

Activity Summary:

Youth will create a flowerpot by upcycling a metal can. Youth will learn about the maintenance and care of a succulent while learning how to use various tools for ‘do it yourself’ (DIY) projects. Youth will also explore and learn about the environmental impact of upcycling and the City of Austin’s Zero Waste Goal.

Introduction (10 min)

UNIT: Generation Zero;
Gardening

GRADES: Middle and High School

MATERIALS:

- 12 oz. aluminum drink can
- Can opener
- 2" succulent
- Succulent soil
- Scoop for soil
- Hammer
- Nail
- Plant names and care sheets (homemade from own research or from store)

Optional Materials:

- Small rocks and gems for decorations
- Markers and stickers

TIME REQUIRED: 30 minutes

OBJECTIVES:

Students will be able to:

- Learn about a succulent and its care
- Learn how to use a hammer and a can opener
- Upcycling and reducing waste

HS TEKS CORE CONCEPTS:

- Environmental Systems: 1B, 2BEFI, 9BFI
- Aquatic Science: 1B
- Earth and Space Science: 1AB
- Social Studies: 14A, 32AB

1. Preface what youth will be completing today: We will be upcycling a flowerpot from a metal can.
2. Start the conversation about what happens to a metal can. Ask, *“What would happen to a metal can if you placed it in the trashcan?”*
 - It would start in the trashcan, be taken out to the curb or put in a trash dumpster, the garbage truck would pick it up, and then it would be brought to a **landfill**.
3. What is a **landfill**?
 - A hole that is dug under the ground where trash gets dumped. These structures are built with multiple liners to protect the environment. The trash that is dumped into the landfill does not decompose (break down), it stays under the ground isolated from groundwater, rain, and air.
4. *Can you think of other uses or places for a metal can?*
 - The recycling bin, reuse it, or do-it-yourself (DIY) projects.
5. *What would happen to a metal can if you placed in the recycling bin?*
 - An aluminum can is made of metal, and metal is a material that is able to go into the recycling bin. Once an aluminum can goes into the recycling bin, it is collected by the recycling truck and taken to a **Materials Recovery Facility (MRF)**. A MRF is a term for a recycling center.
6. *What happens to the metal can at the Materials Recovery Facility (MRF)?*
 - Once at the MRF, all recyclables are separated by materials and all cans are put together. From there the cans are baled together, this means they are put together into cubes for convenient transportation. *See **Figure 1** in Additional Resources for a photo.*
 - From there the cans are stripped down to their bare bones, into pieces of aluminum. From there all the aluminum is sold and recreated into new aluminum items.
7. Today we are going to be upcycling our metal can into something new! **Upcycling** is a form of creative reuse. It is the act of taking an unwanted item and giving it a new purpose and use. Your unwanted empty can will be transformed into a flowerpot for your succulent or plant of your choice.
8. Discuss the City of Austin’s Zero Waste Goal. The city has a goal to divert 90% of our waste from the landfill by the year 2040. This means

that the city is asking Austinites to watch what they put in the trash and reduce, as a city, the amount in the trash by 90%.

- Ask, “How old will you be in the year 2040?”
- Ask, “How does upcycling relate to the City of Austin’s Zero Waste Goal?”
- Take time to discuss.

Can Planter (20 minutes)

1. Before starting this activity, every participant will need an empty 12 oz. aluminum drink can. You may give participants an empty can or have them drink the contents in the can. To make it more engaging, ask participants to spend time outside observing nature while drinking their drink.
2. Once the can is empty, students will use a can opener to open the top of the can. This is the end of the can with the metal tab on it.
 - The top of the can that is removed should be put in the recycling bin.
3. Once the top is off students will need to turn the can upside down. Place the can on a supportive surface (like a table or the ground), and make sure it is standing flat on the surface. Using a hammer and a nail, students will now create drainage holes on the bottom of the can. Use the same nail to create about six holes all on the bottom of the can by lightly tapping the nail into the bottom with the hammer. **See Figure 2** in *Additional Resources* section
4. Youth will then choose a succulent that they would like to plant in their planter. See **background information** for information regarding choosing succulent options for this activity
 - **Extension:** Youth should be given a sheet with the common and scientific name of their plant, and the care instructions. You may also have youth look this information up on their own. A sample sheet can be seen in **Figure 3** in *Additional Resources* section.
5. Holding the can right side up, youth will fill their cans about 2/3 of the way full with soil that is specifically for succulents.
6. Take plant out of the pot it came in and insert the plant into can planter that was just created. Top off the can with a little more soil after the plant has been inserted. The soil should just cover the top of original soil the plant came with.
 - When you take the plant out of the pot it came in the roots may be tangled. Before placing your plant into your upcycled pot, gently untangle the roots. Some of the roots may come loose or break off, do not worry this happens.
7. Do not forget to lightly water your plant so the roots can settle!
8. Youth can decorate and personalize the outside of their can, and add small rocks to the top of the soil for decoration. **See Figure 4** in the *Additional Resources* Section for an example of the final product.

Closing (5 minutes)

1. Review the term upcycling and talk about waste reduction.
2. Review the type of plants students have planted and review their care.
3. Review the City of Austin’s Zero Waste Goal and how this activity relates to it.

Additional Resources

Figure 1. Baled metal cans at the MRF



Photo Credit Greengroundwells.com


Figure 2. Nail and hammer on bottom of can




Figure 3. Sample plant care sheet

PLEASE TAKE CARE OF ME

NAME: Anacamperos Telephiastrum

 : indirect sunlight

 : "soak and dry" method

damp the soil and
do not water again until
soil is dry to the touch

FUN FACT: known as the "sunrise" plant

Figure 4. Sample of can planter final product



Background Information

What is upcycling? Upcycling is taking an item that no longer has a use and giving it a new purpose or function. You likely have heard of the common saying, someone's trash is someone else's treasure, and this perfectly describes upcycling! With a little bit of imagination and creativity you can give an item a new life. For upcycling to take place you do not need to buy a new item, the idea is to take something you already have or purchase it second hand. Some benefits of upcycling include reducing waste, saving money, generating art, and creating useful items!

What is recycling? Is it different than upcycling? Recycling is saving waste materials by keeping them out of the trash, and allowing them to be reprocessed. Reprocessing waste material involves breaking them down and then reforming them into new products. Recyclable materials are collected from businesses and residences, then they are sold to manufactures for processing and reuse in a new generation of products. Upcycling is **not** the same as recycling because upcycling takes items and gives them a new purpose. For example, when a metal can is recycled it goes to the recycling center is stripped down to its bones, into aluminum. From there a metal can will likely be turned into another metal can, or other various aluminum items. When you upcycle a metal can like in this activity you take it and use it in its original form, and give it a new purpose, like a metal can as a planter.

City of Austin's Zero Waste Goal: The City of Austin has a Zero Waste Goal, that by the year 2040 they want the city to keep 90% of materials of discarded materials out of the landfill. This means finding a way to reduce what we put in the trash by 90%! To reach this goal the City of Austin is encouraging Austinites to recycle, and compost as much as possible. This also allows for residents to get creative and allows for collaboration among entities. For examples, old lightbulbs do not belong in the recycling or the compost. What do we do with them? For any questions check out the city of Austin's "What Do I Do with Tool" to find out where challenging items can go to avoid the landfill. This also opens up the opportunity for second hand shopping and upcycling. But getting creative and upcycling an item you help give new life to an item and reduce waste.

What are succulents? According to the Lady Bird Johnson Wildflower Center, succulents are distinguished by their thicker than normal leaves, their ability to store lots of water, and their ideal dry habitat climate. Succulents have a reputation for being really easy to care for and being "indestructible," as they do not require much water. Some well-known examples of succulents in Texas are cacti, yuccas, agave etc. Succulents are a great candidate for the can planter activity because these plants fare well in containers since they do not dry out very easily.

Choosing and caring for your succulent: When you purchase your plants it is recommended to find out the type of plant (usually there is a common and a scientific name), how much sun and water the plant requires, what type of soil is needed. This will help you to know how to best care for your plant. The nice thing about succulents is that they are typically rather easy to care for. If you are able to talk with someone at the nursery or store they can likely answer these questions for you, or you can always look it up on the internet. It is recommended for this activity to use a 2-inch succulent. You do not need to choose this exact size and type of plant, but if you are going to venture off and choose something else be sure to consider the mature size of the plant, the amount of space, water, and sun it needs etc.