

## Backyard Science & The Scientific Method

Science is about observing the world and then trying to develop explanations for what you see. From doing a backyard Bioblitz, to studying the birds you see and hear, science is about trying to understand nature and the world we live in.

There isn't just one way to "do" science – but scientists have come up with some guidelines, called the scientific method, that help us think critically about our world. The scientific method is often described in different ways with varying number of steps, but ultimately all of these have several steps in common among all variations.

- *Make an observation.* This should be something that makes you think, "Hmmm... I wonder...."
- *Ask a question.* What are you trying to figure out?
- *Make a hypothesis.* A hypothesis is an educated guess, or a temporary explanation for what do think is happening.
- *Conduct an experiment.* This is the fun part of science, testing to see if your hypothesis (explanation) is correct. Don't worry; it might not be on the first try!
- *Analyze the data from your experiment.* What happened as a result of your testing?
- *Form a conclusion.* Did your experiment support your hypothesis? If not, what did you learn, or what would you do differently?

Since we have been concentrating on our backyards thus far, I decided to come up with an experiment and test something I have been noticing in my backyard.

There are several new plants growing in my herb garden. I originally only planted two types of plants: basil and cilantro. These are plants I tend to grow every year. But I *observed* that these new plants are very small and not ones I planted with the others.

**Observation: There are new plants growing in my herb garden.**



These new plants look a lot like the basil plants I have growing, but they are much smaller.

**Question: What are they? I didn't plant them.**

I wondered if these may be volunteer plants. Volunteer plants grow from the seeds that fell from the healthy plants last year) since both my basil and cilantro plants are growing well and are seeding out (have seeds).

**Hypothesis: I think these are young basil plants growing from last year's seeds.**

But maybe the new plants could also just be weeds!  
How can I tell? What experiment might you conduct to find out?



I'm going to take some of the seeds from both mature plants in the herb garden (basil and cilantro) and plant them in separate containers to see if they grow into similar looking plants as the young ones I see growing.

**Experiment: Grow plants from seeds from my garden and see which ones they look like**



What did I find out? Once I have some data to share, I will come back and we can discuss the findings together!

Questions for You (Use your notebook for the activity below)

1. Think of another experiment you might conduct to find out.
2. How will I know if these are just weeds?
3. How will I know if the experiment supports your hypothesis?
4. Are there things in your backyard that you've been wondering about - come up with a new observation, hypothesis and experiment on your own!