


ARCHAEOLOGY MODULE




Name:.....



For a very long time people from all over the world have been drawn to the cultural heritage sites in the Jericho Oasis, such as Tell es-Sultan and Khirbat al-Mafjar (Hisham's Palace). Thanks to the numerous archaeologists who have worked here in the last 150 years, we can have a glimpse of the cultures that lived here in the past.

But what is an archaeologist and how do archaeologists work? What kind of techniques does he or she use and do the methods used today differ much from those used in the past? In what way can modern inventions – like laser and drones – support the archaeologist? Start with this module and find out all the answers!



Task 1: Archaeologist and archaeology



1a. What are you thinking of when you hear the term 'archaeology'? Make a mind map with words that – according to you – have a connection with archaeology.

1b. Now compare your mind map with the mind map of the person next to you. What are the similarities and differences? You may add new words to your mind map if you think they are also related to archaeology.

An archaeologist is looking for material traces in order to (re)construct the past of a specific culture at a certain place. With the found remnants the archaeologist is able to see what people did at the spot ages ago. In some ways, it is like dissecting a pellet from a predator bird. Such pellets contain the remnants of animals the bird ate in the past. With that information you can reconstruct the (recent) past of the predator bird.

2. Go to your Activity Book and do the assignment "What did the bird eat?"

Palestine is one of the most interesting areas for an archaeologist to work. One of the reasons is that in antiquity Palestine was located in an area which is known as the Fertile Crescent: a region in the Middle East – in the shape of a crescent – with fertile soil. The area was fertile because of the presence of water, in Palestine supplied by the River Jordan and several springs (see Geography Module). It is the Fertile Crescent where people in ancient times were able to grow newly domesticated plants as crops and where settled farming first emerged. The nomadic hunter-gatherers (see History Module) had settled permanently by that time and had started to build settlements. Jericho, for example, is even indicated as one of the oldest cities in the world! Which archaeologist doesn't want to do research here?!



3. Jericho is a very old city, even more than 11,000 years old! Which other old Palestine cities do you know? Can you mention three cities?

4. This is a photo of the archaeological site of Tell es-Sultan, located in the northern part of Jericho. Describe what you see on this photo, using as much detail as possible.



If you would have a quick look at the old settlement of Jericho today, called Tell es-Sultan, you would only see a big hill. As there are no recognisable features anymore which remind you of city life in ancient times, it is hard to imagine that here once stood a vibrant city. However, archaeologists proved that the hill is actually the old city.

Here is why: around ten thousand years ago, when the first settlement was founded here, it was situated at the same level as the current city of Jericho. So, there was no hill at all. But after a while the city was destroyed by an earthquake. The area was abandoned and the place turned into ruins. Through the years the ruins were overgrown by vegetation and covered by sand. Then, at some day, a new group of people settled there. And instead of building on another spot, they just built their new settlement right on top of the old one. After many millennia of building settlement on top of the previous settlement, city upon city, an impressive hill raised. Such a hill with several cultural layers is called a 'tell'. If you cut a tell vertically in half, you could see all the different layers from each settlement that was ever built at this spot. The study of these cultural layers is called 'stratigraphy'.

Go to your Activity Book and look for the pages "Stories behind relics"

These pages tell you the story behind some important finds which archaeologists have excavated in Jericho. Another word for objects found at an excavation is 'artefact'.

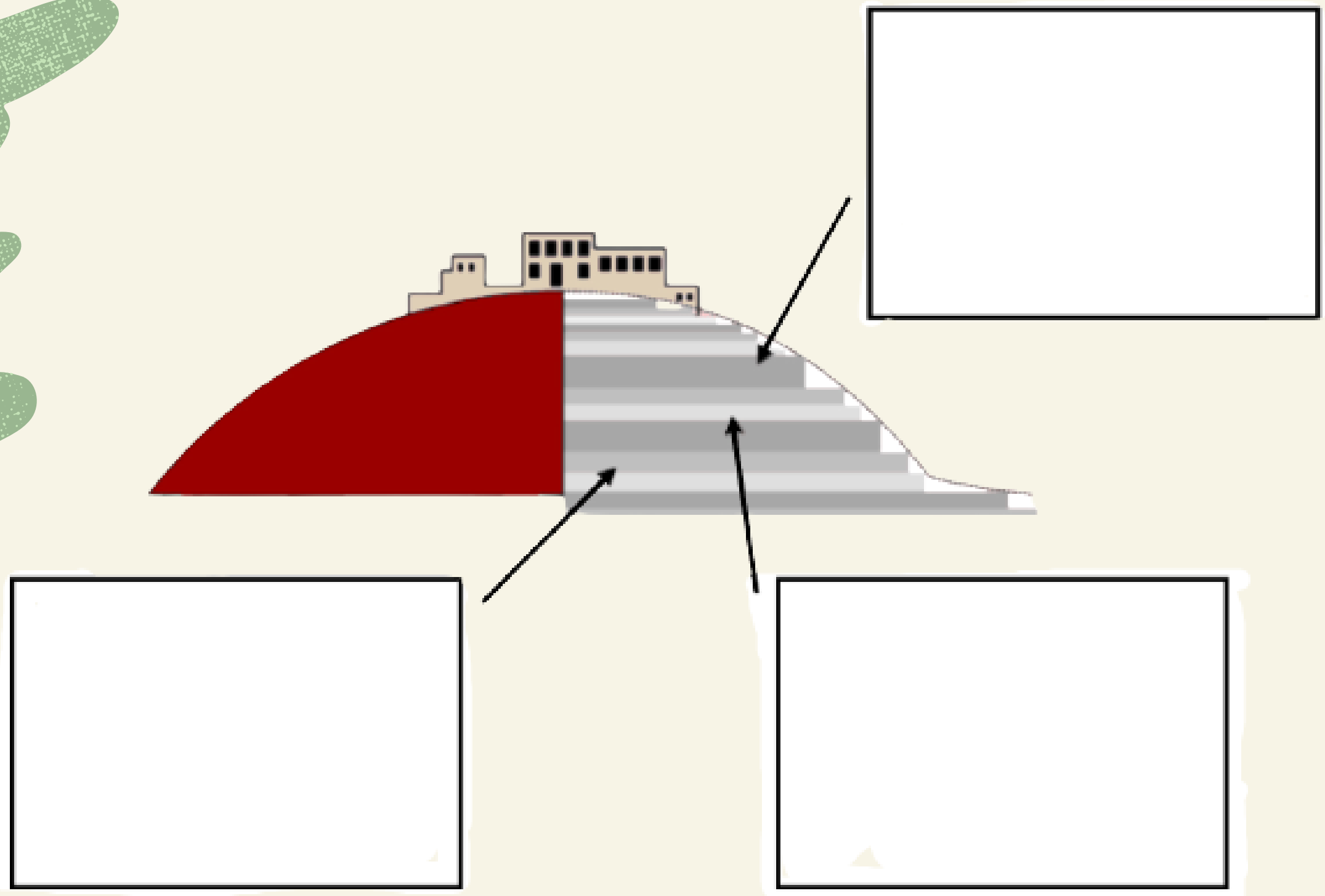


5. Imagine: the archaeologists who excavated Tell es-Sultan have forgotten in which layers they found the following three artefacts: the arrow heads; the pottery vessel in the shape of a man's head; the painted plaster head. Fortunately, the archaeologists wrote down in their notebook how old these artefacts are.

The arrow heads were made between 10,500 and 9,500 years ago. The pottery vessel in the shape of a man's head between 4,000 and 3,550 years ago. The painted plaster head between 9,500 and 8,000 years ago.

On the next page you see a schematic drawing of the tell. The horizontal grey stripes on the right side represents the cultural layers of the tell. Can you help the archaeologists to find out in which layer which artefact was found? Draw the three artefacts in the correct squares.





So now you know how a tell evolves and how the basic principle of stratigraphy works. But don't you want to try to create a tell yourself?

6. Go to your Activity Book and do the assignment "Tell Cake". Have fun!

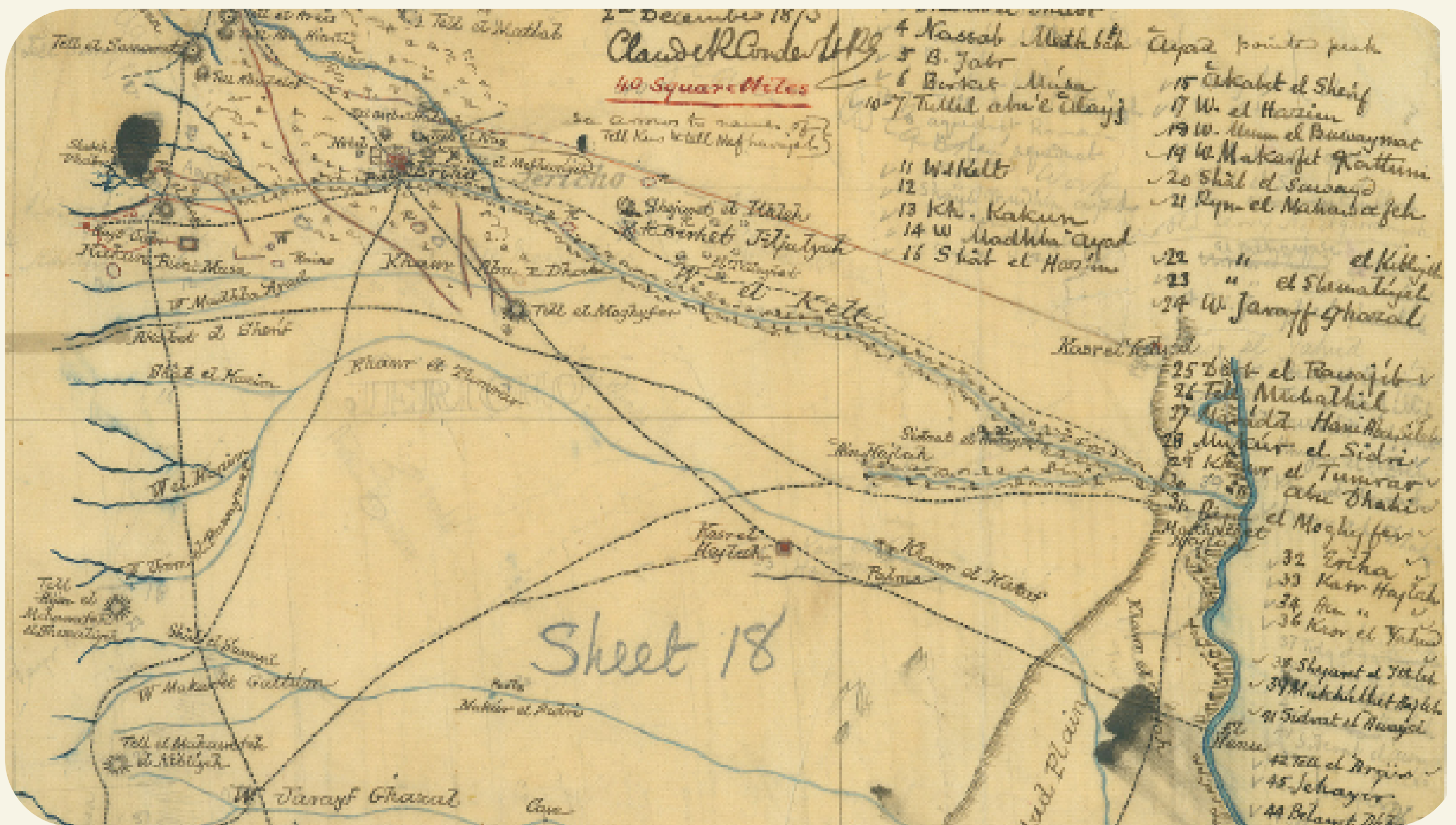


Task 2: How to carry out an excavation?

An excavation is the exposure, processing and recording of archaeological remains. By excavating a particular location – a so-called archaeological site – archaeologists hope to find traces of past civilisations. Most of the time an excavation is a big project, where a lot of people are involved. Not just archaeologists, but also people who take photographs of the archaeological process, people who draw the artefacts that are found, people who restore the broken artefacts, etc. Now you can imagine that an archaeological campaign is a complex process and exists of several phases. Although each phase has its own focus point, during the excavation some phases are practiced at the same time, as we will shall see. In this Task we will discuss three phases: planning, digging and documenting.

Planning

The first step for an archaeologist is to decide where to dig. In order to find a promising site to excavate archaeologists can use maps which indicate locations of ancient settlements. In the past these maps were made by explorers who travelled across the region for various reasons. While exploring the area they noted down the landmarks and monuments they encountered on maps. Here is an example of such a map. In the winter of 1873–1874 British researchers explored the region of Jericho and made this map. If you look very carefully, you will notice that they have not only indicated Jericho (Eriha) on the map, but also many tells in the vicinity of that city.



7a. How many tells do you count on this map? _____

7b. What symbol did the researchers use to mark the tells on this map? Why did they use this symbol? _____

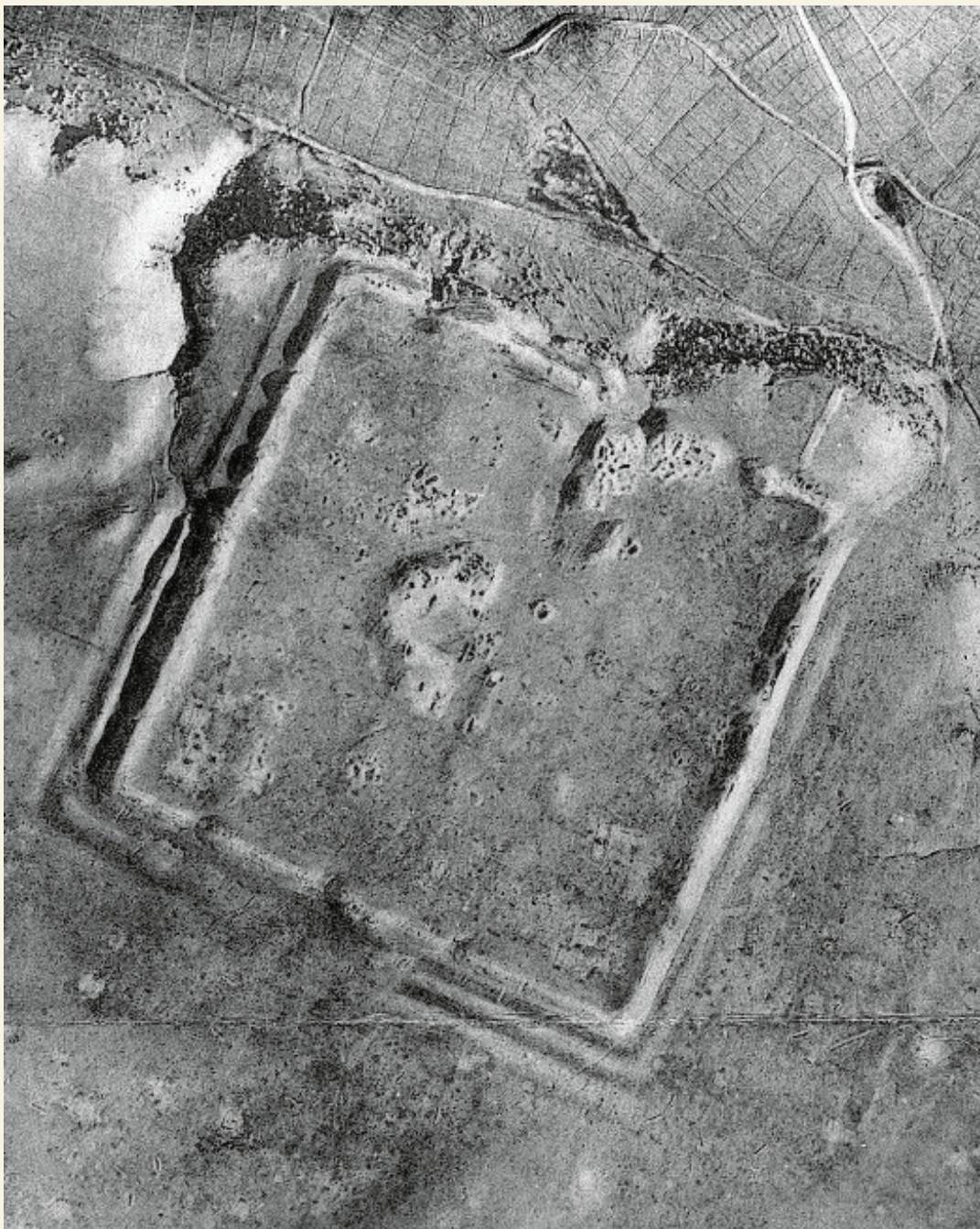
7c. How did the researchers know they had found an ancient settlement? _____



In the 20th century people also traced archaeological sites from the air. Antoine Poidebard (1878–1955) was a French archaeologist who pioneered aerial archaeology in the Middle East. Here you see two pictures of him at work: taking pictures of the landscape from a plane!

8. Obviously, tracing archaeological sites by aerial archaeology has some advantages over doing it from the ground. Can you mention two advantages?

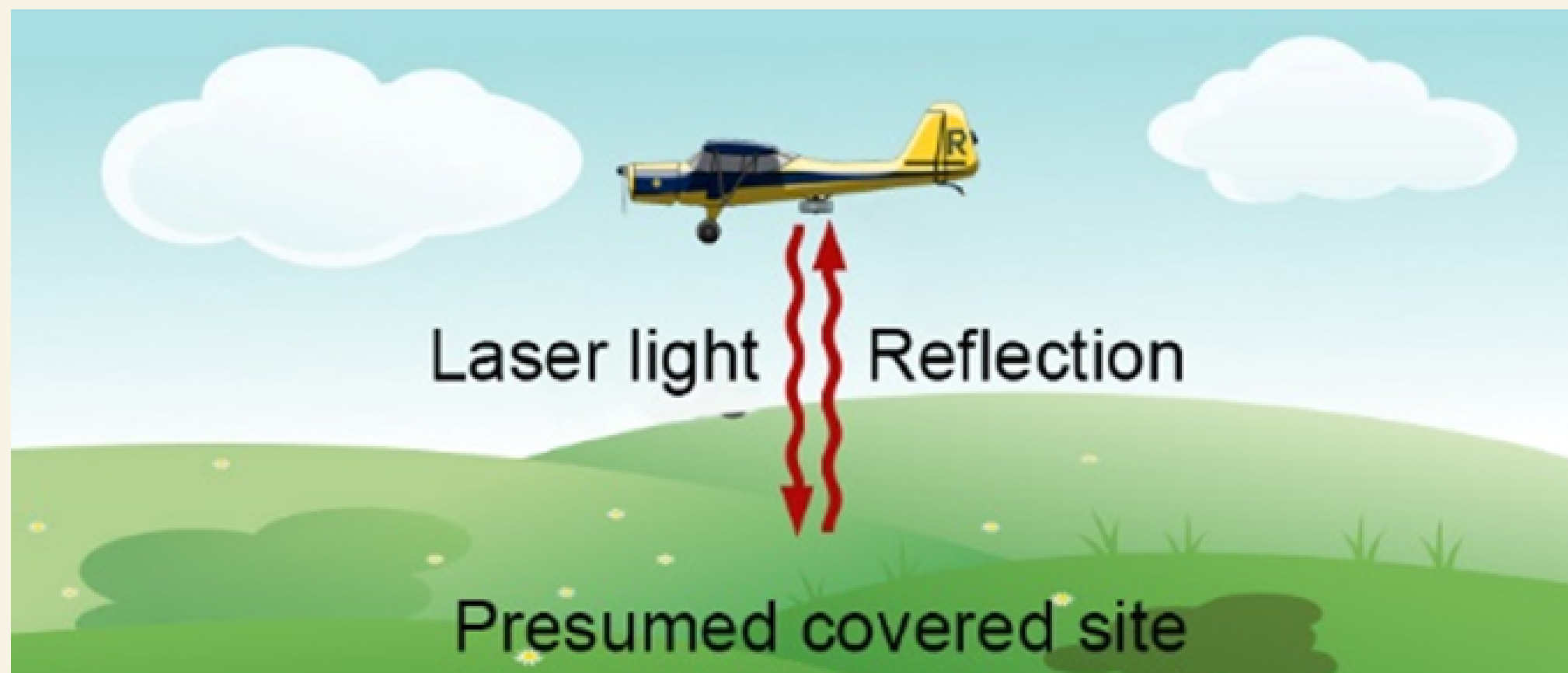
Here is an aerial photo that Antoine Poidebard took in the late 1920s when he was flying over the archaeological site of Qreiyeh in Syria.



9a. Describe what you see on this photo. Give as detailed a description as possible.

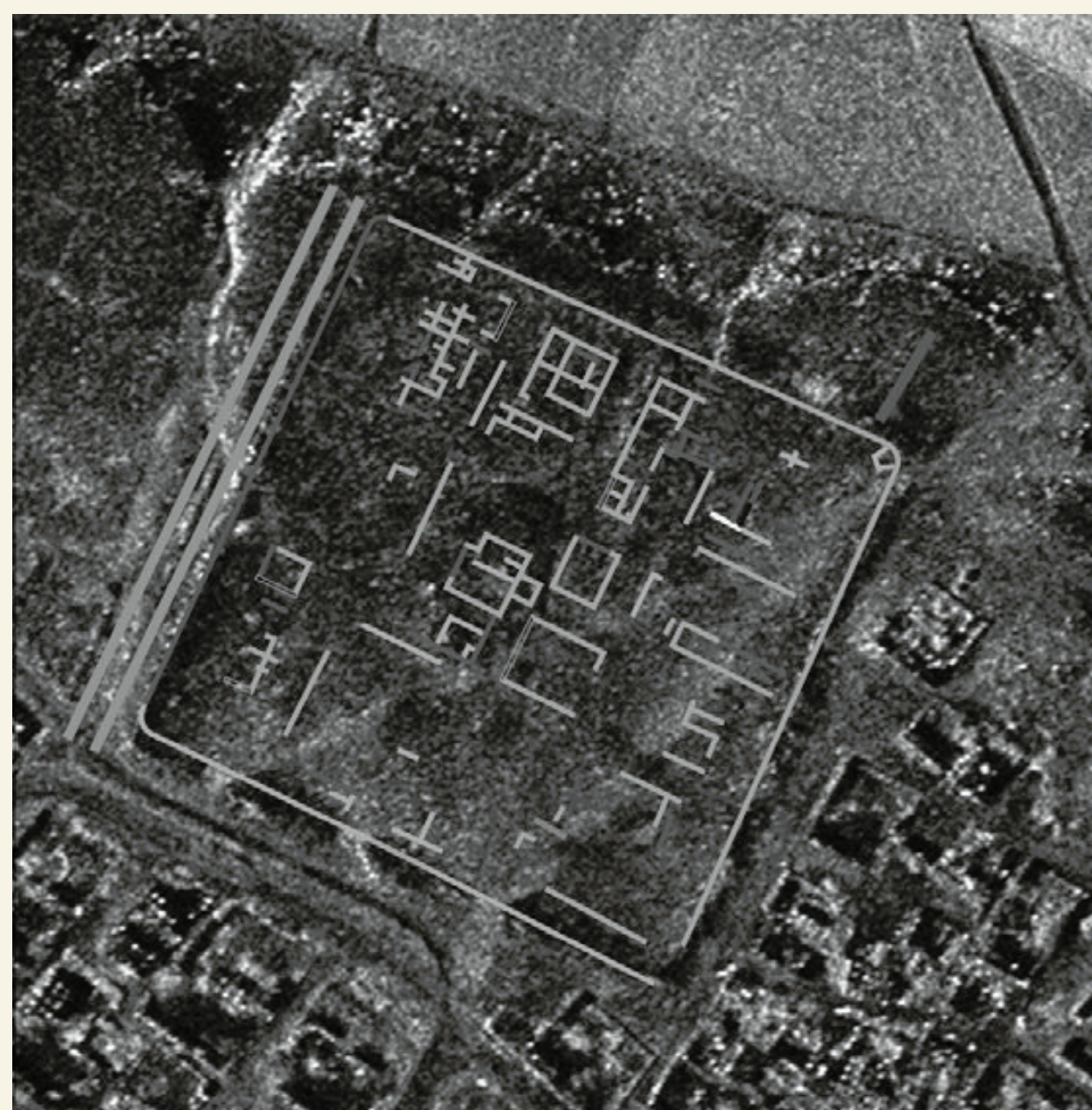
9b. Do you have any idea what this site used to be in the past? _____

Today archaeologists can make use of modern techniques to trace ancient and covered sites from the air. For instance, a laser system. This system illuminates the presumed archaeological site with laser light and measures the reflection with a sensor. Differences in laser return times and wavelengths can be used to make digital 3D representations of the site. Have a look at the illustration.



10a. In the illustration the laser and sensor instruments have been attached to a plane. Which other flying objects can be provided with these instruments and in this way be of use for archaeologists? _____

10b. In assignment 9 you saw an aerial photo of the site of Qreiyeh in Syria taken in the late 1920s. Here is an image of the same site made with the help of laser technology. Compare both images and describe the differences you notice.





Digging

When archaeologists have located the presumed ancient site, the next phase starts: digging. While excavating, archaeologists use a variety of tools. Here is a group photo of participants of the archaeological expedition at Tell Balata (near Nablus) in the 1960s. As you can see, some of the labourers hold a tool in their hands and there are also utensils on the ground.



11. Have a look at the marked tools on the photo. Write down the name or description of each tool and explain what they were used for during the excavation (the function).

Tool	Name/description	Function
1.		
2.		
3.		
4.		
5.		
6.		

12. Archaeologists discover all kinds of artefacts. Here are some artefacts archaeologists may encounter when excavating. Are you able to identify these finds?



1



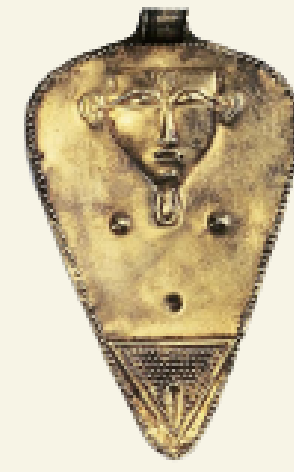
2



3



4



5



6

Archaeologists excavating ancient settlements usually don't have the luck to discover complete buildings. Generally they have to deal with just remnants of the dwellings. When archaeologist Dimitri Baramki excavated Hisham's Palace at Jericho between 1934 and 1948 he encountered many remains of walls and amazing mosaic floors. The walls were not as high as they used to be any more, but thanks to these wall structures Baramki was able to interpret how the building looked and in what way it was used in the past.

13. Imagine you are an archaeologist excavating the site of Hisham's Palace and exposing the wall structures. Build your own scale model of Hisham's Palace.

When archaeologists are digging at a tell, it is important that they uncover the site layer by layer instead of digging recklessly and without any system.



14. For what reason must archaeologists uncover the site layer by layer?

So it is important that archaeologists document in detail the location on the tell where they have been excavating, and describe in what context the artefacts were found. Also the cultural layer in which the find was discovered is important (stratigraphy). Therefore, the digging phase often goes hand in hand with the phase of documenting.

Documenting

When archaeologists encounter an artefact they will record it on the spot where they found it. It is important that the artefact is not lifted from the spot before an expedition member takes photos of the artefact – including a measuring rod for the scale – and the setting (context) in which the artefact was found.

15. Why is it important that the circumstances the artefact is found in are documented so well before archaeologists lift it from the spot? _____

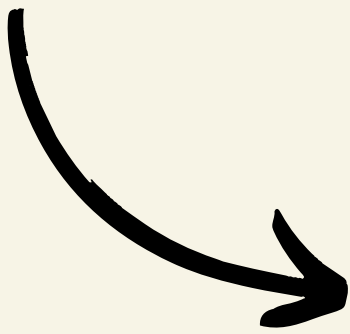
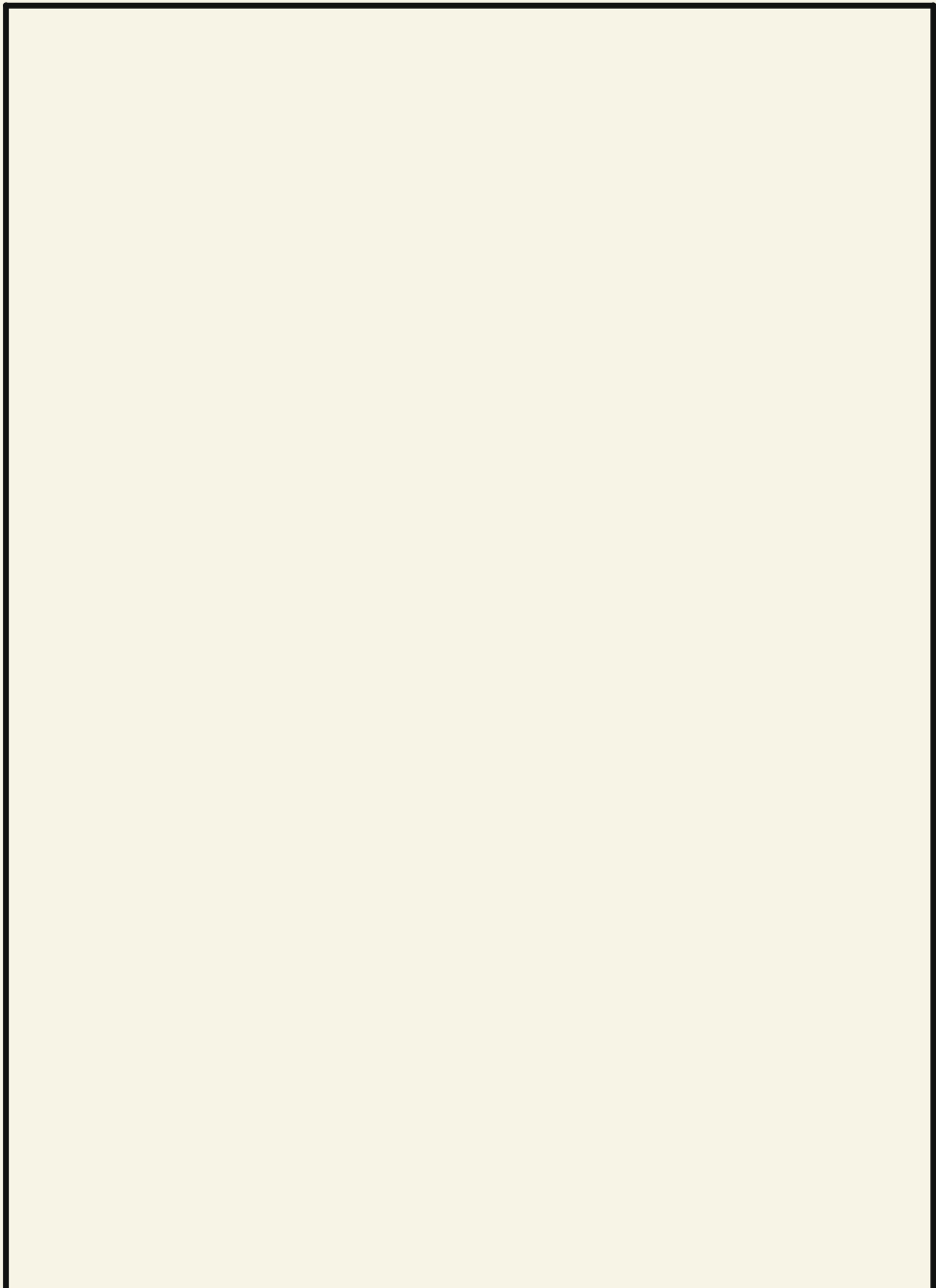
After the artefact has been recorded on the spot, it is lifted from the soil and brought to a room where it can be processed and studied. If needed an expedition member washes the artefact. Then the registrar provides the artefact with a unique number so it can be added to the dig's administration. The draughtsman draws the object, but in a special way. Here is an example.



16. Have a look at the artefact and the drawing. To which features has the draughtsman paid attention? _____

17. Now you are the draughtsman at the expedition. During the expedition at Tell es-Sultan they found these pottery artefacts. Terry Ball, the expedition's draughtsman in 1957 is about to start to draw the object in the red frame. Can you help him? Study the object (see next page) and make your own 'draughtsman' drawing of it



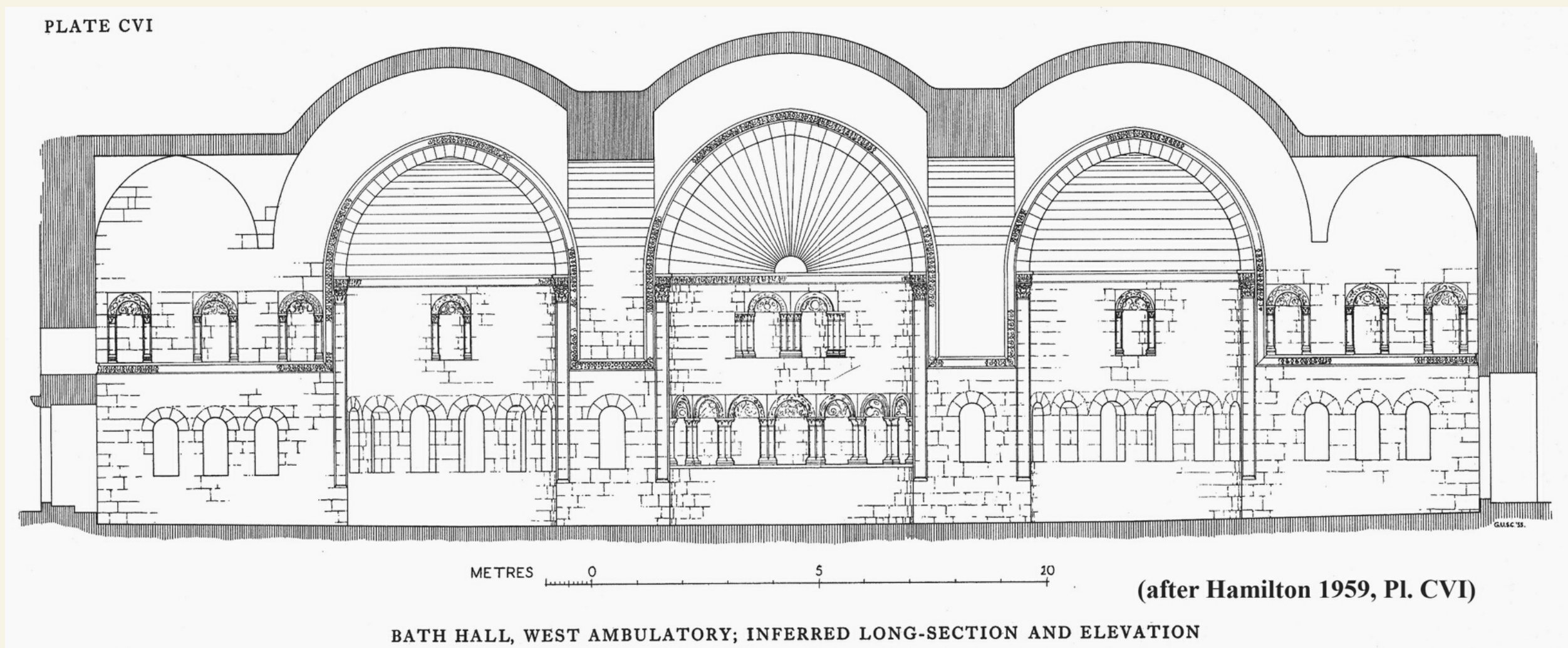


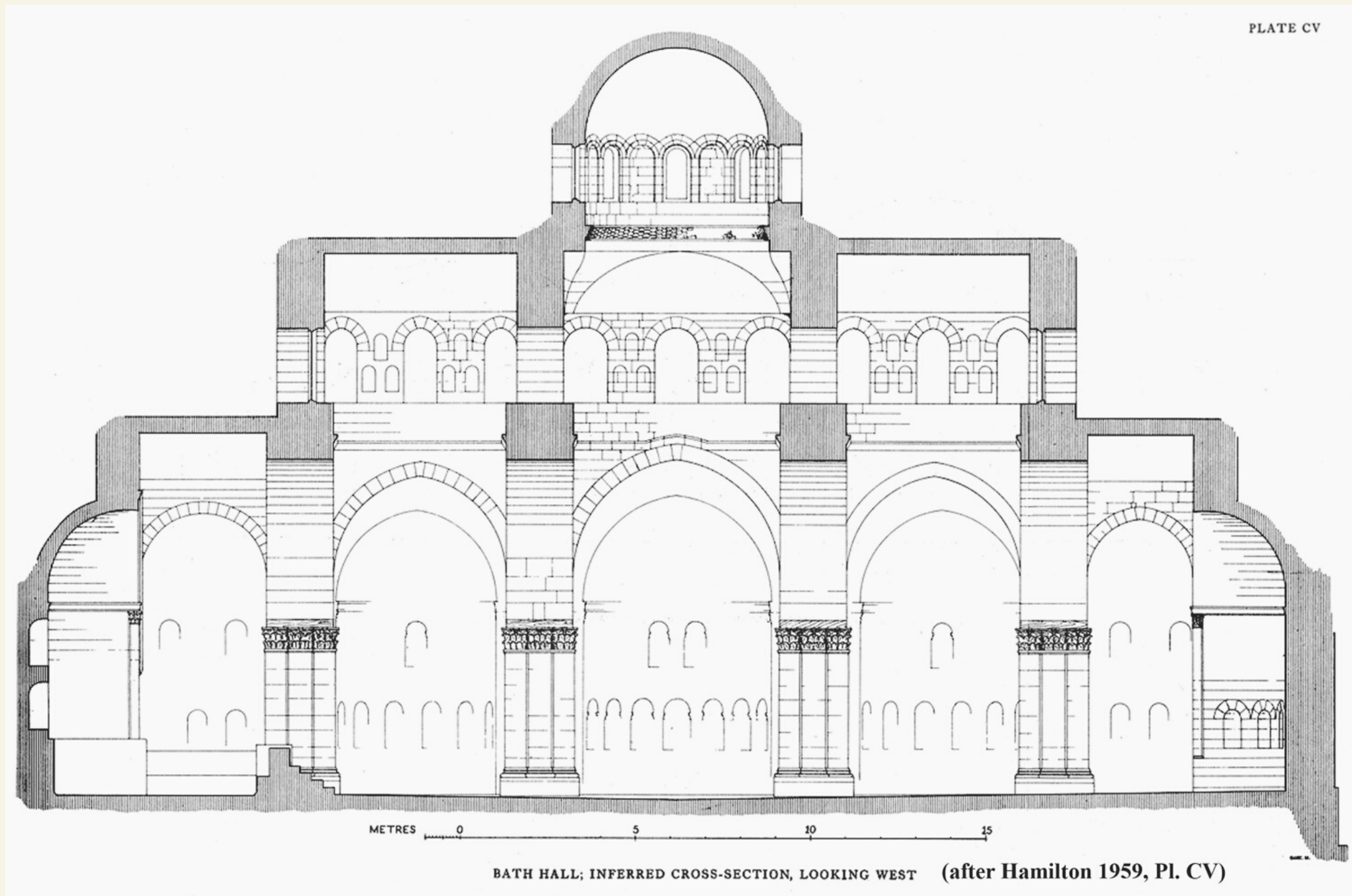
If needed the artefact can be restored. The restorer takes care of the artefact's damages and tries to put broken objects back together. Are you curious how difficult it is to be a restorer?

18. Go to your Activity Book and do the assignment "Mend the broken relic"

These days archaeologists make use of modern techniques to visualise the expedition's results. That is also the case with the site of Hisham's Palace in Jericho. When archaeologists excavated the ruins of a bath house there in the mid-20th century, they made several reconstruction drawings including the sizes of the wall structures they had really exposed. Here are two examples of those drawings.

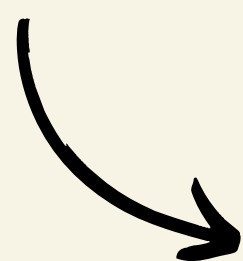
Thanks to these drawings, modern-day experts are able to create 3D models of the site. Have a look at the model that Ramzi Hassan made of the wall structures of the bath house found at Hisham's Palace. It is possible to move the model in all directions and even to zoom it in or out!





19. What are the advantages of modern techniques, such as 3D models, for archaeologists? _____

We have discussed the three phases archaeological expeditions usually consist of: the planning, digging and documenting phase. Are you able to recognise the tools archaeologists use for each phase?



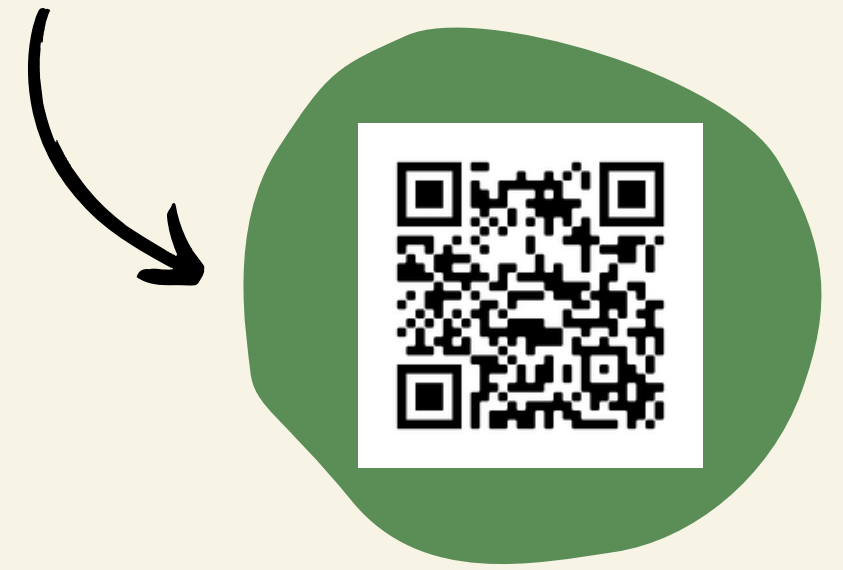
20. Go to your Activity Book and do the assignment "The three phases of Archaeology"

Now you know how archaeologists approach an excavation of an ancient site. But what does it really look like? For example, can you imagine how the legendary site of Tell es-Sultan was excavated in the 1950s? Who participated in that dig? What techniques did they use? What tools did they have?

21. We are very lucky to have found a colour film of that excavation that one of the participants made in 1958! She recorded all kinds of activities that took place during the dig.

Unfortunately, the film has not been developed correctly: the activities are not in the correct order any more. Can you please help us? Watch the film, recognise the archaeological activities and put them in a logical order. You can find the film here.

You may use the following scheme for the assignment. The film starts with three examples which have already been filled in the scheme. It is your job to describe the other nine activities. When you have seen the whole film, put the activities in a logical order by providing a number to each activity in the third column. Good luck!



<u>Number in the film</u>	Name/description of the activity	Logical order of the activities (give them a new number)
<u>Example 1</u>	<u>Picking up Baskets</u>	1
<u>Example 2</u>	Baskets are filled with sand and rock	2
<u>Example 3</u>	Baskets are emptied at the dump	3
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Task 3: From find to story

When the expedition is finished the archaeologist has to study the results of the excavation. He needs to interpret the found artefacts in order to be able to reconstruct the past of that archaeological site. While studying the finds the archaeologist wants to know how old an artefact is and what it is used for, its function.

Dating

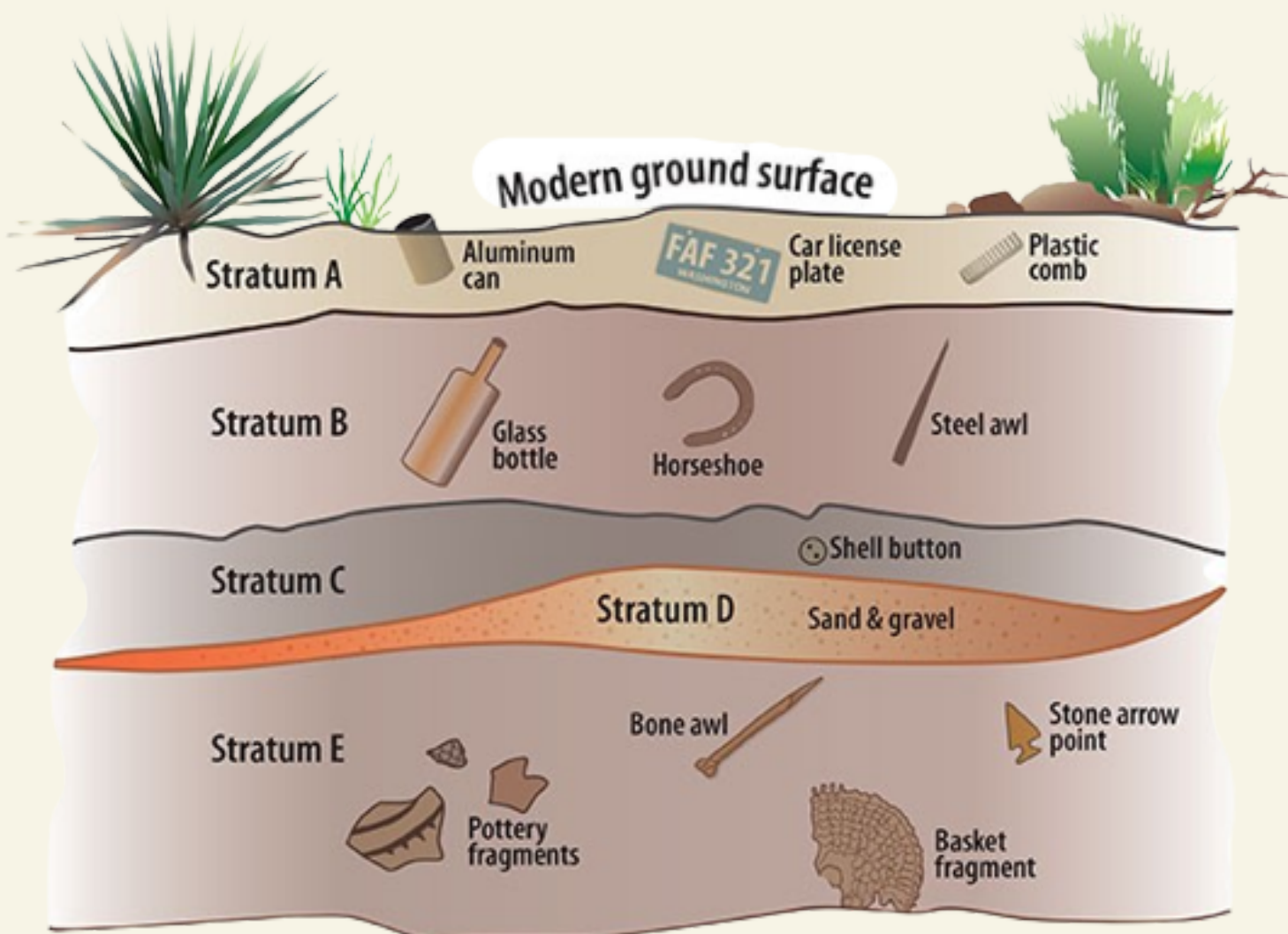
So archaeologists want to date the artefacts they found during the excavation.

22. Why is it important to find out how old an artefact is? _____

There are several ways to determine the age of artefacts. Those dating methods can be divided into two categories: A) Relative dating; B) Absolute dating.

Relative dating includes methods that compare the artefact the archaeologist wants to date with other finds or the context in which the artefacts have been found. By comparing the artefact with other finds or its context, the archaeologist is able to decide which artefact is older and which is younger. But relative dating cannot provide the age of an artefact expressed in years (for example, this artefact is 900 years old)!

That is the difference with absolute dating. That dating method offers archaeologists a numerical age of an artefact. Sometimes an object is already supplied with a date, like coins that often have their production date on them. In other cases archaeologists can use specialised techniques which are processed in laboratories.



23. An example of a relative dating method is stratigraphy (see also Task 1). By comparing the finds in the different layers of a tell archaeologists are able to decide which artefact is older than other artefacts. Have a look at this cross section of an archaeological site. Put the following artefacts in a chronological order (from old to present) and explain why you chose this order. Shell button; Aluminium

can; Bone awl; Steel awl; Glass bottle; Stone arrow point. _____

Function

For making a reconstruction archaeologists also need to know what the artefacts were used for. Archaeologists wonder in what way the people of a past culture used the objects that they have found at the excavation.



A



B



C



D



E

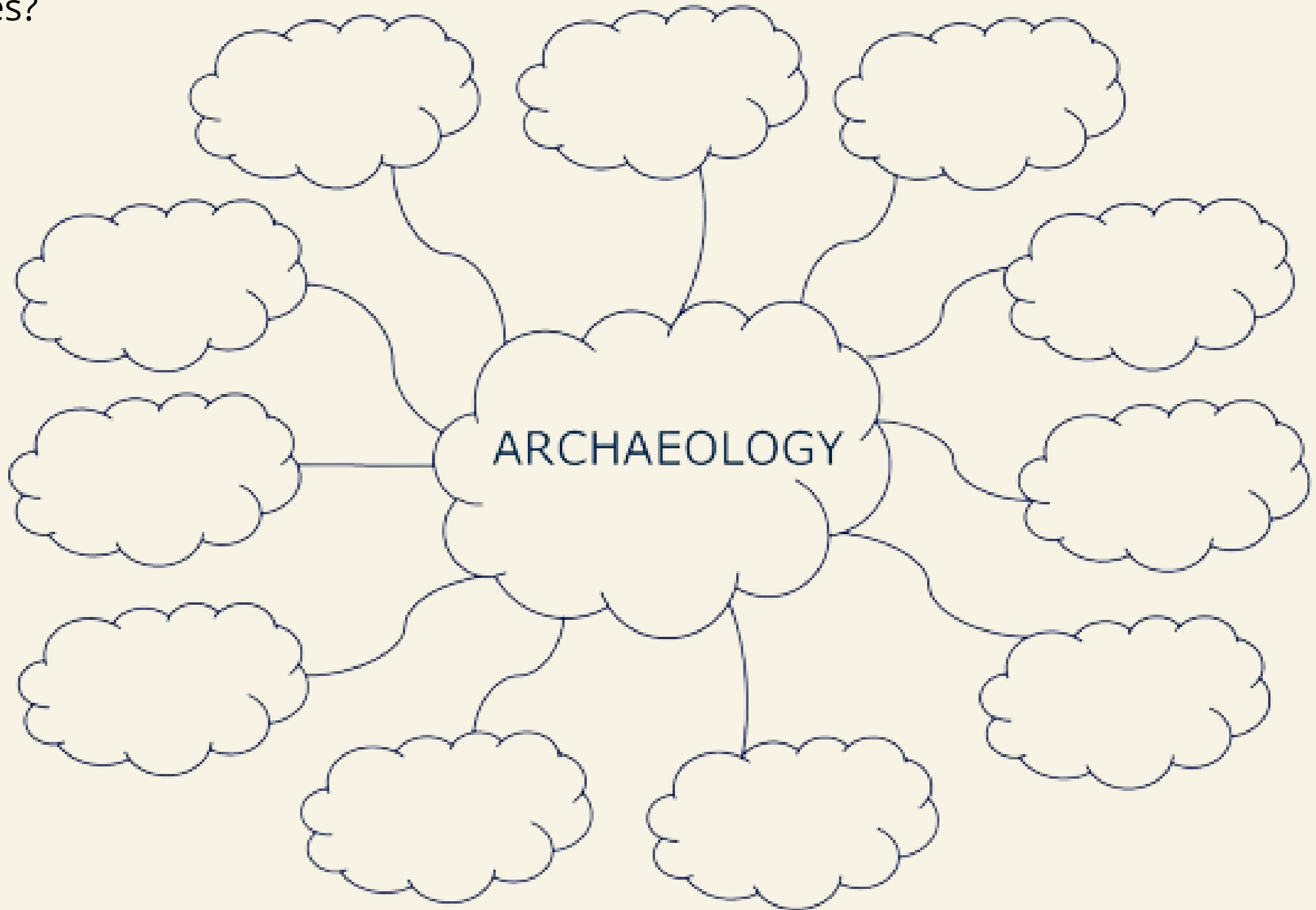
24a. Are you able to help the archaeologists of Jericho? Here you see some photos taken by the expedition photographer Peter Dorrell in the 1950s. Look carefully at the artefacts and try to figure out what kind of artefacts they are or in what way the people used these objects thousands of years ago. Sometimes it can be hard to find out the function of an artefact. That is no problem. Use your imagination!

<u>Artefacts</u>	Identification/function
A	
B	
C	
D	
E	

24b. Now you have identified the artefacts and their function, you can create your reconstruction. Draw a reconstruction of a house interior based on the artefacts from the previous question. You may use your imagination!

Task 4: Archaeology and me

25. When you started the Archaeology Module you filled in a mind map. You were asked to write down words that came to your mind when you heard the term “archaeology”. Let’s do that again. When you have filled in the new mind map, compare it with the one you made at the beginning of the module. Are there any differences?



26. Imagine: you are the project leader of an excavation for one whole day and you write a journal entry about your day in the field. How did you handle the excavation? Which techniques did you use? Which steps did you take when an artefact was found? And in what way were you able to identify the find? What was it used for in the past? Write a personal account of your day as an archaeologist in the field in which you answer these questions. Of course you may add more information if you want and you may support the account with drawings.

27. Curious about what you have learned in this Archaeology Module? Go to your Activity Book and play the Endgame Archaeology. Good luck!