

# SLED PERSPECTIVES

SLED Partnership Newsletter

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Fall 2015

## Project Update

The 2015 Summer Institute was a record-breaker for the SLED project! Nearly 120 teachers, from school districts spanning the state, participated this past summer and are implementing project activities during the current academic year. The map at the right shows the school districts where SLED is being used.

The project is now in its final year of funding. Actually, we have already moved into what is referred to as a non-funded extension. We are getting no new dollars from the National Science Foundation, but we are continuing to expend the funds we have already received to carry out the goals and activities of the project. We will continue to support you throughout this academic year, and we hope that we will be able to help sustain your efforts going forward.

We had a great on-campus follow-up session in November, and we plan to schedule another follow-up during the spring semester. We will let you know dates and times after the start of the new year.



Grade 3-4 teachers at the 2015 SLED Summer Institute

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Students' design for the adapted canal task

## Canal Design with a Twist

Aaron Hamilton

After being introduced to the design process with a review of sound and an instrument design, Wyandotte 4th grade attempted the Canal design task with a twist. The prompt was reworded to ask students to build an erosion control system that would stop soil from eroding onto their nearby playground. Students connected with the problem very well, and then they set out with a goal in mind to stop their playground from being covered with the sand. All groups were successful to some degree as the designs allowed water to run-off the structure, but did not allow sand to pass onto the playground.



Another design for the erosion control task

## Literacy Tie-in For Reindeer Habitat

Elizabeth Hittle

In preparation for the Reindeer Habitat design task at Sunnyside Intermediate School in Lafayette, I plan on doing literature circles with the nonfiction book *Caribou: And Reindeer Too*. This will help students to learn about the needs of reindeer. I then plan on doing a whole group read called *The Mystery of Saint Matthew Island*. We will be focusing on vocabulary and reindeer habitats in that book. Students will then pick a different animal to research habitat needs, and then will write a comparative essay between that animal and reindeer. This will lead into the reindeer habitat SLED activity with Mr. Yuill.

**Design Activity**  
Student Resource



**A Theme Park at Columbian Zoo**

The Columbian Zoo, located in Lafayette, IN, is remodeling and they are planning to add a Reindeer exhibit. They need your help to create a "plan" for the new environment that not only supports life but also fits into a designated space at the zoo.

In your plan use the following scale:  
1 inch (on construction paper) = 10 meter (in the actual habitat)

**Criteria:**

- Should look realistic
  - Includes at least two location for each resource
- Maximize the roaming area for deer

**Constraints:**

- The designated space has a rectangular shape 180x120 m<sup>2</sup>
- The area should accommodate ten Reindeers
- Each Reindeer needs
  - 40 m<sup>2</sup> of water surface area
  - 120 m<sup>2</sup> of grass surface area
  - 20 m<sup>2</sup> of rock surface area
  - 20 m<sup>2</sup> of trees surface area
- You should use a variety of shapes to meet the accommodations

**Deliverables**

- A layout of your habitat plan
- A table showing the area of each shape and the total amount used.
- Answers to the reflection questions




Note: images are retrieved from  
[http://www.mnh.zi.edu/arc/arc.html/caribou\\_reindeer.html](http://www.mnh.zi.edu/arc/arc.html/caribou_reindeer.html)

# Hold that Water!

Terri Fisher

I am a 3rd grade teacher at Burnett Creek Elementary School. My class has participated in two design challenges so far this year. As a teacher, my favorite design challenge is the designing and constructing of the Earthen Dam. This design challenge requires the students to use at least two different earth materials in constructing the dam. The dam also must hold water for at least five minutes without leaking. The problem: You want to go fishing at the creek near our school, but it is running dry for several months. In order to get fish, the creek needs to retain some water when it rains in the future. The mayor of West Lafayette is looking for someone to design an earthen dam to retain water in the creek. The materials provided were: plastic shoe box, cotton balls, modeling clay, plastic cups, coffee filters, cheese cloth, sand, gravel, and potting soil.

As the students began working through the steps in the engineering design process, they identified all parts of the design brief (problem, goal, constraints, criteria, end user, and client). Then, the teams worked to develop and share a plan. Individual designs were sketched and then shared with their team. Each team then worked together to sketch a group design. Next, the students worked to create and test their design.

This design challenge is my favorite one of the four that I do with my class each year. I think it is my favorite because this particular design challenge shows the most excitement and scientific curiosity from the students.



Testing students' design of an earthen dam

## Design Activity Student Resource

**SLED**  
Science Learning through  
Engineering Design

### Designing an earthen dam for the city of Lafayette

You want to go fishing at the creek near your school, but it is running dry for several months. In order to get fish, the creek needs to retain some water when it rains in the future. The mayor of Lafayette is looking for someone to design an earthen dam to retain the water in creek. The dam must satisfy the following criteria and constraints:

#### Criteria:

The dam should be constructed by using at least two types of earth materials

Hold water for at least  $\frac{1}{3}$  to  $\frac{1}{2}$  the height of the dam.

Hold the water for at least five minutes before leaking

Should be triangular in shape (top smaller than the base)

#### Constraints:

Only available earth material should be used in constructing the dam.

# INSPIRE Engineering Gift Guide

Purdue's INSPIRE Research Institute for Pre-College Engineering, for the second year, has issued an [Engineering Gift Guide](http://inspire-purdue.org/EngineeringGiftGuide) just in time for the holiday shopping season. The guide this year has more than 50 fun toy and application suggestions intended to engage girls and boys in engineering thinking and design. Thirty books offering stories and facts about engineering for ages 3-18 also are in the guide. To access the guide, click the link above, or point your browser to <http://inspire-purdue.org/EngineeringGiftGuide>.

## Fall Reflections Due

**Reminder:** Participating teachers are each required to upload a reflection about the implementation of a SLED activity in your classroom on or before December 14<sup>th</sup>. A second reflection will be due in the spring. For information about what to upload and how to do it, visit the main SLEDhub site (under Participant Resources) or the SLEDteach group. Recall that when you submit your reflection you should do so through the SLEDteach group, which is not visible to those outside of the project. If you have any problems with the upload process, please contact Jim Lehman ([lehman@purdue.edu](mailto:lehman@purdue.edu)).

## Happy Holidays!



from **SLED**  
Santa and his sleigh

