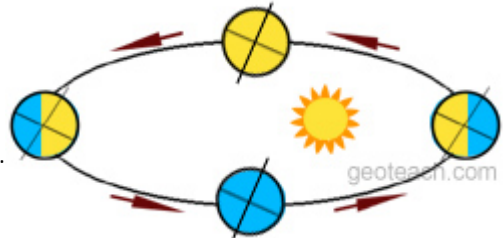


Name: _____ Date: _____

Class: _____ Teacher: _____

Label Earth's Orbit



Materials:

You will need a **pencil** and a **yellow colored pencil**.

Follow all directions carefully.

You will label important data directly on the Earth's Orbit Diagram on page 4 of this assignment. You will also answer several questions.

On the diagram that appears on page 4, notice that Earth appears in 4 different positions.

The Equator and Axis of Rotation are drawn on each of the 4 Earth images.

Arrows C, D, E and F show the orbital direction Earth follows as it revolves around the Sun.

The line on which the letters A and B appear represents the Major Axis of Earth's orbit.

Label the Diagram:

When you have completed steps 1-10, there will be a lot of information on the illustration.

1. Based on your observations of Earth's position relative to the sun as well as the tilt of Earth's axis, on the page 4 diagram label each Earth with the correct **season**.
2. Label the **date** or **range of dates** for each season.
3. Using the terms **greatest** and **least**, place the correct word that describes Earth's Orbital Speed for Earths 1 and 3.
4. Using the terms **greatest** and **least**, place the correct word that describes the Gravitational Attraction between the Earth and the Sun for positions 1 and 3.
5. As Earth moves in its orbit from position 1 to position 3, state what happens to kinetic and potential energy by filling in the blanks on the diagram. Use the words: **increases** and **decreases** in your answer.
6. As Earth moves in its orbit from position 3 back to position 1, state what happens to kinetic and potential energy by filling in the blanks on the diagram. Use the words: **increases** and **decreases** in your answer.
7. On each of the 4 Earth's color the area that would be in *shade* (not receiving the sun's rays). *Use your pencil and shade lightly* so the Equator and Axis are still visible through your shading.
8. Using your **yellow colored pencil**, *color* the portion of each of the 4 Earth's that *would be receiving the sun's rays*. Hint: Look at the image at the top of this page.

9. Along the orbit's major axis, at Points A and B, label which letter represents Earth at Perihelion and which letter represents Earth at Aphelion. Write these words next to the A and B letters, directly on the major axis line.

10. Underneath the major axis you will see 2 Dates with blanks. Write Earth's Perihelion and Aphelion dates in these blanks.

Using complete sentences, answer the following questions about Earth's Orbit and Yearly Revolution. Note that question 19 requires fill-in responses.

11. What geometric shape is used to describe Earth's Orbit?

12. The diagram states that the illustration is not drawn to scale and that the orbit is exaggerated. This was done to facilitate the viewing and understanding of concepts in this exercise. Describe the actual shape of Earth's Orbit.

13. How long does it take for Earth to complete one revolution around the sun?

14. Make a general statement about Earth's position relative to the sun and Earth's Orbital Speed.

15. Make a general statement about Earth's position relative to the sun and the gravitational attraction between the Earth and the Sun.

16. Make a general statement about a Planet's distance to its Sun with respect to the gravitational attraction between them and the Planet's Orbital Speed.

17. When you labeled the Summer Season, was the Earth closest to or farthest from the Sun?

18. What conclusion can you make concerning the effect of distance to the Sun and our yearly temperature variations?

19. What causes Earth's Seasons? There are actually 4 factors. Hints are provided.

T _____

Re _____

Ro _____

Par _____

Label Earth's Orbit

Season: _____
Date: _____

Kinetic Energy is _____ while Potential Energy is _____

Season: _____
Date: _____
Kinetic Energy: _____
Potential Energy: _____
Orbital Speed: _____
Gravitational Attraction: _____

Season: _____
Date: _____
Kinetic Energy: _____
Potential Energy: _____
Orbital Speed: _____
Gravitational Attraction: _____

Season: _____
Date: _____
Kinetic Energy: _____
Potential Energy: _____
Orbital Speed: _____
Gravitational Attraction: _____

Season: _____
Date: _____
Kinetic Energy: _____
Potential Energy: _____
Orbital Speed: _____
Gravitational Attraction: _____

Season: _____
Date: _____

Not Drawn to Scale. Orbit is exaggerated.

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