

LESSON: Creating a Dichotomous Key with Plant Fractals

GRADE: 1

OBJECTIVES:

Heredity: Inheritance and Variation of Traits

- **1-LS3-1** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Life Science

S.K-2.LS.1 Understand and apply knowledge of the characteristics of living things and how living things are both similar to and different from each other and from non-living things

- Living things share some common characteristics that are both similar to and different from non-living things.
- Different species of plants and animals have different observable characteristics by which they can be classified.

MATERIALS & RESOURCES:

- Notebook and pencil, (optional) digital camera
- *Creating a Dichotomous List* lesson, Clean & Green lessons, First grade, Science.

PRESENTATION:

A great many patterns in nature are fractal, and just by stepping outside - even in an urban area - you can often find great examples of fractals. Using the First Grade Science lesson, *Creating a Dichotomous Key* the fractals will be classified.

DIRECTIONS:

1. Take a walk with students and try to find as many fractals as you can. Or if it's not possible to take a walk, bring to class examples or photos of plant fractals. Broccoli, flowers, cacti, ferns, trees are all fractal forms. Be prepared to discuss each example you find, and explain what makes it a fractal. Remind students to help each other find fractals, especially anyone who is having difficulty finding them.
2. Are the young plants the same as the parent plants. If so, what are the similarities and what are the differences? Similarities and differences can be organized in a dichotomous key.
3. Use the *Creating a Dichotomous Key* lesson, create a key dividing the fractals the class found. An example is included, however the class may come up with a different way of classifying the fractals.

TIME:**at least 30-45 minutes****PROCESSING THROUGH THE SIX PILLARS:****What?**

- Were you surprised how many fractals you found?
- Did you help others or ask for help?

So What?

- What else can you learn from fractals?
- Will you use fractals to create art, learn math, or something else?

Now What?

- Will you look for fractals in more places?
- Will you help other people know about fractals?

