

## **Week 7 – Climate and Climate Change using Water World lesson**

**Goal – To introduce students to the concept of map projections, climate and computer climate modeling**

1. The GeoMentor should use a globe and a Mercator map to introduce students to different types of map projections: - 5 minutes  
Show how the globe is cut into sections to be “flattened out” and how Cartographers or computers fill in the missing gaps – point out how the land masses around the poles are skewed  
Introduce students to the concept of Planar projection by placing a piece of paper tangent to either the North or South pole
2. Have students open lesson map and click on the Antarctic points displayed on the map and have students open picture links of ice sheets to answer Question 1 – 5 minutes
3. Have students click on the flag on the map to open a new map and answer Question 2 – 10 minutes
4. The GeoMentor should briefly review the concept of climate and climate zones: - 5 minutes  
Latitude  
Temperature  
Precipitation rates  
Elevation
5. Have students turn on Bailey’s climate zone layer to observe a complex climate model based on the above concepts and explain to students that as global temperature rise and fall, ice ages or global melting could occur and has occurred in the geologic past – 5 minutes
6. Have students turn off the climate zone layers and turn on the Antarctica 20,000 years ago – 15 minutes  
The GeoMentor should take time to point out the following land features to the class:  
North American Land Bridge  
Doggerland  
Oceania  
Have students answer Question 3
7. Have students turn on and off the various chronologic Antarctica layers and answer Question 4 – 10 minutes
8. Have students turn on Rivers layer and answer Questions 5 and 6 – 10 minutes
9. Have students turn on Major Cities layer and answer Question 7 – 5 minutes
10. Take students outside and review isostatic depression and rebound – 15 minutes