

Orbiting the Sun

Procedure

- 1. Measure** Make a simple model of the solar system. Use masking tape to make an X on the floor to mark the Sun's position. Mark an orbit around the Sun by placing pieces of tape in a circle 1 m from the X. Make three more orbits with tape, each 1 m farther out from the X.
- 2. Collaborate** Five students should hold signs to model the inner planets and the Sun. Use the data in the table below to arrange the "planets" in their orbits.

Distance of Planets from Sun	
Planet	Average distance from Sun (millions of km)
Mercury	58
Venus	108
Earth	150
Mars	228

- 3. Predict** Predict where each "planet" will be after walking for 5 seconds. Mercury should move most quickly. Venus should move slightly slower. Earth should move more slowly than Venus. Mars should move the slowest.
- 4. Use Models** When a timekeeper says to start, the "planets" should walk in their own orbits as described in step 3. After 5 seconds, the timekeeper will tell the "planets" to stop. In the space on the next page, draw the position of each planet.

Conclusion

Write the answers to the questions below.

1. **Compare** Which planet still has the greatest distance to travel to complete its orbit?

2. **Infer** What can you infer about how a planet's distance from the Sun and its speed affects the length of its year?

Investigate More!

Design an Experiment Extend your model to include Jupiter. How should Jupiter move? Infer how the length of a year on Jupiter and Mars differ.