

Life Cycles

Objective:

Students will recognize the interdependence between plants and animals. Students will also study the four stages of plant reproduction and will identify the order in which they occur through the construction of a “reproduction wheel”.

Vocabulary:

pollinator	pollination	fertilization
reproduction	germination	dispersal

Materials needed:

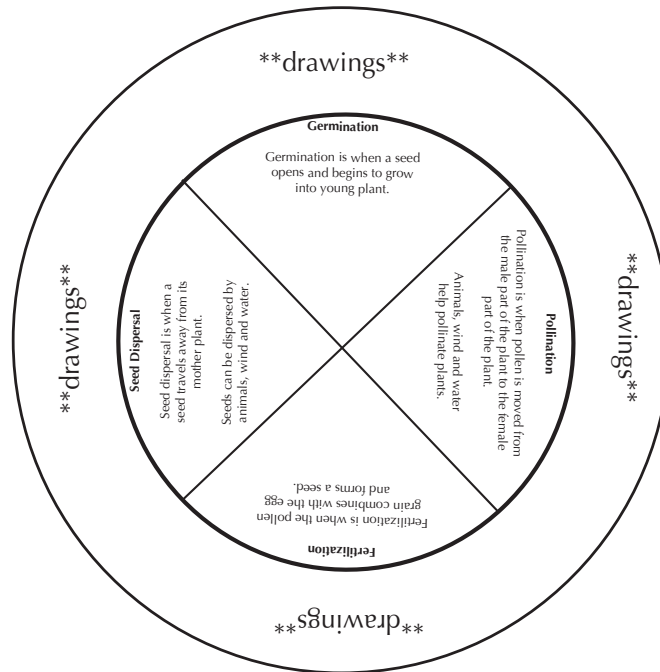
Paper plates	Metal brads	Pencils
Scissors	Crayons/markers	Handouts

Procedure:

1. On the board, draw a large circle. Ask the students if they know the life cycle of a human. Put the following four stages on the circle: birth, growth, reproduction, and death. Depending on how much your students have studied this subject, you may get into greater detail.
2. Draw another circle on the board and ask the students if they have ever planted a seed. Ask them to explain what happens after the seed is planted. Draw a plant life cycle on the board and be sure to include the four stages mentioned in the human life cycle. Again, feel free to go into greater detail with the students.
3. Distribute the “Life Cycles!” handout and ask the students what differences they notice between the pine and apple tree life cycles. What similarities do they notice? They will hopefully note that the pine tree and apple tree have very different ways of protecting their seeds. Cones and fleshy fruits like apples are just two methods plants use to help disperse and protect their seeds.
4. Ask the students how the seeds are produced. Write the following four terms on the board: pollination, fertilization, seed dispersal and germination. Challenge the students to look closely at the life cycles on their handout and identify which stage comes first, second, third and fourth. Take time to briefly define each word. Demonstrating the concepts in an outdoor area would be ideal.
5. Give each student two paper plates and instruct them to cut out the inner circle of one of the plates (you can also use the template on page 26 instead of a second plate). On the outside rim of the uncut paper plate, have the students draw pictures representing each term. For example, they can draw a bee and a butterfly for pollination, 1 + 1 for fertilization, water and wind for dispersal and a sprout for germination. Encourage creativity!
6. On the cut (now smaller) paper plate, have the students divide the space into 4 sections, writing one term in each section. Students can either draw a picture to match the one they drew for the term on the uncut paper plate or write a short definition. After the students have completed both pieces, attach the smaller circle to the uncut paper plate using one metal brad so the two layers can move freely. The students have now completed their “reproduction wheel”, see the example on the next page for clarification.
7. The students can use the wheel to increase understanding of each term, moving their definitions to match their pictures, and visa versa. Afterwards, students can share their drawings and definitions with fellow classmates.



Life Cycles (Continued)



Extension Activities:

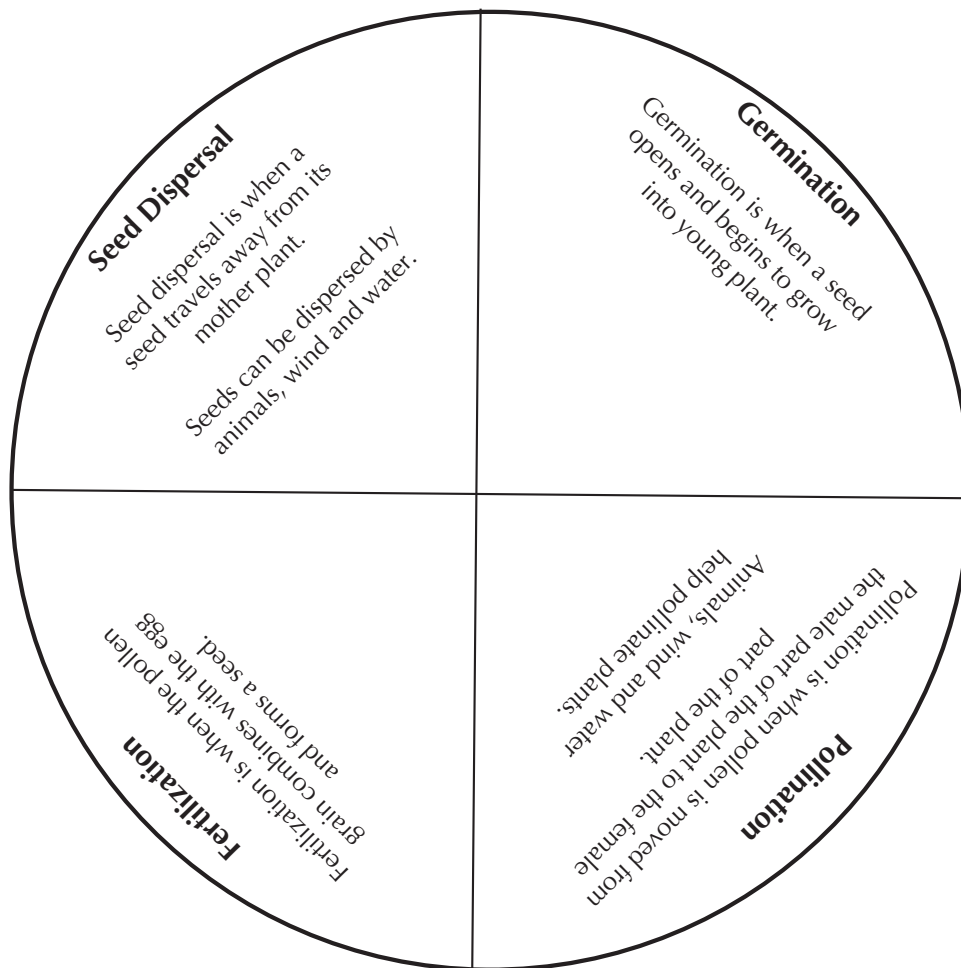
There are many South Florida native plant and animal species to explore with your students. Build upon the discussions of plant life cycles and add life cycles of native butterflies, reptiles, and birds. Using a school garden as a reference, your students can observe pollinators and plant life cycles in action!

Have children research plant reproduction to identify the reproductive parts of flowers and their functions. Challenge students to research their favorite fruits and find out what the flower that produced the fruit looks like. Connecting flowers to fruits solidifies the concept that plant reproduction is part of its life cycle.

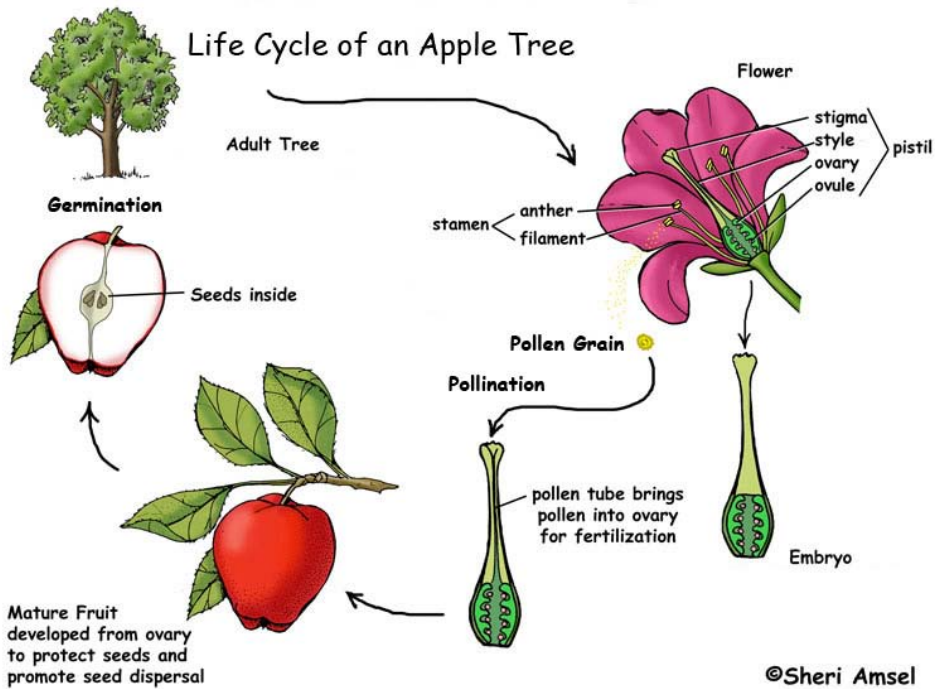
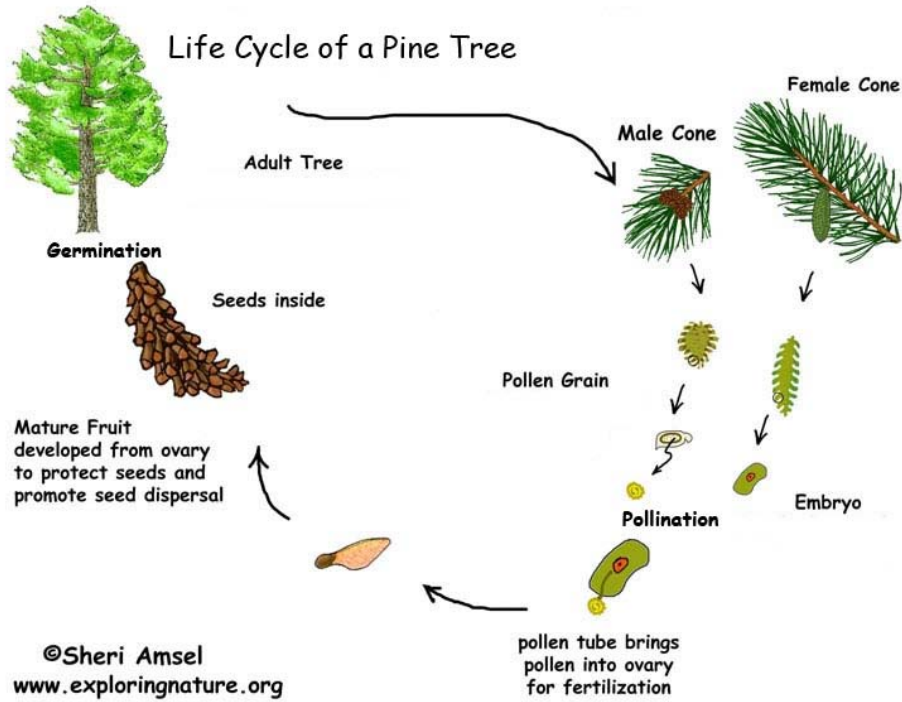


Reproduction Wheel Template

Directions: You may use this template for the inner circle of the reproduction wheel. Have the students cut out the circle and attach it to the uncut paper plate using a metal brad. Be sure to discuss these definitions with your students, and fully explain any inconsistencies in their understanding.

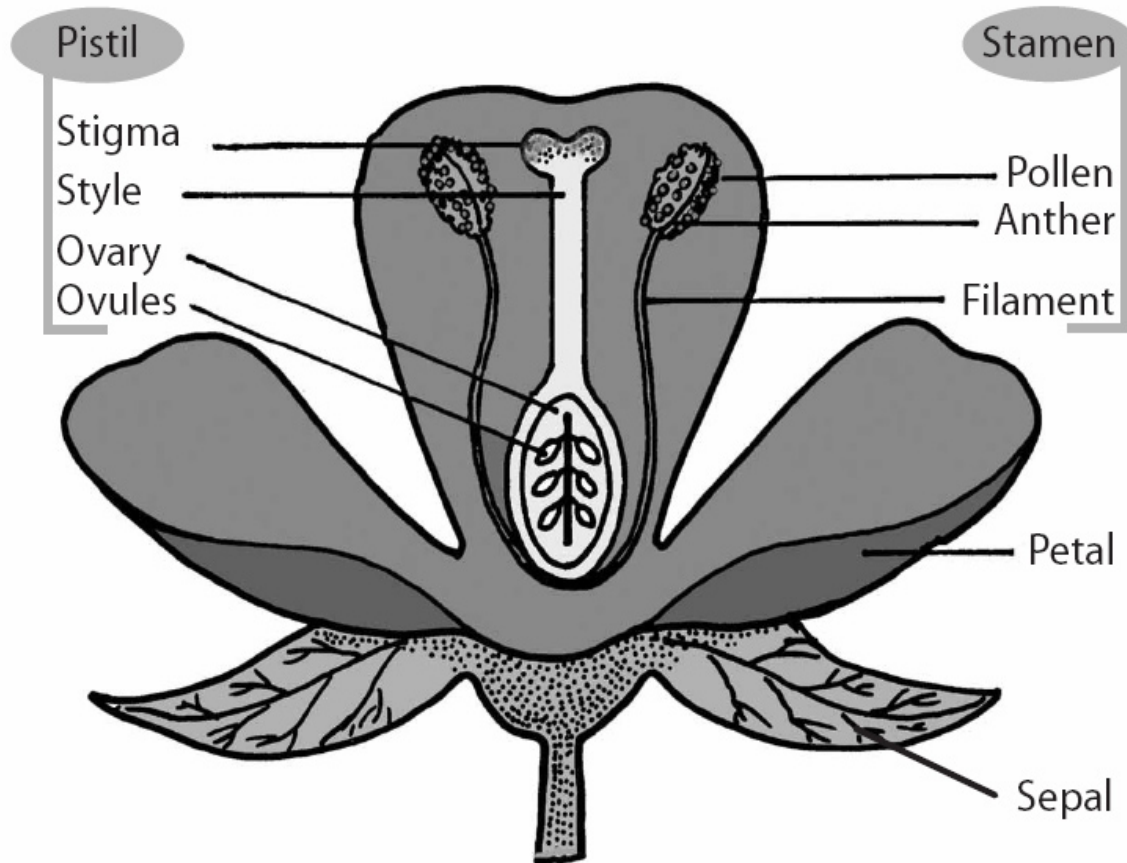


Life Cycles!



Adapted from <http://www.exploringnature.org>

Flower Parts



Sepals- protect the flower bud

Petals- help attract pollinators to the flower

Pistil- female reproductive organ (it is made up of the four parts below)

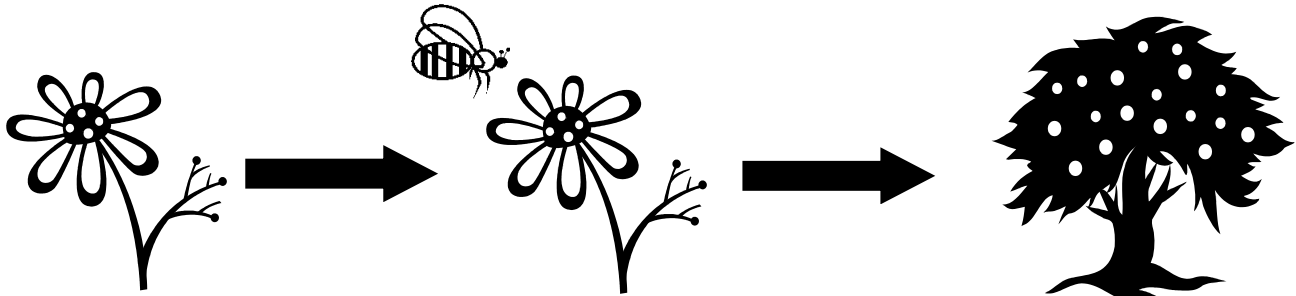
1. **Stigma**- sticky top part of the pistil for pollen to land on
2. **Style**- tube that carries pollen from the top of the pistil to the bottom
3. **Ovules**- develop into the seeds of the plant
4. **Ovary**- develops into the fruit of the plant

Stamen- male reproductive organ (it is made up of the three parts below)

1. **Pollen**- combines with an ovule to make a new seed
2. **Anther**- produces the pollen
3. **Filament**- holds the anther and pollen up high in the flower so the pollinator will touch it

Plant Reproduction

Most plants need the help of animals to pollinate their flowers and spread their seeds.



Flowers are produced

Bees pollinate the flowers

Fruit develops



Birds eat the tasty fruit

Birds spread seeds that pass through their gut

A new tree may grow where the seed lands

Name 3 pollinators (besides bees):

Name 3 seed spreaders (besides birds):
