

Name \_\_\_\_\_

## Map Distortions

Go to: [http://www.classzone.com/books/earth\\_science/terc/navigation/investigation.cfm](http://www.classzone.com/books/earth_science/terc/navigation/investigation.cfm),

Go back to investigations and scroll down to Chapter 3 and click on 'How do map projections distort Earth's Surface?'

### Step 1: A Multitude of Maps

1. Click on the three top maps, what does each map depict?

Map 1 \_\_\_\_\_

Map 2 \_\_\_\_\_

Map 3 \_\_\_\_\_

### Step 2: A Spherical Planet

1. According to this step, why is map making a major challenge?

### Step 3: Flattening Earth

1. What happens to the surface of Earth when it is pulled off a globe and flattened?

### Step 4: From Globe to Map

1. How do the two images compare?

### Step 5: Projecting the Surface

1. What is a Mercator projection?

### Step 6: Map projections

1. In which projection does Antarctica appear disproportionately large?

\_\_\_\_\_

2. In which projection does Asia appear disproportionately large?

\_\_\_\_\_

3. In which projection does Asia appear disproportionately small?

\_\_\_\_\_

### Step 7: Three Common Projections

1. What are the three types of planar projection surfaces? \_\_\_\_\_,

\_\_\_\_\_, \_\_\_\_\_

### Step 8: Measuring Projection Properties

### Cylindrical Projection

1. Use the ruler tool to measure the distance between Barrow, Alaska and Miami, Florida:  
\_\_\_\_\_
2. What is the area of Africa? \_\_\_\_\_

### Conical Projection

1. Use the ruler tool to measure the distance between Barrow, Alaska and Miami, Florida:  
\_\_\_\_\_
2. What is the area of Africa? \_\_\_\_\_

### Planar Projection

1. Use the ruler tool to measure the distance between Barrow, Alaska and Miami, Florida:  
\_\_\_\_\_
2. What is the area of Africa? \_\_\_\_\_
3. Which projection minimizes distortion of South America, Africa, and areas near the equator? \_\_\_\_\_
4. Which projection minimizes distortion of the United States and other temperate regions?  
\_\_\_\_\_

Which projection minimizes distortion of land in polar regions? Look at Antarctica or Greenland. \_\_\_\_\_