Vegetative Propagation

Natural Methods

**Epiphyllous Buds**

*Bryophyllum delagoensis*

Cytokinins accumulate in notches and stimulate shoot development

**Scaly Bulbs**

In garlic bulbs, the lateral buds become bulbils called “clove” of garlic.

**Scaly Bulb**

*Onion, Tulip, Daffodil*

Scales are leaf bases.

Basal plate is stem.

Roots are adventitious.

Lateral buds in axis make bulbils.
Corms: Just the basal plate

Crocus and Gladiolus

Lateral buds develop into cormels

Tuber at end of rhizome (underground stem)

Tuber swells as a storage organ. The apical bud and lateral buds are "eyes."
A piece of potato with an eye can be treated almost like a seed.

Potato: Helianthus tuberosus

Stolons: Spider Plant and Strawberry

Leafless overground branch develops crown and arches to soil, the crown roots, and becomes independent.

Tip layer

Black Raspberry and Forsythia

Tip layer
Vegetative Propagation
Artificial Methods

Tip Layer
Leafy shoot tip arches to soil, takes root, and becomes independent plant. Bramble describes this behavior.

Root sprouts
Red Raspberry and Rose, many others!
Roots growing from original plant near soil surface, accumulate cytokinins, make sprout. Results in “thicket”

Leaf-petiole Cutting
African violet
Jade plant
Kalanchoe
Peperomia

1. IAA produced
2. IAA transported
3. Callus develops
4. Roots form
5. CK produced
6. CK transport
7. Shoot formed

Petiole
Blade
What if the plant you want to clone is a special maple tree that turns wonderful combinations of green, yellow, orange, and red in the fall. The lowest branch is many feet above the soil making a tip-layer impossible. Leaf and stem cuttings fail but you think a tip-layer might work if only the tree were not so tall. How do you solve this dilemma?

If the cutting is Mohammad, and you cannot bring Mohammad to the mountain, you should…

…bring the mountain to Mohammad! Air Layer!

We will work this example on the whiteboard together in class!