

Activity 1 Follow-up discussion

Bring the class back together and use the PowerPoint 'What can you tell from this object?' as a focus for discussing the answers to the questions on the object sheets.

Points to emphasise:

1. Ask the pupils to identify which of the objects are **instruments** and which are **models**.

Models express an idea or theory, whereas instruments are used to make measurements or observations.

Muslim scholars did a lot of practical science and made many observations and measurements. They were also interested in teaching and learning and models helped to record and demonstrate ideas.

2. At the end, point out that one of these objects is an odd one out. Ask them which one it is. [**Answer:** The telescope is the odd one out because it is of European, not of Islamic, origin.]

Activity 1: 'What can you tell from this object?'

Object No.1



Questions to discuss in your group:

1. What material do you think was used to make this object?

Ans: a metal alloy, e.g. brass. Would have been cast

2. What do you think it represents? [Clue: Look carefully at the markings on the surface. What do they suggest?]

Ans: A celestial sphere (see the constellations marked on the surface)

3. The sphere is divided into twelve segments like an orange. What do you think the twelve sections represent?

Ans: The twelve houses of heaven (relating to the signs of the Zodiac)

4. The object was made in the 14th century in Persia. What sort of person do you think would have made this object?

Ans: An educated person. Perhaps a teacher at a Madressa (school) or astronomer

5. Where would you see the modern-day equivalent to this model?

Ans: Functions in a similar way to a planetarium that projects the stars

Activity 1: 'What can you tell from this object?'

Object No.2



Questions to discuss in your group:

1. What do you think this object is?

Ans: Part of a manuscript/book (books have for many centuries been an important part of communicating knowledge)

2. What do you think this object depicts?

[Clue: Look at what is at the bottom of the diagram?]

Ans: A still for distillation (includes an alembic). See burner for heating at bottom

3. What do you think the apparatus shown might have been used for?

[Clue: Have you used similar apparatus in the laboratory?]

Ans: For distillation, e.g. of herbal extracts, rose water, alchemical experiments

4. What material do you think might have been used to make this object?

Ans: glass (Romans before knew about glass), and ceramic

5. Where do you think this object might have been made? [e.g. Which continent?]

Ans: Persia (present day Iran) – certainly of Islamic origin

Activity 1: 'What can you tell from this object?'

Object No.3



Questions to discuss in your group:

1. What materials do you think might have been used to make this object?

Ans: metals (brass)

2. Look at the decorative work on the instrument. From what part of the world do you think this object might have originated?

Ans: Islamic – probably from Iraq or North Africa

3. Some of the decorative work includes calligraphic inscriptions (writing). What sort of inscriptions do you think they might be?

Ans: Often religious quotations (calligraphy was an important art form)

4. This instrument is a type of direction finder. Why do you think it might have been important to its owner? [Clue: The owner was probably quite religious]

Ans: Known as a "qibla" used for determining the direction of Mecca for prayer

5. What sort of person do you think might have owned this object?

Ans: A wealthy and devout Muslim. It is well decorated and would have been quite expensive.

Activity 1: 'What can you tell from this object?'

Object No.4



Questions to discuss in your group:

1. What do you think this object might be?

Ans: An astronomical refracting telescope

2. What materials do you think the object is made out of?

Ans: Mainly brass – a very common material for instruments of this period

3. In which century do you think this object was made?

[Clue: When was this type of object invented? Does this look like an early or later example of this type of object?]

Ans: Eighteenth century – i.e. later than the first wooden telescopes

4. Where do you think it might have been made? [e.g. Asia, Africa, Europe, North America?] What are your reasons?

Ans: European. Students may recall Galileo constructed one of the first telescopes in the early seventeenth century.

5. What sort of advances or discoveries might have been made with this instrument?

Ans: Deeper observation of space.

Activity 1: 'What can you tell from this object?'

Object No.5



Questions to discuss in your group:

1. What material do you think might have been used to make this object?

Ans: metals – in particular brass (less corrosion and looks attractive. Not gold)

2. This is an astronomical device made up of a dial with pointers that rotates above a plate with a grid on it. For what sort of purpose do you think it might have been used?
[Clue: What do you think the “pointers” might be indicating?]

Ans: Indicates the positions of ‘heavenly bodies’ – in particular, the stars

3. This object originates from Moorish Spain (Islamic) during the 13th century. Amongst other things, it might have been used for telling the time. Why do you think accurate time-telling was important in Islamic societies?

Ans: Necessary for accurate determination of Muslim prayer times

4. What sort of person do you think might have owned this object?

Ans: Perhaps a wealthy merchant or traveller – it would have been an expensive instrument. Certainly a well educated person.

Activity 1: 'What can you tell from this object?'

Object No.6



Questions to discuss in your group:

1. What is this object and what do you think it shows?

Ans: A map – shows geographical knowledge

2. Which part of the world do you think this object might have come from?

Ans: Probably Egypt or North Africa (Ibn Battuta 1305-1369?)

3. What materials would have been needed to make this object?

Ans: Paper (paper making led to much greater availability of books, maps etc...)

4. For what purposes would this object have been important? [Clue: What do you think the star shape near the middle shows?]

Ans: Travel and, particularly, trade

5. Who do you think might have owned this object?

Ans: A merchant/traveller

Activity 1: 'What can you tell from this object?'

Object No.7



Questions to discuss in your group:

1. This object represents an idea about the universe which originated in ancient Greece. What do you think the sphere at the centre represents?

Ans: The earth is the sphere at the centre of this (Ptolemaic) model

2. What do you think the thick diagonal band on the left hand side might represent?

Ans: The path of the sun through the zodiac as observed from the earth

3. What sort of material was used to make this object?

Ans: Metals (brass)

4. What might this object have been used for?

Ans: It is an armillary sphere used to model the motions of the sun and stars about the earth. It would probably have been used mainly for instruction and astronomical calculations

5. Where do you think it might have been used?

Ans: May have been used in an observatory or school