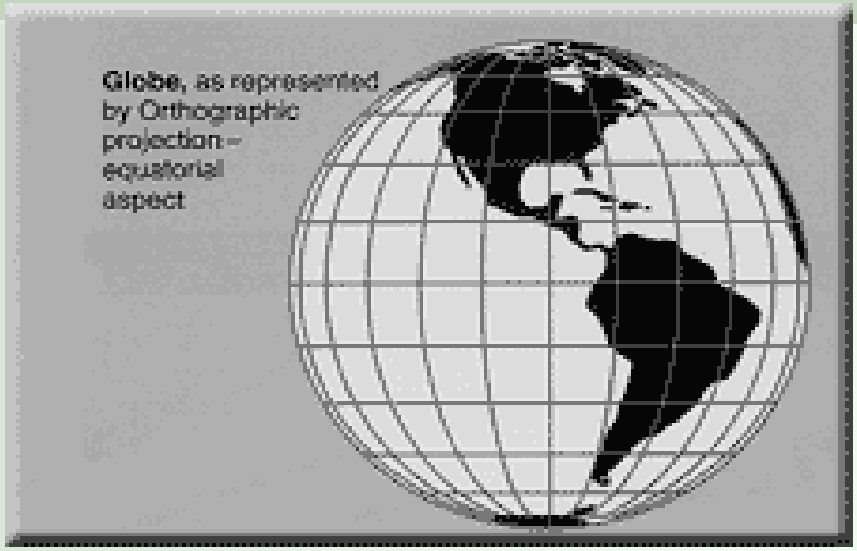
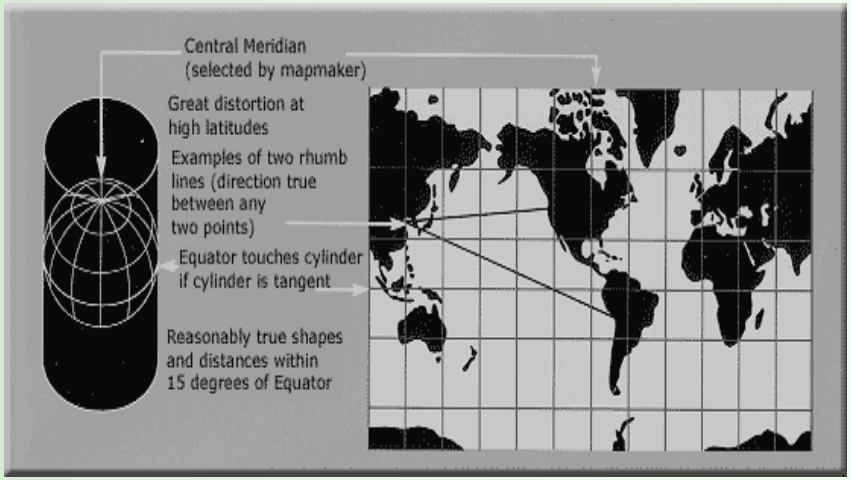
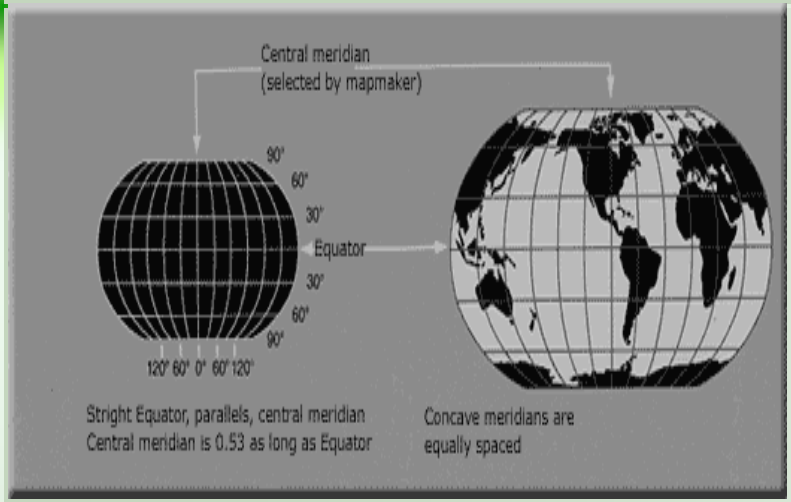
TYPES OF MAPS

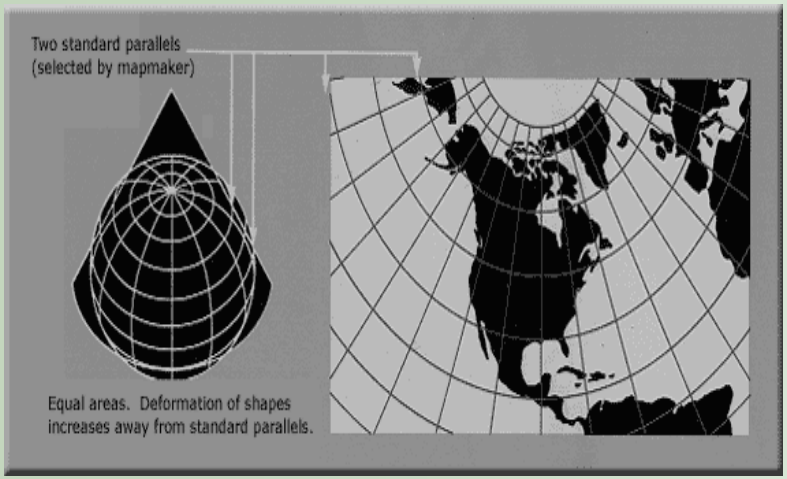
- Globes
  - –most accurate model
  - –cannot show small details
- Mercator Projection
  - –Earth on a grid
  - –used to show directions between objects





TYPES OF MAPS *(CONT'D)*

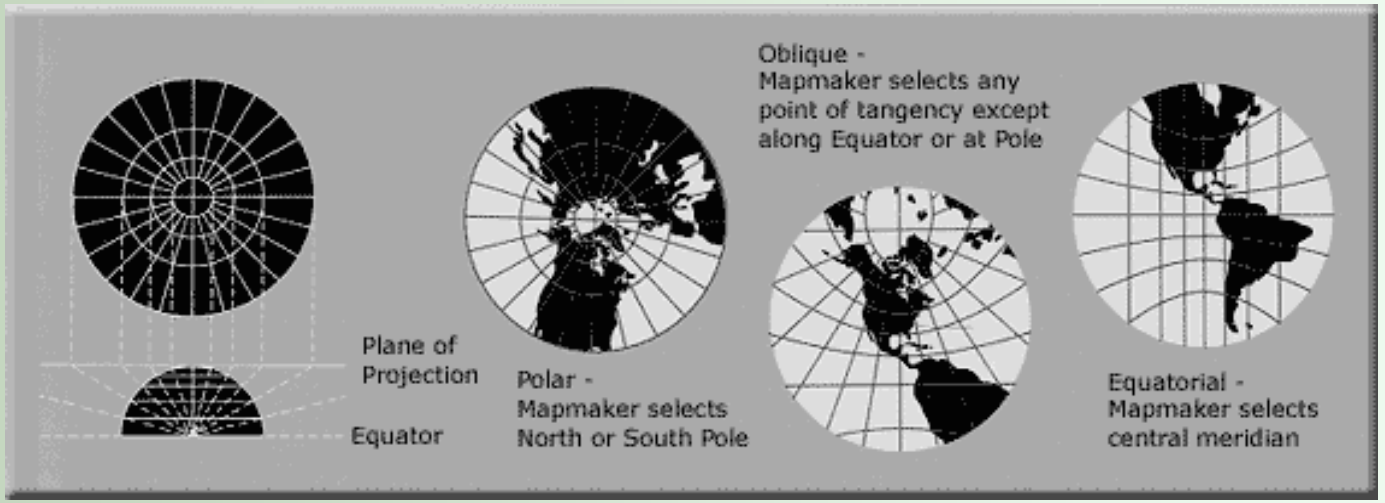




- Robinson Projection
  - –show shapes and sizes accurately (except around the edges)
- Conic Projection
  - –accurate at the lines of latitude
  - –distorted in between the lines
  - –used for street maps

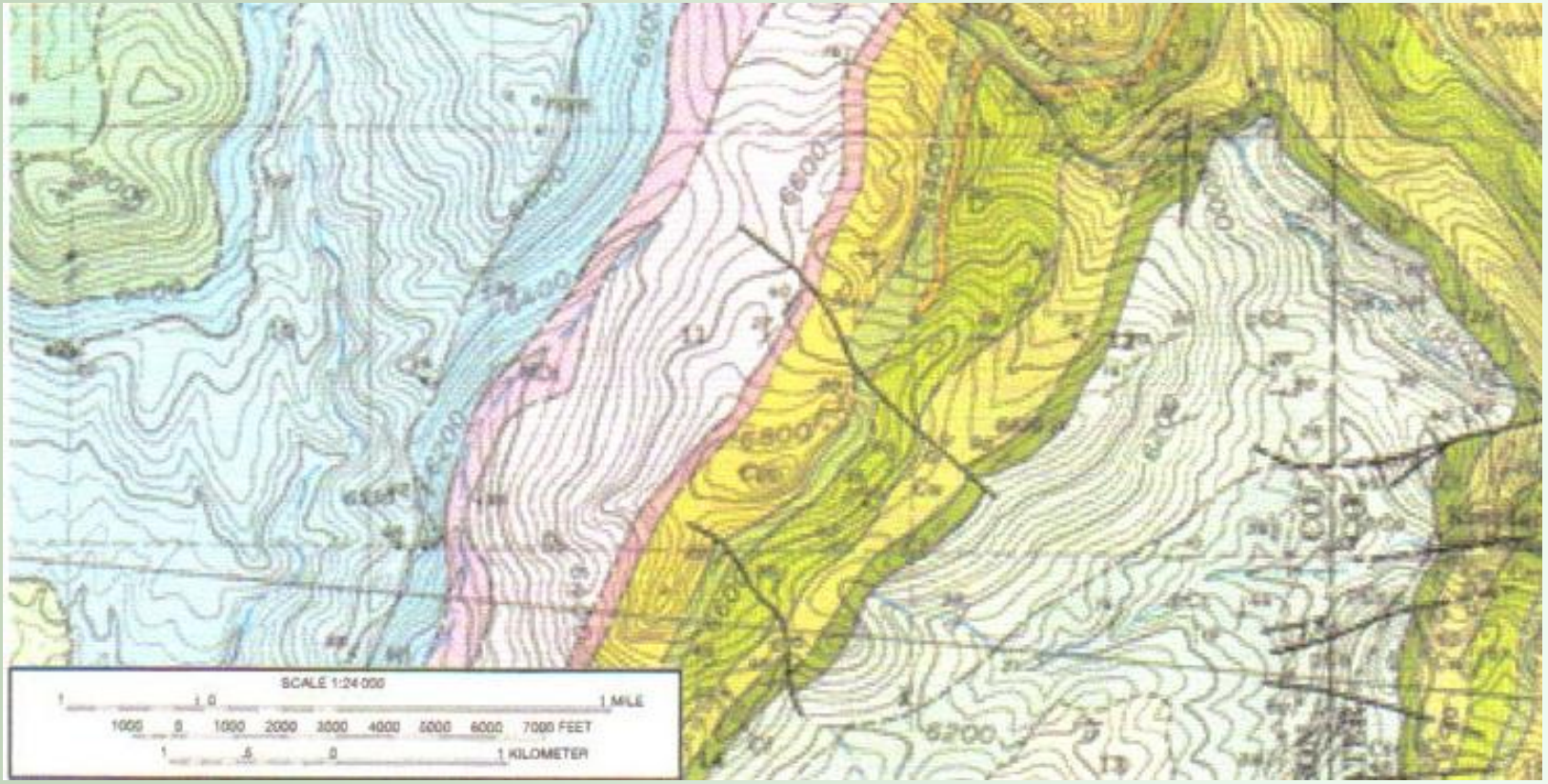
TYPES OF MAPS *(CONT'D)*

- Gnonomic Projection
  - show the Poles
  - distances and directions are distorted
  - best to show the shortest distance between 2 points



TOPOGRAPHIC MAPS

- Shows different elevations over land



TOPOGRAPHIC MAPS
(CONT'D)

- Contour lines show the differences in elevation.
- Contour interval shows the change in height.
- Contour lines will never touch or cross
- Can be combined with geologic maps (show the type, age, and shape of various rock formations).

READING TOPOGRAPHIC MAPS

- Circles = hill, mountain, etc.
- Circles with hachure marks = depression
- Coloring = different rock types
- Distance between lines →
  - Far apart = gentle slopes
  - Close together = steep slopes
- Scale → a certain distance on the map is equal to a certain distance in real life

NEW TECHNOLOGIES

Table 1 Technology and Earth Science

Type of Equipment	Capabilities
Weather Satelllites	• These monitor atmospheric temperature and humidity, ground and surface seawater temperature, cloud cover, and water-ice boundaries. • They can help locate sources of distress signals. • They are able to scan Earth's surface in one 24-hour period.
Navigation Satellites	• These assist ships and submarines to determine their exact location at any time.
Landsat Satellites	• The first Landsat satellite was launched in 1972. Landsat 7 was launched in 1999. • They provide data on Earth's landmasses, coastal boundaries, and coral reefs. • Pictures taken are transmitted to ground stations around the world. • They orbit Earth every 99 minutes and complete 14 orbits per day. • Total coverage of Earth is achieved in 16 days.
Global Positioning System (GPS)	• This system combines satellite information with computer technology to provide location information in three dimensions: latitude, longitude, and altitude. • Three satellite signals are detected by a receiver. The distance from the satellites to the receiver is calculated, and the location is determined using the triangulation method. A fourth signal is then used to mathematically determine exact position.
Very Long Baseline Interferometry (VLBI)	• VLBI utilizes a large network of antennas around the world to receive radio waves from space objects such as quasars. • In Earth science, VLBI is used in geodesy, or the measurement of the geosphere. • Using the arrival times of radio waves from quasars, the position of radio telescopes on Earth are determined to within millimeters of their position. • Small changes in the telescope positions allow scientists to study tectonic plate motions and other movements of Earth's crust with great precision and accuracy.

ASSIGNMENT

- Activity: Topographical Maps Worksheet