
Sustainability and Green Infrastructure

Lesson Plan.3

Language Arts, Science, Math

6th-12th

10-15 days

L.Ossorgin and K.Holthaus

Overview

This lesson introduces students to Sustainability and Green Infrastructure. Using a guide written by the Alaska Forest Service, established small groups of students will read and present green infrastructure projects for the home and community. The guide (see Student Activity Page 3.1 below), Green Infrastructure Resource Guide can be found at: [Green Infrastructure Guide](#). The whole class will construct one of the projects for the community.

Activities

1. **Reading:** Ask students to read and discuss the introduction to this lesson on pg. 1 of Student activity Page 3.1.
2. **Discussion:** Ask the following question, “How would sustainability and green infrastructure benefit a village or community?”
3. **Writing:** On a separate piece of paper, have students write a post-write to the discussion with the following prompt: “What would be the challenges and the benefits to including Green Infrastructure in the design of a future village?”
4. **Research and Present:** Assign the small groups of students to read and present the Green Infrastructure projects that can be found on pgs. 8-45 of the *Green Infrastructure Manual* (cited above): Rain Barrel, Rain Garden, Tree Pit, Infiltration and Flow-Through Planters, Drywell, Swales and Berms, Green Roof, Permeable Pavers, Grass Reinforcement Mesh, and Riparian Zone Re-vegetation. Students will research available funding. The presentations need to include diagrams and funding possibilities in terms of grants.
5. **Construct:** The whole class will choose to build one of the projects at the school with local or available recycled materials. Re-designing these projects to better suit the local community is encouraged.
6. **Assign:** Ask students to write 2-3 paragraphs on how they envision using green infrastructure in their ideal village. Emphasize good writing skills appropriate to the grade levels. Collect and file these paragraphs. This writing will be used in the upcoming lesson, *Writing The New Village Narrative* (Lesson Plan 7 in this unit).

Materials

Student Activity Page 3.1; laptop and internet access to the Green Infrastructure Guide for Fairbanks, Alaska; paper, drawing paper, pencils, and pens; materials for project chosen by class

Curriculum Standards

Language Arts A. A student should be able to speak and write well for a variety of purposes and audiences. A student who meets this standard should (1) apply elements of effective writing and speaking: these include ideas, organization, vocabulary, sentence structure, and personal style.

Science B. A student should understand and be able to the concepts, models, theories, and universal principles, and facts that explain the physical world.

Math E. a student should be able to apply mathematical concepts and processes to situations within and outside of school. A student who meets this content standard should (1) explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.

Evaluation

Students will be evaluated on their participation in the discussions, their presentation of Green Infrastructure projects, and their involvement in the construction of the whole class project.

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