

ArtStream

Written Instructional Guide



Building Worlds With Paper

For 6th-8th Grade Students

With Teaching Artist Victoria Wills

Lesson 3: Design and Create 3D Flora for Your World

Introduction

Welcome!

In today's lesson we're going to draw from your knowledge of how living things have adapted to survive in different environments and select plants to represent in your diorama stage. These plant samples will be design and crafted in 3D.



Materials

For this lesson you will need:

- Six pieces of paper - printer or sketch paper
- Masking tape
- Tape, glue, or a stapler
- * Drawing materials - markers, crayons, or colored pencils
- Graphite pencil
- Scissors

*** Markers and crayons will be the best choices for this project if possible.**



Let's get started with a moment of gentle movement.

- Be seated in a comfortable place.
- Imagine you're dipping your elbows into paint. Choose a color.
- Move your elbows in giant circles as you imagine that you're painting circles of that color in the air.
- Try painting a color circle wherever you think one is needed.
- You can paint circles over your head, to your sides, below, and behind yourself.



Gentle movement (*continued*)

- Move your elbows in the opposite direction making more colored circles in the air.
- Try to cover all the same areas with circles as those you painted in the other direction.



Gentle movement (*continued*)

Let's wash up now.

- Rub your hands together as if you're washing off all the paint.
- Rub your hands together as if you're washing off all the paint.
- Remember to rub the paint off your elbows too.

This is a movement you can do at anytime to help you relax or stretch.

We are warmed up and ready to create.



Let's take a look at some information about plant adaptations according to biome.

We'll look at each biome and its characteristic challenges and corresponding plant adaptations that can be shown in your artwork.



Ecological stresses and plant adaptations by biome

Desert

scarce water, extreme heat

Plants store water in stems, have small seasonal leaves to use little water, develop hairy leaves to shade plant, and coated in a waxy covering to retain water.



Ecological stresses and plant adaptations by biome

Taiga

cold winters, permafrost, warm summer, scarce water

Evergreen cone bearing trees with needles to require little water and waxy covering to retain water, needles are dark green to retain heat, downward drooping branches to shed snow in winter and keep branches from breaking.



Ecological stresses and plant adaptations by biome

Tropical Rainforest

heavy rainfall, moisture loving fungus can infect leaves, shallow soil, high wind

Pointy leaves with a drip tip to drain excess water, climbing vines to reach sunlight, waxy covering to protect from fungus, colorful flowers near the ground away from wind, strong prop roots to hold plants upright in shallow soil



Ecological stresses and plant adaptations by biome

Grasslands

hot summers, cold winters, frequent fires, high winds, grazing animals

Flexible grasses can bend in the wind, many leaved grasses withstand grazing by animals, deep roots can regenerate plant after fire or grazing.



Ecological stresses and plant adaptations by biome

Temperate rainforest

mild winters, cool summer, high rainfall, shady, coastal fog, poor soil

Plants grow on other plants to gain access to sunlight, seedlings grow on nurse logs to gain nutrients, tall trees reach available sunlight



Ecological stresses and plant adaptations by biome

Water

lack of sunlight and access to air

Flexible leaves and stems can move with currents, air spaces in stems and leaves float plants closer to water's surface and sunlight, floating flowers and seeds help seeds disperse and grow



Ecological stresses and plant adaptations by biome

Temperate Deciduous Forest

plentiful rain, tall trees, mossy, leaf covered forest floor, soil has high nutrients, shady forest floor

Low growing wildflowers bloom in early spring before tree leaves appear, thin broad leaves to capture sunlight, thick bark protects against cold in winter months, leaves drop around first frost.



Ecological stresses and plant adaptations by biome

Tundra

cold year round, permafrost, poor drainage, little rain

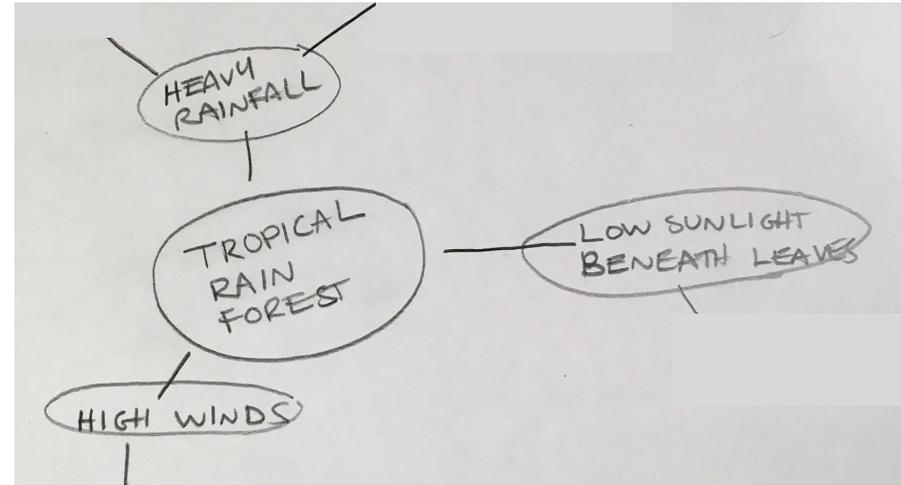
Small plants grow close to the ground to prevent freezing, dark leaves to absorb heat, grasses grow in clumps to protect each other from wind and cold, flat dish like flowers to absorb sun's heat



Step 1: Mindmap the elements of your biome

On a piece of paper, take some time to write a list or draw a mind map, like the one pictured, to generate and document ideas.

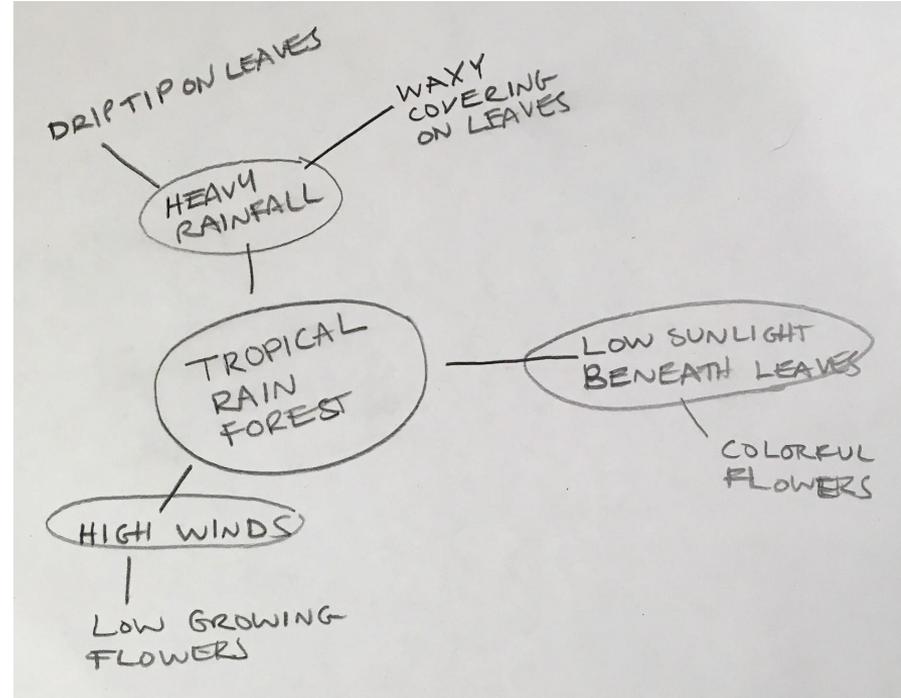
- Write the biome you selected in the center and circle.
- Create circles that branch off of this center circle, writing details of the environment, pulled from the previous slides.
- List at least three characteristics of your biome.



Step 2: Envision the flora

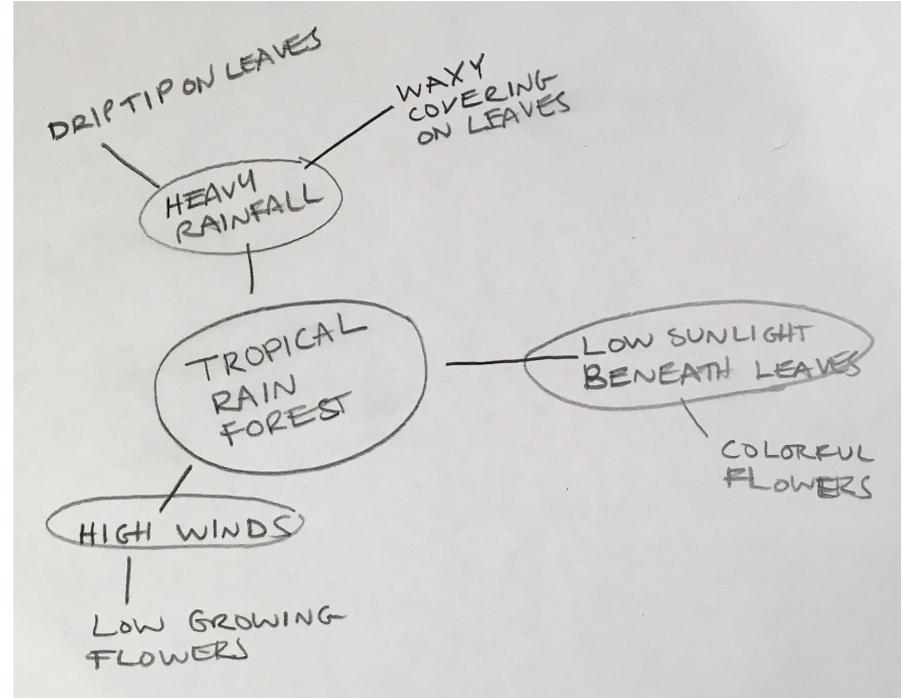
Using the mindmap you have created, begin considering details of your plants, focusing on how they adapt to the biome elements you have listed. Consider these questions to help you identify details:

- How does the plant adapt to grow given the amount of water present in its environment?
- How does the plant protect itself from predation?
- How does the plant get enough sunlight for photosynthesis?



Step 2: Envision the flora (continued)

- How does your plant get enough space for its roots to provide support?
- How does your plant attract pollinators or spread its seeds?
- How does your plant maintain an adequate supply of air to its roots and leaves?



Creating your 3D paper flora

The following steps will show you how to make a tree, leaves, grasses and flowers. Use these methods as a guide to creating the plants you've decided on.

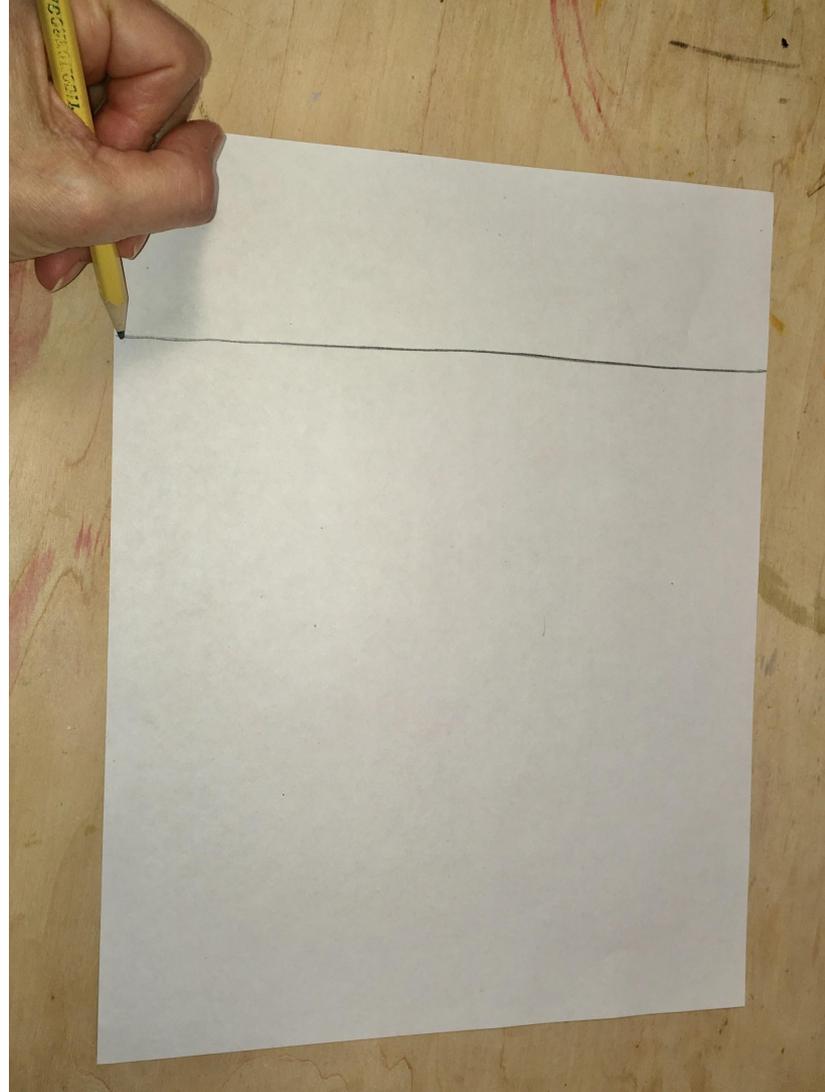
Add your own touches of shape, color and assembly.



Step 3: Make a grassy plant

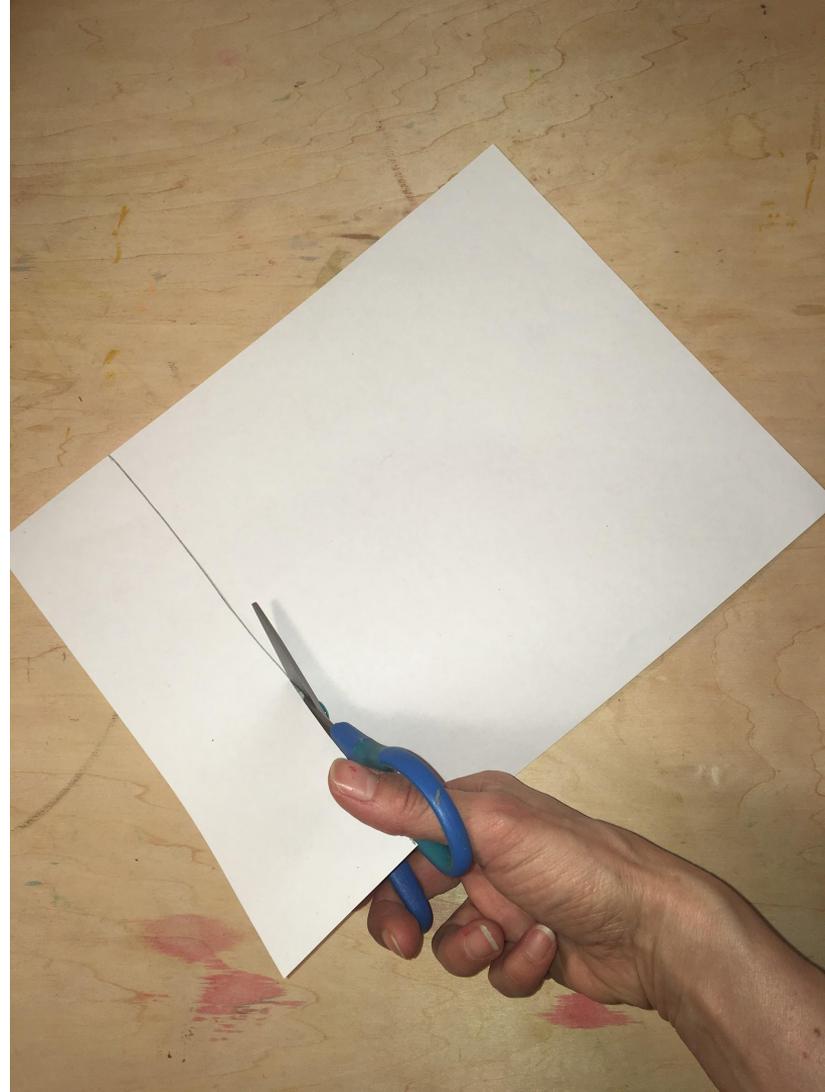
- Draw a line on your paper to create a strip of paper in a place that is as wide as you'd like your grass to be tall.

A good tip is to make a strip that is about one index finger wide.



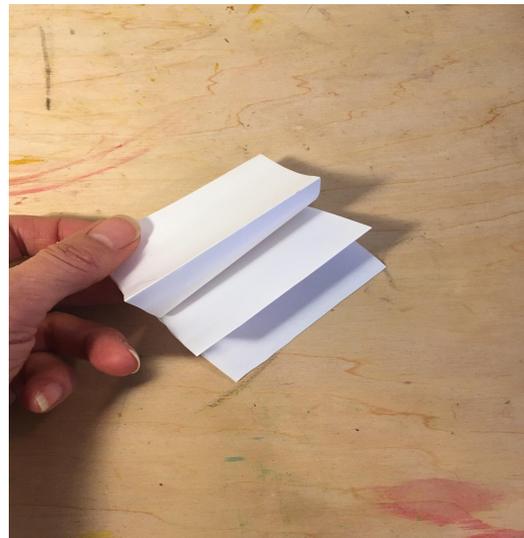
Step 3: Make a grassy plant (continued)

- Cut along the guideline to make a strip of paper.



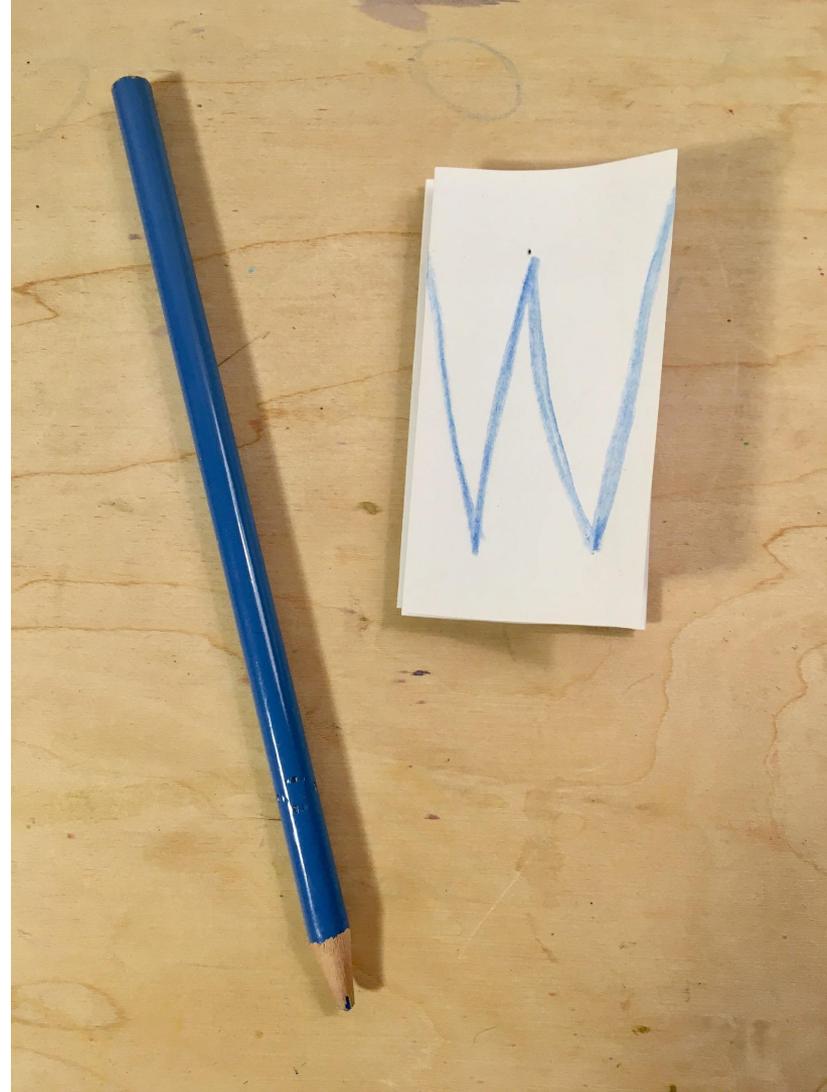
Step 3: Make a grassy plant (continued)

- Accordion fold the paper strip making the first fold about two fingers wide.



Step 3: Make a grassy plant (continued)

- Draw a “W” on the front, making sure to start the “W” on one edge and finishing the “W” on the other edge.



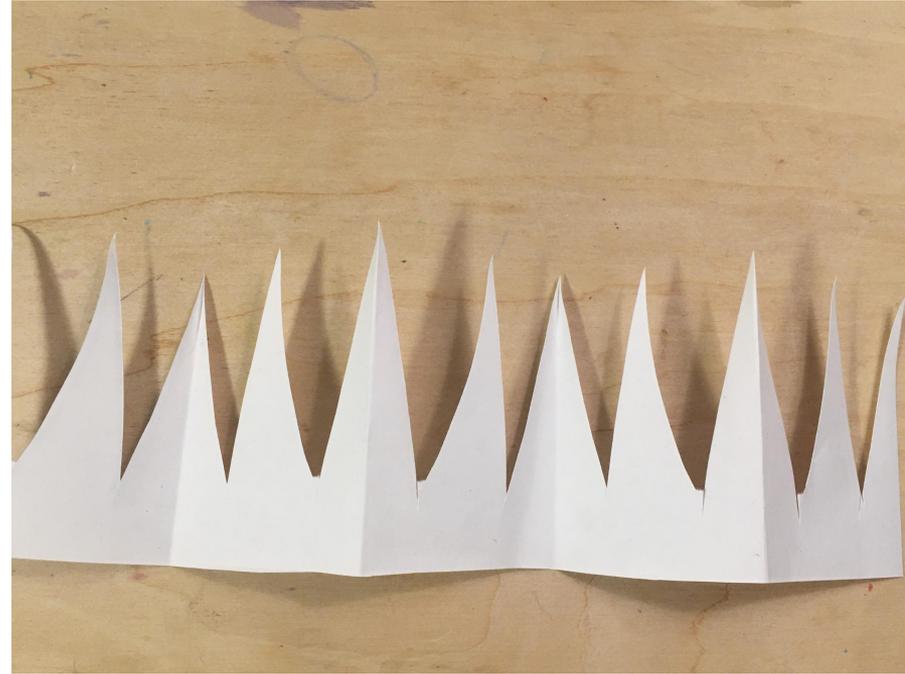
Step 3: Make a grassy plant (continued)

- Cut along the “W” lines to cut out your grass.



Step 3: Make a grassy plant (*continued*)

- Open out the accordion and find your grass!



Step 3: Make a grassy plant (continued)

- Add color to your grasses.
- Make some creative choices in coloring in the grasses by using different shades of green or experiment with blending in other colors such as yellow or blue. Or, perhaps your grass is another color like red or purple!



Step 3: Make a grassy plant (continued)

- You can keep your grass whole, or cut it into clumps.



Step 3: Make a grassy plant (continued)

- You can make paper flowers to cut out and add to the tip of the grass shapes to transform them into flower stems with flowers, if you would like.



Step 3: Make a grassy plant (continued)

- Stand the grass up.
- Folding the grass along the fold lines helps it balance.



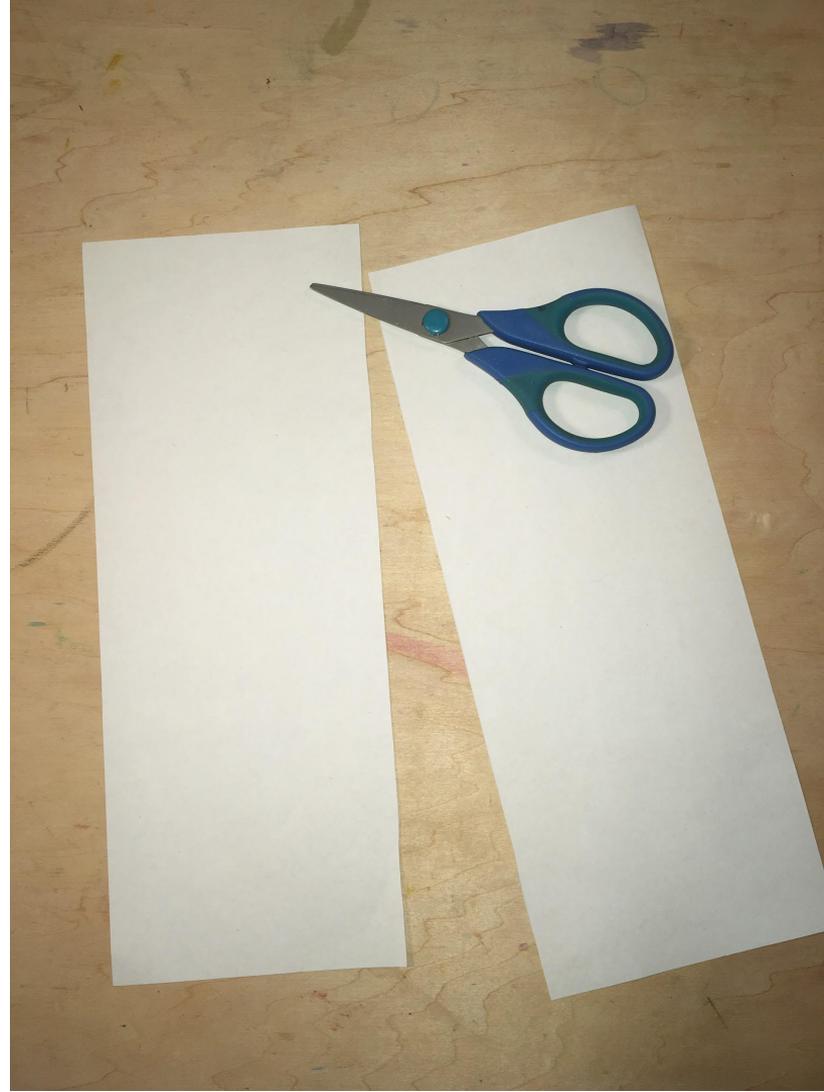
Step 4: Construct a 3D tree

- Fold a piece of paper along the long edges.
- Cut in half along the fold



Step 4: Construct a 3D tree (continued)

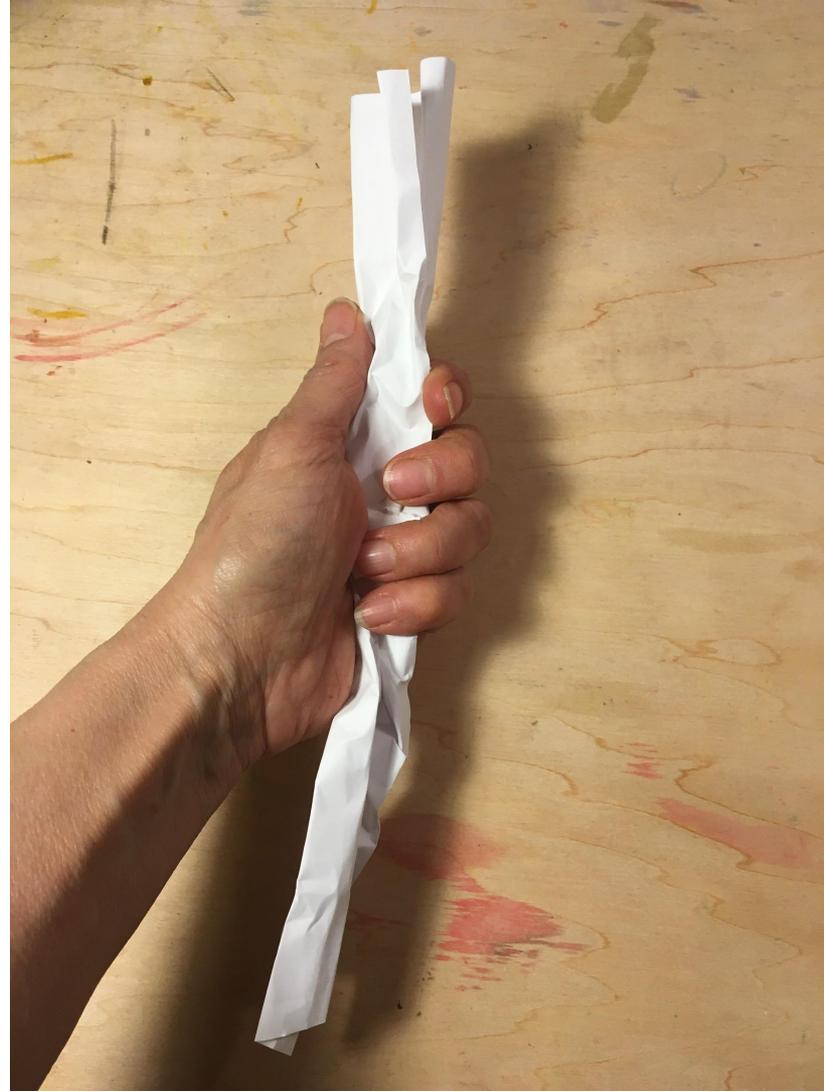
- Repeat the same fold and cut process with another piece of paper to get 4 strips of paper that are the size of half-sheets.



Step 4: Construct a 3D tree (continued)

- Scrunch three pieces of the cut paper strips into long snake-like shapes.

STOP! Don't scrunch the fourth piece of paper!
This will be used in another step.



Step 4: Construct a 3D tree (continued)

- Take your three scrunched strips and twist the paper so that it is twisted along the entire length of the strand like a breadstick.
- Twist all three strands.



Step 4: Construct a 3D tree (continued)

- Join the 3 twisted strands together at a point approximately one pinkie finger's length away from the end by wrapping all three strands together with masking tape.



Step 4: Construct a 3D tree (continued)

- Continue to wrap the tape around the three strands together stopping about two pinkie lengths away from the opposite end.

You have just created the tree trunk.

- The shorter three strands will become the roots.
- The longer three strands will become the branches.



Step 4: Construct a 3D tree (continued)

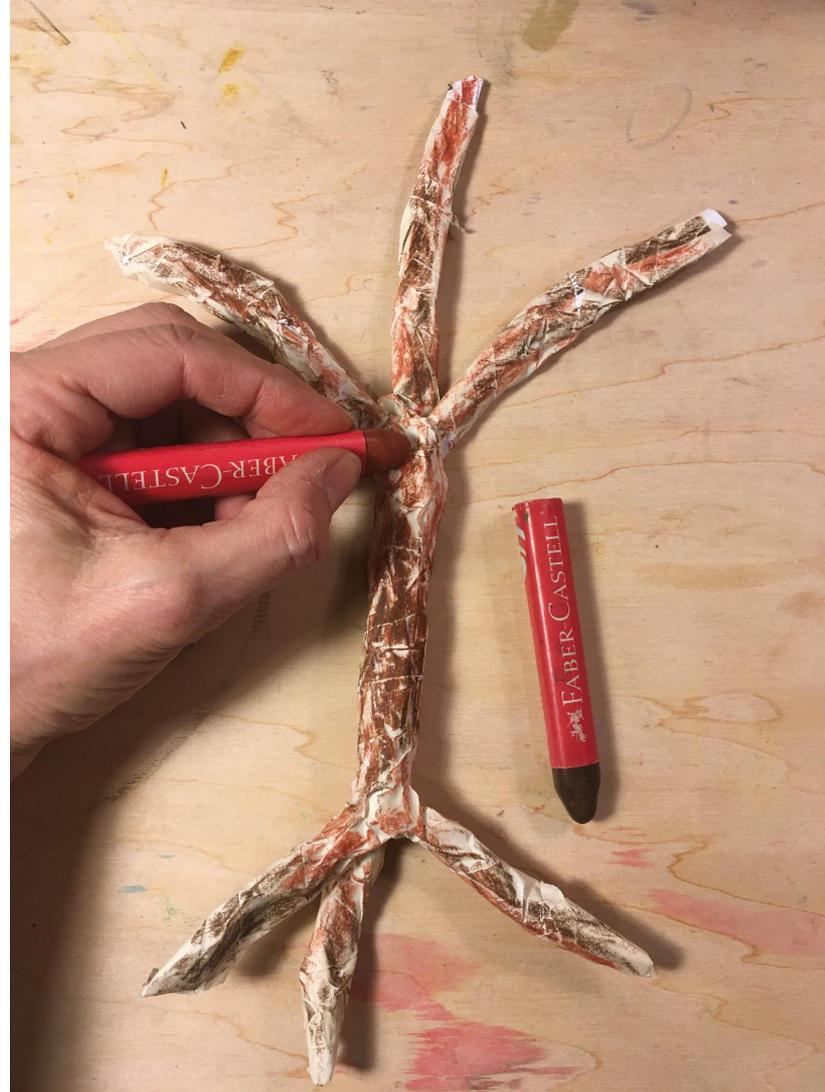
- Wrap each individual strand with masking tape until they are all covered and no paper is showing through.
- For the shorter end, you want to angle the three strips out away from one another to create a base of support for your tree (see arrows).



Step 4: Construct a 3D tree (continued)

- Use your drawing materials to add color to the tree. You're coloring the tree's roots, bark on the trunk, and branches.
- Have fun experimenting with colors and color blending to give the tree a bark like appearance.

Tip: Markers or crayons work best to color over the masking tape.



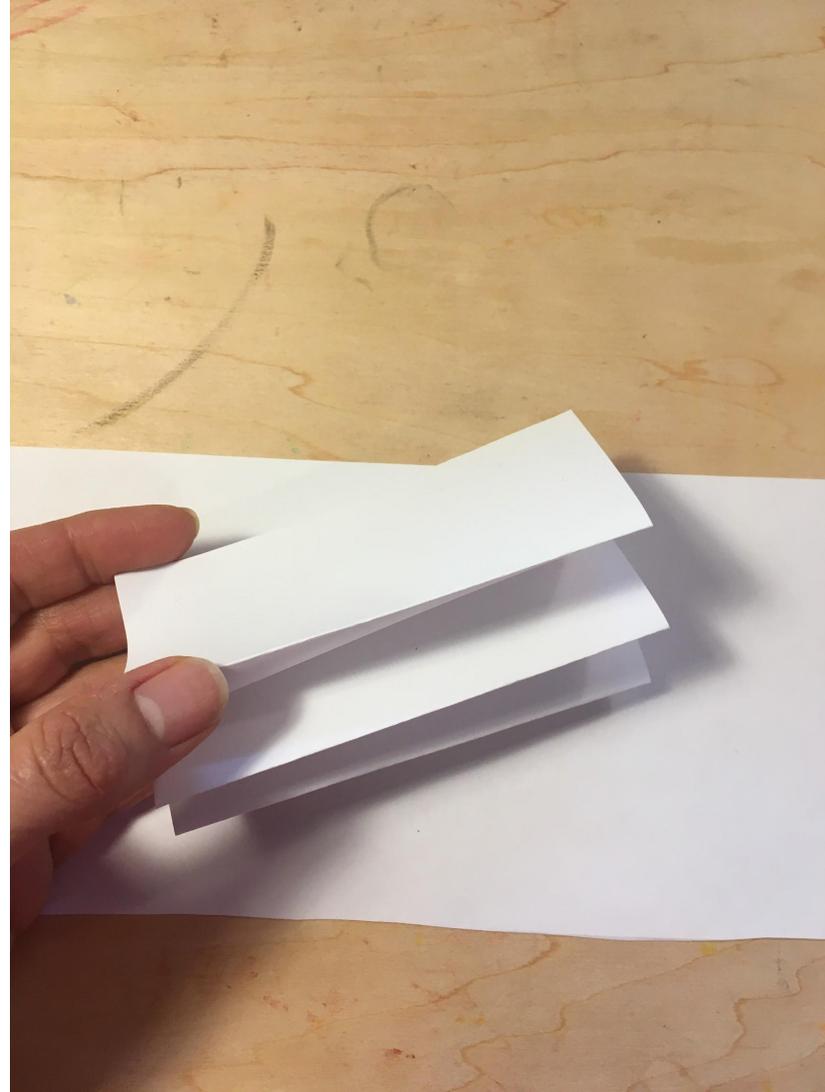
Step 4: Construct a 3D tree (*continued*)

- Bend the roots and branches to make the tree look the way you've envisioned your tree would look.
- Experiment with placing the branches at different heights.
- Be sure to arrange the roots of your tree in a way that it can stand on its own.



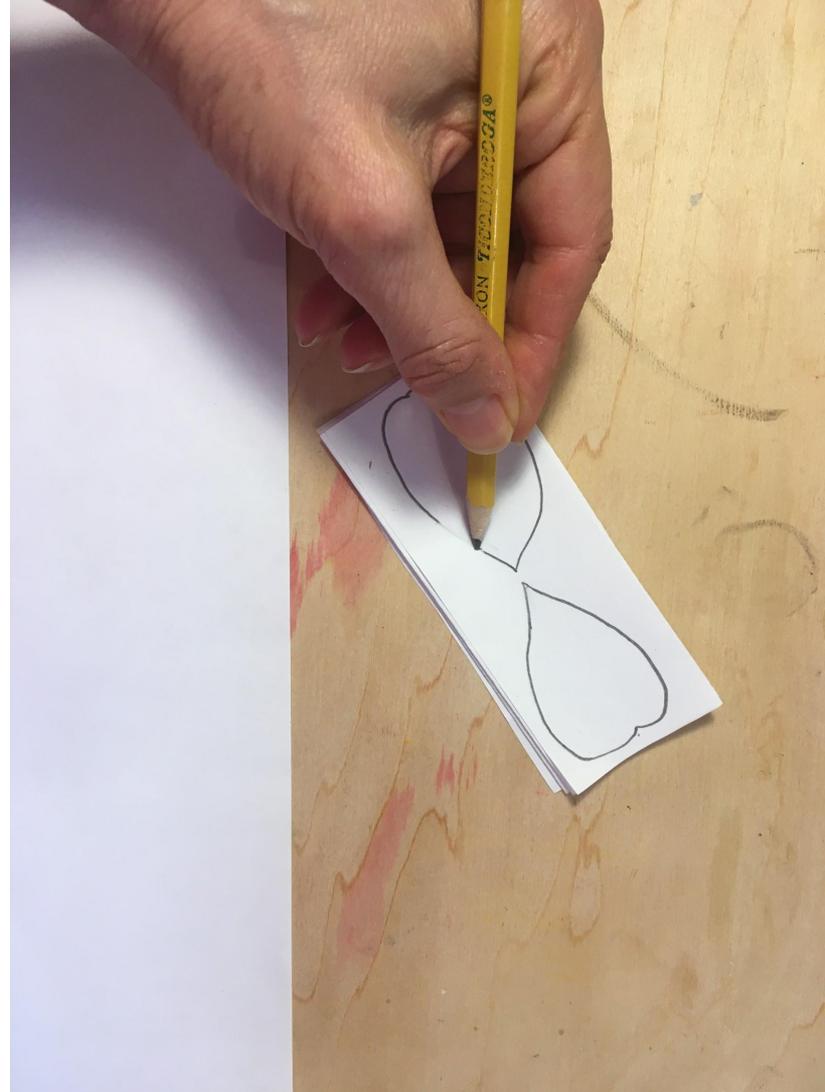
Step 5: Create leaves for your tree

- Using the remaining paper strip from the strips you cut in Step 3, make an accordion fold that is about as wide as the leaves you would like to make.



Step 5: Create paper leaves for your tree (*continued*)

- Draw the shape of the leaves you'd like to make on the folded paper.
- Be sure to add any details you'll need to the leaf such as pointy or rounded tip, smooth or jagged edges.
- Recall the elements of your biome to ensure you create a shape that will help the plant survive in this environment.



Step 5: Create paper leaves for your tree *(continued)*

- Cut through the full thicknesses of the folded paper following the line of your drawing as the cutting guide.



Step 5: Create paper leaves for your tree (*continued*)

- Use your drawing materials to add details to your leaves.
- You can show the adaptations present in the leaves with your drawing materials such as leaf hairs, dark or light color, and needles.
- Remember to have fun experimenting with color placement and lines.



Step 6: Attach the leaves to your tree base

Color the tape.

- Use your drawing materials to add color to approximately one pinkie length of tape while it's on the roll to make "prepared tape"
- You'll use this to make leaf stems.



Step 6: Attach the leaves to your tree base (*continued*)

- Cut strips of the “prepared tape” to make stems.
- Cut the stems into the length and shape you’ll need to attach your leaves to the tree.



Step 6: Attach the leaves to your tree base (*continued*)

- Attach the stem to the leaf by pressing the sticky side to the base of the colored side of the leaf.



Step 6: Attach the leaves to your tree base (*continued*)

- Attach the leaves to the branches of the tree by pressing the sticky side of the tape to the branch and wrapping the stem around to secure the leaves.



Step 6: Attach the leaves to your tree base (*continued*)

- Experiment with the arrangement of the leaves to create the tree you envisioned
- Enjoy your tree!



Reflective Moment

Let's spend a moment reflecting on what you've just accomplished.

- Take a moment to place hands in your lap, lengthen your back, fill your lungs with a deep breath and let it out slowly.
- Imagine the garden of flora you've just made.
- Think of one choice you made on this project that you feel proud of.

Now take that good feeling with you into the rest of your day.



Thank you!

You've completed making the
flora for your world...

Please be sure to share your work
with family or friends around you.
You can let them know about all the
steps that were necessary to arrive
at your final choices that you used
to create the flora of your world.

Please keep making creative
choices all day long and find ways
to keep art making!