



## Activity 8: The Proof is in the Pigment

Do leaves have only green pigments (colours)?

This is a CHALLENGE activity but cool and lots of fun! If you are unable to complete this activity, then simply watch the ADLC Digital Lesson on *Pigments in Trees* to help you fill-in the Observation and Conclusion section below.

Hypothesis:

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Do leaves have only green pigments (colours)?

Resources

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- ADLC - Elementary Science: Pigments in Leaves

<https://adle.wistia.com/medias/qOphp7dki7>

- scissors
- eye protection
- rubbing alcohol
- a few green leaves (Various kinds are okay.)
- jar
- pencil
- foil
- tape
- coin
- large coffee filter

Instructions

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Safety Warning:

- Scissors are sharp. Be careful not to cut yourself.
- Rubbing alcohol can irritate you skin and eyes: wear eye protection, take care when pouring it, and rinse your hands with water if you get it on your skin.

1. Cut a straight strip 1 cm wide from the coffee filter. Make it as long as possible. (It must be as long as the jar is deep.)

2. Place a fresh green leaf on top of the strip about 3 cm from the end. Roll the edge of the coin over the leaf so that you press green leaf juice into about a 1 cm piece of the strip. Allow the strip to dry.

3. Repeat Step 2 a few more times with various leaves. When you are done, each strip should look something like this:



4. Pour about 1 cm of rubbing alcohol into the jar. Tape the end of the paper strip that is furthest from the green juice to the middle of a pencil. Balance the pencil on the rim of the jar so that the strip hangs into the jar. The end of the strip should just touch the alcohol.

Adjust the length of the strip by rolling it onto the pencil.

5. Place foil over the jar to prevent the alcohol from evaporating.

6. Observe carefully for the next few minutes. Record your observations in the *Observations Table*. If colours move up the strip, do not allow them to reach the very top. When they get close, remove the strip from the jar and lay it flat.

Observations

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### Observations Table

Watch For...	What is Happening
What is the alcohol doing during the experiment?	
What colour movement did you notice?	
What are the various colours you observed?	
Which colour is dominant (strongest)?	
Note any other interesting things you notice during the experiment.	

Need a Hint? Here is an example of a strip in which the pigments contained in the sample separated very well:



Study this example strip, and then make another attempt to complete your observation table.

### Conclusions

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1. What was the name of the green pigment that you separated in this experiment? Why is it important to photosynthesis?

2. Your experiment may have produced various colours. Where did these colours come from, and what is their purpose?