(Miss Slick, 1st Grade Science,???)

Why Do Leaves Change Color Lesson Plan

1. **Topic:**
2. Students will be knowledgeable about activities, holidays, and scientific processes that occur during the season of fall.
3. **Vocabulary**
   1. *Observation-* a statement about something you have noticed using your five senses.
   2. *Chlorophyll-* a green color, present in all green plants, responsible for the absorption of light to provide energy for photosynthesis.
   3. *Pigment-* the natural coloring matter of animal or plant tissue.
4. **Objectives/Standards**
   1. After going on a leaf hunt as a class, TSWBAT make predictions and test these predictions through a leaf chromatography experiment to the teacher’s satisfaction. (4.1.1.E Describe the seasons and describe how the change of the season affects living things.)
   2. Given a song about fall, TSWBAT sing and act out the body movements as by the teacher to the teacher’s satisfaction. (Standard - 9.1.3.B Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts. Music: • sing • play an instrument • read and notate music • compose and arrange •improvise.)
5. **Teaching Procedures**

Anticipatory Set: *(2 minutes)*

1. The teacher will stand in front of the class with her backpack and safari hat on and with a map in her hands. She will excitedly announce to the class that after all the research they did during reading that they are now ready to go on their leaf hunt! The students will put on their coats and line up to go outside to search for their leaves.

Development 1: *(15 minutes)*

1. The teacher will explain to students that they are to pick up one leaf each outside, before they head out. It can be any color. The teacher also explains that as students are looking for their leaves, to try to make some **observations**. For example, the leaves are falling off the tree after they change color. Or some of the colorful leaves turn brown and then fall to the ground. Or some leaves are red, while others are orange and yellow. The teacher will explain that an observation is using your five senses to draw conclusions about how things work.
2. Once all the students have collected their leaves, the students will return to the classroom and place their leaves on their desks. The teacher will then ask students why they think leaves change color in the fall. The teacher will explain that she wants students to make a prediction about the answer. She will emphasize that predictions do not always have to be correct. It is ok for them to not be. Scientists make wrong predictions all the time, but they use their wrong predictions to learn more about what they are experimenting on.
3. The students will share their predictions and the teacher will record these on a giant piece of paper to hang up in the classroom later.

Guided Practice 1: *(10 minutes)*

1. The teacher will explain to the class that they are going to do an experiment that will help the class to see why the leaves change colors during the fall.
2. The teacher will pass out one plastic cup to each table group of students. She will also hand each group a handful of green leaves (each table will get a different type of leaf). She will also hand them each a plastic spoon and a pencil with a strip of a coffee filter taped to it.
3. The teacher will then have each table group rip up their leaves into tiny pieces. The students will place these bits of leaves into their plastic cup.
4. The teacher will then add rubbing alcohol to each cup. She will add enough to cover the leaf bits. Then the teacher will direct students to mash the leaves in the cup with the plastic spoon.
5. While students are mashing up their leaves, the class will sing the song “October Song” (**see below**). Students who are not mashing up the leaves can do the hand motions that the teacher does while singing the song. For example when students sing “The air’s turning cold” they will rub their arms and pretend to shiver.
6. Once the leaves are mashed up, the students will place the coffee filter/pencil into the cup so that the pencil rests across the top of the cup and the coffee filter is dipped into the rubbing alcohol/leaf mixture.
7. Once colors begin to appear, the teacher will explain that **chlorophyll** are small parts of plant cells that make leaves appear green. They provide food and energy for plants to keep them alive. In the fall, the **chlorophyll** slow down and stop making food for the leaves. So the leaves true colors underneath the layer of chlorophyll begin to show, which is why the leaves change colors. These colors are called **pigment**.

Independent Practice 1: *(5 minutes)*

1. After the teacher’s explanation, the students will record in their notebook a picture of what the coffee filter looks like. They will also write a couple of sentences describing what they saw and learned today through the experiment.

Closure: *(3 minutes)*

* 1. The teacher will conclude the lesson by asking students if their predictions at the beginning of class were correct or not. If not, what did they learn was the actual reason for the leaves changing color?

1. **Materials**

* A backpack
* A safari hat
* Plastic cups
* Plastic spoons
* Rubbing alcohol
* Leaves
* Pencils
* Coffee filters
* Notebooks
* October Song worksheet

1. **Evaluation**
2. Formative Assessment- The teacher will assess student understanding through questioning, the list of predictions, and through their responses in their notebooks and during the closure.
3. Summative Assessment- The teacher will assess student knowledge of why leaves change color through an end of the unit test.
4. **Reflection**
   1. Student Evaluation:
      1. How did the students do grasping the concept of why leaves change color?
      2. Did they have to ask for help from their peers, the teacher, or did they attempt to write their reflections in their notebooks on their own?
      3. What was their body language during the independent practice? (i.e. were they slouched in their seat frowning, just sitting there doing nothing because they were stuck, or were they actively writing in their notebook and smiling?)
   2. Teacher Evaluation:
      1. Did I include enough students in the leaf experiment?
      2. Did I do an effective job of getting to all the students who needed help during the independent practice to help assist them?
      3. How could I have improved this lesson to better teach my students?

**October Song**

(Tune: On Top Of Old Smoky)

The month is October,

The air’s turning cold

the leaves are all changing

To red and to gold

The month is October,

And up in the sky,

The birds are all traveling

And south they will fly.

The month is October,

There’s so much to do!

Play football and hockey,

And pick apples, too!

The month is October,

And ghosts I have seen.

They’re out trick-or-treating,

It’s now Halloween!