



## Curiosity Guide #704

### Leafy Science

Accompanies Curious Crew, Season 7, Episode 4 (#704)

#### Propagating Succulents

STEM Challenge

#### Description

Grow a whole plant from a leaf!

#### Materials

- Healthy succulent. Echeveria works well.
- Rubber gloves
- Tray
- Paper towel
- Magnifying glass
- Drinking glass
- Water
- Plastic wrap
- Rubber band
- Scissors

#### Procedure

- 1) Put on rubber gloves.
- 2) Cover a tray with paper towels and set aside.
- 3) Gently twist a plump lower succulent leaf off the plant. Be careful not to tear the leaf. Remove the leaf close to the stem of the plant.
- 4) Repeat several times with additional lower leaves.
- 5) Lay the succulent leaves on the tray. Do not disturb for five days.
- 6) Examine the leaves to ensure the ends of the removed leaves have formed callouses.

- 7) Fill a drinking glass with water to an inch below the lip.
- 8) Cover the top of the glass with plastic wrap and secure in place with a rubber band.
- 9) Pierce the plastic wrap with a small hole for each leaf, as well as two additional holes that can aerate the system.
- 10) Insert a leaf into each hole, with the cut side of the leaf going into the glass. Make sure the bottom of the leaf is not in the water.
- 11) Leave the glass and leaves undisturbed in a bright but shady area.
- 12) If the water gets dirty, carefully remove the plastic and leaves, get fresh water, and replace the plastic wrap and leaves.
- 13) In time, roots will grow toward the water. You can let the plants continue to grow in water or plant them in dry soil when the roots are about an inch long.

## My Results

## Explanation

Succulents are plants that use their thick fleshy leaves to store water so they can thrive in dry hot conditions. For this reason, succulents can withstand droughts by using their stored nutrients and water. When succulents experience too much sun, they can change color. A dull green indicates that the plant is receiving less sunlight. Cactus is an example of a succulent, as are echeveria, senecio rowleyanus ("String of Pearls"), or sempervivum.

Echeverias propagate especially well from leaves, as do graptopetalum and sedum. In each of these plants, the leaves are more prone to coming off if disturbed, so these plants have adapted to reproduce from those fallen leaves. Pick a plump leaf. A leaf that starts out plump can provide more nutrients to the developing plant. Making sure a callous has formed is an important step, as that prevents any bacteria from entering the plant. The leaf will develop small roots and rosettes, while the parent leaf slowly shrivels up. The plant is ready to transfer to soil once there are visible roots about an inch long. Lay the plant on dry soil so the rosette and leaf are on top with the small roots covered in soil. Mist the soil surface with water every few days for a month while the plant grows before moving the plant to a sunnier location. Although propagating a succulent from a leaf is a long process, it is very satisfying.

**Adopt a succulent.** When most people think of desert plants, they usually imagine a large saguaro or prickly pear cactus, which are both succulents. Succulents are plants that use their thick fleshy leaves to store water. So, succulents usually thrive in dry hot conditions, and there are thousands of varieties. The leaves of some are green, but succulents can also be pink, blue, purple, yellow, and orange. The best part is that succulents are easy to grow and care for, and some varieties can even grow a new plant from an existing leaf. Beautiful!

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