

Fillmore Central Middle School
Course Syllabus
Elevate Science Grade 8, Course 3

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COURSE DESCRIPTION

Students make sense of phenomena as they explore the disciplinary core ideas through the lens of crosscutting concepts, such as systems and system models, cause and effect, and matter and energy. Course 3 is a phenomena-based science curriculum immersing students in the inquiry process. This is science elevated for problem-solving, critical thinking, and the NGSS performance expectations. It is based on the 5E learning cycle, the CISD Instructional Model (Connect, Investigate, Synthesize, Demonstrate) empowers students to become more self-directed, curious, and accountable each topic seamlessly integrates the science and engineering practices with engineering design principles as students experience a variety of hands-on investigations.

Students return to the study of the physical world, applying the concepts of pattern and scale, proportion, and quantity. their investigations begin at the atomic level and expand. Students look at different systems and models in the physical world, living world, and earth and space sciences. More understanding is developed in topics like heredity and climate, using concepts of stability, change, and cause and effect.

Students look at patterns as they explore atomic theory, structure, bonding, and acids and bases. This leads to an understanding of chemical reactions and how materials may be created. Students return to forces and build models to explain the relationship between speed, velocity, and acceleration.

Students will examine patterns in genes and heredity, including coding and protein synthesis, leading to an understanding of how genetic mutations represent change and provide an explanation of the theory of evolution.

Students then apply concepts of atomic theory to help students use patterns to comprehend how to rock ages. Students review energy concepts as they look at circulation patterns in the atmosphere and oceans leading to an understanding of climate. They explore models of how changes in climate can affect Earth's systems. Students finish with Earth's movement in space as part of a larger system and follow a predictable pattern where Earth is governed by forces of planetary motion that extend beyond our Solar System.

Classroom Expectations - FOR MR. MOSES

1. Your appropriate supplies will be expected and with you upon entering the room each day. If the class has already begun you will have to wait until after class to get your assignment and borrow what you need in class. This includes your computer.
2. NO FOOD, DRINKS, OR CANDY. Gum will be allowed as long as it is not heard or seen.
3. Be in your seat ready to go--when the door is shut, class is to get started.
4. Restrooms should be used during break times or between classes. EMERGENCIES ONLY.
5. Be safe, responsible, and respectful to everyone, and DWR- Do What's Right- —if I ask you to stop what you are doing—stop!

TEXT

This textbook is very different from most- it's meant for students to write in it. Therefore, it is a record of learning. Parents look through lessons your child has completed recently, and be sure to ask lots of questions. One of the best ways for students to check on their learning is to explain it to someone else. Each student will be provided with an Elevate Science consumable textbook for which they will be responsible. Students will not be provided with an additional textbook should they lose their copy. Students will be able to keep their textbook in the classroom, but if they choose to take it home they are responsible for bringing the textbook to class upon their return. Students will be able to access their textbooks online through Canvas.

SUPPLEMENTARY RESOURCES

1. **IXL**
Username:
Password:
2. **Canvas**
Username:
Password

Discipline

Every student has a RIGHT to learn, and I will NOT allow any student to take away another student's right. A variety of consequences will be used should a student choose to disrupt the learning environment. The consequence of their action will vary depending on the degree and regularity of occurrence.

Electronic Devices

****ZERO-TOLERANCE POLICY****

Electronic devices will NOT be allowed in my classroom. If there is an emergency that a parent needs to be able to contact their student for, they need to arrange that with the office prior to class. If I see a phone I WILL take it.

Grading:

A student’s grade will be determined by the number of points earned out of the total points available within two categories of assessments (Formative & Summative). The total of Summative Assessments (Tests, Projects, Presentations) will be equal to 80% of the total grade. The total of Formative Assessments (Practice work & Daily Tasks) will equal 20% of the total grade. For any questions refer to the District’s Grading for Learning policy.

****Student progress may be checked online. Contact the Middle School office if you are unsure how to do this****

Grading Scale	
100 - 93%	A
92 - 89%	B+
88 - 85%	B
84 - 81%	C+
80 - 77%	C
76 - 73%	D+
72 - 69%	D
68 - 0%	F

MISSING/LATE ASSIGNMENTS:

Students unable to complete formative work on time will be assigned an INCOMPLETE for their missing work. Students will have the grading period (9-week terms) to submit any missing formative or summative work and failure to do so will result in a zero entered when the grading period has been completed.

SUMMATIVE RETAKE POLICY:

Students will be permitted ONE retake for any summative assessment (Presentations are excluded from this policy). Standards for retakes shall include

1. Remediation required and designated by Mr. Moses
2. An incomplete has not been recorded for the assessment (Re-takes are not allowed for incomplete tasks.)
3. The retake assessment will be a different assessment than the original AND the last attempt will be the final recorded grade.

Course Competencies/ Learning Objectives

Students who successfully complete **Elevate Science Grade 8, Course 3** will be competent in the following areas:

- TSW be able to develop models to describe the atomic composition of simple molecules and extended structures.
- TSW be able to gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
- TSW be able to plan and conduct an investigation to demonstrate that mixtures are combinations of substances.
- TSW be able to analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
- TSW be able to develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.
- TSW be able to undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy during a chemical and/or physical process.
- TSW be able to apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
- TSW be able to plan and conduct an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
- TSW be able to construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects and the distance between them.
- TSW be able to develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
- TSW be able to develop and use a model to explain why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects on the structure and function of an organism.
- TSW be able to develop and use a model to describe how asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
- TSW be able to gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.
- TSW be able to analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.
- TSW be able to apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
- TSW be able to analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.
- TSW be able to construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.
- TSW be able to use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.
- TSW be able to develop and use a model of the Earth-Sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and moon, and seasons.
- TSW be able to develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- TSW be able to analyze and interpret data to determine scale properties of objects in the solar system.
- TSW be able to construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6 billion-year-old history.
- TSW be able to develop and use a model to describe how unequal heating and rotation of Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- TSW be able to ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

- TSW be able to define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- TSW be able to evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- TSW be able to analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- TSW be able to develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.