

8TH GRADE SCIENCE SYLLABUS

TERM 1: TEKS/CONCEPTS COVERED AUGUST 12 - OCTOBER 10

THE FOLLOWING TEKS WILL BE STAAR TESTED & COVERS 6, 7, & 8TH GRADE SCIENCE

UNIT 1 MATTER

- 7.6(A) compare & contrast elements & compounds in terms of atoms and molecules, chemical symbols, & chemical formulas
- 7.6(B)(R) use the periodic table to identify the atoms & the number of each kind within a chemical formula
- 7.6(C) distinguish between physical & chemical changes in matter
- 6.6(E) identify the formation of a new substance by using the evidence of a possible chemical change, including production of a gas, change in thermal energy, production of a precipitate, & color change
- 6.6(C) identify elements on the periodic table as metals, nonmetals, metalloids, & rare Earth elements based on their physical properties & importance to modern life
- 6.6(D) compare the density of substances relative to various fluids
- 8.6(E)(R) investigate how mass is conserved in chemical reactions & relate conservation of mass to the rearrangement of atoms using chemical equations, including photosynthesis

UNIT 2 FORCE & MOTION:

- 6.7(B) calculate the net force on an object in a horizontal or vertical direction using diagrams & determine if the forces are balanced or unbalanced
- 6.7(A) identify & explain how forces act on objects, including gravity, friction, magnetism, applied forces, & normal forces, using real world applications
- 7.7(A) calculate average speed using distance & time measurements from investigations
- 7.7(B) distinguish between speed & velocity in linear motion in terms of distance, displacement, & direction
- 7.7(C) measure (record) & interpret an object's motion using distance-time graphs
- 8.7(A)(R) calculate & analyze how the acceleration of an object is dependent upon the net force acting on the object & the mass of the object using Newton's Second Law of Motion
- 8.7(B)(R) investigate & describe how Newton's three laws of motion act simultaneously within systems such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, & rocket launches

8TH GRADE SCIENCE SYLLABUS

TERM 2: TEKS/CONCEPTS COVERED OCTOBER 21 - DECEMBER 19

UNIT 3 ENERGY:

- 6.8(C) explain how energy is transferred through transverse & longitudinal waves
- 8.8(A) compare the characteristics of amplitude, frequency, and wavelength in transverse waves, including the electromagnetic spectrum
- 6.8(B) describe how energy is conserved through transfers & transformation in systems such as electrical circuits, food webs, amusement park rides, or photosynthesis
- 7.8(A) investigate methods of thermal energy transfer into & out of systems, including conduction, convection, & radiation
- 7.8(C) explain the relationship between temperature & kinetic energy of the particles within a substance

UNIT 4A GRAVITY, SEASONS, TIDES:

- 7.9(B) describe how gravity governs motion within Earth's solar system
- 6.9(A) model & illustrate how the tilted Earth revolves around the Sun, causing changes in seasons
- 6.9(B) describe & predict how the positions of the Earth, Sun, & Moon cause daily, spring, & neap cycles of ocean tides due to gravitational forces

UNIT 4B LIFECYCLE OF A STAR, HR DIAGRAM, GALAXIES

- 8.9(A)(R) describe the life cycle of stars and compare and classify stars using the Hertzsprung-Russell diagram
- 8.9(B) categorize galaxies as spiral, elliptical, and irregular and locate Earth's solar system within the Milky Way galaxy

8TH GRADE SCIENCE SYLLABUS

TERM 3: TEKS/CONCEPTS COVERED JANUARY 8 - MARCH 13

UNIT 4C: EARTH'S LAYERS, PLATE TECTONICS & EVIDENCE, PLATE FORMATIONS

- 6.10(B) model & describe the layers of Earth, including the inner core, outer core, mantle, & crust
- 7.10(A) describe the evidence that supports that Earth has changed over time, including fossil evidence, plate tectonics, & superposition
- 7.10(B)(R) describe how plate tectonics causes ocean basin formation, earthquakes, mountain building, & volcanic eruptions, including super volcanoes & hot spots

UNIT 5 WEATHER & CLIMATE:

- 8.10(A)(R) describe how energy from the Sun, hydrosphere, & atmosphere interact & influence weather & climate
- 8.10(B) identify global patterns of atmospheric movement & how they influence local weather
- 8.10(C) describe the interactions between ocean currents & air masses that produce tropical cyclones, including typhoons & hurricanes

8TH GRADE SCIENCE SYLLABUS

TERM 4: TEKS/CONCEPTS COVERED MARCH 23 - MAY 28

UNIT 6: ORGANISMS & ENVIRONMENT

- 6.12(A) investigate how organisms & populations in an ecosystem depend on & may compete for biotic factors such as food & abiotic factors such as quantity of light, water, range of temperatures, or soil composition
- 7.11(A) analyze the beneficial & harmful influences of human activity on groundwater & surface water in a watershed
- 7.11(B) describe human dependence & influence on ocean systems & explain how human activities impact these systems
- 7.12(A) diagram the flow of energy within trophic levels & describe how the available energy decreases in successive trophic levels in energy pyramids
- 8.12(B)(R) describe how primary & secondary ecological succession affect populations & species diversity after ecosystems are disrupted by natural events or human activity
- 8.12(C) describe how biodiversity contributes to the stability & sustainability of an ecosystem & the health of the organisms within the ecosystem

UNIT 7: STRUCTURE, FUNCTION & SURVIVAL

- 6.13(A) describe the historical development of cell theory & explain how organisms are composed of one or more cells, which come from pre-existing cells and are the basic unit of structure & function
- 7.13(A) identify & model the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, urinary, reproductive, integumentary, nervous, immune, & endocrine systems
- 7.13(C) compare the results of asexual & sexual reproduction of plants & animals in relation to the diversity of offspring and the changes in the population over time
- 7.13(D) describe & give examples of how natural & artificial selection change the occurrence of traits in a population over generations
- 8.13(A)(R) identify the function of the cell membrane, cell wall, nucleus, ribosomes, cytoplasm, mitochondria, chloroplasts, & vacuoles in plant or animal cells
- 8.13(B) describe the function of genes within chromosomes in determining inherited traits of offspring
- 8.13(C)(R) describe how variations of traits within a population lead to structural, behavioral, & physiological adaptations that influence the likelihood of survival & reproductive success of a species over generations