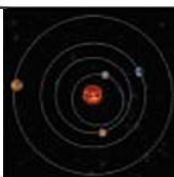


<b>Activity A:</b> <b>Planetary orbits</b>	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> <li>• Check that the ORBIT tab is still selected.</li> <li>• Click the "o" button to reset the zoom level.</li> <li>• Be sure that the <b>Speed</b> is set to <b>Slow</b>.</li> <li>• Turn on <b>Show orbits</b>.</li> </ul>	
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**Question: How long is a year on each planet?**

1. **Observe:** The path a planet takes around the Sun is its **orbit**. Planets move in orbits because of the Sun's **gravity**, a force pulling inward toward the Sun. Click Play (▶).

A. What is the shape of orbits? \_\_\_\_\_

The actual shape of an orbit is an **ellipse**, or flattened circle. Planetary orbits are only slightly flattened so that they look almost perfectly circular to the naked eye.

B. Which planet's orbit looks the least like a circle? \_\_\_\_\_

2. **Measure:** Click Reset (↺). Now you will measure how long it takes each planet to orbit the Sun. Notice that the date shown below the simulation is today's date.

- Drag an **arrow** from the left of the Gizmo and place it next to Mercury.
- Click **Play**. When Mercury completes one orbit (reaches the arrow), click **Pause**.
- Record **Today's date** and the **One orbit date** in the first row of the table below.
- Do the same steps for each planet, filling in the table as you go.
  - For the outer planets, zoom out (-) and increase the **Speed** of the simulation.

Planet	Today's date	One orbit date	Year length
Mercury			months
Venus			months
Earth			years
Mars			years
Jupiter			years
Saturn			years
Uranus			years
Neptune			years

3. **Calculate:** A **year** is the time it takes a planet to complete one orbit. Use your data to estimate the **Year length** for each planet. Use time units of Earth years or Earth months. Why does it take the outer planets so long to orbit the Sun? Try to come up with 2 reasons.

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