



# 4-H Club Sample Agenda - Autumn Leaves

## Agenda Outline

### WELCOME

As people arrive, have them draw all the different shapes of leaves they can think of. Once everyone's present, introduce the theme of leaves. Did you ever wonder why leaves come in so many different shapes? A leaf's size and shape helps the leaf gather sunlight, regulate temperature, and transfer water to keep it and the plant healthy. We'll learn more about leaf color in today's educational activity!



### MEETING PURPOSE

Brainstorm educational activity ideas and learn about leaves!

### BUSINESS (5-10 MINUTES)

Remember if too much business is planned, members might not come back! Below is just a sample. See other [optional business items](#) on our Leading a 4-H Club web page.

- [4-H Pledge](#)
- Roll Call: From the list we made as we were walking in, what do you use most often?
- Recap what we did last time
- Brainstorm ideas for future educational activities
- Celebrate any member accomplishments!

### EDUCATIONAL ACTIVITY - [Leaves!](#) (40 MINUTES)

### [RECREATIONAL ACTIVITY](#) (10 MINUTES)

### [REFLECTION](#) (5 minutes)

- How did we do?
- How did we live out the 4-H Pledge today?



## Educational Activity - Leaves!

### 4-H project area

Environment and Earth Science, Crafts & Fine Arts

### What it is

Learn why leaves change colors!

### Why it matters

It's important to understand and appreciate leaves so that we can be better stewards of the plants and trees that hold them!



### Getting started

**Time:** 40 minutes

#### Materials:

- Means of showing a video and playing music from YouTube (see procedures 1 and 6)
- Clear plastic cups - 3 per group of 3 or more people plus a few extra
- Rubbing alcohol (enough to pour 4 teaspoons into each cup)
- Quart-sized ziploc bags - 3 per group of 3 or more people
- Wooden dowel or wooden spoon (they'll use the handle) - 3 per group of 3 or more
- Scissors - 2 per group of 3 or more people
- Permanent markers (1 per group of 3)
- Blank paper (1 per person)
- Clear contact paper ( 2 pieces about the size of an 8 ½ x 11 paper per person)
- Collection of autumn leaves of different colors
- Sample leaf decoration
- Optional: hole punch and string

#### Prep for meeting in person:

- Ask youth to collect fall leaves of at least 3 different colors and shapes of non-dry leaves. Collect extra yourself in case someone forgets.
- Pour about 4 teaspoons of rubbing alcohol into each cup

#### Prep for meeting virtually:

- Set up the Zoom meeting ahead of time and email the link to the members.
- Email reminders about the virtual meeting. Include the Zoom link and materials list.



## Background

Leaves provide shade and play an important role in replenishing the air we breathe by absorbing carbon dioxide. When leaves fall in autumn, they add nutrients to the soil. Most leaves turn different colors in the autumn season. This color change gives us a clue to all the interesting pigments in the leaves. In plants, pigments help the leaves conduct photosynthesis. Photosynthesis is a process that plants use to capture and transfer light energy into food. Carotenoids (yellow and orange pigments), anthocyanin (red), and chlorophyll (green) are all examples of pigments in leaves. Each pigment helps the plant absorb light energy. Chlorophyll (green pigment) is the most important because there's so much of it—so much in the spring and summer, that you can't see the other pigments until the chlorophyll starts to deteriorate in the fall.<sup>1</sup>

## How to do it

1. Ask youth what they know about how and why leaves change color in the fall. Then fill in what they don't know using this video (3 min) from SciShow Kids:  
<https://www.youtube.com/watch?v=Xk4-6lI8l5Q>
2. Have youth get into groups of three to sort the leaves they brought into 3 color piles (e.g., green, yellow, and red). If they want a fourth color, they will need an extra cup for the next step.
3. Pass out supplies. Each group should have three plastic cups filled with 4 teaspoons of rubbing alcohol (one for each leaf color group), three wooden dowels, 3 scissors, 3 ziplock bags, and a permanent marker.
4. Have them label their cups with their group name so they can identify them later.
5. Instruct them to cut up about 4 or 5 leaves from each color pile into small pieces. Demonstrate how they can do it efficiently by cutting up more than one at the same time. Once cut, each pile should go in its own cup with the rubbing alcohol.
6. Have them use their wooden dowel to crush the leaves in each cup (each person can crush one cup of leaves). It should take about 5 minutes to crush them really well, so while they're crushing, play some music about leaves! Suggestions (play the audio only of one or two of these videos):
  - o [Leaves That Are Green](#) (Simon and Garfunkel)
  - o [The Last Leaf](#) (The Cascades)
  - o [Leaf Song](#) (Peter Weatherall)
  - o [Moon Dance](#) (Van Morrison)
7. Once leaves are crushed, set cups aside to "stew" in a dark place for 20-30 minutes.

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<sup>1</sup> Harvard Forest. (n.d.). *Leaf pigments*.

<https://harvardforest.fas.harvard.edu/leaves/pigment#:~:text=They%20sense%20light%20to%20control,physiological%20and%20For%20biological%20functions.>

Flint, D. (April 24, 2017). *Importance of pigments in photosynthesis*. Sciencing.  
<https://sciencing.com/importance-pigments-photosynthesis-6461024.html>



8. Meanwhile, have youth make leaf decorations with the rest of their leaves. Show them the sample. Give each person 2 pieces of clear contact paper and one blank regular paper to make their own. Steps:
  - Before peeling the contact paper, have them arrange their leaves how they want on the blank paper and set aside.
  - Have them work in their same groups to help each other peel ONE piece of their contact paper, with one person holding one side and the other peeling off the back. The third person can make sure the sticky paper doesn't catch on itself or another surface. The contact paper should end up on the table sticky-side-up.
  - Move the leaves one by one onto the contact paper in the same pattern laid out on the blank paper.
  - Have them help each other peel a second piece of contact paper in the same way. This time, two people can carefully place the paper sticky-side-down to sandwich the leaves. To do this, have them lay it down lightly on top of the leaves. Then smooch the paper together starting from the middle and working towards the outside.
  - Poke any bubbles with the point of the scissors and smooth back down.
  - Trim edges however you want using scissors. Optionally, you can punch some holes in the top corners to hang it with string, or attach to suction cups.
9. Once the leaves from the first activity are stewed, have youth find their cups and pour the contents from each cup into its own ziplock bag.
10. Squeeze out just the liquid back into the cup.
11. Observe the extract. What do they see?
12. Debrief! What do you remember from the video about the pigments in leaves? What pigments do you see in your leaf extracts?

## Recreation Ideas

Leaf musical chairs: Play musical chairs using the [leaf songs](#) from the educational activity.

Leaf extract painting: Give youth some coffee filters and paint brushes to paint a design using the leaf extracts they made in the educational activity.

## Additional Resources

Learn about leaf chromatography: <https://www.youtube.com/watch?v=B719L45tsc8>

Use the leaf extract to try leaf chromatography:  
[https://www.youtube.com/watch?v=YxOSHj\\_kVIA](https://www.youtube.com/watch?v=YxOSHj_kVIA)

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