[redacted] TOPIC 8 [redacted] **DAILY MOTION OF STARS** [redacted] NAME_____

DATE: / / GROUP__

The apparent motion of the stars occurs because of the rotation of the Earth. The path that stars appear to travel is in part based on the latitude at which they are being observed. In this activity you will be expected to reconstruct these paths using a model of the sky...a celestial dome. What patterns emerge that will allow the path of any star at any latitude to be predicted?

PRIOR KNOWLEDGE

What star is directly overhead at the North Pole? _____

Which star will remain motionless as the Earth rotates? _____

Toward which direction will this star always be found in the Northern Hemisphere? _____

How can an observer's latitude be used to determine the altitude of this star? _____

_____

What will all other stars appear to be doing relative to this star?_____

_____

How can you use a string to draw the path of a star on a celestial dome once the location of our motionless star is known?

_____

_____

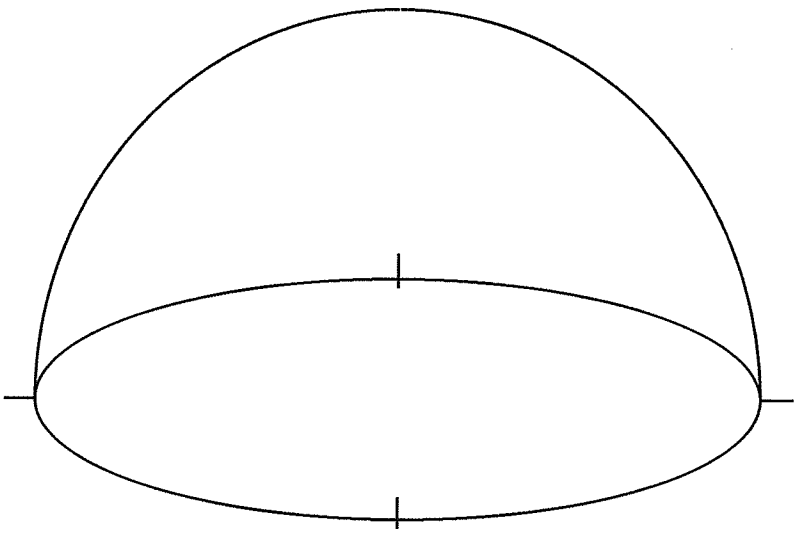
OBSERVATIONS

For each of the latitudes investigated:

write the proper directions along the base of the dome as shown on each diagram.
use the external protractor to locate our motionless star and place a large dot there.
use the string to draw in the path of two stars; one near our important star and one far away.
transfer both the location of the motionless star and the star paths onto the diagram.
use arrows on the diagram to show the stars' apparent direction of movement.

Latitude = 90°N

Angle of Star Rise and Set = _____°
(compared to the horizon)

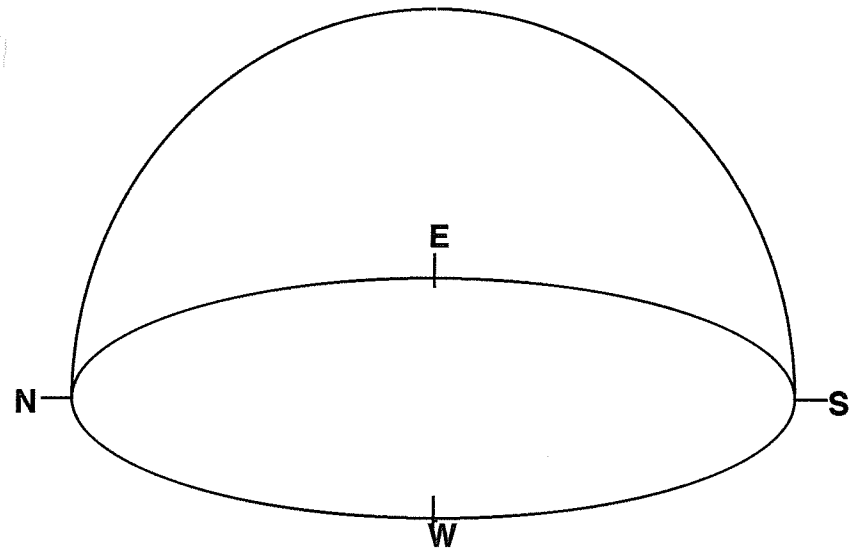


All directions are S of this location

Location of motionless star:

Altitude = _____°

Azimuth = _____°



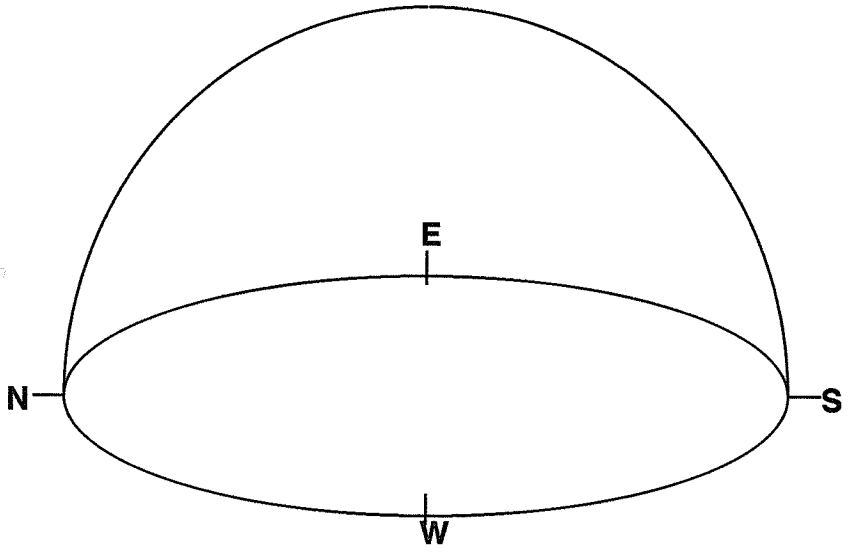
Latitude = 45°N

Angle of Star Rise and Set = _____°

Location of motionless star:

Altitude = _____°

Azimuth = _____°



Latitude = 0°

Angle of Star Rise and Set = _____°

Location of motionless star:

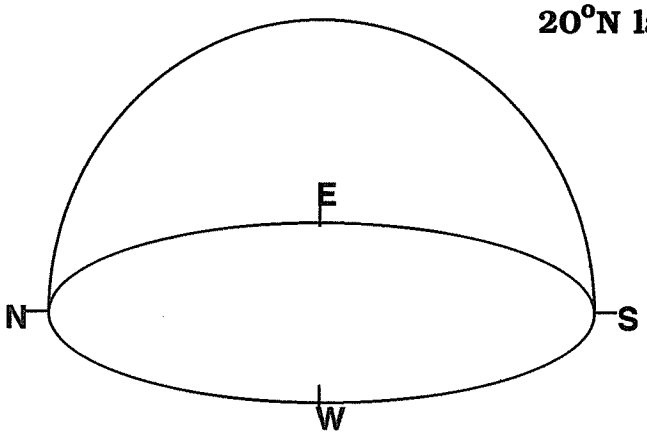
Altitude = _____°

Azimuth = _____°

What is the relationship between latitude and the angle at which a star rises or sets?_____

PREDICTION

On the diagram below draw where Polaris would be and the path of two stars at **20°N latitude**



Angle of Star Rise and Set = _____°

Location of Polaris:

Altitude = _____°

Azimuth = _____°