Solar System Scroll

One of the most persistent misconceptions is just how much space is in space! Our solar system is often depicted as a bunch of planets equal distance from one another, always in a straight line. However, as seen in this activity, the distance between planets doesn’t fit very well on a single page.

In this activity, we will first predict the scale of our solar system and the distance between planets, then check our answers.

Materials:

- A strip of paper that is the length of your full arm span - the length from fingertips to fingertips when you’re spreading your arms apart. You can use any paper type - paper towel, TP, register tape all work well - or tape together computer paper to get to the length needed.
- Two differently colored pencils or markers.

Instructions:

1. On your paper, draw and label the Sun on one end and Kuiper Belt on the other, labeling with just one of your pencils or markers to keep these labels the same color.
2. Take a guess! Fill in the remaining objects of our solar system in the space between the Sun and the Kuiper Belt, paying attention to the relative distances between the objects. Evenly spaced? Some closer than others?
3. Label Mercury, Venus, Earth, Mars, Asteroid Belt, Jupiter, Saturn, Uranus, Neptune. Sorry Pluto, you’re not a planet, and so, you are not in this activity.

Do this without help; that’s where the learning comes! You’ll want to label all objects before moving forward.

For example:
Step 4: Now, fold your paper in half, and make a crease that is an equal distance between the Sun and Kuiper Belt. That is where you’d find Uranus. **Label this actual location with your other pencil or marker so these updated labels will stand out from your original predictions.**

Step 5: Now, take the side where you have the Sun labeled and fold it to the Uranus mark. The new crease (at the 1/4 th mark) is where Saturn is located.

Step 6: Repeat the last step but this time with the Kuiper Belt side. This crease (at the 3/4 th mark) is Neptune.

Step 7: Starting with the Sun again, fold the strip of paper to the Saturn mark. This new crease is at the 1/8 th mark and is where we would find Jupiter.
Step 8: Repeating once more, from the Sun side, fold the strip of paper to the Jupiter mark. This crease is at the 1/16\textsuperscript{th} mark, and here we find the Asteroid Belt.

Step 9: The final fold is from the Sun to the Asteroid Belt, and this crease at the 1/32\textsuperscript{nd} is where you find Mars.

Step 10: Finally, all of the remaining inner planets (Earth, Venus and Mercury) are between Mars and the Sun.
When talking about exploring our solar system, it is important for us to understand just what distances we are working with. The average distance between Earth and Mars, our neighboring planet, is around 225 million kilometers, while the distance to our next-nearest planet, Jupiter, is roughly 630 million kilometers. And as we get farther away from the Sun, those distances can really add up!

Activity inspired by & photos credited to Jet Propulsion Lab.