

Title of atlas
used in examination

Collins Student Atlas : learn with maps

ENTER
NUMBER
OF
QUESTION

DO NOT
WRITE IN
THIS
MARGIN

1a.iii. One Advantage of the choice of Location is that the land is very flat, due to the contour lines being very far apart. This means that construction on the land will be easy and so minimising costs and time to build.

Another advantage of the site location is that it's right next to the town of Arndale. This means that once construction is completed and the retail units open there will be instant customers due to it's very close proximity, making people more inclined to go, and instantly having business.

A disadvantage of the site is that it's right next to the sea and not far away from the mean high water. This means that in the event of extended heavy ~~rainfall~~^{rainfall} or extreme weather the site may be at risk from flooding,

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

causing damages and costing money on repairs
Another advantage of the location is that it's very close to attractions such as Harkworth Harbour and karting at 267036. This means that when people are coming to these places they may also go to the retail park for food, petrol etc due to its close proximity and convenience ~~being~~ and so bringing more people in.

Another advantage of the site location is that it's close to main road, A1068. This means that people who aren't from the area will have easy access, leading to people from lots of places coming increasing income. The main road also means that construction vehicles and materials can easily access the site, making for a quicker and smoother construction process and minimising chances of a delay.

Another disadvantage of the location is that there is a sewage works at ~~270036~~ 270036. This means that there may be air pollution and a bad smell at the site, potentially leading to people avoiding the site park or not returning.

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

Another advantage of the site is due to its very close proximity to Amble and its residential areas there will be a ready workforce for the park opening. This means that the shops will be ready for opening meaning no delays and will always have plenty of staff due to the multiple nearby schools eg 273044.

Another advantage is that the site is nearby a clean water source at 284023. This means their water doesn't have to be sourced in to the site, leading to minimising costs of transport and fees for the water.

ENTER NUMBER OF QUESTION	DO NOT WRITE IN THIS MARGIN
1a.iii.	<p>From looking at Diagram 1 it can be seen Amble main street is already busy and crowded with cars. The construction of the park may have a negative social impact as the already busy streets will become busier due to people trying to get to the site. This means that people's journey times and stress for locals will increase due to the increased cars on the road, leading to frustration.</p> <p>An economic impact on the area from the development will be an increase in revenue for all the local shops and businesses as more people are coming to and through the area*. This means that the town will bring in more income from the extra customers in shops.</p> <p>Another social impact will be the effect on locals from all the increased pollution (both noise and air) from all the increased vehicles* and people in the area. This means people's health may worsen from the air quality and people's sleep affected from the noise, leading to complaint and people possibly moving away from the area.</p> <p>Another economic impact is that due to the development</p> <p>* as they're coming to the development</p>

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

Another economic impact is that due to the development living in the area may become more desirable to people wanting to move. This means that there will be more of a demand for houses in the area, leading to the prices increasing and more wealthy people coming into the area and putting more money into it.

1b. One reason this area is suitable for tourism is that according to the Atlas' UK climate graph the area receives only around 625mm of rainfall annually. This means that ~~the~~ the area is often dry, allowing for all types of outdoor activities, thus making it perfect for tourism.

Another reason is that according to the Atlas' UK climate graph the area has a July temperature of around 16°C , this means people are able to go outside for activities without being too hot or cold making it appealing for everyone.

Another reason the area is suited to tourism is that according to the Atlas' UK climate graph the area doesn't have any directly overhead prevailing winds, meaning the area never receives strong or long windy periods making it suitable and appealing to visit.

Another reason the area is suited to tourism is that as we can see on the map at 2510 there is Alnmouth Bay, Bays are perfect for recreational water activities such as ~~water~~^{sea} swimming or fishing, meaning people can come to a bay to do several activities, appealing to many people.

ENTER
NUMBER
OF
QUESTION

DO NOT
WRITE IN
THIS
MARGIN

Carboniferous and potentially igneous
geology of the area. As well as coastal
features such as Fluke Hole
(GR259117) and Hauxley Haven
(GR289029) which provide interesting
sites of study.

Question 2 evidence

2a)i)	To gather data to draw a slope profile. Students will use a compass to determine the direction / bearing of their 140m transect. This should be recorded. ✓ Students should work in groups, not alone. as it can be challenging to generate this data. Students will need to have the equipment: ranging poles, clinometer and a tape measure. The students	
-------	--	--

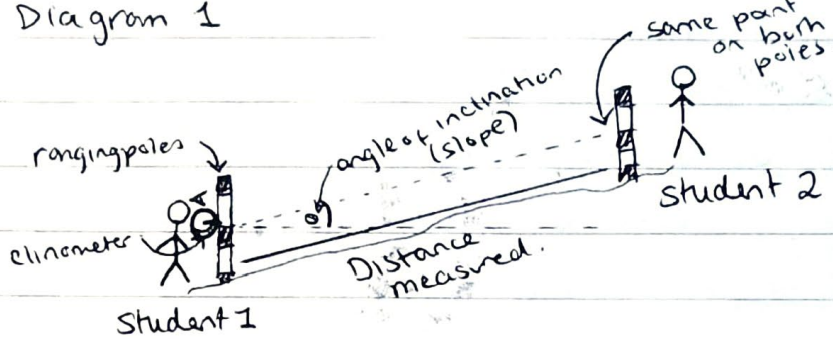
ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

Should split their transect into areas of ~~at~~ explicit changes in gradient and work section by section.

One student stands at the bottom of slope (section of inclination) with a ranging pole and the other student stands at the top of the slope, with a ranging pole. The distance between the two students is taken and noted.

Using the clinometer, the angle of inclination is recorded. This process is repeated on each section of the slope. To measure the angle the ranging poles must be held ~~vertical~~ vertical - not leaning off to one side - the clinometer is placed on the ranging pole at a point (e.g. at the top of a coloured band) and the reading must be taken when the clinometer is ~~measured~~ ^{at the} the exact same point of the upper slope ranging pole.

* see diagram 1

ENTER NUMBER OF QUESTION	DO NOT WRITE IN THIS MARGIN
<p>Diagram 1</p> 	
<p>The slope profile data can be drawn as a cross sectional diagram to represent change in slope.</p>	
<p>a)ii) Systematic sampling is somewhat effective as it reduces human bias. This is because every site along the transect has equal chance of being chosen. For soil soil data a systematic sampling technique is more effective than random sampling as in random sampling miss entire sections of the study area can be missed out this is why random sampling is</p>	

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

not recommended for topography that is not flat. Systematic sampling is effective when the thing being measured is unknown such as pH of soil on a slope is not commonly known and so systematic sampling has shown a trend that pH decreases up slope. Additionally a systematic sampling technique is effective when drawing ~~graphs~~ graphs of the data ~~repeated~~ as one of the variables increases at regular intervals. In this case Average height of plant species could be plotted on a line graph with the X axis (distance along slope) at regular intervals of 10m. From this a relationship can be clearly identified. However systematic sampling is less effective for angle of slope, it would be most effective to use a ~~stratified~~ stratified sampling ~~strategy~~ strategy where measurements are taken where the slope is seen to visibly change in

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

slope angle / gradient. As otherwise it can be challenging to estimate ~~the~~ the unknown angles, and possibly result in an inaccurate slope profile.

b)i) There is no relationship between the angle of the slope and the average height of the plant species.

b)ii) From the scatter graph, if a line of best fit was drawn it would be in the negative direction. However ^{some} points ~~are~~ would not be close to the line of best fit and so there would be a large distribution around the ~~line~~ line. As a result the scatter graph suggests a weak relationship; that as angle of slope

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

increases, the average height of plant ~~also~~ decreases.

Using PPMCC a value of -0.63 is calculated. This negative value confirms the ^{negative} direction of relationship between the two variables; that as ^{Rep} angle of slope increases, the average height of plant decreases. Using the significance table and a value of 13 degrees freedom the value of 0.63 (ignoring direction of relationship) is larger than the significance ^{level} ~~value~~ at 95% which is 0.514 , but smaller than the value at 99% significance level which is 0.642 . This suggests there is 95% certainty the relationship did not occur by chance, ^{but less than 99% certainty} ~~but~~ there is still a 5% chance it did ^{occur by chance}. The relationship cannot be said to have strong significance.

Therefore we can confirm that there is a ~~weakly~~ moderately

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

significant relationship that as angle of slope increases, ~~the~~ average height of plant decreases. So we must reject the NULL hypothesis and accept the alternative / working hypothesis

b)iii) PPMCC can be used ^{in this data set} as there is 2 variables with a suspected linear relationship (shown by scatter graph). PPMCC is a stronger test of significance compared to Spearman's ~~rho~~ rank correlation coefficient. ~~As~~ ~~SRCC~~ SRCC uses only the rank of the data, as opposed to PPMCC which uses the exact values. As a result it can be harder to calculate PPMCC. The PPMCC calculate takes into account the extremes of values in the data set. ~~Using~~ ^{both} PPMCC, ~~the~~ ^{and} direction, ^{strength} ~~and~~ ~~significance~~

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

of a relationship between 2 data sets can be calculated. And when compared to a significance table, the significance of the result can be tested. Ultimately PPMCC ~~the~~ allows you to accept or reject your hypothesis. Having a larger data set means ~~the~~ the PPMCC result is more accurate.

- c) There is a ^{decrease} ~~relationship between~~ ~~decreases~~ in average height of plant species ~~as~~ as angle of slope ^{increases} ~~decreases~~ from 23cm at 15° to 7 cm at 40°. This decrease may be due to gravity trying to pull taller plants down the hill. Therefore tall plants cannot grow on steeper slopes. Additionally ^{other factors} ~~soil depth~~ may account for the decreasing average height of plant species. Such as soil depth; gravity pulls soil down to bottom of slope and so there is a greater depth -

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

0.63 m at 0m along slope and only 0.11m at 140 m (top) of slope. Having a greater volume of soil can allow more space for plants roots to grow and consequently plants can get more nutrients and thrive better. Like wise due to gravity, water accumulates at the bottom of the slope 47.9% soil moisture at 0m., and in this study, ~~it~~ reduces by 38.5% to be only 9.4% soil moisture at 140m up transect. The plants and ~~they~~ need water to photosynthesis. Having a greater soil moisture will mean greater growth rates of plants and taller average heights at bottom of slopes (Diagram 1). From Diagram 4 there is a greater abundance of bare ground up the slope from 110 m - 140m (the top of slope). Where approximately 100% of survey area was bare ground. This correlates to the data shown on diagram ~~one~~ 1

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

d) Kite diagrams effectively show the abundance of a particular species along a transect. By being put into percentage form it can be easier to compare abundance of each species. The kite diagrams could be superimposed on top of each other ^{← in different colours} for easier comparison, but this may lead to a confusing diagram. The kite diagram alone has the disadvantage that it doesn't ~~show~~ ^{show} information about the size of the area surveyed in the quadrat e.g. it could be 1m^2 or 10cm^2 quadrat. Additionally by working along just one transect, it may not be representative of the larger area ^{of study}. The kite diagrams are symmetrical creating for a visually clear change in %. However the kite diagrams scale is small and fairly ~~inaccurate~~ ^{hard to be accurate with}, only in intervals of 10%. Therefore it is difficult to know exactly what % is present

ENTER
NUMBER
OF
QUESTIONDO NOT
WRITE IN
THIS
MARGIN

of each species. * Additionally towards the 80-140m distance of slope the kite diagram can be ~~be~~ challenging to ~~draw~~ match with its percentage. and it is possible that human error may mean the wrong percentage is read. To overcome this limitation the kite diagrams could be drawn on graph paper so lines can be followed to get accurate %s.

* particularly at the 0-10% range as they are very close to the base line.