WHERE ARE WE GOING?

STUDENT ACTIVITY SHEET

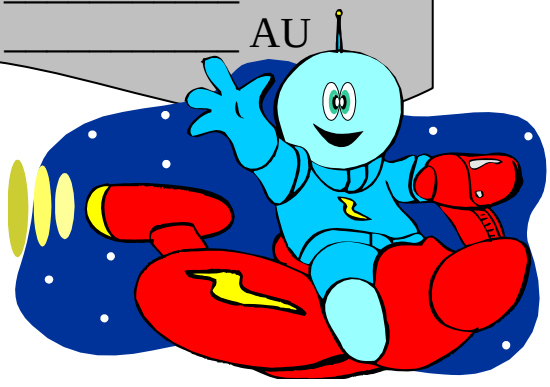
The planets in the Solar System are not evenly spaced out in distance from the Sun. Using your New Horizons poster, put your finger on Earth and trace Earth's orbit all the way around the Sun. Next, put your finger on Mars and trace its orbit all the way around the Sun. Do the same thing for two other planets. What do you notice about the sizes of the orbits? How does Earth's distance from the Sun compare to other planets' distances from the Sun?

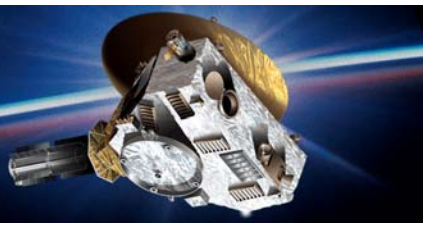
Imagine that you are the commander of a school spacebus. You will use your knowledge of the Solar System to pick up students at their home planets.

To help you find your way around, *estimate* the distances to the planets outside of Earth's orbit.

Earth	1.0 AU	→	round to ones place = _____ AU
Mars	1.5 AU	→	round to ones place = _____ AU
Jupiter	5.2 AU	→	round to ones place = _____ AU
Saturn	9.5 AU	→	round to ones place = _____ AU
Uranus	19.2 AU	→	round to tens place = _____ AU
Neptune	30.0 AU	→	round to tens place = _____ AU
Pluto	39.5 AU	→	round to tens place = _____ AU

It's a fact!
AU stands for **Astronomical Unit**.
1 AU = the **distance from the Earth to the Sun**.



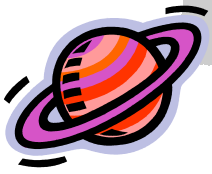


Use the estimated distances of the planets from the Sun in AU from page 1 plus the clues given below to find out which planets have students waiting for the spacebus. **Always start at Earth**, your home, and use units of AUs. Be sure to write down your location after each step and use your New Horizons poster to help figure out where you are.

<u>Example</u>: Go 20 times farther away than Earth is from the Sun. Travel half way back.
<u>Answer</u>: Earth is 1 AU from the Sun, so 20 × 1 AU = 20 AU, which is Uranus. From Uranus, come half way back so 20 AU ÷ 2 = 10 AU, so the spacebus stop is at Saturn.

1. Go 10 times farther away than Earth is from the Sun. Travel half way back.
2. Go 30 times farther away than Earth is from the Sun. Travel 1/3 of the way back.
3. Go 40 times farther away than Earth is from the Sun. Travel half way back. Travel half way back, again. Travel half way back, yet again.
4. Go twice as far than Earth is from the Sun. Go 10 times as far from your current location from the Sun.

5. Go 30 times farther away than Earth is from the Sun. Go 2/3 of the way back to the Sun. Go half way back to the Sun.
6. Go 40 times farther away than Earth is from the Sun. Travel ¾ of the way back. Go 3 times farther away than your current location from the Sun. Go 1/3 of the way back towards the Sun.



<u>CHALLENGE</u>:

7. Starting at Earth, make up your own trip with **four** stops. Give it to a partner to solve.