



# SPACE<sup>☆</sup> awareness

## HOW LONG DID IT TAKE FOR IBN AL-HAYTHAM TO TRAVEL FROM BASRA TO CAIRO?

Join Ibn Al-Haytham on his voyage  
, Haus der Astronomie



<b>Argomento del programma di studi</b> Constellations, stars	<b>Livello scolastico</b> Primary School, Middle School	<b>Luogo</b> Indoors (small, e.g. classroom)
<b>Le grandi idee della scienza</b>	<b>Tempo</b> 1h30	<b>Competenze chiave</b> Asking questions
<b>Parole chiave</b> Islamic Heritage	<b>Dimensione del gruppo</b> Group	<b>Tipo di attività didattica</b> Partial enquiry
<b>Fascia d'età</b> 8 - 14	<b>Supervisionato a fini di sicurezza</b> Supervised	
	<b>Costo</b> Low (< ~5 EUR)	

## BREVE DESCRIZIONE

During this activity, students learn to use a map of the Middle-East. Maps are very useful tools, not only to orientate geographically but also to visualise distances. By using a simple rule of three, students estimate how many days Ibn Al-Haytham needed when travelling from Basra to Cairo. In addition, they identify the historical places that played a role in the life of this great scientist, and discover in this way how the Islamic world was connected within a huge corridor that fostered the exchange of ideas.

## FINALITÀ

The students discover how the Islamic world was connected within a huge corridor that fostered the exchange of ideas. This allowed medieval Middle Eastern scientists to travel long distances and distribute their knowledge. With this activity, the students reinforce their map reading skills.

## OBIETTIVI DIDATTICI

After this activity, the students will be able to:

- Describe the achievements of Ibn Al-Haytham.
- Identify the cities of Basra and Cairo on a map.
- Name the countries they belong to.

## VALUTAZIONE

- It is expected that the teacher/instructor tells a short introduction about Ibn Al-Haytham and his achievements (see chapter introduction). The students may be asked to explain what a camera obscura is and why Ibn Al-Haytham used it. One can ask them, which organ roughly works like a camera. As answers, one should expect that a camera obscura is a large dark room that acts like a pinhole camera. It resembles the function of an eye.

- Within the activity, the students indicate the cities on a map provided.
- When comparing with modern maps (using e.g. Google Maps), students may find the corresponding countries (Iraq and Egypt) that once belonged to a single Islamic empire.

## MATERIALI

Excerpt of a Middle-East map including Iraq and the Nile delta in Egypt (see below).

## INFORMAZIONI DI BASE

Like all empires, the Islamic Empire was made up of several regions joined together. Sometimes those regions were still mostly independent and governed by Caliphs, sometimes they were part of the empire entirely. The usual pattern of empires is that one state, for whatever reason, becomes stronger than its neighbors and conquers them, creating the empire. If it is true that within an empire different ethnic groups could feel oppressed, on the other hand, if they shared the same religion, people were able to live peacefully and to travel freely long distances. This seems to be the case of the Islamic Empire during the Golden Ages.

## DESCRIZIONE COMPLETA DELL'ATTIVITÀ

Look at the excerpt of the map and search for the cities Basra and Cairo. Did you find them? Draw a red circle around these cities. In which countries are these cities located today? By the time that Ibn Al-Haytham lived, there were no borders between the countries because they just did not exist. A vast region (covering several countries that we know today) extended from India, along North Africa and the South of Spain. By that time people traveled on horses and camels, usually in caravans. Camels can travel on average 30 km per day. Can you find out by applying the rule of three how many days did Ibn Al-Haytham need to reach Cairo? Take into account that the distance between Basra and Cairo is approximately 2200 km.

Answer: 73 days (2,5 months). Today by car it takes only 24 hours!





Fig. 37 Estimating the days that Al-Haytham required to travel from Basra to Cairo. (Credits: pd4pic.com and google)

## PROGRAMMA DI STUDI

### Space Awareness curricula topics (EU and South Africa)

The journey of ideas, Constellations, stars

## CONCLUSIONE

During this activity, the students become acquainted with one of the most influential medieval scientists of the Islamic world, Ibn Al-Haytham and some of his work. They locate the area where he lived most of his life and characterise the distance he travelled when moving from Basra to Cairo. Both cities, now in different countries, once belonged to the Islamic empire. This simplified the distribution of knowledge across large distance.



This resource was selected and revised by Space Awareness. Space Awareness is funded by the European Commission's Horizon 2020 Programme under grant agreement n° 638653