

# Let's Graft!

Name \_\_\_\_\_

---

Trees in California walnut orchards are propagated by grafting seedlings in order to produce disease and pest resistant plants with nuts that are optimal for eating. During the grafting process, healthy rootstock from a native black walnut tree is fused with a shoot, or scion, from an English walnut tree. Native trees are more disease and pest resistant than non-native species. The fruit of the English walnut has a thinner shell and more meat than the black walnut making it easier to crack open and more enjoyable to eat.

## Materials

• two colors of clay or play-doh	• 6 oz. plastic cup
• white paint	• candle
• rubber band	• ruler
• plastic knife	• sand or soil
• paint brush	• matches
• scissors	• toothpicks

**IMPORTANT** – When you are not working with the clay set it down in your work area. Holding the clay will cause warming and could affect the results of this activity.

## Procedure

1. Roll each piece of modeling clay or play-doh separately into ropes that are approximately  $\frac{1}{2}$  inch in diameter and 5" in length.
2. Using the ruler, compare each rope and continue working with the clay until the diameters of both pieces are the same.
3. Using a toothpick and a ruler, mark cutting lines described in steps 3 and 4 below.
4. Using a plastic knife, cut one end of one of the ropes with a 1- $\frac{1}{2}$  inch diagonal cut. Do not cut the other end of this rope. This piece of clay is your rootstock.
5. Take the other piece of clay and cut a 1- $\frac{1}{2}$  inch diagonal on one end. On the other end, cut the clay straight across. This is your scion.
6. Using the plastic knife, cut a small notch on both pieces of clay in the middle of the diagonal cut.
7. Place the ropes of clay end to end with the diagonal cuts and notches connecting together as shown in the diagram.
8. Cut one end of a rubber band. Holding both ends of the rubber band, carefully place the middle of the rubber band in the middle of the graft. The rubber band is like a bandage covering the plant's wound.
9. Carefully wrap the rubber band around the graft and tie the ends together in a knot.
10. Using white paint, coat the rootstock white to protect it from the sun.
11. With your teacher's help, dip the top of the exposed scion with melted candle wax to protect the plant drying out.
12. Place sand or soil into a plastic cup. Gently "plant" the grafted walnut seedling making sure to bury only the bottom of the rootstock.

# Let's Graft (continued)

## Conclusion

1. Why do walnut farmers graft their trees?
2. Why do you think native plants are better at fighting diseases and pests than non-native plants?
3. What time of year is best for planting the seeds of walnuts?
  - a. summer
  - b. fall
  - c. winter
  - d. spring
4. How long does a walnut seedling grow before it is ready to be grafted?
  - a. 3 months
  - b. 6 months
  - c. 9 months
  - d. 12 months
5. Why do farmers paint the rootstock of walnut trees white when they are young?
  - a. the nutrients help them grow
  - b. to keep the rootstock warm in the winter
  - c. to keep the rootstock from getting sunburned
  - d. to mark the plants that have been grafted
6. A scion is:
  - a. a small piece of rootstock
  - b. the hard exterior of a nut
  - c. the shoot of a plant with the desired genes for growth
  - d. a young tree
7. There are many different kinds of propagation methods that walnut farmers utilize in order to produce more walnut trees for their farms. Research this website and compare two different kinds of walnut propagation: <http://fruitandnuteducation.ucdavis.edu/education/fruitnutproduction/Walnut/WalnutPropagation/> In the space provided below, write a paragraph stating which kind of propagation method you would choose and why.