

Your page number for each entry will depend on where YOU are in your journal. Reserve the first 4 pages for your Table of Contents

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Definition of **science:**

Science is knowledge about the natural world that is based on facts learned through experiments and observation

Milkweed Observations

We noticed:

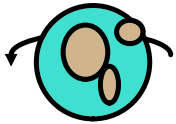
- various insects (ladybugs, aphids, ant, katydid)
- large leaves, with chew marks, missing pieces
- some leaves had black "mold"
- When a leaf was snapped off, a white milky sap oozed out
- Large single stalkk with large leaves
- 3-inch pods (contained seeds connected to feathery materials)

Monarch Butterflies

We learned:

- monarchs lay eggs on milkweed; the eggs hatch into small caterpillars that eat the milkweed
- In Aug and Sept the monarchs that live east of the Rocky Mountains begin to migrate (move to a new location) from Canada and the US (North America) to Mexico (southern part of North America)
- We released outside the school a monarch that had emerged from its chrysalis (cacoon)

Sunrise and Sunset

1. Day and night happen because the Earth spins counterclockwise around its axis
2. Sun "rises" in the east as the earth spins, it appears on the horizon. As the earth continues its rotation the sun appears to be traveling across the sky to set in the west
3. FYI: Earth spins at 1,037 MPH and  orbits the sun at over 67,000 MPH (19 mi/sec)

Setting the Clock

- 24 hour day -- The Egyptians divided the day into two 12-hour halves, and counted their 12 finger joints in their number system
- Keeping time makes it easier to connect with others
- Since the sun's position changes as the earth makes its daily rotation, a shadow can trace time, like an hour-hand of a clock

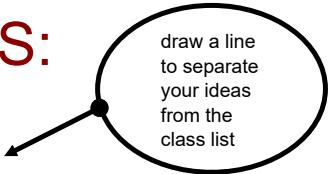


Earth Moon Sun and Seasons

9/20/19

Brainstorm:

What I know about the **SEASONS:**
list your ideas here



draw a line
to separate
your ideas
from the
class list

Class 2 list of ideas (may or may not be true):

- FOUR seasons (summer, winter, spring, Fall/autumn)
- position of the earth and sun determines the season
- some places on earth have less than four seasons
- seasonal change causes animals/people to migrate to a different region
- because of temp change or food supply
- earth orbits around sun in an oval path, where the earth is sometimes closer to the sun
- Change of season also changes the habitat
- amount of daylight changes throughout the year (longest in summer and shortest in dif
- climate / temperature
- inter

Class 5 brainstorm (may or may not be true)

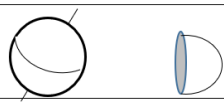
- three months in each season
- temperatures are different for each season
- earth spins around sun in an oval path--it's closer to the sun
- seasons are a "cycle"
- different weather occurs with each season
- in Autumn the leaves fall from trees
- Not every country experiences all four the seasons
- temperatures throughout the year go from warm to cold and
- the intensity of seasons vary around the world
- Flowers bloom in spring and summer/plants adapt to the sea

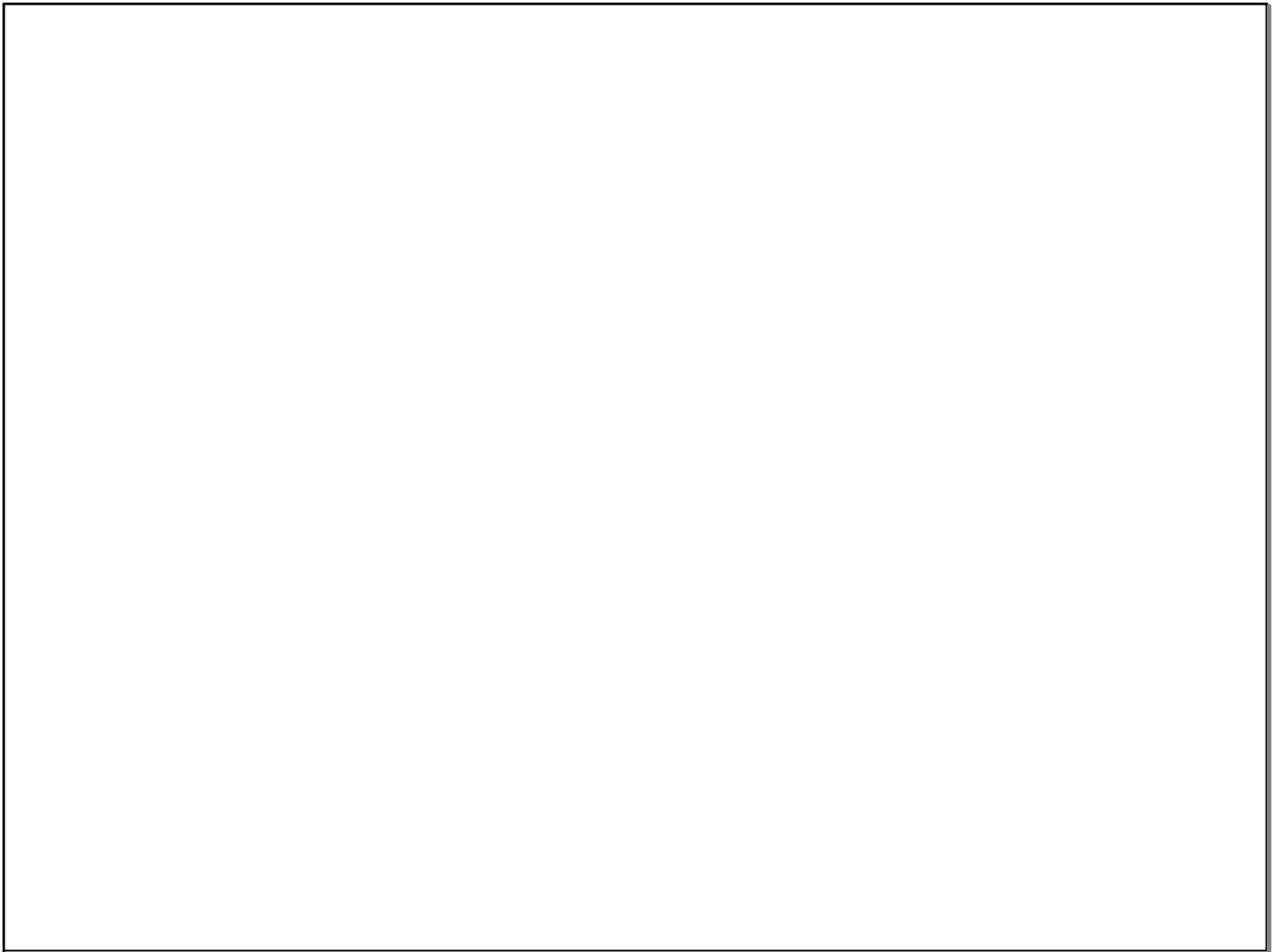
Class 1 ideas (may or may not be true)

- Sun rises differently throughout the year (earlier in the summer; later in winter)
- four seasons
- summer is hottest; winter is coldest, and spring/autumn are in between
- some places have more or fewer seasons
- sun is farther away in winter/and in summer the sun is closer to earth
- weather changes during different seasons
- Question: are the temp/seasons different in the N vs S pole?
- Question: in areas with little temp change do they still have winter (other seasons)

CAUTION: The lamps get extremely hot! Do not touch the metal lamp housing or the bulb, even after the lamp is turned off. Before you begin at each station, check: 1. the distance between the lamp and globe is 50 cm and the direction of tilt of the globe matches the diagram/picture at that station.

DATA TABLE

<i>Temperature</i> °C	<i>Connecticut</i>	<i>Equator</i>	<i>90° to sun</i>	<i>DIAGRAM OF GLOBE (W/AXIS) AND LIGHT (SUN) SHOWING DAY/NIGHT</i>	<i>Start to Season...</i>
Station 1					
Station 2					
Station 3					
Station 4					



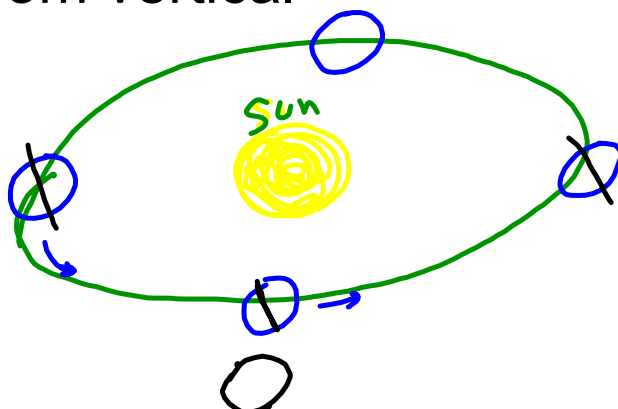
Class 3 shared (may or may not be true):

- temperature changes with different seasons
- the other side of earth (from us) is in the opposite season
- Seasons are 3 months
- Spring and Fall -- lots of pollen
- Seasons can signal changes for animals / humans
- Daylight period changes throughout the seasons

class 5

Reasons for the Seasons

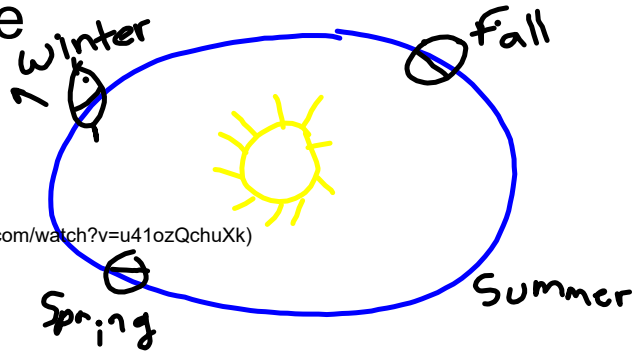
- the earth's axis is tilted 23.5 degrees from vertical



Class 1

The Reasons for the Seasons*

- Earth's 23.5 degree tilt on its axis from vertical
- movement around the sun (the earth orbits the sun once each year)
- the tilt and location of the earth on its orbit of sun causes different amounts of heating of earth's surface



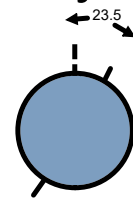
• Sources:

• type into URL bar... [bit.ly/seasons17](https://www.youtube.com/watch?v=u41ozQchuXk) (<https://www.youtube.com/watch?v=u41ozQchuXk>)

• https://www.youtube.com/watch?v=WgHmqv_-UbQ

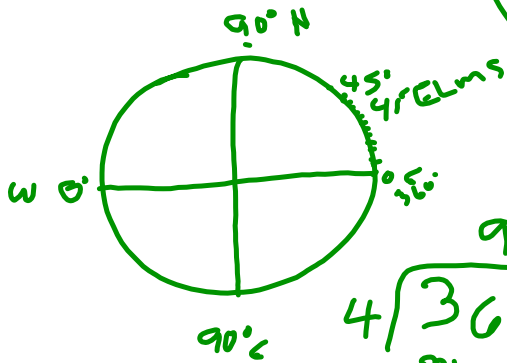
The Reasons for the Seasons

- **The Earth orbits the sun** once a year (movement around sun)
- Earth's axis tilts 23.5 degrees
- sun's angle in the sky changes as the earth orbits the sun



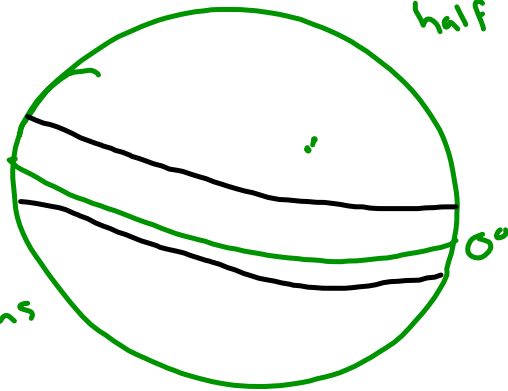
Longitude

Milntic = $41^{\circ} N$

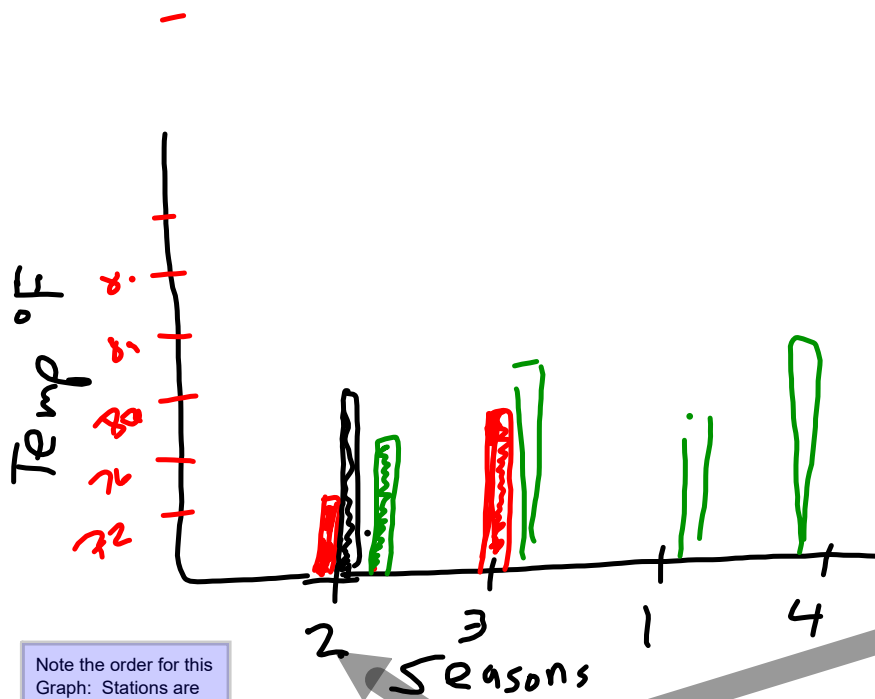


$$4 \overline{) 360} \begin{array}{r} 90 \\ 36 \\ \hline 00 \end{array}$$

hemi sphere
half 



Graphing Notes



Note the order for this Graph: Stations are shown in order of SEASONS

This info should match your data sheet (last column).

1. Look at your temp. data for CT... which station was CT's temp the warmest? The coldest?
2. Compare these temperature readings with the diagram of the "sun" vs. earth's tilt-- the CT temps should give you a clue about each of the four seasons.

Key:

Station#	Season
1	Summer
2	Winter
3	Fall
4	Spring

■ CT
■ Equator
■ 90° Sun

Assignment: Use data from 'tis the Season' lab to make a bar graph showing the temperatures over the course of the year for the three locations measured (CT, Equator, and 90 Sun) or "overhead sun".

Alternate assignment: May a bar graph showing ONLY Connecticut's data; one for only the Equator, and a third for only the Overhead SUN

1. Begin with either Winter or Spring.
2. Be sure to make a key or legend to identify each part of your graph.

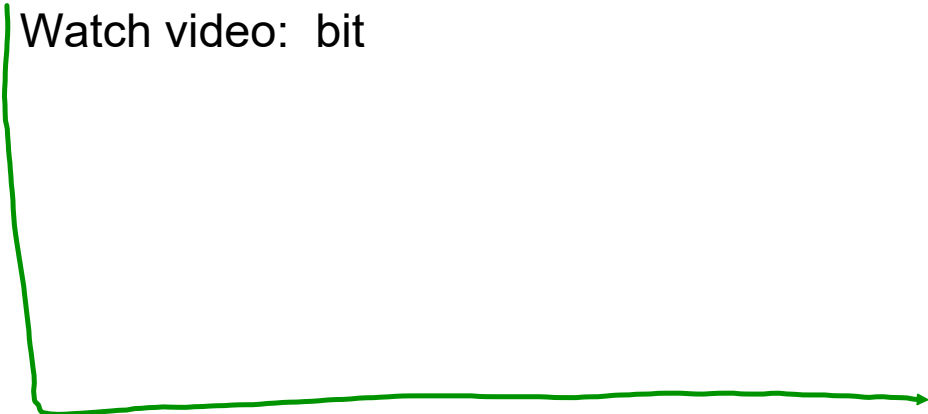
This is a "pre-test" -- I want to measure your skills in making a graph; we will practice graphing the rest of the year (so don't panic if this is something you're unfamiliar with)

Moon Phases

Handout "A Moonth" of Phases

Watch video: bit

Temp. °F



How Moon May Have Formed

The seasons are determined by the sun's light shining on the poles (or not!)

Equinox (daylight = 12 hours from N - S poles

Solstice (day of maximum tilt of a pole toward or away from the sun)

Your view is from outer space, looking back at our solar system. Show earth's night by shading the globe that is blocking the sun's light from reaching your view from space

LOOK!

Answers on NEXT page

Winter Fall
Spring Summer

Season: _____

Event: _____

Season: _____

Event: _____

Season: _____

Event: _____

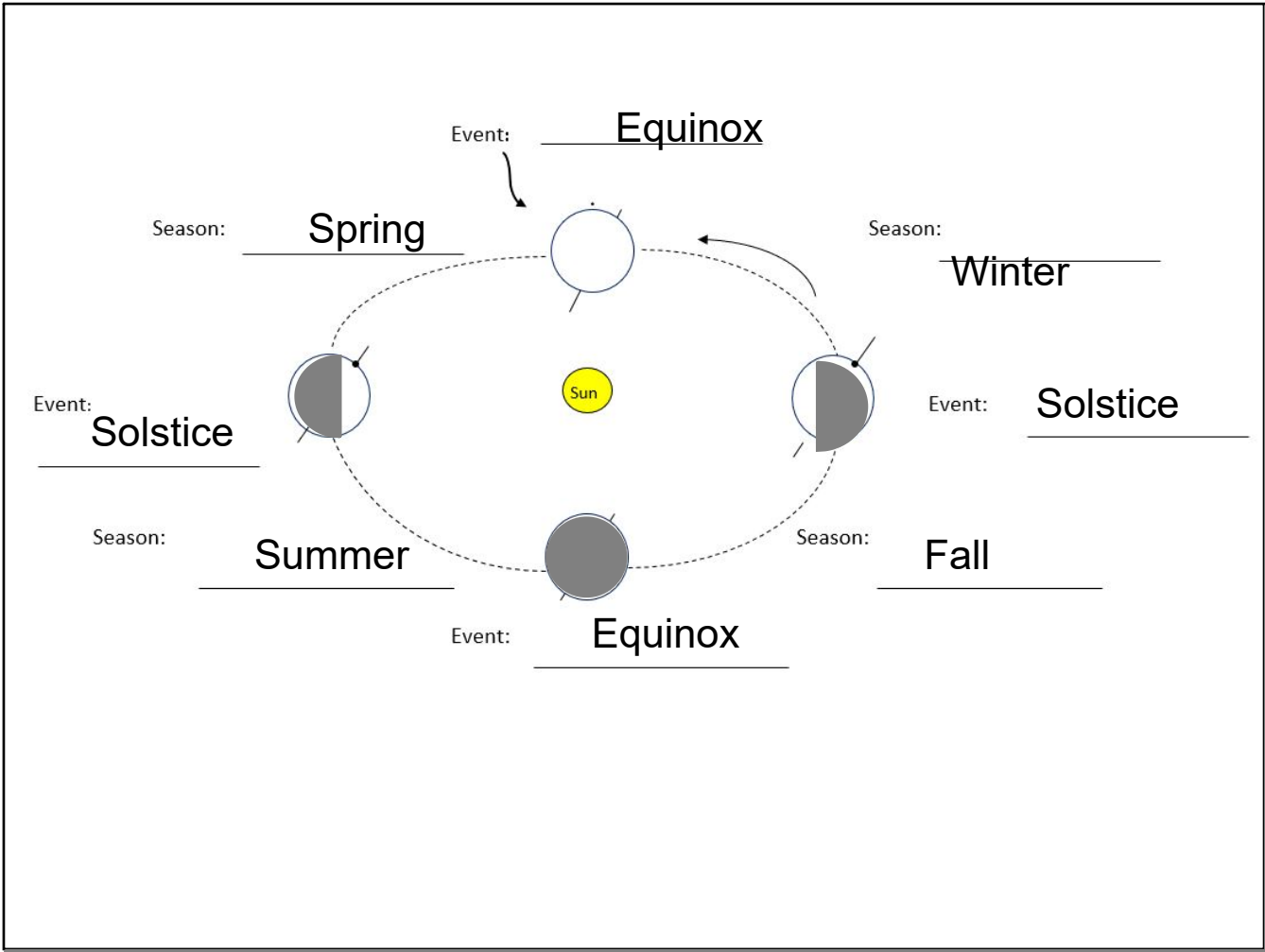
Season: _____

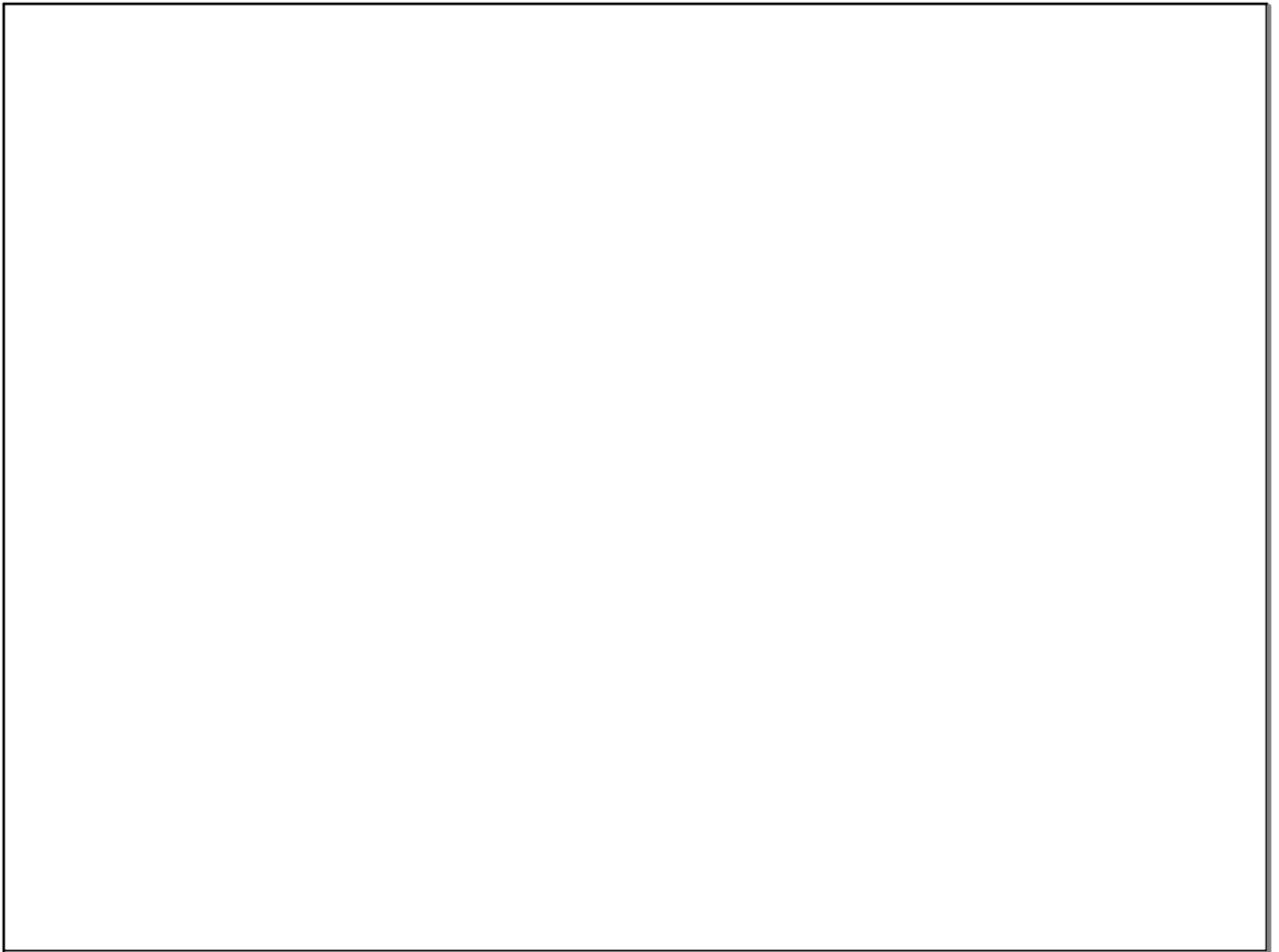
Event: _____

Equinox Equinox

Solstice Solstice

The diagram shows the Sun at the center, labeled 'Sun'. Earth orbits the Sun in a dashed elliptical path. Four Earth globes are positioned at the top, left, bottom, and right of the Sun. Each globe has a vertical line representing the equator and a small dot representing the North Pole. An arrow on the right side of the orbit indicates a counter-clockwise direction of travel. Labels for 'Season' and 'Event' are placed next to each globe. A blue arrow labeled 'LOOK!' points from the left towards the Earth globes.





Name: _____ Class _____

