

Sample of a Student's Work/Notebook

The Earth in Space, *Issues and Earth Science*, 2nd Edition

Activities 76-78

LaB-aids®



Activity 76 A Year Viewed from Space

Date 05/27/15

Challenge: What causes the yearly cycle of the seasons on Earth?

Materials: F-28

Getting Started: What happens over the course of a year in relationship to the earth and the sun?

- The Earth orbits the Sun.
- Over the course of a year the Sun heats up the Earth.
- The Sun and Earth align almost like

Words To Know

Equator - A imaginary line that divides our planet into two halves.

Hemisphere - The halves that make up the earth, northern and southern hemisphere.

Orbit - The path a planet follows around the sun.

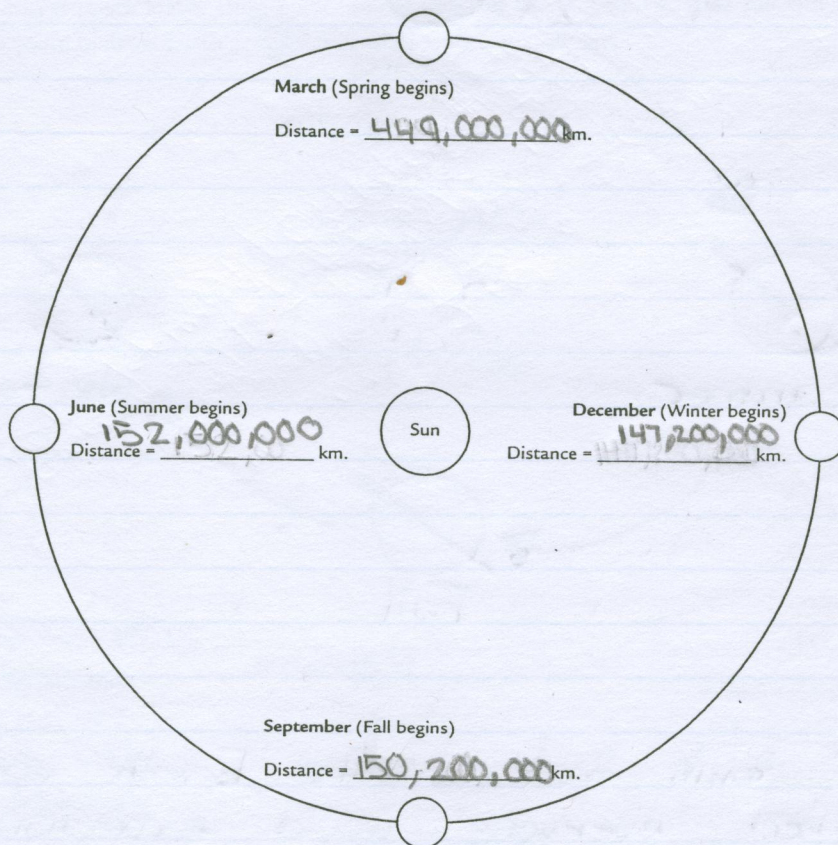
Revolution - One complete orbit around the Sun.

Revolve - Motion of the Earth going around the sun.

Name _____

Date _____

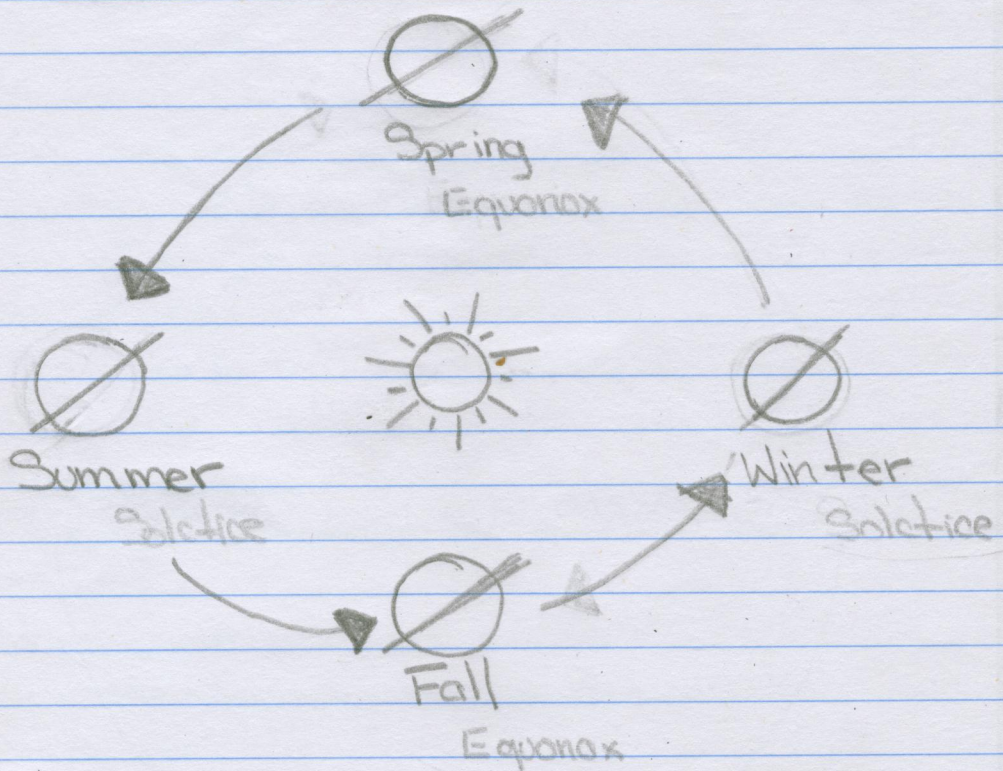
Earth's Year Viewed from Space: Top View



Spring - 450,000,000

Summer - 148,000,000

Autumn/Fall - 450,000,000



I think that if the Earth was not tilted everyone would experience 12 hours of daylight and there will be no seasons.

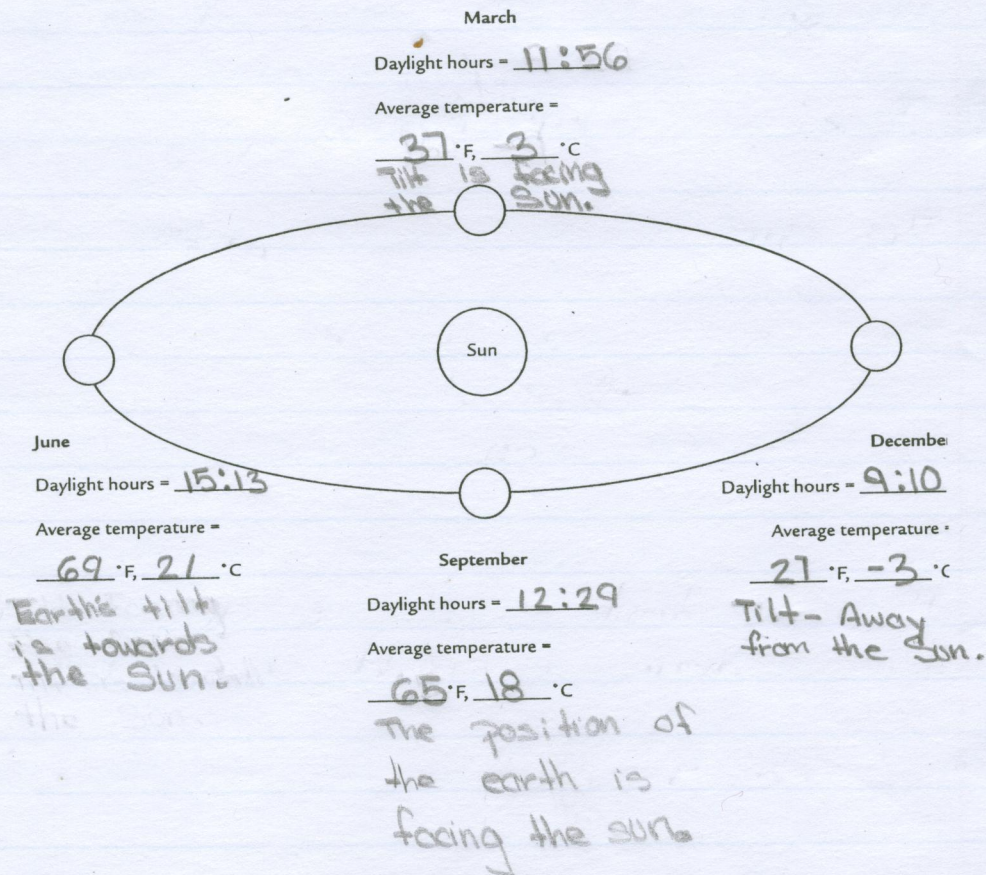
Name _____

Date _____

Earth's Year Viewed from Space: Side View

Earth's orbit is not really stretched out as in the drawing below. It is shown this way because when you look at a circle from the side and slightly above, this is what it looks like.

The Sun is much larger than Earth, but is small in the diagram so that you will have room to draw Earth's position in each of the four seasons.



Analysis

- 1) The motion of Earth that causes the yearly cycle is the revolution around the sun.
- 2) Because of the rotation of the Earth, cause the year to have $365 \frac{1}{4}$ day.
- 3) a. December is the month in which we are closest to the Sun.
b. June
- 5) June 6) December

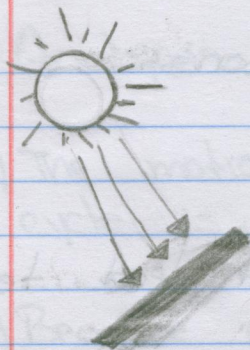
Activity T1 Explaining the Seasons

Date 06/01/15

Challenge Why does the tilt of Earth lead to different surface temperatures?

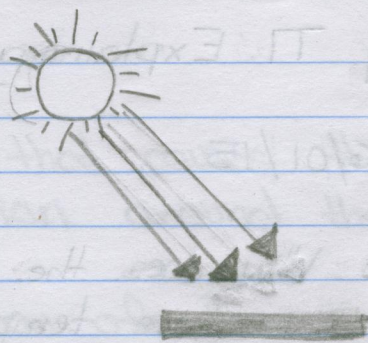
Materials F-33

Getting Started: Seasons do not happen because of the distance of the Earth to the Sun rather because of the tilt of the Earth



Position A

The flag turns about
3 times per second.



Position B

The flag turns about
2 times per second

Analysis

- 1) The light spread over a large area.
- 2) The speed of the motor slowed down.
- 3) The sun's energy in Position A is more direct sunlight which makes it spin faster than Position B.
- 5) In June we get more direct sunlight than Australia and we get summer. In Australia it would be winter.
- 6) We had 4 locations to try to understand the seasons.
 - When it is tilted we see where the sun is at.
 - When the sun is tilted it gets more intense heat which makes it go faster than if it wasn't tilted.

Activity 78 The Earth on the Move

Date 06/02/15

Challenge How do the rotation and revolution of Earth explain the length of a year and the seasons?

Materials F-36

Getting Started Three-Level Reading Guide

Name _____

Date _____

Three-Level Reading Guide: The Earth on the Move

1. Check the statements below that you think say what the reading says. Sometimes the exact words found in the reading are used. At other times, other words may be used to communicate the same meaning.

- ☒ a. Earth is closer to the Sun in December than it is in June.
- ☒ b. In the United States, the Sun's rays are least direct in December.
- ☐ c. Only the Northern Hemisphere has seasons.

2. Check the statements below that you think represent the intended meaning of the reading.

- ☒ a. Rays from the Sun that hit Earth more directly heat Earth's surface more than less direct rays do.
- ☒ b. The effects of Earth's tilt are far more significant than the effects of changes in distance from the Sun in determining the seasons.
- ☐ c. If Earth were tilted even more, it would always be winter.
- ☒ d. The orbit of Earth around the Sun is almost circular.
- ☒ e. When the Northern Hemisphere has spring, the Southern Hemisphere has fall.

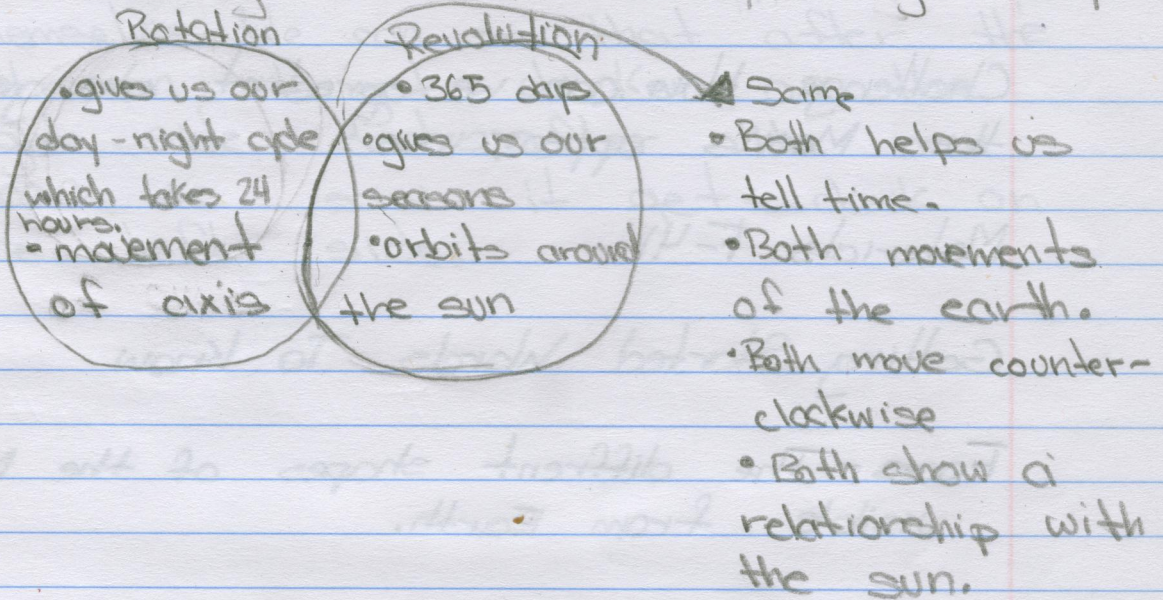
3. Check the statements below that you agree with, and be ready to support your choices with ideas from the reading and from your own knowledge.

- ☐ a. If Earth were not tilted, the northern United States would usually be just as warm as the southern United States.
- ☒ b. Seasons become more extreme as you move toward either the North or South Pole.

Analysis

1a Rotation gives us our day - night cycle.

1b



3) My understanding changed a lot.