# 8th Grade

# Science

# Year at a Glance

| First Six-Weeks | Second Six-Weeks | Third Six-Weeks |
|---|---|---|
| • Safety (safety equipment)<br>• Matter and Energy (Atoms and Periodic Table)<br>• Chemical Reactions<br>• Conservation of Mass | • Force and Motion (Balanced and Unbalanced Forces, Formulas, Laws) | • Earth and Space (light years, origin of the universe)<br>• Earth and Space (lunar phases, tides, seasons) |
| **Fourth Six-Weeks** | **Fifth Six-Weeks** | **Sixth-Six Weeks** |
| • Earth and Space (plate tectonics, weathering)<br>• Earth and Space (Climate, weather, ocean systems) | • Organism and Environment (relationships, populations, human impact) | • Biochemistry (Biomolecules) |

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**Eighth Grade**
**Science**

**1st Six Weeks**

| Number of Days | Topics | Concepts | TEKS |
|---|---|---|---|
| 4 | Objective 3 – Structures and Properties of Matter | describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud; | 8.5 (A) |
| Combine with 8.5 (A) | | identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity; | 8.5 (B) |
| 4 | | interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements; | 8.5 (C) |
| 4 | | recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts; | 8.5 (D) |
| 4 | | investigate how evidence of chemical reactions indicate that new substances with different properties are formed | 8.5 (E) |
| 4 | | recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass. | 8.5 (F) |

**4 instructional days is equivalent to one week.

**2nd Six Weeks**

| Number of Days | Topics | Concepts | TEKS |
|---|---|---|---|
| 4 days | Force, Motion, and Energy | demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion; | 8.6 (A) |
| 4 days | | differentiate between speed, velocity, and acceleration; and | 8.6 (B) |
| 4 days | | investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, | 8.6 (C) |

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| | | and rocket launches. | |
| 4 days | Waves and Space | explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe | 8.8 (C) |
| 8 days | Components of Space<br>HR Diagram | describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Herztsprung-Russell diagram for classification;<br><br>recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star | 8.8 (A) (B) |

**3rd Six Weeks**

| Number of Days | Topics | Concepts | TEKS |
|---|---|---|---|
| 2 days | Light Years | model and describe how light years are used to measure distances and sizes in the universe; and | 8.8(D) |
| 4 days | Origin of the Universe | research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe | 8.8 (E) |
| 4 days | Predicting Lunar Cycles | demonstrate and predict the sequence of events in the lunar cycle; and | 8.7 (B) |
| 4 days | Tides | relate the position of the Moon and Sun to their effect on ocean tides | 8.7 (C) |
| 4 days | Seasons | model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons | 8.7 (A) |

**4th Six Weeks**

| Number of Days | Topics | Concepts | TEKS |
|---|---|---|---|
| 3 days | Plate Tectonics | describe the historical development of evidence that supports plate tectonic theory | 8.9 (A) |
| 4 days | Formation of Crustal Features | relate plate tectonics to the formation of crustal features | 8.9 (B) |
| 7 days | Topographic Maps<br>Erosion<br>Weathering | interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering. | 8.9 (C) |
| 4 days | Radiant Energy<br>Wind<br>Ocean Currents | recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents | 8.10 (A) |
| 4 days | Weather | identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts | 8.10 (B) |
| 3 days | Weather Cont. | identify the role of the oceans in the formation of weather systems such as hurricanes | 8.10 (C) |

**5th Six Weeks**

| Number of Days | Topics | Concepts | TEKS |
|---|---|---|---|
| 4 days | Biodiversity Ecology | explore how short- and long-term environmental changes affect organisms and traits in subsequent populations | 8.11 (C) |
| 4 days | Human Activity in Ocean System | recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems | 8.11 (D) |
| 4 days | Ecology | describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems | 8.11 (A) |
| 4 days | Organisms Environment (Competition) | investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition | 8.11 (B) |

**6th Six Weeks**

| Number of Days | Topics | Concepts | TEKS |
|---|---|---|---|
| 8 days | Biomolecules | Compare the structure and functions of different types of biomolecules | Biology 9A |
| 8 days | Water as a Solvent | Relate the structure of water to its function as a solvent Investigating the properties of solutions and factors affecting gas and solid solubility. | IPC 6E |

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