

# BIG Little Science Centre

## Newsletter July 2003 Volume 20

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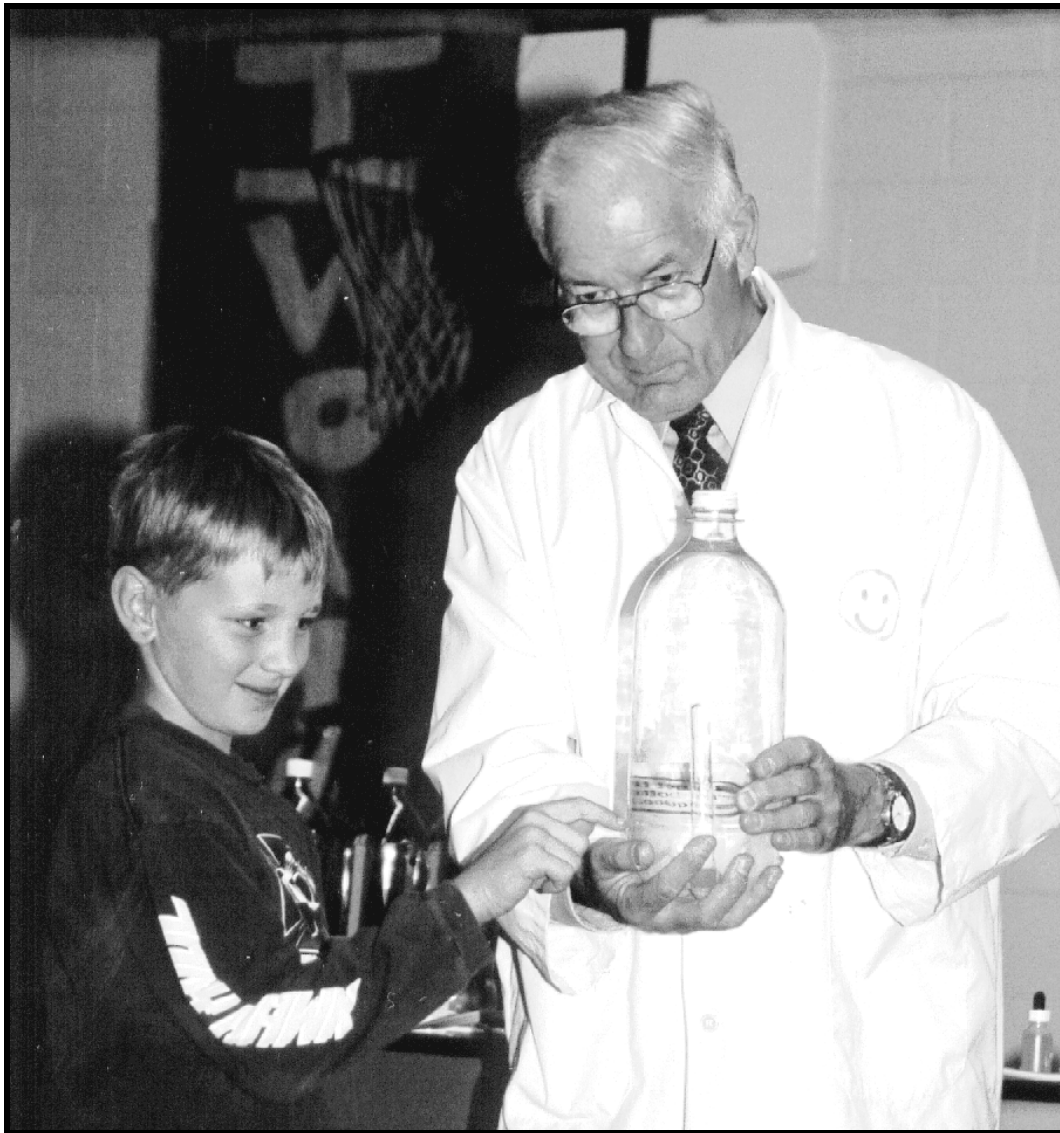


Photo by Bill Koch

### Finger Magnetism

When **Hayden Sander-Beddington** slowly moves his finger down the side of the plastic pop bottle, the test tube inside the pop bottle mysteriously follows his finger! Is there really such a thing as 'finger magnetism'? See **page 3**.

# Science Fun for Your Family

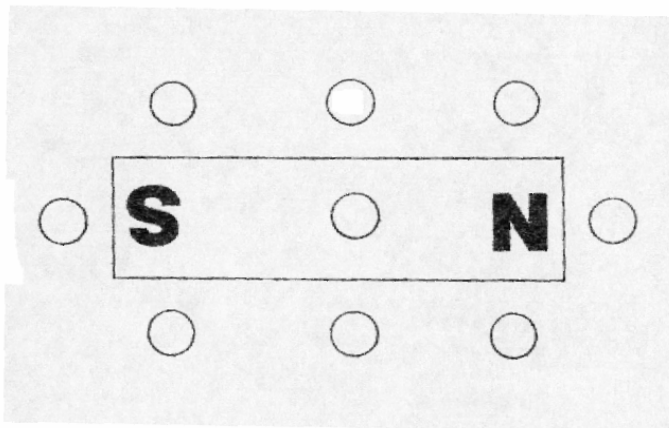
## *Magnets*

### You Need

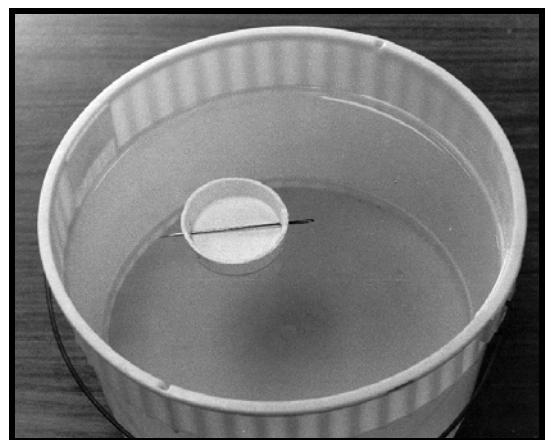
1 bar magnet, or a horseshoe magnet  
 a small compass  
 1 sewing needle  
 1 plastic bucket  
 1 Styrofoam™ coffee cup  
 1 box of objects, such as a cork, a rubber stopper, a steel washer, a paper clip, a penny, a glass 'marble', a piece of paper, a thumb tack, a staple, a small finishing nail, an aluminum roofing nail, and an assortment of Canadian coins: pennies, nickels, dimes, quarters, loonies, two dollar coins.

### Try This!

1. Test a large variety of objects to see which ones are attracted to your magnet.  
 What metal or metals are in the objects that are attracted to your magnet?
2. Test a variety of Canadian coins to see which ones are attracted to a magnet. Be sure to use at least one nickel with a date prior to 1982, and another nickel with a date after 1982. Before 1982, nickels were really made of nickel! From 1982 until 2000, they were made of an alloy that is mostly copper. 'Nickels' made after 2001 are magnetic again! They contain iron, which is magnetic.
3. Set a compass down on a table. Make sure there are no magnetic objects around it (other than planet Earth). Locate magnetic north by watching which way the north end of the compass points.



**Figure 1**



**Figure 2**

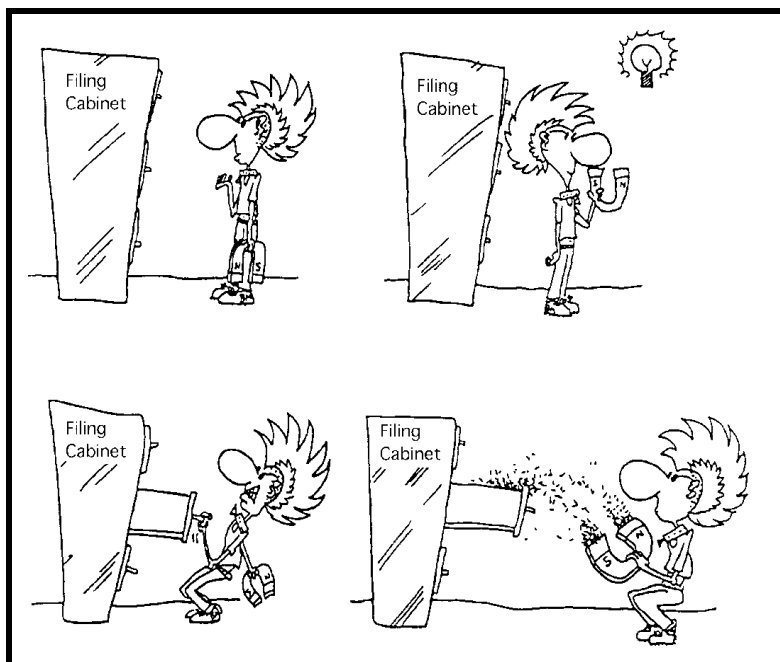
4. Place a bar magnet flat on your table. Place the compass at each of the locations in **Figure 1**. Make a copy of this diagram and draw in the directions of the compass needle for each location.

The north pole of your compass will be attracted to the south pole of the bar magnet, and repelled by the north pole of your magnet. If this seems contrary to what you observed with planet Earth, it is because what we call Earth's 'north magnetic pole' is actually a south magnetic pole! (The direction of Earth's magnetic field shifts over time. In a few thousand years, the north end of Earth may become a true north magnetic pole again.)

5. You can make your own compass needle. Stroke a sewing needle with a bar magnet several times.
6. Make a raft out of the bottom of a Styrofoam™ coffee cup, and poke the needle through the walls of the 'raft'. See **Figure 2**.
7. Set the raft down on the water in a plastic bucket, and watch it float around until the magnetized needle lines up with earth's magnetic field.

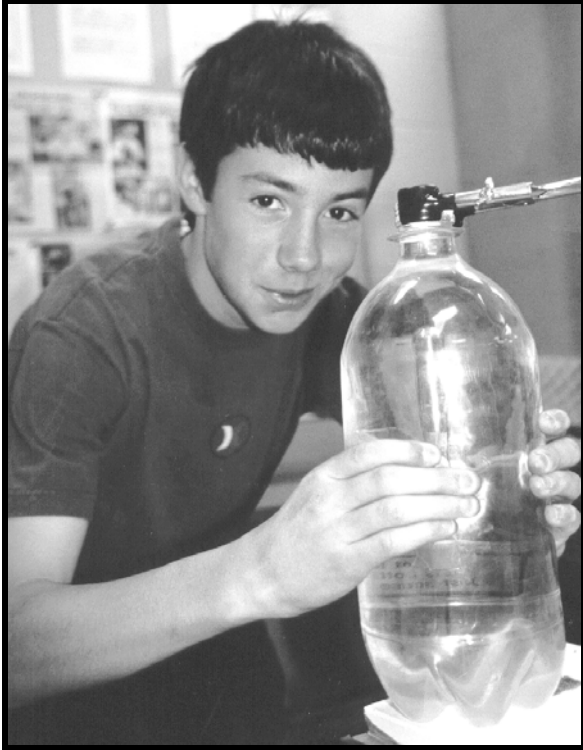
## Be a Tacks Collector!

Compare the strengths of a variety of permanent magnets, by dipping them into a pile of thumb tacks and counting how many tacks you can collect with each magnet.



Ehren Stillman Cartoon

**Explanation of “Finger Magnetism” (Cover Photo):** The demonstrator (some really old guy) is actually using a type of **Cartesian diver**. When he asks **Hayden** to move his finger down the side of the bottle, the demonstrator simultaneously squeezes the plastic pop bottle. The test tube inside the bottle moves downward, seemingly following the youngster's finger. A Cartesian diver illustrates **Pascal's Law**: Pressure applied anywhere in an enclosed fluid is transmitted everywhere within the fluid. Increased pressure compresses the trapped air inside the test tube and water flows into the test tube, making it heavy enough to sink to the bottom of the bottle of water. (Note: This was one of the late **Tik Liem**'s many priceless demonstrations.)

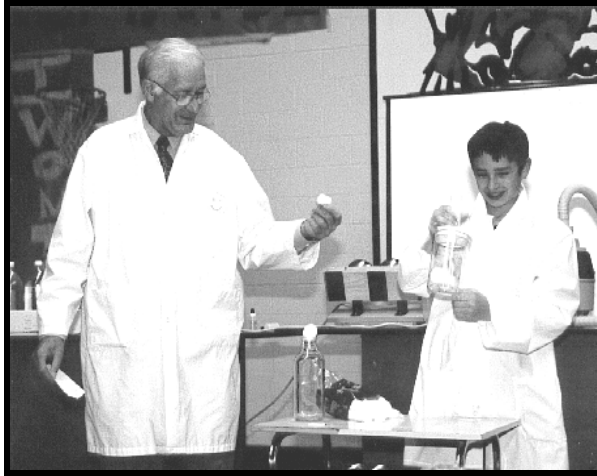


**Shane Oatway of McGowan Park Elementary experiments with the “Test Tube Submarine” at the **BIG Little Science Centre.****

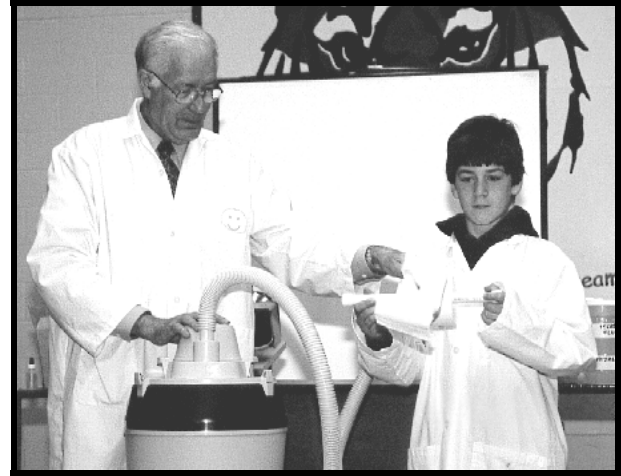


**Liam Cartwright**  
vs  
**The Powerful Electromagnet.**  
Liam is a kindergarten student at **David Thompson Elementary School.**

## Science Show at David Thompson Elementary



Bill Koch Photo



Bill Koch Photo



Gordon Gore Photo



Bill Koch Photo

**David Thompson Elementary** has been home to the **BIG Little Science Centre** since February 2000. The big Science Show in the gymnasium on June 12 was a token ‘Thank You!’ to the school and to principal **Bill Koch** for providing space for the centre. By the end of June 2003, over 10,600 visitors will have enjoyed our little ‘hands-on’ science centre. In the above photos, science demonstrator **Mackie Berry** (top left) shows how to make a marshmallow much bigger using a vacuum pump, Demonstrator **Dustin Anderson** (top right) helps with a Bernoulli demonstration. **Kathy McDonald** (bottom left) has a hair-raising experience, and demonstrator **Kris Swain** (bottom right) goes for a spin with the bicycle wheel gyroscope. Thanks to **Bill Koch** for photographing the first of two shows, and to my three trustworthy demonstrators: **Dustin, Mackie and Kris**.

## BIG Little Science Centre Society Alphabetical List of Members

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# Society News Items

## Pineridge Site Proposal

The business plan subcommittee will submit a proposal regarding **Pineridge Elementary School** to School District 73 by the deadline, June 27 2003. It appears there is solid support in the community for this project. Considerable progress has been made with the business plan, thanks to the solid advice from **Terry McQuillan, Geoff Blunden** and **Thérèse Gieselman**. Stay tuned!

### *Next Meeting of BIG Little Science Centre Society*

*7:00 PM, Thursday, July 3, 2003*

**David Thompson Elementary School**

**Current Society Membership Count: 93**

**Projected Visitor Count** to June 24, 2003: *Since September 2002:* **5,600**

*Since Opening in February 2000:* **10,600**

## Join the BIG Little Science Centre Society!

Fill out this form and mail it and your check for \$20 to the

**BIG Little Science Centre Society,  
c/o Gordon R. Gore,  
962 Sicamore Drive,  
Kamloops, BC V2B 6S2.**

You will be placed on the membership list and receive our newsletter.

I wish to be a member of the **BIG Little Science Centre Society**.

Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ Postal Code \_\_\_\_\_

E-mail Address < \_\_\_\_\_ >

Fax \_\_\_\_\_