Aledo ISD
Subject: Science

Grade/Course: 7th grade
Year At A Glance

Program Transfer Goals

- Ask questions, recognize and define problems, and propose solutions.
- Safely and ethically collect, analyze, and evaluate appropriate data.
- Utilize, create, and analyze models to understand the world.
- Make valid claims and informed decisions based on scientific evidence.
- Effectively communicate scientific reasoning to a target audience.
- Engaging in argument from evidence.

Pacing

Semester One
Quarter One
Get to Know you/Safety Contracts (5 Days) Science Notebooks
Force & Motion (18 days) Force, Motion, & Energy 7.7A, 7.7B, 7.7C, **7.7D**
The Solar System (12 Days) 7.9A, 7.9B, 7.9C
Quarter Two
Water and Human Activity (11 days) Human Impact on the Hydrosphere 7.11AB
Thermal Energy (12 Days) Behavior of Thermal Energy 7.8AB 7.8C
Plate Tectonics (12 Days) Plate Tectonics 7.10B (Review from 6th grade) 7.10A

Semester Two
Quarter Three
Matter & Solutions (17 days) Matter & Energy 7.6ABCDE
Metabolic Reactions (24 days) **Part 1: How Do Our Body Parts Work Together to Make us Feel the Way We Do?** **Part 2: Why Are Living Things Different From One Another?** Matter & Energy 7.6C Health of an Organism 7.13AB
Quarter Four
Inheritance and Traits (10 days) How Traits are Inherited 7.13CD
Ecosystem Dynamics (14 Days) **How Does Changing an Ecosystem Affect What Lives There?** Ecosystems 7.12AB
Taxonomy (10 Days) Taxonomy 7.14AB
Dissections (5 days)

Assurance for a Guaranteed and Viable Curriculum

Aledo ISD

Grade/Course: 7th grade

Subject: Science

Year At A Glance

Adherence to this scope and sequence affords every member of the learning community clarity on the knowledge and skills on which each learner should demonstrate proficiency. In order to deliver a guaranteed and viable curriculum, our team commits to and ensures the following understandings:

Shared Accountability: Responding to the Needs of All Learners

- High levels of learning for all students.
- The district and course formative assessments aligned to the standards for this course support educators and learners in monitoring academic achievement and leveraging interventions.

Shared Understanding: Curriculum Design

- The district curriculum design weaves together elements of science and engineering practices, content, recurring themes and concepts, and assessments through phenomenon in order to adhere to curriculum design at the macro and micro level, ensuring vertical alignment.
- The district curriculum incorporates standards, scope and sequence, enduring understandings, essential questions, performance assessments, and recommended resources.

Interdependence: Curriculum Units

Members of the learning community utilize the curriculum units, plan collaboratively, and reflect on results for continuous improvement.

Storyline 1: Force and Motion
How can you represent the motion of cars?

Timeline: 18 days

Unit Summary: In Experience 1, students learn the difference between speed and velocity. They practice calculating average speed using distance and time data. In Experience 2, they become familiar with distance-time graphs. Finally, in Experience 3, they explore Newton's first law of motion.

Recurring Theme and Concepts: Patterns

Storyline 2: The Solar System
What is falling from the sky?

Timeline: 12 days

Unit Summary: In Experience 1, students are introduced to the objects in our solar system. They become familiar with the physical properties, locations, and movements of objects in our solar system, as well as the overall structure of the solar system. In Experience 2, they discover how gravity affects the motion of objects in our solar system. Finally, in Experience 3, they explore the characteristics of Earth that allow life to exist on the planet.

Recurring Theme and Concepts: Scale, Proportion, & Quantity

Storyline 3: Water and Human Activities
How can washing your clothes impact our water resources?

Timeline: 11 days

Unit Summary: In Experience 1, students are introduced to types of surface water and learn the harmful and beneficial influences of human activity on surface water. In Experience 2, they discover how sources of groundwater form and how human activities can have harmful and beneficial influences on this source of water. Finally, in Experience 3, they explore human dependence on ocean systems and how human activities impact these systems.

Recurring Theme and Concepts: Cause and Effect

Storyline 4: Thermal Energy
How does this soft glowing material become a glass bottle?

Timeline: 12 days

Unit Summary: In this unit, students will explain the relationship between kinetic energy and temperature and investigate how thermal energy moves. In Experience 1, students learn about temperature and thermal energy and how they are related to each other. In Experience 2, students learn about the three mechanisms of thermal energy transfer into, out of, and within systems-conduction, convection, and radiation. In Experience 3, students explore how thermal energy transfer results in a state of thermal equilibrium in a system.

Recurring Theme and Concepts: Cause and Effect

Storyline 5: Plate Tectonics
What is causing Iceland to tear apart?

Timeline: 12 days

Unit Summary: In this unit students will describe the evidence for plate tectonics and the causes and effects of plate tectonics. In Experience 1, students are introduced to the concepts of continental drift and tectonic plates. They learn about the types of evidence that show how Earth has changed over time. In Experience 2, they discover how plate tectonics results in ocean basin formation and mountain building. In Experience 3 they explore how plate tectonics causes earthquakes. Finally, in Experience 4, they explore how plate tectonics causes volcanic eruptions including super volcanoes and hot spots.

Recurring Theme and Concepts:Patterns

Storyline 6: Matter and Solutions
What is happening to the bath bomb?

Timeline: 24 days

Unit Summary: In Experience 1, students are introduced to elements and components. They become familiar with atoms and chemical formulas. In Experience 2, they explore the difference between physical and chemical changes. Finally, in Experience 3, they learn about aqueous solutions and ways to affect the rate of dissolution of a solute.

Recurring Theme and Concepts: Patterns

Storyline 7: Body Systems
How do our body parts work together to make us feel the way we do?

Timeline: 24 days

Unit Summary: This unit on metabolic reactions in the human body starts out with students exploring a real case study of a middle-school girl named M'Kenna, who reported some alarming symptoms to her doctor. Her symptoms included an inability to concentrate, headaches, stomach issues when she eats, and a lack of energy for everyday activities and sports that she used to play regularly. She also reported noticeable weight loss over the past few months, in spite of consuming what appeared to be a healthy diet. Her case sparks questions and ideas for investigations around trying to figure out which pathways and processes in M'Kenna's body might be functioning differently than a healthy system and why.

Recurring Theme and Concepts: Structure and Function; Systems and System Models

Storyline 8: Inheritance and Changes in Populations
Why doesn't this animal look like either of its parents?

Timeline: 10 days

Unit Summary: In Experience 1, students are introduced to asexual reproduction and sexual reproduction of plants and animals. They compare the advantages and disadvantages of both for populations over time. In Experience 2, They are introduced to artificial and natural selection and learn how each can affect populations over generations.

Recurring Theme and Concepts: Stability and Change

Storyline 9: Ecosystem Dynamics

Timeline: **14 days**

Unit Summary: In this unit students will diagram energy roles and explain the flow of energy and the cycling of matter in ecosystems. In Experience 1, students explore the connection between food chains, food webs, and energy pyramids. They learn how energy is transferred and conserved as it flows through an ecosystem. In experience 2. They use visuals to learn about the water, carbon and oxygen cycles, and other nutrient cycles. They also investigate how matter is conserved and cycled through an ecosystem.

Recurring Theme and Concepts: Matter and Energy

Storyline 10: Taxonomy
Why isn't Earth covered in waste?

Timeline: **10 days**

Unit Summary: In Experience 1, students describe binomial nomenclature, the taxonomic system, and how organisms can be categorized. In Experience 2, students describe characteristics of the kingdoms Archaebacteria and Eubacteria and their importance to ecosystems. In Experience 3, students describe characteristics of the kingdoms Protesta, Fungi, Plantae, and Animalia and their importance to ecosystems.

Recurring Theme and Concepts: System and System Models