

# Discovery and Learning



# Aim

- I can explain some of the significant discoveries and studies which were led by early Islamic scholars and evaluate the impact they made on the wider world.

## Success Criteria

- I can compare how early Islamic and European medicine in the Middle Ages was different.
- I can describe how the work of early Islamic doctors has influenced modern medicine.
- I can tell you the names of some important Muslim scholars and answer comprehension questions about them.
- I can produce a detailed explanation of one of the great early Islamic inventions or discoveries.



# The House of Wisdom



## Questions

1. What was the House of Wisdom?
2. Why was it a significant place?
3. Can you remember the names of any scholars who worked there?
4. What famous discoveries or inventions happened at the House of Wisdom?



# Invention and Discovery

Muslim scholars from the early Islamic civilisation are responsible for the discovery and development of a wide range of inventions that we now take for granted in our daily lives.

Work made by these early pioneers preceded work of European scholars in many fields and was fundamental in leading the Renaissance in Europe which began in the 14<sup>th</sup> century – several centuries behind the ‘Golden Age of Islam’.





# Muhammad ibn Zakariya Razi



Muhammad ibn Zakariya Razi was born in AD 854. He made a significant contribution to the history of medicine.

- He worked out the difference between smallpox and measles and how best to treat them.
- He was among the first doctors to study body fluids to distinguish between different diseases.
- He was influential in the study of eyes and the treatment of eye conditions.
- He is regarded as 'the father of paediatrics' due to his acknowledgement that children need to be treated differently to adults.
- He understood and promoted the need for good doctor/patient relationships and challenged those selling fake medicines.

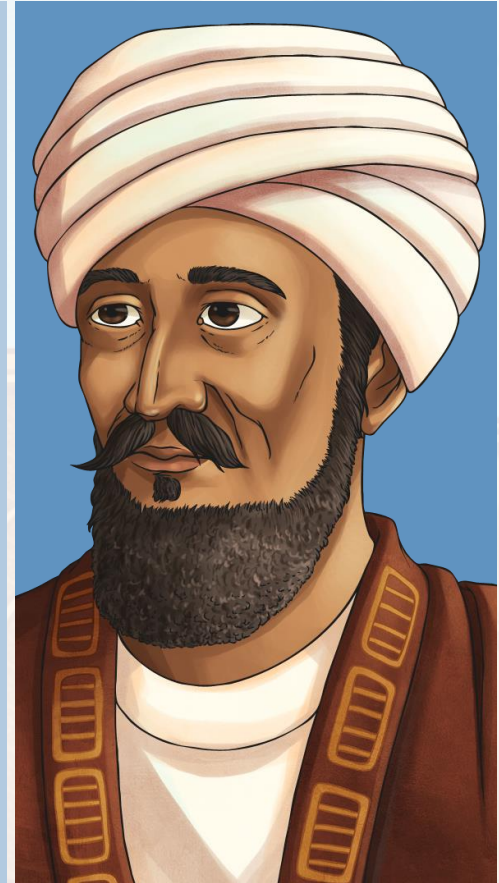


# Abu al-Qasim Khalaf ibn al-Abbas Al-Zahrawi



Al-Zahrawi was born in AD 936. He is regarded as 'the father of surgery' for his ground-breaking development of surgical techniques and the invention of numerous surgical tools.

- He developed the technique of cauterisation which involves burning an area of flesh, inside or outside the body, to stop bleeding or infection and to help cure a range of diseases.
- He invented forceps, which are still use in assisting childbirth.
- He wrote the book *Al-Tasrif* which was used by European doctors as a reference guide for approximately 500 years after it was finished in AD 1000.
- He developed the use of catgut in stitches.
- He discovered that some diseases can be hereditary (passed down to children by their parents).





# Medicine



## Activity

The work of early Islamic scholars from around AD 900 onwards in the field of medicine was regarded as the most authoritative and ground-breaking in the world.

- Read the information about the different medical issues on the following slides.
- Discuss what you think the current medical treatment would be and record this on your activity sheet.
- How do you think the same condition would have been treated in the middle ages by Muslim and European doctors?
- Pick a treatment card a or b and read about the treatment.
- How would you prefer to be treated? Why?



# Headache



You have a bad pain in your forehead and feel sick and dizzy.

Which treatment option do you choose?

**Treatment  
A**

**Treatment  
B**



# Fever



You have a fever and your body temperature is very high. You feel like you are 'burning up' and you are aching all over.

Which treatment option do you choose?

**Treatment  
A**

**Treatment  
B**

# Toothache



You have a sharp pain in your gum and your tooth feels like it is throbbing.  
Which treatment option do you choose?

**Treatment  
A**

**Treatment  
B**



# Childbirth



You are helping to deliver a baby and the labour is taking too long. The baby will need to be born soon or else the baby and mother could both die.

Which treatment option do you choose?

**Treatment  
A**

**Treatment  
B**

# Algebra

Abu Abdullah Muhammad Ibn Musa Al-Khwarizmi was born around AD 800 and is regarded (amongst other accomplishments) as 'the father of algebra'.

- Influential in the development and use of the number 0.
- Wrote astronomical tables based on his study of stars and planets.
- Wrote Kitab Al-Jabr Wa'l Muqabalah (The Book of Restoring and Balancing) which outlines the principles of algebra (Al-jabr).





# Optics

Ibn al-Haytham was born in AD 965. He was influential in the study and development of optics and invented the first camera.

- Al-Haytham proved that light travels in straight lines.
- He discovered that we can see because light reflects off objects into our eyes.
- He made the first camera obscura or pinhole camera based on his observations of light coming through a hole in his window shutter when under house arrest by the ruler Al-Hakim.



# Coffee

There is an old story that claims coffee was invented in Ethiopia by a Muslim goat herder called Khalid in the 9<sup>th</sup> century. It is said that Khalid noticed that his goats became more active after they had eaten coffee beans, so he ground the beans with water to make a drink.

Whether or not this is true, the first official records do prove that coffee was exported from Ethiopia to the Yemen in the 15<sup>th</sup> century, and from then on its popularity spread.





# Impact on Western Medicine



## Activity

With your partner, decide what you have learnt about the early Islamic doctors Razi and Al-Zahrawi.

1. How do you think the work of these significant men and their contemporaries has influenced modern medicine?
2. What do we know now that has likely developed from their studies and inventions?

Complete the **Early Islamic Influence on Modern Medicine Activity Sheet** to record your ideas.

## Influence on Modern Medicine

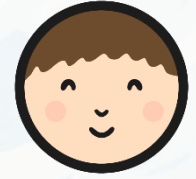
With your partner, consider what you have learnt about early Islamic doctors Razi and Al-Zahrawi. How do you think the work of these significant men and their contemporaries has influenced modern medicine? What do we know now that has likely developed from their studies and inventions?

Field of medicine	Discoveries/techniques etc. developed by early Islamic doctors	What do we know today? How do you think the work of early Islamic doctors has helped?
e.g. Ophthalmology (study and treatment of eyes)		



Friday 5/3 – Home Learning Activity

# Significant Islamic Scholars



## Activity

Read the information about some of the significant early Islamic scholars you have learnt about in this lesson.

Can you answer the comprehension questions about the life and work of these important people?



**Early Islamic Scholars**

1. Describe how early Islamic scholars contributed to the development of medicine in the 14th century?

2. List the contributions of medicine during the early Islamic period.

3. Why is the work of early Islamic scholars important?

4. What were the main areas of research and discovery during the early Islamic period?

5. Describe the work of early Islamic scholars in the field of medicine.

6. Why is the work of early Islamic scholars important today?

**Early Islamic Scholars**

Read the information carefully and then answer the comprehension questions in as much detail as you can.

Muslim scholars from the early Islamic Empire are responsible for the discovery and development of a wide range of inventions that we now take for granted in our daily lives.

Work by these early pioneers preceded work of European scholars in many fields and was fundamental in leading the renaissance in Europe which began in the 14th century - several centuries behind the 'golden age of Islam'. Significant advances in the study of medicine occurred during the early Islamic civilisation with many talented doctors contributing to the development of new medical techniques and surgical tools.

**Muhammad ibn Zakariya Razi**

Razi was born in AD 854 and died, aged 71, in AD 925. He was not just a doctor but also a chemist and philosopher amongst other things. However, Razi made a significant contribution to the history of medicine. He also had progressive ideas about patient care and helping the less fortunate and vulnerable members of society.

During his work in experimental medicine Razi worked out the difference between smallpox and measles and how best to treat them as two distinctly separate diseases. He was also among the first doctors to study fluids in the body in order to distinguish between different contagious diseases.

In his work as a chemist Razi invented a range of phials, flasks and spatulas - items which were used in pharmacies for centuries afterwards.

Razi was very influential in the field of ophthalmology (the study and treatment of eyes) and he developed a range of ointments to treat various eye conditions. Unfortunately he was not able to help himself when, in his later years, he began to go blind and eventually lost his sight completely.

Being a naturally caring and understanding person Razi understood and promoted the need for good doctor-patient relationships. He recognised that all people needed to be treated differently and that different techniques and medicines worked better for some people than others and he is regarded as 'the father of paediatrics' due to his acknowledgement that children need to be treated differently to adults.

Razi strongly believed that everybody had the right to good medical care irrespective of their position in society. One of his best known books entitled *A medical adviser for the general public* (Man le Yuhakimu Al-Tibb) offered guidance on how people could provide self-help for their medical complaints in cases when they were unable to visit a doctor. Razi also despised those who claimed to be doctors and sold fake cures on the streets and he challenged their actions and warned people to be wary of them.

**Abu al-Qasim Khalaf ibn al-Abbas Al-Zahrawi**

Al-Zahrawi was born in AD 936 and died, aged 77, in AD 1013. He was a doctor and surgeon who is regarded as 'the father of surgery' for his groundbreaking development of surgical techniques and the invention of numerous surgical tools. Al-Zahrawi's whole life was committed to the development of medicine and surgery.

Al-Zahrawi specialised in cauterisation which involves burning an area of flesh, inside or outside the body, to stop bleeding or infection. It was a progressive and revolutionary technique at the time.

Al-Zahrawi's book *Al-Ta'rif* was used by European doctors as a reference guide for approximately 500 years after it was finished in AD 1000. It contains advice on how to treat a huge range of medical conditions and many of the principles and techniques described in it are still used today while countless other modern techniques are directly descended from Al-Zahrawi's ideas.

In his book entitled *On Surgery and Instruments* Al-Zahrawi provided drawings of over 200 surgical tools which he had

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History | KS2 | Early Islamic Civilisation | Discovery and Learning | Lesson 3