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**Analysis:**

1. Describe **3 observations** you can make about the data provided.

1 -

2 -

3 -

2. Is the Earth's **orbit** around the Sun a **perfect circle**? Use data from the data table to support your answer.

3. During which month is the Sun **closest** to the Earth? **Farthest** away?

4. We live in the Northern Hemisphere and we experience winter in December, January and February. **Based on the information in the data table, could Earth's seasons be due to our distance from the Sun changing over time?** Make a claim, support it with evidence from the data, and explain your reasoning.

My Claim	My Evidence	My Reasoning



**BIG IDEA:** Seasons on Earth \_\_\_\_\_ related to Earth's distance from the Sun!  
(are, are NOT)

4. Think about if a teacher were to give this activity to students in the Southern Hemisphere, where they have *summer* in December, January, and February. Would this activity work as well to dispel the **myth** that we have seasons due to our changing distance from the Sun? Why or why not?

## Earth's Distance from the Sun

Name \_\_\_\_\_ KEY \_\_\_\_\_

Did you know that the Earth is not always the same distance away from the Sun? Some months of the year we are closer to the Sun than others. In fact, many children (and even some adults) think that the reason it is warmer in the summer is that Earth is closer to the Sun at that time. Could this be true? Let's investigate if we really are closer to the Sun in the summer!

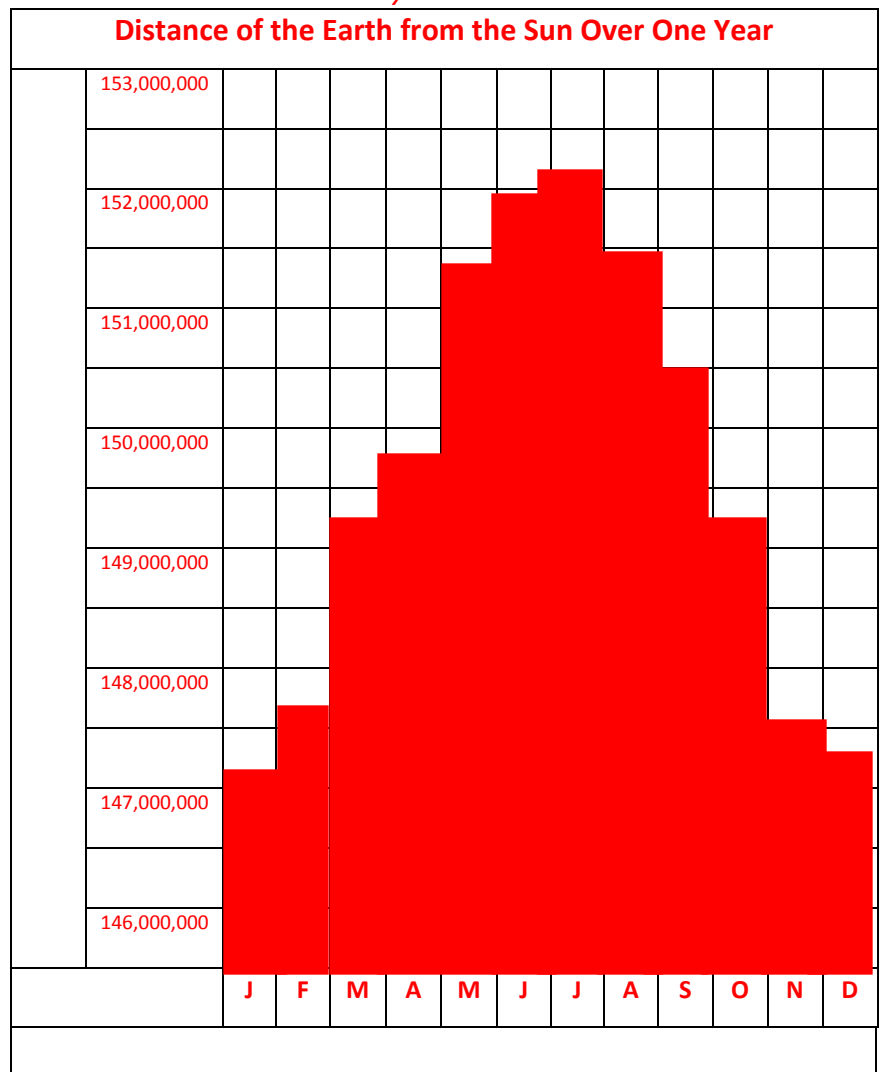
First, it is important to remember that we live in the \_\_\_\_\_ Northern \_\_\_\_\_ Hemisphere.

In our Hemisphere, we experience winter in the months \_\_\_\_\_ December, January, February \_\_\_\_\_.

The follow chart shows Earth's average distance from the Sun for each month of the year.

Month	Average Earth-Sun Distance (km)
January	147,122,000
February	147,623,000
March	149,206,000
April	149,891,000
May	151,452,000
June	151,947,000
July	152,076,000
August	151.470,000
September	150,499,000
October	149,194,000
November	147,534,000
December	147,249,000

Now, create a bar graph to display the data.  
*Label your axes!*



**Analysis:**

1. Describe **3 observations** you can make about the data provided.

- 1 - The distance of the Earth from the sun is not the same all year round.
- 2 – The Earth is farthest away from the sun in July.
- 3 - The Earth is closest to the sun in January.

2. Is the Earth’s **orbit** around the Sun a **perfect circle**? Use data from the data table to support your answer. No, if the orbit was a perfect circle, the distance of the Earth to the sun would stay exactly the same all year. Instead, it gets slightly closer and farther away from the sun throughout the year, showing that the orbit is elliptical.

3. During which month is the Sun **closest** to the Earth? **Farthest** away?  
The Earth is farthest away from the sun in July. The Earth is closest to the sun in January.

4. We live in the Northern Hemisphere and we experience winter in December, January and February. **Based on the information in the data table, could Earth’s seasons be due to our distance from the Sun changing over time?** Make a claim, support it with evidence from the data, and explain your reasoning.

My Claim	My Evidence	My Reasoning
The Earth’s seasons are <b>not</b> caused by the Earth’s changing distance from the sun.	January (winter) - 147,122,000 km from the sun August (summer) - 152,076,000 km from the sun	When we are experiencing winter in the Northern hemisphere, we are closest to the sun. When we are experiencing summer, we are actually farthest away from the sun.



**BIG IDEA:** Seasons on Earth        **not**        related to Earth’s distance from the Sun!  
(are, are NOT)

4. Think about if a teacher were to give this activity to students in the Southern Hemisphere, where they have *summer* in December, January, and February. Would this activity work as well to dispel the **myth** that we have seasons due to our changing distance from the Sun? Why or why not?  
No, to students that experience winter in the months June, July and August, the distance away from the sun would appear to support the incorrect myth that our distance from the sun causes seasons.