**FYS207 Earth Corps Week 3 Video Review Exercise Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Watch the class videos listed below, and answer the following review questions. Save your work, and upload answer sheet to FYS207 Canvas Course Shell in an Acrobat PDF or MS Word document format.

**Importance of Natures Patterns in Permaculture (~8 min)**

<https://www.youtube.com/watch?v=jcjLEhu61Ns>

1. Provide some examples of simple patterns in nature shown in this video.
2. Defined patterns as presented in the video.
3. What is the importance of patterns in the context of permaculture design?
4. What is a “torus” pattern? Draw a sketch to illustrate.
5. What is the core model of permaculture?
6. Define waves
7. Provide some examples of natural objects that are associated with spiral patterns
8. Draw a sketch of dendritic patterns.
9. Provide three examples of how garden systems design utilize patterns presented in the video.
10. Define Biomimicry and how can it be used.
11. Describe how desert beetle patterns are used to collect water.
12. Why is fungus the wave of the future?
13. What is your favorite natural pattern?

**Basics of Heat Transfer (~2 min)** <https://www.youtube.com/watch?v=1fbG4zt9xn4>

1. List and describe with 2-3 sentences the three primary method of heat transfer in nature. Provide examples of each.

**Heat-Density-Buoyancy (~4 min)** <https://www.youtube.com/watch?v=zlkpZZW29b0>

1. Provide the equation for Density and discuss briefly.
2. Describe the processes associated with the hot air balloon model of air density.
3. True or False: the density of a material remains constant based on the chemical composition.
4. Explain why ice floats in water. Draw a sketch to support your answer.

**Matter and Phase Changes (~5 min)** <https://www.youtube.com/watch?v=tuE1LePDZ4Y>

1. List and describe the three states of matter. Provide examples of each.
2. Describe the concept of a fluid.
3. What percentage of planet earth is covered in water?
4. What is the primary energy source that drives the hydrologic cycle.
5. What is the most important result of the water cycle?

**Cycles in Nature (~6 min)** <https://www.youtube.com/watch?v=INDEXfKAZIM>

1. Provide three examples of cycles of patterns repeating over time and how they have influenced humanity.
2. How have sun spot cycles been associated with human cycles.
3. How are real estate sales associated with lunar cycles.
4. How are cycles used in stock market investing. Provide examples.
5. How are seasonal cycles used in food production, provide examples.
6. What do you get when you cross a motor with a cycle?