Form 7 Geography

November Exam Revision 2022





CARGILFIELD



Ordnance Survey (OS) Map Skills

| Students should know and understand: | | Students should be able to: | |
|--|--|--|--|
| 4-figure and 6-figure grid references eastings, northings spot heights and contours direction orientation (8 points of the compass) distance area | | follow routes identify relief and landscape features (slope steepness, plateau, flood plain, valley, headland, bay and features included in the glossary: see Appendix II) annotate simple sketch sections use maps in decision-making understand site, situation and shape of settlements | |
| Direction The exam will ask you to state the direction that one feature lies from another. The easiest mistake to make is to travel the wrong way between the two places. For example: What direction is the church from the | Spot Heights and C Hills, slopes and mour represented on a mo lines. These are lines t equal height. By stud lines you can work ou surrounding terrain in hills, valleys and steep | Contours ntains are ap using contour that join places of lying the contour ut lots about the icluding gradients of pness of climbs. | Measuring Distance You can measure straight line distances on a map with a ruler. To measure actual distances from one place to another you can use a piece of string or a strip of paper. |



town hall?



Lowe Allt Wood Quarry (dis) Plantatio Karma Nár



4 and 6 figure grid references

A grid of squares helps the map-reader to locate a place. The horizontal lines are called **northings**. They are numbered - the numbers increase to the east. The vertical lines are called **eastings** as the numbers increase in an northerly direction.

When you give a grid reference, always give the easting first: "Along the corridor and up the stairs".

Four-figure grid references can be used to pinpoint a location to within a square. To find the number of the square:

Six-figure grid references Sometimes it is necessary to be even more accurate. In this case you can imagine that each grid is divided into 100 tiny squares. The distance between one grid line and the next is divided into tenths.



(sips of the corridor)

1. Start at the left-hand side of the map and go east until you get to the bottom-left-hand corner of the square you want. **Write this number down.**

2. Move north until you get to the bottom-left corner of the square you want. Look at the number of this grid line and add it to the two-digit number you already have. **This is your four-figure grid reference**.

In this case, the tourist information office is in grid square **4733**

1. First, find the **four-figure grid reference** but leave a space after the first two digits. **47_33_**

2. Estimate or measure how many tenths across the grid square your symbol lies. Write this number after the first two digits. **476**

Next, estimate how many tenths up the grid square your symbol lies. Write this number after the last two digits. 334
 You now have a six figure grid reference. In this instance, the tourist information office is located at 476334.



<u>The Rivers Long</u> <u>Profile</u>

Rivers transport water downwards because of gravity. As they move further downhill, they gather more water and become larger. Rivers can be divided into three sections: the Upper, Middle and Lower courses. Together, these three courses form the long profile.

Key points

•Rivers form part of the **water cycle**. They are a downward flow of water, under the force of **gravity**.

•Rivers shape the land through **erosion**, **transportation and deposition**. These processes create distinctive landforms.

•In the upper course, vertical erosion creates **waterfalls** and **v-shaped valleys**. In the middle course and lower courses, lateral erosion creates **meander** bends, **oxbow lakes** and deltas.



What landforms occur in the upper course of the river?

Hard rock -

moves back as

further erosion

takes place

River – flowing downstream

Plunge pool -

lots of erosion

deeper water with





How a waterfall forms

- The river flows over bands of softer and harder rocks.
- Softer rock is more quickly eroded.
- The river undercuts the harder rock leaving an overhang.
- The river forms a **plunge pool** below the waterfall.
- Overhanging rock is unsupported and falls into the plunge pool.
- The waterfall is moves **upstream**.
- This process continues and a **gorge** is cut back into the hillside.

What are the main processes that operate in the middle and lower course of a river?

Erosion is still an important process. The river is now flowing over flatter land and so the dominant direction of erosion is **lateral** (from side to side). The river has a greater discharge and so has more energy to transport material. Material that is transported by a river is called its **load**. **Deposition** is also an important process and occurs when the velocity of the river decreases or if the discharge falls due to a dry spell of weather.

What happens on a river bend?



A meander is a **bend in the river**. Meanders usually occur in the middle or lower course, and are formed by **erosion and deposition**. As the river flows around a bend, the water flows **fastest** around the outside of the bend forming a **river cliff**. This creates erosion on the outside. The **slower flow** on the inside of the bend causes deposition and a **river beach (slip-off slope)** to form.



Flooding

Rivers are managed to ensure that there is a plentiful supply of freshwater for use. Also, to make sure that and **surplus** water does not cause **flooding** which could lead to harm to people and property.

Causes of flooding can be **Physical** (natural), or **Human** (man-made).

Physical Factors

- Heavy rainfall or snowmelt leads to an excess of water
- Impermeable rocks do not allow water to soak in to them so more water flows over the land.
- Steep surfaces encourage the rapid run-off or rainwater into nearby rivers. The river becomes full very quickly and floods the surrounding land.

Human Factors

- Deforestation removes tress and vegetation that would ordinarily intercept and soak up some of the rainwater. This allows more water to enter the rivers.
- Urbanisation leads to an increase in artificial surfaces, such as roads and buildings. These are Impermeable and so

water runs off them quickly. This can then lead to flooding.

Factors that contribute to flooding

Heavy rain As you saw, heavy rain is the main cause of flooding.

Impermeable rock Some areas have impermeable rock (such as granite) just under the soil. So the rain can't soak down. It runs over the ground instead.

Tributaries

The more tributaries the river has, the greater its chance of flooding – because of all that extra water.

Loss of trees

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- Leaves catch rain. Some of this drips and trickles to the ground. But the rest evaporates from the leaves later.
- Tree roots take in lots of water from the soil.
- In these ways, trees help to prevent flooding. So if you cut them down, you increase the chances of floods.

The flat flood plain The flood plain is flat land around the river, that the river floods naturally when it gets too full.

If you live on a river's flood plain, beware. You are at risk of flooding!

Soggy soil

If there has been a lot of rain lately, the soil will be soggy already. So when more rain arrives, it can't soak away.

Steep slopes

Rain will run down a steep slope quickly – before it has a chance to soak through the ground.

Built up areas Rain can't soak through concrete.

Instead, the rain that falls on our streets runs down the street drains, and is usually carried to the river. The river swells.

But if the drains are blocked, streets can flood quickly – even if they are not near the river.

Coasts – Erosion of a Headland





Headlands are usually formed of more **resistant rock** types than **bays**. If there are different bands of rock along a coastline, the **weaker** or **softer rock**, such as clay, is **eroded fastest**. This leaves more resistant rock types, such as granite, **sticking out**.

Erosion of a Headland



1. Cracks are widened in the headland through the erosional processes of **hydraulic action** and **abrasion**.

2. As the waves continue to grind away at the crack, it begins to open up to form a **cave**.

3. The cave becomes larger and eventually breaks through the headland to form an **arch**. 4. The base of the arch continually becomes wider through further erosion, until its roof becomes too heavy and collapses into the sea. This leaves a **stack** (an isolated column of rock). 5 The stack is undercut at the base until it collapses to form a stump.

Coastal Deposition Landforms

How is sediment moved along a beach?

- Waves approach a beach at an angle of 45 (swash)
- This is due to the prevailing wind direction
- Waves return at right angles (backwash)
- This process moves sediment along a beach until there is a barrier or a break in the coastline.
- The process is called Longshore Drift.





- Longshore drift moves sand along a beach
 - When it reaches a break in the coastline it starts to be **deposited** and a **spit** forms
- The spit continues to grow outwards and may form a **hooked end** if the wind direction changes
- Behind the spit in the calm water a **salt marsh** may form
- The spit will never grow over the estuary due to the moving river water

