Perris Union High School District
Course of Study

A. COURSE INFORMATION

Course Title:
(limited to 34 characters with spaces in Infinite Campus)

Science 5

- ☐ New
- ☑ Revised

If revised, the previous course name if there was a change

Transcript Course Code/Number:

904053

(To be assigned by Educational Services if it's a new course)

CREDIT TYPE EARNED:	CALPADS CODE:
science	9320

Subject Area:

- ☐ Social Science
- ☐ English
- ☐ Mathematics
- ☑ Laboratory Science
- ☐ World Languages
- ☐ Visual or Performing Arts
- ☐ College Prep Elective
- ☐ Other

Is this classified as a Career Technical Education course?

- ☐ Yes
- ☑ No

If yes, which pathway does this course align to?
Pathway Name:

CTE CDE Code:

Grade Level(s)

- ☐ MS
- ☐ HS
- ☑ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12

Was this course *previously approved by UC* for PUHSD?

- ☐ Yes
- ☐ No

(Will be verified by Ed Services)

Which A-G Requirement does/will this course meet?

☐ Pending

Credential Required to teach this course:
To be completed by Human Resources only.

SS: Science: Biological Sciences; Science: Chemistry; Science: Geosciences; Science: Physics; Foundational-level General Science

Signature

2/29/2024
Date

Submitted by: Julie Harris
Site: SSC
Date: 02/16/2024
Email: julie.harris@puhsd.org

Unit Value/Length of Course:

- ☐ 0.5 (half-year or semester equivalent)
- ☑ 1.0 (one-year equivalent)
- ☐ 2.0 (two-year equivalent)
- ☐ Other:

Approvals	Name/Signature	Date
Director of Curriculum & Instruction		
Asst. Superintendent of Educational Services	Kimberly Lee Mackamul	3/4/24
Governing Board		

Prerequisite(s) (REQUIRED):

Corequisite(s) (REQUIRED):

Brief Course Description (REQUIRED):

Fifth-grade science is a standard and laboratory-based program. Focusing on exploring the introductory principles of Earth, Physical, and Life Sciences through an integrated approach. Science activities are based on the Next Generation Science Standards, which allow students to explore connections across the four domains of science. This employment of the various cross-cutting concepts helps students develop a coherent and scientifically-based view of the world around them while utilizing the skills and techniques outlined in the Investigation and Experimentation Strand of the Content Standards.

B. COURSE CONTENT

Course Purpose (REQUIRED):
What is the purpose of this course? Please provide a brief description of the goals and expected outcomes. Note: More specificity than a simple recitation of the State Standards is needed.

The purpose of this course is to expose students to research-based 5E instruction(Engage, Explore, Explain, Elaborate, and Evaluate) while utilizing phenomena designed to inspire and ask questions. Through this instruction criteria, students will be able to explain and analyze the various concepts within each unit.

Course Outline (REQUIRED):
Detailed description of topics covered. All historical knowledge is expected to be empirically based, give examples. Show examples of how the text is incorporated into the topics covered.

Unit 1- Matter: What is Matter Made Of?

1.1 Describing Matter in Words and Numbers

- Matter can be described and identified in a variety of ways, both qualitatively and quantitatively.
- Properties that identify matter include color, hardness, reflectivity, thermal conductivity, response to magnetic forces, and solubility.

- Make observations and measurements to identify materials based on their properties.

1.2 Changes to Matter

Matter can change physically (mixing, changing temperature and state) as well as chemically (new substances formed).

- Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

1.3 A Model of Matter

Matter is composed of very small particles that behave differently in a solid, a liquid, or a gas.

- Develop a model to describe that matter is made of particles too small to be seen.

Unit 2 -Matter and Energy Flow: From Matter to Organisms

2.1 Plant Needs

Plants use energy from the sun, air, and water to manufacture food for themselves. Minerals from the soil are incorporated into this food.

- Support an argument that plants get the materials they need for growth chiefly from air and water.

2.2 Matter Flow in Ecosystems

Food chains and food webs are models that show food relationships in an ecosystem. Material that is in plant material like grass moves through a food web as animals eat the plants. Some animals eat other animals for their food.

- Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

2.3 Energy Flow in Ecosystems

The sun is the original source of energy for ecosystems. Energy from the sun enables plants to make food for themselves. Animals can, in turn, eat this food and the energy and matter it contains can be passed on to other animals.

- Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

Unit 3- Earth Systems: Interacting Earth Systems

3.1 Hydrosphere and Biosphere Interactions

All life on earth depends on water. Plants need fresh water to grow, and animals need those plants to grow. Ecosystems are systems of organisms that rely on water and interact with their environment.

- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

3.2 Water as a Valuable Natural Resource

Water covers much of Earth. Most of that water is found in the salty oceans. The remainder is freshwater found in glaciers, lakes, rivers, groundwater, and a few other bodies of water. It is very important to conserve our freshwater resources.

- Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

3.3 Protecting Earth's Resources

Humans depend on Earth's natural resources in many ways. For the sake of future generations, it is important that we conserve and protect those resources.

- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Unit 4 -Patterns Above: Patterns in the Night Sky

4.1 Effects of Gravity

Gravity is an attractive force that pulls on everything. It's a force that operates between objects that are not even touching. Gravity pulls on bike riders as well as moons and planets.

- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- Support an argument that the gravitational force exerted by Earth on objects is directed down.

4.2 Patterns of Motion in the Sky

Earth's rotation causes shadows to move throughout the day, the sun to appear to move across the sky, and stars to seem to move in patterns across the night sky. Groups of stars form constellations.

- Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

4.3 Sun and Star Brightness

Our sun is a star. Astronomers study stars with many kinds of telescopes. Our sun seems so big and bright compared to other stars because it is closer to Earth than any other stars.

- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

Writing Assignments (REQUIRED):
Give examples of the writing assignments and the use of critical analysis within the writing assignments.

1.1 Describing Matter in Words and Numbers

- Students observe various images of matter and objects and look for evidence they can use to construct an argument for why each image or object represents a certain state of matter.

- Students measure, collect, and analyze properties of various common objects using tools such as rulers, balances, and magnets. Students make observations and measurements to identify materials based on their properties.

1.2 Changes to Matter

- Students obtain evidence from the text to generate a model depicting the change in particle movement during phase changes.

- Students obtain scientific information to construct visual scale models of mixtures described in the text.

- Students use evidence to construct an explanation to describe real-world examples of physical changes.

1.3 A Model of Matter

- Students construct scientific explanations for the investigative phenomenon of models and the “Can you explain” question or a question of their own.

2.1 Plant Needs

- Students use observations to make predictions about plant growth and formulate questions to investigate the concept.

2.2 Matter Flow in Ecosystems

- Students will gather evidence from an interactive and formulate an argument about the impact of removing decomposers from an ecosystem.

- Students will read text and gather evidence to support an argument about the role of nonliving things in ecosystems.

2.3 Energy Flow in Ecosystems

- students will summarize their learning from the station activities and create a circle graph to model the distribution of organisms in an ecosystem.

3.1 Hydrosphere and Biosphere Interactions

- Students define Earth's four primary systems and how they interact and illustrate the living and nonliving things that make up one of the systems.

- Students will summarize their learning from the station activities and discuss and share the chart paper models they created. Then, they will use what they have learned to study an image and write a story about interactions in the coral reef ecosystem.

3.2 Water as a Valuable Natural Resource

- Students conduct research online to obtain information about sources of drinking water in their local community and combine information to explain the sources of their drinking water.

- Students use the data and evidence they have gathered to construct an argument for which source of freshwater is the most important.

3.3 Protecting Earth's Resources

- Students read a text about ocean resources to obtain information about the types of ocean resources and impacts due to pollution and identify evidence for how humans pollute the ocean to support their ideas about potential solutions to the problem of ocean pollution.

- Students demonstrate an understanding of the cause-and-effect relationship between overconsumption of resources and changes to the environment, making observations and gathering evidence to support predictions about the effects of deforestation and their ideas about potential solutions to the problems they identified.

4.1 Effects of Gravity

- Students observe images, identify the cause of motion in the images, and connect their observations to explanations for other phenomena as they begin to develop a conceptual model of gravity.

- Students observe two images to gather evidence about the cause-and-effect relationship between force and motion. Then, they compare and contrast the two forces and construct explanations about how they differ.

4.2 Patterns of Motion in the Sky

- Students complete the interactive Cycles in the Sky and use their observations of the Earth-sun model to construct explanations about how Earth's rotation causes patterns of night and day.

4.3 Sun and Star Brightness

- Students investigate patterns in the relationship between the brightness of a light source and its distance and collect and analyze data to construct an explanation.

- Students observe a video and analyze and interpret data about telescopes that detect different types of electromagnetic energy, choose an appropriate design for a telescope, and use evidence to support their choice

INSTRUCTIONAL MATERIALS (REQUIRED)	
Textbook #1	
Title: Discovery Education	Edition: Online
Author:	ISBN:
Publisher:	Publication Date:
Usage: ☑ Primary Text ☐ Read in entirety or near	
Textbook #2	
Title:	Edition:
Author:	ISBN:
Publisher:	Publication Date:
Usage: ☐ Primary Text ☐ Read in entirety or near	
Supplemental Instructional Materials *Please include online, and open source resources if any.*	
Estimated costs for classroom materials and supplies (REQUIRED). *Please describe in detail.* If more space is needed than what is provided, please attach a backup as applicable.	

Cost for a class set of textbooks: $	Description of Additional Costs:
Additional costs:$	
Total cost per class set of instructional materials:	$

Key Assignments (REQUIRED):

Please provide a detailed description of the Key Assignments including tests, and quizzes, which should incorporate not only short answers but essay questions also. How do assignments incorporate topics? Include all major assessments that students will be required to complete

1.1 Assignment(s)

- Measuring Properties Stations - Students will rotate through stations observing and measuring, and recording findings to identify materials based on their properties

1.2 Assignment(s)

- Particle Model- Students obtain evidence from the text to generate a model depicting the change in particle movement during phase changes.

- Models of Mixture- Students obtain scientific information to construct visual scale models of mixtures described in the text.

- In the Mix:Hands on Investigation- Students will explore what happens when they mix substances together.

1.3 Assignment(s)

- Models of Matter-Students develop a Model of Matter

2.1 Assignment(s)

- Growth of Seed Hands on Investigation- In this activity, students will determine whether plants need soil to grow by germinating bean seeds in wet paper towels, measuring the growth of these seeds, and comparing the results to the growth of a control seed germinated in soil.

2.2 Assignment(s)

- Food Chain Model- In this activity, students will demonstrate that they understand the predator-prey relationships among organisms by constructing a model of a food chain to show the feeding relationships between the organisms.

2.3 Assignment(s)

- Model of Energy Flow- In this activity, students refine a model of energy flow in an ecosystem by considering the efficiency of energy transfer

3.1 Assignment(s)

- Interaction Project- Students will work in pairs to show interactions among a series of images of

objects in the hydrosphere and biosphere.

3.2 Assignment(s)

- Water Proportion Project- Students graph relative proportions of water found in different forms on Earth.

- Insects and Water Pollution - Students use evidence obtained from text and videos to construct an explanation for what might happen if insects were exposed to polluted water.

3.3 Assignment(s)

- Deforestation Effects- Students demonstrate an understanding of the cause-and-effect relationship between overconsumption of resources and changes to the environment, making observations and gathering evidence to support predictions about the effects of deforestation and their ideas about potential solutions to the problems they identified.

- Community & the Environment - Students research and communicate information about what your local community is doing to minimize the effects humans have on the environment.

4.1 Assignment(s)

- Force of Gravity- Students will carry out an investigation to gather evidence about the cause-and-effect relationship between gravity and motion, including analysis and interpretation of data about the direction of the force of gravity.

- Force and Motion- Students complete a formative assessment of their understanding of how contact mediates the cause-and-effect relationship between force and motion as they classify everyday phenomena into one of two categories.

4.2 Assignment(s)

- Day & Night Cycles- Students complete a formative assessment in which they analyze and interpret data to identify patterns and evaluate claims about causes and effects related to the cycle of day and night.

4.3 Assignment(s)

- Telescope Design Project- Students observe a video and analyze and interpret data about telescopes that detect different types of electromagnetic energy, choose an appropriate design for a telescope, and use evidence to support their choice

- Refracting Telescope Model- Students complete a formative assessment in which they construct explanations about the structure and function of astronomical tools and construct a model of a refracting telescope.

Instructional Methods and/or Strategies (REQUIRED):

Please list specific instructional methods that will be used.

- Oral In-Class Participation/Classwork/Homework
- Focus Activities
- Homework/Classwork
- Student Presentations
- Quizzes and Tests
- Writing Assessments
- Projects (including Artifact, Written and Oral Assessment)

Assessment Methods and/or Tools (REQUIRED):

Please list different methods of assessments that will be used.

- Vocabulary Assessments
- Grammar Assessments
- Lesson Assessments
- Unit/Chapter Assessments
- Individual Presentations
- Group Presentations
- Cumulative Semester Assessments

COURSE PACING GUIDE AND OBJECTIVES (REQUIRED)				
Day(s)	**Objective**	**Standard(s)**	**Chapter(s)**	**Reference**

C. HONORS COURSES ONLY
Indicate how much this honors course is different from the standard course.

D. BACKGROUND INFORMATION
Context for course (optional)
History of Course Development (optional)