

Mt. Diablo Unified Course of Study

COURSE TITLE: Dynamic Living Earth

COURSE NUMBER: 702930

DEPARTMENT: Science

LENGTH OF COURSE: One Year

CREDITS PER SEMESTER: 5

GRADE LEVEL(S): 9-12

REQUIRED OR ELECTIVE: Required

PREREQUISITES: None

BOARD OF EDUCATION ADOPTION: April 2024

COURSE DESCRIPTION:

Dynamic Living Earth is a survey course for students with significant cognitive disabilities who are anticipated to earn an Alternative High School Diploma in accordance with California Education Code 51225.31.

The course is will allow students to use evidence from experiments, research, and observations, to evaluate and develop claims backed by evidence and reasoning, and develop models to investigate the natural world.

TIME ESTIMATES

Major units will vary in length, depending on the History-Social Science Framework

COURSE OBJECTIVES

Content Themes:

- Ecosystem Interaction and Energy
- Photosynthesis and Respiration
- Common Ancestry and Diversity
- Structure, Function and Growth
- Ecosystems Stability and Response to Climate Change
- Race, Class, Ethnicity, and Gender in America
- The United States on a Global Stage

Skills:

- Interpreting Graphics
- Analyzing Sources
- Determining Cause and Effect
- Conducting effective research

- Speaking and listening and interpreting (academic discussion, presentation, etc)
- Collaborating constructively on team and group projects.

COURSE CONTENT

Unit 1 Title
Ecosystem Interactions and Energy
Unit 1 Description
<p>Students study factors that impact ecosystems over time. Students evaluate different solutions that can reduce the impacts of climate change including individual and group behavior.</p> <p>Sample activities may include:</p> <ul style="list-style-type: none"> • Experiments that observe plants health under a variety of conditions, including manipulating variables • Creating a presentation to demonstrate factors leading to climate change • Observing weather patterns over time

Unit 2 Title
Photosynthesis and Respiration
Unit 2 Description
<p>Students will learn about the interconnected processes of nutrient and energy cycling, photosynthesis and cellular respiration, then apply that knowledge to gaining an understanding of how living things acquire energy and matter for life.</p> <p>Sample activities may include:</p> <ul style="list-style-type: none"> • Digital or physical representations of photosynthesis occurring • Experiments that vary the levels of water, light or other nutrients to a plant • Observation of plants under microscopes

Unit 3 Title
Common Ancestry and Diversity
Unit 3 Description
<p>Students will gain a conceptual understanding of common ancestry and biological evolution. Students will use evidence to explain how changes to the environment affect distribution or disappearance of traits in species.</p>

Sample activities may include:

- Researching common traits, such as eye color or left handedness, within the student's own family
- Prepare a presentation demonstrating the evolution of a species over time
- Research the student's family tree

Unit 5 Title

Structure, Function, and Growth (from Cells to Organisms)

Unit 5 Description

Students will use models to create explanations of how cells use DNA to construct proteins, build biomass, reproduce and create complex multicellular organisms.

Sample activities include:

- Students will simulate cell division (mitosis and meiosis) by using interactive models such as pop beads or pipe cleaners.
- Students will make a visual depiction of a cell
- Students will view cells under a microscope

Unit 6 Title

Ecosystems Stability and the Response to Climate Change

Unit 6 Description

Students study factors that impact weather and climate over time. Students evaluate different solutions that can reduce the impacts of climate change.

Sample activities may include:

- Experiments that observe plants health under a variety of conditions, including manipulating variables
- Creating a presentation to demonstrate factors leading to climate change
- Observing weather patterns over time

EVALUATION OF STUDENT PROGRESS

Formative and summative assessments include, but are not limited to, quickwrites, essays, quizzes, tests, exit tickets, and class discussions.