**Physics Review**

**7.P.1** Understand motion, the effects of forces on motion and the graphical representations of motion.

7.P.1.1 Explain how the motion of an object can be described by its position, direction of motion, and speed with regard to some other object.

7.P.1.2 - Explain the effects of balanced and unbalanced forces acting on an object (including friction, gravity, and magnetics).

7.P.1.3: Illustrate the motion of an object using a graph to show a change in position over a period of time.

7.P.1.4 Interpret distance versus time graphs for constant speed and variable motion.

**7.P.2** Understand forms of energy, energy transfers and transformations and conservation in mechanical systems.

7.P.2.1 Explain how kinetic and potential energy contribute to the mechanical energy of an object.

7.P.2.2 Explain how energy can be transformed from one form to another (specifically potential energy and kinetic energy) using a model or a diagram of a moving object (roller coaster, pendulum, or cars on ramps as examples).

7.P.2.3 Recognize that energy can be transferred from one system to another when two objects push or pull on each other over a distance (work) and electrical circuits require a complete loop through which an electrical current can pass.

7.P.2.4 Explain how simple machines such as inclined planes, pulleys, levers and wheel and axles are used to create mechanical advantage and increase efficiency.

Motion  
Velocity  
Speed  
Acceleration  
Reference Point  
Inertia  
Force  
Gravity  
position

speed-time graph

direction

vector

frame of reference

distance-time graph   
Thermal Energy  
Electrical Energy  
Vector

balanced force

unbalanced force

magnetic

friction

Energy

Potential Energy

Kinetic Energy

Mechanical Energy

Law of Conservation of Energy

Green Energy

Electromagnetic Waves

Electrical Energy

Thermal Energy

Open Circuit

Series Circuit

Parallel Circuit

Closed Circuit

Inclined Plane

Pulley

Lever

Wheel and Axle

Mechanical Advantage

Efficiency

Work

Screw

Wedge

Compound Machine

Simple Machine

**Weather Review**

**7.E.1** Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth’s atmosphere, weather and climate and the effects of the atmosphere on humans.

7.E.1.1   Compare the composition, properties and structure of Earth's atmosphere to include: mixtures of gases and differences in temperature and pressure within layers.

7.E.1.2 Explain how the cycling of water in and out of the atmosphere and atmospheric conditions relate to the weather patterns on Earth.

7.E.1.3  Explain the relationship between the movements of air masses; high and low pressure systems, and frontal boundaries to storms (including thunderstorms, hurricanes, and tornadoes) and other weather conditions that may result.

7.E.1.4 Predict weather conditions and patterns based on information obtained from:

* Weather data collected from direct observations and measurement (wind speed and direction, air temperature, humidity and air pressure)
* Weather maps, satellites and radar
* Cloud shapes and types and associated elevation
* 7.E.1.5  Explain the influence of convection, global winds and the jet stream on weather and climatic conditions.

weather

air mass

front

water cycle

atmosphere

humidity

convection

meteorologist

wind

air pressure

temperature

Atmosphere

Composition

Troposphere

Air pressure

Stratosphere

Mesosphere

Thermosphere

Exosphere

Ionosphere

condensation

evaporation

precipitation (rain,sleet,freezing rain,snow)

transpiration

runoff

infiltration

low pressure system

high pressure system

cold front

warm front

thunderstorm

hurricane

tornado

weather

air mass

front

water cycle

atmosphere

humidity

convection

meteorologist

wind

air pressure

temperature

jet stream

convection

Coriolis (force) effect

land and sea breezes

pressure gradient

friction

latitude and longitude

cirrus

stratus

cumulonimbus

thermometer

barometer

cumulus

nimbus

wind vane

psychrometer

radar (Doppler)

satellite

stratocumulus

**Cells, Genetics and Human Body Systems**

**7.L.1** Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry the basic functions of life.

7.L.1.1 Compare the structures and life functions of single-celled organisms that carry out all of the basic functions of life including:

Euglena

Amoeba

Paramecium

Volvox

7.L.1.2 Compare the structures and functions of plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, chloroplasts, mitochondria, and vacuoles).

7.L.1.3 Summarize the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.

7.L.1.4 Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

**7.L.2** Understand the relationship of the mechanisms of cellular reproduction, patterns of inheritance and external factors to potential variation among offspring.

Eukaryote

Prokaryote

Unicellular

Multicellular

Autotroph

Heterotroph

cell membrane

cell wall

cytoplasm

nucleus

nuclear membrane

chloroplasts

mitochondria

golgi bodies

endoplasmic reticulum

vacuoles

lysosome

ribosome

Cilia

Pseudopod

Flagellum

Volvox

Amoeba

Paramecium

Euglena

Cell

Organ

Organism

Organ System

Tissue

Organelle

**Respiratory and Circulatory Systems**

Blood

Platelets

Artery

Vein

Capillary

Heart

Chamber

Red blood cells

White blood cells

Plasma

Ventricle

Atrium

Cellular respiration

Epiglottis

Pharynx

Bronchial tubes

Larynx

Diaphragm

Alveoli

Trachea

**Digestive and Excretory Systems**

digestion

mechanical digestion

chemical digestion

nutrient

peristalsis

stomach

small intestine

large intestine

villi

Urethra

bladder (urinary)

urine

ureter

kidney

**Reproductive System**

eggs

estrogen

fallopian tubes

menstrual cycle

menstruation

ovary

ovulation

uterus

sperm

testes

testosterone

fertilization