How far away is the moon? Demo
https://www.youtube.com/watch?v=Bz9D6xba9Og

OBJ: SW get a better understanding of the scale of our universe by creating a model of the proportions and distance of the Earth to the moon and Earth to the sun.

Supplies: Basketball, tennis ball, softball, ping pong ball, pea

HELPFUL INFORMATION:

Table 1:

Object	Diameter in metric units	English units
Sun	1.39 million km (1,390,000 km)	864,576 miles
Earth	12,740 km	about 7900 miles
Moon	3474 km	about 2150 miles
Basketball	24 cm	9.4 inches
Softball	8.9 cm	3.5 inches
Tennis ball	6.7 cm	2.6 inches
Ping Pong Ball	4.0 cm	1.57 in
Pea	0.5 cm	0.2 in

Table 2:

Distance between	Metric units	English units
Earth and Moon	380,000 km	235,000 miles
Earth and Sun	150 million km (150,000,000 km)	94 million miles (94,000,000 miles)

1. If the Earth is the size of a basketball, guess which object from the table 1 above would best represent the size of the Moon? _____

2. Now mathematically using proportions, which object from the table above would best represent the size of the Moon?
    For example:
        $\underline{Size\ of\ basketball}$ = $\underline{X\ relative\ size\ of\ moon}$
        Size of Earth   Size of moon

3. If the Earth is the size of a basketball, guess how far away the moon would be (in feet or meters)? _____

4. Now mathematically using proportions, which how far away would the moon be from Earth (in feet or meters)?

5. If the Earth is the size of a basketball, guess the size of the Sun?
    _____

6. Now mathematically using proportions, what would be the diameter of the Sun?

7. If the Earth is the size of a basketball, guess how far away the Sun would be (in km or miles)? _____

8. Now mathematically using proportions, how far away would the Sun be from Earth (in km or miles)?