Teacher Resource Bank

GCE Archaeology

ARCH2 June 2009:

• Candidate Responses and Examiner Comments

The following responses are not 'model' answers, but are intended to illustrate the application of the mark scheme for this unit. These responses should be read in conjunction with the ARCH2 Question Paper, Sources Booklet and Mark Scheme.

Copies of the paper and are available from e-AQA or the AQA Archaeology Department.

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Candidate A

Section A

1 Study **Figure 1** and use your own knowledge.

Outline the advantages and disadvantages of the excavation strategy illustrated. *(12 marks)*

The excavation strategy illustrated in Figure 1 is trenches. An advantage of trenches is that they allow vertical horizons to be shown, and therefore stratographic layers can be shown. Also, the trenches shown in Figure 1 are extremely close together, similar to an area excavation, this means that artefacts are less likely to be missed, as more of the area has been excavated. Also, the trenches would be less costly than running an entire area excavation, which could be extremely costly. Disadvantages of trenches are that the baulks that separate them could be in the way of evidence underneath, whereas with an area excavation it is certain nothing is missed. Also, with trenches it is difficult to establish horizontal relationships between sites.

Examiner's Comments

There are advantages and disadvantages here, and this answer could be considered for L3 (7 marks). However, one mark is lost because of failure to identify box grids – "trenches" is too imprecise.

L2 / 6 marks

2 Study **Figure 1** and use your own knowledge.

Describe and explain the surveying and recording techniques illustrated. *(6 marks)*

One recording technique used is photography. Photographs give an exact illustration of what is there, and a scale can be added, as in Figure 1 with the use of a ranging rod. Also the site could be measured with a total station in order to get exact measurements, or even a tape measure so that the site could be accurately recorded. Also, drawings such as displayed in Figure 1 could be used. Drawings allow for more ease in colour interpretation, however are far more time consuming, and the quality depends greatly on the talent and skill of the person doing the drawing.

Examiner's Comments

Two+ methods identified and partially explained. Not very well linked to photo. Explanations are pretty partial – nothing about how the techniques are used.

L3 / 3 marks

3 Study **Figure 2** and use your own knowledge.

Explain how archaeologists recover environmental evidence such as these fish bones. *(6 marks)*

One way that archaeologists recover smaller environmental evidence is through sieving. The spoil heap, left over from the digging of trenches, is put through a sieve with small holes, so that smaller evidence, such as the bones displayed in Figure 2 can be found when they have otherwise been missed. Also, a floatation tank may have been used. This involves pumping water through a tank and adding soil from the spoil heap. Again, this is a measure to save smaller items being missed. Also, oil can be added so that smaller items float to the top and stick to it.

Examiner's Comments

Little indication that the candidate recognises how small these boxes are. Sieving and flotation are correct and explained quite well. Misconceptions that the spoil heap is the source of this soil.

L2 / 4 marks

4 Study **Figure 3** and **Figure 4** and use your own knowledge.

Why do archaeologists produce both drawings and photographs of artefacts such as these? *(6 marks)*

Archaeologists use both drawings and photographs for a number of reasons. Drawings are extremely time consuming, and require a person with a lot of skills to do them properly. However, they are far easier to use for colour interpretation, as specific colour charts can be used. Photographs are extremely quick to take, which means more can be recorded. Also, as shown in Figure 4, a scale can be used so that it is easier to get an accurate idea of the size of the artefact. However, drawings, such as the ones in Figure 3 show a great deal of detail, so would be extremely useful for an archaeologist trying to interpret a site.

Examiner's Comments

Some appreciation of the specific value and benefits of each, as well as some disadvantages. No reference to possible benefits of having both. Generic – nothing about the axes in the source. Good example of a "fuller generic response".

L2 / 3 marks

5 Study **Figure 3** and **Figure 4** and use your own knowledge.

Outline the techniques that archaeologists can use to understand how these artefacts were made and used. *(10 marks)*

One technique archaeologists can use to understand how the artefact was used in experimental archaeology. This involves making a replica, or using an original if there are enough and using the tool for its purpose to see if it would have worked. In the case of the hand axes in Figures 3 and 4, they would have been used to slaughter animals, and it would have been recorded whether or not the tool would have been useful for the killing of certain animals. Another technique that could have been used is the dating of the artefact. Dating the axes according to typology could give an idea of its time period, and archaeologists are likely to know what mainly acturing methods were in use at this time. Also, any marks or scratches on the axe itself could show its use, as if it was used for cutting meat, the markings will be different to it if it had been used for cutting bones. This could also give an indication of the way people lived at this time. Also, the material it is made of could indicate its use. If it is made of softer material, it can be presumed that it was not used for heavy work.

Examiner's Comments

Good general response which includes some technical terms, missing ethno. Rather more on uses than manufacture. The axes in the figures are mentioned. Mainstream Level 3.

L3 / 7 marks

6 Study **Figure 5** and use your own knowledge.

Explain what archaeologists mean by:

(i) Layer
(ii) NISP
(iii) MNI *(6 marks)*

(i) Context in terms of stratigraphy
(ii) Number identified specimens present
(iii) Minimum number of individuals

Examiner's Comments

Question	Level	Mark	
6(i)	L2	2	*Context and stratigraphy.*
6(ii)	L1	1	*NISP identified, but nothing about it.*
6(iii)	L1	1	*MNI identified but nothing about it.*

7 Look again at the **Introduction**, **Figures 1 to 5** and use your own knowledge.

Given that the evidence at Boxgrove is 500 000 years old, describe the methods that are applicable for dating the site and the associated finds. *(6 marks)*

One method of dating that could be appropriate is radio carbon dating. This can be used on anything that was once active, such as faunal remains, and it involves measuring the amount of absorbed carbon that decays at a known rate. These results, once calibrated are 95% positive to be within the margin of error. Another possible dating method could be thermoluminescence. This involves heating an artefact, and measuring the amount of light released. This displays the amount of time since it was last heated, and could be used as artefacts such as handaxes displayed in Figures 3 and 4.

Examiner's Comments

C14 wrong. Thermoluminesence is possible but wrong to suggest that the artefact would have been heated. Limited appreciation of a technique – and not a good one.

L1 / 2 marks

8 Only one hominid tooth and one hominid shin bone were recovered from Boxgrove. What might archaeologists learn from studying these remains? *(8 marks)*

From studying the shin bone, the archaeologists could learn the type of work that the people were doing at this settlement. Any strain on the bone could suggest difficult, heavy work. The size of the bone could also suggest if it was male or female. So, this would show if it was men or women doing the heavier work, which displays evidence of a society. Also, marks on the bone could show diseases the people suffered from, such as cancers or syphilis. The tooth could display a lot about the diet the people were eating. A damaged tooth could suggest a poor diet, such as too much grit in the bread. Also, a tooth with decay could suggest a lack of nutrients in the diet.

Examiner's Comments

Focuses on tooth and shin bone. What is written is OK but does not go very far either in depth or range of outputs of the person/variety that can be learnt about.

L2 / 4 marks

Section B

11 How useful are desk-top research and pre-excavation techniques when preparing to excavate a site such as Boxgrove that until recently was deeply buried? *(30 marks)*

Desk-top research, and other pre-excavation strategies can prove invaluable in the excavation in sites such as Boxgrove. Various techniques such as field walking, aerial photography and desk-top research such as antiquarian sources can give archaeologists a great deal of knowledge about whether or not to excavate a site, however, there are definite limitations that must be explained.

Desk-top research of any previous exploration at the site, such as antiquarian sources written by older archaeologists could have told the archaeologists at Boxgrove that parts of the site were a case of exceptional preservation. This would mean that archaeologists would be keener to excavate as it is more likely to produce finds of more value and interest. This was the case at Star Carr, where a layer of peat covered part of the site and 21 antler headdresses were located over the whole site.

Another desk-top research method that could be useful are any old maps of the area which could indicate areas of digging. If sampling was to take place, maps would be useful to identify where to put the test pits.

Field walking could also prove useful. Although the site is deeply buried, there is a definite possibility there could be artefacts near the surface, especially given the undisturbed nature of the site. Field walking gets the community involved in archaeology, however the possibility of theft. Also, as occurred at The Shapwick Project, many fieldwalkers have different skills, so it is easy for artefacts to be missed.

Aerial photography is another useful pre-excavation technique. Aerial photos were used at Boxgrove, as shown in Photograph 1, and can display crop marks, which show areas with more or less water under the surface, which could suggest pits under the surface. However, a limitation is that due to the depth of the sites, geophysical methods, such as magnetometry, resistivity and metal detecting would probably not be able to be used. These techniques can only penetrate to certain depths underground, so may prove useless. These techniques usually prove extremely important when preparing to excavate, as they show areas of interest, where test pits could be put.

Overall, desk-top research, and other pre-excavation techniques are important when preparing to excavate, as they can give indication about where to dig so that the most interesting artefacts are found with the least effort, however, it is important to note which techniques, such as possibly geophysical survey in this case, may prove to be useless.

Examiner's Comments

A very good example of descriptor for Level 4 B. A Boxgrove focussed answer with plenty of not relevant methods explained. It could have made more of specifically named desktop sources, eg. SMR geological maps.

L4 / 23 marks

Overall, the candidate achieved 56 marks out of the available 90. This would have secured a grade B in June 2009. Quite a good answer to the Section B essay, but dropped too many marks in Section A.

Candidate B

Section A

1 Study **Figure 1** and use your own knowledge.

Outline the advantages and disadvantages of the excavation strategy illustrated. *(12 marks)*

The excavation strategy illustrated is a box grid method. This method has its advantages of showing both relationships between evidence (building, artefacts, etc) across the horizontal horizon also shows the vertical horizon through stratigraphy. This both allows archaeologists to gain a better understanding of the site for instance in figure one there are numerous trenches, say that a assemblage of bones was found at the west site (i.e. closest trench) and another sample of bones were found at the west side (i.e. furthest away). The relationship of whether the two areas are only significant to the animal bones found or are they related which would suggest that the sites main use was to those animals. However, Boxgrove was found to have numerous types of animals present throughout the site which was found in different boxes which suggest that the people were hunters to many animals. On the other hand the disadvantages of the box grid method is that vital evidence might be missed out due to areas which are not excavated. This could lead to misleading interpretations of the sites usage. Also not showing all the horizontal relationship of sites so a fuller understanding of the site might be misleading.

Examiner's Comments

Develops points and links them to the source. Bottom of level as really only two ideas were considered.

L3 / 7 marks

2 Study **Figure 1** and use your own knowledge.

Describe and explain the surveying and recording techniques illustrated. *(6 marks)*

In Figure 1 the surveying techniques illustrated are ones on measurement. In the foreground is a person holding a ranging rod vertically, this would give a lot of evidence, horizontal height or vertical, if layed down. A ranging rod gives a perspective of measurement of evidence and their surroundings. Also illustrated in a theodilite or a total station. This is used on a site to gain distances and angles of evidence of areas throughout the site. Once all this data is collected a total station could input all the distances and angles to create a 3D map of the site. The main recording technique which is shown in drawing in site with a grid. This is were a artist would divide the area (i.e. a box) which is being excavated into a grid, then draw accordingly to record the finds which can be clearly seen in Figure 1. However, this method of recording has its limitations to the fact that the drawing is left to the interpretation of the artist which would be misleading, this could be reflected with being accompanied by photographs in situ.

Examiner's Comments

Full description and explanation. Well related to the site.

L4 / 6 marks

3 Study **Figure 2** and use your own knowledge.

Explain how archaeologists recover environmental evidence such as these fish bones. *(6 marks)*

Archaeologists would recover environmental evidence through either sieving or floatation. However, the fish bones in Figure 2 are only 0.5mm, therefore too small to be recovered through sieving, thus a floatation tank must be used. The floatation tanks works on the principle that heavy evidence would sink and light evidence would float, therefore a series of marks which decrease in size as the further up the tank, to catch evidence and a layer of oil is added at the top to trap evidence such as pollen. However, the fish bones in Figure 1 would tend to sink to the bottom then gathered to be analysed. Also the larger fish bones such as A and C could possibly be recovered through dry or wet sieving with a fine mesh. This method is done by catching the oil from the spoil heaps to a sieving to recover any evidence which is large enough to be caught such as pottery and animal bones. From these bones archaeologists could debate what type of diet the people were on.

Examiner's Comments

Fully considers the size. Describes flotation accurately. Sensibly discounts any sieving.

L3 / 6 marks

4 Study **Figure 3** and **Figure 4** and use your own knowledge.

Why do archaeologists produce both drawings and photographs of artefacts such as these? *(6 marks)*

Archaeologists produce both drawings and photographs as each have the advantages and disadvantages but together they complement each other and eliminate the disadvantages. Through drawings archaeologists get a better idea of the texture and colour change also the dimension of the artefacts such as in Figure 3 it is clear that the artefact has two edge blade and jagged all over whereas photographs could sometimes distort dimension and perspective of the evidence, however they give a more detailed/clear picture of the artefact. Also they both have a scale which clearly shows the scale of the artefact.

Overall, archaeologists use both drawings and photographs to give a full understanding of the artefacts. As drawings leave it up to the interpretation of the artist, but when joined with a photographs you can compare the both to understand the texture, dimension, pattern, etc.

Examiner's Comments

Again refers to the source directly. Covers a range of relevant variables with accuracy. Texture, perspective, bias/interpretation, distortion. The idea of the sources being complementary.

L3 / 6 marks

5 Study **Figure 3** and **Figure 4** and use your own knowledge.

Outline the techniques that archaeologists can use to understand how these artefacts were made and used. *(10 marks)*

The techniques in which the archaeologists could use is petrology, ESM or experimental archaeology. Through petrology a small slice of the artefact is taken, smoothed down to be very thin then examined under a microscope to analyse the different combinations of key minerals found, which they can be compared and categorised to known combinations to discover origin. ESM is an electron scanning microscope, is where electrons are passed over the artefact then analysed under a microscope. This technique is mainly used for small artefacts such as Figure 4, archaeologists learn a lot from this technique. Polish analysis could be used to deduce the use of the tool, for instance when an artefact is used repeatedly on the same substance it would have a fine trace which is called a polish, this can be analysed to find what type, then deduce the use, i.e. if a tool was constantly used for cutting meat then a fine meat polish would be present on the tool, however, this method only shows what the last use of the tool was.

Finally, through experimental archaeology was the understanding of how the artefact is made and its use. Replication of the tools are made from the same materials to discover how it was made, then used on numerous activities to see the effect it would have on the tool, it would leave distinctive markings which then could be compared with other artefacts around that some period to deduce its use.

Examiner's Comments

Although very good on use, the coverage of manufacture is very limited. However, there is enough to crawl over the 7 marks cap and get to the top of the level. It would be nice to see ethnoarachaeology considered.

L3 / 8 marks

6 Study **Figure 5** and use your own knowledge.

Explain what archaeologists mean by:

(i) Layer
(ii) NISP
(iii) MNI *(6 marks)*

(i) Layer is each context layer which has been excavated in sections and the evidence recorded 11 layers in Figure 5.
(ii) NISP stands for Number of Individual Species Present, this is how many different types of animals present at the site, which were 3 the most common being rodents throughout all layers.
(iii) MNI stands for Maximum Number Indentified, meaning the minimum number of animals which could have been present in each layer through finding a constant, i.e. a head which each animal only has one of, the most common again being rodents. However, this is biased towards larger animals as they survive well in the archaeological record.

Examiner's Comments

Question	Level	Mark	
6(i)	L2	2	*Considers context and sections.*
6(ii)	L0	0	*Confuses specimens and species.*
6(iii)	L1	1	*Names technique incorrectly, but then correctly describes it.*

7 Look again at the **Introduction**, **Figures 1 to 5** and use your own knowledge.

Given that the evidence at Boxgrove is 500 000 years old, describe the methods that are applicable for dating the site and the associated finds. *(6 marks)*

The methods which are applicable for dating the site through the finds could be, tooth eruption, fusion of bones, law of superposition and radio carbon dating. Tooth eruption could be used as throughout the stages of life human teeth have an order in which eruption occurs, therefore comparing the tooth found, a possible date could be deduced, however, not entirely reliable as only one tooth was found. Bone fusion could be used as different types of bone fusion occur depending on the age, therefore analysis of the bone fusion could deduce a date. The law of superposition could be used, though strategraphy shown in Figure 2 of the box-grid. Also, through radio carbon dating, which all living organisms have C14, and the decay rate is known, archaeologists can compare the amount of the C14 absorbed to the known rate to find a date for the site.

Examiner's Comments

Limited development of law of superposition. Other techniques incorrect or irrelevant.

L1 / 2 marks

8 Only one hominid tooth and one hominid shin bone were recovered from Boxgrove. What might archaeologists learn from studying these remains? *(8 marks)*

From studying the tooth and the shin bone, archaeologists can learn the type of diet as it could have distinctive marks, i.e. graves suggest that the teeth were used as a third hand when eating meat, also the age of the tooth through analysis and tooth eruption. From the shin bone archaeologists can learn the build and structure of the people, how once lived there as it says in the intro that it was belonging to the Homo heidelbergensis species. Also the fact that only 1 of each was found suggests to archaeologists that the people must not of lived there permanently or more human remains should have been found, therefore a hunting people which is built up from evidence found such as numerous tools which could be used for hunting and that found on shin bones that the human tools mostly was there first, suggesting that they hunted animals.

Examiner's Comments

Some partial description linked to both teeth and shin bone. Tooth ideas quite well developed but much less so with the shin. Top of the level for really considering the nature of the evidence.

L2 / 6 marks

Section B

11 How useful are desk-top research and pre-excavation techniques when preparing to excavate a site such as Boxgrove that until recently was deeply buried? *(30 marks)*

Desk-top research and pre-excavation techniques are very useful when preparing to excavate a site such as Boxgrove which was buried until recently as it gives archaeologists a better understanding of the site as a whole before just excavating the whole site first without any prior knowledge. There are many techniques which can be employed before excavation such as desk-top survey, geogphysical survey, surface survey and aerial photography. Desk-top survey is important as it could discover that the site has been excavated in certain areas prior, therefore understanding of the sites and could have already been speculated which could be useful for where the excavation is going to take place. Also, research of the Victoria County history or the NMS could show that the site may have important monuments already or research through maps, tax records, ordnance survey would lead to a general understanding of the site. However, Boxgrove is 5000 years old, therefore maps where not around then, thus it is important to gather aquarium sources which would give a better understanding of the sites use. Overall, through desk-top survey, archaeologists could learn a lot about the sites past without having to excavate. Aerial photography could be important to a site as it shows the whole sites perspective through shadow sites, crop marks, soil marks and earth works. Through photography, archaeologists could understand the dimensions of the site, i.e. whether or not to excavate the whole site and whether there are any evidence that artefacts maybe at the site, for instance shadow sites would show the variance in ground of the quarries so archaeologists could have an understanding of their location. Soil marks, to learn of the soil make-up, e.g. minerals it contains, the quarry soil would show different colour variance than the sand of the site at Boxgrove.

Overall, aerial photography could be useful to a site before excavation as archaeologists can learn about the site, what to expect and whether or not if there is anything to find and if so, where for example, at Wroxeter in Sussex, this site was exposed to aerial photography and archaeologists learnt much about the site even before they excavated it. Geophysical

survey gives one idea about the ground of the site. Through magnotrometry, resistivity, metal detecting, archaeologists can learn the use of the site or what may of happened for instance at Star Carr, magnotrometry was used which deducts the magnet properties of the soil if a high positive thus the soil was once heated, as at Star Carr which suggests to archaeologists that a fire once swept though the site.

Surface survey archaeologists can find evidence before excavating through field walking, surface penetrating and metal detecting sampling. Such as at the Chapwick project, were a local university encourage the public to join at a survey at site by field walking, using struts and tracts to walk and find some evidence such as pottery and by using metal detectors to discover if any metal is present, the radar would give evidence if objects are present beneath the surface and sampling certain areas would give understanding to the use of the site, making way for further excavation. The Chapwick Project just shows that not all site need to be excavated to understand fully.

In conclusion, desk-top survey and pre-excavation techniques are very useful to archaeologists with sites like Boxgrove which has been buried as they give a general idea what to expect and ideas of what it was used for and where evidence is present, and a overview of the site as a whole before even excavating the site.

Examiner's Comments

A response which covers a number of relevant techniques, with some consideration of the nature of the site. However, it is essentially generic as far as deep features are concerned.

L4 / 20 marks

Overall, this candidate seemed 64 marks out of the 90 available. Strong performance in much of Section A of the paper was enough to achieve a grade A even though there were some weaker answers.