Midyear Review and Study Guide

Nature of Science

1. Scientific knowledge can change when there is enough evidence to support it.
2. Evidence in an experiment is considered reliable when others are able to repeat the experiment with similar outcomes.
3. Many science experiments are conducted in laboratories while field studies are when scientists have to go out in the field to observe their results like studying apes in the wild.
4. Theories are well tested and allow scientists to make predictions about future events.
5. Scientific Laws are statements that describe what scientists expect to happen every time under a particular set of conditions. Ex: The Law of Gravity states that ALL objects in the universe attract each other.

Earth Science

1. Convection is when hot water rises from the bottom and circulates through the cooler water like when the water in a pot is heated to boiling.
2. During the water cycle, gases rise from the Earth by evaporation, condense in the clouds, and precipitate back to earth in a form of water.
3. Gases in the middle layer of the atmosphere filter harmful radiation from the sun before it reaches the Earth.
4. The Greenhouse effect helps the heat of the Earth to stay within the Earth’s atmosphere.
5. The radiant energy of the sun sustains Earth processes and provides necessary heat to the planet.
6. To best protect yourself from the harmful ultraviolet rays of the sun, you should wear hats and long sleeves that cover your skin for the best protection. Sunblocks are helpful but must be reapplied often especially after sweating or swimming.
7. The prevailing westerlies are the major wind belt over the United States that helped sailing ships return back to their ports of origin.
8. The warm Gulf Stream is the major ocean current from the Caribbean and the Gulf that helps keep the coastal regions mild in temperature most of the year.
9. Wind and waves help to create and shape landforms of deltas and sandbars near major bodies of water.
10. Weather is the description of temperature and/or precipitation for a particular day or time while climate refers to the temperature or rainfall over a longer period of time that could describe an average for a region.
11. Windows that won’t close, depressions in the ground, circular holes in land, pavement or sidewalks, cracking in building’s walls and floors are all possible signs of a natural disaster known as sinkholes. Sinkholes are also the source of many round sinkhole lakes in Florida.
12. The hydrosphere and cryosphere contain all of the water on Earth but in different forms while the biosphere contains all living organisms of Earth. The geosphere is all the land below our feet while the atmosphere includes all of the gases we breathe from Earth’s surface upward to space.
13. The Rotation of Earth contributes to the circulation of Earth’s ocean currents and helps circulate winds.
14. The heating of Earth’s land is quicker than the heating of the Earth’s oceans. The Land also cools more quickly than the water.

Physical Science

1. Speed is calculated as distance divided by time.  
2. Unless there is an unbalanced force, an object will not move. Or an object that is moving will not change direction.  
3. Force can be described as a push or pull on an object. Hitting a tennis ball with a racket is an example of a push, while pulling a wagon is an example of a pull.  
4. According to the Law of gravity, every object has a gravitational field. The closer these objects are, the greater the attraction. The farther apart they are, the weaker their pull on each other.