

7th Grade Science Syllabus

1st Six Weeks

Matter and Atoms Interactions of Matter

- 7.PS1.1 Develop and use models to illustrate the structure of atoms, including the subatomic particles with their relative positions and charge.
- 7.PS1.2 Compare and contrast elemental molecules and compound molecules
- 7.PS1.3 Classify matter as pure substances or mixtures based on composition.
- 7.PS1.4 Analyze and interpret chemical reaction to determine if the total number of atoms in the reactants and products support the Law of Conservation of Mass.
- 7.PS1.5 Use the periodic table as a model to analyze and interpret evidence relating to physical and chemical properties to identify a sample of matter.
- 7.PS1.6 Create and interpret moles of substances whose atoms represent the states of matter with respect to temperature and pressure.

2nd and 3rd Six Weeks

Cells

- 7.LS1.1 Develop and construct models to identify and explain the structure and function of major cell organelles as they contribute to the life activities of the cell and organism.
- 7.LS1.2 Conduct an investigation to demonstrate how the cell membrane maintains homeostasis through the process of passive transport.
- 7.LS1.3 Evaluate evidence that cells have structural similarities and differences in organisms across kingdoms.
- 7.LS1.4 Diagram the hierarchical organization of multicellular organisms from cell to organisms
- 7.LS1.9 Construct a scientific explanation based on compiled evidence for the process of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.
- 7.LS2.1 Develop a model to depict the cycling of matter, including carbon and oxygen, including the flow of energy among biotic and abiotic parts of an ecosystem.

4th Six Weeks and weeks one-4 of the 5th Six Weeks

Reproduction, Survival, and Heredity

- 7.LS1.6 Develop an argument based on empirical evidence and scientific reasoning to explain how behavioral and structural adaptations in animals and plants affect the probability of survival and reproductive success.
- 7.LS1.7 Evaluate and communicate evidence that compares and contrasts the advantages of sexual and asexual reproduction.

- 7.LS1.8 Construct and explanation demonstrating that the function of mitosis for multicellular organisms is for growth and repair through the production of genetically identical daughter cells.
- 7.LS3.1 Hypothesize that the impact of structural changes to genes located on chromosomes may result in harmful, beneficial, or neutral effects to the structure and function of the organism.
- 7.LS3.2 Distinguish between mitosis and meiosis and compare the resulting daughter cells.
- 7.LS3.3 Predict the probability of individual dominant and recessive alleles to be transmitted from each parent to offspring during sexual reproduction and represent the phenotypic and genotypic patterns using ratios.

Weeks 5 and 6 of 5th Six Weeks

Human Body Systems

- 7.LS1.5 Explaining the body is a system comprised of subsystems that maintain equilibrium and support life through digestion, respiration, excretion, circulation, sensation, and locomotion.
- 7.ETS2.1 Examine a problem from the medical field pertaining to biomaterials and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit possible solutions.

6th Six Weeks

Earth's Atmosphere

- 7.ESS3.1 Graphically represent the composition of the atmosphere as a mixture of gases and discuss the potential for atmospheric change.
- 7.ESS3.2 Engage in scientific argument through graphing and translating data regarding human activity and climate.