



BioTrek

Post-Curriculum Grades K-5

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BioTrek



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K-2 EARTH SCIENCE POST-CURRICULUM WEATHER

Materials and Time:

20 minutes
Thermometer

State Standard:

- **Grade 1 - Earth Science Standard 3a**

Weather can be observed, measured and described. As a basis for understanding this concept: Students know how to use simple tools (e.g., thermometer, wind vane) to measure weather conditions and record changes from day to day and across the seasons.

Objectives:

- Students learn the difference between seasons and weather.
- Students know that weather can change from day to day, or even change in one day.
- Students know the four seasons of the year, and what organisms do in different seasons (i.e. humans wear jackets during winter, bears hibernate, trees lose their leaves etc.)

Anticipatory Set/ Linking to prior knowledge:

- Is it hot or cold today?
- Would you wear a jacket? Why or why not?
- What about winter, would you wear shorts and a light shirt?

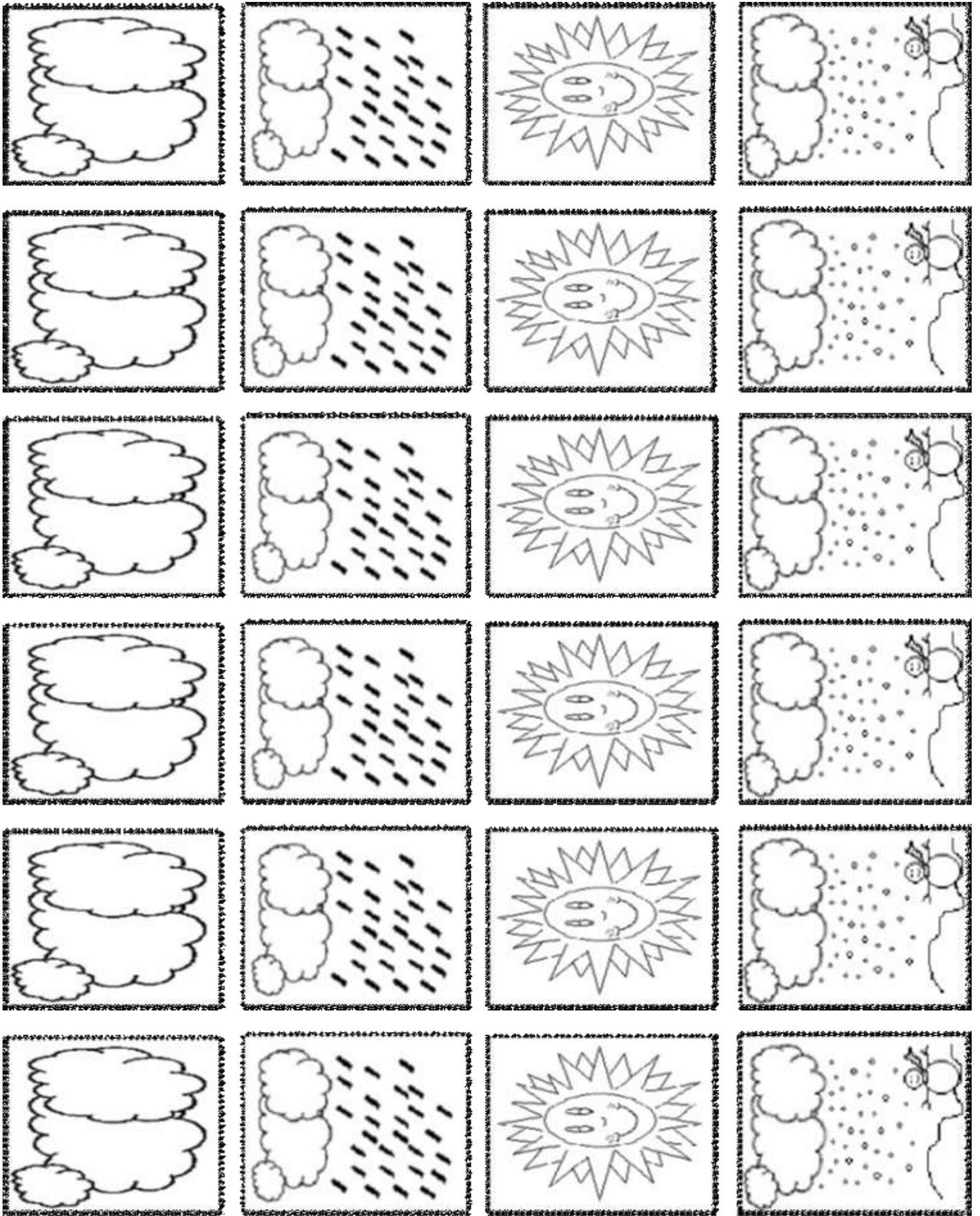
Instructions:

Create a chart for taking daily air temperatures with a thermometer. For 2 weeks, take daily temperatures. Then take weekly temperatures for the next 3 months. Ask the students to discuss the changes.

- Compare the temperature the first day to the temperature of the 14th day.
- How does it compare to the 90th day?
- Have the students discuss what happened during that time.

WORKSHEETS:

“Weather Cut-Outs”
“The Weather of the Week”



The Weather for the Week

MONTH: _____ DAY: _____ YEAR: _____

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY

1. Color in the following examples of weather.
2. For each day of the week paste in what the weather was like.



THINKING
QUESTIONS

1. Why do some flowers smell good?

2. What do bees make from flowers?

3. Where are the roots of a planted located?

WHAT DOES EACH PART OF THE FLOWER DO?

Petals: _____

Leaves: _____

Roots: _____

Stems: _____

THINKING QUESTIONS

ANSWER SHEET

1. Why do some flowers smell good?

A: *to attract pollinators*

2. What do bees make from flowers?

A: *honey*

3. Where are the roots of a plant located?

A: *underground*

WHAT DOES EACH PART OF THE FLOWER DO?

Petals: *attract pollinators*

Leaves: *photosynthesis*

Roots: *absorb water, minerals, and nutrients*

Stems: *support leaves and flowers*

CUT OUT AND LABEL THE PARTS OF THE FLOWER

PETAL

ROOT

LEAF

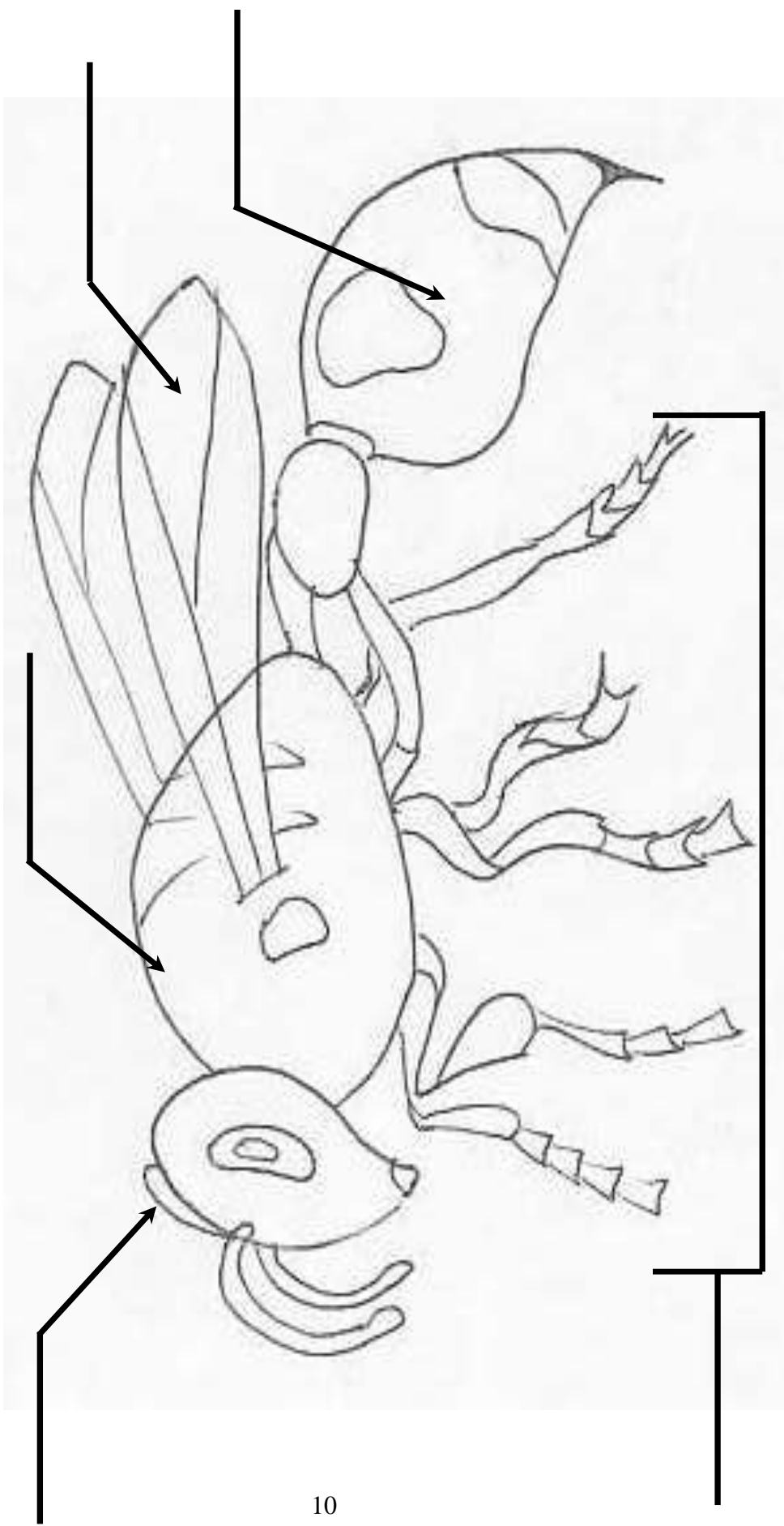
STEM

FLOWER

Label the parts of the flower



LABEL THE PARTS OF THE INSECT



Wings

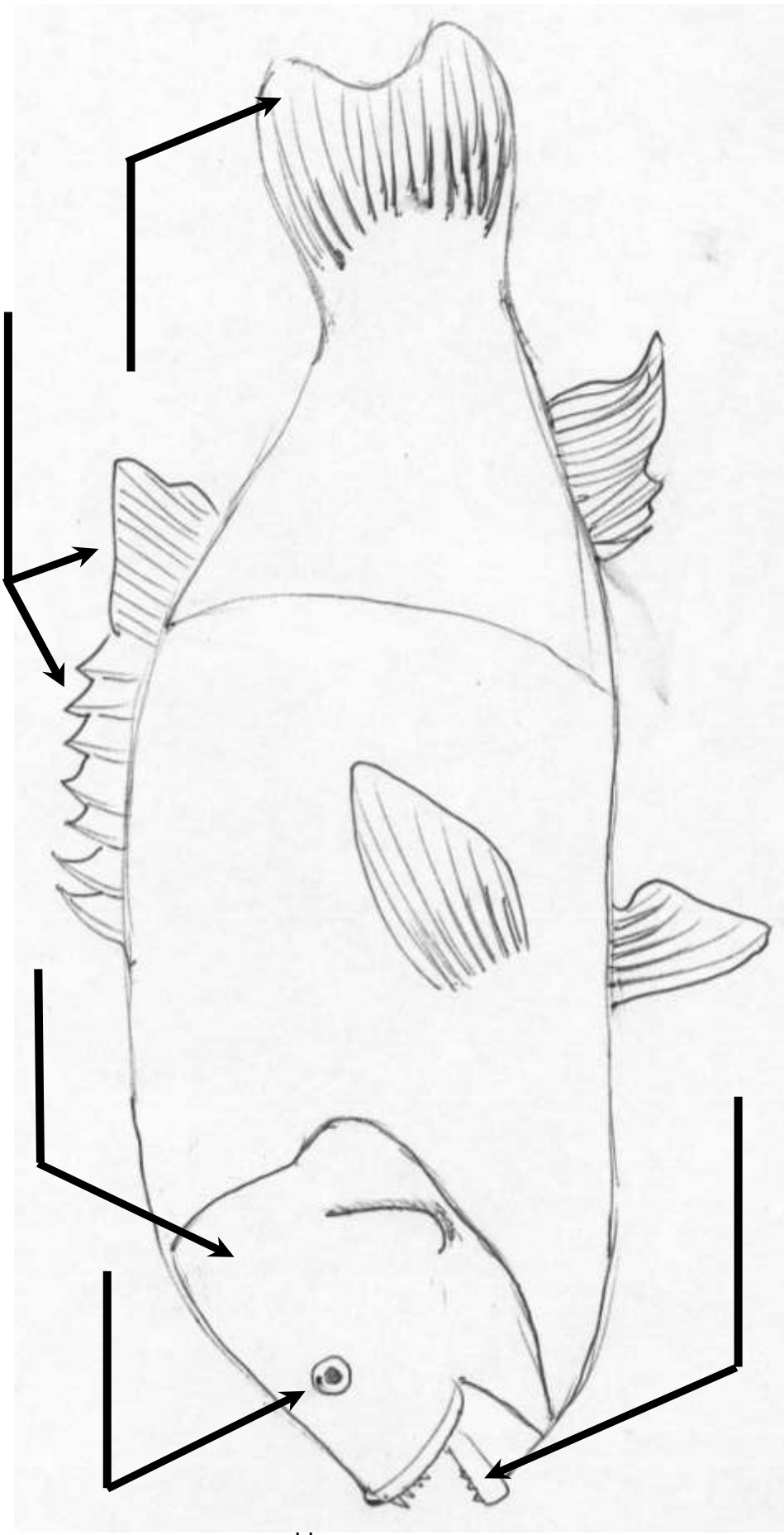
Head

Legs

Abdomen

Thorax

LABEL THE PARTS OF THE FISH



Tail

Head

Eye

Mouth

Fin

Name: _____

BioTrek's Tongva Garden

D K L Y L U O D L E N H R A I G K A C H
T N U M F C U O W P R E G P D R N Q S A
R D A V D A B J B X O O M U R T Z M C D
V Y C L E U H Q D O C Z Q B B Y T J W Z
P X Y R D A O U D X A L Q G T V B X G N
E D F X F O T C O A S T A L H U O B W P
P U W H Y E O B Y G K W J F W R N A B P
F L K O K O B W A E I W K T I M B L K E
V L Q H D W A Q S X G X D V G S Z L A I
A V G N O T G N L R J J E V A W H L A W
I L O M X D I W A A J R K L S A G E R K
V J A G B M I I M V S G I W J S C T S Y
R X L S Y F E X I Y N A G S L Q E I Q M
E N I C I D E M N T T V Z O G H B W A A
G V X H J R V H A T N G O T V U O I S M
I T B Z O W M R A Z A T O V O S N L B K
S S K Z F Y C C J E T B W S J T Y E H L
R J O G Q H Q S L X I D J F A L Z U K P
P X J C M P N I V O V T O I N N Y B H R
R S D D N Q D A H I E J N M M Y B F J R

ACORN
ANIMALS
CATTAIL
COASTAL
FISHES

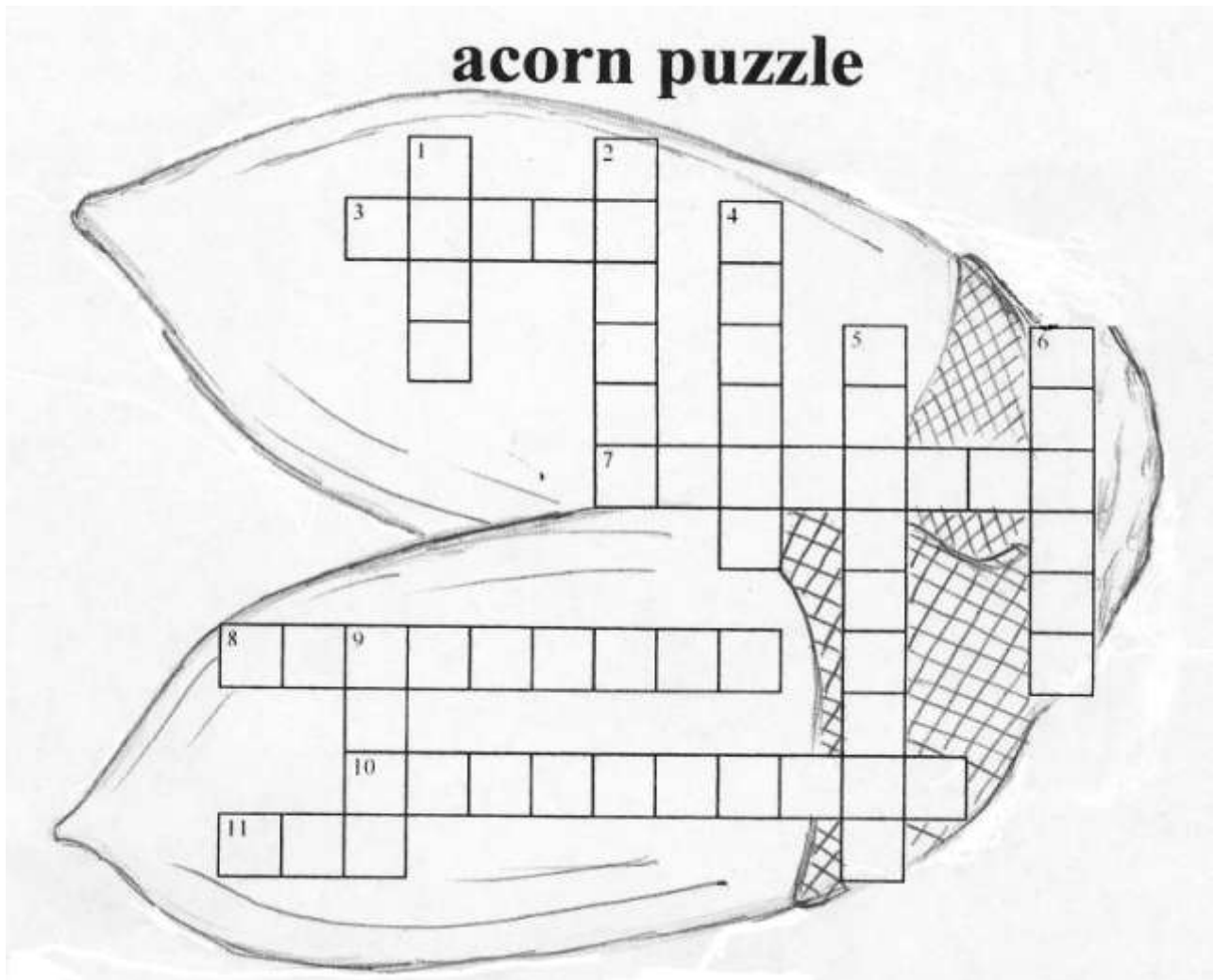
MAINTAIN
MEDICINE
NATIVE
OAK
RIVERS

SAGE
TONGVA
TOOLS
WALNUT
WOODLAND

Can you find all the Tongva garden words?

Can you figure out the meaning of these words?

Complete the puzzle below to help you remember what you learned about the Native Plant Garden



Across

- 3. All living things need this
- 7. An animal that eats acorns
- 8. This plant is used to make baskets
- 10. The Tongva people lived in this state
- 11. Acorns come from this type of tree

Down

- 1. A plant that was used for medicine
- 2. Arrowweed was used to make _____.
- 4. A plant that stores water in its stem
- 5. This plant was used like sandpaper
- 6. A tree used to make shelter
- 9. What was used to crush acorns?

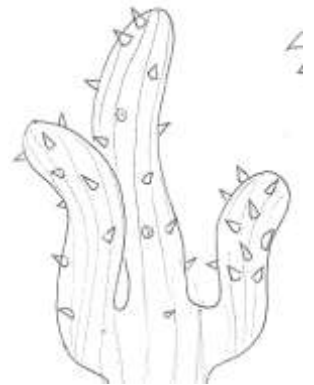
Leaves are adapted for the different environments in which they live.

Can you match the leaves to their adaptations?

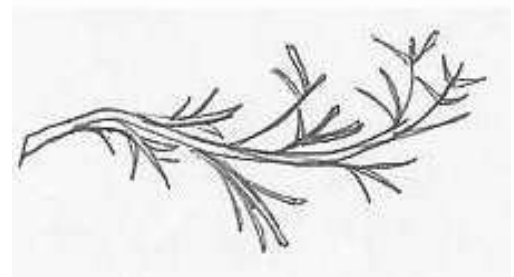
Large leaves with holes in them so rain and wind do not break the leaves



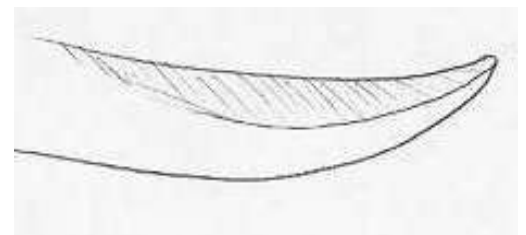
Leaves are fuzzy and have sharp points to keep animals from eating them



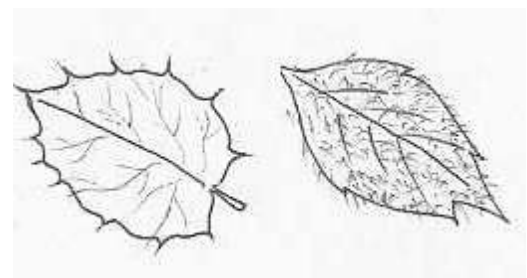
Stores water in its fleshy leaves



Loses less water by having very small leaves



Leaves are spines to protect the water-storing stems from animals





K-2 EXPERIMENTATION POST-CURRICULUM

Materials and Time:

30 minutes

State Standards:

Kindergarten - Investigation and Experimentation Standard

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Observe common objects by using the five senses.
- b. Describe the properties of common objects.
- c. Describe the relative position of objects by using one reference (e.g., above or below).
- d. Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).
- e. Communicate observations orally and through drawings.

Grade 1 - Investigation and Experimentation Standard

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Draw pictures that portray some features of the thing being described.
- b. Record observations and data with pictures, numbers, or written statements.
- c. Record observations on a bar graph.
- d. Describe the relative position of objects by using two references (e.g., above and next to, below and left of).
- e. Make new observations when discrepancies exist between two descriptions of the same object or phenomenon.

Grade 2 - Investigation and Experimentation Standard

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Make predictions based on observed patterns and not random guessing.

- b. Measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in standard metric system units.
- c. Compare and sort common objects according to two or more physical attributes (e.g., color, shape, texture, size, weight).
- d. Write or draw descriptions of a sequence of steps, events, and observations.
- e. Construct bar graphs to record data, using appropriately labeled axes.
- f. Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.
- g. Follow oral instructions for a scientific investigation.



K-2 EXPERIMENTATION POST-CURRICULUM

Objectives:

- *To help students make and record physical characteristics of objects.*
- *To help students communicate orally as well as through drawings.*
- *To help students to discern similarities and differences of objects.*
- *To teach students to make logical deductions based on observed phenomenon.*

Instructions:

Step 1: You were given 5 types of leaves from the BioTrek field trip. These are: holly leaf cherry, sage, wild grape, *Tradescantia*, glory flower (*Chlorodendron*).

Step 2: Discuss whether the leaves are from the rain forest or Southern California.

Step 3: Sort the leaves by similar characteristics, such as size, shape, and texture and color or smell.

Step 4: Use a magnifying glass to see fine details of texture and structure.

Kindergarten:

Step 5: What do the leaves look like? Where were the leaves found? What do the leaves smell like? What do the leaves feel like? Have the students draw pictures of their favorite leaves, and describe the characteristics of that leaf.

1st and 2nd grade:

Step 5: Compare the differences and similarities of the leaves from the different bags. What do they all have in common?

Step 6: Draw pictures that portray features of the leaves.

Step 7: Construct a bar graph of the different categories (see the example of a bar graph) Have the class develop conclusions based on the bar graph.

2nd grade:

Step 8: Use a metric ruler to measure the length of the leaves.

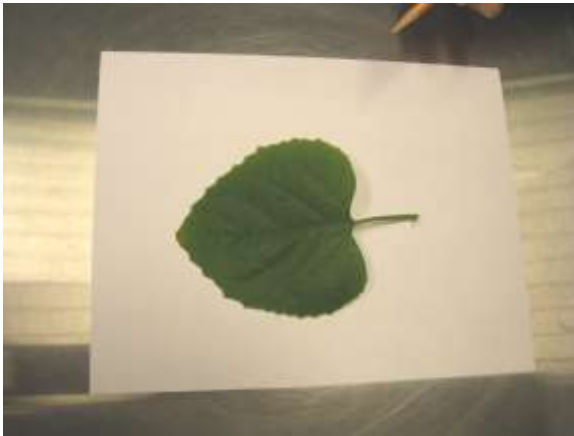
Step 9: Use a magnifying glass to see the fine details of texture and shape. How does the magnifying glass help you see the textures and structures of the leaves?

Suggestions to stimulate discussion

- Did any leaf fit into more than one category?
- Did any of the leaves have a strong smell?
- Reflect upon the steps you took to categorize the different leaves and draw or write about the sequence of observations you made.

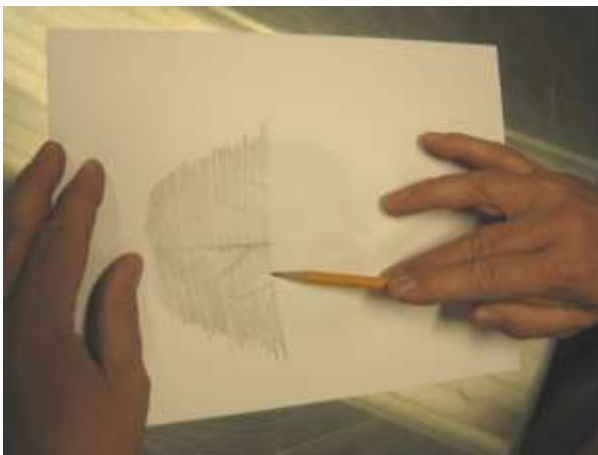
Note- to combine this experiment with art, the class can make leaf rubbings with crayons (see the example on how to make leaf rubbings).

HOW TO MAKE LEAF RUBBINGS!



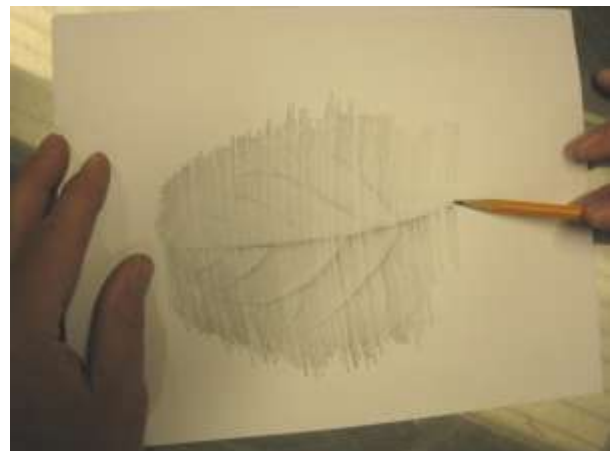
STEP 1: Place a blank sheet of paper on a hard surface, like a table. Then, place the leaf on top of the sheet of paper.

STEP 2: Place a second blank sheet of paper on top of the leaf.



STEP 3: With a pencil or crayon at an angle, lightly and briskly move the pencil or crayon back and forth on the piece of paper. Be careful to keep the sheets still so that you get a neat rubbing.

STEP 4: Continue the tracing, with light strokes of the pencil or crayon, until you complete the entire leaf rubbing.



LEAF IDENTIFICATION GUIDE:

Teachers,

At the end of your BioTrek tour, you received some materials from our BioTrek curator. Among them you will find leaves of various sizes. Below you will find some important information about each leaf:

Common name: Holly Leaf Cherry
Scientific name: *Prunus ilicifolia*
California native plant



Common name: White Sage
Scientific name: *Salvia apiana*
California native plant

Common name: Wild Grape
Scientific name: *Vitis californica*
California native plant





Common name: Spiderwort
Scientific name: *Tradescantia sp.*
From Canada to Argentina

Common name: Glory Flower
Scientific name: *Clerodendron sp.*
From India





K-2 PHYSICAL SCIENCE OBJECTS

Materials and Time:

- 60 Minutes
- List of animals
- Worksheet

State Standard:

- **Grade 4 Life Sciences Standard 2a**
All organisms need energy and matter to live and grow. As a basis for understanding this concept: Students know plants are the primary source of matter and energy entering most food chains.

Objectives:

- Students know what a food web is.
- Students have an idea of how energy is passed through the food web.

Instruction:

- From list provided, teacher will assign students' roles for live food web exercise.
- Game may be repeated to allow each student to change roles in the game.
- At end of the game tally up the surviving number of Decomposers, Producers and Consumers.

RULES

- There must be a large number of decomposers and producers, followed by a smaller number of herbivores and even smaller number of carnivores.
- Have students assigned as producers step forward and disperse out. (Make sure they're spaced out)
 - Producers CANNOT MOVE once they have found a suitable spot.
 - Producers will hold out hands with all five fingers out, or will have pieces of yarn taped to them to represent "leaves" or sources of energy.
 - Producers will be considered "dead" once they have no more yarn or fingers left.
- Herbivores will be responsible to "eat" producers (form of energy) under a time limit of 15 seconds
 - After 15 seconds carnivores will be released to feed on herbivores.
 - Herbivores must prevent being eaten by hiding or running away.
- Carnivores will be responsible to "eat" as many herbivores as possible. Herbivores die once they're caught and "killed"
 - Carnivores "catch" their prey by tagging them with a colorful sticker.
 - If carnivores do not catch more than 2 prey then they are considered "dead".
- Decomposers can move in on anything that is "dead". (30 seconds).

- Once you are deemed dead, you must squat.

WORKSHEETS:

“List of Roles”

“Live Food Web Handout”

“Make The Circle of Life”



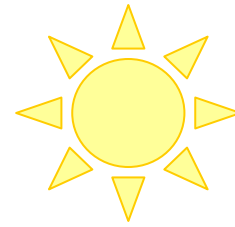
Food Web List of Roles

Choose a type of organism listed below.

Producers

- Sage
- Oak tree
- Walnut tree
- Holly leaved cherry
- Sandbar willow
- Wiregrass
- Chia bush

producer



plants



Herbivores

- Deer
- Possum
- Beaver
- Woodrat
- Grasshopper
- Hummingbird
- Sparrow
- Finch

consumers



herbivores



Carnivores

- Bear
- Bobcat
- Mountain lion
- Coyote
- Hawk
- Snake

consumers



carnivores



Decomposers

- Mushroom
- Bacterium
- Earthworm
- Millipede
- Cockroach

decomposer



**fungi,
bacteria,
insects**



Live Food Web Worksheet

NUMBER OF ORGANISMS SURVIVING

ORGANISMS	TRIAL 1	TRIAL 2	TRIAL 3
Producers			
Herbivores			
Carnivores			
Decomposers			

1. Which group of organisms

a) Had the least rate of survival after all 3 trials?

b) Had the greatest rate of survival after all 3 trials?

2. In nature, there are examples of each type of organism. Give an example of each.

Producers

Herbivores

Carnivores

Decomposers

3. Why are these roles important in a food web?

A) Producers

B) Decomposers

Make the Circle of Life

Cut and paste the pictures below into the correct order to create the circle of life. Describe the role of each picture in the food web.

