

## FLOWER COLORING DIRECTIONS:

### Parts of the Flower

The receptacle is the part of the branch on which a flower forms. Color the receptacle (B) brown. Sepals are leaf like structures that surround and protect the flower before it blooms. Color the sepals (C) green. Petals are the colorful part of the flower that attracts insects and even other small animals, such as mice, birds, and bats. Color the petals (D) a bright color of your choice. All flowering plants have flowers, but some are not brightly colored. The petals of these flowers are reduced or absent and the plant relies on the wind or water for pollination.

The flower has both male and female reproductive parts. The female reproductive structures are called carpels. In most flowers, the carpels are fused together to form a pistil. Color the pistil (P) pink. The pistil has three parts, which can be seen, in the box labeled "pistil". The stigma at the top is often sticky and is where the pollen attaches. Color the stigma (J) purple. The style is the long tube that attaches the stigma to the ovary. Sperm from the pollen will travel down this tube to the ovules. The ovules, or eggs, are stored in the ovary until they are fertilized. Plants can only fertilize eggs of the same species. Special chemicals prevent sperm from fertilizing the eggs of flowers that are not the same kind. Color the style (K) red, and the ovary (L) pink. Color the ovules (O) black.

The male reproductive structures are called the stamens. Color the stamens (H) blue. Each stamen consists of an anther (A), which produces pollen, and a filament (F), which supports the anther. In the box labeled "stamen" color the anther dark blue, and the filament light blue. Pollen produced by the anther is carried by insects or other animals to the pistil of another flower where it may fertilize the eggs.

The other flowers in the picture follow the same plan, although they come in many different colors and styles. Color each of the flowers according to the colors above (blue for stamen, pink for pistil, bright colors for the petals, etc.). Note that in some of the flowers, not all the structures are visible.

**AFTER COLORING THE FLOWER, USE THE READING ABOVE AND PAGE 170 IN YOUR BOOK TO DESCRIBE THE FUNCTION OF THE FOLLOWING PARTS OF A FLOWER. WRITE THESE ON THE SAME PAGE THAT YOU GLUED THE FLOWER PICTURE.**

STAMEN

STIGMA

SEPALS

ANTHER

STYLE

OVARY

PISTIL

PETALS

POLLEN

## LEAF COLORING DIRECTIONS

The leaf is the primary photosynthetic organ of the plant. It consists of a flattened portion, called the blade, that is attached to the plant by a structure called the petiole. Sometimes leaves are divided into two or more sections called leaflets. Leaves with a single undivided blade are called simple, those with two or more leaflets are called compound.

The outer surface of the leaf has a thin waxy covering called the cuticle (A), this layer's primary function is to prevent water loss within the leaf. (Plants that live entirely within water do not have a cuticle). Directly underneath the cuticle is a layer of cells called the epidermis (B). The vascular tissue, xylem and phloem are found within the veins of the leaf. Veins are actually extensions that run from the tips of the roots all the way up to the edges of the leaves. The outer layer of the vein is made of cells called bundle sheath cells (E), and they create a circle around the xylem and the phloem. On the picture, xylem is the upper layer of cells (G) and is shaded a little lighter than the lower layer of cells - phloem (H). Recall that xylem transports water and phloem transports sugar (food).

Within the leaf, there is a layer of cells called the mesophyll. The word mesophyll is greek and means "middle" (meso) "leaf" (phyllon). Mesophyll can then be divided into two layers, the palisade layer (D) and the spongy layer (F). Palisade cells are more column-like, and lie just under the epidermis, the spongy cells are more loosely packed and lie between the palisade layer and the lower epidermis. The air spaces between the spongy cells allow for gas exchange. Mesophyll cells (both palisade and spongy) are packed with chloroplasts, and this is where photosynthesis actually occurs.

Epidermis also lines the lower area of the leaf (as does the cuticle). The leaf also has tiny holes within the epidermis called stomata (I). Specialized cells, called guard cells (C) surround the stomata and are shaped like two cupped hands. Changes within water pressure cause the stoma (singular of stomata) to open or close. If the guard cells are full of water, they swell up and bend away from each other which opens the stoma. During dry times, the guard cells close.

Color the structures underlined above. Make sure that the entire picture is colored and that the color matches the words. For simplicity only part of the picture is labeled.

### COLORING GUIDE

- A Cuticle (light blue)
- B Epidermis (yellow)
- C Guard cells (pink)
- D Palisade Mesophyll (dark green)
- G Phloem (purple)
- H Xylem (orange)
- F Spongy Mesophyll (light green)
- E Bundle Sheath (dark blue)
- I Stomata (brown)

**AFTER COLORING THE LEAF, USE THE READING ABOVE AND PAGES 162, 168-169 IN YOUR BOOK TO DESCRIBE THE FUNCTION OF THE FOLLOWING PARTS OF A LEAF. WRITE THESE ON THE SAME PAGE THAT YOU GLUED THE LEAF PICTURE.**

CUTICLE

XYLEM

PHLOEM

STOMATA

GUARD CELL