How Litter Education Complements Instruction

Litter education is a component of environmental education, which seeks to instill in learners the knowledge, motivation, and skills necessary to address environmental challenges. Environmental education is a context in which students learn core subjects like science, math, and social studies, but also provides engages students in building 21st century skills such as critical thinking, problem solving, collaboration and teamwork, and creativity and imagination.

Science

Louisiana recently adopted new science standards that are closely aligned with national Next Generation Science Standards (NGSS) that place an emphasis on depth of understanding vs. breadth, links performance expectations to science and engineering practices, and uses crosscutting concepts to draw links between the various scientific disciplines.

In the K-5 classroom, litter education enhances various performance expectations. Litter education is implicit in some of the of these performance expectations, such as "Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment (Kindergarten)," "Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans (Grade 4)," and " Generate and compare multiple solutions about ways individual communities can use science to protect the Earth's resources and environment (Grade 5)." We can envision students analyzing littered landscapes and developing solutions to clean those landscapes and prevent litter from occurring in them to begin with, meeting science standards and addressing litter education at the same time.

Other performance expectations lend themselves to cross-disciplinary approaches. For example, let's look at the performance expectation "Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties (Grade 2)". Students trying to meet this expectation could examine litter and classify it by material composition, magnetism, recyclability, composability, etc. Students can take their sorted materials and create graphs (a math standard) showing relative amounts of each type. In this case, litter education can help to meet standards in 2 different subjects.

There are numerous other examples of how litter education can be of benefit within the science classroom. For example, students would be encouraged to engage in argument from evidence as they examine "pristine," littered, and polluted ecosystems when they address the 3rd grade performance expectation of "Construct and support an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all."

Social Studies

Social studies includes the topics of geography, civics, and economics - all of which litter education has direct relevance to. In geography, students can create maps of schoolyards in preparation to conduct litter clean-ups and explore watersheds when tracing the path of litter to the ocean. Students can develop greater understanding of a citizen's roles, rights, and responsibilities in society by exploring occupational roles of litter enforcement agents, waste collectors, volunteers, etc. Students can put these concepts into direct action through project-based learning as they adopt areas of their school grounds or community areas to keep free of litter, take part in monofilament recycling station installation, or host community recycling drives. Economic concepts can be developed as students explore the costs

related to littering and recycling. This is a rich topic, as recycling is not always the most cost-effective way to handle our trash.

Math
Application of math skills in real-world contexts, such as litter education, reinforces concepts that have been taught in the classroom. When examining litter, students can produce charts and tables of the kinds or amounts of litter they observe, perform measurements and mathematical operations to calculate weight and volume (or even investigate if there is a correlation between the two) and use descriptive statistics on composition and amounts of litter. They can also use ratios to make predictions based on data from trash collected in their schoolyard.

English –
Litter education can complement English classes in a variety of ways. Younger students can analyze short stories that address civic mindedness (Stone Soup for example), and draw parallels of everyone in the village working together to make the stone soup to community's responsibility to pick up litter. Students can develop presentation skills as they work together to create litter awareness campaign materials. They can produce research papers on the topic, engage in creative writing assignments, write persuasive letters, etc.

Art
Art is a subject that allows students to explore their feelings and emotions related to various topics. Students can become more litter aware by drawing natural vs. littered landscapes, or even creating art out of littered objects that they collect.

An Example of an Exemplar Activity – A Litter Clean Up
In this example, we will see how one activity can address student learning standards across multiple subjects.

A teacher prompts her students to define litter as trash that has been disposed where it does not belong. The class makes a decision to address litter at their school (science, civics). They first draw a map of the school (geography) and form teams that will pick up litter in each section. The students bring the materials collected from the clean-up back to their class to examine. They first separate materials by what they are made out of, and weigh them (science, math). They then do research (English, science) on what materials are recyclable, and regroup and weigh their materials according to that standard (science, math). The students see that a large amount of their materials could be recycled, and decide to start a recycling campaign at their school (math, civics). They develop posters about the harmful effects of litter (English, art, science), invite municipal workers to come speak to the class about trash, litter, and recycling (civics), and investigate the costs associated with recycling (economics, math). The students then hold an assembly for the school where they present their posters and the results of their litter clean up (civics).

Different age groups have different capabilities to complete this project, but litter education is adaptable - this could even be a school-wide project. It demonstrates that meeting litter education requirements complements student learning and provides students with the opportunities for real-world, project based learning. Perhaps best of all for schools, this is a low-cost/no-cost activity – litter is free!