

Shanleya's Quest
Botany Adventure Story & Game

Grade Levels:

This lesson was created especially for use with students in grades 3 – 8. It can be used with high school students, and it has been used successfully in adult botany classes.

Objectives:

- 1) Present evolutionary concepts in a metaphorical format young people can relate to.
- 2) Enable students to identify eight major families of plants and some of their properties.
- 3) Enable students to identify plants as either monocotyledons or dicotyledons.

Background Information:

There are plenty of sports heroes and movie stars (both positive and negative) to serve as role models for young people, but have you ever heard of a botany hero? What if a hero or heroine came along to inspire young people to investigate the world around them, stimulating an interest in natural science?

Shanleya is just such a heroine in the story *Shanleya's Quest: A Botany Adventure for Kids Ages 9 to 99*. The story communicates botany and evolutionary concepts in a metaphorical format, ideal for the way young people process information. Through the story, students can grasp the fundamentals of the origins of life, the process of evolution, the tree of life, and the immense amount of time that has passed along the way. The story also presents real plant identification skills to enable students to recognize monocots and dicots and to identify eight major families of plants and some of their properties and uses. The companion game is designed to exercise those plant identification skills, anchoring the basic concepts in a way that students may ultimately use them outside the classroom.

Unsure of your own botany skills? *Shanleya's Quest* includes all the information necessary to present this lesson competently.

Materials Needed:

Shanleya's Quest: A Botany Adventure for Kids Ages 9 to 99 (at least one book per class)

Shanleya's Quest: Patterns in Plants Card Game (1 deck of cards for every four players)

(Both are available in retail and wholesale quantities from www.hopspress.com.)

Live or silk flowers from the mint, parsley, mustard, pea, lily, grass, rose, and aster families are helpful, but not required. Teachers can find live specimens from the families covered in the book in local gardens or flowerbeds. Floral shops are another potential source of flower samples. Ask for old flowers to use in botany lessons; they will likely give them to you for free. It is also helpful to have an assortment of leaves from grass, flowers, bushes, and broadleaf trees for identifying monocot and dicot characteristics.

Presentation:

Bring the class together in a circle, either in the classroom, or preferably outside, to read the story. Multiple copies of the book are helpful so that students can listen to the story (or take turns reading it aloud), while they look at the pictures. Limit the amount of reading to the attention span of your audience. With younger grades, the story may be split up over several days.

Activity One: Plant Family Identification

As you read a chapter about a specific plant family, pass around the wildflower cards from that family, so that students can see samples of the family characteristics. Then play the *Plant Patterns Memory Game* with the students so they can practice recognizing the family patterns. Instructions for the *Memory Game* and four other card games are included with each deck of cards.

Tip: for younger grades, introduce only two to four plant families at a time, and play the *Memory Game* with only the cards from those families until they are ready for more. The game can be played with several students on a team to work together. As the students develop proficiency with pattern recognition, move on to the more advanced games described with the deck.

Activity Two: Monocots and Dicots

In the middle of *Shanleya's Quest* is a comparison of monocotyledons and dicotyledons. Have samples of both monocots and dicots in the classroom so students can examine them and identify which is which.

Activity Three: Flower Parts

Bring real or silk flowers into the classroom, preferably from the families covered in the book, and identify the sepals, petals, stamens, and pistil(s) with the students.

Activity Four: In the Real World

Bring the class outside to practice plant identification skills in the schoolyard, or with permission, in flowerbeds, gardens, weed patches, and parks. Look for monocots and dicots, and look for flowers from each of the plant families covered in the book. Tips: preview the walk ahead of time so you will know in advance what types of flowers the kids may find. Use caution around any possible poisonous species, especially those shown in the game. Keep in mind that there are many more plant families than the eight covered in the book, so a flower may not fit any of the patterns. CAUTION: Do not allow students to eat plant samples.

Activity Five: Evolutionary Concepts

When presenting evolutionary concepts from other lessons throughout the year, refer back to the metaphors presented in *Shanleya's Quest* to help kids connect with the material.

Assessment:

The most important assessment of student performance is in their enthusiasm for the material. The ultimate goal is not merely to make them learn the material, but rather to spark their enthusiasm to want to know more. For the purposes of grading, student performance can also be tested with the attached *Patterns in Plants Quiz*.

Additional Resources:

For high school and university classes, *Botany in a Day: The Patterns Method of Plant Identification*, also available from www.hopspress.com, expands on the evolutionary concepts and plant families covered in *Shanleya's Quest*, covering more than one hundred families of plants found across North America.

Patterns in Plants Quiz

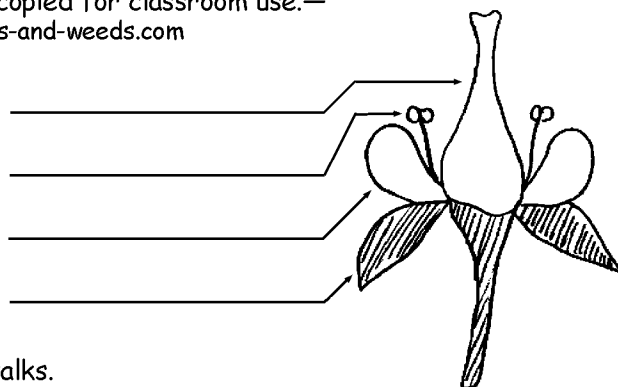
Shanleya's Quest: A Botany Adventure for Kids Ages 9 to 99

—This page may be photocopied for classroom use.—

www.wildflowers-and-weeds.com

Part I: Start from the outside of the flower and label the flower parts.

Part II: Write "monocot" or "dicot" and the family name for each of the flowers below. Write the letter for the correct pattern for identification from the following list.



Families

Mint
Parsley
Mustard
Pea
Lily
Grass
Rose
Aster

Patterns for Identification

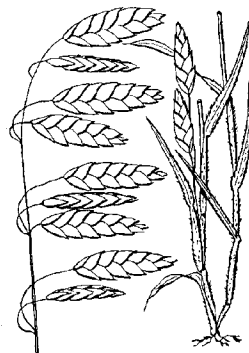
- A. Compound umbels. Hollow stalks.
- B. Square stems and opposite leaves, usually aromatic.
- C. Weedy annuals with 4 petals and 6 stamens, 4 tall, 2 short.
- D. Irregular flowers with "banner, wings, and keel." Pea-like pods.
- E. Wind pollinated flowers without petals. Leaves with parallel veins.
- F. Composite flowerheads with ray flowers, disc flowers, and pitted discs.
- G. Flower parts in threes. Sepals and petals identical in size and color.
- H. 5-petaled flowers with numerous stamens and often fleshy fruits.



Family: _____
Pattern: _____
M or D: _____



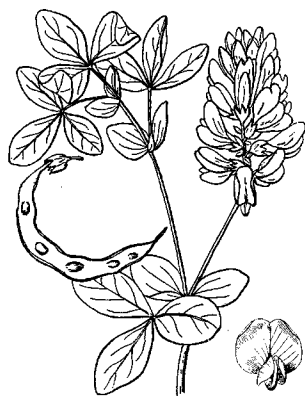
Family: _____
Pattern: _____
M or D: _____



Family: _____
Pattern: _____
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Family: _____
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Family: _____
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Family: _____
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Family: _____
Pattern: _____
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Family: _____
Pattern: _____
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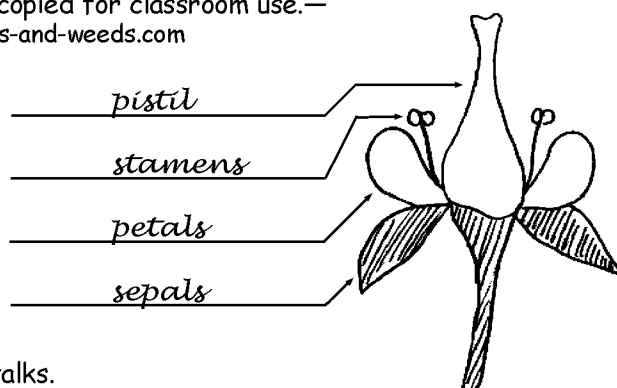
Patterns in Plants Answer Sheet

Shanleya's Quest: A Botany Adventure for Kids Ages 9 to 99

—This page may be photocopied for classroom use.—
www.wildflowers-and-weeds.com

Part I: Start from the outside of the flower and label the flower parts.

Part II: Write "monocot" or "dicot" and the family name for each of the flowers below. Write the letter for the correct pattern for identification from the following list.



Families

Patterns for Identification

Mint

Parsley

Mustard

Pea

Lily

Grass

Rose

Aster

A. Compound umbels. Hollow stalks.

B. Square stems and opposite leaves, usually aromatic.

C. Weedy annuals with 4 petals and 6 stamens, 4 tall, 2 short.

D. Irregular flowers with "banner, wings, and keel." Pea-like pods.

E. Wind pollinated flowers without petals. Leaves with parallel veins.

F. Composite flowerheads with ray flowers, disc flowers, and pitted discs.

G. Flower parts in threes. Sepals and petals identical in size and color.

H. 5-petaled flowers with numerous stamens and often fleshy fruits.



Family: Lily
Pattern: G
M or D: monocot



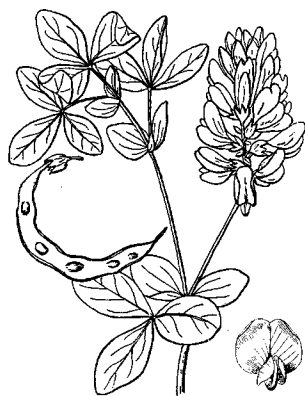
Family: Aster
Pattern: F
M or D: dicot



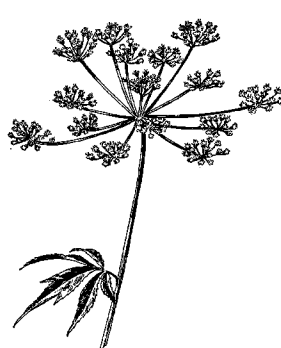
Family: Grass
Pattern: E
M or D: monocot



Family: Mustard
Pattern: C
M or D: dicot



Family: Pea
Pattern: D
M or D: dicot



Family: Parsley
Pattern: A
M or D: dicot



Family: Rose
Pattern: H
M or D: dicot



Family: Mint
Pattern: B
M or D: dicot