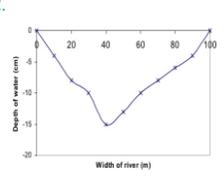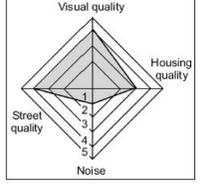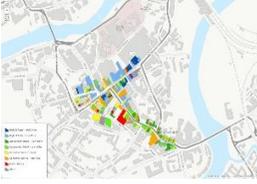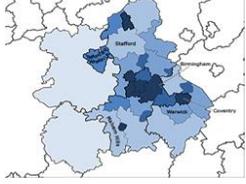Paper 2: UK Geographical Issues, including Physical Geography Fieldwork and Human Geography Fieldwork

Physical Geography Fieldwork	Understanding the enquiry process	Human Geography Fieldwork
Hypothesis: Investigating how and why drainage basin and channel characteristics influence flood risk for people and property along a river in the UK	Hypothesis	**Hypothesis**: Investigate how and why the quality of life varies within urban areas
Carding Mill Valley, Shropshire The Stream in Carding Mill is a tributary of the River Severn. This section of the middle course contains features that can be found along the long profile of a river e.g. waterfalls, meanders, river beaches, river cliffs and a floodplain. It is a good site to study processes and resulting features. It has also been prone to flooding and in recent years £95 000 has been spent on stabilising the river banks and bed to increase its capacity to hold water during times of flood and therefore reduce the risk and impact of flooding.	Location – what made these sites appropriate?	**Eastside, Birmingham and Cannon Hill Park, Moseley (3 miles south of Eastside)** Eastside – urban area within Birmingham city centre, undergoing redevelopment following a long period of urban decay. Cannon Hill Park – covers 250 acres in the desirable residential area of Moseley. It holds a Green Flag Award due to the quality of its' green space.
May 2018	Date	**March 2018**
Primary data (methods used by the students to collect information) - fieldwork visit to Carding Mill where we used 3 sites within the middle course as they gave a fair representation of the features and processes found along the course of a river 1. Measuring the width of the valley floor 2. Measuring the width and the depth of the rivers' cross profile (every 25cm's) 3. Sampling the bedload (10 rocks, closest to your little toe, picked up without looking) and then categorising each rock against the Bedload Index 4. Measuring the gradient of the river valley 5. Recording the velocity of the river – time taken by cork to travel a 10 m distance along the river channel – repeated x5; then average distance/time **Secondary data** (methods used to collect data by others). Students can use this evidence throughout their findings 1. Talk by National Trust Volunteer, including photos to show the damage resulting after flooding and appropriate methods used to reduce the impact of flooding e.g. stone trap 2. Environment Agency – flood map for Church Stretton **Theory or case study** The Bradshaw Model -essentially channel depth, channel width and velocity increase as the river moves downstream whereas the bedload (stones at the bottom of the riverbed) get smaller and rounder as the river gets closer to the lower course. The risk of flooding increases as the river moves further downstream and within areas of human habitation. Ashbrook Stream, Carding Mill Valley, Shropshire **Health and safety considerations** 1. Be careful to avoid slipping on stones in the bedload 2. Check that the water level is not too deep or the velocity too fast 3. Wash hands thoroughly before eating and once fieldwork has been completed (sheep waste in the water) **Critical reflection on fieldwork methods** 1. Consider – how accurately did you measure and record the width and the depth of the rivers' cross-profile? How might you have done it better? 2. Was the bedload sampled at random or did you select the rocks? 3. What problems did you encounter when recording the velocity? Why would it be good to discard the results when the cork got stuck and repeat the test? A flow meter could have been used instead and this may have given more accurate results, how would this have impacted on your results?	**Understanding the range of fieldwork techniques** Quantative data – numerical data Qualitative data – data that can't be measured e.g. opinions / peoples' views Random sampling – where examples are chosen at random Systematic sampling – where samples are chosen at regular intervals e.g. 1 person in 5 Stratified sampling – where samples are chosen from different groups / areas, to give a balance of responses	**Primary data** (methods used by the students to collect information) – fieldwork visit to both locations 1. Questionnaires – to gather the opinion of the public who visit the fieldwork sites with regard to quality of life. Asking questionnaires to people as they approached 2. Environmental Quality Index – students asked to rate various factors – litter; air pollution; traffic, by giving each one a score at selected sites within the fieldwork area. The higher the score the better the perceived quality of the environment 3. Steering cards – questions to focus students on the environment e.g. would you feel safe here at 10pm? Selected areas at each site were chosen specifically. **Secondary data** (methods used to collect data by others). Students can use this evidence throughout their findings. 1. Choropleth maps showing the Quality of Life Index for both locations 2. Office for National Statistics for data on life expectancy; literacy rates; employment statistics **Theory or case study** Urban Core – how the land is used within an urban area Multiple Depravation Index Birmingham – Eastside next to Millennium Point and Cannon Hill Park **Health and safety considerations** 1. Considerations included be careful when crossing roads 2. Ask questionnaires in pairs 3. Stay within the fieldwork site **Critical reflection on fieldwork methods** 1. Your sample size Millennium Point 30 and Cannon Hill 29, how might your results be more accurate if your sample size was larger? 2. Origin of respondents e.g. in Cannon Hill 19/29 lived nearby; Millennium Point 10/31 lived nearby. Why does this matter? Why might residents' views have a greater value than non-residents? 3. Fieldwork was undertaken on one day in March, why would it have been better to complete your fieldwork over a longer period of time 4. Some questionnaires were completed out of the fieldwork location, why does this matter?
Presenting data 1. Bar graph to show the velocity of the river – velocity increase as the river moves downstream - Velocity is measured in meters per second (m/sec) 2. Cross profile to show the width and depth of the river channel – measuring the depth across the river every 25cms 3. Pie charts to represent the changing bedload categories in each of the 3 fieldwork sites	Processing and presenting data	**Presenting data** 1. Radar graph to show the environmental quality at both sites – this could be shown using a separate colour for each site 2. Thematic map – this could be used to show the land use in the area i.e. Millennium Point – retail; education; leisure; residential; transport. Cannon Hill – open space; residential 3. Choropleth – one colour, different shades to represent data e.g. population density; pollution levels – air; noise

Paper 2: UK Geographical Issues, including Physical Geography Fieldwork and Human Geography Fieldwork

If asked to draw a method of presentation in the exam remember to draw it neatly with a ruler, label the axis, add a title and include a key if necessary.

Critical reflection on processing and presenting data
1. What are the advantages and disadvantages of your chosen method of data presentation?
2. What might be a problem to consider when representing data by a hand drawn graph?
3. How might your data presentation methods be improved?

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Physical	Analysing and explaining data	Human
Key data 1. Velocity Site 1 0.28 meters per second (m/psec). Site 3 0.56 m/psec. Velocity doubled from Site 1 to Site 3. How will this affect the rate of erosion? 2. Bedload Site 1 – 75% categories 1 – 3, very angular to sub-angular; Site 3, 49.9% categories 4 – 6, sub-rounded to rounded 3. Cross-profile site 1, width 75cm's; Site 3, width 175 cm's, increased in width by more than twice the size. What does this say about the rate of erosion? 4. Average depth of the cross-profile, Site 1, 2cm's; Site 3 5.75 cm's, nearly 3 times deeper 5. Anomalous results - ? **Critical reflection on analysing and explaining data** 1. Consider – how accurately did you measure and record the width and the depth of the rivers' cross-profile? How might you have done it better? 2. Was the bedload sampled at random or did you select the rocks? 3. What problems did you encounter when recording the velocity? Why would it be good to discard the results when the cork got stuck and repeat the test? A flow meter could have been used instead and this may have given more accurate results, how would this have impacted on your results? 4. Readings taken: Site 1 – 20; Site 2 – 40, Site 3 – 40. How might this discrepancy in the number of readings influence the results? 5. Other school have also visited Carding Mill Valley. What would be the advantage of using their results as well?		**Key data** 1. Environmental Surveys (ranking environmental quality out of 10, 10 being the best) Cannon Hill total 76; Millennium Point, 40.8. Cannon Hill rated nearly twice a high 2. When asked: Do you feel safe in the area? respondents in Cannon Hill replied yes: 29/29; Millennium Point 24/31 3. When asked what they disliked about the area people in Cannon Hill said: too many ducks(!); difficulty parking; not much lighting. At Millennium Point: pollution; groups of youths hanging around; drug use 4. Anomalous results – decibel reading at Cannon Hill higher than expected 60 – 65 dB; Millennium Point 72.7 – 93.2dB. Cannon Hill under a flight path for Birmingham International but as the area was more open it may have been exposed to variations caused by wind. **Critical reflection on analysing and explaining data** 1. Your sample size Millennium Point 30 and Cannon Hill 29, how might your results be more accurate if your sample size was larger? 2. Origin of respondents e.g. in Cannon Hill 19/29 lived nearby; Millennium Point 10/31 lived nearby. Why does this matter? Why might residents' views have a greater value than non-residents? 3. Fieldwork was undertaken on one day in March, why would it have been better to complete your fieldwork over a longer period of time 4. Some questionnaires were completed out of the fieldwork location, why does this matter?
1. The rivers' width and depth both increase as you travel along the long profile (see section above for data) 2. The rivers' bedload becomes smaller and rounder as you travel along the long profile (see section above for data) 3. The velocity of the river increases as you travel along the length of the long profile (see section above for data) **Critical reflection on conclusion** 1. Although we visited 3 sites along the course of the river it would have useful to visit the stone trap and see the debris collected there. In addition we should have visited the area in Church Stretton that was affected by the flooding in 2007 that also led to the construction of the diversion channel to reduce the rivers' discharge in times of flood risk	Drawing evidenced conclusions	1. Cannon Hill has a better quality of life than Millennium Point in a number of ways 2. The area in Cannon Hill is much greener, cleaner and less polluted than Millennium Point 3. Millennium Point does however have a number of advantages e.g. being closer to the city centre of Birmingham; mixture of modern and traditional **Critical reflection on conclusion** 1. Sample sizes too small 2. Greater use needed to be made of secondary data that indicated quality of life within both fieldwork sites 3. Not all data compiled was within the fieldwork sites, this data should have been discarded
Velocity bedload long profile cross-profile flood management channel width channel depth Carding Mill Valley	Key vocabulary	Birmingham Millennium Point / Eastside Cannon Hill Park Quality of life

Remember: the exam board may ask you to describe your methods; show how you could represent your data; explain your results; draw conclusions BUT essentially they will ask you to reflect on the accuracy of what you did and how to improve it.