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07

Making a Simple Astrolabe

About this Activity

An astrolabe (pronounced AS'-tro-layb) is a device used for measuring altitude, including the height of objects in the sky. This activity covers the construction of the astrolabe; the next activity in the series, Using a Simple Astrolabe, focuses on how to use it.

Used to determine the latitude of a ship at sea by measuring the altitude of the Sun or star, the mariner's Astrolabe was popular in the late 15th and early 16th Centuries.

Photo courtesy Adler Planetarium and Astronomy Museum.

What You'll Need

1 - piece of **cardboard**, manila file folder, or other stiff paper 1 - piece of **dark thread** or **string** 12 inches (30 centimeters) long.

1 - **small weight**, such as a metal washer

1 - plastic drinking **straw**

1 - copy of an **astrolabe drawing**

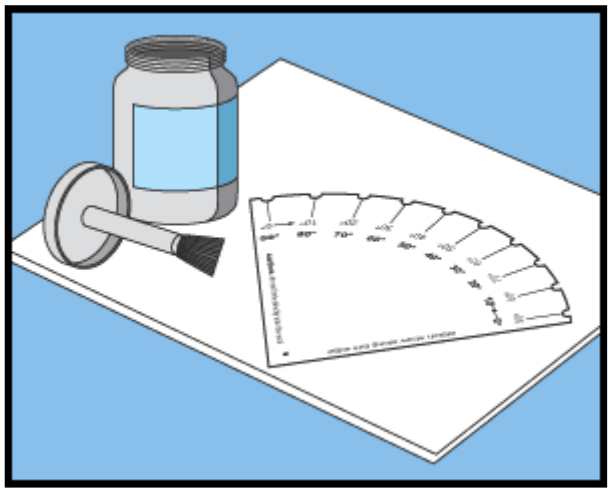
1 - container of **glue** or paste

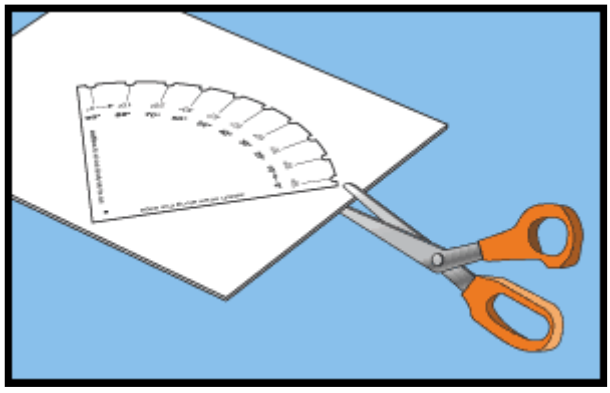
1 - pair of **scissors**

1 - roll **tape** 1 - paper **hole puncher**

What to Do

1. Print out a copy of the **astrolabe drawing**.
2. Glue the copy of the astrolabe drawing to a piece of cardboard or file folder. Cut the astrolabe out with scissors.





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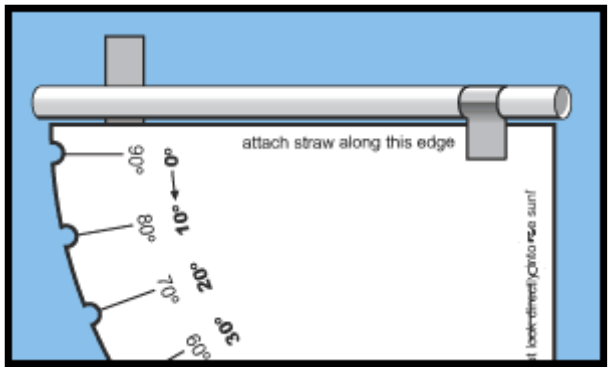
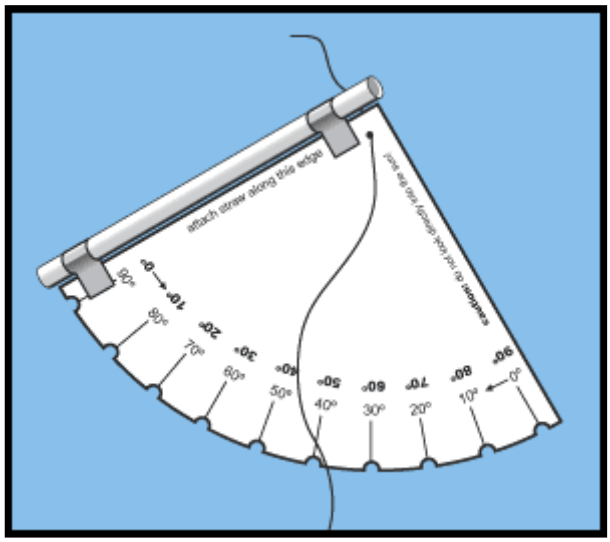
3. Using scissors or a paper hole-puncher, carefully make a small notch at each of the lines marked along the curved edge of the astrolabe. These notches will come in handy when you're measuring the angle between two celestial objects and you have to hold the astrolabe horizontally.

4. Cut a drinking straw to the same length as the sides of the astrolabe.

5. Tape the drinking straw to the edge of the astrolabe marked "Attach straw to this edge." Be careful to not tape the straw on the astrolabe, but just on the edge.



6. Carefully poke a small hole through the astrolabe where the "X" is marked, pass the string through it, and either knot the string at the back of the cardboard or tape it there.

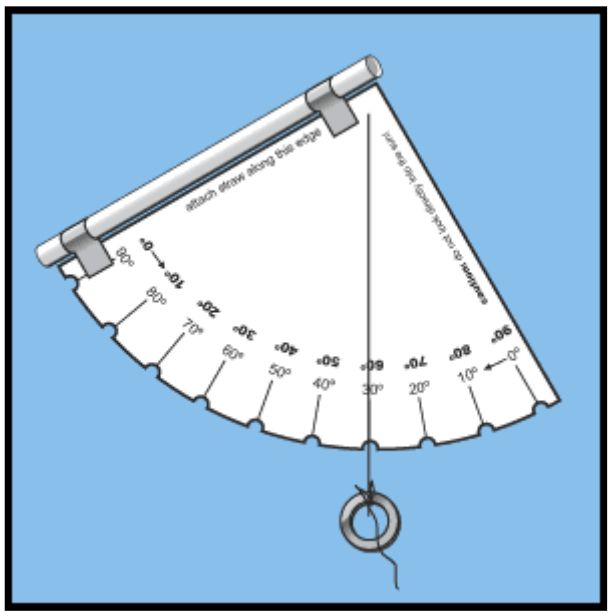


7. Tie the small weight to the opposite (front) end of the string as shown.

You have now constructed an astrolabe!

Let Us Know
How did this activity work for your family? Email us at:

outreach@ssl.berkeley.edu



What's Going On

The astrolabe was invented in Greece either by Hipparchus, a 2nd century B.C. astronomer, or Apollonius of Perga, a 3rd century B.C. mathematician. For many centuries, it was used by both astronomers and navigators, and especially by the 15th century explorers who used it to determine latitude, longitude, and time of day.

Related Websites

The Astrolabe: An Instrument with a Past and a Future
www.astrolabes.org

*Activity 7: Making a Simple Astrolabe*Derived from "Making Measurements of Objects in the Sky": from *Science Resources for Schools: Doing Science, Vol 3, No. 1.* Copyright 1985 by the American Association for the Advancement of Science & the Smithsonian Institution.

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