

Why Do Leaves Change Color?

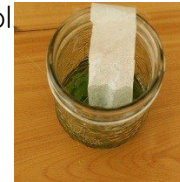


Leaves contain Chlorophyll. Chlorophyll makes the leaves green and is so dominant that it covers up all the other colors in the leaves. To figure out what color a leaf would be without the dominant chlorophyll color, we can separate the colors by doing this science experiment.

STEPS:

1. Rip the leaves into tiny pieces and put in the cup
2. Pour rubbing alcohol over the leaves until they are just covered
3. Mash and stir the leaves into the rubbing alcohol until the alcohol turns slightly green. Really give it a good mashing – this is key.
4. Cover the cup with the baggie or plastic wrap and place the cup in a small bowl and pour hot water into the bowl. (do not pour the hot water into the cup, pour the water into the bowl the cup is sitting in)
5. Leave the cup in the water for 30 minutes, swishing the cup occasionally to stir the leaves a bit. The alcohol should be a very dark green (leave longer if needed). If you can resist, wait even 45 minutes or an hour.
6. Cut a strip in the coffee filter so the strip can reach the rubbing alcohol

Place it in the cup like this:



7. The liquid will travel up the coffee filter and the colors will separate as the alcohol evaporates off the coffee filter. Let this happen for about an hour for the full effect.

The Science

In this science experiment we used the rubbing alcohol and energy (hot water) to separate the colors. You likely saw green, and depending on your leaf type, maybe red, yellow, or orange. As we know, chlorophyll gives leaves their green color and is so dominant it hides the other colors in the leaves. But in the fall, chlorophyll in the leaves breaks down allowing the other colors to finally shine through and show their beautiful reds, yellows, and oranges. Yellow leaves have pigments called xanthophyll, orange leaves have a pigment called carotenoids. Anthocyanins, give leaves their intense red and purple pigments.



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