**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PERIOD: \_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_**

**EARTH’S SEASONS SIMULATION**

Use the following URL to access the simulation:

<http://highered.mheducation.com/sites/007299181x/student_view0/chapter2/seasons_interactive.html>

**Objective**: To understand the relationship of Earth’s position to the Sun and seasonal changes.

First read “Introduction” and “How To” tabs located above the simulation. Make all observations from position X on Earth.

**Observation #1:**

Observe the Earth make at least one full revolution around the Sun before making any adjustments. Check the box so that the Sun’s path is traced.

1. What does one revolution around the Sun represent?
2. In what direction does the Earth rotate on its axis?
3. What is the result of Earth’s rotation?
4. Describe the shape of Earth’s path around the Sun.
5. When is the sunlight angle at its maximum and minimum?
6. Describe the relationship between seasonal sunlight angles and daily temperature.
7. What happens to the length of day light as seasons progress from one to another?
8. Compare and contrast seasonal characteristics.
9. Why do the above observations occur?
10. Briefly summarize what it would be like living on Earth at this angle of inclination.

**Observation #2:**

Set the inclination to Earth’s by clicking on the tab. Observe at least one full revolution.

1. What is Earth’s angle of inclination to the Sun?
2. Observe and record the change in average daily temperature for each season.
3. Describe the change in the length of day light and the Sun’s position in the sky as the Earth progress from one season to another.
4. When is the length of day the longest, shortest and equal?
5. What is the length of the longest and shortest duration of sunlit times?
6. When does the sunlight reach its maximum and minimum angle?
7. During what times of the years is the sunlight angle the same?
8. When does the northern hemisphere experience winter and summer solstice? Why?
9. Summarize the key factors that cause Earth’s seasonal changes.

**Observation #3:**

**Slide the inclination bar to 45 degrees.**

1. Observe and record the change in average daily temperature for each season.
2. Describe the change in the length of day light and the Sun’s position in the sky as the Earth progress from one season to another.
3. When is the length of day the longest, shortest and equal?
4. What is the length of the longest and shortest duration of sunlit times?
5. When does the sunlight reach its maximum and minimum angle?
6. During what times of the years is the sunlight angle the same?
7. How would this angle of inclination affect life on Earth?

**Observation #4:**

**Slide the inclination bar to 60 degrees.**

1. Observe and record the change in average daily temperature for each season.
2. Describe the change in the length of day light and the Sun’s position in the sky as the Earth progress from one season to another.
3. When is the length of day the longest, shortest and equal?
4. What is the length of the longest and shortest duration of sunlit times?
5. When does the sunlight reach its maximum and minimum angle?
6. During what times of the years is the sunlight angle the same?
7. How would this angle of inclination affect life on Earth?

**Observation #5:**

**Slide the inclination bar to 90 degrees.**

1. Observe and record the change in average daily temperature for each season.
2. Describe the change in the length of day light and the Sun’s position in the sky as the Earth progress from one season to another.
3. When is the length of day the longest, shortest and equal?
4. What is the length of the longest and shortest duration of sunlit times?
5. When does the sunlight reach its maximum and minimum angle?
6. During what times of the years is the sunlight angle the same?
7. How would this angle of inclination affect life on Earth?

Write an overall summary describing you key learnings. Make sure to discuss the significance of Earth’s position relative to the Sun and the seasons we experience.