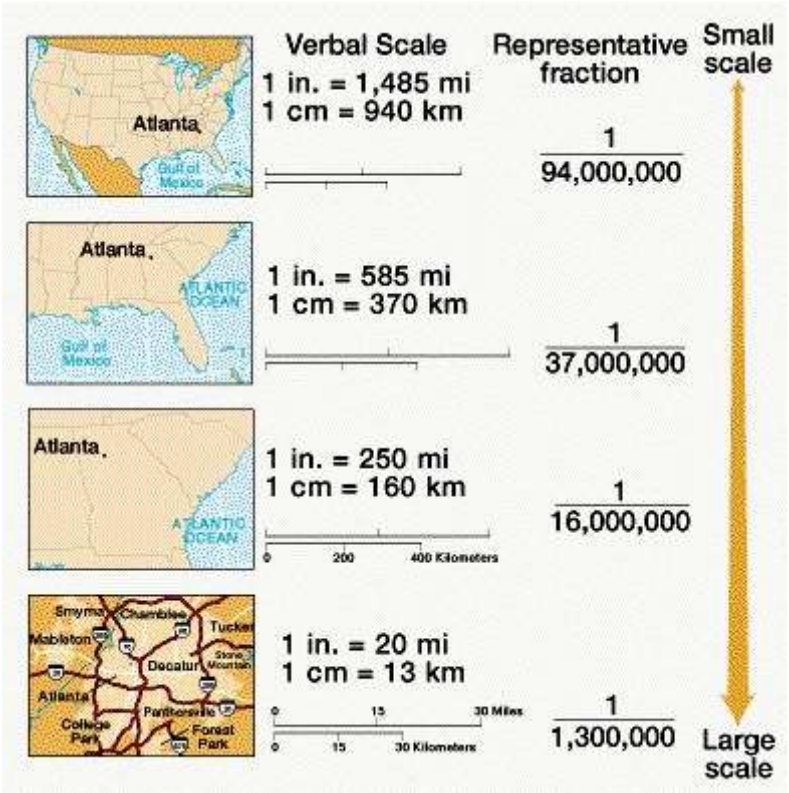
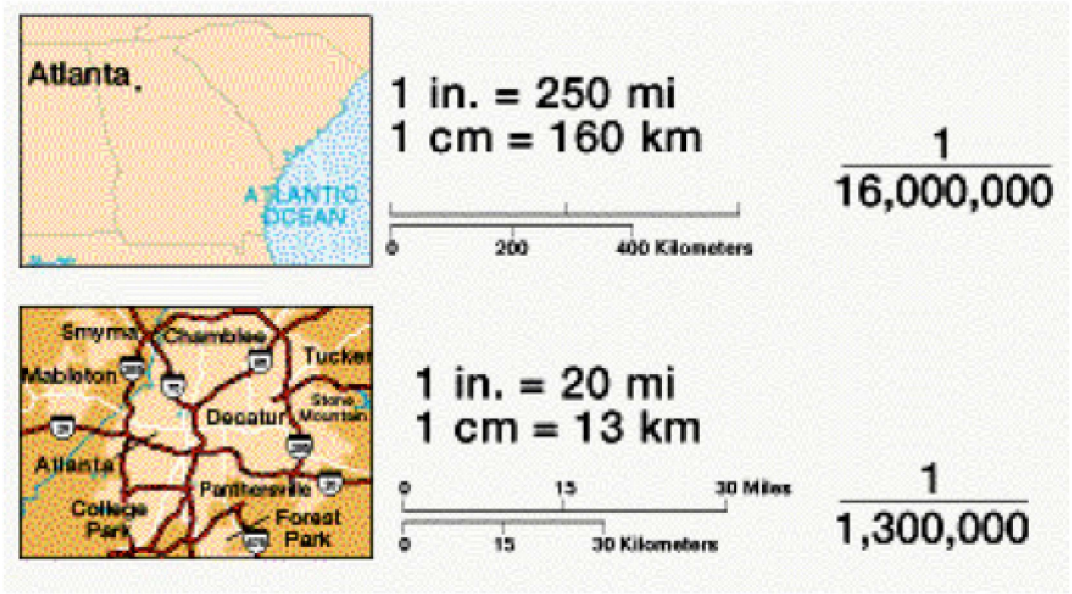
Scale, Coordinates, and Datums



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Map scale shows the relationship between a map or model and the real distance. For example, if the verba_
scale is 1 in. = 250 mi the equivalent representative fraction scale can be written as a fraction (1/16,0
00,000) or a ratio (1:16,000,000), or scale can be shown as a graphic scale (the bars below the verbal sc
ale for each image).
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Last week, we started to learn the properties of **geographic data.** This week, we will go into much more depth on geographic data.

One property of geographic data is that geographic data is **generalized**, and *generalization tends to vary with scale.* For example, the "zoomed out" image of Georgia and surrounding states (pictured above, top) shows much less detail than the "zoomed in" image of Atlanta (pictured above, bottom), where we see freeways and place names.

A second distinguishing property is that the Earth's complex, *nearly*-spherical shape complicates efforts to specify exact positions on Earth's surface. Remember that Earth has mountains and valleys, and is larger around the equator. Chapter 2 in our textbook explores the implications of these properties by illuminating concepts of **scale**, **Earth geometry**, **coordinate systems**, the "**horizontal datums**" that define the relationship between coordinate systems and the Earth's shape, and the various methods for transforming coordinate data between 3D and 2D grids, and from one datum to another.

Compared to last week, Chapter 2 may seem long, technical, and abstract, particularly to those for whom these concepts are new. **For the first quiz, please read Chapter 2, sections 2 - 7.**

Work at it, and keep coming back to things that you don't understand throughout the class. It will help you catch up on the concepts that are most difficult, and it may help you get more out of some of the exercises later in the course.

Just like last week, the modules are intended to be viewed in order. Click on the first page and proceed through the module.

Computers & Coursework:

As always, the best way to complete work for this course is on a computer to which you have administrative rights so that you can complete all of the work. If you run into difficulties, you may be able to use a computer in the **SBVC Library (https://library.valleycollege.edu)** or the STEM-MESA Success Center.