

TEACHERS' PACK – KEY STAGE 3



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Commissioned by the Bodleian Library for the Medieval Islamic Views of the Cosmos project

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Bodleian Library





The Book of Curiosities (or, to give it its full title, Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn or the Book of Curiosities of the Sciences and Marvels for the Eyes) is a newly-discovered Arabic manuscript dating from about the year 1200. At that time, printing was unknown outside of China, and books were copied by hand. Such books are called 'manuscripts' meaning 'hand-written.' This manuscript is a copy of a work originally composed about 200 years earlier, in the first half of the eleventh century. The Book of Curiosities contains maps of the Heavens and the Earth. These maps were previously unknown and many of them are unique. For that reason, the Book of Curiosities is of crucial importance to the history of cartography, to the study of geography and to our understanding of the Islamic contribution to world knowledge.



The *Book of Curiosities* was acquired by the Bodleian Library in Oxford in June 2002 through a London antiquarian dealer. The purchase was made possible by grants from the Heritage Lottery Fund and The Art Fund and by the generous assistance of the Friends of the Bodleian, Saudi Aramco, some Oxford colleges, and individual donors.

The *Book of Curiosities* is a valuable learning resource. It can contribute to the study of:

- the early history of cartography and geography
- the importance for historical interpretation of a critical understanding of the nature of written and pictorial sources
- the Islamic contribution to medieval and modern science in the West

This pack focuses on the Key Stage 3 Curriculum guidelines for History, Geography, English and Science. Links to the Curriculum are made at the start of each set of work sheets.



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Book of Curiosities: title page



The manuscript is still being conserved and studied by experts at the Bodleian Library but can be viewed online at a web site specially designed for it: www.bodley. ox.ac.uk/bookofcuriosities. There, you will be able to access not only images of the book but also background information, explanatory notes, and an English translation of the Arabic text. Some of the tasks in this pack require study of extracts of that translation. The translations used here are accurate at the time of going to print, but work is on-going and changes to the



Book of Curiosities: website

translation are still being made. If you want to ensure that you are using the most recent version you need to consult it online.

This pack also contains a CD-ROM which carries images of the key maps and charts referred to in the work sheets.

Further Reading and Resources

1. www.bodley.ox.ac.uk/bookofcuriosities

This website is dedicated to all aspects of the *Book of Curiosities*, and includes images of the whole manuscript, an English translation of the Arabic text and explanatory notes.

2. www.ordnancesurvey.co.uk

A useful resource for all cartographic work.

3. www.mapzone.co.uk

Part of the Ordnance Survey website, this area has interactive mapping tools for Britain, Europe and the World and other good mapping information.

4. http://www.bl.uk/learning/artimages/maphist/mappinghistory.html

The British Library website has a section called "Mapping History," an interactive exploration of maps through time, where students can access a variety of maps dating from 1482 to the present.

5. www.bbc.co.uk/history

The BBC's website has a great deal of historical information that can be accessed easily by students.

6. http://historic-cities.huji.ac.il/

The Historic Cities website contains a great deal of information on mapmaking and cartographers and high resolution images of maps



7. The British Library Companion to Maps and Mapmaking,

by Rebecca Steffoff (London: British Library, 1995).

A good companion to cartographic work providing useful background on the Islamic cartographic tradition.

8. Museum collections

You might consider visiting, as part of your studies, the Ashmolean and History of Science Museums in Oxford. The Ashmolean Museum of Art & Archaeology – www.ashmolean.org – has a permanent display of Islamic art. The Museum of the History of Science (MHS) has a magnificent collection of Islamic scientific instruments, including some used for astronomy and cartography. The Image Library of the MHS website www.mhs.ox.ac.uk/images has a superb online catalogue of these instruments. You could also consider visiting the Islamic Middle East gallery at the Victoria & Albert Museum, and the Science Museum in London, as well as the British Museum, also in London, which has some important astrolabes and celestial globes on permanent view in its Islamic gallery.

9. *Medieval Views of the Cosmos*, by E.Edson and E.Savage-Smith (Oxford: The Bodleian Library, 2004). This highly illustrated volume describes the world-view shared by medieval Islamic and Christian societies. It includes several diagrams and maps from the *Book of Curiosities*.





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مارا حريد علي معلم معالما م عرابة سلال حادمانة ار طويعان عر مقاسم من وحادي مل طائعم ومعادده دارم راكرم وطر - داعه مل ارد راري ت خاصيم الفات



Key Stage 3 links

- Knowledge and understanding of events, people and changes in the past 2b (links to Citizenship 1b)
- Historical interpretation
- Historical enquiry (links to English 1/2 and English 2/1a)
- Breadth of study :
 - 7. Local history study
 - 8. Britain 1066–1500
 - 12. World study before 1900

Notes for Teachers

To help your students to complete these tasks you might like to talk about the following:



Book of Curiosities: rectangular map of the world

- the importance for historical interpretation of a critical understanding of the nature of written and pictorial sources, their potential bias and possible unreliability. It would also be useful for Task 1 to discuss how sources were copied by hand rather than printed (in this case the *Book of Curiosities* was composed in the 11th century but the copy we have was made in the 13th century) and how this could lead to errors.
- William FitzStephen

His account of London in 1200 will be needed for Task 2 on this work sheet. A translation of his text can be accessed online at www. trytel.com/~tristan/towns/florilegium/introduction/intro01.html

The *Book of Curiosities* might also link to your studies in the following areas:

- 1. Islamic civilisation and its contribution to our common cultural heritage. The *Book of Curiosities* is particularly relevant to two aspects of this subject.
 - First, the *Book of Curiosities* draws upon a number of ancient Greek astronomical and geographical texts for example, the *Geographia* written by Ptolemy which were translated into Arabic in Baghdad during the 9th and 10th centuries. Many ancient scientific works were transmitted to western Europe through Arabic translations made at this time that had an important influence upon the development of European science.



 Second, the medieval Islamic world stretched from the Atlantic Ocean to Pakistan, from the Caucasus to sub-Saharan Africa. Throughout this huge territory, Muslims were required to pray and perform other ritual acts facing Mecca. It was also the duty of all Muslims, if possible, to go on pilgrimage to Mecca. This encouraged the development of accurate astronomical techniques for determining the direction of Mecca, and stimulated the sciences of cartography and geography.

2. The Crusades. The *Book of Curiosities* describes the Mediterranean fifty years before the beginning of the Crusades. al-Mahdīyah and Sicily were all captured from the Muslim rulers by Christians during the next 100 years, and Tinnīs was repeatedly attacked by the Crusaders before it was finally abandoned and destroyed in 1227. The map of Tinnīs and the text accompanying it (see below) provide a wealth of detail on its people, their faiths, its industry and commerce, and on the city itself (The map is on the CD-ROM contained in this pack and online at www.bodley.ox.ac.uk/bookofcuriosities (Book 2, Chapter 14). You may wish to compare and contrast life in the Mediterranean at the time of the *Book of Curiosities*, and during and after the Crusades.

3. International trade. The *Book of Curiosities* gives us a new perspective upon Mediterranean trade before the Crusades, suggesting that Muslim merchants were very active in the Eastern Mediterranean and around the Greek coast, as well as further East. Medieval sailors rarely lost sight of land, and Islamic merchants sailed from harbour to harbour along the north African coast, up the coast of Palestine and Syria, along the Byzantine coast of Anatolia and into the Aegean and Ionian seas. Cargoes in the Mediterranean at that time would have consisted of bulk commodities, like cereals, oil and wine, copper, iron and timber. From the *Book of Curiosities* we learn much about the raw materials and finished products of the textile industry – cotton, linen, silk and wool, dyestuffs, woven cloth and finished garments and soft furnishings, and that Cyprus had 27 harbours and was an important emporium for trade between Byzantium and the Islamic Mediterranean.

4. Documents as artefacts. The *Book of Curiosities* is an important historical document and as such a piece of history in its own right. Its survival as a means of transmitting history and ideas is perhaps as interesting as its content. The book has been heavily used but because it was made of very strong paper it has survived. We have evidence of this usage in the darkened, worn corners where the leaves were turned, multiple layers of repairs from different periods and many sewing holes in the spine folds show it was rebound several times. Examination under the microscope reveals that there has been a lot of over-painting – probably to conceal damage to make the item more commercially attractive for the bookseller or auctioneer. This kind of 'touching up' can be very extensive, leading to confusion over what is original and what is modern.

The Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn or the Book of Curiosities of the Sciences and Marvels for the Eyes (the Book of Curiosities) is a newlydiscovered Arabic manuscript copy of a work composed in the 11th century. It tells us a great deal about what people believed about the Heavens and the Earth at that time. The manuscript contains maps of the Heavens and the Earth and descriptions of countries, islands, people and cities. It is a wonderful resource for historians and we will look at some of its detail today.

Task 1: Searching for our Mapmaker

All historical texts were written by a person, for a reason. These days we know who writes things and why. Journalists and writers always put their names on their work. Politicians make speeches and we always know what party they come from and what their views are. But we don't always know these things about texts from the past. Sometimes the author has not declared himself, sometimes only a part of the document survives or only the parts that somebody else thought were important. As historians it is important to know who wrote a historical source so that we can judge how they were biased and why they were writing, so that we can read their account critically.

We do not know who wrote the *Book of Curiosities*, but there are certain clues. Working with a partner, see if you can piece together who might have written this document and why. Here is the evidence that the document gives us:

- The last event mentioned in the text is the presence of an Arab tribe near Alexandria in Egypt before the year 1050. What might this tell us about the date of the text?
- The text gives a great deal of information about Egypt including four pages devoted to the town of Tinnīs in the Nile Delta. Much of this is new information that we think came from the author himself. What might this tell us about the author?
- The document makes several references to the Muslim rulers of Cairo, the Fatimid caliphs who ruled there from 969 to 1171, and praises them highly. What might this tell us about the author?
- The paper, the inks and pigments, and the handwriting in this manuscript copy of the text all date from the early 13th century and come from Egypt. What might this tell us about the copy that we have?

What sort of person do you think wrote the document and when?



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TASK 2: FITZSTEPHEN V. CURIOSITIES

In the year 1200, William FitzStephen wrote an account of London. This description was written as an introduction to his book about Thomas Becket, the murdered Archbishop of Canterbury. FitzStephen was Becket's Chancellor and later his chaplain.

The *Book of Curiosities* is much more mysterious. It was written at about the same time as FitzStephen was writing about London but we don't know why. It provides a great deal of detail about life at the time and about cities and islands in and around the Mediterranean in particular.

Compare the information from the *Book of Curiosities* about the Egyptian town of Tinnīs with information about London as written by FitzStephen.

The information about Tinnīs is provided on pages 9 to 13 of this pack or you can access the very latest version online at **www.bodley**. **ox.ac.uk/bookofcuriosities**. You can access FitzStephen's account of London online at www.trytel.com/~tristan/towns/florilegium/ introduction/intro01.html

Think about what these texts tell us about the people who lived in these places.

- What were their jobs?
- Where did they live?
- How were they governed?
- What religion were they?
- What was the town or city's main business?
- How did they entertain themselves?
- How different was life in England compared to life in Egypt?

Which text do you think would be more useful to you if you had never visited the town but had to find out about it?



Book of Curiosities: the map of Tinnīs



The Fourteenth Chapter Concerning the Island of Tinnīs

[Translator's note: The translation below of the whole of Chapter 14 of the second book of the Book of Curiosities is edited for easier reading. This chapter begins by our anonymous author referring to a treatise written by a market inspector named Muhammad ibn Ahmad ibn Salim. The city of Tinnis was an island city in the Nile Delta, surrounded by salt water. Thus cisterns holding fresh water were a vital part of their lives, as is seen from the description of the city. Disaster befell Tinnis during the Crusades, and it was evacuated in 1189 and totally destroyed in 1227.

The dates in this translation are given in the Christian calendar, but in the original they follow the Muslim calendar – thus for example 1012–13 A.D. appears in the original text of the Book of Curiosities as "...in the year 402".]

Muhammad ibn Ahmad ibn Salim, who was the market inspector there, mentions in the book he wrote on the description of Tinnis that it lies in the fourth clime, due to its healthy air and the fineness of the dispositions of its inhabitants and their crafts. In this city, the corpses of the dead do not rot quickly, and the hair does not fall off the body. Most of those who work there in the production of textiles eat fish and greasy food, and then return to their embroidery and weaving without washing their hands. But nothing of these offensive smells sticks on them; on the contrary, their odour becomes more pleasant and their scent more agreeable. This is a clear indication of the healthiness of the air and the absence of epidemics. They store the waters of the Nile, when it is pure, in cisterns they prepare in advance.

The length of this city, from the northern part, that is the direction of the sea, to the southern part, that is the direction of Mecca, from the gate known as the Gate of the Earring is 3,227 cubits, in large cubits, each cubit measuring 24 thumbs. Its width from the Small Gate to the gate known as Dayr Nyah, is 3,085 cubits. The perimeter of the city walls is 6,275 cubits, which amounts to $1 \frac{1}{2} + \frac{1}{16} + \frac{1}{160}$ miles. The walls have 19 gates for entry and exit, one of them plated with copper and the rest plated with iron. There are also two archways leading to two ports, each locked by an iron-plated gate preventing anyone from entering or leaving without permission.

The city has 167 mosques and prayer niches, excluding the Friday Mosque. As for the Friday Mosque, its length from south to north is 112 cubits, while its width from east to west is 71 cubits. The length of the supplementary structure attached to the Friday Mosque and adjoining it is 70 cubits, and its width is 29 cubits. During the month of Ramadan, 3,100 lamps and 250 chandeliers are lit within its premises. On other



nights there are 2,800 lamps. Each of the city's mosques has a minaret. The city also had 72 churches until they were destroyed by order of al-Hakim bi-Amr Allah in 1012-13, and replaced with mosques.

The city had exactly 50 inns and covered markets. Six large buildings for merchants were constructed in 1014-15, making the total 56.

The city has 2,500 shops and 100 olive-oil presses, employing a varying number of workers, from a minimum of two to a maximum of twenty. There are 150 shops that specialize in the sale of cloth and various garments. There are 160 mills, some with one grinding stone, some with two, and some with five stones for husking and kneading. There are 36 public bathhouses, excluding the baths in private residences.

The city has 5,000 weaving looms, employing 10,000 workers, not including the men and women who embroider or adorn clothes. One thousand and five hundred sealed chests [of cloth] leave the city each year, as well as 1,000 bales. The royal treasury has right to 400 chests of textiles the like of which are not to be seen elsewhere: woven gilded clothes in the form of sewn garments selling for 1,000 dinars each, headdresses selling for 500 dinars each, sofas selling for 1,000 dinars each, canopies, chairs, beds, curtains, velvet cloth, eye-figured cloth, silken cloth embroidered with silver, fine cloths embossed with gold, tabby or watered silk [taffeta], and other things which cannot be described here.

As for the suburbs of the city surrounding its walls: To the west one finds the arsenal and Palace of the Governor. Between them are the bathhouses for men and two large courtyards to which goods are brought from near and far.

In this suburb one finds the Great Diwan, consisting of several government departments. It has water wheels for carrying water during the flooding of the Nile to the cisterns and bathhouses of this city. One finds there also gypsum mills, lime kilns, and the royal stables.

The southern suburb has several water wheels carrying water to the cisterns and the bathhouses, and countless number of shacks. There one finds the Fishing Diwan and the fishermen's storehouses. Near this suburb there are saline lands that produce salt of unparallel brightness, flavour and quantity.

The eastern suburb has water wheels to carry water to the bathhouses.

The northern suburb has mosques and churches, as well as drying-yards for bleaching clothes and many carved beating-stones for beating and cleaning them. It also contains grounds for bow shooting and two prayer

TINNĪS PAGE 2



places, one for funeral processions and the other for the prayers on the two major Muslim celebrations of Id.

There are various boats for fishing in the surrounding deltaic lake, many of which have special names: fire-boats, fishing boats, canal boats, peasant boats, cook-boats [probably floating restaurants, like those serving fish in Istanbul up to this day], ferries, shrimp-catchers boats, carp-catchers boats, – a total of 372 boats. The biggest can have 60 men on board, the smallest only three. Sometimes these boats catch fish that are then sold for 100 dinars or more.

The names of the fishes and marine animals include: barbel, common grey mullet, perch, catfish, Nile-carp, blue fish, bream, bronze bream, burbot, common bream, common eel, conger eel, crab, crocodile, cuttlefish, dolphin, electric ray, gold-headed bream, herring, jellyfish, limpet, mackerel, mullet, ray, shark, sheat fish, shrimp, swordfish, thin-lipped grey mullet, and tuna.

In 988, during the days of the judge Ibn Abi al-Dabs, a 28½ cubit long whale appeared, without scales or shell, black with white belly. Its head was 6½ cubits long, and the tip of its tail was 5 cubits wide. It was carried into town. The person who salted it entered its mouth standing upright, with no need to bend.

The annual taxes on the catchings of these fish amount to 50,000 dinars.

In this deltaic brackish lake there are many birds, migrating to and from it at different seasons, so that some have been spotted in the east and some have been spotted in the west and some in Byzantium. The proof of this [that is, that they are migrating birds] is that when the birds are caught they are lean and skinny, but they grow fat if they remain in the lake.

The birds and flying creatures include: bat, locust, shrike, little owl, robin, turtledove, blackcap, greenfinch, gallinule, crane, Egyptian vulture, "the elephant's trunk", hawk, goose, hoopoe, starling, crow, pied crow, nuthatch, palm-dove, ring-dove, Indian falcon, kite, owl, barn owl, sparrow hawk, quail, crake, bishop-bird, flamingo, pied kingfisher, wheatear, wren, martin, duck, "the monk", "mother of the quail", pelican, Persian falcon, swift, "Umm 'Ali's veil", "Umm Habib's veil", "the vineyards' rooster", and white egret.

The people of the city use birdlime twigs to catch small birds, which they either keep for themselves or export. There are 113 boats that specialize in catching birds for a living.

TINNĪS PAGE 3

Five hundred boats, sailing craft, and skiffs arrive at the city from the Syrian lands each year, most of them in the autumn and spring convoys. There are also innumerable ships that arrive from Cairo, Upper Egypt, Alexandria and the other regions of the Delta. Among other things, they bring various kinds of select fruit to the city.

The city has two large open-air cisterns, which belong to 'Umar ibn Hafs. The western one comprises 21 containers and the eastern one 18 containers. There is also a covered cistern in the centre of the city built by 'Abd al-'Aziz al-Jarwi. The cistern gets its water from a waterwheel comprising 60 buckets, working day and night for two whole months. When each bucket is unloaded, it can fill 1,000 water jars, each jar having its full load. Therefore, the capacity of the cistern is 3,600,000 jars.

The market inspector whose book was mentioned earlier also has a cistern, but a smaller one. Ibn Tulun has built three cisterns, one near the market and another one under the supplementary structure adjacent to the Friday Mosque.

Each year the inhabitants of Tinnis require 200,000 *irdabbs* [dry measures] of foodstuffs, including wheat, barley and legumes. We have found that the Persian threshing floor grinds six *irdabbs* daily, each *irdabb* consisting of 96 cups. If you multiply this number of cups by the total number of *irdabbs* ground in the city, and then allow one cup per person as daily sustenance, the total population of the city adds up to 50,000 souls. An additional number of *irdabbs*, the exact amount fluctuating from year to year, is used by weavers in making coarse hand-milled, sun-dried bread which they store for the winter season and its shorter days, and therefore have no need to grind it [that is, to make use of the grain-mills].

No dangerous animal or lethal reptile is found in its waters, its lands or its plants.

Description given at the centre of the map of Tinnis

This city was founded when Pisces was in the ascendant. The ruler of Pisces is Jupiter, the sign of ultimate felicity, while Venus was in exaltation [of greatest influence] in the sign of Pisces. For this reason the people of the city are full of joy and happiness. They listen to music, are always delightful, seek comfort, and shun anything that causes toil and hardship. They are fond of painting, drawing, embroidery and dyeing. They do not get irritated when travelling, are tactful with their companions and do their utmost for their friends, give generously to those who ask for their help, and are fond of foreigners and travellers. They are constantly cheerful, satisfied with their place and their profits, never jealous of their friend nor rebuking him for his mistakes, but rather praise and honour him, while





reproaching themselves for not fulfilling all his needs.

The city was built by Tinnis, daughter of Sa ibn Tadarus [Theodorus], one of the kings of the Copts. The lake used to be land filled with gardens, cut through with canals bringing water from the Nile to inhabited villages and bountiful agriculture, until the sea overcame it. The sea overflowed and penetrated [the Delta] via the Mouth of al-Ushtum, inundating its lands and villages. The lower lands were submerged under the sea, while the high hills, like Tinnis, Tuna and other places that have remained, have not been submerged but stayed as they were. This inundation occurred a century before the advent of Islam. Al-Mas'udi, in his 'Meadows of Gold' mentions that sea can turn into land [and land can turn into sea]. We have witnessed this happen in our time, and part of the evidence that he was correct is what happened with lands along the road along the northern coast of the Sinai peninsula that have been overcome by the sea. This is what the Almighty and All-knowing has decreed.

The diameter of the lake is 40 miles. All its outlets are shallow, except the outlet of Bustumunah [modern Port Said], which is more than 30 fathoms deep. The depth of the lake as a whole is no more than a fathom, being deeper only at that one place.

Labels on the map include the following:

- bays
- mosques, churches and drying-yards for bleaching clothes, an engraved stone for beating the garments and cleaning them, grounds for bow shooting
- two prayer houses, one for funeral processions and the other for the holiday prayers
- waterwheels for carrying water to the cisterns and the bathhouses, and a large Fishing Diwan
- many shacks
- port of entry for ships
- port for ships, with a gate
- the arsenal, the Palace of the Governor, two large courtyards for goods and the Great Diwan, consisting of several government departments

The full and most recent translation is accessible on www.bodley.ox.ac.uk/bookofcuriosities Book 2, ch.14.

Tinnīs page 5



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Key Stage 3 links

- Geographical enquiry and skills 1c and 1d, 2c,d and e (links to English2/1a-1e, 4a-4c)
- Knowledge and understanding of places
- Breadth of study: 6a countries and 6g the changing characteristics of settlements

Notes for Teachers

To help your students to complete these tasks you might like to talk about the following:

• Islamic cartography. The Islamic cartographic tradition was a product of the advances in astronomy and mathematics

made in the Islamic world between the 7th and 12th centuries. Muslim scientists and scholars preserved ancient Greek texts that had been lost to Europe by translating them into Arabic, adding their own discoveries. The *Book of Curiosities* website can help with background on this (www.bodley.ox.ac.uk/bookofcuriosities) whilst a good introduction is also provided in *The British Library Companion to Maps and Mapmaking* by Rebecca Steffoff (London: British Library, 1995).

- Ptolemy. The work of Ptolemy in the 1st century AD was preserved for the world when it was translated into Arabic by Muslim scholars, who then built their own work upon it. Ptolemy's *Geographia* was a seminal work when the *Book of Curiosities* was written.
- Mapmaking. Satellite information and plotting using accurate coordinates are relatively recent innovations. During much of the history of cartography, maps were drawn by hand and the detail was often based on the accounts of others, sometimes written and sometimes aural. These could include fantastical elements, as is the case in the *Book of Curiosities*.

The Book of Curiosities might also link to your studies in the following areas:

• Knowledge and understanding of places/breadth of study. The maps in this document can be used to compare modern countries with what was known about them in the 11th century. Examples include India, China, East Africa and the islands of the Indian Ocean. The text accompanying the maps gives information on trade, economy and the population and both are available online at www.bodley.ox.ac.uk/bookofcuriosities.



Book of Curiosities: the map of the Mediterranean Sea



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مارا حريد علي معلم معالما م عرابة سلال حادمانة ار طويعان عر مقاسم من وحادي مل طائعم ومعادده دارم راكرم وطر - داعه مل ارد راري ت خاصيم الفات



The *Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn*, or the *Book of Curiosities* of the Sciences and Marvels for the Eyes (the Book of Curiosities), is a newlydiscovered Arabic manuscript copy of a work composed in the 11th century. It tells us a great deal about what people believed about the Heavens and the Earth at that time. The manuscript contains maps of the Heavens and the Earth and descriptions of countries, islands, people and cities. It is a wonderful resource for geographers and we will look at some of its detail today.

TASK 1: HOW THE WORLD HAS CHANGED

For this task you will need to study the rectangular map of the world from the *Book of Curiosities*. You can find this on the CD-ROM in this pack or online at **www.bodley**. **ox.ac.uk/bookofcuriosities**.

This map is unique because it is the only rectangular world map to have survived from before the Renaissance. It tells us a great deal about what was known about the world in the 11th century when it was drawn.



Book of Curiosities: rectangular map of the world

Working with a partner, compare this map with a modern map of the world:

- This map shows south to be at the top for those of us used to modern maps, this is a map of the world that is upside down. We don't know why this was common in maps of this type. Why do you think it was done?
- Can you recognise the countries? If so, how can you tell which is which?
- What countries are missing and why do you think this is?
- What would you think the world was like if you only had this map?
- This map shows a brown semi-circle in the middle, at the top, with grey-blue lines flowing out of it. This represents the Mountain of the Moon which was thought to be the source of the Nile. The search for the source of the Nile went on for many hundreds of years and is a very interesting story. You might want to research it online.
- Maps at this time were not always accurate. Sometimes they included things that the mapmaker had been told about but which were not actually true. In the bottom left-hand corner of this map is a wall. Legend says that this was built by Alexander the Great to keep out Gog and Magog. You might want to research these characters.



TASK 2: MAKING MAPS

For this task you will need to study the **map of Sicily** from the *Book of Curiosities* and the Key to symbols which you can find on the CD-ROM in this pack or online at **www.bodley.ox.ac.uk/bookofcuriosities**.

This map of Sicily shows you how mapmaking has changed. In the 11th century, when this map was made, there were no satellites sending information down to mapmakers, no computers to help them research or to work out complicated co-ordinates. Mapmakers listened to the accounts of pilgrims and travellers so that they would know about the places of the world, and then mapped everything by hand. It is not surprising that mistakes were made!



Book of Curiosities: the map of Sicily

Look now at the map. It is not what you might recognise as a map. There are no lines of latitude or longitude and no scale. It was not drawn using scientific calculations. Working with a partner, choose one of the tasks listed below:

- Look at a modern-day map of Sicily. What do you think the main differences are between it and the map in the *Book of Curiosities*? You might like to look in particular at the shape of the island, the location of Palermo (the big circle in the middle of the map) and Mount Etna (the column with the flames coming out of it at the left-hand side of the map). To help you to work out what is where, look at the Key to symbols. This shows the symbols for rivers, mountains, towns and other features.
- Look at another map of any country. It could be another historic map or it could be a modern Ordnance Survey map. How is the way this is drawn different from the Sicily map in the *Book of Curiosities*? You might like to consider whether it uses a scale and co-ordinates, whether it has pictures on it, whether the shape of the country is realistic or accurate and the symbols that it uses to mark towns, mountains, rives and other features. You can find historic maps online at the British Library site http://www.bl.uk/collections/map_antiquarian.html
- Draw a map using the symbols from the *Book of Curiosities*. You could draw a map of your hometown, of Britain or a country that you have visited on holiday. You will probably need a modern map of the place that you choose. Online help in drawing maps can be found at www.ordnancesurvey.co.uk, and at www.mapzone.co.uk which is a part of the Ordnance Survey website.



Key Stage 3 links: En2 Reading

• Knowledge, skills and understanding particularly 3. Texts from different cultures and traditions (links to Geographical enquiry and skills 1c and 1d, 2c, d and e and History 4a).

Key Stage 3 links: En2 Writing

Notes for Teachers

To help your students to complete these tasks you might like to talk about the following:

- Gog and Magogfeature in Task 1 as they are illustrated on one of the maps of the world in the *Book of Curiosities*. These creatures are mentioned in Islam's most sacred text, the Koran and also in British mythology and are one of many examples of the common cultural heritage of Christians and Muslims.
- *Gulliver's Travels* by Jonathan Swift. Part of Task 3 requires some knowledge of *Gulliver's Travels* and so you may wish to read or discuss this book with your students.
- Islamic civilisation and its contribution to our common cultural heritage. The medieval Islamic world stretched from the Atlantic Ocean to Pakistan, from the Caucasus to sub-Saharan Africa. Throughout this huge territory, Muslims were required to pray and perform other ritual acts facing Mecca. It was also the duty of all Muslims, if possible, to go on pilgrimage to Mecca. This encouraged the development of accurate astronomical techniques for determining the direction of Mecca, and stimulated the sciences of cartography and geography. This flourishing of learning in the Islamic world and its transition to the west brought many new words into the English language that we still use today. Task 2 explores this theme.



Book of Curiosities: the river Indus



そころでもでもの

مارا حريد علي معلم معالما م عرابة سلال حادمانة ار طويعان عر مقاسم من وحادي مل طائعم ومعادده دارم راكرم وطر - داعه مل ارد راري ت خاصيم الفات The Kitāb Gharā'ib al-funūn wa-mulah al-'uyūn, or the Book of Curiosities of the Sciences and Marvels for the Eyes (the Book of Curiosities), is a newlydiscovered manuscript copy of a text originally written in the 11th century by a Muslim geographer. The text is rich with information about life at the time and tells of fantastical places and things as well as real live people. We will be looking at some of this text in detail today.

TASK 1: MYTHS AND LEGENDS

The rectangular map of the world in the Book of Curiosities holds a clue to an interesting myth, the story of Gog and Magog. If you look at the map which is accessible on the CD-ROM in this pack or online at www.bodley.ox.ac.uk/bookofcuriosities you can see a small wall in the bottom left-hand corner. This represents the wall that is said to have been built by Alexander the Great to keep out the giants, Gog and Magog. Gog and Magog feature in Islam's most sacred text, the Koran but also in British mythology. Research them online and write down the story and what similarities and differences there are in the story as told by the two different cultures.

See if you can find another myth or legend that is written about in the literature of two or more cultures. You might like to think about Creation stories and about floods. What are their similarities and differences?

TASK 2: ARABIC IN ENGLISH

The English language contains many everyday words that come from Arabic. You might be surprised by some of them. See if you can write a story, article or account using as many of these words as possible: Admiral, Aladdin, albatross, alchemy, alcohol, alcove, algebra, almanac, apricot, arsenal, artichoke, bard, Bedouin, camel, candy, carafe, coffee, cotton, crimson, gazelles, ghoul, gerbil, Gibraltar, giraffe, guitar, hazard, jar, kebab, lemon, lime, lute, magazine, marzipan, mattress, mohair, monsoon, mummy, muslin, orange, rook, safari, saffron, Sahara, sash, satin, scarlet, sequin, sherbet, soda, sofa, spinach, sugar, Swahili, syrup, tabby, talc, tambourine, tariff, tarragon, Trafalgar, zero.

2T



al-Mahdīyah (Tunisia)





Book of Curiosities: barrier built by Alexander the Great



TASK 3: MARVELS FOR THE EYES

The *Book of Curiosities* tells of many curious people and places. Here are some extracts describing first, a city called Tinnīs (which is in modern-day Egypt), and then Ceylon, which is now called Sri Lanka.

Tinnīs "... the people of the city are full of joy and happiness. They listen to music, are always delightful, seek comfort and shun anything that causes toil and hardship, and are fond of painting, drawing, embroidery and dyeing. They do not get irritated when traveling, are tactful with their companions and do their utmost for their friends, give generously to those who ask for their help, and are fond of foreigners and travellers. They are constantly cheerful, satisfied with their place and their profits, never jealous



of their friend nor rebuking him for his mistakes, but rather praise and honour him, while reproaching themselves for not fulfilling all his needs."

Ceylon "A great country on the Equator, with several great cities, located in the Bay of Bengal. It is ruled by two kings, and is inhabited by members of every nation. There is the Mountain of al-Rahūn, which is the place where Adam, may the Blessings of God be upon him, fell [from Heaven]. The trace of his foot is in the rock, but it has now been submerged by water, so anyone wishing to observe it needs to dive in order to see it. Fish as red as blood surround [the trace], and whoever eats this fish dies instantly... It is the custom of the kings of Ceylon that when the king dies, all his entourage set themselves on fire so that only the body of the king remains. Then they place the dead king on a wagon, with his head dragging down from the rear end. Then, as the wagon goes around the markets, a woman sweeps dirt on his hair and a herald cries: 'Oh you who cherish this world and its vanities, look at He of whom the king was afraid, for the kingship could not protect him.'"

Working with this text, choose one of the following tasks:

- Write an account of what you think it was like to explore strange and exotic places about which little was known. Remember there were no planes, mobile phones, or hotels. You might look at accounts written by famous explorers such as Dr. Livingstone in Africa or Captain Scott in the Antarctic.
- Compare this text with *Gulliver's Travels* by Jonathan Swift. What strange and wonderful places did Gulliver visit? How similar or different are the writers' accounts?

Book of Curiosities: the map of Tinnīs



Key Stage 3 links: Sc1 Scientific Enquiry

• Ideas and evidence in science

Key Stage 3 links: Sc4 Physical Processes

• The Earth and beyond

Notes for Teachers

To help your students to complete these tasks you might like to talk about the following:

- Islamic science and the religious imperative. The Islamic world made tremendous advances in both astronomy and mathematics between the 8th and 14th centuries. Muslim scientists and scholars preserved ancient Greek texts that had been lost to Europe by translating them into Arabic, adding their own discoveries. This flowering of scientific knowledge was encouraged by the rituals required by the Islamic faith. Muslims make five daily prayers but the times of these prayers vary from day to day and place to place, depending upon the position of the sun. The beginning of the month of Ramadan, with its fasting and pilgrimage to Mecca, is determined by observing the phase of the moon. This made it essential for scholars to develop ways of reading the skies. They needed the same skills to determine the direction of Mecca, another essential requirement for prayer. The *Book of Curiosities* website can help with background on this www.bodley.ox.ac.uk/bookofcuriosities.
- The medieval view of the cosmos. At the time that the *Book of Curiosities* was written, it was known that the Earth was round. In fact it was believed that the spherical Earth was at the centre of the universe, surrounded by a series of transparent spheres which also contained the planets and the stars. For the ancients, the universe was therefore finite. There was no concept that stars were millions of miles away. They hung on transparent spheres which rotated around the Earth, as did the planets. It was a very ordered and hierarchical view of the universe, which reflected the order of daily life during the medieval period. It was not until the 17th century and the invention of the telescope that this theory could be disproved.
- Ptolemy. The astronomical work of Ptolemy in the 1st century AD was preserved for the world when it was translated into Arabic by Muslim scholars, who then built their own work upon it. Ptolemy's *Almagest* was a seminal work when the *Book of Curiosities* was written.



جون المارص خرارة منه: دع

مارا حريد علي معلم معالما م عرابة سلال حاد ماية ار طورهام عر مقاسم من وحاد عن على طائقه وسادره دارمان من على على مع رابا علم مقد ارد الماري ف علم معهم المفات The *Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn*, or the *Book of Curiosities* of the Sciences and Marvels for the Eyes (the *Book of Curiosities*), is a newly-discovered Arabic manuscript copy of a work composed in the 11th century. It tells us a great deal about what people believed about the Heavens and the Earth at that time. The first book of the manuscript contains maps of the Heavens that show us how people of the time viewed space and the solar system.

Task 1: The Medieval View of the Cosmos

A thousand years ago the idea of what space and the Heavens were like was very different from our view today. There were no telescopes, no space flights and no satellites so information came from what scientists of the past had written down and what astronomers could see for themselves.

Look at this plan of the Heavens from the *Book* of *Curiosities* and compare it with a modern view of the solar system. What are the differences? You might like to think about the following:

- Is the Earth or the sun at the centre of the diagram?
- What does this diagram show us about how far the universe extended in the minds of medieval astronomers?
- Do you think that medieval astronomers thought that the Earth was flat or round?
- Do you recognise any of the star names, are some of them the same as today?
- Where do you think the planets are?

The astronomers who put together this diagram believed that the planets and stars hung inside transparent spheres that rotated around the Earth. If these spheres were disturbed, terrible things could happen. Comets caused the most damage to this balance.

Here is a description of what might happen from the Book of Curiosities,

"If a comet appears in Aries, grandees and dignitaries will perish, and insolent and evil folk will reign. Unprecedented wickedness will prevail. The king of the Greeks and the notables of his kingdom will die, his dominions will be in turmoil and a disaster will befall him. The lands of the



Diagram of the Earth surrounded by the Heavens © Emilie Savage-Smith



Book of Curiosities: comets



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Turks will be subject to a great calamity, a want of rain, pasture and plants. Eye-diseases will spread. The summer heat will increase. Gold and silver will become abundant... If it appears in Leo, the kings will fight each other and wars will spread. Disease and fever will become severe in the eastern regions. A man of great eminence will die. The sky will turn into deep red. The winds that will blow will raise dust, carry away hilltops and uproot trees. Beasts will be afflicted with prickly skin rashes and dogs will be infected by rabies. Men will suffer from constipation and stomach ache."

TASK 2: MAPPING THE HEAVENS

When the *Book of Curiosities* was written there were no telescopes or other instruments to help astronomers to see what was happening in the heavens. Astronomers were able to study the sun, moon, stars and some planets and could track how they moved in the sky but they could only do this with the naked eye.

Why don't you try looking up into the night sky when you get home and see what it would have been like to have been a mediaeval astronomer? Just imagine how hard it would have been to study how the planets and stars moved in the sky just using your eyes!

To help them to identify stars correctly, Greek, and then Arabic and Muslim astronomers drew pictures around groups of stars and gave them names so that they could recognise them. You probably know about Orion's belt. Orion was a giant hunter who was killed by the Greek goddess Artemis, and when looking at the stars Greek astronomers imagined this line of stars as his belt. This image has been used by astronomers ever since.

Most of the constellations we recognise today were Greek or Islamic creations. In the Arabian night sky astronomers saw gazelles, lions, wolves, hyenas, ostriches and camels. Look at the diagram of the Earth surrounded by the Heavens from the *Book of Curiosities* now. There is a ring of constellations just inside the ring with the signs of the zodiac in it. Just below Gemini is Canis Major and just above Libra is Draco. Islamic drawings of these stars are on the CD-ROM.

Canis Major

What animal is used to represent this constellation? Its brightest star still has this name today, although it is also known by its Latin name, Sirius. If you have read Harry Potter then this might give you a clue. What sort of animal does Sirius turn into?

Draco

What mythical creature is used to represent this star group? Draco is another Harry Potter character and his character is very like this creature!



The constellation Orion from the *Book of the Constellations* by al-Sūfī



The constellation Cassiopeia as seen on a globe, with the Arab constellation of a camel drawn over her, from the *Book of the Constellations* by al-Ṣūfī



Book of Curiosities



PRIMARY SOURCES FOR STUDY

On this CD-ROM you will find copies of the maps and diagrams from the *Book of Curiosities* that your students will need to complete their study tasks.

HISTORY:

Task 2: Map of Tinnis (the text describing the city is on pp. 9-13)

Geography:

Task 1: Rectangular map of the world Task 2: Map of Sicily Task 2: Key to symbols used in medieval maps

ENGLISH: Task 1: Rectangular map of the world

Science:

Task 1: Diagram of the Earth surrounded by the Heavens Task 2: Star diagrams of Canis Major and Draco





جون المارص خرارة منه: دع

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