Chapter 3 Models of the Earth

Vocabulary List (Number, write and define these words on another sheet of paper, please illustrate those that have a *)

Cartography*  Conic Projection*  Contour Interval
Concontour Line Depression Contour*  Elevation*
Geomagnetic Pole* Gnomonic Projection  Great Circle*
Index Contour  Latitude*  Legend*
Longitude*  Magnetic Declination  Map Projection
Mean Sea Level  Mercator Projection*  Mean Sea Level
Meridian  Parallel  Topography*
Polyconic Projection*  Prime Meridian*  Relief
Scale  Topographic Map

A. Latitude
1. What are ____________________?
   -Circles that run east and west around the world that are parallel to the Equator, each parallel forms a complete circle around the globe
2. What is ____________________?
   -The angular distance north to south of the equator
   -Latitude is measured in ____________, at equator 0 degrees, North and South Pole 90 degrees north and south
   -One degree of latitude equals 1/360 the Earth ____________ (approx. 40,000 km)/360=
     one degree of latitude is about 111 km
   -Latitude is broken down into smaller parts: _______________________

3. What are meridians?
   -Circles similar to parallels that run north to south that are parallel to the Prime Meridian- passes through _______________________
4. What is ________________?
   -The angular distance east or west of the Prime Meridian
   -All locations east of P.M. have longitudes of 0 to 180 degrees ________, Philadelphia being west of the P.M. will have a longitude of about 75 degrees west and latitude of 39 degrees north
   -unlike latitude, longitude lines get closer together so a degree of longitude = 55 km at 60 degrees north and 20 km at 80 degrees north

B. Great Circles
1. Why do ____________________ follow great circle routes instead of parallels?
   -Great circles- any circle that divides the globe into halves, a straight line on a sphere that makes
     for the ________________________, shorter than parallels (see page 44)

C. Finding Direction
1. How can using a ____________________ be useful?
   -Can indicate direction due to the Earth’s magnetic properties
2. What is different about the geographic North Pole and the magnetic north pole?
   -The tilt of the _____________ inside of Earth causes the magnetic north pole to be located in
     a different spot than the geographic North Pole
3. What is magnetic declination?
   - The angle between the direction of the ________________________ and the direction in which the compass needle points
   - In the Northern Hemisphere, magnetic declination is measure in degrees east or west of the geographic north pole (see page 45), in Philadelphia a compass needle points ________________________ of true north

Mapping the Earth’s Surface
1. What are some advantages and disadvantage of using a globe as a model of the Earth?
   - Advantages- studying larger surface features such as ________________________
   - Disadvantages- studying smaller features such as streams is too difficult, globe cannot show details
   - ________________________ - science of map making, subfield of the earth sciences and geography
2. What happens when placing the curves surface of Earth on a flat surface?
   - Causes distortion in size, shape, distance and direction, the larger ________________________ the greater the distortion

A. Map Projections
1. What are the three most common types of map projections?
   - ________________________

B. Mercator Projection
1. Where is the Mercator accurate and not accurate, why?
   - By the _______________ it is accurate, distorts areas closer to the North and South Pole
   - All meridians are evenly spaced on this map, which causes the distortion
   - Norway, Alaska and Greenland are extremely exaggerated in _____________

C. Gnomic Projection
1. Why is this projection useful, for whom?
   - Though parallels are distorted from the point of contact, great for determining a ________________
   - Navigators can readily find the great circle route

D. Conic Projection
1. Why is this projection useful?
   - Polyconic projections are made with this type of map that may be used to map a ________________

Reading a Map
A. Symbols
1. The ________________________ explains all symbols on a map, some symbols resemble the features they represent- airports= airplane symbol, points of interest= box???

B. Map Scale
1. A map must be accurate and ________________________, the relationship to distance as shown on a map and actual distance
2. What is the difference between a graphic scale, fractional scale and verbal scale?
   - ________________________ - a line of measurement such as kilometers is represented, each part of the scale represents a specific distance on the Earth
   - ________________________ - using a ratio, 1:25,000 for example means 1 unit of distance on the map represents 25,000 of the same unit on the Earth 1:100 could be 1 inch is equivalent to 100 inches
   - ________________________ - one centimeter equals one kilometer, the distance is stated

Topographic Maps
1. What are they?
-Illustrate the topography of the Earth: hills, rivers, buildings, roads etc. 
-Provides more detailed information about a ________________ than other maps

A. Making a topographic map
1. How are they measured? 
- Measures elevation from ______________________ (the point between the highest and lowest tide levels of the ocean) 
- elevation at sea level is 0

B. Contour Lines
1. Contour lines show the ______________________, the shape of the contour lines reflects the shape of the land

C. Contour Intervals
1. The ______________________ is the difference in elevation between one contour line and the next
2. The interval is suited to the relief (difference in elevation between highest and lowest elevation), in a mountainous area- 50-100 meters, flat area- ________________

Interpreting a Topographic Map
1. Who makes topographic maps
- The ______________________ makes all maps of the United States called quadrangles
- Each quadrangle covers ______________________ and shows various surface features such as roads, streams, elevation, etc.

2. What is the scale used on a topo. map?
- 1: 24,000- 1 inch on map is equal to ________________, use can use a ruler to measure distances on the map and then convert the inches to feet or miles

3. How is elevation determined on a map?
- The contour interval determines the elevation, if the interval is ________________, than the contour lines will be 10, 20, 30, 40 meters, etc.
- Exact elevations are marked by an X and labeled

4. How can landforms be determined on Topo. maps?
- Contour lines spaced far apart means the gradient is ________________
- ________________ contour lines indicates a rapid change in elevation
- Contour lines almost touching indicates a ________________
- Contour lines that bend to form a ________________ indicate a valley, the V points towards the higher end of the valley, if a stream points through the valley the V will point upstream
- ________________ are marked to show the direction of a depression