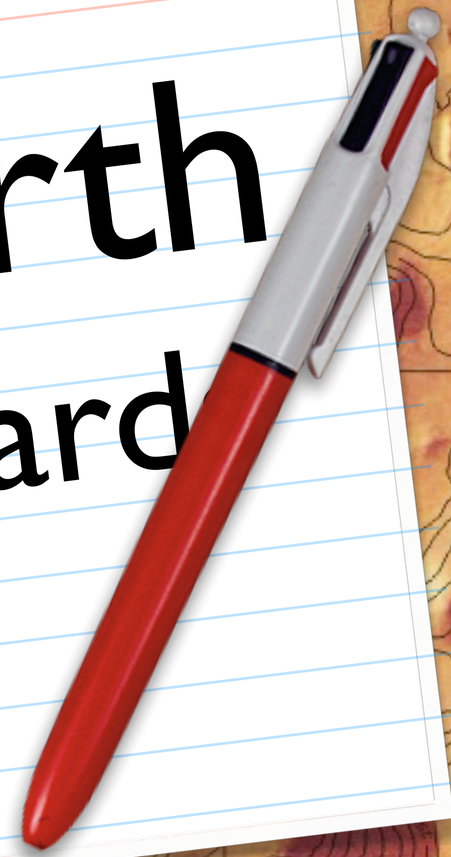
# Mapping Earth

## Review Note Card



Mapping Earth

# Spheres of Earth

- Atmosphere- Layer of gases
- Hydrosphere- All liquid water
- Lithosphere- Solid surface
- Biosphere-Living Portion
- Cryosphere-Ice Portion

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# Evidence that the Earth is Round

- "The Sinking Ship"
- Lunar Eclipses
- Sun and Star Path Across Sky
- Altitude of Polaris
- Photos from space (best evidence)

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# Model of Earth

- Apparent Shape of the Earth
- The best model of the Earth is a perfect sphere (pool ball, ping-pong ball)-round and smooth
- Scale Model
- Drawn to Scale

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# Oblate Spheroid

- The ACTUAL shape of the Earth
- True Shape of the Earth
- Slightly flattened at the Poles
- Slightly bulging at the Equator
- Caused by Rotation of Earth

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# Gravity Measurements

- If Perfect Sphere-Same Weight
- Weigh more at Poles
- Closer to the Center of Planet

- Weigh less at Equator
- Farther away from Center

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# Latitude

- A measure of how far north or south of the equator you are
- Equal to the altitude of Polaris (in the Northern hemisphere)
- "FLAT-ITUDE"
  - Equator = 0°
  - N.Pole = 90°N
  - S.Pole = 90°S

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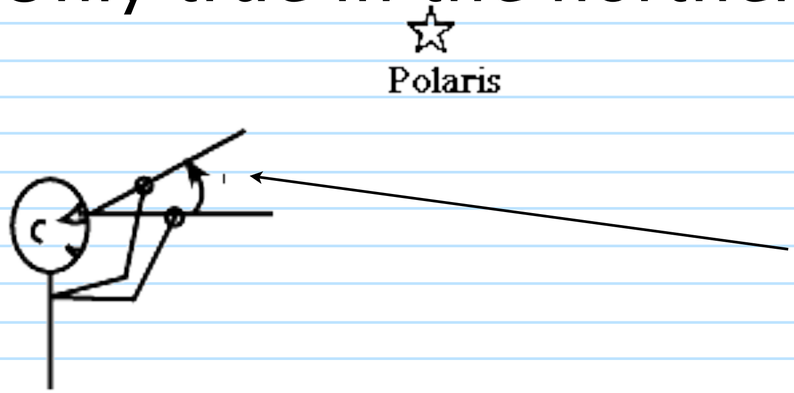
# Determining Latitude

- ALTITUDE of POLARIS = LATITUDE
- Only true in the northern hemisphere



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# Longitude

- A measure of how far east or west of the Prime Meridian you are
- "LONG-itude"
  - Prime Meridian = 0°
  - International Dateline = 180°
- Locations on the same longitude share the same "solar time"

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# Longitude

- Each time zone is 15 degrees apart
- Earth rotates 15 degrees per hour
- U.S. has 4 major time zones
- Travel vertically through zone, time does not change
- Travel horizontally from one time zone to the next, time changes

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# Determining Longitude

- You MUST know the following:
  - The time where you are
  - The time at the Prime Meridian
- Find the difference between the time where you are and the time at the Prime Meridian
- Multiply it by 15°/hr (this gives you your longitude)
- If your time is less, you are west
- If your time did increase, you are east

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# Fields

- Region of Space
- A map displaying pressure, temperature or elevation data

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# Drawing Isolines

- Lines can never intersect
- Either complete circles OR run off the edge of the map
- Separate higher values from lower values

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# Interval (Contour Interval)

- The difference in value between two adjacent isolines
- Difference is an equal interval....by 4's, 10's, 100's

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# Isolines

- Iso = Same
- Lines that connect points of equal elevation, pressure or temperature

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# Contour Lines

- Lines that connect points of equal elevation
- Index Contour Lines show distinct elevations
- Darker in Color

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# Isotherms

- Lines that connect points of equal air temperature

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# Isobars

- Lines that connect points of equal air pressure

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# Contour Map (topographic map)

- Map that shows the 3-d landscape of an area (mountains, valleys, etc)

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# Gradient

- Page 1 in ESRT
- G = $\frac{\text{Change in Field Value}}{\text{Distance}}$

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# Steepest Slope??

- Where the contour lines are closest together
- Also known as the steepest gradient

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# Stream flow direction?

- Streams flow OPPOSITE where the v's are pointing
- Streams ALWAYS flow downhill (high elevation to low elevation)
- Streams flow "out of the V"

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# Highest Elevation?

- First, find the highest contour line on the map...
- Highest possible elevation is one value less than next contour line

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# Lowest Elevation?

- First, find the lowest contour line on the map...
- Lowest possible elevation is one value greater than next contour line

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# Depressions

- Crater or hole in the ground
- Look for Hachure Lines

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# Profile

- A side view, or cross-section, of a landscape
- Use scrap paper to record the elevations of the contour lines crossing the profile line
- Transfer those markings to a graph to draw the profile
- PRACTICE THIS !!!!