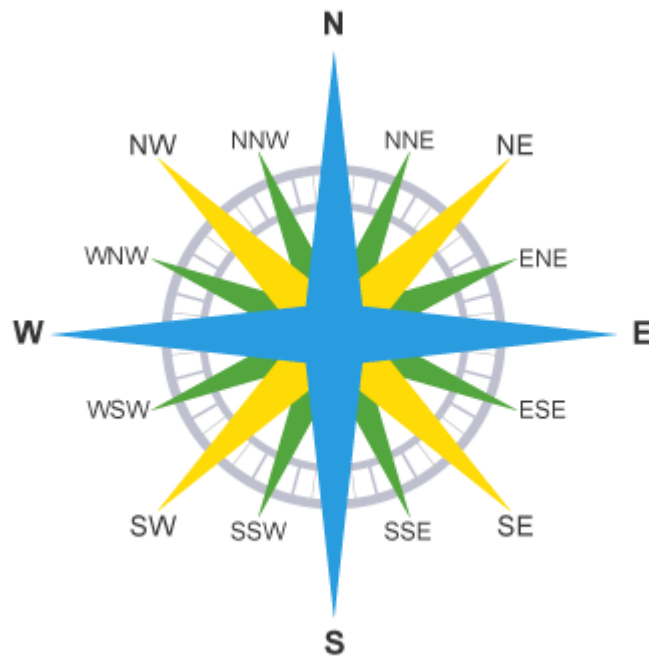


AQA GCSE GEOGRAPHY SKILLS WORKBOOK



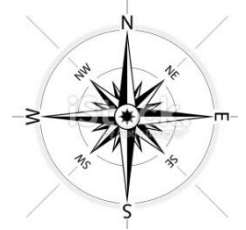
3.4 – a) OS Map Skills

SPECIFICATION: Maps at a variety of scales: use and interpret OS maps at a range of scales, including 1:50 000 and 1:25 000 scales and other maps appropriate to the topic.

Symbols: When drawing a map, it is important to include as much information as possible. However, adding a lot of detail can make a map messy and confusing, so cartographers often use symbols (images, abbreviations and letters) to represent the main items.

The exam board is expecting you to know the main symbols used by the Ordnance Survey. Don't worry, there is no need to learn the meaning of every symbol, as a map extract will always be accompanied by a key.

Compass points: Compass directions are vital for finding your way around a map and provide the easiest way of describing the distribution of different features.

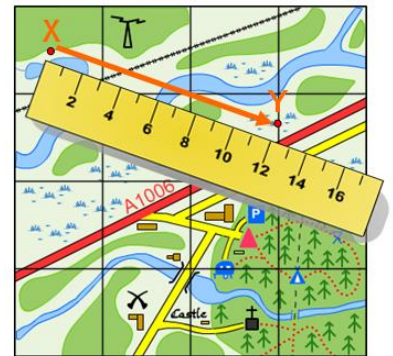


A Knowledge:* Ordnance Survey maps are always printed so that north is at the top of the sheet.

Scale: The scale of a map allows a reader to calculate the size, height and dimensions of the features shown on the map, as well as distances between different points. The scale on a map is the ratio between real life distances and how many times it has been shrunk to fit it on the map. **The maps in your exam will have a scale of 1:50 000 (where 1cm = 50,000cm on the ground (500m or 0.5 km) or a scale of 1:25 000.**

Distances between locations can be calculated using different techniques:

If you are required to work out the straight line distance (as the crow flies) between 2 places, simply place your ruler over both points and measure the distance in-between, then convert into kilometres using the scale line or by multiplying your answer by 0.5, i.e. 7 cm on the map equals 3.5km in real life.



A Knowledge:* Each grid square on an OS map is 1km by 1km.

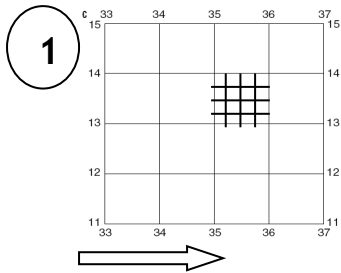
If you have been asked to work out the distance of a winding route (e.g. a river or road) and you're a true geographer, simply remove the piece of string from your pocket, and place one end at the start point. Carefully wiggle your string to follow every twist and turn along the route you have been asked to measure. When you reach the final destination, pull your string tight and place the string against the scale line on the map. Alternatively, measure the distance using a ruler and multiply by 0.5.

If you're not a true geographer, and therefore don't have a piece of string hanging about just in case (!), then why not try the paper method. Get a sheet of paper (or even the side of your exam) and place the corner on your starting point. Rotate your paper until the side follows the route you want to take. When the route bends away from the paper's edge, mark the point on your sheet and then turn the paper so that the side runs along the next part of your path (1). Keep doing this until you reach the end of your route (2). Now place your paper against the scale line (3) or measure the distance using a ruler and multiply by 0.5.

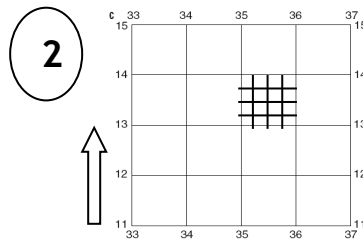


4 and 6 figure grid references: Ordnance Survey maps are covered in a series of blue grid lines. These grid lines can be used to pinpoint locations through a unique number known as a grid reference. A four-figure grid reference is a handy way of identifying any square on a map. Four figure references are useful if you're trying to describe the position of a large feature such as a forest or settlement. Grid references are easy, as long as you remember that you always go along the corridor before you go up the stairs.

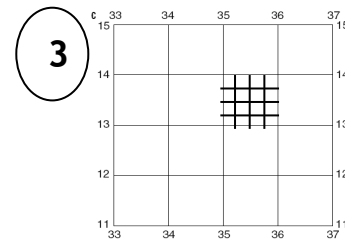
How to find the four figure grid reference of the shaded square...



Go along the bottom of the map until you reach the easting which forms the left side of the square you're trying to locate e.g. 35

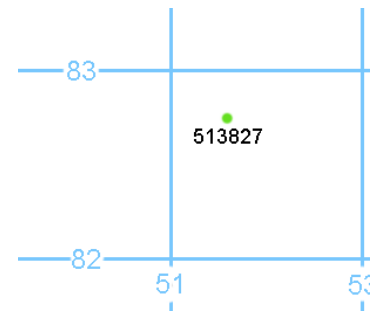


Then, go up the side of the map until you reach the northing that forms the bottom side of the square you're trying to locate e.g. 13



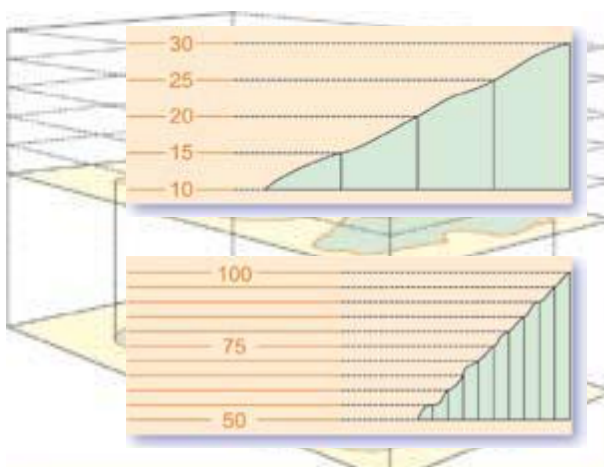
Now put your two answers together e.g. 3513. There is no need to add brackets, commas, dashes etc...

If you want to pinpoint an exact place on a map, such as a church or farm building, then you will need to use a six-figure grid reference. The first step is to find the four-figure reference, now imagine this square is divided up into 100 tiny squares, with 10 squares along each side. Still remembering to go along the corridor and then up the stairs, estimate how far across and then up the square the feature is.



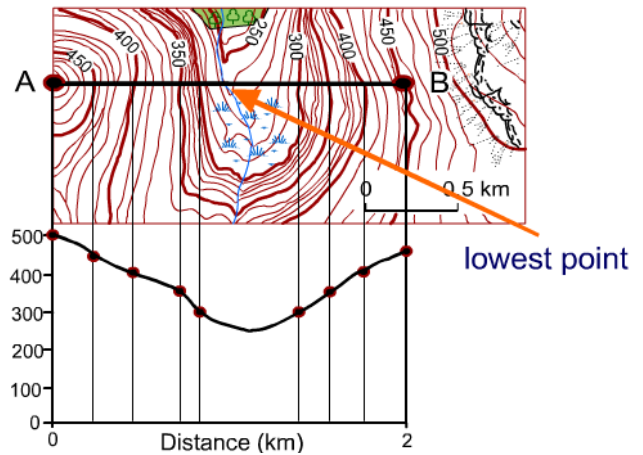
Relief: Relief is a term geographers use to describe the shape and height of the land. OS maps use two systems to illustrate relief, spot heights and contour lines. A contour is a line drawn on a map that joins points of equal height above sea level, i.e. every point on a 50metre contour line is 50metres above sea level. Contours on OS maps are coloured light brown. The diagram below shows the link between the shape of a hill and the contours representing it on a map.

When interpreting relief through contours, always remember the closer lines are together, the steeper the slope



How to draw a cross section...

1. Place the edge of a piece of paper along the route you wish to draw a cross section of.
2. Mark each time your paper crosses a contour line and record its height.
3. Place your paper on a piece of graph paper and draw a vertical scale. Each time your paper crossed a contour line plot the correct height.
4. Join up the crosses with a line to show the shape and height of the land.
5. You may be asked to add the location of important features such as rivers or roads.



EXAM PRACTICE 1



1. From Morris Fm (612189) what direction is it to:
 - a) Manor House (621172)
 - b) White House (605176)
2. Which of the following grid squares have the steepest terrain?
 - a) 5919 or 6217
 - b) 6120 or 6219
3. Which is the six figure grid reference of:
 - a) the church in Cowling
 - b) the church in Heapey
4. How far is it from the Manor House to Morris Farm:
 - a) as the crow flies
 - b) along the road

5. Draw a cross section from White Coppice (616189) to the summit of Hurst Hill (630180).

3.4 – b) Human and Physical Features

SPECIFICATION: Atlas maps: recognise and describe distributions and patterns of both human and physical features.

You must be able to use OS Maps and atlas maps. On either, you need to be able to identify human and physical features – you will then be expected to describe them e.g. the distribution of vegetation or rivers. Being able to describe the distributions and patterns shown on a map is a vital skill. The key to success on a describe question is to support general descriptive statements with evidence (e.g. 4 fig. grid references).

What to look for when describing:

Vegetation - The OS maps used in our exam (1:50,000) only contains a minimal amount of vegetation data. Woods, orchards, parkland and marshes are shown, but most of the map is likely to be white. In most cases these white areas will be be farmland, look for the presence of farms (abbreviated to fm) to prove this. When identifying large areas, such a forest, use four-figure grid references, however, more accurate six figure references will be needed if you're highlighting farm buildings.



Communication – In your exam, communication refers to the region's transport networks. Look out for important routes, such as dual carriageways and motorways, as well as local patterns. In most cases road and rail networks will be denser and more complex in urban areas. When describing communication networks use road names (e.g. M4 or B3456), locate larger areas with four-figure references and individual stations and foci points with six-figure references.



Settlements – If asked to describe the distribution of settlements, try and think of each settlement as a just dot. Include villages, towns and cities but ignore minor hamlets and farmhouse clusters, as we don't want to over-complicate our answer. Now look at the pattern of dots and try to identify any relating factors. Settlements are usually grouped in river valleys, on coastlines or along transport routes. Don't forget to support any explanation with map evidence.

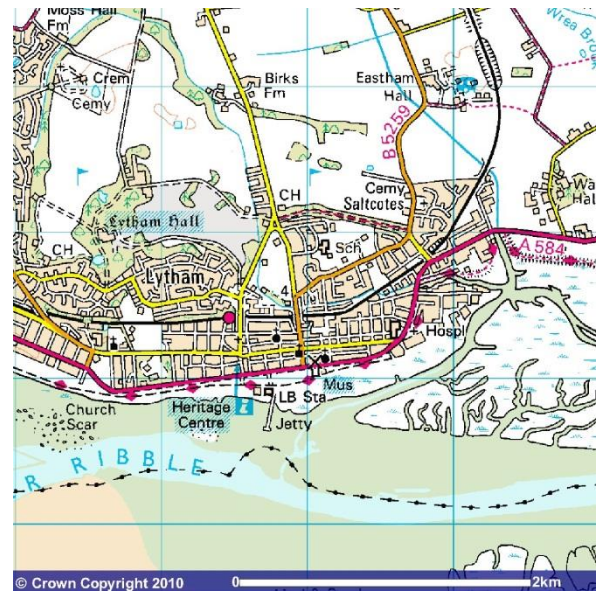


Human activities – OS maps provide little information about human activity. Occasionally works and industrial sites are labelled, but in most cases we have to make educated guesses about the economic activities present within a region, e.g. we know from experience that large towns and cities tend to have important retail and commercial functions. Tourism is perhaps the easiest economic activity to identify as attractions and facilities are clearly highlighted by blue symbols.



EXAM PRACTICE 2

1. Describe Lytham’s transport network. (4 marks)
2. What evidence is there to suggest that Lytham is a popular tourist destination? (3 marks)
3. Describe the site of Lytham. (3 marks)
4. Describe the vegetation cover in the area shown. (4 marks)



3.4 - c) Maps, photos and sketches

SKETCH MAPS

SPECIFICATION:

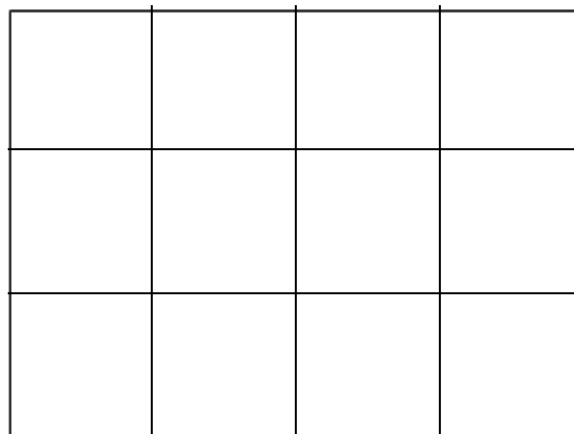
- Use maps in association with photographs and be able to compare maps.
- Sketch maps: draw, label, understand and interpret sketch maps.
- Labelling and annotation of diagrams, maps, graphs, sketches, photographs etc.

Like photographs, OS maps often include too much information making them difficult to interpret. A sketch map can overcome this problem by simplifying the image to only include the important / relevant features.

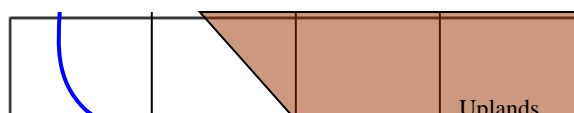
As with sketching, the exam board are not expecting you to be a talented cartographer, producing sketch maps perfectly drawn to scale! However they must be tidy, accurate and the main features must have been clearly identified. Use colour coding, symbols or labels to highlight the main features and don't forget to add a key when necessary. If appropriate annotate your map with longer phrases and descriptive comments. To keep your sketch clear, write your annotations around the edge of your map and draw arrows to the features they describe.

How to produce a Sketch Map

1. Draw a suitably sized border on your piece of paper. Don't forget to leave enough space around your frame for a title and any annotations. Add grid lines to reflect the map section you're attempting to sketch; these will help you to accurately position features.

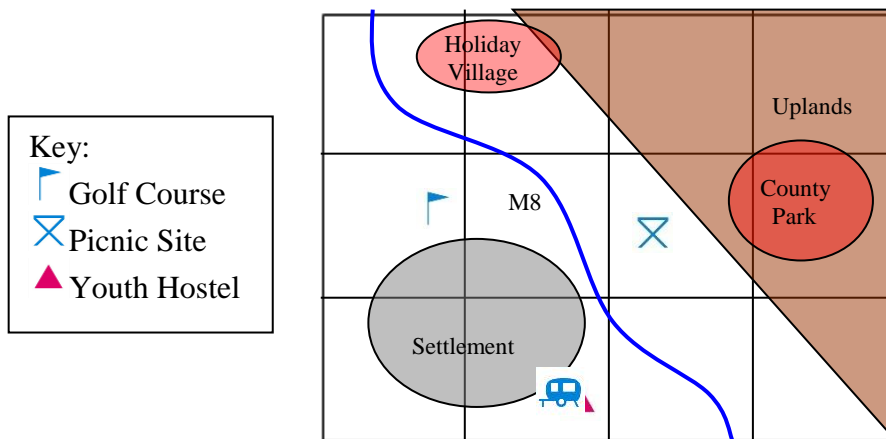


2. Using your grid as a guide, roughly draw in the main features, e.g. rivers, upland areas, major settlements, motorways etc... The main features will vary depending on the focus of your map. To



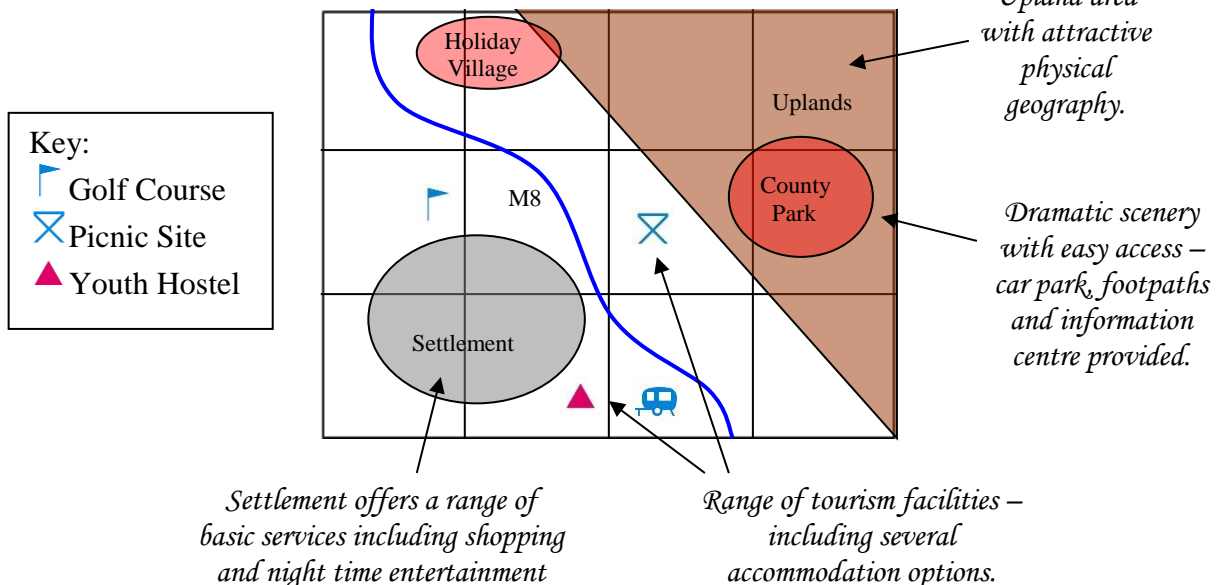
keep your map clear and easy to read it is often best to use basic shapes. Don't forget to add labels or a key.

3. Draw on the remaining important features... these will vary according to the purpose of your map, i.e. A sketch-map drawn to illustrate access will include road and rail links whilst a map intended to show the importance of tourism will highlight physical and human attractions as well as tourism related businesses / services, such as information centres and campsites. Don't waste time drawing a lot of needless detail that is not required, the key to a good sketch-map is its clarity. Don't forget to label or key.



4. Give your sketch a suitable title, this should relate to question being tackled. Add annotations to highlight importance features.

A sketch map to show the importance of tourism to ???



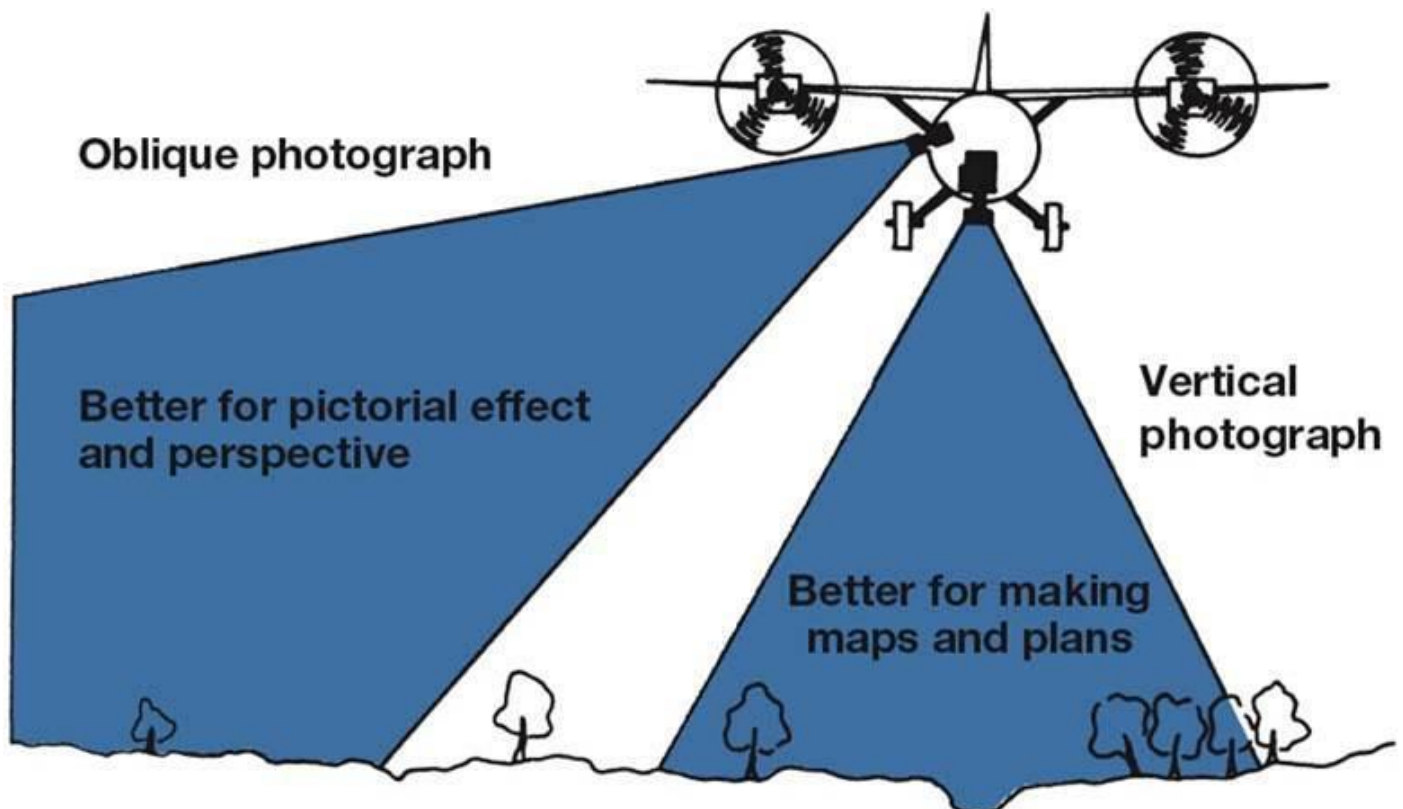
PHOTOS

SPECIFICATION:

Use maps

- **Photographs:** candidates should be able to use and interpret ground, aerial and satellite photographs.

Aerial photographs can be taken vertical (directly above). If so they are called 'bird's eye view' photographs because they show a picture taken as if looking down like a flying bird. Other aerial photographs are **oblique** (taken from an angle) and therefore show more detail such as the sides of buildings. The diagram below illustrates the differences and shows the strengths of each:



A **satellite** image is a picture of the Earth taken from space. Satellite images can show patterns on a large scale, such as the lights from urban areas on a continent, or can zoom in to see small details such as cars on a street.

Each of these show elements of the landscape which are not found on OS Maps, such as the types of crop growing or the different uses of buildings.

Interpretation

You may be expected to interpret any of these types of photographs. You'll be expected to look for:

Physical Features – **relief** – Is the land flat? Any slopes visible? Any rivers? If there are crops it indicates good soil fertility.

Human Features – **Land use** – *Farmland?* Large fields so good for large machinery? Different crop varieties indicated by different coloured fields? If there are crops it indicates good soil fertility. *Settlements?* Nucleated around a cross road? Dispersed and scattered? Linear (*like a line*) along a main road? Built up? Urban? Rural? Big v small gardens? Etc.

Camera direct? You may be given an OS Map and an oblique photograph and be asked which direction the camera is facing. To work this out: Line up 2 easily identifiable features in the near ground and back of your image using a ruler. Then line up the same 2 features on your OS Map, again using your ruler. Remember the top of the OS Map is always North (*unless otherwise stated*) so you simply need to work out the direction your ruler is facing from the first feature to the second.

- **Labelling and annotation of diagrams, maps, graphs, sketches, photographs etc.**
- **Drawing sketches from photographs and in the field.**

Whilst photos show what places are really like, they often give too much information and can be difficult to interpret. A labelled sketch can overcome this problem by simplifying the picture whilst highlighting only the important features.

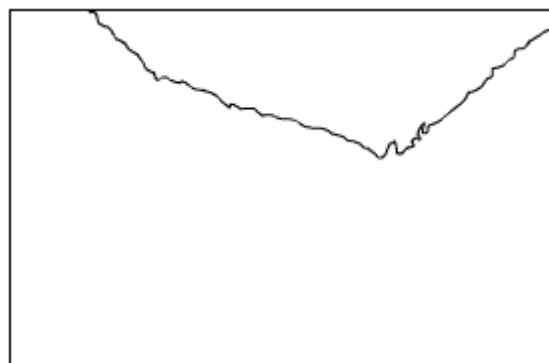
The exam board are not expecting you to be excellent artists. Sketches do not need to be perfect drawings with correct perspective and an imaginative use of colour! However they must be tidy, accurate and the main features must have been clearly identified. Label all the features on your diagram and make sure your sketch is suitably titled. If appropriate annotate your sketch with longer phrases and descriptive comments. To keep your sketch clear, write your labels around the edge of the sketch and draw arrows to the features they describe.

How to produce a Field Sketch

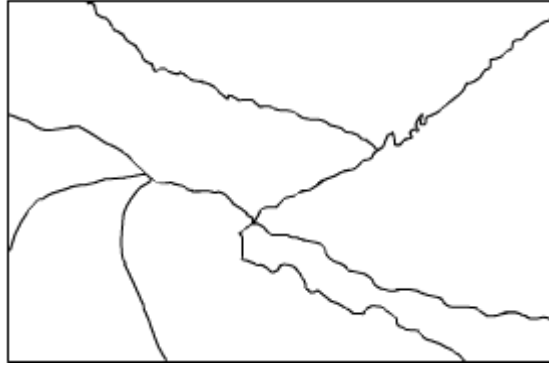
1. Draw a suitably shaped border on your piece of paper- don't forget to leave enough space around your frame for a title and your labels/annotations.



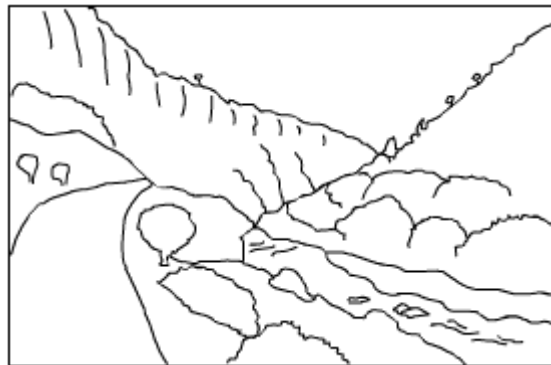
2. Draw on the horizon (where the land and sky meet). The horizon should be about a quarter to a third of the way from the top of the paper (unless the sky is particularly important).



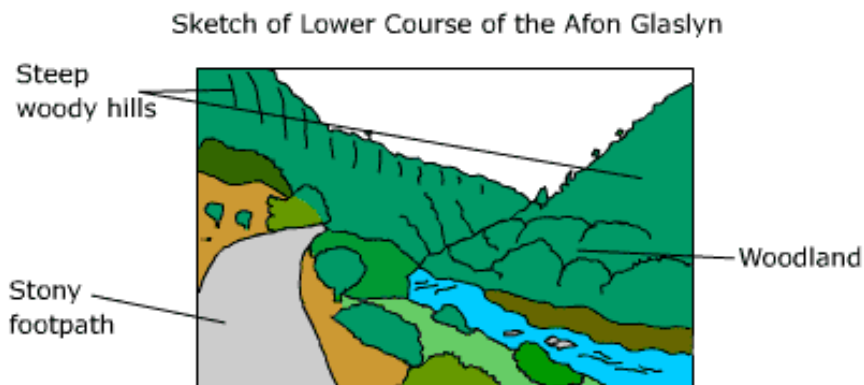
3. Draw in the main lines of the sketch, e.g. rivers, hills, forests, roads, key buildings etc...



4. Draw in the remaining important features... these will vary according to the purpose of your sketch. i.e. A sketch drawn to illustrate the problems experienced in declining CBDs will include graffiti and litter whilst a sketch intended to show land-use on a hill farm will highlight vegetation changes and the location of any farm animals. Don't waste time drawing a lot of needless detail that is not required, the key to a good sketch is its clarity.



5. Give your sketch a suitable title and label/annotate all the key features. You may wish to add colour to your sketch to highlight particular features or to make your illustration easier to understand. Sometimes colour-coding is used to identify important aspects of your sketch, e.g. the outer bank of a meander may be coloured red to indicate a location affected by erosion. If you use colour-coding don't forget to add a key.

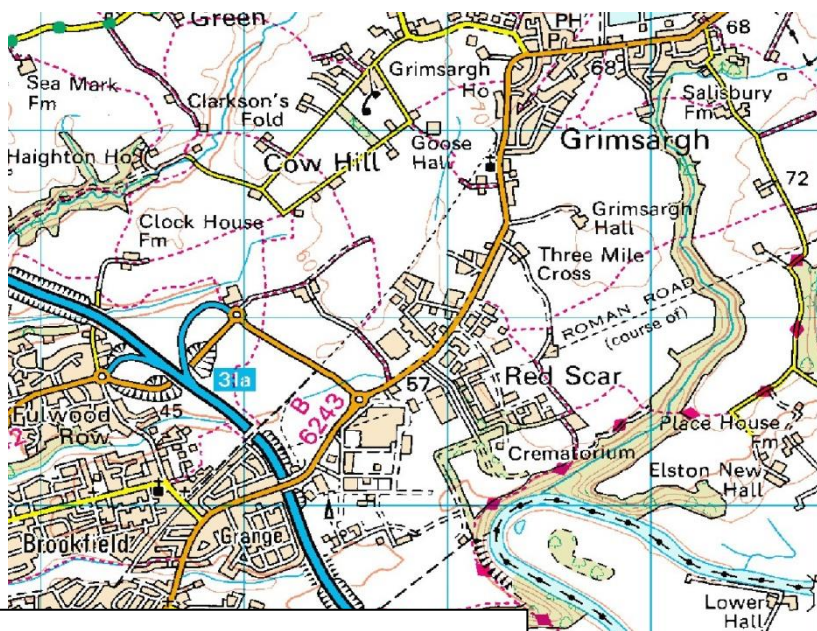


EXAM PRACTICE 3

1. Using a sketch and annotations, explain why this is a popular tourist destination. (6)



2. Produce a sketch of map A to explain why the region shown is a popular location for industry (6)



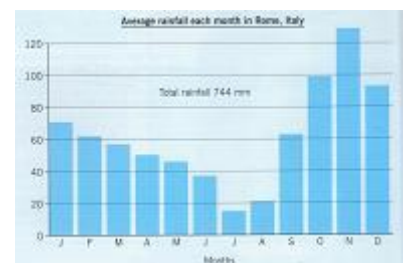
3.4 – d) Graphical Skills

SPECIFICATION:

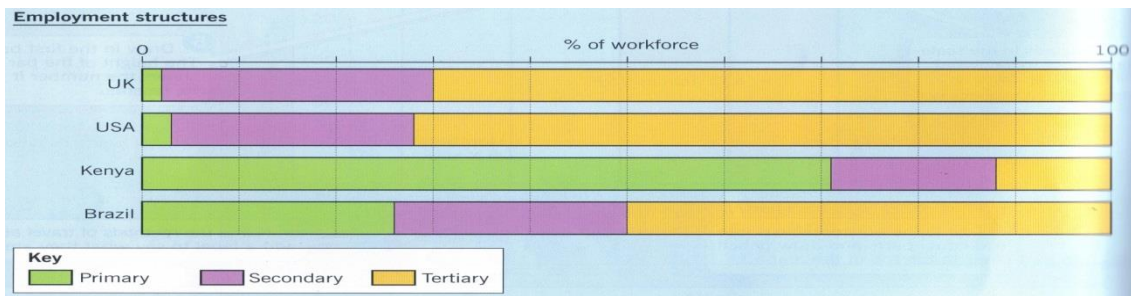
- Construct line, bar, divided bar, scattergraphs and pie diagrams.

A common task for this part of the exam involves candidates completing unfinished graphs.

Bar Charts are one of the simplest forms of displaying data. Each bar is the same width but of varying length depending on the figure being plotted. When the data being graphed is distinct then each bar should be a separate colour. When the data being illustrated is continuous, like the rainfall example shown, then the bars should be coloured the same. It is technically correct to leave a gap between each bar.



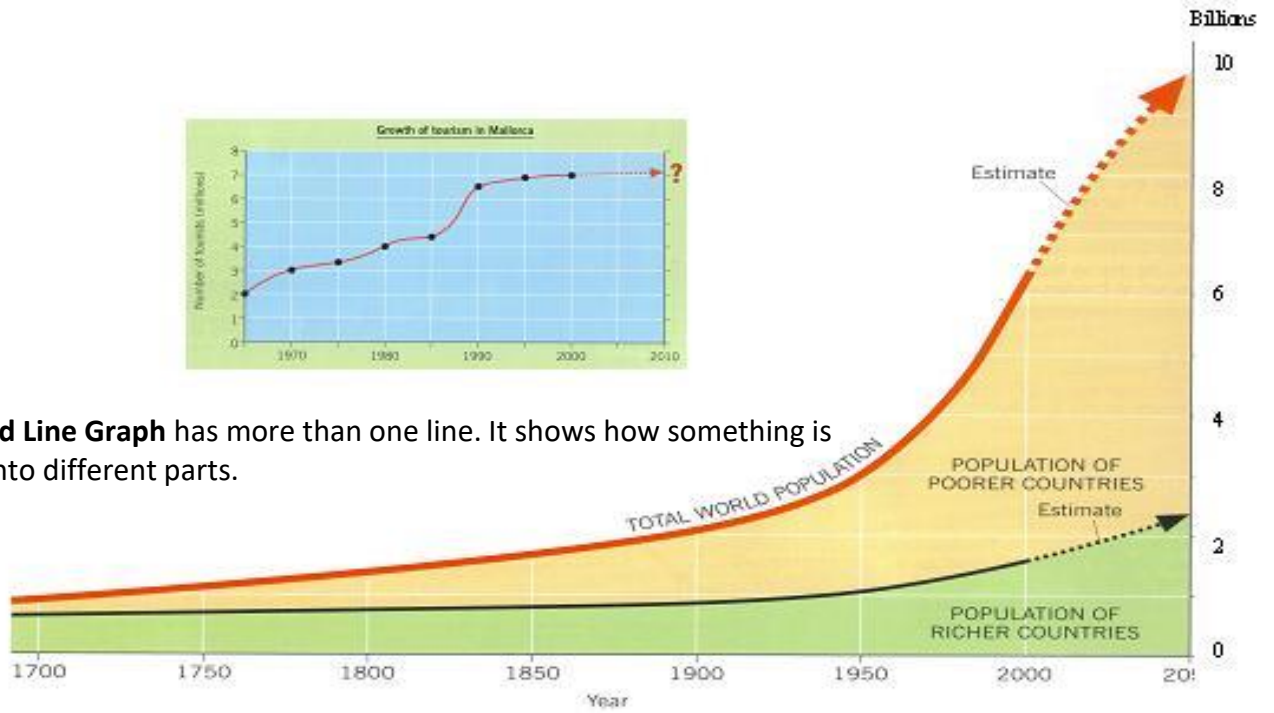
On a **Compound Bar Chart** (also known as a percentage bar graph or divided bar) individual bars can be broken down to show more than one piece of information. On a compound bar chart the length of each bar represents the total value, which can either be a percentage or a real number. Bars can be drawn horizontally or vertically.



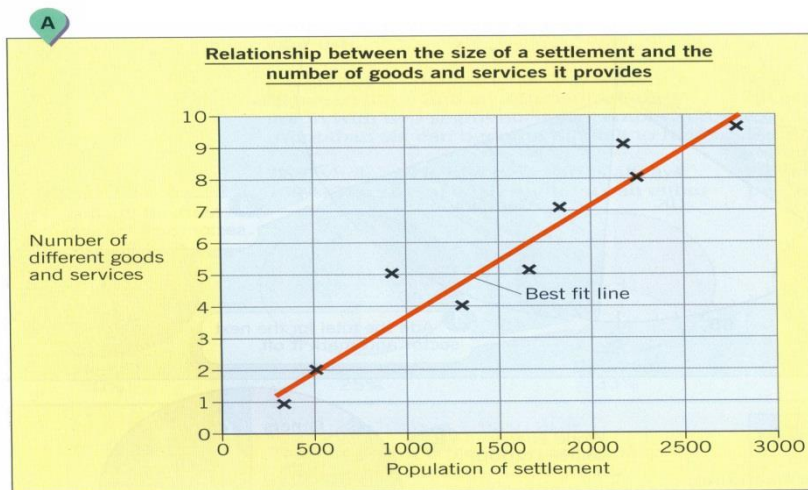
A **Line Graph** is a way to summarise how two pieces of information are related, they are often used to show changes or trends over a period of time. They can also be used to help predict / forecast future changes.



A **Compound Line Graph** has more than one line. It shows how something is broken up into different parts.



Scatter graphs are used to show the relationship between two sets of data. A line of best fit is usually drawn on a scatter graph. This is a line that comes as close to as many points as possible and is usually drawn by eye. An accurate line of best fit will normally have a similar number of plots either side. If one or two points, or residuals, lie well beyond the majority of plots ignore these when drawing the line of best fit.

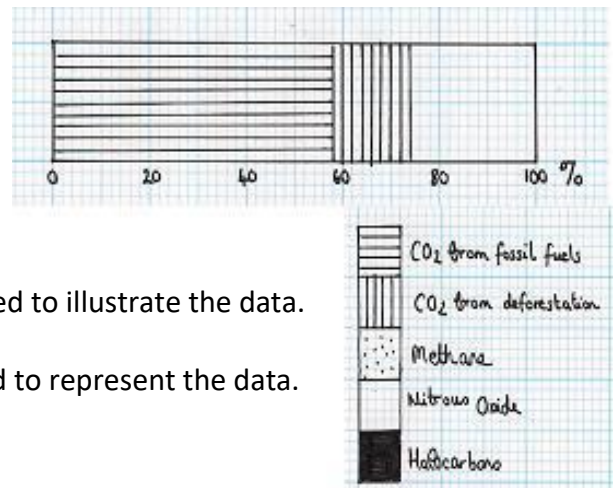


Pie Charts are ideal for showing the relative size of the different parts which make up the total. Pie charts work best when there are between 3 and 6 segments. A pie chart with two segments is too simple, whilst more than six can become difficult to read. To produce a pie chart you need data in a percentage form. As the whole circle of a pie chart is always 100%, it is relatively easy to estimate the size of each segment, i.e. half = 50%, one quarter = 25%.

EXAM PRACTICE 4

1. Using figure 1, complete the graph.

Greenhouse Gas	Contribution to Global Warming
CO ₂ from fossil fuels	58%
CO ₂ from deforestation	16%
Methane	17%
Nitrous Oxide	8%
Halocarbons	1%

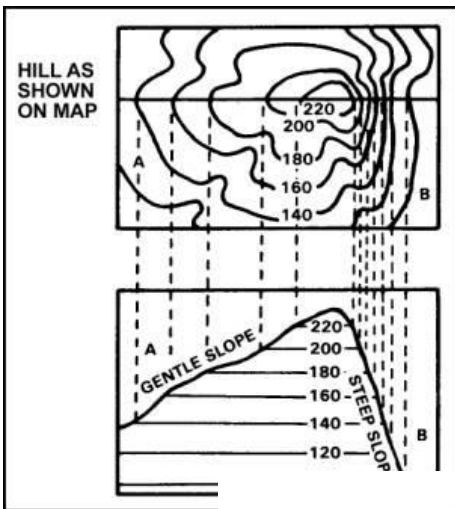
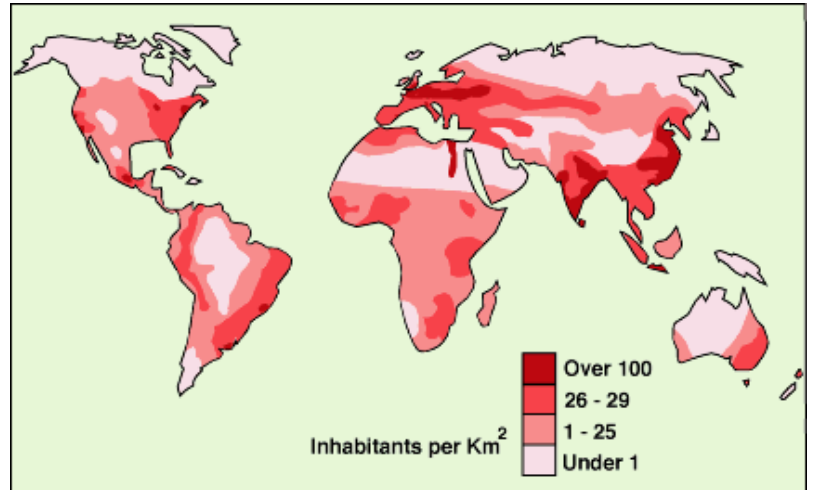


- Suggest **two** reasons why a compound bar chart was used to illustrate the data.
- Identify **two** other methods which could have been used to represent the data.
- Display the data using your chosen **two** methods.

- Complete a variety of graphs and maps, including choropleth, isoline, desire lines, proportional symbols and flow lines.
- Interpret a variety of graphs, including those located on maps and topological diagrams.

Choropleth

In choropleth or shading maps, areas are shaded according to a prearranged key, each shading or colour type representing a range of values. Generally, the darker the colour the higher the number will be that it represents.



Isoline

Isolines are lines on map that join points of equal value (e.g. contour lines which join places of equal height on a map or isobars which join places of equal pressure on a weather map). They can only be used when the variable to be plotted changes in a fairly gradual way across space.

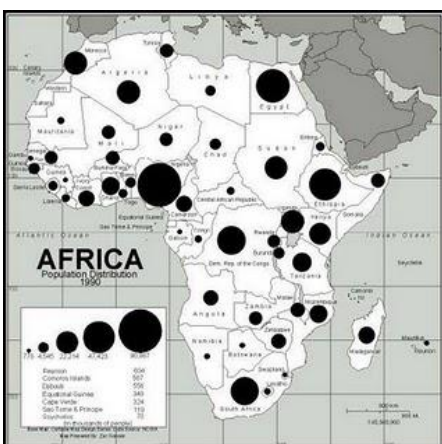
Desire

These are direction / someone
Each line and movement.
diagrams is of that



lines

used on maps and show movement of something/ from one place to another. joins the places of origin destination of a particular. These are similar to ray where the length of the line proportional to the number people/things moving in direction.

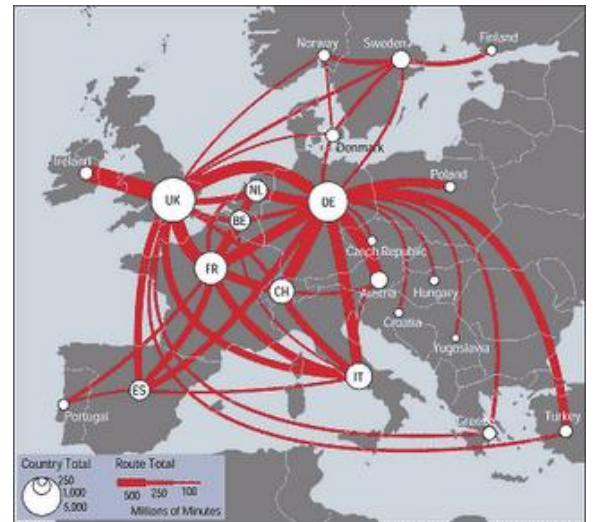


Proportional symbols

These are symbols that are drawn in proportion to the size of the variable being represented. The symbol could be anything, for example a pie chart could be used. In this instance, the size of the pie chart would be proportional to the total size of the data being displayed. The pie chart could then be sub-divided to show how that total population was split between different components.

Flow lines

Flow line maps are used for portraying movements or flows, such as traffic flows along roads or flows of migrants between countries. A line is drawn along the road, or from the country of origin to country of destination, proportional in width to the volume of the flow.



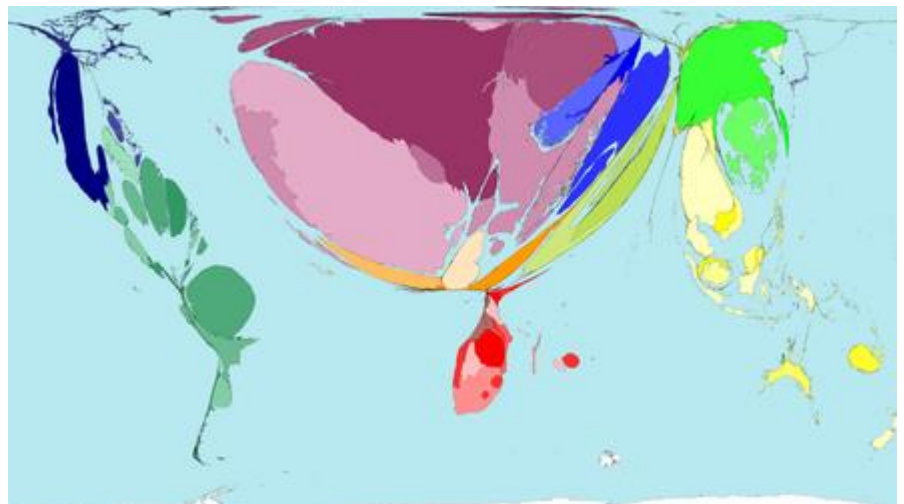
Topological Maps / diagrams

There are two main types of topological diagrams. The first type includes diagrams or maps of routes where the position of the place remains the same but the actual distance and direction are not so important. The other type of topological diagram or map shows the areas of a place but the size is determined by the values being portrayed.

- Maps of route networks: This is a map that has been made simpler. The actual distance and direction are not so important, but the position of places remains the same. If you were asked to give directions to somewhere you would do it by perhaps drawing a map. The map would include the important features that you would pass on the route, such as large roads, railway lines and rivers. A good example is the London Underground map.



- Maps of areas such as countries where the size of the country has been changed. The size of the country is no longer its geographical size because it has been drawn to represent a different value. An example of this would be total amount of income generated by tourism. In this map, France and Spain for example are much bigger than any African country as they receive far more tourists.

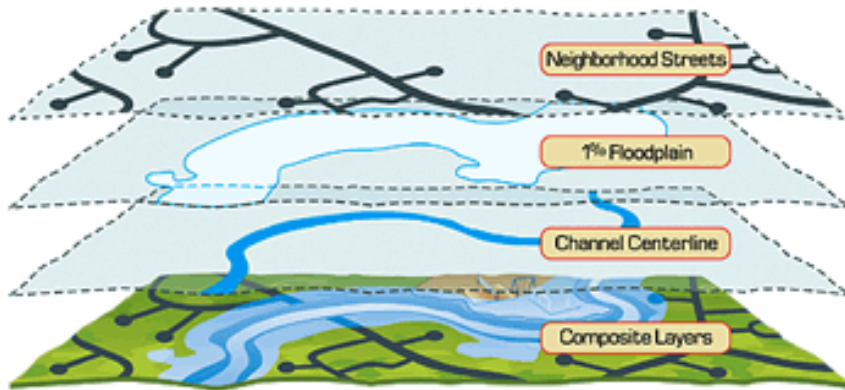


3.4 – e) Additional Skills

SPECIFICATION:

- **Geographical Information Systems (GIS)**

GIS is essentially the laying of information / data onto a base map. It allows large amounts of information to be seen by layering one set of information on to another. The base information is a map of the area being studied. One of the most common uses of GIS is 'Global Positioning Systems' or **GPS** which is used by drivers (Sat-Nav) or hill-walkers.



Another good use, would be to layer potential flood risk data onto a base map of a residential area in order to see which houses are more likely to be affected by a flood should it occur.

SPECIFICATION:

- **Candidates should be able to extract information from a range of sources, including GIS, websites, newspaper reports, tables, quotes and other sources appropriate to the topic.**
- **In any of the units candidates could be expected to describe, analyse and interpret evidence, make decisions, reach and justify conclusions and carry out a process of evaluation.**
- **Evaluating the reliability of sources and the possibility of bias and take this into account when drawing conclusions.**

If you remain unsure of any of these skills, I recommend the following websites:

- √ www.bbc.co.uk/schools/gcsebitesize/geography/geographical_skills/
- √ [www.feltham.hounslow.sch.uk/ks4-year-11-website/Geography%20Revision/Geography Unit 1 Revision Booklet.pdf](http://www.feltham.hounslow.sch.uk/ks4-year-11-website/Geography%20Revision/Geography%20Unit%201%20Revision%20Booklet.pdf)
- √ www.gcsegeorevision.jimdo.com/map-skills/