

Activity

Following the Falling Meteorite

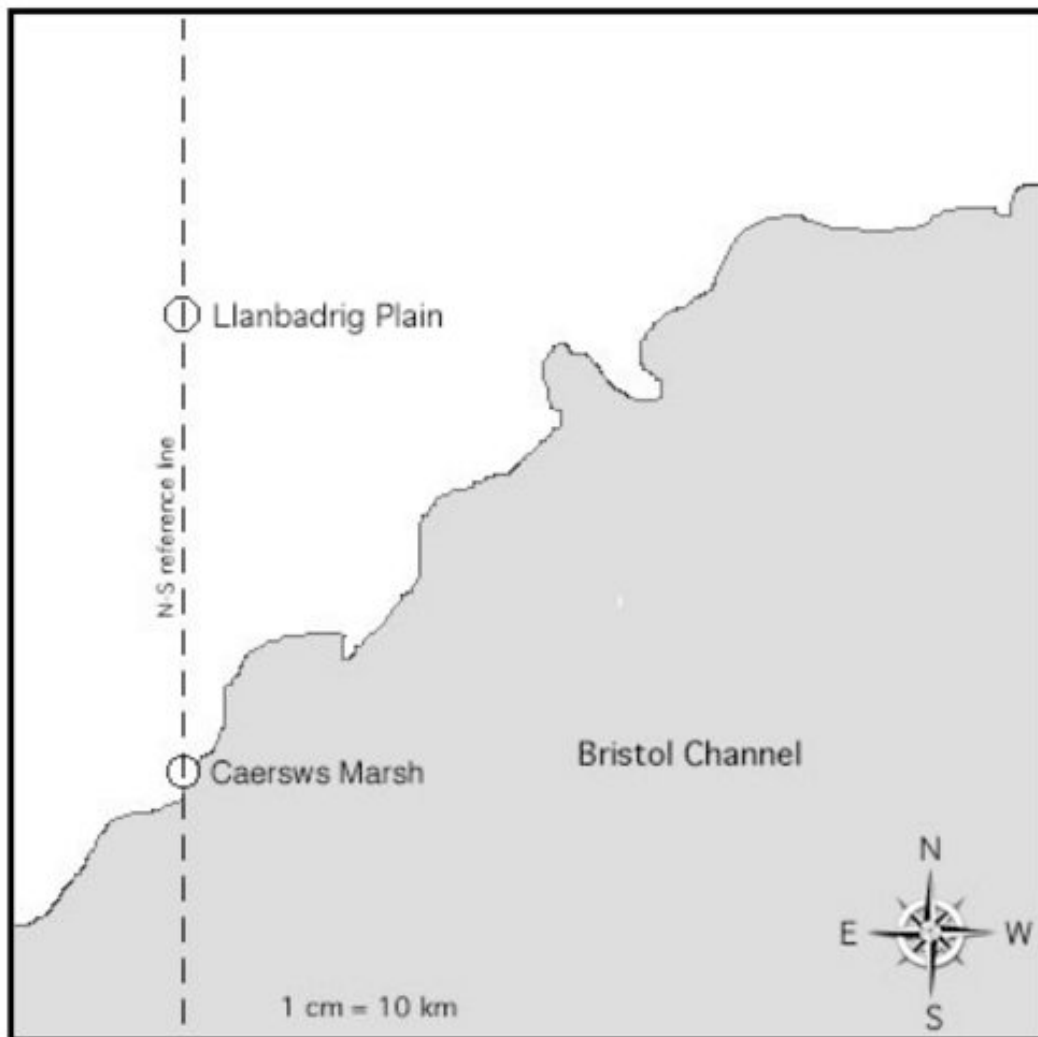
It's possible for a scientist to determine a meteor's original orbit in space and as you have just read, in one particular case, the recovery of meteorites from the disintegration of an asteroid has given experts some very detailed information indeed. In this activity, you will track a meteor's path using a technique known as triangulation, where you measure the directions to an object from 2 known locations. From this you can predict where the meteorites might be found.

What will I need for this activity?

- Protractors
- Rulers
- Coloured pencils

Path and Speed of a Meteor

Using the map provided, triangulate the path and explosion of a meteor and work out the best area in which you should look for meteorites.



The map shows the location of 2 people when they saw the meteor. The observer in Llanbadrig Plain was looking 80 degrees East of North when she saw the meteor explode.

Method

1. From Llanbadrig Plain, measure an angle 80° East from the dashed N-S reference line, mark the angle, and with a coloured pencil draw a long line from Llanbadrig Plain through the mark you made.

The observer in Caersws Marsh was looking in a direction 40° East of North when he saw the meteor explode.

2. From Caersws Marsh measure an angle 40° East from the dashed N-S reference line, mark the angle. Using the same colour pencils draw a long line from Caersws Marsh through the mark you made.

Your challenge: find the Meteorite!

Q. Where do the two lines cross?

Q. Where did the meteor explode?

Both observers also saw the meteor shed a spark some time before it exploded (assume the meteor's path was horizontal). The observer in Llanbadrig Plain was looking in a direction 110° East of North when she saw the spark fly.

3. Using the same technique as in step 1 and a different colour pencil, draw a long line from Llanbadrig Plain in that direction.

The observer in Caersws Marsh was looking in a direction 60° East of North when he saw the spark fly.

4. Draw a long line from Caersws Marsh in that direction.

Q. Where was the meteor when the spark flew?

Q. Using the positions of the spark and the explosion, which direction was the meteorite travelling in?

Q. How far was it from where the meteor sparked to where it exploded?

Q. Where would you first look for meteorites that might have fallen from the explosion?

Q. If both observers counted 2 seconds between the spark and the explosion, how fast was the meteor going (km/hr)?