

Falfurrias Junior High School

8th Grade Science Syllabus

Science Teachers: Felix De Leon, Jr./ Samantha Chapa

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Conference Period: 1st period (8:00 AM - 8:48 AM)

First Semester

1st Six Weeks

Unit 01: Investigating Properties of Matter Students explore the physical and chemical properties that define different types of matter. Topics include density, states of matter, atomic structure, and how properties can be used to identify and classify materials.

Unit 02: Investigating Chemical Reactions Students examine how matter changes during chemical reactions, including identifying reactants and products, balancing equations, and understanding conservation of mass. Lab activities focus on observable signs of chemical change.

2nd Six Weeks

Unit 03: Investigating Force and Motion Students analyze the relationship between forces and motion, exploring Newton's laws, friction, gravity, and momentum. Hands-on investigations examine how forces affect the speed and direction of moving objects.

Unit 04: Investigating Waves Students discover the properties and behaviors of mechanical and electromagnetic waves, including amplitude, frequency, wavelength, and wave interactions such as reflection, refraction, and interference.

3rd Six Weeks

Unit 04: Investigating Waves (Continued) Students deepen their understanding of wave phenomena by exploring sound waves, light waves, and the electromagnetic spectrum. Applications include communication technologies and wave-based instruments.

Unit 05: Investigating the Universe Students explore Earth's place in the solar system and universe, examining planetary motion, stellar lifecycles, galaxies, and how scientists gather information about distant celestial objects.

Unit 06: Investigating Global Weather Systems Students analyze the factors that drive weather patterns, including air pressure, temperature differences, humidity, and the water cycle. Focus on how these systems create local and global weather phenomena.

Second Semester

4th Six Weeks

Unit 07: Investigating Climate Change Students examine evidence for climate change, including data analysis of temperature trends, greenhouse gases, and human impacts on Earth's climate systems. Discussion of mitigation and adaptation strategies.

Unit 08: Investigating Ecosystems Students explore the relationships between organisms and their environment, including food webs, energy flow, nutrient cycles, and how biotic and abiotic factors interact within ecosystems.

5th Six Weeks

Unit 08: Investigating Ecosystems (Continued) Students continue ecosystem studies by examining population dynamics, carrying capacity, symbiotic relationships, and how human activities affect biodiversity and ecosystem stability.

Unit 09: Investigating Cell Structures and Functions Students discover the basic unit of life by examining cell organelles, comparing plant and animal cells, and understanding how cellular processes like photosynthesis and respiration support life.

Unit 10: Investigating Traits of Organisms Students explore heredity and genetics, including dominant and recessive traits, Punnett squares, DNA structure, and how genetic information is passed from parents to offspring.

6th Six Weeks

Unit 10: Investigating Traits of Organisms (Continued) Students extend genetics studies to include mutations, genetic engineering, selective breeding, and the role of environmental factors in trait expression and evolution.

Unit 11: Student-Designed Investigations and Solutions Students apply scientific inquiry skills by designing and conducting their own investigations. Projects integrate concepts from throughout the year and emphasize problem-solving and engineering design processes.

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.