Plants & Vegetation

Plants can be either herbaceous or woody. Most Herbaceous Plants have stems that are soft, green, and contain little woody tissue. These plants are ones that die to the ground each year. Most annual and perennial flowers fall into this category along with vegetables and houseplants.

Herbaceous
Plants with stems that are non-woody and die back to the ground every year. Some herbaceous plants include marigolds, zinnias, grass, tomatoes, green beans and geraniums.

Woody
Stems that are hard. These stems usually don’t die back to the ground during the winter. These are stems we use to make things like furniture and houses. Woody plants include oak trees, maple trees, lilacs, apple trees and magnolias.

Life Cycle
A plant’s life cycle describes how long a plant lives or how long it takes to grow, flower, and set seed. Plants can be either an annual, perennial, or biennial.

Annual
A plant that completes its life cycle in one growing season. It will grow, flower, set seed, and die. Examples: Marigolds, tomatoes, and petunias.

Perennial
A plant that lives for 3 or more years. It can grow, flower, and set seed for many years. Underground parts may regrow new stems as in the case of herbaceous plants, or the stems may live for many years like woody plants (trees). Examples: Daisies, chrysanthemums, and roses.

Biennial
A plant that needs two growing seasons to complete its life cycle. It grows vegetatively (produces leaves) one season. Then it goes dormant or rests over the winter. In the spring, it will begin to grow again and grow flowers, set seed, and die. The seed that is left behind on the ground germinates and the cycle begins again. Examples: Parsley, carrots, and foxglove.
Basic parts of most all plants are roots, stems, leaves, flowers, fruits, and seeds.

Plant Parts - Root
The roots help provide support by anchoring the plant and absorbing water and nutrients needed for growth. They can also store sugars and carbohydrates that the plant uses to carry out other functions. Plants can have either a taproot system (such as carrots) or a fibrous root system (such as turf grass). In both cases, the roots are what carries the water and nutrients needed for plants to grow.

Plant Parts - Stems
Stems carry water and nutrients taken up by the roots to the leaves. Then the food produced by the leaves moves to other parts of the plant. The cells that do this work are called the xylem cells. They move water. The phloem cells move the food. Stems also provide support for the plant allowing the leaves to reach the sunlight that they need to produce food.

Plant Parts - Leaves
Leaves are the food making factories of green plants. Leaves come in many different shapes and sizes. Leaves can be simple. They are made of a single leaf blade connected by a petiole to the stem e.g. oak leaf. A compound leaf is a leaf made up of separate leaflets attached by a petiole to the stem like the ashtree leaves.

Leaves are made to catch light and have openings to allow water and air to come and go. The outer surface of the leaf has a waxy coating called a cuticle which protects the leaf. Veins carry water and nutrients within the leaf. Leaves are the site of the food making process called photosynthesis. In this process, carbon dioxide and water in the presence of chlorophyll (the green pigment) and light energy are changed into glucose (a sugar). This energy rich sugar is the source of food used by most plants. Photosynthesis is unique to green plants! Photosynthesis supplies food for the plant and oxygen for other forms of life. A green plant helped make the oxygen you are breathing today.
Plant Parts - Flowers
Flowers not only look pretty but, in fact, are important in making seeds. Flowers have some basic parts. The female part is the pistil. The pistil usually is located in the center of the flower and is made up of three parts: the stigma, style, and ovary. The stigma is the sticky knob at the top of the pistil. It is attached to the long, tubelike structure called the style. The style leads to the ovary that contains the female egg cells called ovules.

The male parts are called stamens and usually surround the pistil. The stamen is made up of two parts: the anther and filament. The anther produces pollen (male reproductive cells). The filament holds the anther up.

During the process of fertilization, pollen lands on the stigma, a tube grows down the style and enters the ovary. Male reproductive cells travel down the tube and join with the ovule, fertilizing it. The fertilized ovule becomes the seed, and the ovary becomes the fruit.

Petals are also important parts of the flower, because they help attract pollinators such as bees, butterflies and bats. You can also see tiny green leaf-like parts called sepals at the base of the flower. They help to protect the developing bud.

Plant Parts - Fruit
The fruit is the ripened ovary of a plant containing the seeds. After fertilization, the ovary swells and becomes either fleshy or hard and dry to protect the developing seeds. Many fruits help seeds spread (maple seeds). Many things we call vegetables are really fruits such as tomatoes, cucumbers, and beans.

Every seed is a tiny plant (embryo) with leaves, stems, and root parts waiting for the right things to happen to make it germinate and grow. Seeds are protected by a coat. This coat can be thin or thick and hard. Thin coats don’t protect the embryo well. But thick coats can let the embryo survive some tough conditions.

The seed also contains a short-term food supply called the endosperm which is formed at fertilization but is not part of the embryo. It is used by the embryo to help its growth. In the beat that is shown, the endosperm is no longer there. It has been used for the growth of the embryo, and most of its nutrients and energy are now in a different form within the tissues of the cotyledon.

Plants with one cotyledon (like corn) are called monocots. If they have two cotyledons (like beans), they are called dicots. Seeds are a plant’s way of getting from one area to another by either wind, water or animals.

What to do:
Provide the background information to your students. You can use the enclosed diagram of the structure of a plant to identify the different parts of a plant. Then visit your park and conduct the following worksheets. You can then reinforce the messages through experiments in the classroom or school area.
Identify Parts of the Plant

Inside the fruit, we find the ____________.
Be a Plant Detective

Pick a Plant to investigate in the park. At different times of the year, plants change as they are in flower during spring and summer but may be in fruit in Autumn and Winter.

What season is it?  

What Month is it?  

Is your plant in flower? yes or no  
If no, move onto second page.  

What colour is your flower?  

How many petals has your flower got?  

What is your plant’s name?  

Draw a picture of your plant or the flower and label the parts.
The next step in identifying your plant is that you must look at the leaves.

What shape is your leaf? Draw the leaf.

![Leaf Diagram]

How many leaves are on each branch?

Is there just one leaf or many leaves together divided such as in the diagram below.

Having looked at your plant, can you identify what plant it is?

Plant Name:

In your classroom, can you find out any more information on your plant, such as where is it from, when does it flower, how does it grow?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
How important are plants to us and wildlife

Without plants, no life could exist on our planet. Every animal needs some type of plant to survive. In the following puzzle during your park visit, observe your surroundings and find out which plant each of the animals need and why they need it.

Some animals need plants for food such as the nectar in flowering plants, some eat the fruits and seeds from the plants, others live amongst the plants and trees for shelter and protection.

Link up the animal with the plant they rely on to live by drawing a line between them.

![Butterfly](image1.png)
They eat the red berries of the holly tree

![Bird](image2.png)
They feed on the nectar and help pollinate plants

![Bee](image3.png)
Its larvae need it as food