

Teaching Leaf Chromatography Printing to Students

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Saturday, March 3, 1:00 - 1:50 PM, Hilton Concourse H Lower Level

Lesson Plan

Grade Level: Suggested 5th grade through high school

Time: Three (3) 50-minute class periods

Objectives:

1. Students will learn the history of leaf chromatography.
2. Students will learn the about the pigments in leaves and why this process works.
3. Students will demonstrate knowledge in the leaf chromatography process.
4. Students will use patterns and images to create a leaf chromatography.

Materials:

- Picture frame (8 x 10 or smaller)
- One-gallon ziploc baggie
- Four binder clips
- Fresh green leaves
- Markers, watercolors, or pencils
- Background paper
- Spray bottle with water
- Glue
- Scissors
- Tape
- A roll of plastic wrap
- A roll of wax paper (for leaf drying)
- Plant presses or large books
- Image making supplies: Opaque black material, clear transparencies, Sharpies, digital images, photos

First Lesson:

Students learn about leaf chromatography. They set up their leaves and matrix for developing and place it in the sun.

Second Lesson:

Students learn the science of pigments and chlorophyll which makes this process possible. They take the leaves out of the frame and start the drying process. They begin the background design.

Third Lesson:

Students finish their background, attach the leaf and frame the artwork.

Suggested Procedure for Leaf Chromatography

Prepare the frame:

1. Take apart the picture frame. You then have the frame, insert paper, glass and backing.
2. Set the frame aside. It will be used later.
3. Turn over the insert paper and tape it to the backing.
4. Wrap the backing in the plastic wrap.
5. Have the binder clips and baggie ready.

Now for the matrix (can be produced in a number of ways):

1. Cut the transparency larger than the leaf, lay it over the leaf, and then draw using the Sharpie marker.
2. Cut the black plastic into shapes or patterns.
3. Scan a photo or use a digital image, print it out, in black and white, on the transparency.
4. Any other method that can be imagined. The material must be opaque and can't bleed when it gets moist.

Putting it all together:

1. Put the leaf or leaves in the center of the plastic wrapped backing.
2. Place the matrix on top.
1. Carefully lay the glass over the image. Bind it with the clips so the leaf is not covered and the handles can be folded down.
2. Place in the baggie, add a few spritzes of water and close. Smooth down the baggie over the leaf.

Developing:

1. Find a very sunny safe spot for the frames and leave them there.
2. The process takes from one day to three or more. A lot depends on time of year.

Drying:

1. Carefully remove leaf from glass and backing. Set both aside.
2. Fold a piece of wax paper in half.
3. Put the leaf in a plant press for a few days. Heavy books work as well.

Now for a few suggestions for the background:

1. A painting or drawing,
2. A collage featuring the leaf,
3. A photo or digital image,
4. A simple white paper with a nice mat,

Putting it all together:

1. Remove the plastic wrap and insert paper from the backing and clean the glass.
2. Glue or tape the background to the backing.
3. Put a drop of glue on the leaf and glue it to the background.
4. Put the glass on top and set into the frame.

Vocabulary

Pigment: In biology, any substance whose presence in the tissues or cells of animals or plants colors them.

Opaque: A substance that is impenetrable to light and does not allowing light to pass through.

Matrix: An object upon which a design has been formed and which is then used to develop the image. In this case, the leaf itself.

Chlorophyll: The green coloring matter of leaves and plants, essential to life cycle of a plant.

Digital image: A representation of a two-dimensional image generated on a computer.

Pattern: A design repeated in a predictable combination.

Assessment

Suggestions for student evaluation:

1. Participation in class discussion.
2. A test on the pigments of a plant.
2. Completion of a matrix.
3. Correct completion of the chromatography process.