

Name _____

Date: _____

Introduction: Earth is divided into sections so that locations can be determined. The system used on the surface is latitude and longitude.

Materials

- ✓ Pencil
- ✓ Protractor

Objective: After this activity you will be able to

- Draw and label latitude and longitude lines

Procedure I:

This is for the first diagram

- 1) Place the protractor on the line labeled equator, with 90° directly north. Remember Earth is tilted 23 1/2°. 90° should be pointing at the North pole.
- 2) On each side of the protractor, place a mark at 23 1/2° and at 66 1/2° above the equator.
- 3) Draw a straight line, parallel to the equator, connecting the 23 1/2° & points and another line connecting the 66 1/2° points.
- 4) Turn your paper around (upside down) and repeat steps 2 – 3 for the southern hemisphere. (Turn book right side up.)
- 5) Label the South Pole, Axis and the four latitude lines you just drew (Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle). Include their angular values.

Procedure II:

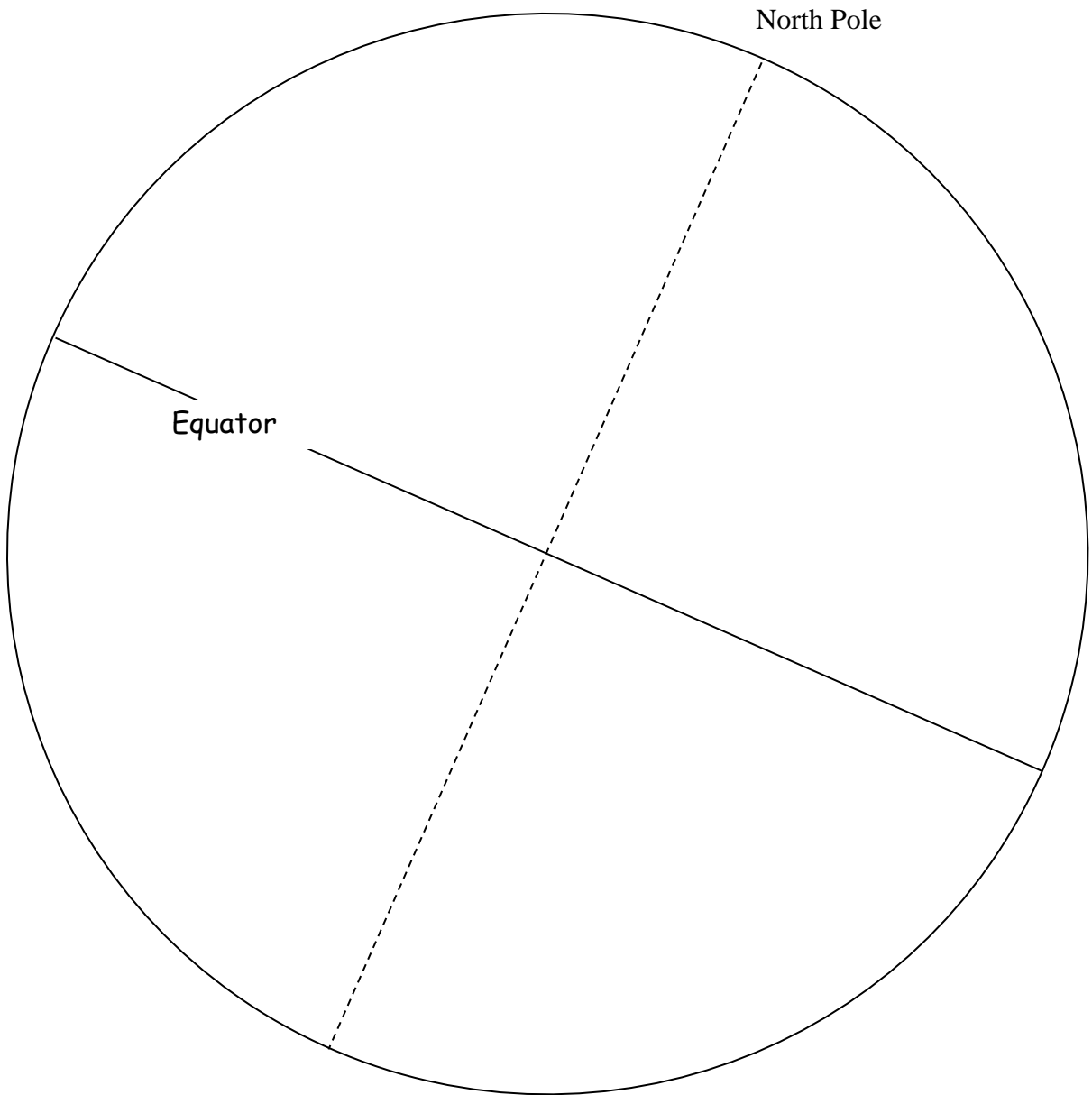
This is for the second diagram

- 1) Draw a straight vertical line (up and down) using the North Pole as the cross point. Label the bottom section of the line "Prime Meridian" (from the NP to the bottom) and the top "International Date Line" (from the NP to the top).
- 2) Place the protractor on the line you just drew, with the 90° angle to the left. (This may be easier if you turn your book.) On the circle, mark every 15°. This indicates the separation of the time zones on Earth. (Earth rotates 15° per hour).
- 3) Turn the protractor to the other side and continue to mark every 15° until there are points every 15° all around the circle (Earth).
- 4) Draw two curved lines (one on the left, one on the right) that illustrate the counterclockwise direction in which Earth rotates.
- 5) Looking at the bottom of your diagram, between the prime meridian and the first section to the left, label that section 12 noon.
- 6) Using the arrows for direction of rotation, label each time zone around Earth.

Determine the location of Buffalo, NY by following the directions below.

- 7) Place the protractor on the "Prime Meridian" with the 90° angle to the left, make the 79° angle.
- 8) Draw a line from the center of the North Pole through the point you just marked.
- 9) Place an "X" where the 43 degree line (it's a circle) latitude and the 79 degree longitude line intersect.

Side view of Earth



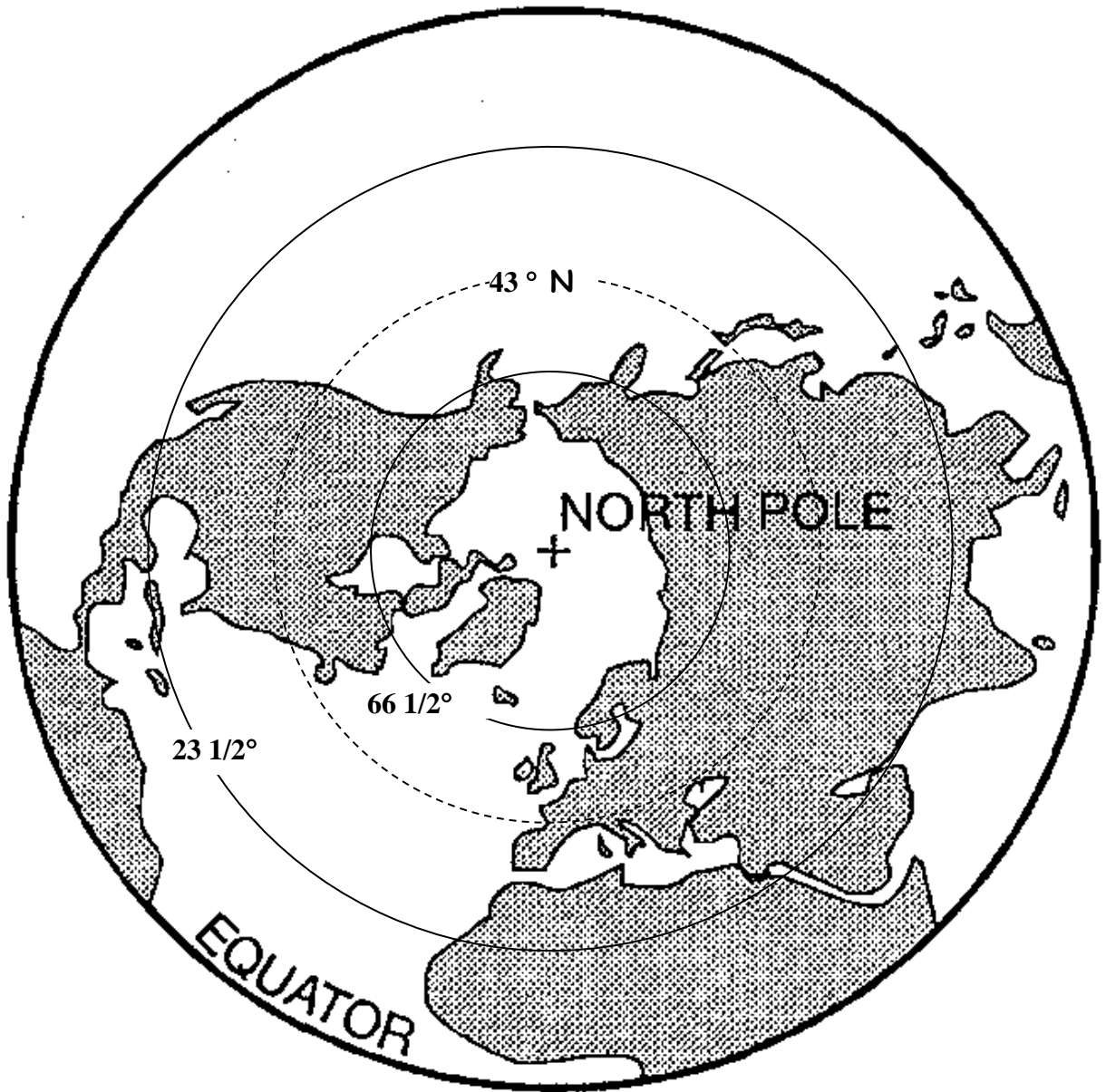
Questions:

- 1) Why is the Tropic of Cancer and Tropic of Capricorn located at $23\frac{1}{2}^{\circ}$ instead of 25° or 45° ?

- 2) Why is the Arctic Circle and Antarctic Circle located at $66\frac{1}{2}^{\circ}$ instead of 65° or 70° ?

- 3) The tilt of the Earth is a major cause of the seasons. What season is it in New York State is the Northern Hemisphere is tilted toward the Sun?

Top view of Earth



Questions:

- 1) How many time zones are there on Earth? _____
- 2) How many time zones are there in the continental United States? _____
- 3) What is the maximum degree of longitude? _____°
- 4) What is located at the maximum degree of longitude? _____
- 5) What is the maximum degree of latitude? ____°N and ____°S
- 6) What is located at the maximum degree latitudes? _____ &
