Falfurrias Junior High School

7th Grade Science Syllabus

Science Teacher: Felix De Leon, Jr.
Contact: Remind: @kc4g78
Telephone: 361-325-8000
Conference Period: 1st period (8:00 AM - 8:48 AM)

First Semester

1st Six Weeks

Unit 01: Investigating Elements and Compounds *(15 Days)* Students explore the fundamental building blocks of matter by examining the periodic table, atomic structure, and how elements combine to form compounds. This unit introduces the concept of chemical formulas, properties of elements versus compounds, and basic chemical bonding principles.

Unit 02: Investigating Changes in Matter and Solutions *(18 Days)* Students investigate physical and chemical changes in matter, exploring the differences between mixtures and solutions. Topics include solubility, concentration, separation techniques, and identifying evidence of chemical reactions through observations of color changes, gas production, and temperature variations.

2nd Six Weeks

Unit 02: Investigating Changes in Matter and Solutions (Continued) *(18 Days)* Continuation of matter investigations with deeper exploration of solution properties, factors affecting solubility, and advanced separation methods. Students conduct experiments to analyze different types of mixtures and practice creating and interpreting chemical equations.

Unit 03: Investigating Motion *(15 Days)* Students examine the fundamentals of motion including position, distance, displacement, speed, velocity, and acceleration. Through hands-on activities and data collection, students learn to calculate motion values, interpret motion graphs, and understand the relationship between time, distance, and velocity.

Unit 04: Investigating Balanced and Unbalanced Forces *(10 Days)* Introduction to Newton's laws of motion and force concepts. Students explore how balanced forces result in no change in motion while unbalanced forces cause acceleration. Activities include force diagrams, friction investigations, and analyzing everyday examples of forces in action.

3rd Six Weeks

Unit 04: Investigating Balanced and Unbalanced Forces (Continued) *(10 Days)* Extended study of force relationships with emphasis on Newton's second and third laws. Students design experiments to test force interactions, calculate net forces, and explore applications of force principles in engineering and technology.

Unit 05: Investigating Thermal Energy *(14 Days)* Students explore heat transfer through conduction, convection, and radiation. This unit covers temperature versus heat, thermal expansion, specific heat capacity, and how thermal energy affects particle motion and phase changes in matter.

Second Semester

4th Six Weeks

Unit 06: Investigating the Solar System *(10 Days)* Students explore the structure and components of our solar system including planets, moons, asteroids, and comets. Topics cover planetary characteristics, orbital mechanics, comparative planetology, and the formation of the solar system through current scientific models.

Unit 07: Investigating Plate Tectonics *(10 Days)* Introduction to Earth's dynamic structure through the study of plate tectonics theory. Students examine evidence for continental drift, seafloor spreading, types of plate boundaries, and how plate movements create geological features like mountains, volcanoes, and earthquakes.

Unit 08: Investigating Human Impact on the Hydrosphere *(9 Days)* Students analyze the water cycle and examine how human activities affect water quality and availability. Topics include pollution sources, water treatment processes, conservation methods, and the interconnection between human society and water resources.

5th Six Weeks

Unit 08: Investigating Human Impact on the Hydrosphere (Continued) *(9 Days)* Extended investigation of water systems with focus on local and global water challenges. Students research case studies of water management, analyze data on water usage patterns, and propose solutions for water conservation and protection.

Unit 09: Investigating Matter and Energy in Ecosystems *(10 Days)* Students explore energy flow and matter cycling in ecological systems. This unit covers food webs, energy pyramids,

biogeochemical cycles (carbon, nitrogen, water), and the role of producers, consumers, and decomposers in maintaining ecosystem balance.

Unit 10: Investigating Structures and Systems in Organisms *(14 Days)* Introduction to cell theory and the hierarchical organization of living things from cells to organ systems. Students examine cell structures, compare plant and animal cells, and explore how specialized cells work together to form tissues, organs, and organ systems.

6th Six Weeks

Unit 10: Investigating Structures and Systems in Organisms (Continued) *(14 Days)* Detailed study of human body systems including circulatory, respiratory, digestive, nervous, and immune systems. Students investigate how these systems interact to maintain homeostasis and support life functions through hands-on modeling and analysis activities.

Unit 11: Investigating Inherited Traits *(10 Days)* Students explore the principles of heredity and genetics, including dominant and recessive traits, Punnett squares, and inheritance patterns. This unit covers DNA structure, genetic variation, mutations, and the relationship between genotype and phenotype.

Unit 12: Investigating Taxonomy *(9 Days)* Introduction to biological classification systems and the diversity of life on Earth. Students learn the hierarchical system of taxonomy, practice using classification keys, examine evolutionary relationships, and explore how scientists organize and categorize living organisms based on shared characteristics.

Required Supplies for Science Class and Laboratory

Basic Classroom Supplies

- **Composition notebook** (dedicated for science class)
- **Pencils** (#2 pencils for tests and daily work)
- **Colored pencils or markers** (for diagrams and data visualization)
- **Ruler** (metric and standard measurements)
- **Calculator** (basic scientific calculator recommended)
- **Glue sticks** (for interactive notebook activities)
- **Highlighters** (multiple colors for note-taking)

Laboratory Safety Equipment

- **Safety goggles** (required for all lab activities)
- **Lab apron or old clothes** (to protect clothing during experiments)
- **Closed-toe shoes** (required on all lab days - no sandals or open-toe shoes)

Optional Supplies

- **Index cards** (for vocabulary and study aids)

- **Sticky notes** (for annotations and reminders)
- **Folder or binder** (for handouts and returned assignments)

Note: Basic lab equipment and materials will be provided by the school. Students are responsible for bringing personal safety equipment and basic supplies to each class.