Aim: How can we use stars to determine location?

1. Earth's Rotation (spin) causes stars (sun), moon, planets to appear to rise in the East, set in West.

2. Polaris (North Star) never appears to move because it is directly over the North Pole.

3. Star Trails appear to move 15°/hour due to Earth's Rotation.
   \[ \text{Ex. } 30° \text{ trail} = 2 \text{ hours} \quad \frac{30°}{15°/hr} \]
   \[ 90° \text{ trail} = 6 \text{ hours} \quad \frac{90°}{15°/hr} \]

4. Star Trails
   - [Diagram showing north and star trails]
   - East
   - West

5. Polaris altitude = Latitude
   - Equator = 0°N = 0° & Polaris
   - NYS = 41°N = 41° & Polaris
Revolution

1. Constellations change over one year due to Earth's Revolution around the Sun.

   - Orion only seen in Winter
   - Ursa Major only seen in Summer

2. Geocentric
   - Earth at center of Solar System
   - Sun, Planets, Moon Revolve around Earth
   - This is NOT true

3. Heliocentric
   - Sun at center of Solar System
   - Earth + Planets, Moon revolve around the Sun
   - Earth Rotates, causing sun, stars, moon, planets to appear to rise in East, set West