

**Chapter 3 Models of the Earth**

Name \_\_\_\_\_

Date \_\_\_\_\_ Class \_\_\_\_\_

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

Cartography*	Conic Projection*	Contour Interval
Contour 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**

- 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
- 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: \_\_\_\_\_,  
60 minutes in 1 degree of latitude= \_\_\_\_\_  
60 seconds in 1 minute of latitude= 1.85 km= 1850 meters= \_\_\_\_\_
- What are meridians?  
-Circles similar to parallels that run north to south that are parallel to the Prime Meridian- passes through \_\_\_\_\_
- 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**

- 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**

- How can using a \_\_\_\_\_ be useful?  
-Can indicate direction due to the Earth's magnetic properties
- 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. Gnomonic 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