The Very Interesting Milkweed Plant and its Life Cycle

Objective:

- Be able to order the stages of the milkweed life cycle
- Understand why milkweed is important to the monarch butterfly
- Explain some of the ways that milkweed species can be differentiated from each other
- Explain interesting features of milkweed

Skills:

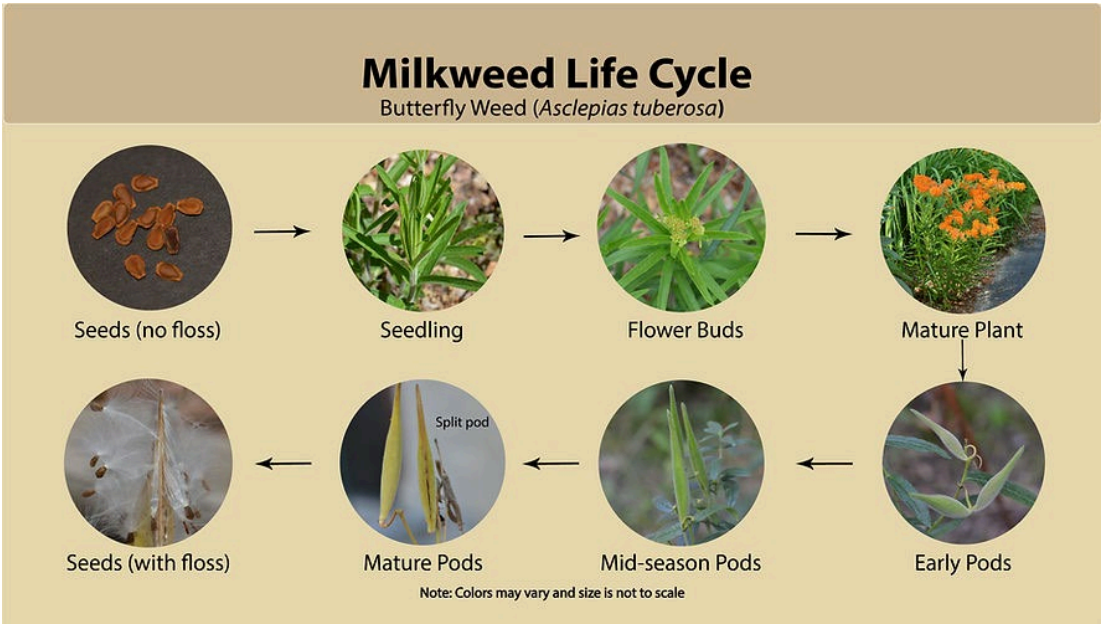
- Identify milkweed life cycle stages
- Learn about overall milkweed identifying characteristics

Materials:

- Milkweed Life Cycle worksheet printed out
- Pictures or examples of milkweed seeds, flowers, leaves and stems that students can compare

Procedure:

- Discus why milkweed is important to a monarch butterfly
- Discuss stages of the milkweed life cycle and identifying characteristics of milkweed plants
- Explain some of the interesting facts about milkweed



Monarchs Require Milkweed:

The survival of the monarch butterfly is dependent on its being able to find milkweed. In the wild, a female monarch can lay 300 to 400 eggs in the space of a few weeks. She usually lays one egg per milkweed plant, gluing it to the underside of a leaf to protect it from nasty weather. Although don't be surprised if you find several eggs on the same plant or even on the same leaf. This monarch egg is around 1 mm across and approximately 2 mm long and will take four to six days to hatch. The larva (caterpillars) only feed on milkweeds in the Asclepias family. There are 108 species of milkweed in North America. However, monarchs are only known to use 30 of them and they may use any or all of them.

Milkweed is toxic:

Milkweed contains cardenolides, toxins that are poisonous to many plant-eating mammals, birds, and insects. A few species of insects, including the Monarch, can tolerate the toxins and spend part or all of their lives feeding exclusively on milkweed. These insects tolerate and absorb the milkweed's toxins, making their bodies distasteful or poisonous to predators (Rea, Oberhauser & Quinn, 2011; Young-Mathews & Eldredge, 2012).

Life Cycle of Milkweed:

All milkweed plants begin life as a small brown or brownish seed. They grow into a seedling, or smaller version of a full-grown plant in the spring. Flower buds can be seen growing along different parts of the plants' stems, variations as to where the flower buds grow will be seen depending on the species and eventually bloom. If a large enough insect comes along and pollinates the flower a seed pod will form. Each seed pod contains hundreds of brown seeds with feathery white "floss." When the pod is ripe and ready to disperse its seeds, it splits down the middle. The floss allows the seed to be carried by the wind to a new location to start the cycle over again. Milkweeds reproduce mainly by seed, so when the wind takes the light floss with the see attached to a new location, hopefully a new milkweed seedling will appear the following spring (Nature Digger)!

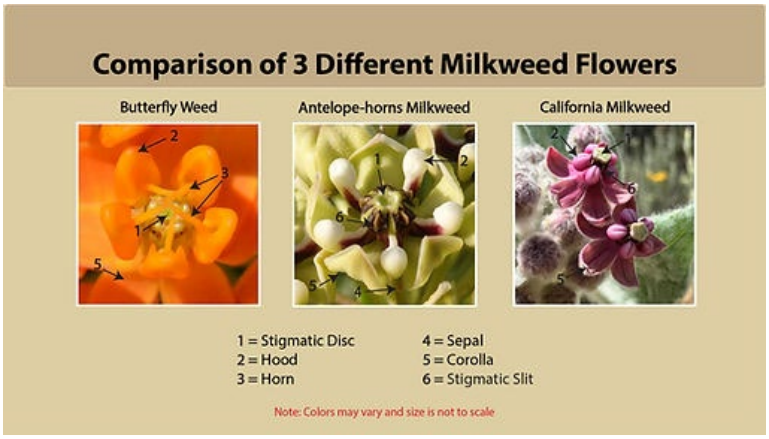
Dangers of Pollinating Milkweed:

But milkweed does a lot more than feed Monarchs; it has a unique flower and a sinister method of pollination that can amputate or even kill the pollinating insects that visit. Milkweed is pollinated completely different from most plants and is dangerous for many insects do so. Each milkweed blossom is equipped with a trap door, called a stigmatic slit. When insects land on their droopy flowers, clinging to the petals as they feed on nectar, a foot slips into the stigmatic slit and comes in contact with a sticky ball of pollen, called a pollinium. When the insect pulls its foot out of the trap door, it brings the pollinium with it. Eventually, the insect will move on to the next flower. Should that same foot slip back into another milkweed flower's stigmatic slit, the pollen can be transferred and pollination is completed.

Moving around pollinia from flower to flower can be a dangerous task. Sometimes insects get stuck in one of the flower's stigmatic slits and are never able to free themselves. Other times they must tear off their own limbs to escape. Even if an insect does manage to pry its leg out of the trap door, some insects are unable s to remove the pollinia. One or two pollinia will slow an insect down, but too many can make it difficult to move (Trukee).

Milkweed Flowers:

Milkweed flowers all have five petals (corolla), five sepals and a corona that contains hoods and horns (sometimes called beaks), which are modified anthers of the flower. Although milkweed flowers are similar in many ways, they can vary widely in color, shape, size and structure. Many species have showy globe-like umbels with numerous flowers, like antelope-horns milkweed, while others are less dense and less organized and droop, such as Carolina milkweed.



Milkweed Leaf Arrangements:

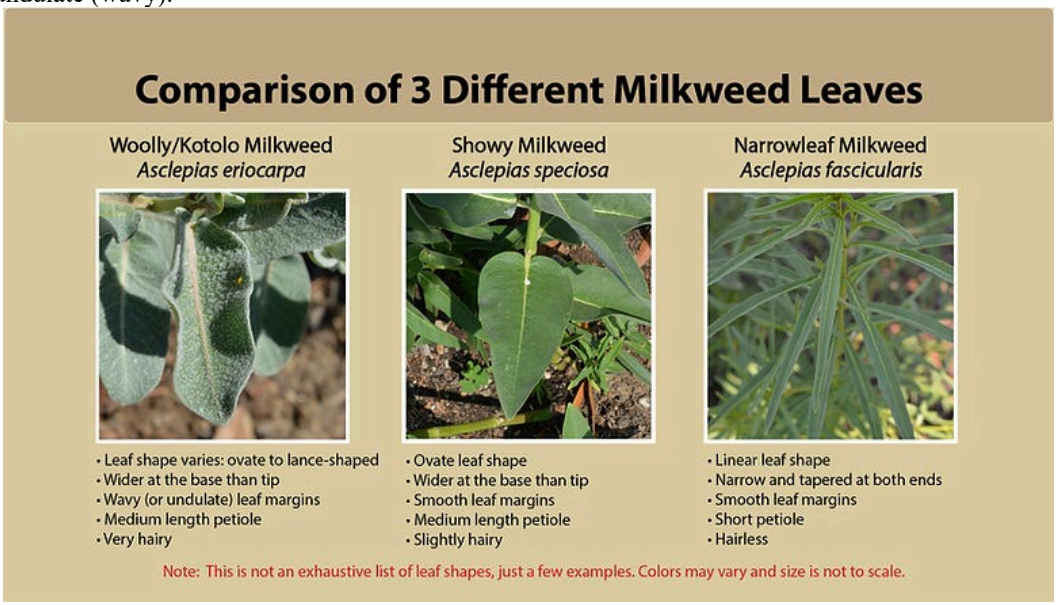
Milkweed plants can have any of the three primary leaf arrangements and sometimes more than one:

1) Opposite: Leaves are directly across from one another on one node
2) Alternate: Leaves alternate up the stem, and there is one leaf per node
3) Whorled: Three or more leaves are equally spaced around the stem on one node

Milkweed Leaves

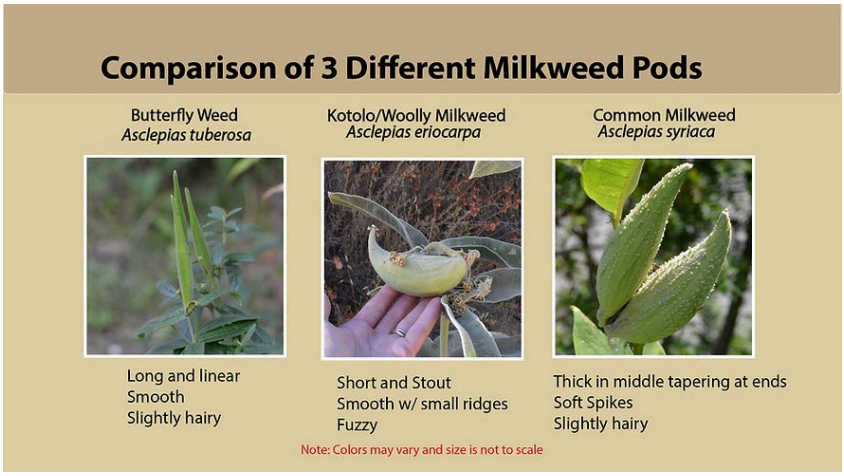
There are a lot of differing characteristics between the species of milkweed. One characteristic that is the same for all milkweed plants is that the leaves are known as simple leaves. This means that there is only one leaf per node, as compared to compound leaves, which have more than one.

Some leaves are dark green, some are light. Some are pubescent (hairy) some are glabrous (hairless). Some leaves have very prominent midveins, some do not. Many milkweed plants have an opposite leaf arrangement, while others have an alternate or whorled arrangement. Some leaves have straight margins (edges), while others are undulate (wavy).



Seed Pods:

The milkweed pods (also called fruit or follicles) are another way to distinguish between different species of milkweed. Some plants may spread by rhizomes, but most spread by seeds that are attached to a silky tuft of hair, called floss.



Some Interesting Side Notes:

- The Asclepias genus is named for Asklepios, the Greek God of medicine. Milkweed sap is potent with medicinal properties and can be used to kill warts (Moore, 2003). Paint your wart white with the milk every night before bed. The sap dries fairly quickly, it doesn't make much of a mess.
- Parts of the Showy milkweed plant are edible if cooked properly, but given the declining status of Monarch butterflies and the diverse population of insects present on every plant, it's probably best to leave milkweed to the bugs
- If you find a Showy milkweed, look closely: the beautiful star-shaped pink flowers are often covered in an interesting variety of insects, including bees, beetles, butterflies, aphids, and spiders.
- Milkweed floss was specifically harvested in 25 different states and in Canada during WWII to be used to make life jackets. It was an essential part of the war effort. To read more about this click here: They picked milkweed to help World War II flyers. Now they grow it to help monarch butterflies.

How to identify showy milkweed (*Asclepias speciosa*) characteristics (Trukee):

Milkweed family (Asclepiadaceae).
Plant: Up to 6 feet tall, stems contain white milky sap.
Leaves: Oval-shaped, 4-7 inches long. Opposite arrangement.
Flowers: Clusters of pink star-shaped blooms, Apr – Sept.
Seeds: Attached to tufts of white silk, dispersed by wind.

Sources:

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Young-Mathews, A., and E. Eldredge. 2012. Plant factsheet for Showy milkweed (Asclepias speciosa). USDA Natural Resources Conservation Service, Corvallis Plant Materials Center, OR and Great Basin Plant Materials Center, Fallon, NV

All images are from Nature Digger:

Nature education. Naturedigger. (n.d.). Retrieved January 1, 2023, from https://www.naturedigger.com

Name: _____

1. Cut out each rectangle
2. Place the squares on the Milkweed Life Cycle sheet in order of the growth of the milkweed plant's growth
3. Tape or glue the squares to the Milkweed Life Cycle sheet in order

Milkweed Life Cycle

Butterfly Weed (*Asclepias tubersoa)*

Seeds (no floss)	Seedling	Flower Buds	Mature Plant
Early Pods	Mid-Season Pods	Mature Pods	Seeds (with floss)