

Revolving and Rotating

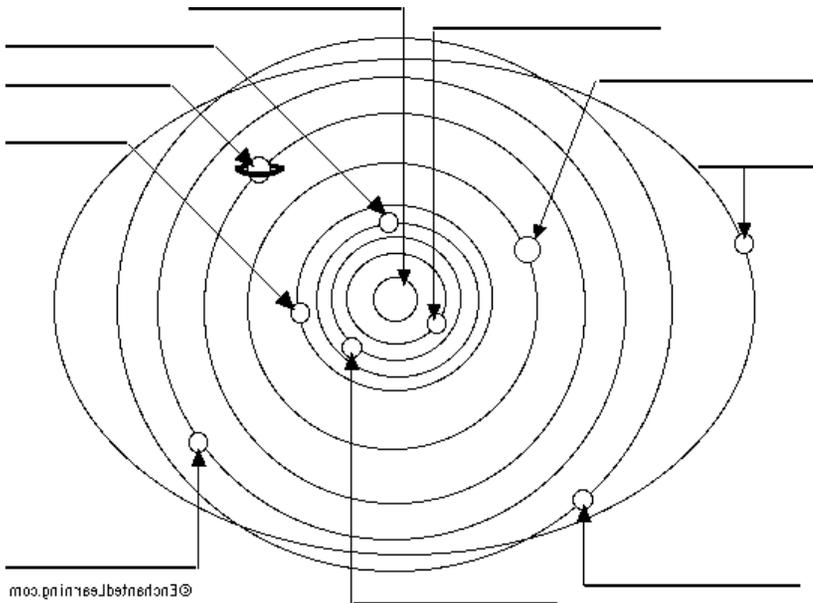
Our Solar System is made up of one star, planets, moons, asteroids and comets. We used to have nine planets but now we only have eight. Most diagrams still show Pluto. Pluto doesn't fit with the definition of a planet – it is too small.

One part of the definition of a planet is that it revolves around a sun. One complete revolution around the sun is called a year. A year on Earth is 365 days long. That's the number of days it takes our planet to orbit the Sun. Some planets have short years while other planets have long years.

Whenever we make diagrams of the solar system there is a major problem. The problem is that the solar system is too big to be shown to the right size on our papers. Problems with diagrams and models like these are called limitations.

Label the Sun and Planets below.

Draw a red circle to trace one revolution of the Earth and one revolution of Neptune.



Each planet takes a different amount of time to revolve around the sun. The amount of time a planet takes to revolve around the Sun is called a year.

Materials: calculator

What To Do: Use the chart below to answer the questions.

How Long is the Year?

Planet	Revolution In Earth Days	Planet	Revolution In Earth Days/Years
Mercury	88 days	Jupiter	4380 days or 12 years
Venus	225 days	Saturn	10,950 days or 30 years
Earth	365 days	Uranus	30,660 days or 84 years
Mars	687 days	Neptune	60,225 days or 165 years

Questions:

- Which planet has the shortest year? _____
- Why do you think this is true?

- Which planet has the longest year? _____
- Why do you think this is true? _____
- About how old would you be if you lived on Mercury?

(Hint: Divide 365 by 88 and then multiply your age by that number.)
- How many Earth years would you need to live in order to be two years old on Neptune? _____
- The diagram of the solar system can be thought of as a model. What limitation does it have? _____



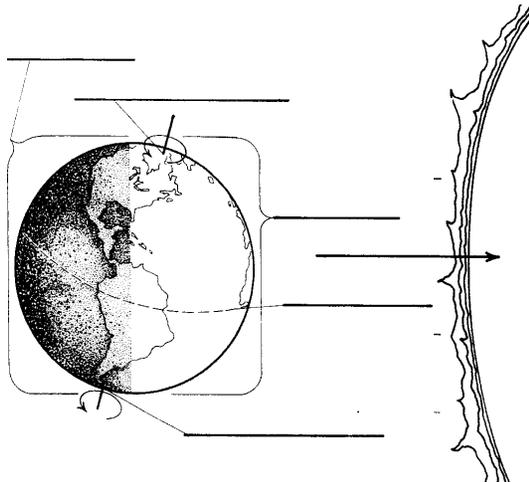
Watch the video called *The Earth's Perfect Orbit*. Write down two facts from the video on the lines below.

The imaginary line that passes through Earth's center and the North and South poles is called Earth's axis. The north end of the axis currently points toward a point in space near Polaris, the North Star. Earth's spinning on its axis is called its rotation. Earth's rotation on its axis causes day and night. It takes the Earth about 24 hours to rotate once on its axis. As you know, each 24-hour cycle of day and night is called a day. The equator is the imaginary line that goes around the middle of the earth

Materials: colored pencils

What To Do:

1. Label the North and South poles.
2. Draw a red line from the North to the South Pole to show the Earth's axis. Label it.
3. Trace over the equator with a green colored pencil
4. Label the Sun and color it yellow.
5. Label the portion of the Earth facing toward the Sun "Daytime."
6. Label the portion of the Earth facing away from the Sun "Nighttime."



Did you know that other planets also rotate on their axis and so have daytime and nighttime? All of the planets in our solar system rotate at different speeds and so their days have a different length. Some planets have short days while other planets have very long days. Use the chart to answer the questions.

How long is the Day?

Planet	Day	Planet	Day
Mercury	59 days	Jupiter	10 hours
Venus	243 days	Saturn	10.5 hours
Earth	24 hours	Uranus	17 hours
Mars	25.5 hours	Neptune	16 hours

Questions:

1. Which planet has the shortest day? _____
2. Which planet has the longest day? _____
3. Which planet has a day nearest the length to Earth's day

4. Is a day on Venus longer or shorter than a day on Earth?

5. Is a day on Mercury longer or shorter than a day on Jupiter? _____

Watch the video *Day and Night* and write down three facts the lines below.

Name _____

period _____

EXIT TICKET

Revolving and Rotating

1. The time required for the earth to revolve around the Sun is - - -
 - A. 24 hours
 - B. 7 days
 - C. 29.5 days
 - D. 365 days
2. The time required for the earth to rotate on its axis is - - -
 - A. 24 hours
 - B. 7 days
 - C. 29.5 days
 - D. 365 days
3. Mercury has the shortest year of any planet in the solar system because --
 - A. It is the smallest planet
 - B. It is the largest planet
 - C. It is closest to the Sun
 - D. It is farthest from the sun
4. The spinning of the earth on its axis causes - -
 - A. day and night
 - B. the seasons
 - C. a year to by
 - D. the moon to change shape
5. We cannot fit the solar system on a sheet of paper because of its size. Problems with models like this are called ---
 - A. model problems
 - B. limitations
 - C. size adjustments
 - D. solar flares

Name _____

period _____

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Revolving and Rotating

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