Scientific Observation and Journaling for Grades 5-6
Lesson 1: Compound Leaf

Teacher Preparation Bring leaves to class, one for each student, or take students outdoors to pick them. All leaves should come from the same kind of tree or bush. Store them in plastic bags in the refrigerator until you're ready to use them. **Optional:** Cut one branch to show students how the leaves are arranged.

Materials For each student, one leaf, pencil, ruler, colored pencils, science journal
Time Two class periods.

Procedure

1. **What do we know about leaves?** Draw a web on your board. Ask students to share what they know about leaves as you record answers.
2. **Qualitative observations:** Students **observe** and you write a **list of descriptive words** on the board as they volunteer their observations. Use guiding questions (for example, *Describe the shape, edge, colors, and veins of your leaf. Describe the arrangement of leaflets on the petiole. Is it symmetrical? Can you see the cells and stomata? What does your leaf smell like? What is the texture?*). Then students **write a list of at least ten words** in their journals.
3. **Quantitative observations:** Students count as many features as they can identify and record numbers in their journals (for example: the number of petioles, blades, leaflets, main veins, and colors). Then they **measure** the width and length of their leaf in inches and centimeters. **Sixth graders write the ratio** of width to length in both units and convert the ratios to decimal numbers (divide numerators by denominators). *Are your decimal numbers the same? Why?*
4. **Demonstrate scientific drawing.** Then have students **draw** their compound leaf on the grid paper, paying careful attention to the shape, edge, and veins of the leaflets and their arrangement on the petiole. If the leaf is large they will have to draw smaller than life size. *Are you looking closely and drawing slowly and carefully?* Have students **label** the parts of the leaf and use colored pencils to color the drawing accurately.
5. Have students practice **enlarging to scale** on a separate piece of graph paper. Start with a leaflet and draw to 2×. (Trace the leaflet and measure its length and width. Make the length and width of the enlargement twice as long.) Try again at 3× and ½×. **Optional:** *Does the ratio of width to length change when you enlarge and reduce?*
6. **Reflection.** Practice making **analogies**. *What do your leaf and its leaflets look like? What do they remind you of?* Also encourage students to write about their feelings about the leaf or the activity, **memories, questions** or **new discoveries**. Students should **write one or more paragraphs and/or a poem** in their journals.
7. **Assess work** by having each student complete the student rubric. Collect the journals and rubrics and complete the rubrics yourself for comparison. Grading is optional.
8. **Close** with a class discussion in which each student shares something with the class. *What did you like about this activity? What did you learn? Was anything difficult or confusing? What would you do differently next time?*

