**Reason for the Seasons -

Go to this link and answer the questions -**[**https://sites.google.com/site/earthsrotationwebquest/process**](https://sites.google.com/site/earthsrotationwebquest/process)**Go to this link to view the video -**[**https://www.youtube.com/watch?v=op6vsLNf3WY&feature=emb\_err\_watch\_on\_yt**](https://www.youtube.com/watch?v=op6vsLNf3WY&feature=emb_err_watch_on_yt)

Answer the following questions using the “Simulator Tool” from the link above. Follow the Steps to lead you to get the right answers.

Step 1 – Stop the simulator by clicking the square stop button.

Step 2 – Drag the Earth to the middle of the summer position at 12 p.m. noon (as I showed you in the demonstration).

1. What is the angle of the axis to start?
2. At this position, what does the thermometer say?
3. Look at the sunlight angle. Would you say it’s coming from the side, the corner, or the top of the picture.

Step 3 – Look at where the sun is – remember that spot for later.

Step 4 – Drag the Earth to the middle of winter position at 12 p.m. noon.

1. What is the angle of the axis?
2. At this position, what does the thermometer say?
3. Look at the sunlight angle. Would you say it’s coming from the side, the corner, or the top of the picture.
4. Look at where the sun is. Would you say it is in the same spot, or a different spot, then the middle of summer sun from Step 3?

Step 5 – Drag the Earth to the autumn position at 12 p.m. noon.

1. What is the angle axis
2. At this position, what does the thermometer say?
3. Look at the sunlight angle. Would you say it’s coming from the side, the corner, or the top of the picture.
4. Look at where the sun is. Would you say it is in the same spot, or a different spot, then the middle of summer sun from Step 3?

Step 6 – Drag the Earth to the spring position at 12 p.m. noon.

1. What is the angle axis
2. At this position, what does the thermometer say?
3. Look at the sunlight angle. Would you say it’s coming from the side, the corner, or the top of the picture.
4. Look at where the sun is. Would you say it is in the same spot, or a different spot, then the middle of summer sun from Step 3?

Step 7 - Drag the Earth back to the summer position at 12 p.m noon.

Step 8 – Tilt Earth’s axis to an angle of 24 degrees.

1. What does the thermometer say? How does this compare to your answer in question #2?
2. Look at the sunlight angle. Would you say it’s coming from the side, the corner, or the top of the picture. How does this compare to your answer in question #3?
3. Look at where the sun is. Would you say it is in the same spot, or a different spot, then the middle of summer sun from Step 3? (move the angle feature back and forth from 0 – 24 degrees if you forget; make sure you tilt it back to 24 degrees when done).

Step 9 - Drag the Earth to the middle of winter position at 12 p.m. noon.

1. What does the thermometer say? How does this compare to your answer in question #5?
2. Look at the sunlight angle. Would you say it’s coming from the side, the corner, or the top of the picture. How does this compare to your answer in question #6?
3. Look at where the sun is. Would you say it is in the same spot, or a different spot, then the middle of summer sun from Step 3? (move the angle feature back and forth from 0 – 24 degrees if you forget; make sure you tilt it back to 24 degrees when done).

Step 10 – Change the angle to match the planet Uranus. Drag the planet from it’s winter position to the summer position and look at the thermometer as you do it.

1. Compare the temperatures you see to those of the Earth in the same positions. What happens to the temperature in the summer and winter when the planet is tilted this much?
2. Explain based on what you did in this simulation how changing the angle a planet is tilted on changes the effects of summer and winter time temperatures.