**ES106 Video Exercise – Introduction to Earth Science, Water, and the Hydrologic Cycle NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 1. Introduction to Earth System Science.** Watch the Introduction to Earth Science video on the class web site, located at the following URL:

<https://www.youtube.com/watch?v=N3EqcUNdIl8>

The video is about 7 minutes in duration, watch and answer the following review questions.

1. List the four fundamental spheres of the Earth System.
2. Describe and define the terms “reservoir” vs. “flux” in terms of Earth Systems science.
3. True or False: global glaciation results in global sea level rise.
4. List the major chemical components of the lower atmosphere, with percent compositions.
5. True or False: carbon dioxide content in the atmosphere has steadily increased over the past 50 years of Earth History.
6. True or False: the shells of marine organisms are comprised of the mineral calcite, which stores carbon dioxide in its crystal structure.
7. What is the primary process that transfers carbon dioxide from the atmosphere to the biosphere?
8. True or False: the atmosphere contains the highest amount of global carbon out of the four spheres.
9. True or False: the rocks of Earth in the Geosphere contain the highest amount of global carbon out of the four spheres.
10. List the three learning objectives of the video, and provide a brief comment on your understanding of the concepts.

**Part 2. Introduction to the Hydrologic Cycle.** Watch the video on the class web site, located at the following URL:

<https://www.youtube.com/watch?v=al-do-HGuIk>

The video is about 6 minutes in duration, watch and answer the following review questions.

1. List the types of fresh water present on planet Earth.
2. Draw a sketch or provide an image capture of the concept of the water cycle, label the primary components.
3. What percentage of all water on Earth is contained in the oceans.
4. Describe the process of “precipitation”.
5. List three examples of precipitation.
6. What is the primary process that moves water from the continents back to the oceans in liquid form?
7. True or False: water saturated soil may result in river flooding.
8. True or False: groundwater flows through earth materials under the influence of gravity.
9. True or False: groundwater may be stored underground for 1000’s to millions of years.
10. What is the primary process for moving liquid water from the Earth’s surface, back into the atmosphere as a gas.
11. True or False: warming of air causes clouds to form.
12. What is the term used for the process of plant uptake and release of water into the atmosphere?

**Part 3. Properties of Water.** Watch the video on the class web site, located at the following URL:

Th <https://www.youtube.com/watch?v=0eNSnj4ZfZ8>

e video is about 5 minutes in duration, watch and answer the following review questions.

1. What percentage of the earth’s surface is covered by water?
2. What is the chemical formula of the water molecule.
3. List the three states of matter that water can exist on the Earth.
4. True or False: ice is less dense than liquid water and floats.
5. What percent of a biologic cell is composed of water?
6. True or False: water has a unique property in that it holds on to heat energy.
7. Describe the property of “cohesion” with respect to water.
8. True or False: water molecules have polar positive / negative charges.
9. True or False: capillary action pulls water downward towards the center of the Earth.
10. True or False: water is necessary for life as we know it on planet Earth.
11. True or False: dirty polluted water is yummy, like a milk shake.
12. True or False: the study of water is a very fluid topic.