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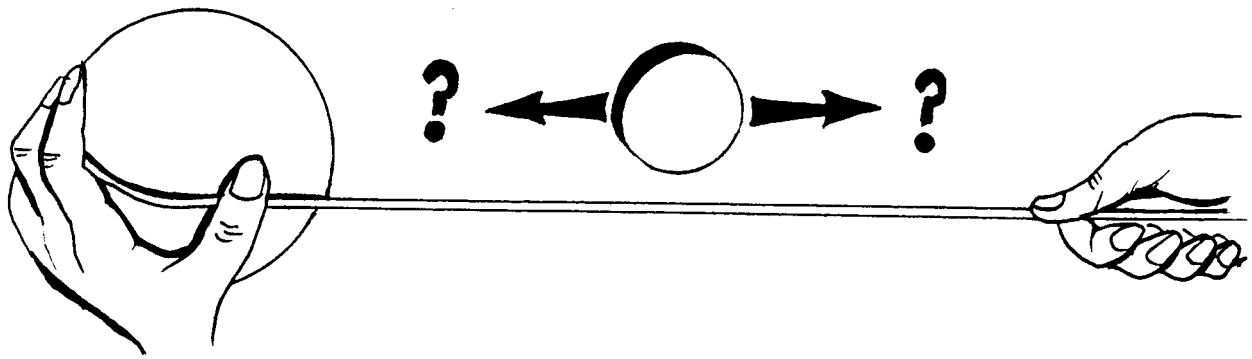
< How far away is the Moon from Earth? >

The Moon is about 384 000 kilometres from Earth and is the sixth largest natural satellite in the solar system. Its diameter is about one quarter the size of Earth's, and it is extremely close to its planet in comparison to other moons and their planets with, perhaps, the exception of Pluto and its moon.

As early as the second century B.C., a Greek astronomer called Hipparchus calculated the distance of the Moon as being 29.5 Earth diameters away. The accepted estimate today is 30 Earth diameters which highlights the accuracy of his work with the use of very basic tools.

Laser beams directed at the Moon and reflected from prisms placed there by Apollo astronauts can very accurately determine the Earth-Moon distance which has revealed that the Moon is slowly moving away from us at about 3 centimetres a year.



< EQUIPMENT NEEDED >

1. Scale models of the Earth (about 12 centimetres in diameter) and the Moon (about 4 centimetres in diameter). Inexpensive 'squeeze-ball' varieties can be purchased from specialty shops and are close enough to scale size to be used in this demonstration.
2. Clothesline rope (cut a length of 3.84 metres)

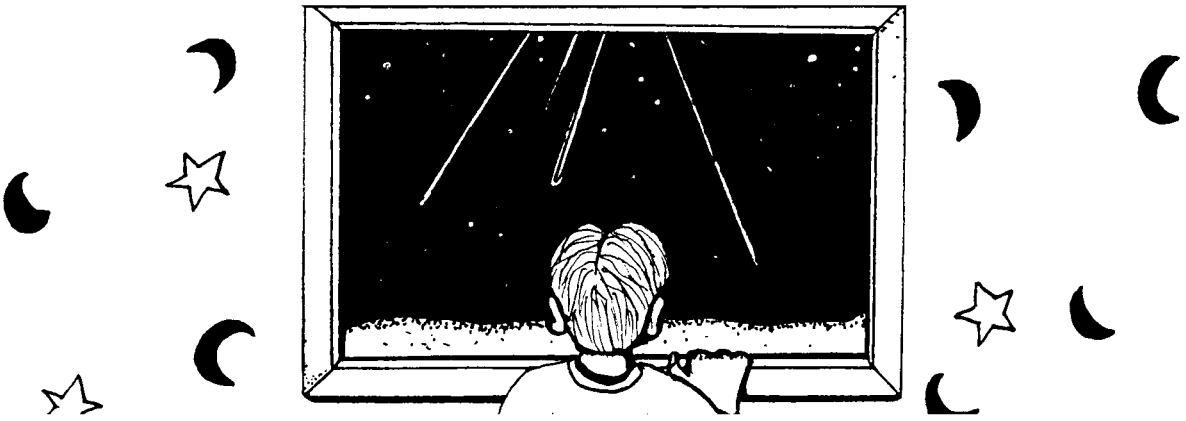
< WHAT TO DO >

1. Ask for two student volunteers: **Student A** holds the Earth as well as one end of the rope.
   Student B holds the other the end of the rope.
2. Using a third volunteer to move the Moon, ask the class to suggest where the Moon should be placed on the rope to show the Earth-Moon distance.

*** It is surprising how many students will prefer to place the Moon close to the Earth instead of at the end of a rope.**

< Fires in the Sky >

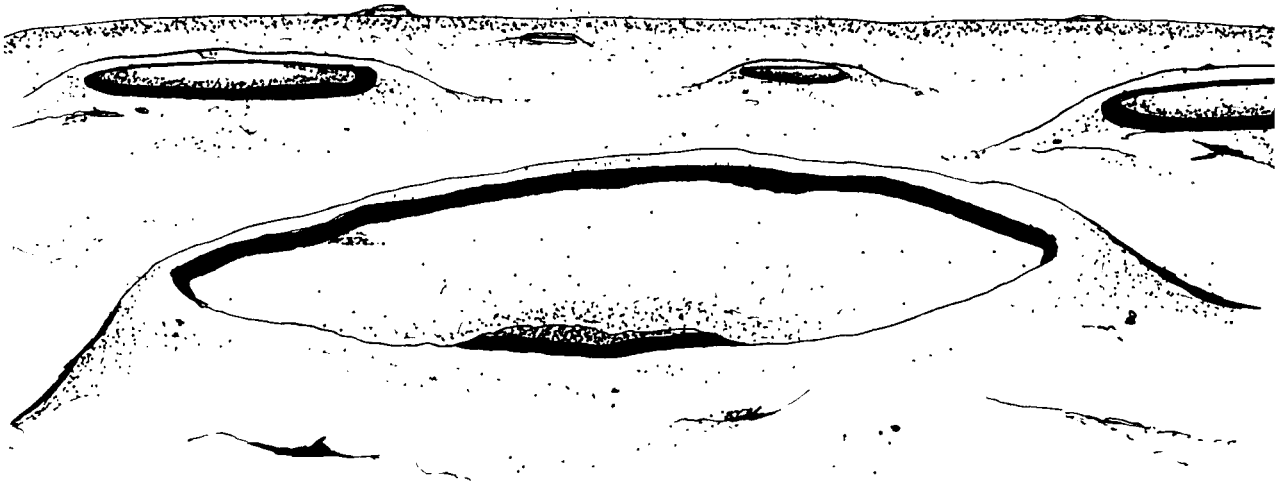
Each year, meteor showers occur when the Earth crosses trails of dust and gravel which have been formed by the break-up of comets as they orbit the Sun. These showers occur at predictable times and can be quite spectacular with best viewing being after midnight. At this time, the Earth is travelling head-on into the comet debris like a car driving head-on into rain. However, many can still be seen during the evening before midnight. Although all names have not been given in the table below, meteor showers are named after the constellation that they appear to come from in the night sky. Both the May and October meteor showers may be the result of debris from Comet Halley.



< Time of meteor showers each year >

Best Viewing Time	Approx. number seen each hour	Number observed (use tally strokes)
January 3	30	_____
April 21	15	_____
May 4	20	_____
July 30	20	_____
August 12	50	_____
October 22 (Orionids)	25	_____
November 5 (Taurids)	15	_____
November 17 (Leonids)	15	_____
December 14 (Geminids)	50	_____
December 22	15	_____

< A Musical Work of Art on Mercury >



The largest craters on Mercury have been named after famous artists and music composers.

Unscramble the letters below to spell out the names of some famous people from the past that have been used to name the craters. Write **M** or **A** beside the name to indicate if they were famous for art or music.

Names: Beethoven, Mozart, Bach, Vivaldi, Haydn, Raphael, Rodin, Monet, Renoir, Matisse

ZOTMRA _____ ___

AYDNH _____ ___

IODRN _____ ___

HABC _____ ___

TNEOM _____ ___

RERION _____ ___

HETOVEBEN _____ ___

IVDIVAL _____ ___

ASESMIT _____ ___

LHAREPA _____ ___

CARL SAGAN encouraged the committee of the International Astronomical Union to use these names for the craters instead of names of birds. Who was Carl Sagan?

_____

