Abstract
Young children are able to embrace the role of a citizen scientist as they discover ways that they can care for and help the earth in a Kindergarten classroom.

Keywords: Environment; Elementary education

It is never too early to teach students how to be good stewards of the earth and citizen scientists! Caring for our planet and all the creatures that live on it is a theme that weaves throughout my classroom for the entire school year. At the beginning of the year, we explore ways we can help the earth inside our school building by examining why we have faucets that turn on when you wave your hand in front of them and why we have water bottle filling stations throughout the building. Students quickly see that by saving water and by using reusable water bottles, they are already helping to care for the earth. This gets them excited to learn about other ways they can help the earth and their school! When I ask my students if there is anyone who has other ideas about how we can help the earth, someone usually mentions recycling and reusing. Of course, paper is the one material that many of my students know that can be recycled, so we will spend several days learning about where paper comes from and how we can use the front and back of papers and recycle what we no longer want in our classroom recycling can. I also share this collection of books I have curated with my students to give them more opportunities to read and learn about recycling, pollution, and composting. (IN-KESS3-3).

As we move into the Fall, we continue our learning about the earth by discussing the changes happening outside by both plants and animals to get ready for the arrival of winter. I share pictures of my garden with students both when it was flourishing in the Summer and how it looks in the Fall. I show students how I do not trim any of my native plants back as they will be used by animals throughout the Fall and Winter as a source of food and shelter. Once Spring arrives, I move all the old growth to my compost pile to make room for the new growth that will begin to sustain new life and a different wave of animals.

Early in the Spring, our science kit about plants and animals arrives and students are eager to plant seeds and watch them grow! Each student plants two kinds of seeds, lima beans, and alfalfa grass, so that they can compare and contrast them as they continue to grow and change. One of the fairy tales we read to tie in with the planting of our beans is Jack and the Beanstalk. I ask students to tell me what they know about seeds and collect that information on a KOWL chart (See Figure 1) so that I can determine in which direction we need to further investigate seeds.
Students plant seeds before sharing information on the KOWL chart to give those students who have not had any experience with seeds or planting an opportunity to develop some background knowledge. We also read several versions of Jack and the Beanstalk to compare and contrast the characters, plot, and setting. One of the misconceptions that usually presents itself during our study of seeds and plants is that seeds need dirt to grow. We plant seeds in plastic gloves (See Figure 2) using cotton balls as our soil to show students that this is not always the case.

We also experiment with growing plants in pea gravel, paper towels, the dark, and under grow bulbs so that students can determine the best growing conditions for plants. (IN-K-PS3-1, IN-K-LS1-1, IN-K-ESS2-2, IN-K-ESS3-1)

Once we have grown our plants, and inevitably, some start to die off, I share with my students’ pictures of my compost area in my backyard. I ask them to tell me what they see in that area and what they think will happen to all of it. Why would Mrs. Poindexter collect all these things in one area of her backyard? During the discussion that follows, I listen to their ideas, and then I introduce composting to them and walk through the process of composting. I also let my students know that we can compost right in our own classroom and be citizen scientists! After showing my students our classroom compost bin, we discuss ways that composting can be helpful to our school and to our community. My students usually take a big interest in the compost bin, asking to add scraps from their lunches to it, or by bringing in fruits and vegetables from home that have gone bad. They watch the redworms slowly break down everything they add and keep track of when items are added and how long it takes our decomposers to break items down. (See Figure 3.). Several students last year were very interested in the redworms themselves, so we took a few out to help us learn more about them. We determined if they preferred light or dark better and drew diagrams of our redworms. (See Figures 4 & 5.) Students also try their best to measure a redworm with math cubes so that we can track if they are growing throughout the school year.
Ecology is something that even young children can become interested and involved with if given ways that they can be good citizens of the earth. Sharing these ideas with my students throughout the school year not only gives them independence and a voice, but it helps to develop earth friendly habits that I hope they will share with their families and use as they become citizen scientists.

References


Indiana Department of Education. (2022). Indiana Science and Computer Science Standards. IDOE.

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