Transform your garden into a science lab

Source: Ashley Osborne, UK 4-H youth development extension specialist; Rick Durham, UK horticulture extension professor; Gardening Know How <https://www.gardeningknowhow.com/special/children/teaching-science-in-garden.htm>; Home Science Tools, <https://learning-center.homesciencetools.com/article/flower-dissection-science-project/>

All the mechanisms of life are represented in a garden: respiration, nutrition, circulation, reproduction and maturation. As such, it’s a perfect science laboratory where students can hone their math and observational skills and creativity.

In a garden, young people can learn math through keeping a journal of plant growth, chemistry through composting, botany and biology from observing plants, worms, insects and wildlife in the garden, and reproduction by dissecting a flower and observing the male and female parts under a magnifying glass. Lilies and irises are best for this project, though any flower will do. They can also learn engineering from studying plant structures and perhaps building their own support structure for vining plants.

Here are some additional activities for your child.

You and your child can plant bean or sunflower seeds, which sprout quickly in a clear plastic cup. Fill the cup three-quarters of the way with potting soil. Have your child press the seeds into the soil around the sides of the cup, leaving enough space between each one to give them room to grow. You should be able to see the seeds through the plastic. Water the cup and place it in a sunny window. With regular watering and proper sunlight, it won’t be long before the seeds sprout. Eventually your child will be able to see roots forming as well, and as the plants finally outgrow their nursery, you and your child can transplant them into the garden to observe, as they mature and produce the next generation of seeds.

All you need to observe a plant’s circulatory system is a kitchen counter, water and food coloring. Plants draw water and nutrients from the soil through their xylem, which is a series of straw-like tubes that serve as capillaries and also support the plant. Fleshy food plants like carrots and celery are great plants to illustrate this action.

Put a few drops of blue food coloring into a glass of water. Cut off both ends of a carrot – perhaps one you and your child have grown in the garden -- and place it vertically in the blue water. In a few hours, take a look at the top of the carrot. The circle of blue dots will show you how the carrot pulled the water up through the xylem.

For more information about turning your garden into a science station, visit the 4-H gardening project fact sheet <https://bit.ly/gardeningfactsheet> or contact the (COUNTY NAME) office of the University of Kentucky Cooperative Extension Service.

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