

## The Astrolabe

**Qatar National Library** 

Engagement 3 Worksheet – Scientific Exploration – "How Does It Work?""

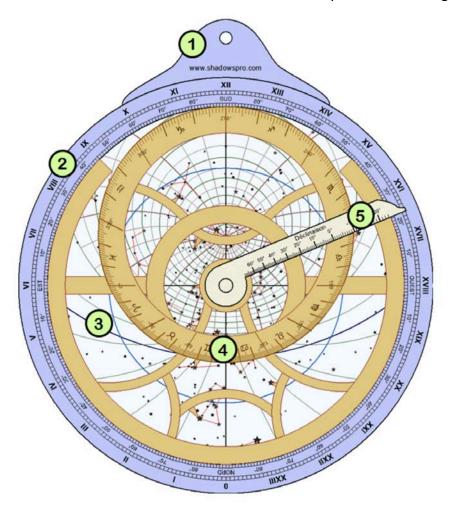




ENGAGEMENT 3: Name .....

© Engagement Activity 3 Worksheet: Storytelling – Scientific Exploration – "How Does It Work?""

Your task is to match the number with the statement. They are not in the right order.



Number	Description		
Mater – The main body that holds all the other parts.			
	Rete – A rotating metal framework with pointers for bright stars.		

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Throne – A handle or ring at the top for holding or hanging the astrolabe.
Alidade – A movable arm used to measure angles of the sun and stars.
Plates – Different plates were used for different latitudes.

Step 2: How Astronomers and Sailors Used the Astrolabe
Read the two descriptions below and fill in the missing words.
Astronomers and the Astrolabe
Ancient astronomers used the astrolabe to measure the of stars. By aligning the rete with a known star, they could determine the of celestial objects. This allowed them to create accurate maps and track the movement of the planets.  Fill in the blanks:  1 2 3
♠ Navigators and the Astrolabe
Sailors used astrolabes to determine their at sea. By measuring the height of the above the horizon, they could figure out their exact location. This was especially important for long-distance

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Fill in the blanks:
1
2
3
Step 3: Hands-on Demonstration
If possible, your librarian or the teacher will show you an astrolabe model or a 3D
simulation. Observe how it moves at the library or in the classroom and answer the following:
• What happens when you rotate the rete?
How does the alidale help measure angles?

• What do you think would happen if we used the astrolabe at different locations on Earth?



Step 5: Ref	ection and Modern Connections
	e impact of the astrolabe and how its functions relate to modern to
What mod	ern technology uses similar methods to calculate position and time
Why do yo	u think ancient scientists needed precise tools like the astrolabe?



If you could improve the astrolabe, what new feature would you add?					
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## Sources & Further Reading

The following resources provide more information on the history and science of astrolabes:

- King, David A. *In Synchrony with the Heavens: Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization* (2004).
- Saliba, George. A History of Arabic Astronomy: Planetary Theories During the Golden Age of Islam (1994).
- Hogendijk, Jan P., & Brentjes, Sonja. *Studies on the Transmission of Medieval Mathematical Astronomy* (2020).
  - Qatar National Library Archive: <u>QNL Online Astrolabe Resources</u>
  - 1001 Inventions: <u>History of Astrolabes</u>