

Science Second Semester Final Study Guide

Hydrology:

- 14 - analyze the significant role of water in earth processes
- 14a - explain a large portion of the Earth's surface is water, consisting of oceans, rivers, lakes, underground water and ice
- 14a1 - illustrate the water cycle and relate various atmospheric conditions to its stages
- 14b - describe the composition, location and subsurface topography of the world's oceans
- 14b1 - identify the chemical and physical properties of ocean water
- 14b2 - model the features of the ocean floor
- 14c - explain the causes of waves, currents and tides
- 14d - analyze water conservation practices and issues

Meteorology:

- 15 - explain how the distribution of land and oceans affects climate and weather (GPS, ITBS)
- 15a - describe the composition and structure of the Earth's atmosphere
- 15b - describe atmospheric factors that interact to cause weather (heat energy, air pressure, winds, and moisture)
- 15b1 - demonstrate land and water absorb and lose heat at different rates, and explain the resulting effects on weather patterns
- 15b2 - relate how moisture evaporating from the oceans (and other sources of water such as lakes, rivers, and plants) affects the weather patterns of the Earth's surface
- 15b3 - compare the four major types of air masses and how they create fronts that affect weather patterns
- 15b4 - explain how clouds form, and identify the three basic types of clouds
- 15b5 - differentiate between global and local winds
- 15b6 - investigate different types of weather phenomena (lightning, tornadoes, hurricanes, blizzards and floods)
- 15b7 - interpret weather maps and understand weather forecasting
- 15c - relate unequal heating of land and water surfaces to form large global wind systems and weather events such as tornadoes and thunderstorms

15c1 - discuss factors that determine climate

Astronomy:

- 10 - explain the effects of the relative position of the sun, Earth and moon
- 10a - explain how Earth's movement in space produces the day/night cycle
- 10b - relate the tilt of Earth to the distribution of sunlight throughout the year and its effect on climate (seasons)
- 10c - demonstrate the phases of the moon by showing the alignment of the earth, moon and sun
- 10d - explain the alignment of the earth, moon and sun during solar and lunar eclipses
- 11 - analyze the composition of our solar system
- 11a - compare and contrast the planets in terms of composition; size relative to the Earth; surface and atmospheric features; relative distance from the Sun; and ability to support life.
- 11b - explain how gravity and inertia govern motion in the solar system
- 11c - describe the characteristics of comets, asteroids and meteors
- 11d - locate the solar system in the Milky Way Galaxy and our galaxy within the universe
- 12 - analyze current scientific views about the formation of the universe and how those views evolved (GPS, ITBS)
- 12a - relate the Nature of Science to the progression of basic historical scientific models (geocentric, heliocentric) as they describe the formation of our solar system and the Big Bang theory as it describes the formation of the universe with the sun at its center (GPS)
- 12a1 - describe how Ptolemy, Copernicus, Kepler and Galileo contributed to the knowledge of our solar system
- 12b - relate the use of probes, satellites, telescopes, and spectroscopes to about the study of space

