

<b>Meet the Neighbours</b>	<b>Grade 6</b>
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## Toilet Paper Solar System - Pre

Assessment	Scale model
Cross-curricular	Math/Arts

**Big Ideas**

50 minutes

Earth is a part of a large interrelated system.

**Specific Expectations**

1. Identify components of the solar system, including the sun, the earth, and other planets, natural satellites, comets, asteroids, and meteoroids, and describe their physical characteristics in qualitative terms (3.1);
2. Identify the bodies in space that emit light (e.g. stars) and those that reflect light (e.g. moons and planets) (3.2).

**Description**

Demonstrate the relative distances between planets in our solar system.

**Materials**

Rolls of toilet paper  
 Marker/pen that will write on toilet paper without tearing  
 Lots of space (outside or long hallway)

**Safety Notes**

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## Introduction

Discuss with students how big they think our solar system is. How close are the planets to the Sun and to each other? How long would it take to travel to another planet? (To help them get an idea of the distances and times involved, you can mention that the Apollo missions took about three days just to reach the Moon.)

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## Action

As a class or in groups, unroll the correct amount of toilet roll to show the relative distance for each planet. Once each distance is measured out, mark the name of the planet on the paper and have a student stand at that location.

Object	Mean distance from Sun (km)	# of Sheet from Sun	# of Sheets from Previous Object
Mercury	57,909,175	6 or 1	6 or 1
Venus	108,208,930	11 or 1.8	5 or 0.8
Earth	149,597,890	15 or 2.5	4 or 0.7
Mars	227,936,640	23 or 3.8	8 or 1.3
Jupiter	778,412,020	78 or 13	55 or 9.2
Saturn	1,426,752,400	140 or 23.3	62 or 10.3
Uranus	2,870,972,200	290 or 48.3	150 or 25
Neptune	4,498,252,900	450 or 75	160 or 26.7
(Pluto)*	(5,906,380,000)	(590) or (98.3)	(140) or (23.3)

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## Consolidation/Extension

Using the distances in the table above, students can calculate out how long it would take to get to each planet traveling at different speeds (highway speed – 100km/h, speed of light – 1,080,000,000 km/h, etc.).

Notes:

The distances listed in the table are the average distances of each planet from the Sun. Each planet orbits the Sun in a roughly circular path, so depending on where the planets are in their orbits, the distances between them will vary. Also, it is very rare for all the planets to be lined up in order as presented in this model.

This model only shows the relative distances between planets, not their relative sizes. At the scale used in this model, most of the planets except Jupiter and Saturn would be too small to see.

\*Pluto is included in the table even though it is no longer considered a planet, in case students are curious about how far away it would be.