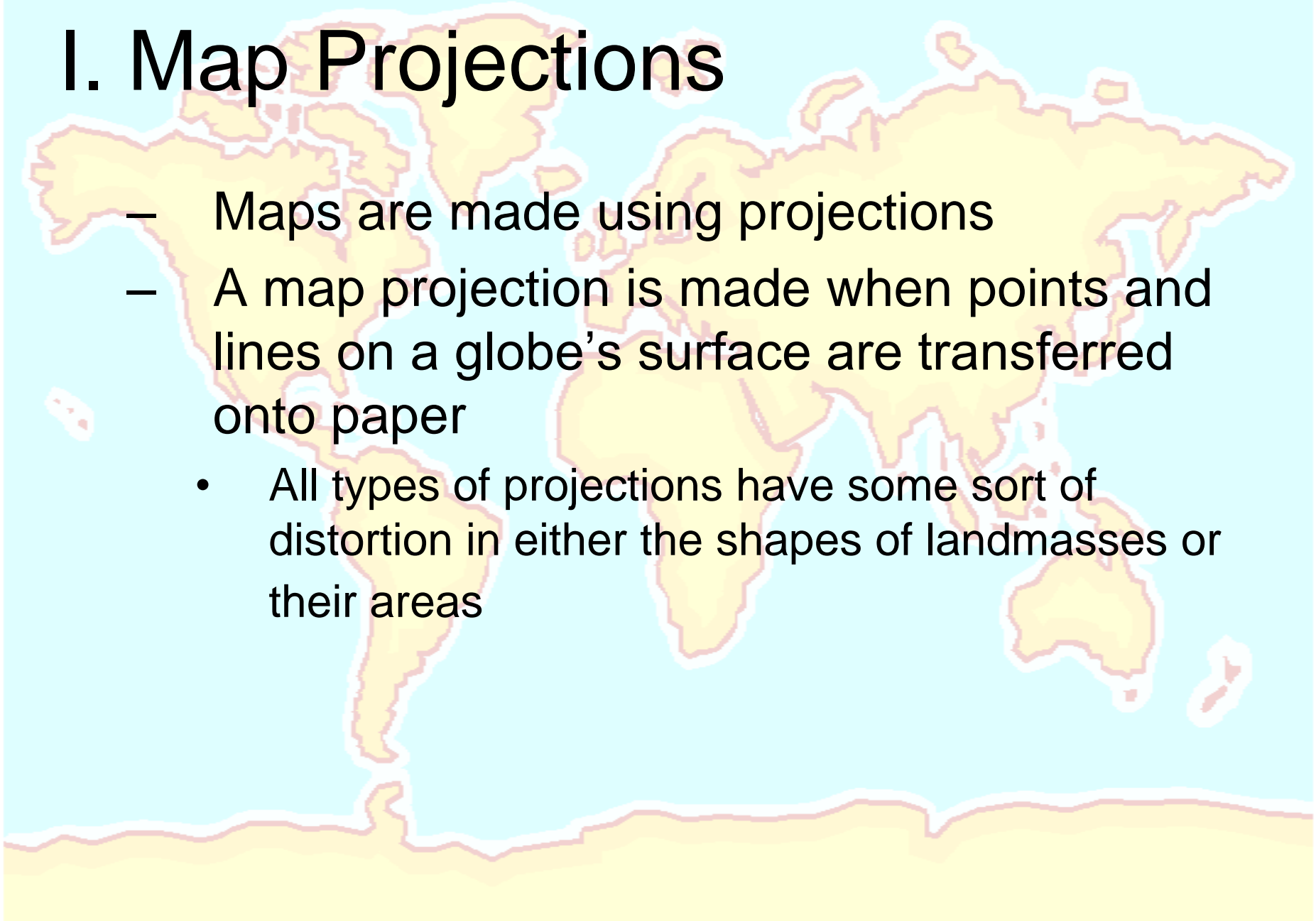


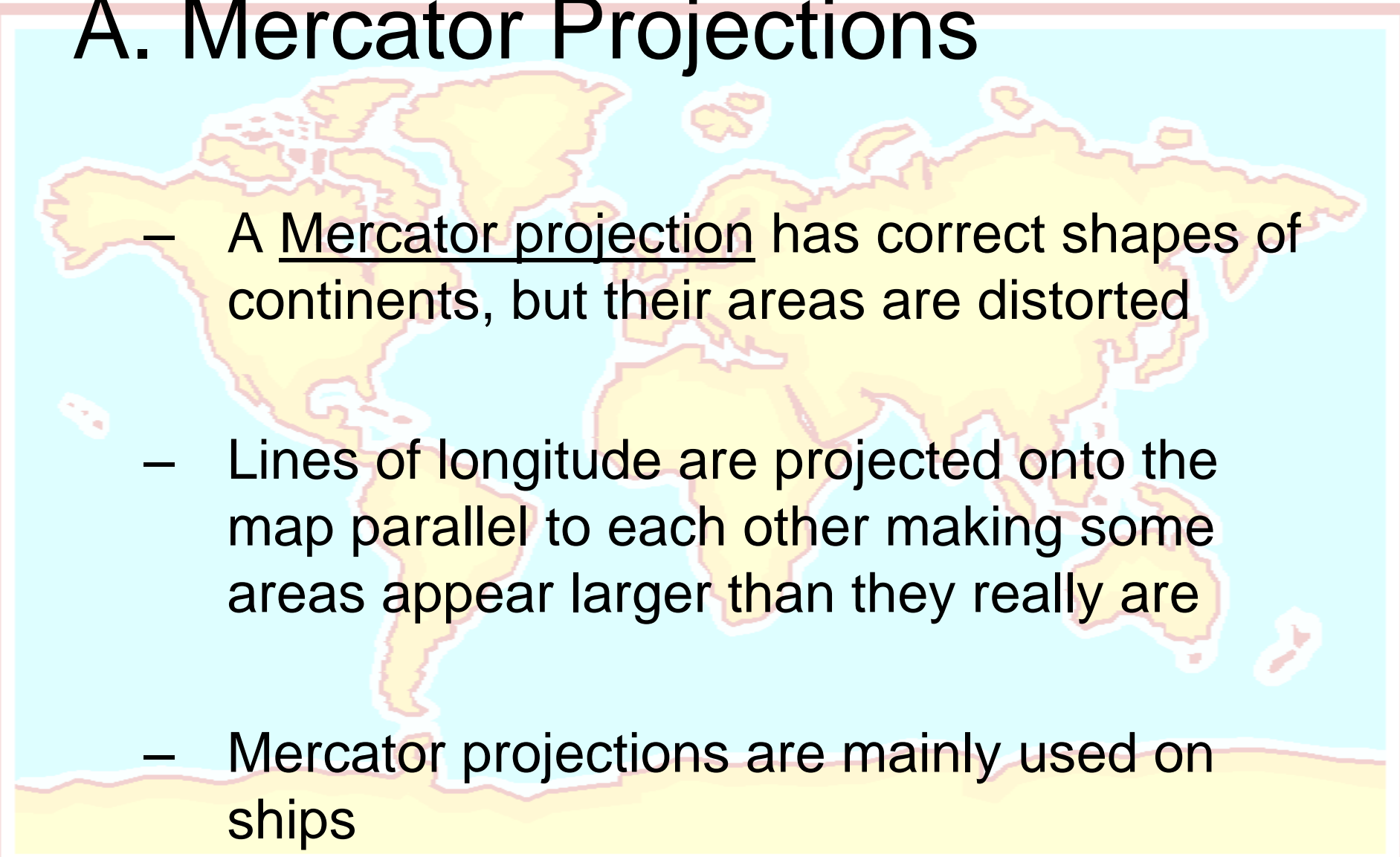
Maps
6.3

I. Map Projections

- Maps are made using projections
- A map projection is made when points and lines on a globe's surface are transferred onto paper
 - All types of projections have some sort of distortion in either the shapes of landmasses or their areas

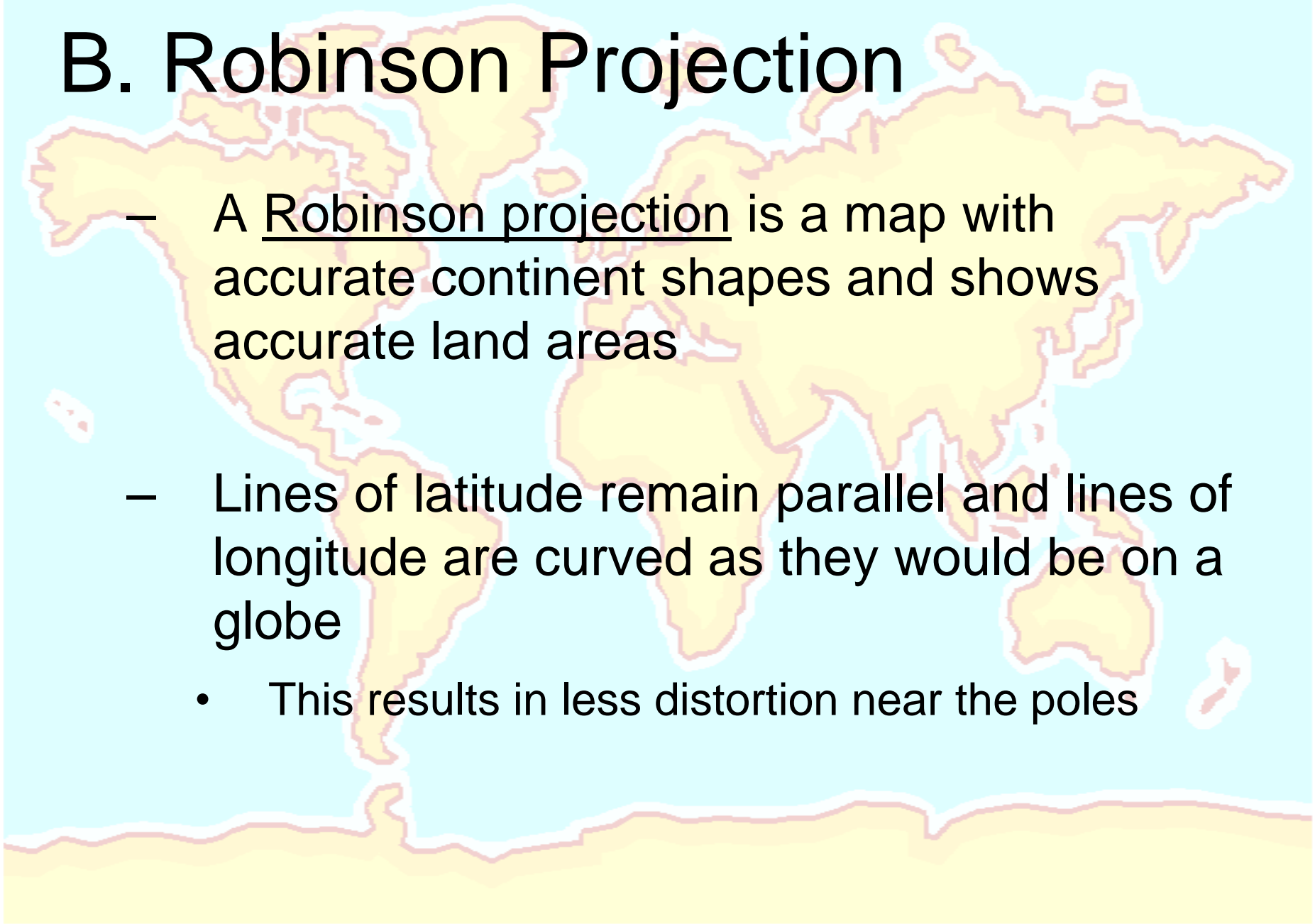


A. Mercator Projections

- 
- A Mercator projection has correct shapes of continents, but their areas are distorted
 - Lines of longitude are projected onto the map parallel to each other making some areas appear larger than they really are
 - Mercator projections are mainly used on ships

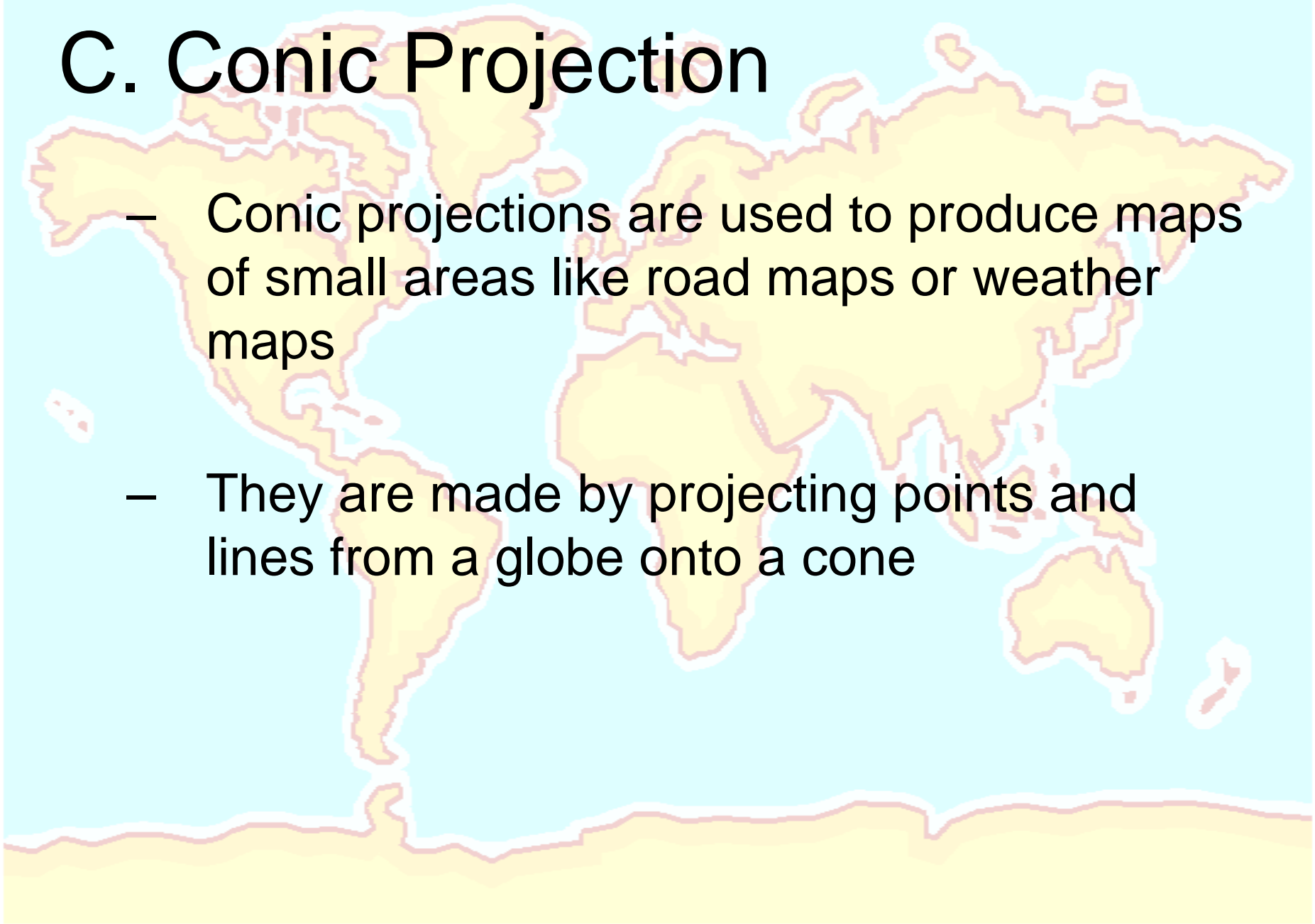
B. Robinson Projection

- A Robinson projection is a map with accurate continent shapes and shows accurate land areas
- Lines of latitude remain parallel and lines of longitude are curved as they would be on a globe
 - This results in less distortion near the poles



C. Conic Projection

- Conic projections are used to produce maps of small areas like road maps or weather maps
- They are made by projecting points and lines from a globe onto a cone

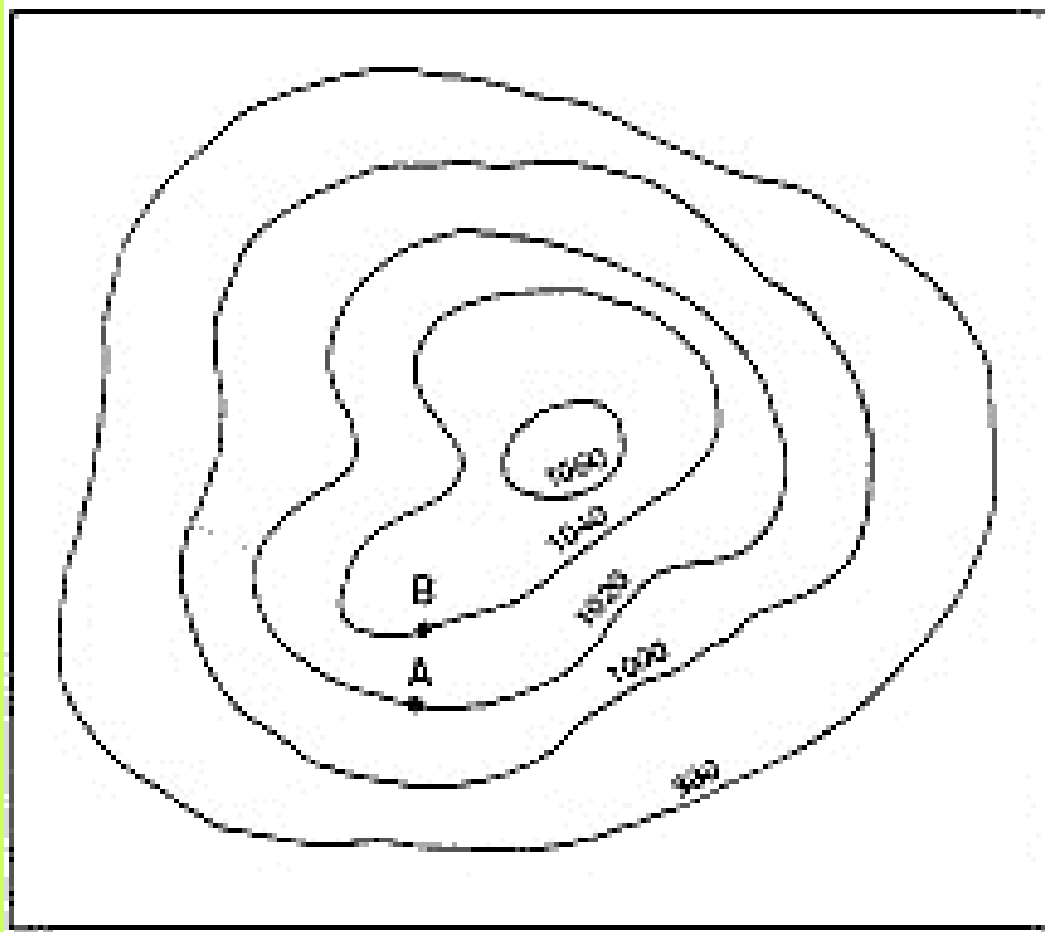


II. Topographic Maps



- A topographic map shows the changes in elevation of Earth's surface
 - With this type of map you can tell how steep a mountain is
- It would also show:
 - natural features such as mountains, hills, plains, lakes, and rivers
 - cultural features such as roads, cities, dams, and other structures built by people

Topographic Map



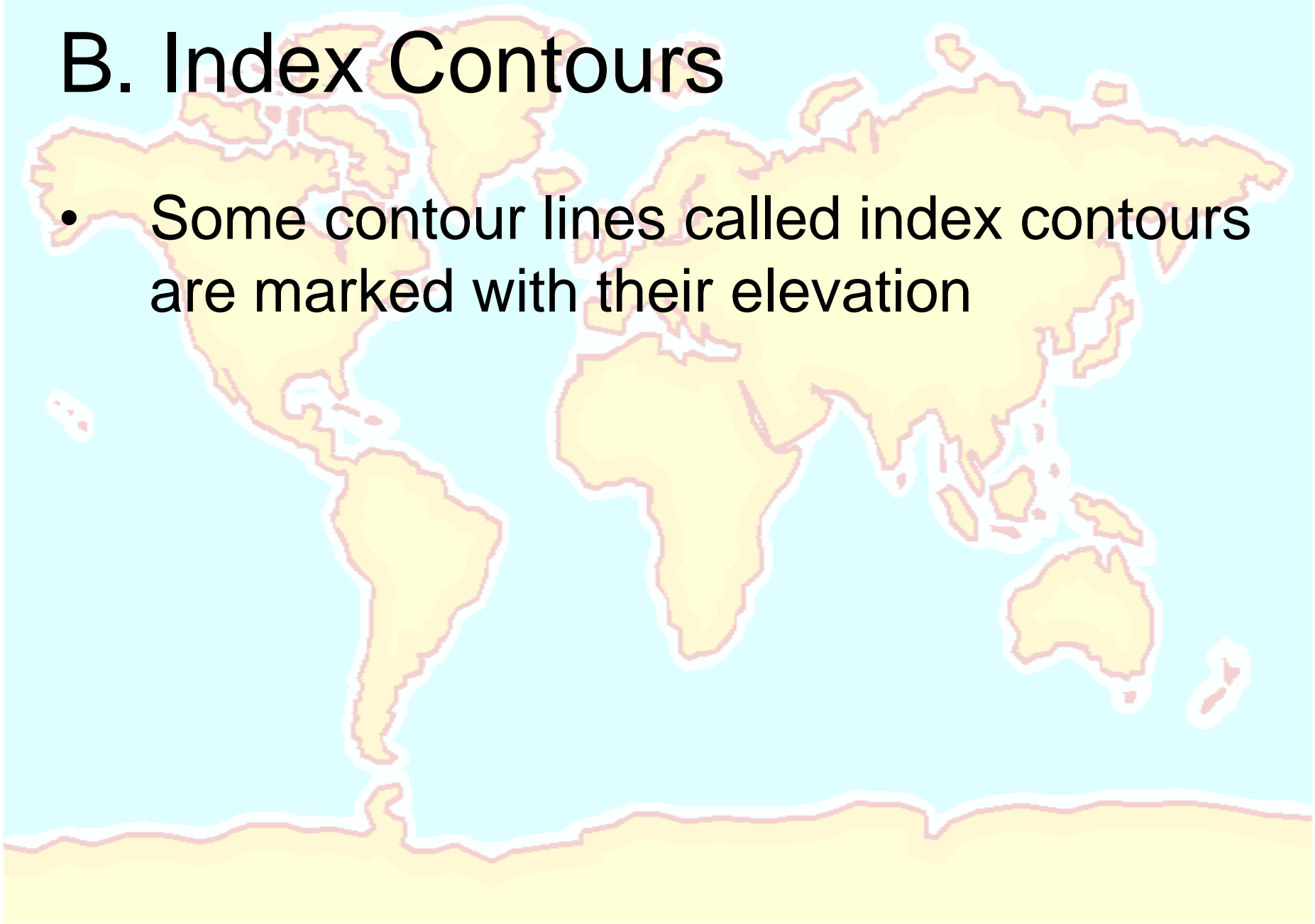
A. Contour Lines



- A contour line is a line on a map that connects points of equal elevation
 - Elevation refers to the distance of a location above or below sea level
- The difference in elevation between two side-by-side counter lines is called the contour interval

B. Index Contours

- Some contour lines called index contours are marked with their elevation



Rules to remember when examining contour lines



1. Contour lines close around hills and basins or depressions

- » To decide whether you are looking at a hill or basin you can read the elevation numbers or look at hachures
- » Hachures are short lines at right angles to the contour line that are used to show depressions



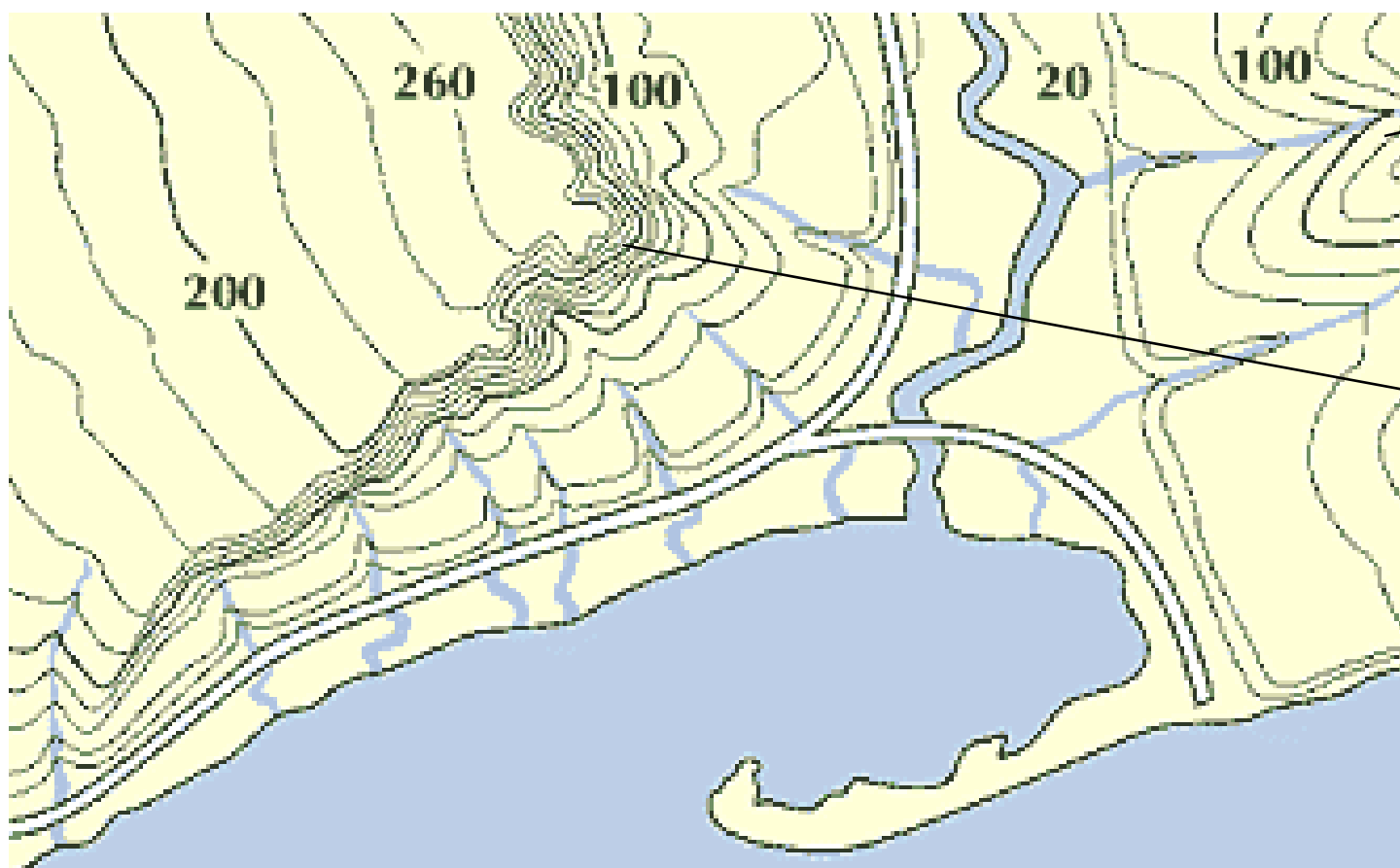
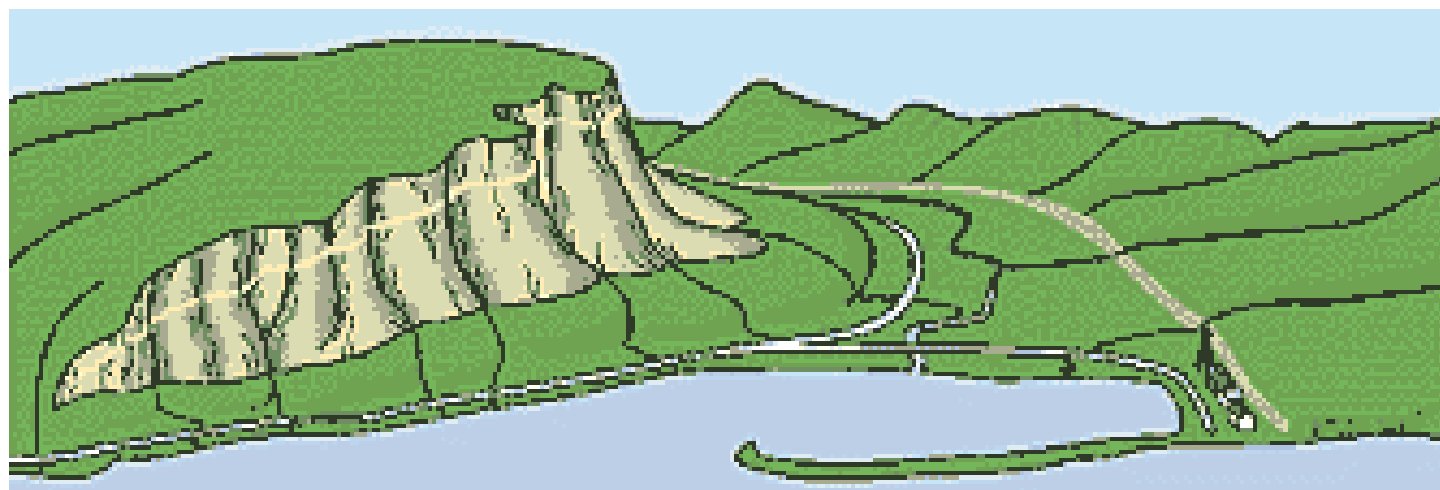
2. Contour lines never cross

- » If they did it would mean that the exact spot that they crossed would have two different elevations



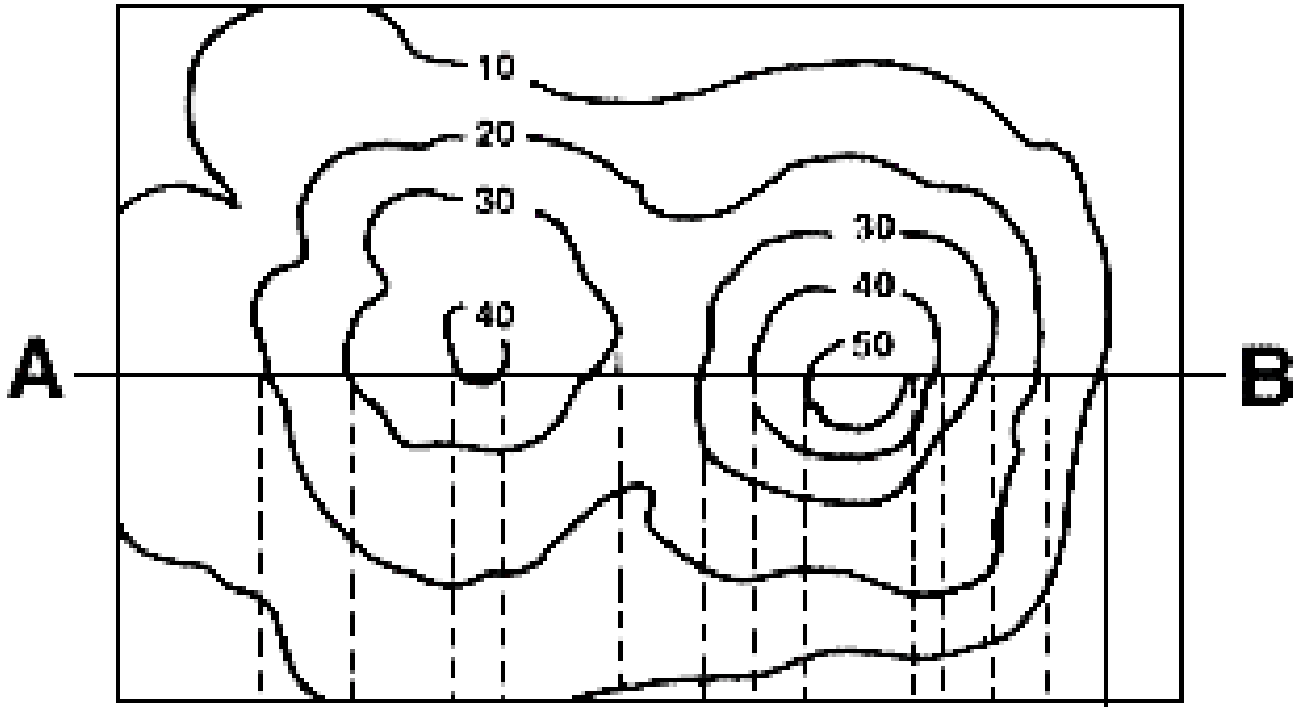
3. Countour lines form V's that point upstream whenever they cross streams

- » Streams flow in depressions that are beneath the elevation of the surrounding land surfaces

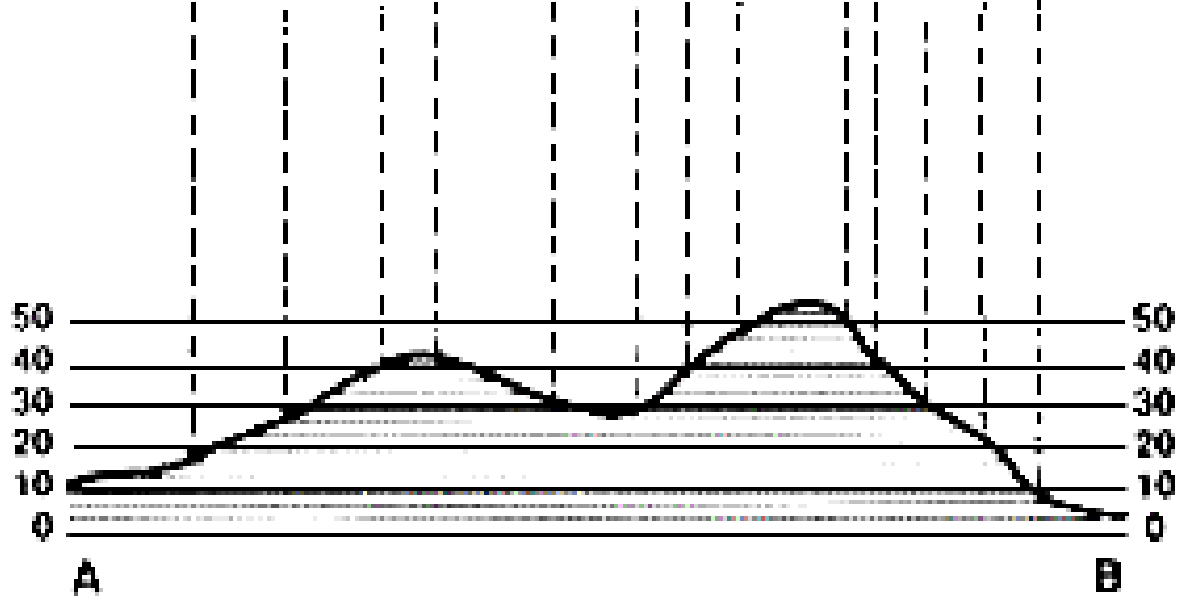


V's Pointing
upstream

Lines very close
together = STEEP
landform



1. Which is higher, hill A or hill B?
2. Which is steeper, hill A or hill B?
3. How many feet of elevation are there between contour lines?
4. How high is hill A?
5. How high is Hill B?



III. Map Legend and Scale



A. Map Legend

- Topographic maps and most other maps have a legend
- A map legend explains what the symbols used on the map mean

B. Map Scale



- The map scale is the relationship between the distances on the map and actual distances on Earth's surface
- Scale is often represented as a ratio
 - Example: A topographic map of the Grand Canyon may have a scale that reads: 1:80,000 – this means that one unit on the map represents 80,000 units on land