Six Strands of Science Learning
By Bob Coulter

Earlier this year, the National Research Council released *Learning Science in Informal Environments*, a report on how kids and adults can best learn outside of school. The staff and volunteers at LREC will be meeting in the coming weeks to discuss how we can use the report’s recommendations to improve our work with you. In the mean time, I’m sharing the report’s six strands of learning with you, along with the challenge to reflect on each one. Which ones validate what you already do, and which ones represent areas where can we can work with you to expand your practice? As you do this, please let us know how we can better fold these strands into your work at the center and in your school yard.

1. **Sparking and developing interest and excitement:**
   Do your kids find their field work to be exciting and motivating?
   Do they want to persevere, even when the work is challenging?

2. **Understanding scientific knowledge:**
   Are your kids developing an age-appropriate understanding of scientific concepts?
   Are these separate facts, or are they building a network of related concepts?

3. **Engaging in scientific explanation and argument:**
   Do the kids have a chance to explain how things work and how they are connected?
   Can they challenge each other respectfully?

4. **Understanding the scientific enterprise:**
   What do your kids know about doing science?
   Are they able to raise questions and suggest ways to investigate things?

5. **Engaging in scientific practices:**
   Do the students see science as a social endeavor, where sharing ideas leads to better understanding?
   If you have older students do they use tools in their studies?

6. **Identifying with the scientific enterprise:**
   Are your kids seeing themselves as ones who can “do” science?
While you may be able to guess the approximate location of the Soulard School, you may be surprised to find its students engaged in their studies outside their school building in the very inviting schoolyard, at a local park, or even way out at Litzsinger Road Ecology Center (LREC). A multi-grade group of Soulard students, the Mosaic and Thrive classes, spent a portion of a recent school day at LREC investigating local ecosystems. According to the Mosaic teacher, Nicole Post, students had been learning how to observe and record data in nature. From her lesson plan:

*We will begin by making observations in our schoolyard, including the pond, grass, and vegetable garden areas. After sharing, discussing and synthesizing this data in the classroom, we will then replicate the observations in the local park. This will provide a larger study area with different ecosystems. After discussing and synthesizing the observation data from the park, we will travel to LREC.*

Having completed their fall investigations, the students will replicate their observations in the winter and spring, re-forming their study groups for each set of outdoor investigations. This unit of study is a good example of place-based education: a framework that “encourages teachers and students to use the schoolyard, community, public lands, and other special places as resources, turning communities into classrooms.” Read more about place-based education at the

See **Soulard School**, page 4
Each winter, we burn a portion of the prairies here at Litzsinger Road Ecology Center. Last winter, we burned in the North Prairie. Several years ago, we held our only woodland burn to date in the North Woods. In the coming month, we are planning to burn both the South Prairie and the woods to the west of the cabin.

The burn is an exciting event each year, and pulling it off successfully requires many dedicated volunteers. We need volunteers to carry backpacks of water to put out small break-away fires and to act as lookouts along the perimeter of the burn zone.

Due to the importance of having the proper conditions, we are lucky if we are able to give staff and volunteers 24 hours notice of a burn. If you are interested in participating, please e-mail danelle@litzsinger.org or call Danelle at (314)961-4410, and we will try to notify you when the conditions are right.

In the meantime, here is a little quiz about controlled burns:

1. Which of the following is important in picking the date for the burn?
   - A) Moisture
   - B) Wind
   - C) Air quality
   - D) All of the above

2. What size of fallen wood must be removed from the woodland floor before a burn?
   - A) 0 to 3 inch diameter
   - B) 2 to 6 inch diameter
   - C) 5 to 10 inch diameter
   - D) 8 inch diameter or greater

3. Roughly how long will it take for the fire to go through the South Prairie?
   - A) 15 minutes or less
   - B) An hour or two
   - C) 3 hours or more

4. Which of the following is not a tool that would be used during a burn?
   - A) Drip torch
   - B) Backpack sprayer
   - C) Pruners
   - D) Radio (Walkie-talkie)

See Quiz Answers, page 5

Right: Many volunteers aided staff during the controlled prairie burn January 2, 2009. Photo by Sean Fears.
New Additions to the Cabin
By Danelle Haake

Though it would be difficult to pinpoint them now, this spring we replaced a few of the exterior logs on the Cabin. The old logs had been rotting due to the splashing of rainwater. This past month, we have made a couple of other additions to the Cabin that we hope will prevent us from needing such replacements in the future: gutters and rain barrels.

The gutters prevent the water from falling directly off of the roof and splashing onto the sides of the Cabin.

The rain barrels collect the rainfall via the gutters, reducing the amount of runoff that reaches Deer Creek. These rain barrels are repurposed white food-grade containers that once held the syrup used to make Coca-Cola. Members of the River des Peres Watershed Coalition converted them into rain barrels.

LREC already had two rain barrels attached to the Barn. The additional three barrels that have been added to the Cabin increased our water storage capacity to approximately 250 gallons. It is important that we try to empty the barrels between storms, so we strongly encourage you to use this water whenever possible:

- To add water to the stream table or Enviroscape®,
- To irrigate seedlings after planting (both immediately and for several weeks following planting),
- To rinse boots and other class materials,
- Or anything else you can think of!

Photo by Leslie Memula.
Volunteer Enrichment

An Informal Look at Science Learning
Tuesday, November 17 from 2:30 to 3:30 pm; Program repeats Thursday, November 19 from 2:30 to 3:30 pm
The National Academy of Sciences just released an extensive report on Learning Science in Informal Environments. Join your fellow volunteers in a thought-provoking discussion of how our work with kids and teachers promotes learning, and what we can learn from the report to improve our programs. Led by Bob Coulter.

If you are interested in attending either of these sessions, please sign up with Martha Schermann: email Martha@litzsinger.org or call (314) 540-4068.

We’ll need a minimum of five volunteers signed up at least two days before each program for that program to run.

Thanks!

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Quiz Answers, from page 3

1. D (All of the above)
2. B (2 to 6 inch diameter)
3. B (An hour or two, but highly dependant on wind and moisture conditions)
4. C (Pruners)

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Mystery Image

Can you identify the mystery image?
To find out if you’re right, visit our blog at http://www.litzsinger.org/weblog.