



**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.

**PACING**

First Nine Weeks		Second Nine Weeks		Third Nine Weeks		Fourth Nine Weeks	
Unit 1 3 weeks	Unit 2 4 weeks	Unit 3 6 Weeks	Unit 4 6 weeks	Unit 5 6 Weeks	Unit 6 4 weeks	Unit 7 4 weeks	

**Assurances for a Guaranteed and Viable Curriculum**

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 the elements of content, skills and assessments 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.

The district curriculum units may be found: <http://tinyurl.com/Coppell-Curriculum>

## UNIT 1: SCIENTIFIC INVESTIGATION AND REASONING

TIMELINE: 3 WEEKS (INCLUDING INTRODUCTORY ADI)

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*Students will know...*

- Scientists use a variety of tools and methods when conducting investigations.
- Scientists use critical thinking and scientific reasoning to make informed decisions and solve problems.
- Scientists have made significant contributions to society.

*Students will be skilled at...*

- Conduct laboratory and outdoor investigations following safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry during laboratory and outdoor investigations.
- Use critical thinking, scientific problem reasoning, and problem solving to make informed decisions.
- Use a variety of tools and safety equipment to conduct science inquiry.

## UNIT 2: ORGANISMS AND ENVIRONMENT

TIMELINE: 4 WEEKS

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*Students will know...*

- All organisms are classified into Domains and Kingdoms.
- Organisms within taxonomic groups share similar characteristics with allow them to interact with the living and nonliving parts of their ecosystem.
- All organisms are composed of one or more cells.
- The persons of a nucleus determines whether a cell is prokaryotic or eukaryotic.
- The broads classification of living organisms is Domains.
- Scientists have made significant and relevant contributions to society.

*Students will be skilled at...*

- Identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms.
- Describe biotic and abiotic parts of an ecosystem in which organisms interact.
- Diagram the levels of organization within an ecosystem, including organisms, population, community, and ecosystem.

## UNIT 3: MATTER

TIMELINE: 6 WEEKS

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### *Students will know...*

- Elements differ from compounds.
- An element is a pure substance represented by chemical symbols.
- A limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere.
- Matter has physical properties that can be used for classification.
- Scientists have made significant and relevant contributions to society.

### *Students will be skilled at...*

- Differentiate between elements and compounds on the most basic level.
- Identify the formation of a new substance by using the evidence of a possible chemical change.
- Compare metals, nonmetals, and metalloids using physical properties.
- Calculate density to identify unknown substances.
- Test the physical properties of minerals, including hardness, color, luster, and streak.
- Conduct laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry methods during laboratory and field investigations.
- Use critical thinking, scientific reasoning, and problem solving to make informed decisions.
- Use a variety of tools and safety equipment to conduct science inquiry.

## UNIT 4: ENERGY

TIMELINE: 6 WEEKS

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### *Students will know...*

- Some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time.
- The Law of Conservation of Energy states that energy cannot be created or destroyed, just changed in form.
- Scientists have made significant and relevant contributions to society.

### *Students will be skilled at...*

- Research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources.
- Design a logical plan to manage energy resources in the home, school, or community.
- Investigate methods of thermal energy transfer, including conduction, convection, and radiation.
- Verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature.
- Demonstrate energy transformations.
- Conduct laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry methods during laboratory and field investigations.
- Use critical thinking, scientific reasoning, and problem solving to make informed decisions.
- Use a variety of tools and safety equipment to conduct scientific inquiry.

## UNIT 5: FORCE AND MOTION

TIMELINE: 6 WEEKS

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### *Students will know...*

- Force and motion are related to potential and kinetic energy.
- Scientists have made significant and relevant contributions to society.

### *Students will be skilled at...*

- Compare and contrast potential and kinetic energy.
- Identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces.
- Calculate average speed using distance and time measurements.
- Measure and graph changes in motion.
- Investigate how inclined planes and pulleys can be used to change the amount of force to move an object.
- Conduct laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry methods during laboratory and field investigations.
- Use critical thinking, scientific reasoning, and problem solving to make informed decisions.
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## UNIT 6: EARTH

TIMELINE: 4 WEEKS

### Transfer Goal:

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*Students will know...*

- Understand the structure of Earth, the rock cycle, and plate tectonics.
- Scientists have made significant and relevant contributions to society.

*Students will be skilled at...*

- Build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere.
- Classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation.
- Identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American.
- Describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building.
- Demonstrate safe practices during laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry methods during laboratory and field investigations.
- Use critical thinking, scientific reasoning, and problem solving to make informed decisions.
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## **UNIT 7: SOLAR SYSTEM**

**TIMELINE: 4 WEEKS**

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*Students will know...*

- Understand the organization of our solar system and the relationships among the various bodies that comprise it.
- Understand that gravity is the force that governs the motion of our solar system.
- Scientists have made significant and relevant contributions to society.

*Students will be skilled at...*

- Describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets.
- Describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.
- Demonstrate safe practices during laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry methods during laboratory and field investigations.
- Use critical thinking, scientific reasoning, and problem solving to make informed decisions.
- Use a variety of tools and safety equipment to conduct science inquiry.

