The Solar System

Distance in space can be measured in astronomical units, or AU. This is the average distance of the Earth from the Sun.

1 Astronomical Unit = 149,597,871 kilometers

1. Write these numbers in decimal form:

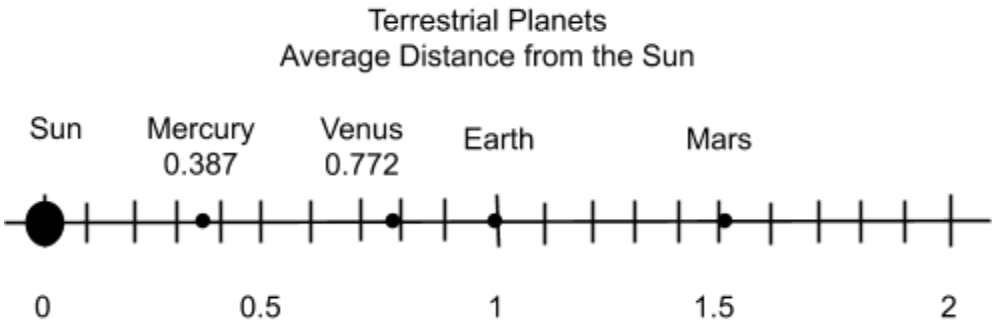
	Decimal form:
(9 × 1) + (5 × 1/10) + (8 × 1/100)	**9.58**
one and fifty-two hundredths	**1.52**
one	**1**
(5 × 1) + (2 × 1/10)	**5.2**
3 tenths + 8 hundredths + 2 thousandths	**0.387**
19.2	**19.2**
(7 × 1/10) + (2 × 1/100) + (2 × 1/1,000)	**0.722**
thirty and one tenth	**30.1**

In the next table, the planets are listed in order from the closest to the sun to the farthest from the sun. Put the decimals from above in the table in order:

Planet	**Average Distance from Sun in AU**
Mercury	**0.387**
Venus	**0.722**
Earth	**1.0**
Mars	**1.52**
Jupiter	**5.2**
Saturn	**9.58**
Uranus	**19.2**
Neptune	**30.1**

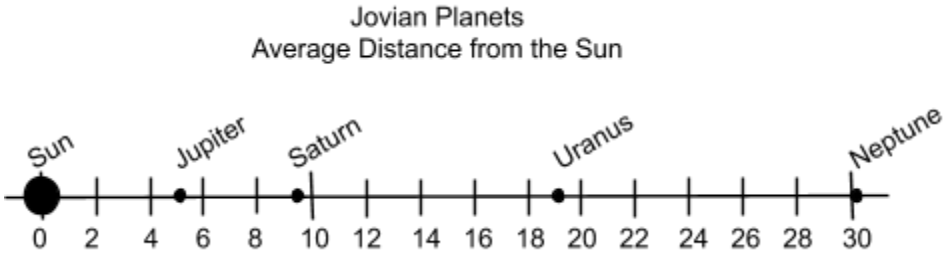
2. Mercury, Venus, Earth, and Mars are called the Terrestrial Planets because their surfaces are rock. Create a number line to show their average distance from the Sun.

Students' number lines should look *something* like this:



3. The Jovian Planets are Jupiter, Saturn, Uranus, and Neptune. They are gaseous and *huge* compared to the terrestrial planets. **Create a new number line to show their distance from the sun.** Is Saturn or Jupiter closer to the sun?

Students' number lines should look *something* like this:

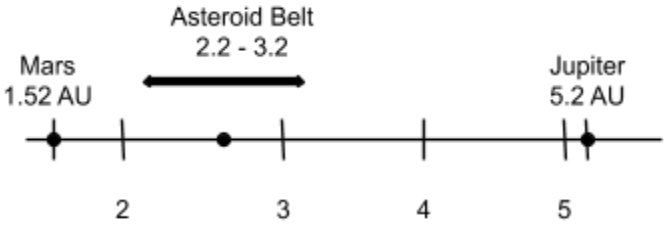


4. Compare the number lines from number 2 and 3. What do you notice? How many times as far from the sun is Saturn as Earth?

The scales are different. The scale for the terrestrial planets is much smaller than the scale for the Jovian planets. Saturn is about 10 times as far from the Sun as Earth.

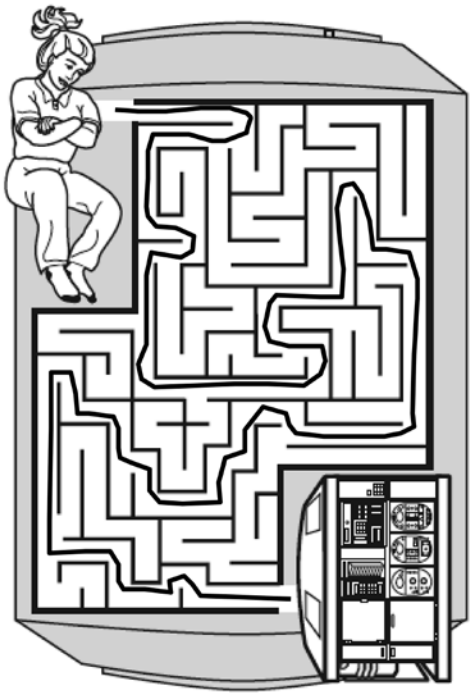
5. The asteroid belt separates the Terrestrial Planets and the Jovian Planets. In astronomical units, how far could the asteroid belt be from the sun? Explain your thinking using words, pictures and numbers. **Accept any answer between 1.52 and 5.2.**

A student *might* show their thinking on a number line like this:

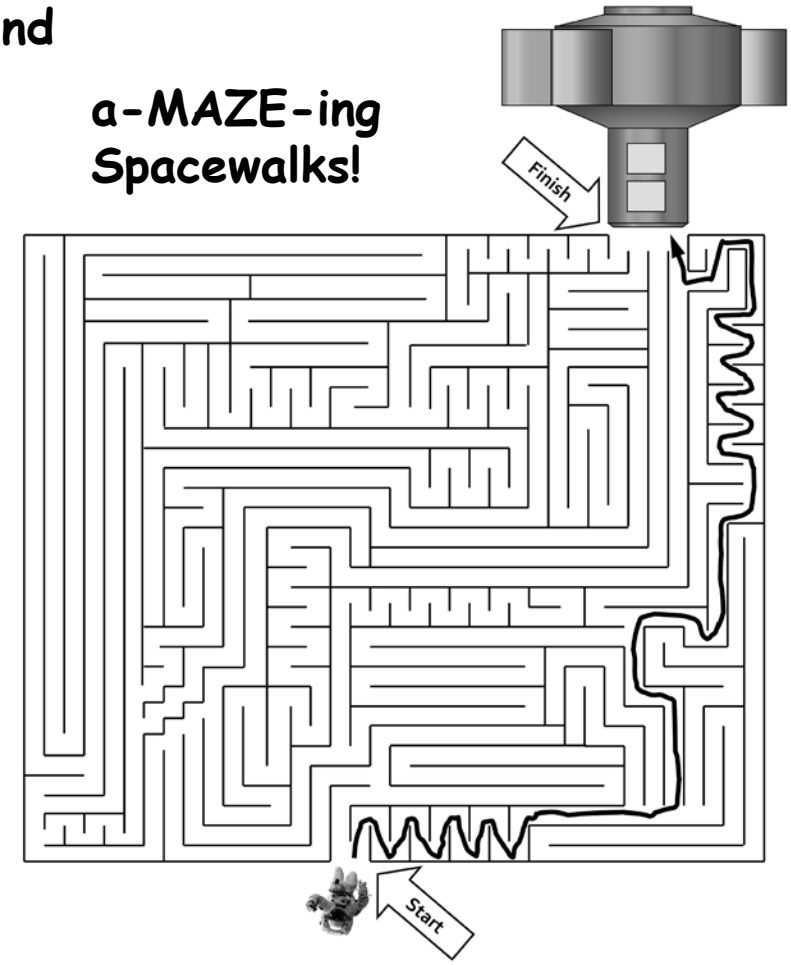


Note: Sources vary on the actual distance from the Sun. The Asteroid Belt spans 2.2 - 3.2. It is 1 AU thick.

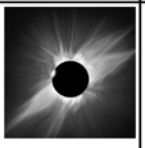
Finding One's Way Around on the Space Station!



a-MAZE-ing Spacewalks!



Space Brain Teasers

- 000:00:09 C O U N T COUNTDOWN	S L P O A S C T E LOST IN SPACE
MAN THE MOON MAN ON THE MOON	O T THE R EARTH I B  ORBIT AROUND THE EARTH
C CLIPS L I CLIPS P S CLIPS  ECLIPSE	MILES THE EARTH MILES ABOVE THE EARTH

Mental Math Mania!

1	X	9	-	4	5
+		+		X	
5	-	6	/	2	2
+		+		/	
7	X	3	-	8	13
13		18		1	