Student Workbook

California Education and the Environment Initiative

4

Science Standard 4.2.a.

Plants: The Ultimate Energy Resource

California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency
California Natural Resources Agency
Office of the Secretary of Education
California State Board of Education
California Department of Education
California Integrated Waste Management Board

Key Leadership for the Education and Environment Initiative:

Linda Adams, Secretary, California Environmental Protection Agency
Patty Zwarts, Deputy Secretary for Policy and Legislation, California Environmental Protection Agency
Andrea Lewis, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency
Mark Leary, Executive Director, California Integrated Waste Management Board
Mindy Fox, Director, Office of Education and the Environment, California Integrated Waste Management Board

Key Partners:

Special thanks to **Heal the Bay,** sponsor of the EEI law, for their partnership and participation in reviewing portions of the EEI curriculum.

Valuable assistance with maps, photos, videos and design was provided by the **National Geographic Society** under a contract with the State of California.

Office of Education and the Environment
1001 I Street • Sacramento, California 95812 • (916) 341-6769
http://www.calepa.ca.gov/Education/EEI/

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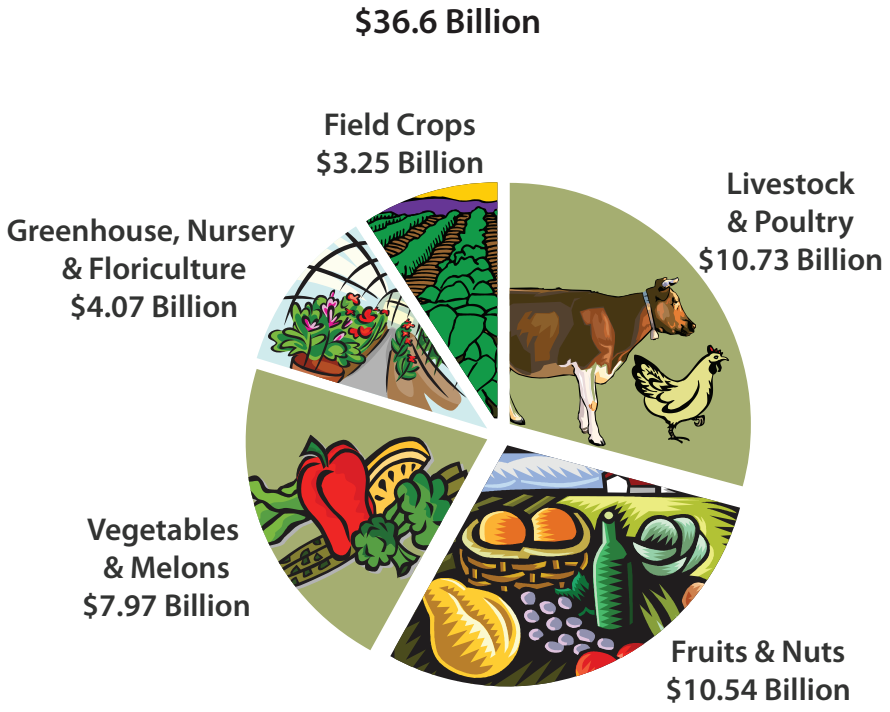
Name: _____

Part 1

Instructions: Read Part 1 and analyze **California's Agricultural Income, 2007** to answer Questions 1–6.

California's Agricultural Income, 2007



This chart shows different types of agricultural commodities. California farmers and ranchers produced these commodities. They are sold around the world. The dollar amounts show how much money each type of product earned in the year 2007. The pie chart pieces show how much of California's total agricultural income each type of commodity earned.

1. How much money did California farmers and ranchers make from agriculture in 2007? (1 point)

_____

2. Which commodities made the most money? (1 point)

_____

Name: _____

3. Which made more money: Field Crops or Vegetables and Melons? (1 point)

_____

4. How many more dollars were made from selling Livestock and Poultry than Vegetables and Melons? (1 point)

_____

5. List two products from each area: (1 point each):

a. Field crops: _____ and _____

b. Greenhouse, nursery and floriculture: _____ and _____

c. Fruits and nuts: _____ and _____

d. Livestock and poultry: _____ and _____

e. Vegetables and melons: _____ and _____

Name: _____

Part 2

Instructions: Read the questions below and write answers on the lines provided.

6. Name one ecosystem service. Explain why it is important to farmers and ranchers in California. (2 points)

_____

_____

_____

_____

_____

_____

7. Farming and ranching are a large part of California's economy. Why is California a good place for agriculture? (2 points)

_____

_____

_____

_____

_____

_____

8. Why is agriculture important to people? (6 points)

_____

_____

_____

_____

_____

_____

Name: _____

Ecosystem: _____

Instructions: Complete the table below using ecosystem description information your group was given.

Write the name of the ecosystem your group is studying in the space above. Then list four things from the ecosystem in the first column of the chart. Make sure at least one of the things is a nonliving thing.

Fill the rest of the columns with information about the four things you chose.

Things in the Ecosystem	Living?	What it Does	Survival Needs

Name: _____

Ecoystem: _____

Instructions: Write three or more sentences to answer each of the following questions. You may use your **Meeting Survival Needs Inventory** to help you.

1. What are survival needs? Why are they important to organisms? Use all of the words below in your answer. Give one example from your inventory. (10 points)

Word Bank

organisms	survival	needs	people

_____

_____

_____

_____

_____

2. Where do living things get the energy they need to survive? Why do they need energy? Do nonliving things need energy? Why or why not? Use all of the words below in your answer. (10 points)

Word Bank

energy	plants	animals	nonliving

_____

_____

_____

_____

_____

_____

Name: _____

Instructions: Fill in the boxes to form a food chain. Put one organism in each box. (1 point per box)

1. mouse, blackberry, hawk

[ ] → [ ] → [ ]

2. wolf, deer, leaf

[ ] → [ ] → [ ]

Instructions: Fill in the boxes to form a food chain. Put one organism in each box. (1 point each)

3. Most food chains begin with _____.

4. Plants are able to change light energy from the _____ to chemical energy (food) for other organisms.

5. The path of matter and energy passing from one organism to another is called a _____.

Instructions: Read the prompts below and complete the tasks on the lines provided.

6. Describe the importance of plants to other organisms. Write at least two sentences. (6 points)

Review the food chain below and answer the questions.

plants → insects → frog → snake → hawk

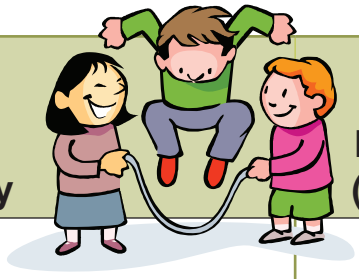
7. What is the primary source of energy in this food chain? (1 point)

8. Describe the chain of events that allowed the hawk to get energy from the plants. (4 points)

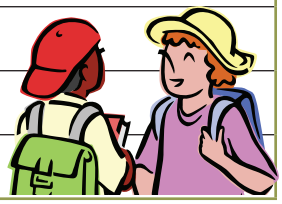
Name: _____

Date:_____

Instructions: For one day, record your main activities (such as waking up, getting ready for school, studying, recess, homework, after school activities). Also record all your meals and snacks, including the foods you ate and the amounts.

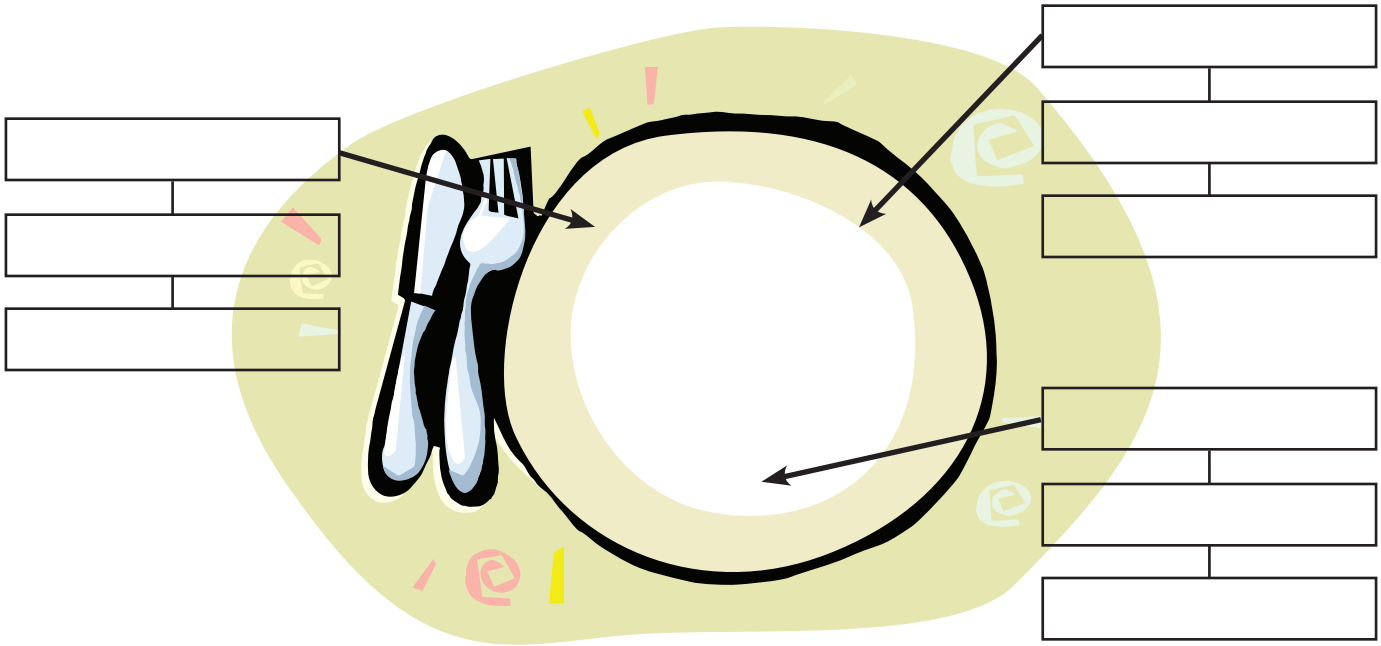


Time	Activity	Foods Eaten (amounts)



Name: _____

Instructions: Select three food items (or one food with three ingredients) from your **Daily Record** and draw them on the "dinner plate." Then read the questions below and write your answers on the lines provided.



1. Where do the ingredients in your foods come from? (2 points)

_____

2. How do natural systems help plants and animals get the energy they need to survive? (4 points)

_____

_____

_____

_____

_____

_____

_____

3. Describe how natural systems help people get the energy they need to survive. Use the foods you drew on your plate to explain your answer. (4 points)

Name: _____

In the past, California Indians did not go to grocery stores. They did not go to drug stores. They did not buy clothes. They used what they could take from the environment around them to meet all of their needs.

Instructions: In this activity you will select, draw, and discuss three resources California Indians used in their daily life. Read the questions below. Draw pictures of the resources in the boxes to the right. Write the answers on the lines provided.

Resource #1

1. California Indians once used many plants and animals from the oak woodlands. Name one of the resources they used in their daily lives. (1 point)

   _____

2. How did the California Indians use this resource? Describe one or more uses. (3 points)

   _____

   _____

   _____

   _____

   _____

Draw a picture of this resource.

3. Do people living in California today still use this resource in the same way? (Yes, no, or sometimes?) (1 point)

   _____

4. If no or sometimes, what do we use instead to meet the same need? (3 points)

   _____

   _____

   _____

Name: _____

Resource #2

5. California Indians once used many plants and animals from the oak woodlands. Name one of the resources they used in their daily lives. (1 point)

_____

6. How did the California Indians use this resource? Describe one or more uses. (3 points)

_____

_____

_____

_____

_____

_____

Draw a picture of this resource.

_____

_____

7. Do people living in California today still use this resource in the same way? (Yes, no, or sometimes?) (1 point)

_____

8. If no or sometimes, what do we use instead to meet the same need? (3 points)

_____

_____

_____

_____

Name: _____

Resource #3

9. California Indians once used many plants and animals from the oak woodlands. Name one of the resources they used in their daily lives. (1 point)

_____

10. How did the California Indians use this resource? Describe one or more uses. (3 points)

_____

_____

_____

_____

_____

_____

Draw a picture of this resource.

_____

_____

11. Do people living in California today still use this resource in the same way? (Yes, no, or sometimes?) (1 point)

_____

12. If no or sometimes, what do we use instead to meet the same need? (3 points)

_____

_____

_____

_____

Name: _____

Summary

13. California Indians got the resources they needed right from the oak woodlands. They collected plants and hunted for animals. How does this compare to the ways people get resources today? Be sure to explain from where today's resources come. (6 points)

California Education and the Environment Initiative

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