COPPELL ISD SCIENCE YEAR AT A GLANCE

SUBJECT: SCIENCE | GRADE 5 | 5 UNITS

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 [CONTENT AREAS ARE TO ADJUST THE TIMELINE AS APPROPRIATE - NOTING UNIT TIMELINES AND DISTRICT ASSESSMENTS]

First Nine Weeks		Second Nine Weeks	Third Nine Weeks	Fourth Nine Weeks
Unit 1 Matter and Energy 7 weeks Aug. 21 - Sept. 29	Unit 2 Force, Motion, Energy 6 weeks Oct. 2 - Nov. 17	Unit 3 Earth's Changing Surface 8 weeks Nov. 27 - Dec. 15 and Jan. 3 - Feb. 2	Unit 4 Patterns in the Natural World 5 weeks Feb. 5 - Mar. 9	Unit 5 Organisms and Environments and Stepping Up after STAAR 11 weeks March 19 -May 31

Assurances for a Guaranteed and Viable Curriculum [STANDARDIZED ACROSS ALL CONTENT AREAS]

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: Physical Science: Matter and Energy

Timeline: 7 Weeks - 1st Grading Period (Aug. 21 - Sept. 29, 2017)

Unit Summary: In fifth grade, students learn about the physical properties of matter, including magnetism, physical states of matter, relative density, solubility in water, and the ability to conduct or insulate electrical and thermal energy. Students will be able to tell when a mixture constitutes a solution and will learn how to separate a substance from water using evaporation.

- **Transfer Goal:** *Students will be able to independently use their learning to…*

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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. (Potential OATG - Overarching Transfer Goal - depending on campus learning experience design.)
Effectively communicate scientific reasoning to a target audience.

Students will know…
Matter has measurable physical properties and those properties determine how matter is classified.

Students will be skilled at…

- Classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking or floating), solubility in water, and the ability to conduct or insulate thermal energy or electrical energy.
- Demonstrate that some mixtures maintain physical properties of their ingredients.
- Identify changes that can occur in the physical properties of the ingredients of solutions.
- Conduct classroom and outdoor investigations following home and school safety procedures.
- Use scientific inquiry during laboratory and outdoor investigations.
- Use critical thinking and scientific problem solving to make informed decisions.
- Use a variety of tools and methods to conduct science inquiry.

Unit 2: Physical Science: Force, Motion and Energy

Timeline: 6 Weeks - 1st & 2nd Grading Periods (Oct. 2 - Nov. 17, 2017)

Unit Summary: Students explore the uses of light, thermal, electrical, mechanical, and sound energies in their everyday lives. Students also conduct detailed investigations about light, and discover that light travels in straight lines, and can be reflected and refracted. Building upon their explorations of force and motion in fourth grade, fifth grade students design an experiment that tests the effect of force on an object.

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Effectively communicate scientific reasoning to a target audience.

Students will know…

Energy occurs in many forms and can be observed in cycles, patterns, and systems.

Students will be skilled at…

- Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.
- Demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and produce light, heat, and sound.
- Demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of an object when observed through water.
- Design an experiment that tests the effect of force on an object.
- Conduct classroom and outdoor investigations following home and school safety procedures.
- Use scientific inquiry during laboratory and outdoor investigations.
- Use critical thinking and scientific problem solving to make informed decisions.
- Use a variety of tools and methods to conduct scientific inquiry.

UNIT 3: Earth Science - Earth's Changing Surface

TIMELINE: 8 WEEKS - 2ND & 3RD GRADING PERIODS (NOV. 27 - DEC. 15, 2017; JAN. 3 - FEB. 2, 2018)

Unit Summary: Students recognize that the Earth is constantly changing and consists of useful resources. They will explore the processes that led to the formation of sedimentary rocks and fossil fuels. Students will also recognize how landforms are a result of changes to the Earth's surface by wind, water, and ice.

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Effectively communicate scientific reasoning to a target audience.

Students will know…

Earth's surface is constantly changing and consists of useful resources.

Students will be skilled at…

- Explore the processes that led to the formation of sedimentary rocks and fossil fuels.
- Recognize how landforms such as deltas, canyons and sand dunes are the result of changes to Earth's surface by wind, water, and ice.
- Conduct classroom and outdoor investigations following home and school safety procedures.
- Use scientific inquiry during laboratory and outdoor investigations.
- Use critical thinking and scientific problem solving to make informed decisions.
- Use a variety of tools and methods to conduct scientific inquiry.

UNIT 4: Earth Science - Patterns in the Natural World

Timeline: 5 Weeks - 3rd Grading Period (February 5 - March 9, 2018)

Unit Summary: Students recognize patterns in the natural world and among the Sun, Earth, and Moon system. Students will differentiate between weather and climate; explain how the sun and ocean interact in the water cycle, demonstrate the cause of the day/night cycle; and compare physical characteristics of the Sun, Earth, and Moon.

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Utilize, create, and analyze models to understand the world. (Potential OATG depending on campus learning experience design.)
Make valid claims and informed decisions based on scientific evidence.
Effectively communicate scientific reasoning to a target audience.

Students will know…
There are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. (water cycle, seasons, day/night (rotation/revolution), tides, shadows, eclipses)

Students will be skilled at…

- Differentiate between weather and climate.
- Explain how the sun and the ocean interact in the water cycle.
- Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the sun across the sky.
- Identify and compare the physical characteristics of the Sun, Earth, and Moon system.
- Conduct classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices.
- Use scientific inquiry during laboratory and outdoor investigations.
- Use critical thinking and scientific problem solving to make informed decisions.
- Use a variety of tools and methods to conduct science inquiry.

Unit 5: Organisms and Environments

Timeline: 11 Weeks - 4th Grading Period (March 19 - May 31, 2018)

Unit Summary: Students explore ecosystems and their living and nonliving parts, including how they interact and affect one another. This includes adaptations and structures that help a species survive in its environment. Learners continue to explore how organisms survive in their ecosystem by considering learned and inherited behaviors. Students also trace the path of energy as it travels from the sun by creating and analyzing food webs. When analyzing food webs and energy transference, students realize how small changes in an ecosystem can have a significant impact on the ecosystem. They, in turn, explore how making informed choices can help them protect our world and its various ecosystems.

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Make valid claims and informed decisions based on scientific evidence.

Effectively communicate scientific reasoning to a target audience. (Potential OATG depending on campus learning experience design.)

Students will know…

There are relationships, systems, and cycles within environments.

Students will be skilled at…

- Observe the way organisms live and survive in their ecosystems by interacting with the living and nonliving elements.
- Describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food web to consumers and decomposers.
- Predict the effects of changes in ecosystems caused by living organisms, including humans.
- Conduct classroom and outdoor investigations following home and school safety procedures.
- Use scientific inquiry during laboratory and outdoor investigations.
- Use critical thinking and scientific problem solving to make informed decisions.
- Use a variety of tools and methods to conduct scientific inquiry.