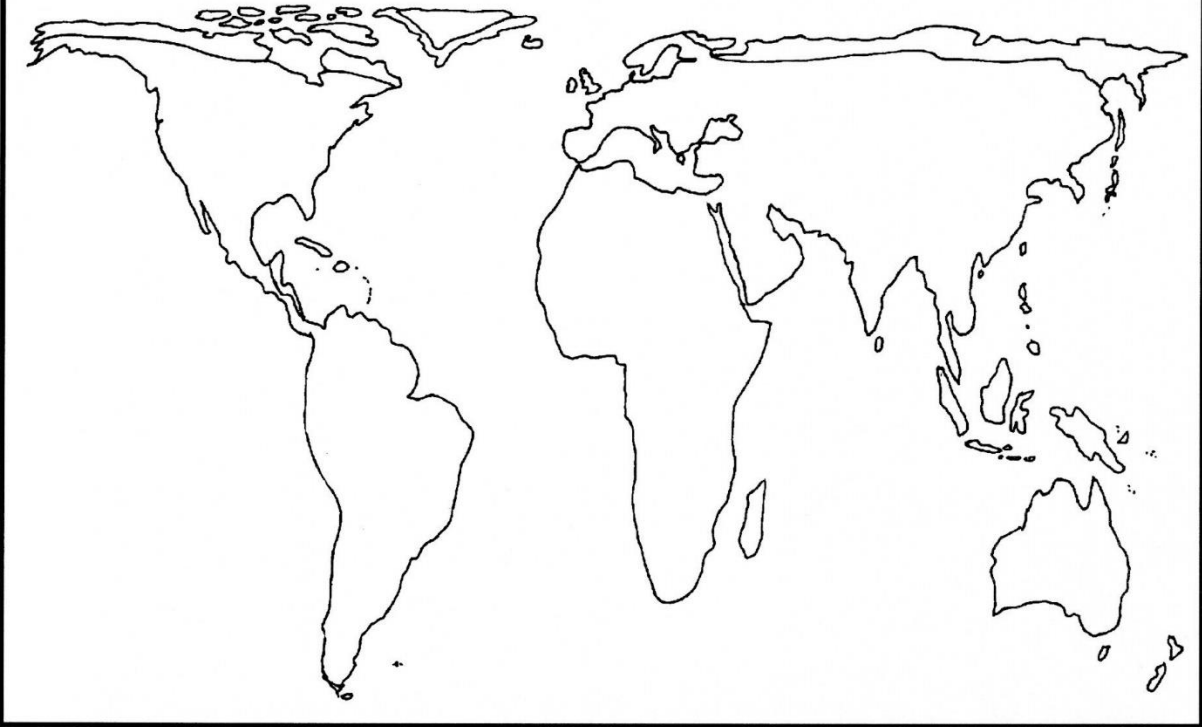
The Hot Deserts

1. Make your own map of the world's **Hot Deserts**.
   Mark on the major hot deserts and write their names on the world map above.
   Choose from : **Sahara Desert**   **Atacama Desert**   **Namib Desert**   **Thar Desert**
                  Arabian Desert   **Great Australian Desert**   **Mojave Desert (USA)**

2. Shade the desert areas in **yellow** on the map.

3. Which is world's largest **hot desert** ? _____

4. Which **continents** have no
   hot deserts ?   _____

5. What is a **desert** ?   _____

   _____

6. Is the population density of hot deserts high, medium or low ?   _____ population density

7. Write a few sentences to say why this is so.

   _____

   _____

   _____

8. On the back of this sheet write a **story** about you as an explorer crossing the great Sahara Desert
   by land rover. Say what you would take with you to help you do this. Half way across you run out of
   diesel. As night falls you find out that you have left most of your water behind !
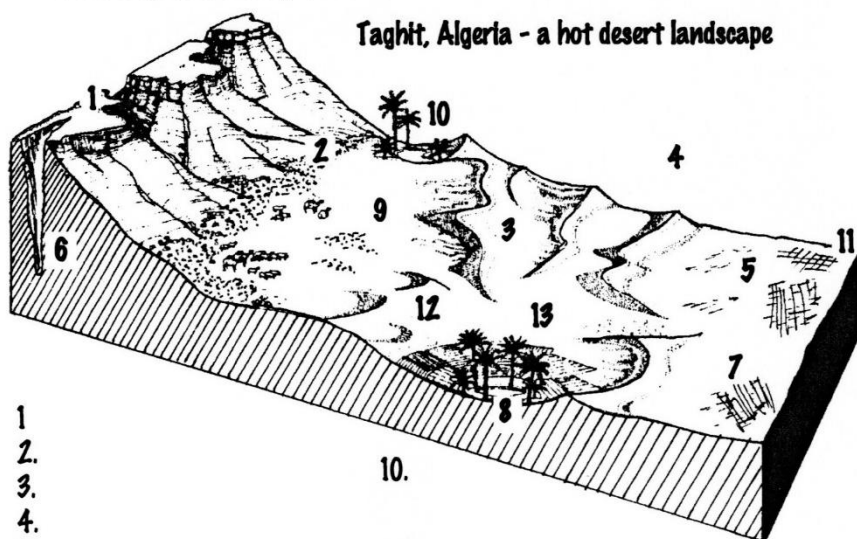
The Cold Deserts

1. Make your own map of the world's **Cold Deserts**.
   Mark on the major hot deserts and write their names on the world map above.
   Choose from : **Alaska   Northern Canada   Northern Scandinavia
                   Siberia   Greenland**

2. Shade the desert areas in **light blue** on the map.

3. Which is world's largest **cold desert** ?   _____

4. Which **continents** have no
   cold deserts ?   _____

5. What is a **tundra** ?   _____

   _____

6. Is the population density of cold deserts high, medium or low ?   _____ population density

7. Write a few sentences to say why this is so.

   _____

   _____

   _____

8. On the back of this sheet, describe the tundra house shown in figure **120**
   Then make **two** lists - one of the modern types of **transport** used in the cold deserts of Alaska
   today. The other should be a list of older types of transport such as dog sleds.

1 Use the climate data for **Taghit, Algeria** to draw a **climate graph** to show the hot desert climate. Use the blank graph.

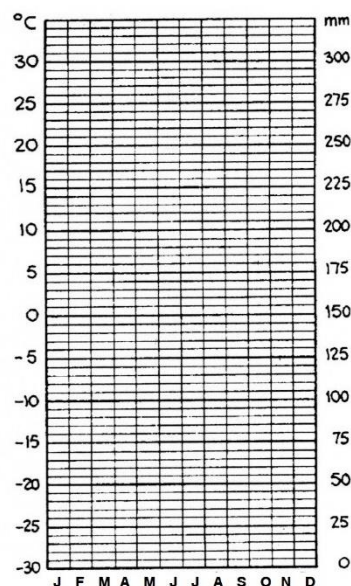**2** Use the information on fig.**117** to fill in the **key** to the diagram below.

Taghit, Algeria - a hot desert landscape

1
2.
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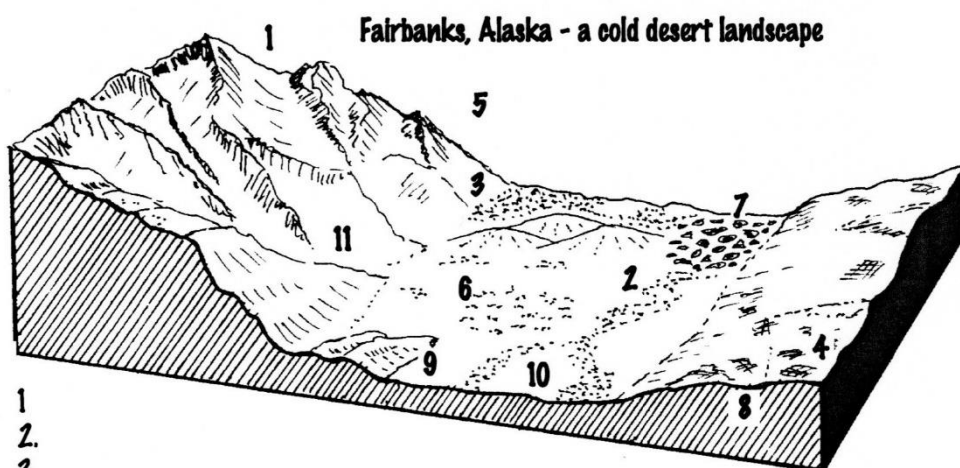9.

10.

11.   13.

12.

---

3. Use the climate data for **Fairbanks, Alaska** to draw a **climate graph** to show the cold desert climate. Use the blank graph.

4. Use the information on fig.**117** to fill in the **key** to the diagram below.

Fairbanks, Alaska - a cold desert landscape

1
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