Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Earth Science 11

**Understanding Distance in Space**

Astronomers use many different units to measure the distance between objects in space. A scale can accurately model the distances between the planets.

**Procedure:**

|  |  |  |
| --- | --- | --- |
| **Planet Name** | **Distance to Sun (AU)** | **Distance to Sun (cm)**  **(1 AU=10 cm)** |
| Mercury | 0.4 | 4.0 cm |
| Venus | 0.7 | 7.0 cm |
| Earth | 1.00 | 10 cm |
| Mars | 1.5 | 15.0 cm |
| Jupiter | 5.2 | 52.0 cm |
| Saturn | 9.5 | 95.0 cm |
| Uranus | 19.2 | 192.0 cm |
| Neptune | 30.1 | 301.0 cm |
| Pluto | 39.5 | 395.0 cm |

1. On a strip of paper, draw the sun at one end and then draw/label each planet at the correct distance from the sun, using the scale provided.
2. Put your name(s) on the paper and post it on the back wall of the classroom.

|  |  |  |
| --- | --- | --- |
| **Object** | **Diameter (km)** | **Diameter (cm)**  **(1 cm = 10,000 km)** |
| Pluto | 2,000 |  |
| Neptune | 50,000 |  |
| Uranus | 51,000 |  |
| Saturn | 120,000 |  |
| Jupiter | 143,000 |  |
| Mars | 7,000 |  |
| Earth | 13,000 |  |
| Venus | 12,000 |  |
| Mercury | 4,000 |  |
| Sun | 1,390,000 |  |

1. Fill in the last column on the table above. ***Turn over the page for the next step.***
2. On a new strip of paper, using the table you just completed, draw the planets beside each other with their *diameters to scale*.
3. Put your name(s) on the paper and post it on the back wall of the classroom.

**Questions:**

1. Define “astronomical unit” in your own words and explain why it is a good measurement for distance in our solar system.
2. Why might there be a big gap in distance between Mars and Jupiter? If you’re not sure, take a guess.