

Research for Unit 4

Chapter 7.1 Questions

1. What is the difference between weather and climate?
2. What are the four factors that affect climate (make sure you know what they mean)?
3. How does climate affect society? (Four good points)
4. How is it that different regions of the Earth receive different amounts of solar radiation (fig 7.6)?
5. What is the difference between solar radiation and thermal energy?
6. Describe the four spheres of earth.
7. Determine the main gas components of the Earth's atmosphere, why don't we include water vapour?
8. Summarize the four layers of the atmosphere.
9. How does the lithosphere affect climate?
10. How are biomes and climate related?
11. What are the benefits of dividing Earth into biomes?

Constructing a Climatograph

1. On page 270 read how to create a climatograph
2. Complete the activity "Toronto, Then and Now"
3. Complete questions #7, #8, #10, #11, #12

Chapter 7.2 Questions (Read pages 274 – 285)

1. How does an actual greenhouse work?
2. Define Insolation and how is the value of insolation affected?
3. Explain the natural greenhouse effect and how are greenhouse gases similar to a real greenhouse?
4. How is the net radiation budget calculated?

Chapter 7.2 Questions (Read pages 274 – 285) continued

5. What is the difference between incoming and outgoing radiation?
6. Describe albedo.
7. Using examples explain the difference between the three methods of heat transfer.
8. How does the process of convection explain wind?
9. What is the Coriolis Effect?
10. How are global wind patterns formed?
11. What is the Jet Stream and how is the Jet Stream formed?
12. How does the Jet stream influence weather/climate systems?
13. Why should we concern ourselves with the hydrosphere?
14. How is the climate affected by global ocean currents (think about the coast vs Manitoba)
15. How are the global wind patterns similar to the global ocean currents?
16. Go over questions on page 289, #3, 9, 12, 13

Chapter 8.1 questions (read page 296 – 305)

1. Tree rings provide a history of the environment. What do thick rings and thin rings mean?
2. What can be determined by the types of rings a tree has?
3. What are the four main greenhouse gases and which one is not included in global warming studies?
4. Define Global warming potential and Persistence.
5. Which greenhouse gas is the worst and why?
6. What activities have changed to increase the concentration of greenhouse gases?
7. What does anthropogenic greenhouse effect mean?

Chapter 8.1 questions (read page 296 – 305) continued

8. What is the difference between carbon source and carbon sink (use examples)?
9. Describe 3 activities that contribute to greenhouse gas emissions.

Chapter 8.2 questions (read page 308 – 317)

1. Describe 5 ways that climate change has affected the atmosphere.
2. Describe 3 ways that climate change has affected the hydrosphere.
3. Describe 3 ways that climate change has affected wildlife.

Chapter 8.3 questions (read page 322 – 327)

1. How can climate change affect the economy?
2. List 5 ways that climate change could affect societies.
3. What is a positive feedback loop?
4. Are there any positives to climate change? If so provide some examples.

Chapter 9.1 questions (read page 336 – 345)

1. Describe the information we can extract from figure 9.5 and figure 9.6.
2. How have aerosols affected our ability to predict climate change?
3. What is the Kyoto protocol?

Chapter 9.2 questions (read page 350 – 357)

1. Define mitigation, sequestering, carbon footprint, emissions trading and carbon tax.
2. Provide 4 large scale activities that can reduce the impact of climate change.