

Chapter 1: Mapping Earth

Lesson 2: Technology and Mapmaking

General-Use Maps:

- *Physical maps*: use lines, shading, and color to indicate features such as mountains, lakes, and streams
- *Relief maps*: use shading and shadows to identify mountains and flat areas
- *Political maps*: show the boundaries between countries, states, counties, or townships
- *Road maps*: shows interstates or a range of roads (interstate to gravel roads)
 - Most common type of map you use.

Topography: the shape of the land surface

Topographic map: shows the detailed shapes of the Earth's surface, along with its natural and human-made features

Elevation: the height above sea level of any point on Earth's surface

Relief: the difference in elevation between the highest and lowest point in an area

Contour lines: lines on a topographic map that connect points of equal elevation

- Index contours: the darker contour lines are labeled with the elevation
- **Contour interval**: the elevation difference between contour lines that are next to each other
- Dot on the highest point represents the highest point on the mountain
- V-shaped contours pointing downhill indicate ridges
- Small V-pointing uphill indicates a stream valley or drainage

Slope: measure of the steepness of the land

- Contours spaced apart = slope is gradual or flat
- Contours close together = slope is steep

United States Geological Survey = USGS

<u>Description</u>	<u>Color</u>
Contour lines	Brown
Vegetation	Green
Rivers, lakes, or oceans	Blue
Buildings	Black squares or pink
Updates on map	Purple

Geologic map: shows the surface geology of the mapped area

- Includes rock types, ages, and locations of faults

Cross section: the resulting diagram, showing a vertical slice through the rocks below the surface

Global Positioning System (GPS): group of satellites used for navigation

- Originally designed for military purposes, now is an available service for everyone worldwide

Geographic Information Systems (GIS): computerized information systems used to store and analyze map data

- Mapmakers use GIS to analyze and organize data and then create digital maps
- Satellites, scanners, and aerial photography (taken from above ground)

Remote sensing: the process of collecting information about an area without coming into physical contact with it

- Example: ??
- *Landsat*: completes a scan of Earth's entire surface every 16 days and has been used to contribute to the GIS database as well
- *TOPEX/Jason-1*: have been used to determine ocean topography, sea level, tides, and now climate change (El Nino and La Nina)
- *Sea Beam*: device uses sonar to map the bottom of the ocean used by fishing fleets, drilling operations and various scientists