RIALTO UNIFIED SCHOOL DISTRICT
CURRICULUM PROPOSAL

Name of Course:	Integrated Science 1 (APEX)	Grade Level(s):	10-12

Brief Course Description:

This course is the first of an integrated science sequence of three courses. It is an online course using material from APEX Learning from Environmental Studies. The lab part of the course has to be done in the classroom. The online course explores the biological, physical, and sociological principles related to the environment in which organisms live on Earth, the biosphere. Course topics include topics in **Biology** such as: bio-geo-chemical cycles, ecosystems, ecological pyramids, **Physics and Chemistry** such as: the nature of matter and energy, the flow of matter and energy through living systems, **Earth Systems:** such as: natural systems on Earth populations, communities, ecosystems, ecological pyramids, renewable and non-renewable natural resources, land use, biodiversity, pollution, conservation, sustainability, and human impacts on the environment.

Proposed By:	Ed D'Souza/ Juanita Chan	School:	Educational Services	Date:	4/20/2020

The Following is Proposed for this Course:

☒	Addition	☐	Revision	☒	A – G "D" area	☐	Deletion
☒	Required Course	☐	Content	☐	Honors	☐	Name of Course
☐	Elective	☐	Name Change	☐	Career Tech. Ed.		

The Following *Maximum* Credits are Proposed for this Course:

10 Units of Credit in (Subject Area): **'D' or Integrated Science Yr. 1** or in:

The Following Schools will Offer this Course:

☒ Carter High	☒ Eisenhower High	☒ Rialto High	☒ Milor/Zupanic

The Proposed Course will have the Following Budget Implication:

Individual School Site:	
District Level:	
Total Estimated Cost:	

Approval Signatures for the Proposed Course:

Printed Name	Signature	Title	Yes/No	Date
Lance Atkinson		Submitting School Department Chair	☒ Yes ☐ No	4/28/2020
Dr. Greg Anderson		Carter High School Principal	☒ Yes ☐ No	5/14/2020
Frank Camacho		Eisenhower High School Principal	☒ Yes ☐ No	5/14/2020
Dr. Caroline Sweeney		Rialto High School Principal	☒ Yes ☐ No	5/14/2020
Kayla Griffin		Milor/Zupanic High School Principal	☒ Yes ☐ No	5/14/2020
Ed D'Souza/ Juanita Chan (Science Chair)		District Curriculum Committee Chair	☒ Yes ☐ No	5/14/2020
Dr. Patricia Chavez		Curriculum Council Chair	☒ Yes ☐ No	5/14/2020

Approved by Juanita Chan/ Ed D'Souza Curriculum Committee on (Date) 4/28/2020

Approved by Curriculum Council on (Date): 5/14/2020

Approved by Rialto Unified School Board on (Date): 06/10/20

Approved by UC (or N/A) on (Date):

Integrated Science 1

Rialto Unified School District

Submitted: Apr 17, 2020
Decision: Apr 22, 2020

ubmission Feedback

PPROVED

asic Course Information

hool(s) Offering This Course:

School Name	Course Learning Environment	Transcript Code(s)	
Eisenhower High School (052622)	Online	Abbreviation APEX INSC1	Course Code
Rialto High School (052629)	Online	Abbreviation APEX INSC1	Course Code
Dr. John H. Milor High School (052642)	Online	Abbreviation APEX INSC1	Course Code
Vilmer Carter High School (053855)	Online	Abbreviation APEX INSC1	Course Code

Title: Integrated Science 1

Length of course: Full Year

Subject area: Science (D) / Integrated Science 1

UC honors designation? No

Prerequisites: None

Co-requisites:	Math 1 or above (Required)
Integrated (Academics / CTE)?	No
Grade levels:	9th, 10th, 11th, 12th

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urse overview:

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urse content:

Unit 1: Introduction to Integrated Science

This unit will cover the following areas:

1. What Is Science?

Distinguish what science is from what science is not. Identify scientists throughout time and from all parts of Earth who have observed the natural world. Explain how scientific data and conclusions can be reliable and valid, yet open to change. Describe each of the basic parts that may compose a scientific process that produces valid and reliable data. Summarize the importance of logical reasoning, experimentation, empirical evidence, argumentation, and ethics in scientific endeavors.

2. Science and the Environment

Identify the many fields of science that contribute to the study and understanding of the interrelated, dynamic systems of Earth's environment. Relate examples of environmental studies and equipment to specialized fields of science. Recommend areas of expertise that might contribute information relevant to specific environmental issues. Describe the role of technology in environmental science and human society. Identify commonly used devices and systems that are important to environmental studies. Use the Internet to locate and collect information about GPS and GIS technology. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Given this is an online course, there will be more concept maps and study notes that students will complete through this course. They will also take online quizzes after each section covered in this unit and a culminating unit online test. Students will apply what they have learned through online explorations. Here is an example.

GPS Technology

Students will use Google Earth to learn how remote-sensing satellites and the GPS are used together. This includes using coordinates of a certain location and zoom in to determine the type of ecosystem that is located at this position and then hypothesizing if remote-sensing data showed abnormally high levels of the color of light reflected by chlorophyll coming from this area now, compared with the past 10 years.

GIS Technology

Students will use GIS to model the relationship between a natural resource and an observed change. This will include using GIS information to make predictions about water supply. This includes going online to view a topographical map of the United States and applying an overlay of hydrological data and determining and justifying the best area where conservation of natural resources would be the most effective in reducing carbon dioxide in the atmosphere.

Unit Lab Activities:

Labs will be offered in a laboratory setting for each unit that students have to complete

Lab: Investigate Cycling of O_2 and CO_2

In this investigation, students will observe the release of O_2 and CO_2 into the environment. Gas production by two types of organisms will serve as evidence of photosynthesis and cellular respiration in action. In the first lab they will vary the amount of sugar present and observe the effect on cellular respiration. They will also observe how the rates of these processes vary as environmental conditions vary. In the second lab they will vary the amount of light and observe the effect on photosynthesis.

Unit 2: Earth's Physical Systems

This unit covers the following areas:

1. The Hydrosphere

Describe the reasons that liquid water can exist on Earth. Describe the formation of and characteristics of the major types of bodies of water. Relate solar energy to ocean currents and the distribution of heat around the globe. Identify reasons for fluctuations in sea level. Describe the causes and effects of ocean waves and tides. Trace the path of groundwater from soil to the ocean.

2. The Lithosphere

Relate the surface features of Earth's crust to the theory of plate tectonics. Distinguish erosional features and depositional features of Earth's crust. Identify the types of weathering and the agents of each type of weathering. Describe the types of soil and the processes of soil formation. Identify the types of erosion and their effects on Earth's crust. Relate the different

types of faults to the different types of tectonic plate boundaries. Discuss the validity and impact of scientific research on environmental issues related to human activities.

3. The Atmosphere

Describe the structure, composition, and temperature of Earth's atmosphere. Identify the processes of wind generation and relate them to different types of local and global wind systems. Describe the major climate zones and their characteristics. Explain how ocean currents, wind patterns, and topography affect climate. Explain how Earth's orbit, tilt, and wobble affect the planet's climate. Describe the effects of El Niño and La Niña on global weather patterns. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Given this is an online course, there will be more concept maps and study notes that students will complete through this course. They will also take online quizzes after each section covered in this unit and a culminating unit online test. Students will apply what they have learned through online explorations. Here is an example of some of the projects that students will conduct in this unit.

Using Weather Maps

Students will compare and contrast two states using weather maps and data collected from satellite imagery to determine the following: which state is colder, which state is in an area of higher pressure, which state would be more likely to have storms.

Explore Your Local Physical Environment

Students will research and describe the physical features and abiotic factors that characterize the geographical area in which they live. They will do this in a variety of projects which involve geology, hydrology and climate in the area that they live. Here is a sample of a geology project that students will do:

Students will use a project notebook to observe the geological features of the area where they live such as types of landforms they can see (e.g., rolling hills, tall mountains, steep cliffs, deserts, plains, valleys, beaches, etc.). They will describe in detail three notable landforms, and name them. They will collect rock samples from each area or take close-up photos of samples of the rocks. They will paste in a photo or draw and describe the features of the rock in detail. In their project notebook. They will use the landing page in APEX and click the "Rock Identification" link. Use the steps provided to attempt to identify their rock type. They will use the Internet to research how that type of rock forms. and research the geology of the city."

Unit Lab Activities:

Labs will be offered in a laboratory setting for each unit that students have to complete

Lab: Investigate Weathering and Erosion

Students will conduct a lab modeling the weathering and erosion processes that break down rock using graham crackers as the crust and conduct separate experiments first using water and then using ice as the agents. They then analyze the forces that act in the real world on rock and soil and will then design an investigation to test a variable and determine its

impact on weathering and erosion in their model. Students will use data tables, calculate the range and average of a set of measurements, and identify sources of error.

They will then answer the following question:

Mass wasting is similar to the process of water erosion, in that it involves materials being moved downhill. However, mass wasting is due primarily to gravity and happens very quickly (such as during a rockslide). Describe a way in which you could model mass wasting using the same graham cracker setup.

Unit 3: The Biosphere

This unit covers the following areas

1. The Nature of the Biosphere

Recognize the major types of biotic factors in an ecosystem and their roles in the biosphere. Distinguish biological species, populations, and communities. Identify the abiotic factors in an ecosystem and their importance to living organisms. Explain how biotic factors interact with the abiotic factors of an ecosystem. Trace the movement of water in the water cycle from one part of the environment to another. Trace the movement of carbon in the carbon cycle from one part of the environment to another. Trace the movement of nitrogen and phosphorus from one part of the environment to another.

2. Matter and Energy in the Biosphere

Recognize the major types of matter that make up the biosphere. Recognize the forms of energy that enter and flow through the geosphere. Identify the processes that transform energy as it moves through the geosphere. Compare the characteristics of different surfaces on Earth, including albedo and heat capacity. Differentiate among scavengers, decomposers, and detritivores. Trace the flow of matter and energy through a food chain and a food web.

3. Ecosystems and Biomes

Describe characteristics of land ecosystems. Describe characteristics of aquatic ecosystems. Identify the major land and aquatic biomes. Describe the distinguishing biotic and abiotic features of a given biome. Compare the plants and animals of your local biome with those of the other major biomes found in North America. Evaluate the importance of individual ecosystems to the health of biomes and the biosphere. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Explore Your Ecosystem

Students will complete the following project and apply their knowledge of science repeating it with plants, animals and climate

Describe the ecosystem in which you live. Include information about the climate (temperatures and precipitation), abiotic factors (soil, water, winds, light, etc.), and biotic factors (plants and animals).

Observe the flora (plants) of the ecosystem: by general characteristics (e.g., broad leaves, tough bark, thick stems) and list two kinds of plants seen or known to be native to that area. (

Pick one plant to describe. What is this plant's name? Paste in a photo (or create a drawing), and describe the features of the plant in detail.

Research using the Internet to search for details on how the plant reproduces and survives in the ecosystem, including any adaptations that it might have.

Use the Internet to search "native plants + [Rialto].

Add 10 more plants to your list.

Observe the fauna (animals) of your ecosystem

What characteristics do they have in general (e.g., small size, fur, colorful feathers)?

List two kinds of animals that you have seen or know are native to the area.

Choose one animal to describe. What is this animal's name? Paste in a photo (or create a drawing), and describe the features of the animal in detail.

Research using the Internet to search for details on how the animal reproduces and survives in Rialto's ecosystem, including any adaptations that it might have

Use the fourth link on the landing page, or the Internet, to search "native animals + [Rialto].". Add 10 more animals to the list and research them

Research the climate of the area where you live. An area's climate is primarily determined by its latitude, which is its distance from the equator. a. What is the elevation, latitude, and longitude of your environment?

Unit Lab Activities:

Lab: **Investigating like a Scientist**

Investigate Using a Dichotomous Key for an insect and a tree

In this investigation, students will go outside and find an insect that will then observe and describe it. After that, they will go to a website and use a dichotomous key to identify the insect based on its characteristics. Students will then complete the following items in the lab handout given to them

- Photo or sketch of the insect:
- Provide a detailed description of the selected insect
- Identity the insect by competing the following sentence frame: My insect belongs in the order _____ and its common name is _____.
- List the traits the insect has that made you identify it as belonging to the chosen group?

They will then repeat the investigation now using a leaf from a tree and will use a dichotomous key to identify the leaf and tree based on their characteristics. Students will then complete the following items in the lab handout given to them

- Photo or sketch of the leaf and tree
- Provide a detailed description of the selected leaf and tree
- Identity the tree and leaf by competing the following sentence frame: My leaf came from a tree in the species _____.
- List the traits the tree has, that made you identify it as belonging to the chosen group?
- After completing the lab students will justify which one was easier to conduct: Identifying Was the insect or the leaf? and explain their answer.
- They will then select a topic, and make a dichotomous key of that topic. Select something with many parts that can be separated by characteristics (for example, superheroes, cars, clothes, sports, sports teams, ice cream flavors, etc.)

Unit 4: Ecology

1. Populations

Identify characteristics used to describe populations. Identify limiting factors that affect populations and their characteristics. Describe a population's carrying capacity and the factors that determine the carrying capacity. Explain how populations change in size. Describe the factors that produce both positive and negative population growth. Compare exponential and logistic patterns of population growth. Explain the significance of studying populations over time.

2. Communities

Distinguish biological communities from populations and ecosystems. Identify major types of biological communities. Describe the types of interactions that occur among the species in biological communities. Analyze food chains and food webs that describe the interactions of species in a biological community. Explain the nature and importance of an ecological niche. Model the makeup of communities using ecological pyramids. Understand the factors that affect community stability and biodiversity.

3. Changes in Ecosystems

Describe how destructive natural events in the geosphere can affect ecosystems. Predict the effects of the removal of species from biological communities. Predict the effects of the introduction of nonnative species on communities. Recognize the sources and importance of genetic diversity in natural populations, ecosystems, and the biosphere. Summarize the process of natural selection and its role in biological evolution. Predict changes that may occur in an ecosystem when its amount of biodiversity changes. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Explore Biodiversity Hot Spots

In this activity, students will use the scientific processes to explore, apply, and communicate information related to biodiversity, its importance in the lives of all organisms, and the special importance of biodiversity hot spots. Using the information in "Biodiversity" in The Encyclopedia of Earth . students will use a Venn diagram to show the relationships among biodiversity, species diversity, and species richness and include a brief definition of each term in the diagram.

Students will then explore how some conditions and events in ecosystems increase or decrease biodiversity, and some are affected by biodiversity. H ow do forest disturbances, competition, and other changes affect biodiversity and in turn, how does biodiversity affect forest recovery from disturbances and changes?

Unit Lab Activities:

Lab: Investigate Cycling of Matter and Energy

To investigate evidence of cellular respiration in action students will use a soda bottle to create a simple terrarium. They will then observe the cycles that occur in this mini world and record their observations. Finally, they will cause a change in the environment and observe how the cycles and organisms respond.

Students will use their lab notebooks to describe what they observed, using data from the experiment. They will hypothesize as to why this happened, analyze their data and address the following items in their lab write-up:

Water Cycle:

- How was the water cycle demonstrated in your terrarium after the plants sprouted
- Draw a diagram of the water cycle in your terrarium, including labels.

Carbon Dioxide and Oxygen Cycles with Plants:

- How did CO_2 and O_2 cycle in the terrarium when it contained only plants?
- Add arrows and labels to the diagram you drawn to show how CO_2 and O_2 cycle in your terrarium.
- How did adding animals change the cycles of CO_2 and O_2 in your terrarium?
- Add more arrows and labels to the diagram to show how CO_2 and O_2 move when animals are also in the terrarium.
- Why did the experiment start out with live plants or wait until the seeds sprouted before adding the animals?
- Describe your answer in terms of how the CO_2 and O_2 might be out of balance in your terrarium.
- Did the amount of water that condensed at the top of the terrarium change as the plants sprouted and grew?

Students will draw a conclusion on the cycling of matter and energy.

Unit 5: Humans and the Environment

This unit covers the following areas:

1.Human Societies

Describe historical trends in human population growth and distribution. Identify characteristics of human populations. Describe the purposes of human communities. Identify different kinds of human communities. Explain how individuals work together in groups. Explain how individuals and groups work together in communities.

2. Earth's Natural Resources

Identify the types of Earth's land and water used to support the lifestyles of humans. Identify types and sources of mineral resources used to produce goods and energy that support human lifestyles. Recognize the interdependence of natural resources. Identify types and sources of biological resources used to produce food and goods that support human lifestyles.

3. Land Use and Its Effects

Evaluate the economic significance of natural resources. Summarize the effects and cost-benefit trade-offs of practices used in commercial agriculture, forestry, and fishing. Evaluate the hazards and risks involved in obtaining natural resources. Evaluate the hazards and risks to human health and well-being involved in obtaining and managing natural resources. Summarize the advantages and disadvantages of using different energy resources. Summarize the effects on natural ecosystems of human activities such as recreation, urbanization, conservation, preservation, restoration, and resource gathering and management. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Tasks: Earth's Natural Resources

Students will discuss the following in an online discussion group:

In recent years, much of California has had drought conditions. Much of our food comes from California, and there are many growing cities in that state. What do you think has happened to the groundwater supply as droughts have occurred there? Explain how a diversion system could be useful in California, including the parts of such a system.

A student gets up in the morning, takes a hot shower, cooks some eggs, eats, washes a dish, grabs a plastic bottle of water, and rides the bus to school on the highway. Explain how the student likely uses fossil fuels and freshwater resources over the course of the morning. If the student were relying on alternative energies instead of fossil fuels, explain how the student's impact on the environment would be different.

Unit Lab Activities:

Lab: Investigate Resource Consumption

In this lab, students will be modeling resource consumption using cereal, a cup and spoons. They will then design their own simulation and make some inferences about resource consumption in the real world. In this lab the cereal is a real resource such as water, food, energy, land, minerals, coal, lumber, or wildlife. Students will work in groups of two or three and will set up and perform the three tests described below. These tests were part of an experiment designed to test the independent variable of placement of natural resources and its effect on the rate that resources can be obtained. Students will simulate these three different tests.

Test A: Even distribution of nearby resources: 100 pieces of cereal need to be evenly distributed across a table. The time is set for 1 minute and a student will use one spoon in each hand and start collecting one piece of cereal with each spoon and put it in the cup without moving the cup. He/she will determine the number of pieces of cereal collected in 1 minute. The lab will be repeated three times and the average amount of pieces collected in 1 minute will be determined.

Test B: Uneven distribution of nearby resources: 100 pieces of cereal need to be unevenly distributed across the same area of table as in Part A. The time is set for 1 minute and a student will use one spoon in each hand and start collecting one piece of cereal with each spoon and put it in the cup put in the same position as the last lab. He/she will determine the number of pieces of cereal collected in 1 minute. The lab will be repeated three times and the average amount of pieces collected in 1 minute will be determined.

Test C: Resources at a Distance from Consumers . Spread 100 pieces of cereal, evenly or unevenly, on three surfaces located outside the area used in Tests A and B. For example, pieces of cereal could be placed on other tables, on chairs, or on the floor. Place the cup in the same position it was in for Tests A and B. Set the timer for 1 minute. He/she will determine the number of pieces of cereal collected in 1 minute. The lab will be repeated three times and the average amount of pieces collected in 1 minute will be determined.

Student will individually do a lab write up with data tables, write a scientific question that the procedure above would answer. write a hypothesis that describes what each simulation would test and the expected results and if they met the hypothesis.

Unit 6: Environmental Challenges

This unit covers the following areas:

1.Resource Availability

Identify renewable resources on which humans depend. Identify non-renewable resources on which humans depend. Differentiate between renewable and non-renewable resources. Evaluate the cost-benefit trade-offs of using renewable resources instead of non-renewable resources. Describe how the use of natural resources will affect future generations of humans. Describe alternative forms of energy production.

2 Pollution and Waste Managemen

Identify point sources and non-point sources of air, land, and water pollution. Describe the effects of pollution on oceans, freshwater supplies, air, and land. Recognize the consequences of air, land, and water pollution on human health and societies. Evaluate the hazards pollutants pose to wildlife and other types of natural resources. Describe methods of waste management, including burial in a landfill, dumping, incineration, composting, recycling, and reuse. Evaluate the impact of waste management and reduction strategies on resource availability.

3. Environmental Change

Describe effects of air pollution on the natural systems that regulate Earth's climate. Analyze the historical trends observed in global climate data. Relate human activities to observed changes in global climate. Evaluate differing views on global warming and climate change. Summarize scientists' predictions about the effects of global climate change on the biosphere. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Task: **Using Close and Critical Reading**

Responding to an online article using scientific processes to explore, apply, and communicate information related to the problem of habitat fragmentation.

Article: Habitat Fragmentation

Habitat fragmentation has increased as the human population has grown.

1. According to the first page of the article, what is habitat fragmentation?
2. Why has the growing human population led to habitat fragmentation, according to the first two pages of this article? c. According to page 3 of the article, what are some estimates for the amount of wilderness habitat lost because of fragmentation?
3. Fragmentation of habitats affects species in many different ways. According to pages 1 and 3 of the article, why does habitat fragmentation favor edge species?
4. How does increased isolation of habitats, as described on page 4 of the article, lower the genetic diversity of a population?
5. Which of the primary effects of habitat fragmentation described in this article do you think would most harm an animal's ability to hunt for food? Explain your answer
6. What has happened to chaparral bird species in California following habitat fragmentation and isolation?

Habitat fragmentation is a problem for many species, and the combined issues of fragmentation and climate change are discussed in this article.

7.Why does "only 2% of the eastern United States contains the connected green space needed for animals to find new homes"?

8 Why do animals need to migrate farther if they live on flat terrain (which is more common in the eastern U.S.) rather than in a mountainous region (which is more common in the western U.S.)?

Unit Lab Activities:

Investigate How Pollutants Affect Plants

In this lab, students will be testing concentrations of the salt NaCl (no salt, ¼ tsp of salt (1 g/100 mL salt) ¾ tsp of salt (3 g/100 mL salt) 1 ¼ tsp of salt (5 g/100 mL salt)on germinating radish seedlings. They will make a hypothesis about the effects of other pollutants on plant germination and perform the following experiment to test their hypothesis

They will then be given a choice to use one of the following pollutants (detergents, oils, or pesticides) to add instead of salt in their five cups and make a hypothesis about the effects of other pollutants on plant germination and perform the following experiment to test their hypothesis. They will compare the first lab and the lab they designed to investigate how pollutant affect plants.

Unit 7: Politics and the Environment

This unit covers the following areas:

1. The Concept of the Commons

Recognize the definition and examples of a "common." Describe how the overuse and degradation of natural resources affects the biosphere and human societies. Describe how conservation and preservation of natural resources affect their availability and quality. Relate conservation and preservation of natural resources to the sustainability of ecosystems and human societies.

2. National Environmental Policies

Summarize the history, provisions, and effects of the National Park Service Act. Summarize the history, provisions, and effects of the Clean Air Act. Summarize the history, provisions, and effects of the Clean Water Act. Summarize the history, provisions, and effects of the Soil and Water Resources Conservation Act. Summarize the history, provisions, and effects of the Endangered Species Act.

3. Global Environmental Policies

Summarize the goals and provisions of international treaties and protocols that address the effects of human activities on the environment, including the Antarctic Treaty System, Montreal Protocol, and Kyoto Protocol. Summarize the goals and provisions of international treaties and protocols that address biodiversity, such as the United Nations' Convention of International Trade in Endangered Species (CITES), the RAMSAR Convention on Wetlands, the International Treaty on Plant Genetic Resources for Food and Agriculture, and the Convention on Biological Diversity. Evaluate the effects of international treaties and protocols on environmental quality and global cooperation. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

The role of zoos in species conservation can be controversial. After reading the linked article "How Zoos Kill Elephants," do you think having zoos manage Species Survival Plans(SSPs) is an effective way to conserve animals? Do you think the SAFE program is a good idea?

Explain the pros and cons of having zoos and the role of SSPs

Unit Lab Activities:

Lab: : Investigate Your Ecological Footprint

In this lab, students will collect data about their life and their resource consumption to measure theircurrent ecological footprint. Then they will calculate a value for their ecological footprint, which represents the amount of land required to provide all the natural resources they use. They will then form a hypothesis about three changes they can make in their lifestyle to reduce their ecological footprint and then calculate the difference those changes would make.

Unit 8: Sustainability for the Future

This unit covers the following areas:

This unit covers the following areas:

1.The Global Community

Summarize the nature and purpose of human cultures and societies. Identify examples of different types of human cultures and societies. Recognize the interrelatedness of the global economy. Identify complex real-world problems faced by the global economy. Evaluate possible solutions to complex real-world problems in a global economy. Evaluate the need for cooperative human behaviors in mitigating and preventing complex real-world problems.

2. Sustainable Practices

Explain the goal of using sustainable practices in food production, resource management, and human societal development. Describe sustainable methods of food production, resource management, and human societal development. Compare traditional practices used in food production, resource management, and human societal development with sustainable practices. Identify advantages and disadvantages of using "green" and sustainable practices in food production, resource management, and human societal development. Summarize the process of carbon dioxide sequestration and technologies that achieve it. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Unit Assignment(s):

Background: State the city, county, and state in which you live. Identify and describe at least one thing you would like to see changed in order to make your community more sustainable. What challenges do you think might come with this change? Do you know of any legislation that might regulate this issue.

Explore and Research: Use the Internet to research topics related to sustainable community development for your environment (your city/county). Use the site given on the activity landing page as a starting point for your research. You will need to branch out on your own to research topics that are specific to your area. To perform your own searches, a great way to start is to enter the name of a topic and the county where you live. For example, enter "emissions standards" and "San Bernardino County" if you live in Rialto, California. Be sure to: Follow safe practices during this investigation. Use discretion when selecting websites to view for research purposes

Identify sustainable practices that have been adopted in your local environment. Recommend practices that might contribute to the sustainability of your local environment.

Unit Lab Activities:

Lab: Investigate Food Security

In this lab, you will assemble a list of foods, then identify the processing plants they come from. You will then determine how far your food traveled to get to you, and you will identify the impacts of that journey.1.

1. Identify 10 food items you normally eat. Two items should be from each of the following categories: meats, vegetables, fruits, dairy products (e.g., cheese, yogurt), and beverages. If possible, select both a fresh item (e.g., uncooked meat, unpackaged vegetables and fruits) and one that has been processed (e.g., frozen, canned, bottled, or otherwise prepared and packaged).
2. Create a data table with three categories: Meat, Vegetables and Beverages and the following column headings: Name, Description, Source location, Distance traveled
3. Record the names of the foods in the data table
4. Determine where each food came from, and record this information in the data table. Look for this information as the processing plant or factory listed on the label of each food item. If the food is fresh from a market and isn't labeled or marked with its source, ask an adult who works at the market that sold the food.
5. Use the Distance Calculator to find the distance of each location from your home, and record this information in the data table.
6. Record the distances in the data table. Then, calculate the average distance for all foods.
7. Think about your experience in choosing foods to study and finding their sources. What were your feelings as you searched for choices and the information requested? How much time did your research take? How many people helped you?

ourse Materials

Other

itle	Authors	Date	Course material type	Website
PEX Enivornmental Studies	APEX Learning	[empty]	Digital	Apex Learning (California Version)

dditional Information

urse Author:

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98207700 ext.