



# SOLAR SYSTEM BRACELET/ANKLET/NECKLACE

## | ACTIVITY SHEET |

**Introduction:** Our Solar System is huge! When we think of the planets revolving around the Sun, we rarely consider how far each planet is from the Sun or from each other—or, said another way, how much “space” is between the Sun and planets in our Solar System.

This activity builds a MODEL solar system in the form of a bracelet, anklet or necklace that illustrates how much space is between the Sun and nine planets. By using various bead sizes and shapes to represent the planets and space this activity becomes accessible for diverse audiences.

Astronomers refer to the distance from the Sun to the Earth as one “astronomical unit”, or 1 AU. The AU provides an easy way for astronomers and scientists to calculate distances of the other planets from the Sun. *NOTE:* The bracelet / anklet activity does NOT represent Astronomical Unit measurements. If the seed beads could be cut into fractions, the distance between the inner planets would be much more accurate, thus the less than 1 AU are represented by a white seed bead. Using representative AU’s however, you can make an interesting necklace.

### **Vocabulary:**

Planet—an astronomical body that orbits a star and does not shine with its own light.

Astronomical Unit (1 AU) = approximately 150 million kilometers, or 93 million miles

### **Activity:**

We will construct a model of the solar system using colored beads as planets. The table below shows the planets and asteroid belt in order along with their relative distance from the Sun.

### **Materials:**

Stretch Magic elastic thread (.5mm or .7 mm is good) in clear or black

Black and white seed beads

Larger beads for the Sun and 9 planets, 1 bell

Super glue or clear nail polish

### **Instructions for Solar System Bracelet or Anklet:**

Cut length of Magic Elastic to fit comfortably around wrist without stretching + 3 inches.

Tie a knot at one end of the elastic. Start stringing your solar system with the bead or bell used to represent the Sun. Add one small white seed bead. In this activity the white and black seed beads represent the **relative distance** between planets. Again, these are not Astronomical Unit measurements. If the seed beads could be cut into fractions, the distance between the inner planets would be much more accurate.

- |                            |   |
|----------------------------|---|
| String your Mercury bead.  | String a white seed bead (white seed bead = <1 AU). |
| String your Venus bead.    | String a white seed bead.                           |
| String your Earth bead.    | String 1 black seed bead, 1 white seed bead.        |
| String your Mars bead.     | String 2 black seed beads, 1 white seed bead.       |
| String your Asteroid bead. | String 4 black seed beads.                          |
| String your Jupiter bead.  | String 8 black seed beads.                          |
| String your Saturn bead.   | String 18 black seed beads.                         |
| String your Uranus bead.   | String 20 black seed beads.                         |



String your Neptune bead. String 16 black seed beads.  
String your Pluto bead.

String black seed beads until the bracelet or anklet fits around wrist or ankle.  
Add five more beads.

Tie with a knot. Put a dot of super glue or clear nail polish on the knot. Let the knot dry and then cut off the extra ends.

**Short hand for the above Bracelet / Anklet steps and 2 mnemonics:**

Planet Bead	# Seed Beads	Memory Word	Planet Name
Sun	1 white		Sun
Mercury	1 white	My	Mercury
Venus	1	Very	Venus
Earth	1 black, 1 white	Easy	Earth
Mars	6	Method is to	Mars
Jupiter	8	Just	Jupiter
Saturn	18	Set	Saturn
Uranus	20	Up	Uranus
Neptune	16	Nine	Neptune
Pluto	(until it fits)	Planets	Pluto

Or, another way to remember the order of the planets:  
**My Very Eager Mother Just Served Us Nine Pizzas**

**Instructions for Solar System Necklace:**

Cut a length of Magic Elastic 26 - 30 inches long without stretching the elastic.

Tie a knot at one end of the elastic. In this activity, the white seeds represent the distance between planets that is less than 1 AU. See Table 1 below for suggested bead colors and stringing order.

Once you have completed your necklace, tie with a knot.

Put a dot of super glue or clear nail polish on the knot. Let the knot dry and then cut off the extra ends.

Wear your necklace proudly and "Enjoy your Solar System Jewelry!"



Table 1: Suggested modifications and stringing order for Solar System Necklace

Planet	Suggested Bead Color	Modifications For Visually Impaired	Planet AU	AU for Necklace (Number of Beads)
Sun	Large gold bead	Bell	0.0 AU	Sun Bead + 1 white
Mercury	Small Brown	Small Brown	0.4 AU	Mercury + 1 white
Venus	Orange	Orange	0.7 AU	Venus + 1 black
Earth	Dark Blue	Dark Blue	1.0 AU	Earth + 1 black, 1 white
Mars	Red	Red	1.5 AU	Mars + 1 black, 1 white
Asteroid Belt	Tri-Shaped bead (color varies)	Tri-Shaped bead (color varies)	2.8 AU	Tri-shaped + 2 black, 2 white
Jupiter	Pink	Pink	5.0 AU	Jupiter + 5 black
Saturn	Yellow	Flat disk-shaped bead	10.0 AU	Saturn + 9 black
Uranus	Light Blue	Light Blue	19.0 AU	Uranus + 11 black
Neptune	Clear Green	Clear Green	30.0 AU	Neptune + 9 black
Pluto	Small Purple	Small Purple	39.0 AU	Pluto + black to desired length

**Comment 1)** from Shirley (AESP- Montana) You can use this with any beads (Size E's are good) and black seed beads. I let the kids choose the beads they want for each planet, but discuss the planet as we are stringing them. This gives the kids ownership in their bracelets, and often as they hear about the planet, they change the bead to use!

**Comment 2)** from Catherine Gray, Discovery Center, Sacramento: Bead colors for the Solar System Bracelet/Anklet project can be chosen to represent specific facts about the solar system. I do a different bead project using pony beads. I use opaque beads of various colors to represent the four rocky planets and Pluto and I use translucent beads to represent the four gaseous planets. This gives me a chance to talk about the difference in the types of planets. I also use yellow for the Sun (which is a typical choice for stars in general) However, I explain that stars are different colors but our Sun is a yellow star.

**Universal Access:** Have students work in small groups to construct their necklaces. Some students may have trouble stringing the beads and/or tying the knots due to orthopedic impairments. Others may have difficulty identifying the different colors due to varying degrees of color blindness, but all will enjoy wearing and talking about their creation! While working together they can talk about the distances between the planets; what they look like, how long would it take a spacecraft to get there, what it would be like to explore the planets and more.

Credits: Original activity created by: Shirley Greene, Solar System Ambassador/Solar System Educator from Montana  
 Adapted for students with special needs by: Southeast Regional Clearinghouse (SERCH) Charleston, SC  
<http://serch.cofc.edu>

