

## Science and Islam

### Overview of Introductory Lesson

#### Description

This lesson introduces the historical and cultural context of the development of science and technology in medieval Islam. It also serves as a general introduction to relevant objects that relate to science and Islam the collection at the Museum of the History of Science in Oxford. This should provide a stimulus for further investigation and a useful background for the other subject based resources.

The main activity introduces the idea of examining objects in their historical context and finding out what we can learn from them. This can be done as a classroom activity using the handout resources, but a visit to the museum to examine the real objects is recommended.

#### Curriculum Links

11-14 History	The introductory lesson addresses all aspects of the NC attainment targets:  <ol style="list-style-type: none"><li>1. chronological understanding</li><li>2. knowledge and understanding of events, people and changes in the past</li><li>3. historical interpretations</li><li>4. historical enquiry</li><li>5. organisation and communication</li></ol>
11-14 Science	<b>Sc1 Ideas and evidence</b>  <ul style="list-style-type: none"><li>• The interplay between questions, evidence and scientific explanations using historical and contemporary examples</li><li>• The ways in which scientists work today and how they worked in the past, including the roles of experimentation, evidence and creative thought in the development of scientific ideas</li></ul>
14-16 Science	<b>Sc1 How Science Works</b>  Some aspects including <ul style="list-style-type: none"><li>• How scientific ideas change over time</li></ul>

**Note:** Other aspects of the science curriculum may be drawn in using the alternative suggestions for practical activities (see below).

## **Outline Lesson Plan**

### **1. Setting the scene**

(Allow 5-10 minutes)

#### **Introduction**

All science and technology has been developed over thousands of years and many different cultures and societies have contributed to this knowledge.

We are going to explore the contribution made by Islamic cultures during the 'Middle Ages'. This was a period before science was recognised as a distinct form of knowledge. However, much natural philosophy practised by Muslim scholars resulted from systematic empirical methods of observation, deduction and experiment.

#### **Discussion**

A general discussion about Islam might draw on students' knowledge of Islam from current affairs, personal experience, Religious Studies, Geography and History lessons. The **map** and **timeline** handouts may help support the discussion.

Useful questions to ask students may include:

- What is Islam?
- Where did Islam originate?
- Can you think of any Islamic words connected with science or maths? (e.g. algebra, alkali, alchemy)
- What does this tell us?
- What other achievements can you think of from the Islamic world? (e.g. Some students may have come across Islamic architecture or design)

### **2. PowerPoint presentation: 'Science and technology in medieval Islam'**

(Allow 5-10 minutes)

This slide presentation may be used as a follow-up to discussion and introduces the religious and historical context of Islam. It also introduces some of the main areas of development in Islamic science and technology during the medieval period.

### **3. Activity 1: 'What can you tell from this object?'**

(Allow 30 minutes)

This activity introduces some of the objects from the museum's collection. Students should be divided into small groups of three or four. Each group is given an object sheet which includes a picture and some questions to discuss.

Bring the class together to discuss their observations. The **PowerPoint presentation** of the objects will enable everyone to see all the pictures of objects.

Follow-up discussion provides the opportunity to interpret evidence, discuss historical context, to raise further questions and point out relevant features (See teacher's notes).

#### **4. Activity 2: 'The Venice Mission'**

(Allow 30 minutes)

This is a role play activity in which small groups of students are asked to research different aspects of the development of science and technology in medieval Islam using web based resources. They are asked to form part of a delegation of Islamic scholars who are presenting their accomplishments to the ruling council of the powerful medieval Venetian republic.

This activity could be set as a **homework** exercise.

#### **Other possible practical activities**

Activity 1 could be followed up with some practical activities in a science lesson.

Two possibilities are:

- Discussion of the telescope (not an Islamic innovation) may lead to a discussion of what Muslim scholars' did know about optics. A suitable activity to follow this is **Activity 1: 'Seeing in the Dark'** from the 1001 Inventions Teachers' Pack from <http://www.1001inventions.com/>
- Discussion of distillation could be followed up by the preparation of rosewater by steam distillation using Activity 3: 'Perfume' from 1001 Inventions Teachers' Pack from <http://www.1001inventions.com/>