

## Lesson Plan Format

Modified from the K-TIP Teacher Performance Assessment Program

Name: Elizabeth Mikowski \_\_\_\_\_ Date: 10/21/06 \_\_\_\_\_ Age/Grade Level: 1<sup>st</sup> \_

# of Students: \_\_\_18\_\_\_ # of IEP Students: \_\_\_\_\_ # of GSSP Students \_\_\_\_\_ #  
of LEP Students: Students are not yet identified as to exceptionalities.

Subject: Science/Arts \_\_\_\_\_ Major Content: Photosynthesis \_\_\_\_\_ Lesson Length: 5 days\_\_

Unit Title: Leaves: What do they do? \_\_\_\_\_ Lesson Number and Title: Lesson 1: Do Leaf Men form by themselves? Lesson 2: Are all leaves the same? Lesson 3: What are leaves function? Lesson 4: What do they provided humans? Lesson 5: How can I express myself using leaves in a collage?\_

### **Context**

This unit of study is an offshoot of my reading *Leaf Man* by Lois Ehlert to a group of 1<sup>st</sup> grade students who asked me what leaves do and why they change color. We learned from reading this book that leaves from different trees tell what kind of tree the leaf came from, and that leaves change different colors. We learned that as creative humans we can use leaves to make pictures called collages, and that Lois Ehlert used leaves to make pictures that tell a story. But, we also discussed that trees are not only used for making seeds and fruit, but they also have other uses such as giving us shade and firewood, and qualities that we perceive.

Students are introduced to trees as plants, and the process of photosynthesis.

Students in Kindergarten are introduced to how plants function as a living organism; the seed is planted, it sprouts, it spreads roots to anchor it in the ground, it grows by using sun and water , and produces a flower and seed in this cycle.

There are no special attributes in this. Student learning will be affected by Their general eagerness to learn more about their world and how things function.

Essential question: Leaves, what do they do?

They provide food for trees.

They change color in the autumn and fall off the tree.

They have names which identify them as coming from specific trees.

They leaves provide things humans need ( i.e. oxygen)

They can be used for creating "art".

### **Objectives**

The student will learn that leaves take up water from the tree roots, and use carbon dioxide from living organisms, and the green chlorophyll in their leaves in conjunction with the sun to make sugar as food for their growth. In this process they transpire producing oxygen for us and other living organisms to breathe.

TSWL that this process is called photosynthesis.

TSWL that leaves from various trees are named for the species of tree, have different shapes, and are different colors in autumn.

TSWL that leaves change color in the autumn because they no longer can make food from the sun since don't receive enough sunlight, they lose the green chlorophyll in their leaves and fall from the tree.

TSWL to identify one leaf as belonging to a specific tree.

TSWL that trees provide beauty and give in ways other than providing fruit, firewood, lumber, and paper.

TSWL create a collage using leaves, and will label the collage as to what it represents.

### **Connections**

#### **Big Idea: Unity and Diversity (Biological Science) Grade: End of Primary**

All matter is comprised of the same basic elements, goes through the same kinds of energy transformations, and uses the same kinds of forces to move. Living organisms are no exception. Elementary students begin to observe the macroscopic features of organisms in order to make comparisons and classifications based upon likenesses and differences. Looking for patterns in the appearance and behavior of an organism leads to the notion that offspring are much like the parents, but not exactly alike. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life.

**SC-EP-3.4.2** Students will understand that things in the environment are classified as living, nonliving and once living. Living things differ from nonliving things. Organisms are classified into groups by using various characteristics (e.g., body coverings, body structures).

#### **2.3 Students identify and analyze systems and the ways their components work together or affect each other. SC-P-UD-U-1**

Students will understand that most living things need water, food and air, while nonliving things can continue to exist without any requirements. SC-P-UD-S-1

Students will describe the basic needs of organisms and explain how these survival needs can be met only in certain environments.

#### **SC-EP-3.4.1**

##### **Students will explain the basic needs of organisms.**

Organisms have basic needs. For example, animals need air, water and food; plants need air, water, nutrients and light. Organisms can survive only in environments in which their needs can be met.

#### **Big Idea: Structure in the Arts**

Understanding of the various structural components of the arts is critical to the development of other larger concepts in the arts. Structures that artists use include elements and principles of each art form, tools, media, and subject matter that impact artistic products, and specific styles

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and genre that provide a context for creating works. It is the artist's choice of these structural components in the creative process that results in a distinctively expressive work. Students make choices about how to use structural organizers to create meaningful works of their own. The more students understand, the greater their ability to produce, interpret, or critique artworks from other artists, cultures, and historical periods.

**1.13** Students make sense of ideas and communicate ideas with the visual arts.

**Assessment Plan**

In tabular format, organize how each objective will be assessed. Include copies of assessment instruments and rubrics (if applicable to the lesson plan).

**Objective/Assessment Plan Organizer (Sample)**

Objective Number	Type of Assessment	Description of Assessment	Depth of Knowledge Level
Objective 1: Identification of a leaf to a tree	Formative	Students will be given a leaf to identify as belonging to a type of tree	Elementary students begin to observe the macroscopic features of organisms in order to make comparisons and classifications based upon likenesses and differences.
Objective 2: Students will show the process of photosynthesis	Summative	Students will be given all of the pieces of the process of photosynthesis as reproducible line drawings of the manipulatives that they used to paste, or tape, on a piece of paper.	Students will explain the basic needs of organisms.  Organisms have basic needs. For example, animals need air, water and food; plants need air, water, nutrients and light. Organisms can survive only in environments in which their needs can be met.
Objective 3: Students will know how trees are used	Formative	Students will be given a statement: I like this tree because it gives me: _____ They must fill in the blank with a word from the list that was compiled on the classroom chart & is reproduced on the bottom of the page for them.	
Objective 4: Students will express themselves artistically by creating a leaf collage	Summative	Students will create a collage using leaves, and label what it is	Specific styles and genre ...provide a context for creating works. It is the artist's choice of these structural components in the creative process that results in a distinctively expressive work. Students make choices about how to use structural

			organizers to create meaningful works of their own.
<b><u>Resources, media and technology</u></b>			
<ul style="list-style-type: none"><li>• <a href="http://www.sciencemadesimple.com/leaves.html">http://www.sciencemadesimple.com/leaves.html</a></li><li>• <b><u>Tell Me, Tree</u></b> by Gail Gibbons, Little Brown &amp; Company</li><li>• <b><u>Autumn Leaves</u></b> by Ken Robbins</li><li>• <b><u>Leaf Man</u></b> by Lois Ehlert</li><li>• <b><u>Our Tree Named Steve</u></b> by Alan Zweibel</li><li>• Model either on flannel board, or poster board with moveable pieces of the process of photosynthesis, along with labels explaining the process.</li><li>• Various autumn leaves collected by the teacher, or students, or reproducible color sheets which the students can cut out.</li><li>• Photocopies of 5 deciduous trees from <b><u>Autumn Leaves</u></b> that students should be able to identify by looking at the leaf and the pictures</li></ul>			

## Procedures

### Day One:

The teacher will read ***Leaf Man*** and introduce the idea that different trees have different leaves, leaves are named for the trees they come from, and different leaves are different colors in the fall season.

The teacher will present the book, ***Autumn Leaves*** in which photographer Ken Robbins presents 13 deciduous North American trees and their leaves. The Teacher will provide examples either as specimens, or as simple line drawings of 5 leaves common to the area that are represented in the book.

### Day Two:

The students will select a leaf, attach it to a paper, label it, color it, then try to recreate it on the bottom of the paper as a drawing.

### Day Three:

Teacher will use an overhead projector, or use a white board and the science website above which shows the process of photosynthesis. This process is also explained in ***Autumn Leaves***, and ***Tell Me, Tree*** and can be left out for the students to look at over the course of the unit's development. A poster, or flannel board, with the process of photosynthesis, with moveable Velcro pictures representing the leaf, stem, water, sugar, the gases carbon dioxide and oxygen, and the sun, should be made available for the class to use with each student having a turn to manipulate and hear the terms repeated. This model should be available to use during center time.

### Day Four:

The Teacher will read ***Our Tree Named Steve***, a book based on the memories one family has of the tree in their yard which over the years has served as a shady place for a tire swing, a hammock, a place to hang drying laundry, a meeting place, a holder for party lights....until one day after the children are grown, a storm claims the life of the tree by blowing it down. The teacher will ask the students if they have any memories of tree they have known. The teacher will make a list on chart paper of all the memories students have of trees.

The teacher will make a chart of the other uses students might be aware of trees providing. The teacher will ask probing questions as to these uses e.g. Can it be used as a home for someone, or something? Can we get food from it? Can other animals get food from it? Can we use it to build a house for ourselves? Can we use it to keep warm?

### Day Five:

The teacher will ask the students if they remember ***Leaf Man***. The teacher will then tell the students that they will each make a picture called a collage using the leaves that either she has provided, or that they have collected at home. The students will label their collages as to what they represent, and then share them with their classmates during circle time. The teacher will then ask them if they think they can make up a story using the collage pictures they have created. If they can make up a story, then the class will ask the Library Media Specialist, if they can display their artwork and story in the Library Media Center for a week or two.

## Expanded Supporting Materials-

Grade: **Pre-K-3**

Age: **4-8**

Genre: **General Nonfiction, Reference**

Reading Level: **2.2**

Lexile Level: **630**

### ***Autumn Leaves***

Author: Ken Robbins

Prepare students for fall nature walks with this bright, informative celebration. In a departure from his usual, hand-tinted style, acclaimed photographer Ken Robbins lets the blazing colors of 13 North American deciduous trees shine without technical assistance. Robbins provides life-sized reproductions of leaves, shown clearly against a white background, making it easy to recognize their distinctive characteristics, and accompanies each leaf with a photograph of the tree or its branches in a natural setting. Minimal text gives simple information and suggests references that help readers remember what they see: the fan-shaped leaves of the ginkgo were once eaten by dinosaurs; some sassafras leaves look like mittens. The smoke tree, maple, linden, birch, yellow poplar, and fern are among the trees featured. A page on photosynthesis explains the mystery of autumn, using correct terminology to describe the natural chemicals that give the dying leaves their color. A joy to open at any time of year, this useful resource will be welcomed by kids, parents, and teachers alike as a glorious celebration of fall.

### ***Autumn Leaf Color*** ***Why Do Leaves Change Color in the Fall?*** **by Science Made Simple**

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[Why do Fall leaves change color? --- Autumn Leaves Science Projects](#)  
[Learn More About: How plants prepare for winter](#)  
[I Can Read: Fall Leaves --- Word Puzzle](#)

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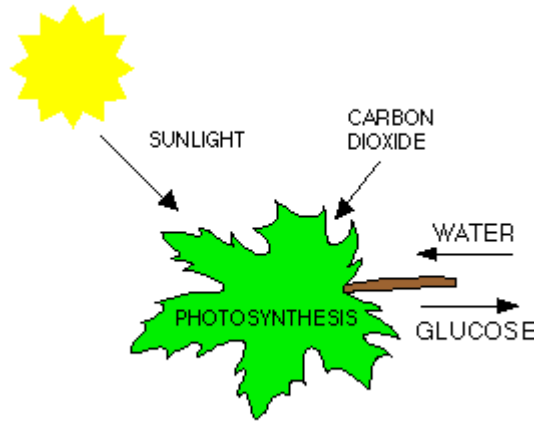
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We all enjoy the colors of autumn leaves. Did you ever wonder how and why a fall leaf changes color? Why a maple leaf turns bright red? Where do the yellows and oranges come from? To answer those questions, we first have to understand what leaves are and what they do.

Leaves are nature's food factories. Plants take water from the ground through their roots. They take a gas called carbon dioxide from the air. Plants use sunlight to turn water and carbon dioxide into glucose. Glucose is a kind of sugar. Plants use glucose as food for energy and as a building block for growing. The way plants turn water and carbon dioxide into sugar is called photosynthesis. That means "putting together with light." A chemical called chlorophyll helps make photosynthesis happen. Chlorophyll is what gives plants their green color.



As summer ends and autumn comes, the days get shorter and shorter. This is how the trees "know" to begin getting ready for winter.

During winter, there is not enough light or water for photosynthesis. The trees will rest, and live off the food they stored during the summer. They begin to shut down their food-making factories. The green chlorophyll disappears from the leaves. As the bright green fades away, we begin to see yellow and orange colors. Small amounts of these colors have been in the leaves all along. We just can't see them in the summer, because they are covered up by the green chlorophyll.

The bright reds and purples we see in leaves are made mostly in the fall. In some trees, like maples, glucose is trapped in the leaves after photosynthesis stops. Sunlight and the cool nights of autumn cause the leaves turn this glucose into a red color. The brown color of trees like oaks is made from wastes left in the leaves.

It is the combination of all these things that make the beautiful colors we enjoy in the fall.

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They provide things humans need.

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### **Objectives**

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TLW that leaves from various trees are named for the species of tree, have different shapes, and are different colors in autumn.

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**Resources, media and technology**

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