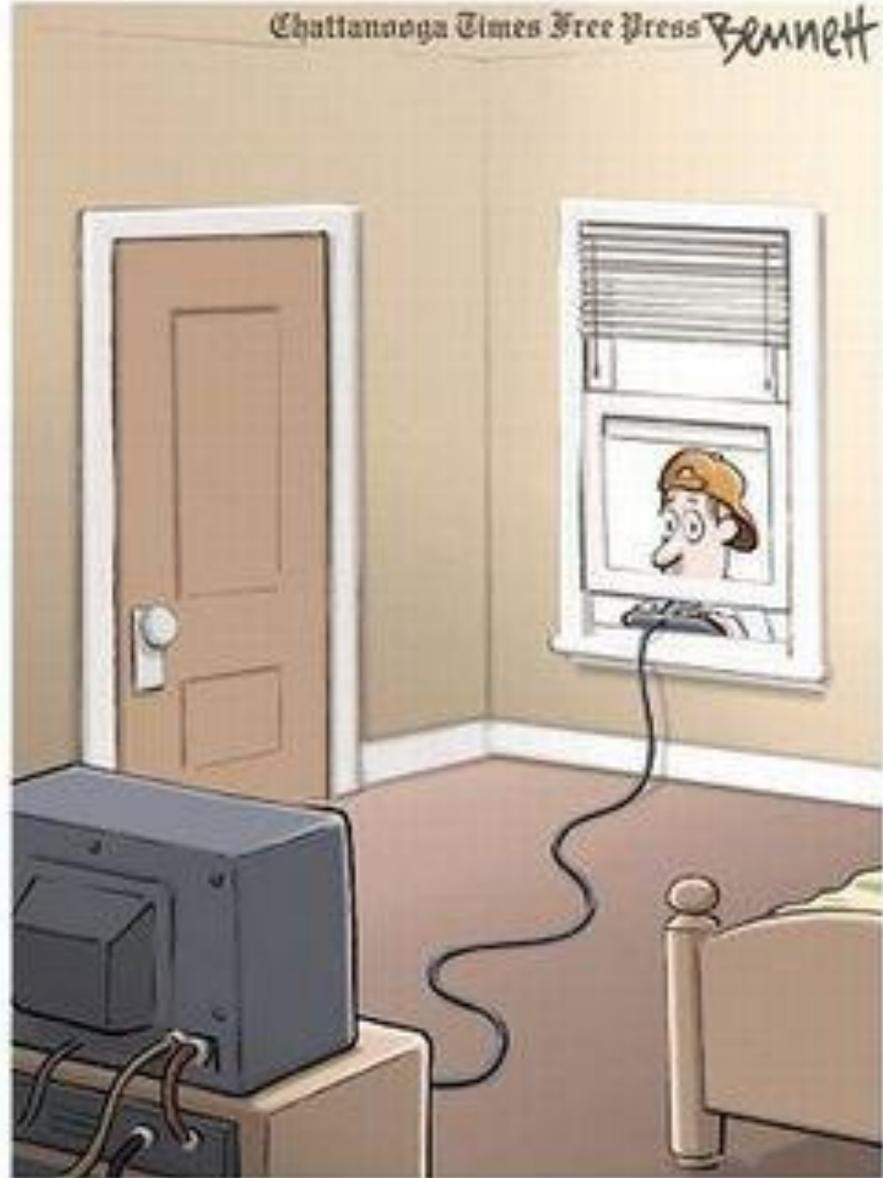
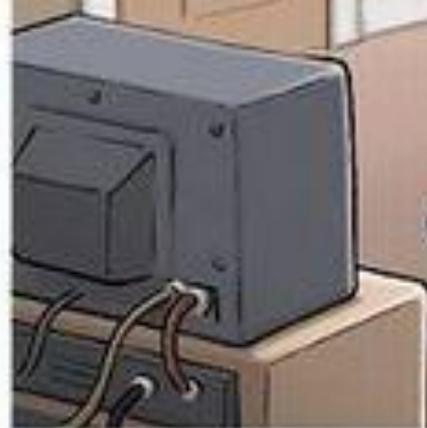
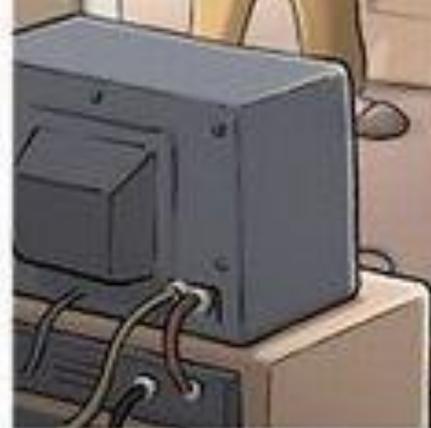


Inquiry and Literacy: Using Living Things as Inspiration

Aileen Allore
Nancy Brockelbank
Beverly Vinski



It's a beautiful day. I really want you to go outside and play.



It's a good thing to learn more about nature in order to share this knowledge with children; it's even better if the adult and child learn about nature together. And it's a lot more fun.”



— [Richard Louv, “Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder”](#)



“The woods were
my Ritalin.
Nature calmed
me, focused me,
and yet excited
my senses.”

[Richard Louv, “Last Child in the
Woods: Saving Our Children
from Nature-Deficit Disorder”](#)

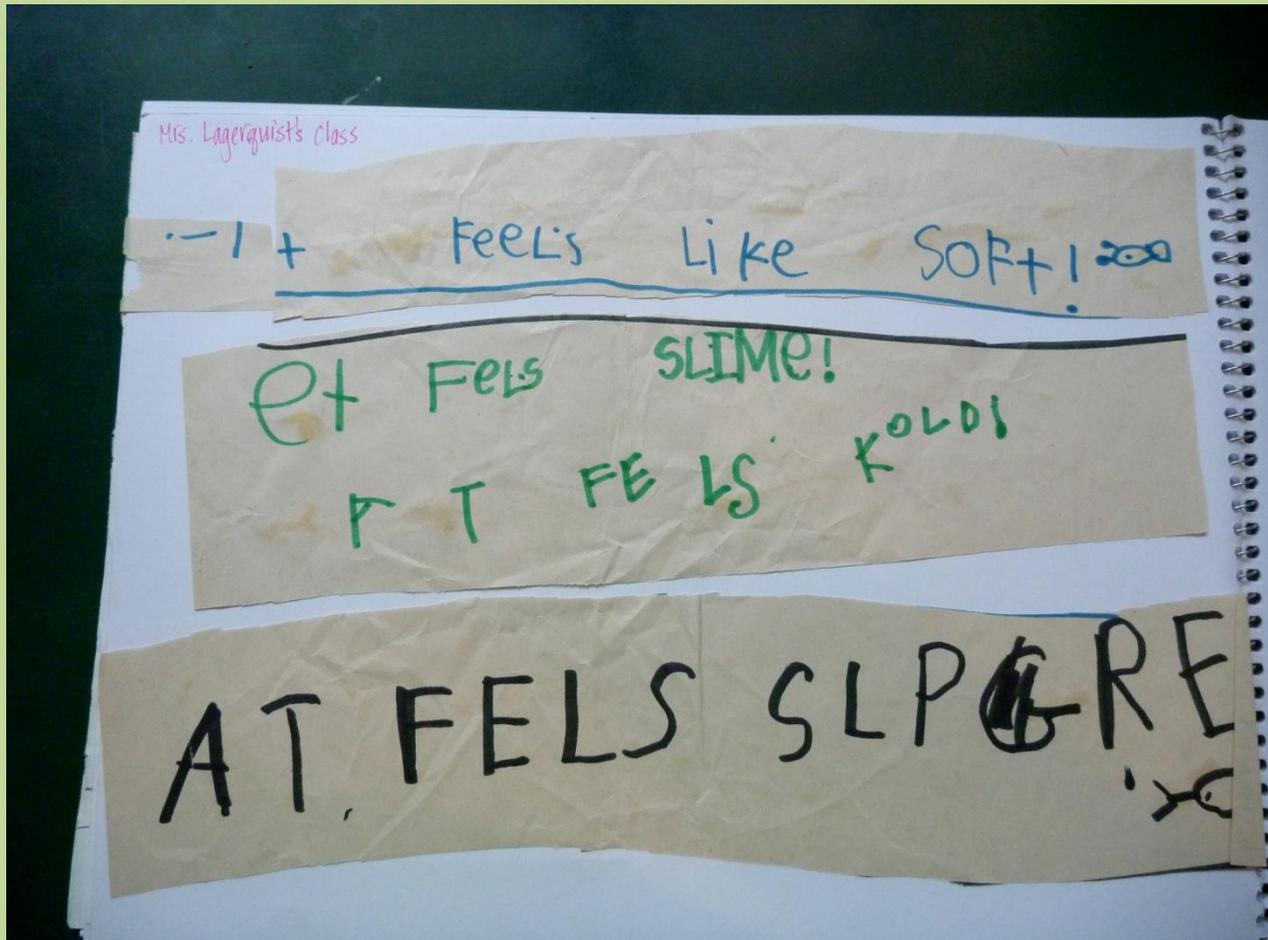
Noticing the Need

A young child with dark hair is lying on their stomach in a field of grass. They are holding a magnifying glass over a small white flower, looking through it with a focused expression. The background is a soft-focus field of grass and other small plants. The overall tone is natural and educational.

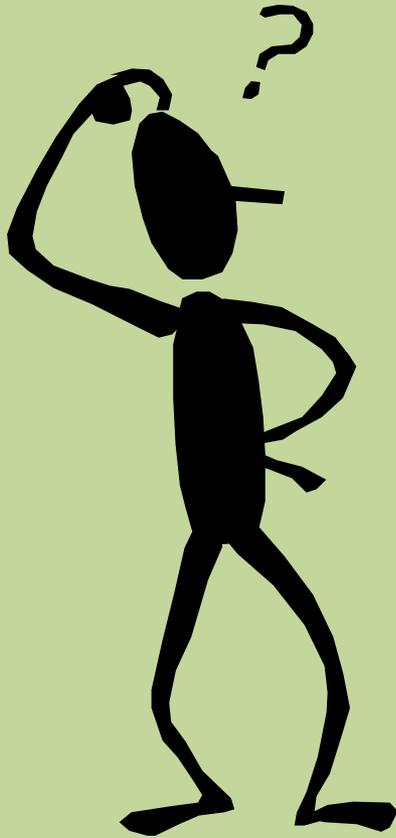
- Outdoor education
- Getting dirty
- Fear of nature/sense of being apart from nature and not a part of nature
- Lack of experiences with pets at home and at school

“...a sense of wonder so indestructible that it would last throughout life”

— [Rachel Carson, “The Sense of Wonder”](#)



What is "Inquiry"?



OSLA Inquiry Wheel

Discovery and Guided Inquiry

To create a school-wide focus on the inquiry process, participants in the Learning Commons collaborate to promote the use of an inquiry model which:

- Expands personal horizons and knowledge base
- Encourages the collision of ideas
- Engages the learner in rich, real-world tasks that interest and motivate
- Embeds essential and recurring skills and knowledge
- Provides a strategy for processing information
- Benefits from intentional, guided intervention
- Scaffolds learning for success
- Promotes open-ended thinking in all phases of the process
- Extends learning through diverse strategies, resources, technologies, and products
- Balances sequential learning with holistic learning and differentiated instruction
- Develops multiple literacies
- Fosters metacognition, i.e., learning how to learn in both familiar and new contexts
- Encourages a collaborative approach to learning



A Model for Inquiry

Ontario Science Curriculum

CONTINUUM FOR SCIENTIFIC INQUIRY/EXPERIMENTATION SKILLS				
Beginning → Exploring → Emerging → Competent → Proficient				
Initiating and Planning				
The student:				
asks questions that demonstrate curiosity about the world around him or her	asks questions that can be answered through tests/experimentation, and chooses one to investigate	asks questions that can be answered through tests/experimentation, and formulates a specific question to investigate	asks questions that arise from practical problems and issues, and formulates a specific question to investigate	
with support, follows the steps in a simple, teacher-prepared procedure for a test/experiment	follows the steps in a simple, teacher-prepared procedure for a test/experiment	creates, from a variety of possible methods, a plan to find an answer to the question he or she has formulated	plans for safe experimentation, showing some awareness of variables to be considered	
recognizes when a test is fair or unfair	recognizes when a test is fair or unfair	with support, builds fair testing elements into plans for an experimental procedure designed to answer the question he or she has formulated	builds fair testing elements into plans for an experimental procedure designed to answer the question he or she has formulated	
makes "guesses" about possible outcomes of simple procedures	with support, makes simple predictions about the outcome of the procedure prepared by the teacher	makes predictions, based on personal experience, about the results of the investigation	makes predictions, based on prior knowledge from explorations and investigations, about the results of the investigation	
Performing and Recording				
The student:				
safely uses teacher-selected tools and equipment to extend the senses for observation	selects, with support, and safely uses tools and equipment to extend the senses for observation	selects and safely uses tools and equipment to observe and measure	selects and safely uses tools and equipment to observe and measure	
records data orally, in pictures, in written words, and/or in tally charts	records data orally, in pictures, and/or in written words or sentences	records and organizes data using standard measurements, sentences, lists, and/or simple labelled diagrams	records and organizes data using standard measurements in simple tables, graphs, or charts, or in labelled diagrams	

Analysing and Interpreting**The student:**

discusses data, and asks new questions based on data

identifies patterns in the data, and summarizes the data

identifies patterns and discrepancies in the data, and summarizes the data

identifies patterns in the data, suggests explanations for discrepancies, and summarizes the data

proposes an answer to the question being investigated, on the basis of observations

draws a simple conclusion on the basis of observations

draws simple conclusions on the basis of data gathered

draws conclusions on the basis of data gathered

describes what was done and what was observed

makes a simple evaluation of the experiment

evaluates the experimental procedure, explains changes that could be made to improve it, and gives reasons for the changes

evaluates the experimental procedure, explains changes that could be made to improve it, and gives reasons for the changes

Communicating**The student:**

orally recounts steps in and results of an investigation to answer a specific question

orally presents steps in and results of an investigation to answer a specific question

presents steps in and results of an experimental procedure orally; in charts, graphs, or diagrams; and/or in sentences

presents steps in and results of an experimental procedure using numeric, symbolic, graphical, and/or linguistic methods

PDSB Scales of Scientific Inquiry 2007

EXPERIMENTATION SKILLS – Junior ChecBric

	FEEDBACK	SELF ASSESSMENT	TEACHER ASSESSMENT
Initiating and Planning <ul style="list-style-type: none"> <input type="checkbox"/> Asks relevant questions that can be answered through tests/experimentation, and formulates a specific question to investigate <input type="checkbox"/> Creates a clear plan to find an answer connected to the question formulated <input type="checkbox"/> Builds fair testing elements into a plan for an experimental procedure with few omissions/errors, showing an awareness of variables to be considered, recognizing when a test is fair or unfair <input type="checkbox"/> Makes relevant predictions, based on personal experience, about the results of the investigation 		LEVEL 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4	LEVEL 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
Performing and Recording <ul style="list-style-type: none"> <input type="checkbox"/> Appropriately selects tools and equipment and accurately adheres to safety procedures when observing and measuring <input type="checkbox"/> Records data accurately using standard measurements in an organized format (prose, charts, labelled diagrams ...), based on models 		LEVEL 1 2 3 4 1 2 3 4	LEVEL 1 2 3 4 1 2 3 4
Analysing and Interpreting <ul style="list-style-type: none"> <input type="checkbox"/> Accurately summarizes the data...identifies patterns and discrepancies in the data <input type="checkbox"/> Draws reasonable conclusions on the basis of data gathered <input type="checkbox"/> Evaluates the experimental procedure used with considerable effectiveness; begins to suggest reasonable changes that could be made when needed, giving reasons for the changes 		LEVEL 1 2 3 4 1 2 3 4 1 2 3 4	LEVEL 1 2 3 4 1 2 3 4 1 2 3 4
Communicating <ul style="list-style-type: none"> <input type="checkbox"/> Clearly presents the experimental procedure and results <input type="checkbox"/> Accurately uses grade appropriate conventions, and "science and technology" vocabulary and terminology (e.g., symbols, formulae, standard units) 		LEVEL 1 2 3 4 1 2 3 4	LEVEL 1 2 3 4 1 2 3 4

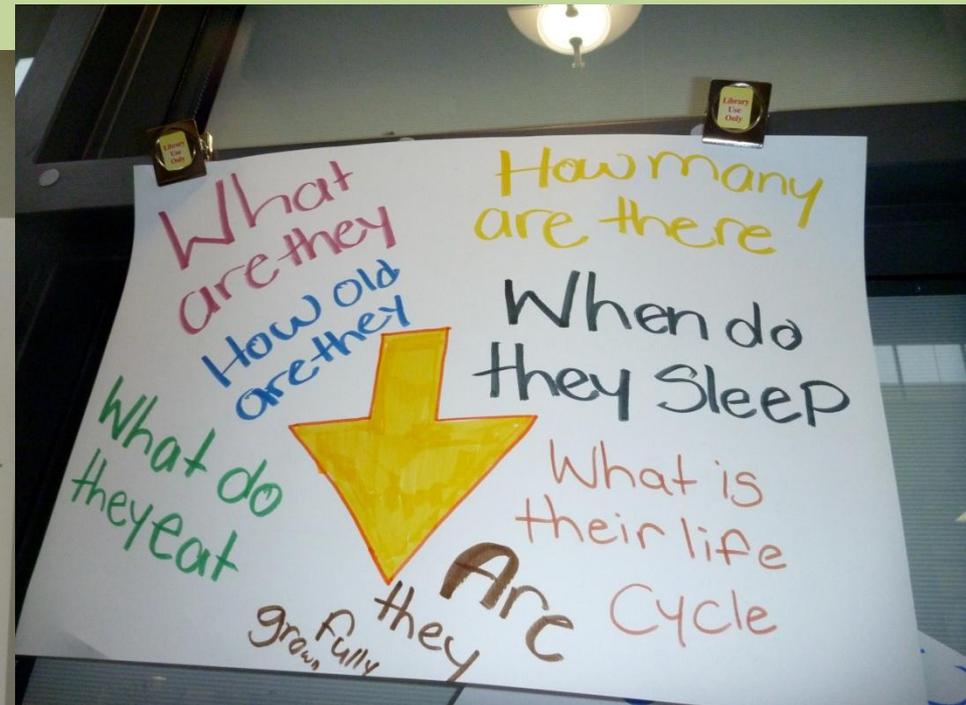
Criteria based upon The Ontario Curriculum, Grades 1-8: Science and Technology, 2007

TASK SPECIFIC WORD DESCRIPTORS FOR DEGREE OF EFFECTIVENESS

LEVEL 1- Limited	LEVEL 2- Some	LEVEL 3- Considerable	LEVEL 4- High Degree
minimal, many errors or omissions, unclear	simplicistic, adequate, some errors or omissions	relevant, applicable, clear, accurate, reasonable, pertinent, few errors	thorough, concise, explicit, complex, sophisticated, profound, comprehensive, insightful, minor errors

Living Things: Inquiry in the Library

How we got started...



The Process



- Set up a small aquarium in the library with the meal worms inside
- Put up chart papers titled “What I Wonder” and “What I Observe”
- Place pencils and sticky notes nearby, and have students create signs around the library to invite students to participate



What I Observe...

What I Wonder...

? Curious About Creatures?

  Use sticky notes to post your questions and your observations!

What do you think they are doing?



Try to find all of them! Try to find 10 of them. keep a good look out! 

The Process

- Students in Nancy's class sorted the questions to determine the inquiry processes that could be used to find answers...

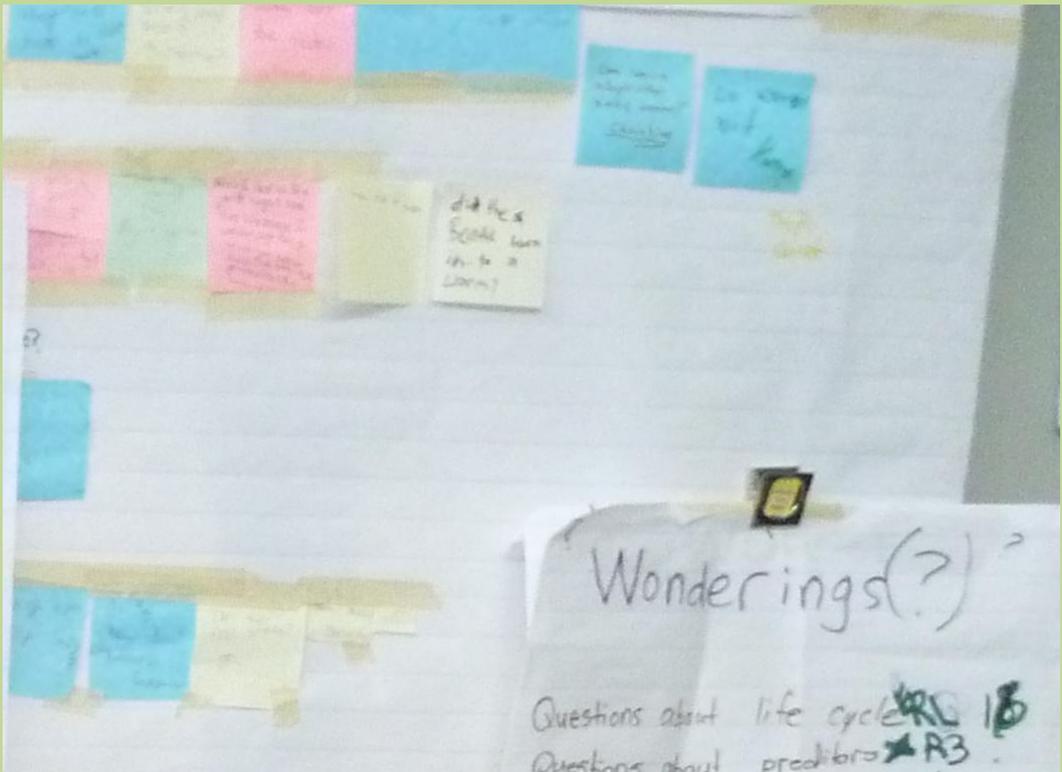


Research		Experimentation
Observation	Other Sources	

Student generated categories...

- Questions about lifecycle
- Questions about dead or alive
- Questions about sleeping
- Questions about how they live
- Questions about moving
- Questions about what they are
- Questions about habitats



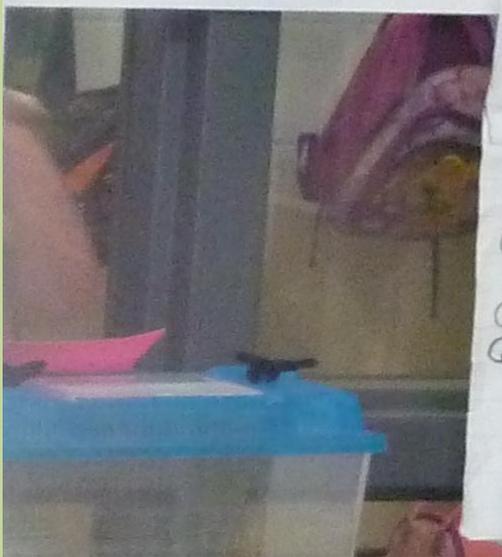


Wonderings(?)

- Questions about life cycle **RO 18**
- Questions about predators **AR 3**
- Questions about habitats **BR 6**
- Questions about what it is **L 11**
- Questions about what it eats **DRE 15 K**
- Questions about ^{habits} hibernating **4**
- Questions about how it looks **L 7**
- Questions about how it smells **R 2**
- Questions about moving **L 2**
- Questions about death **R 37**
- Questions about

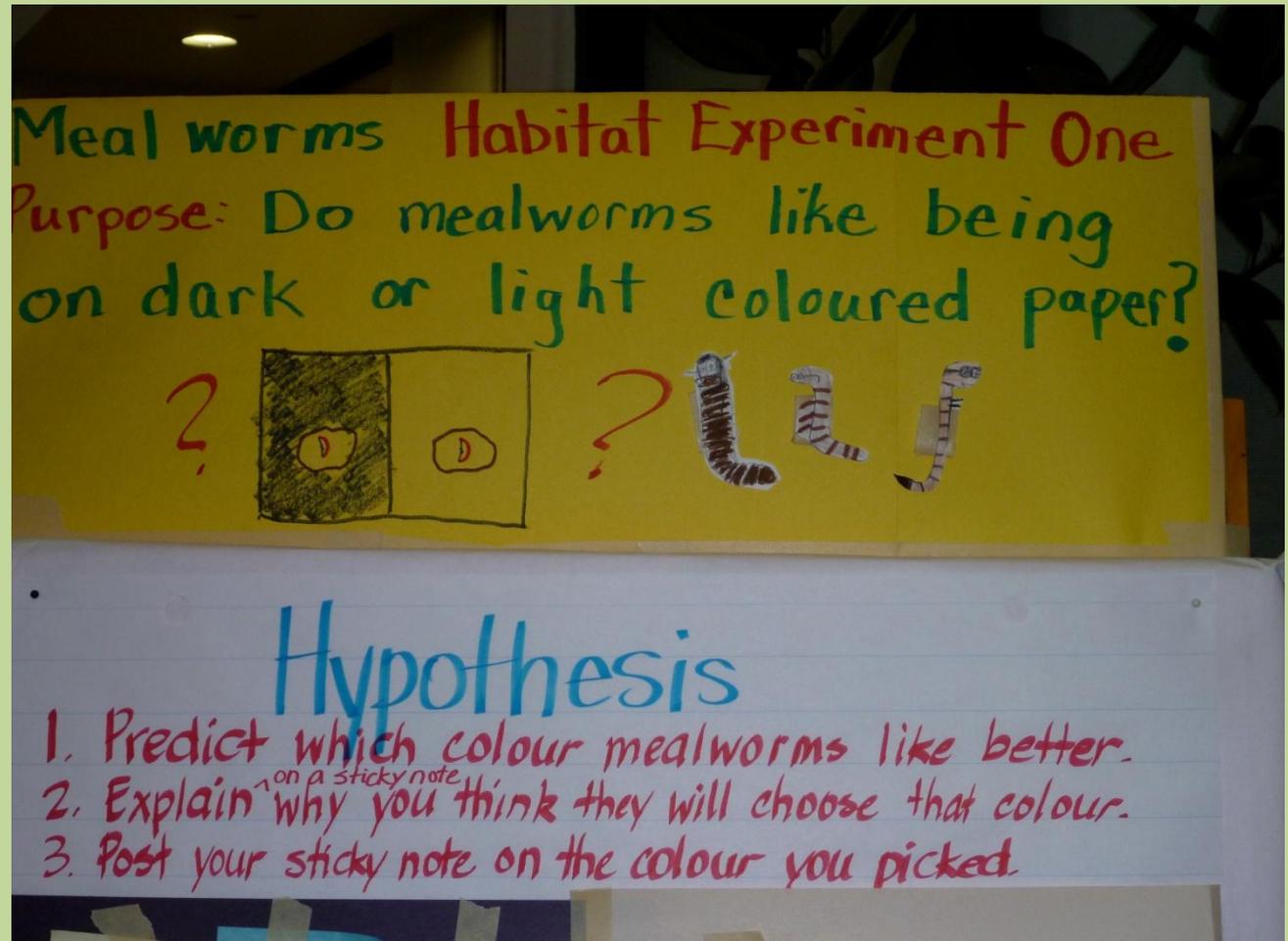
HOW CAN WE FIND OUT?

- R** = Research
- E** = Experiments
- O** = Observe



The Process

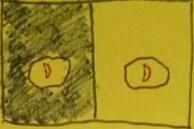
- Set up an experiment for one of the questions.
- Posted new charts titled, “Hypothesis”.



Students made predictions for about a week, by placing sticky notes on the charts.



Meal worms Habitat Experiment One
Purpose: Do mealworms like being on dark or light coloured paper?

?  ? 

Hypothesis

1. Predict which colour mealworms like better.
2. Explain ^{on a sticky note} why you think they will choose that colour.
3. Post your sticky note on the colour you picked.

I think black because they hide.

I think the m.w will go to the black to hide in the tray.

I think they'll pick white because it looks more like the bran.

I think black because they hide.

I think black because they hide.

Questions about death
Questions about

HOW CAN WE FIND OUT?

R = Research
E = Experiment
O = Observe

Will they like the dark?
Will they like the light?
Experiment starts
Wednesday!

Make your prediction
today!

THE MEALWORM DIARIES

ANNA KERZ



Students sorted and analyzed the data to arrive at a conclusion.

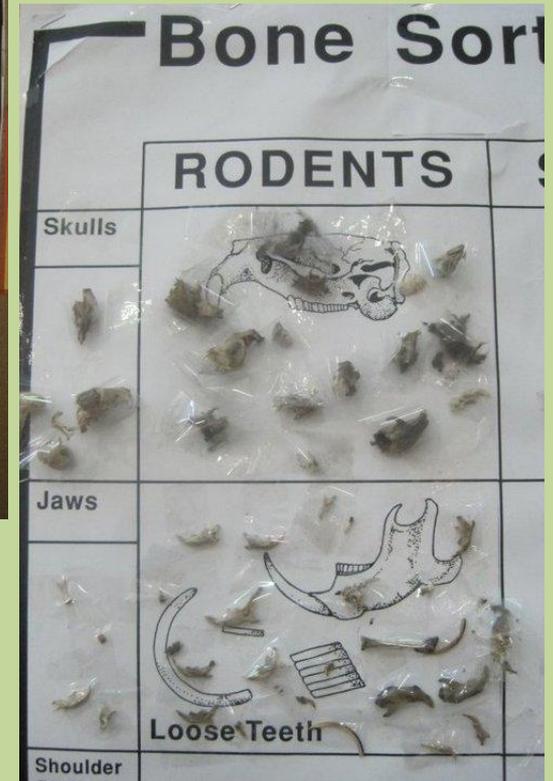
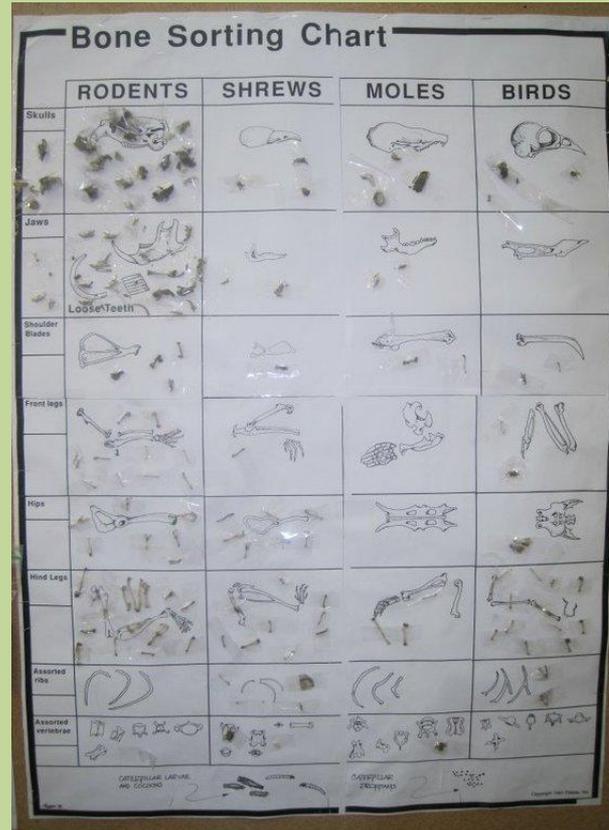




And it continued...

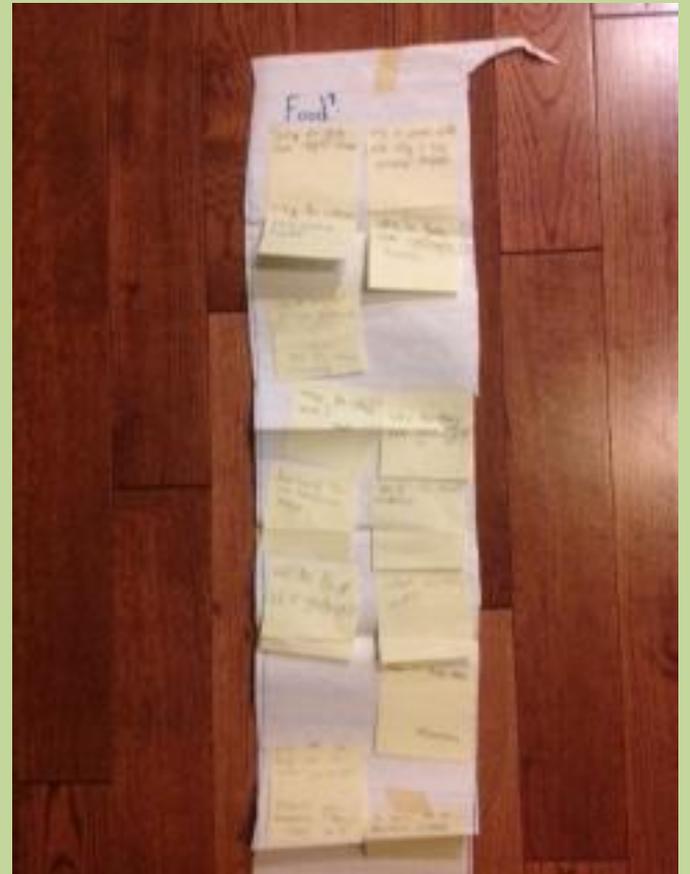
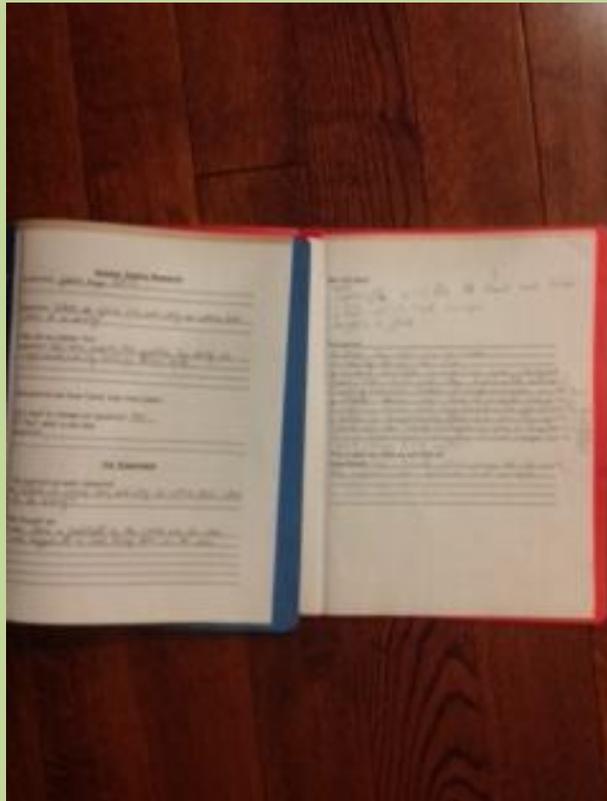
- Further experiments ran using the same process
- Other creatures that year were praying mantis and butterflies to compare metamorphosis

Owl pellets in the science corner



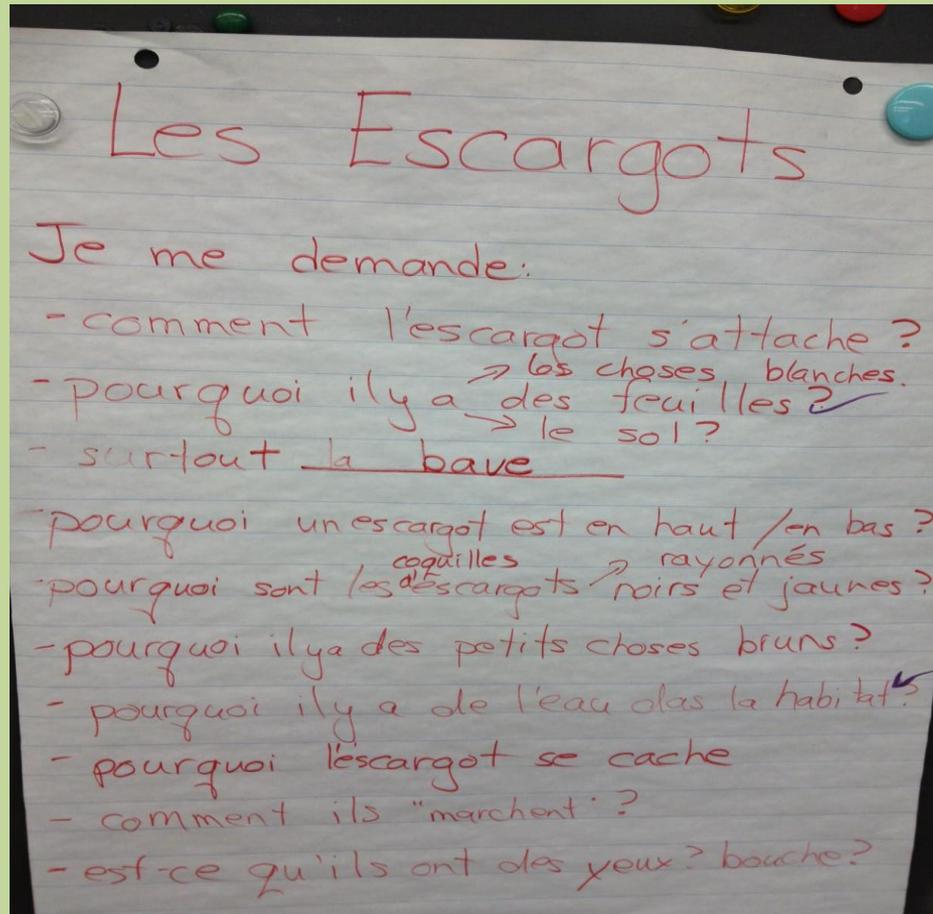
What could work for you?

...a library club?



Partners in Action with classroom teachers

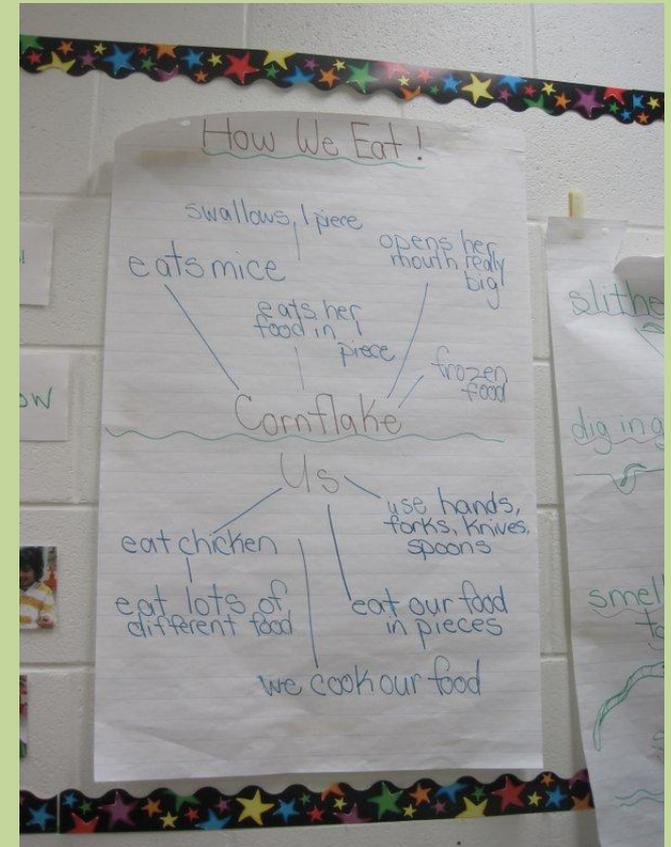
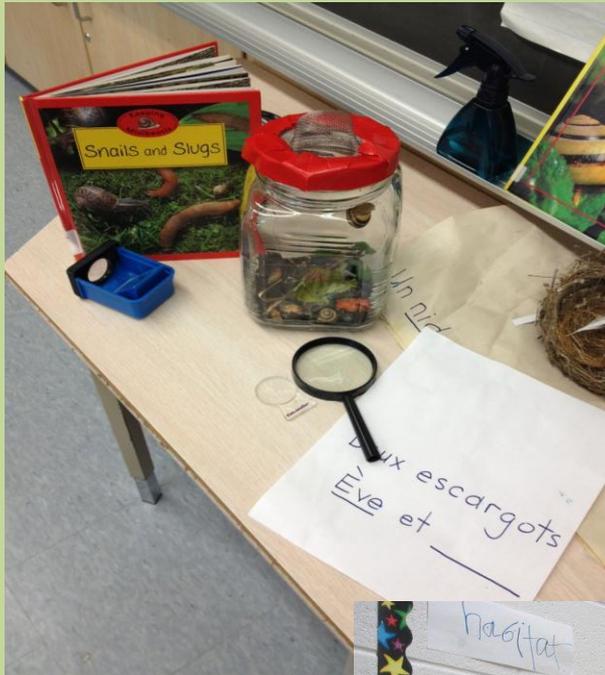
"I Wonder/Je me demande..." chart



Student with a snail



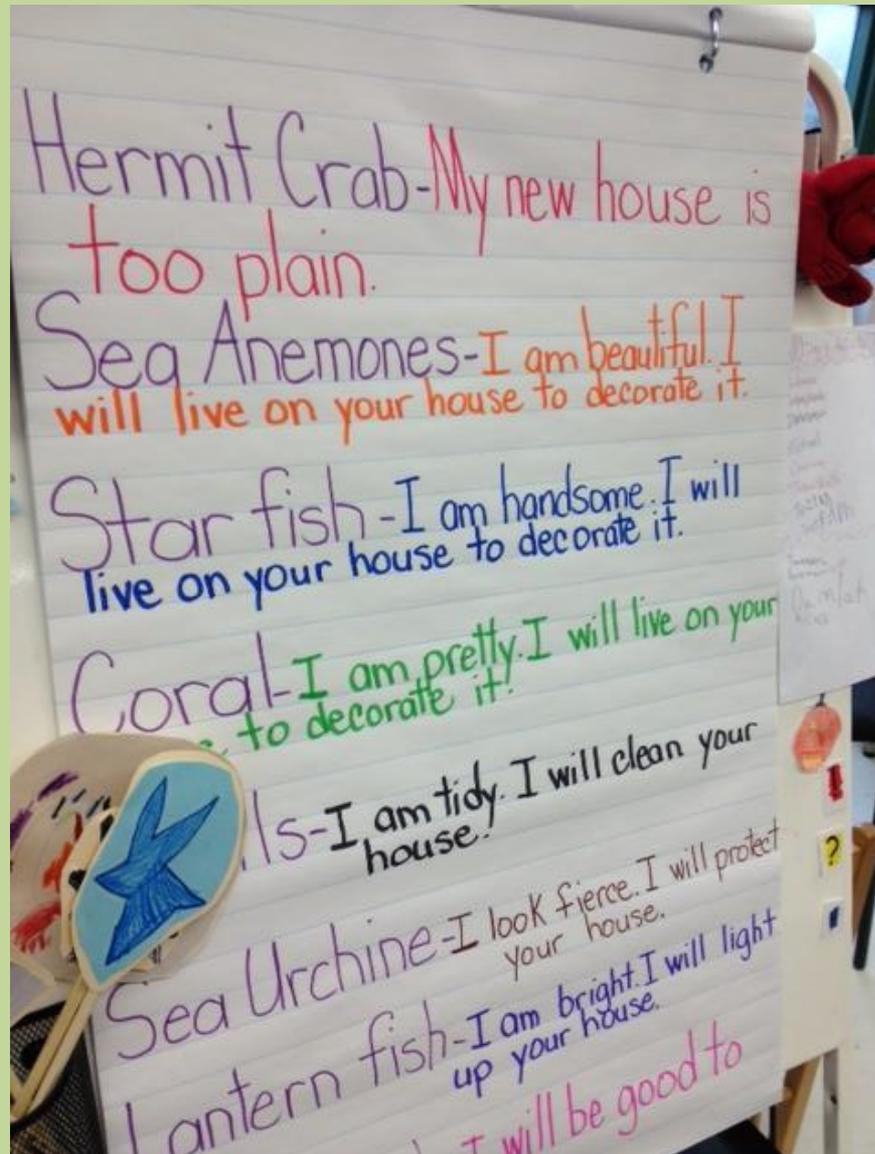
Inquiry Centres in classrooms



Curricular Connections



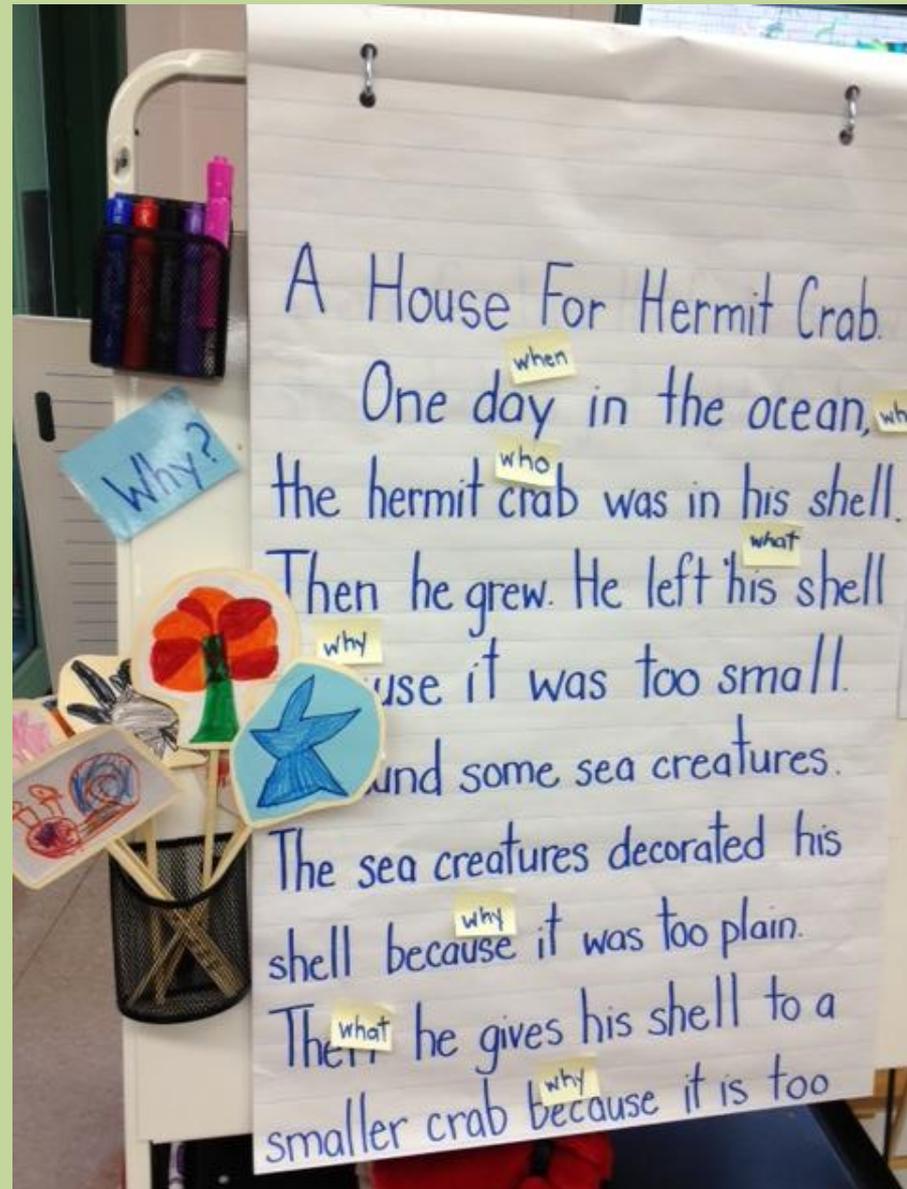
Classroom dramatic activity



Math manipulatives? Sorting table?
Story or drama starter?



Story re-tell, with puppets



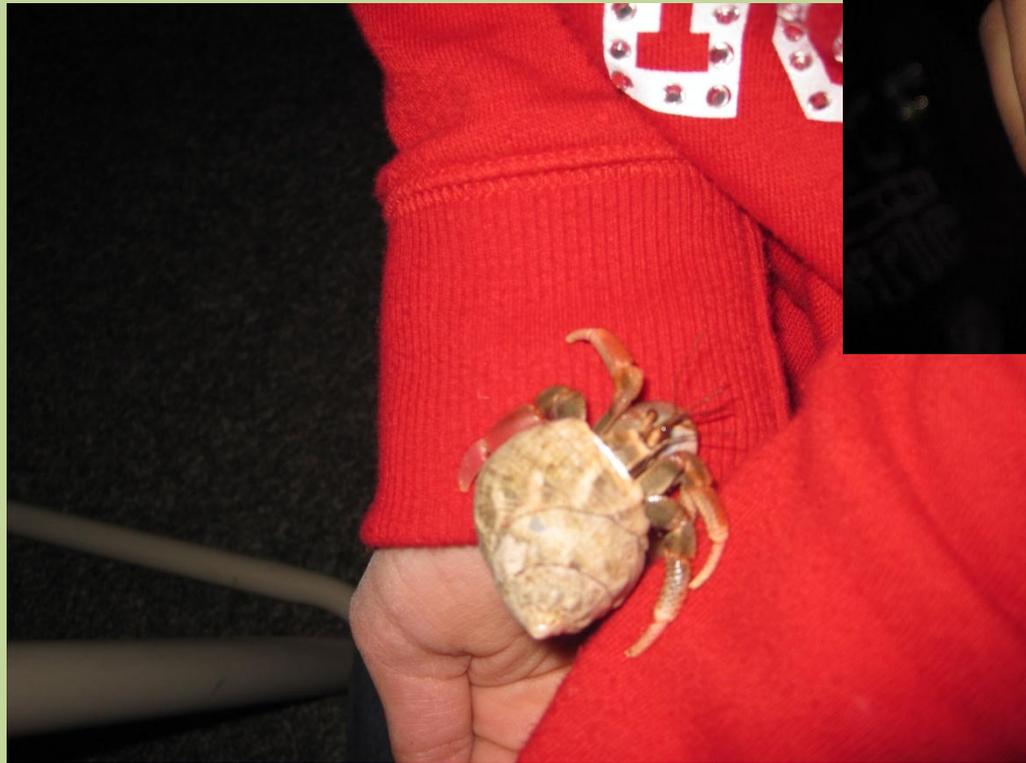
...Porta Pets ready to go in the science corner...



The science team moves the creatures, and also introduces them to the class.



Hermit crabs...



Water crabs...



Forest floor, with salamanders as temporary visitors



Cornflake the Cornsnake...



Fire Bellied Toads...

Brisdale Science Edublog...

edublogs My Sites Science Wonderings + New

SCIENCE WONDERINGS

SCIENCE EXPLORATIONS IN THE LIBRARY

OUR LIBRARY SCIENCE CENTRE

WE ARE SOME STUDENTS FROM A PUBLIC SCHOOL WHO ENJOY LOOKING AFTER ANIMALS AND DOING RESEARCH TO SUPPORT OUR LIBRARY SCIENCE CLUB. IN THIS BLOG, WE HOPE TO SHARE SOME PHOTOS AND INFORMATION ON DIFFERENT ANIMALS. FEEL FREE TO TAKE A LOOK AT THE ANIMALS THAT BELONG TO OUR SCHOOL LIBRARY!

CATEGORIES

- CRABS (9)
- FISH (6)
- FOREST FLOOR (11)
- QUESTION OF THE WEEK (6)
- SNAKE (13)
- WELCOME TO OUR SCIENCE SITE! (15)

ARCHIVES

- JANUARY 2012 (6)
- NOVEMBER 2012 (9)
- OCTOBER 2012 (3)

TOADS

Friday, November 30th 2012, 22:29
Filed under: Welcome to Our Science Site!



We got new pets they are red belly toads you can only find us in Korea. We had a sch

No Comments so far

Leave a comment

Line and paragraph breaks automatic, email addresses never displayed, HTML allowed: `` `<abbr title="">` `<acronym title="">` ``

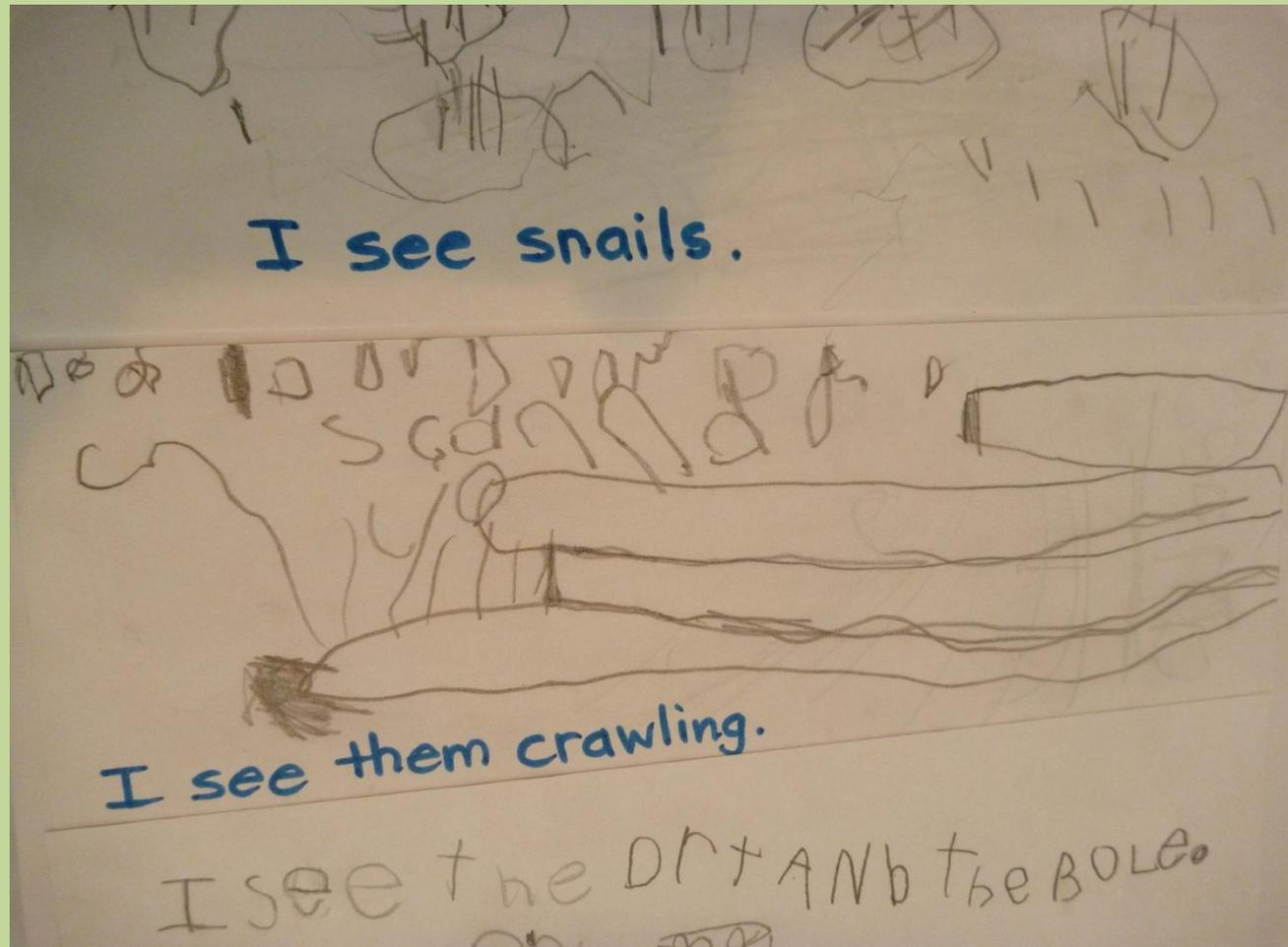
Logged in as Max Logout

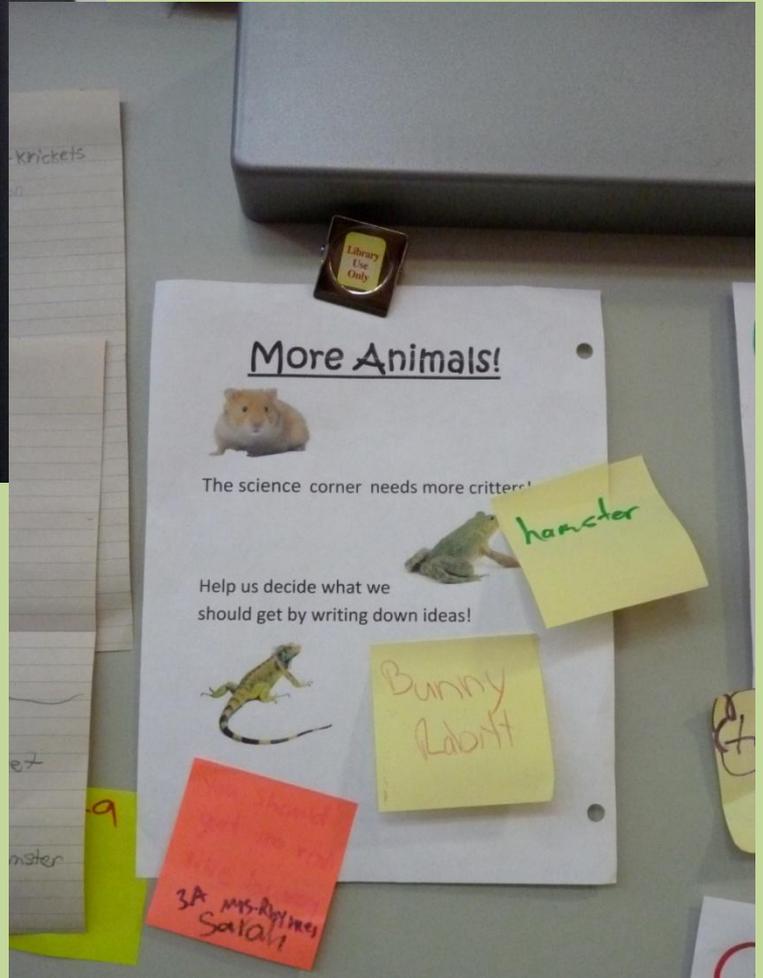
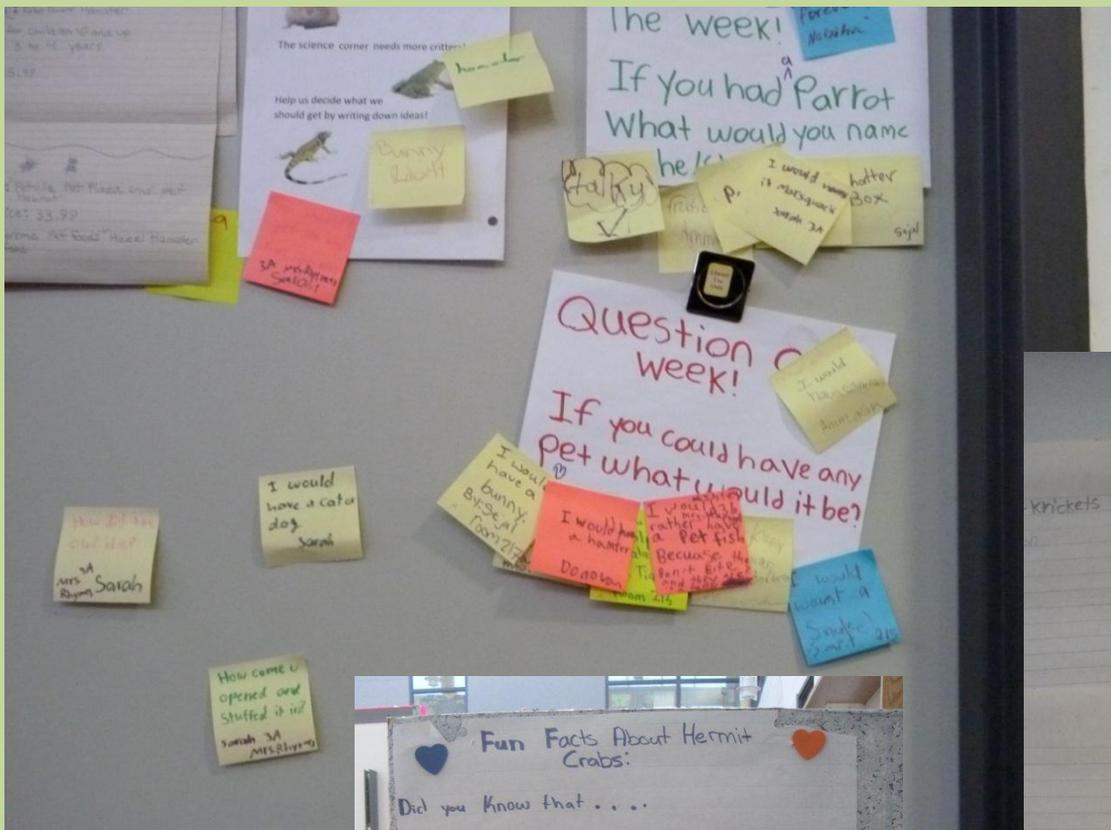
Your Comment

Say It!

• Tiger Lily

There are many opportunities for students to write and draw using the materials stored on the carts.





Fun Facts About Hermit Crabs:

Did you know that . . .

- Hermit crabs will eat apples, grapes, cheese, steak and meatballs
- A Hermit crab with a purple claw can snap a pencil in **ZEBEWARE**
- The relatives of a Hermit crab are spiders, and lobsters
- Hermit Crabs have an outside covering called an **exoskeleton**
- Hermit Crabs have a gill that must be kept moist and/or wet to survive in life!
- Five main parts of a Hermit Crab:
 - chelae (in the claw)
 - the fifth leg
 - abdomen
 - soft parts
 - eyes
 - antennae
- When a hermit crab grows and needs a new shell it will change its shell, therefore you might see it **pated**.
- Hermit crabs home is its shell
- Hermit crabs are not true crabs

What do you think? what do you learn today about Hermit crabs? by: [unclear]

**Ministry of Education
Science and Technology**

Pg 29

**Health and Safety in Science
and Tech.**

...that teachers have: "knowledge concerning the care of living things—plants and animals—that are brought into the classroom"

**Life Systems strands grades
1,2,3,4**

Students need to learn and demonstrate understanding of why it is important to:

- wash hands before and after handling animals, plants or parts of plants
- make teacher aware of any allergies
- properly clean and maintain animal's housing
- clean and maintain the environment for any plants kept in the classroom
- never put any part of a plant in their mouths unless under the direction of a teacher



Brisdale PS
Porta-Pet
www.brisdalescience.edublogs.org



Brisdale's
Porta-Pet

www.brisdalescience.edublogs.org



SAFETY,
cart sign out and general
information

Bev Vinski and Nancy Brockelbank

Safety

- Specific guidelines for each living thing will be in the red bin on the cart
- Science teams will deliver your cart on the Monday morning, and will take a few minutes to introduce your class to the living thing
- Please do not place the cart in direct sunlight, and please read the care instructions/rules with your class immediately
- Students must wash hands before and after handling the animals. Do NOT use hand sanitizer
- Students must only handle the animals under the direct supervision of a teacher, after instruction on the safe handling for both student and animal
- All creatures must remain in the classroom. No creatures should be carried away from their habitat, as it causes stress to the animals and possibly humans too

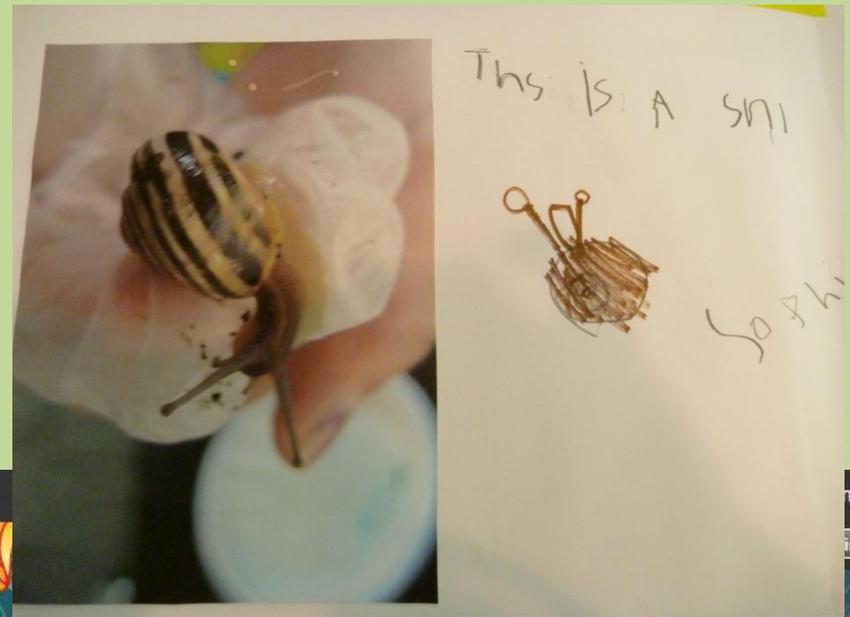
Signing Out and the Return of Carts

- Sign out pages for individual creatures is outside the library office door. Carts will be delivered by students on Monday morning and picked up by students on Friday morning, at 8:45
- You may sign up for one or two weeks at a time, but the creatures will be returned to the library on Friday morning for care and maintenance, and over the weekend
- Please ensure the proper use of tools and materials on the cart
- Please do a quick inventory prior to returning the cart to ensure all books and art materials are on the cart
- Please have your students share their observations, writing, and art through the blog or in the books on the cart
- All students are welcome to comment on the blog, anytime.

General Info

- Please follow all guidelines that come with the creature for feeding and care
- Please stress with your students that they need to treat the animal with respect, and should not handle it without permission
- For now, the snake is too small, so can only be handled by an adult. Students may touch it while being held by an adult.
- There are many ways to integrate this experience. Write from the point of view of the animal. Map it's habitat. Use time lapse photos with the Grover to see what it does at night. Make it a literacy centre. Draw what you see....
- Blog using the animal's username and password
- **ENJOY!!!**

...inter-school inquiry and blogging



K Our Snail Trail My Classes

ALL BLOGS MY BLOG NEW POST

Our Snail Trail

Recent Posts Show 25 posts from Any Time

Title	Date	Author	Comments
Water Snails	Dec. 19	Brisdale PS Ms Creasy	5
Snail's in Trees	Dec. 17	Brisdale PS Ms Creasy	1
Ms V's Visit	Dec. 17	Brisdale PS Ms Creasy	1

Visitor Stats 1477 views

T

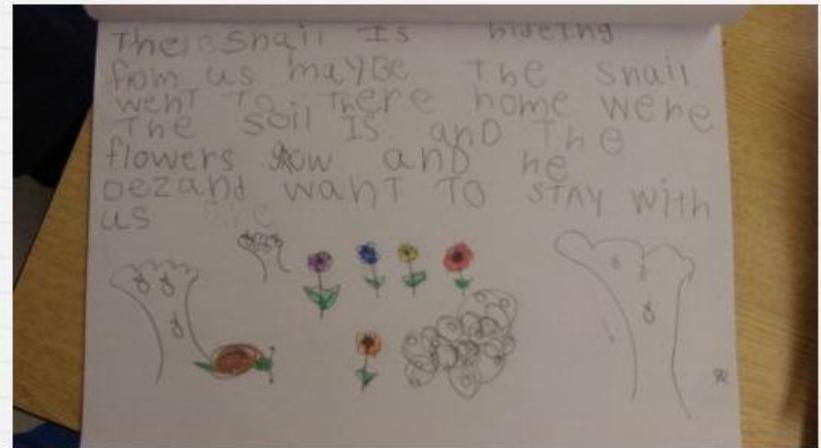
Garden snails and habitats ready to go



Sometime last week we lost a snail! We have no idea where it went. We have looked for it everywhere, but it is gone. We have spent a lot of time talking about where it might have gone and many ideas and stories were shared. We have included some below. If you have time, we would love to hear your ideas on where our snail went too! Ms. Roach and Mrs. Varley's Grade One Class



A dinosaur eat the snail. I think so maybe it didn't.



The snail is hiding from us. Maybe the snail went to their home where the soil is and the flowers grow and he doesn't want to stay with us.

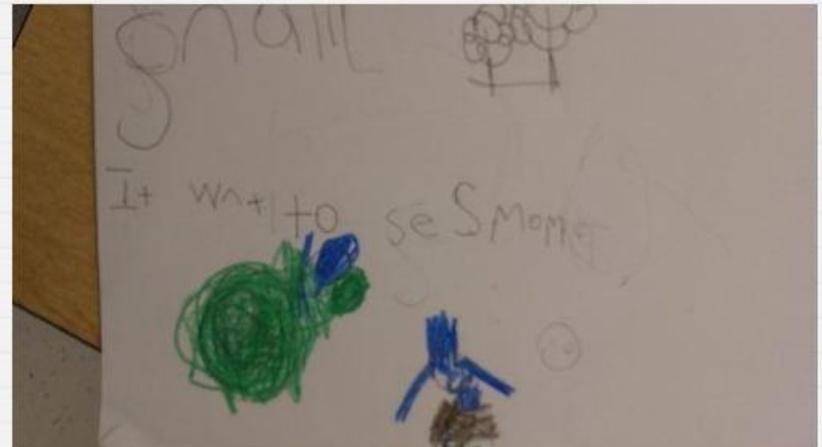


I think the snail went for pizza

Good Morning Ms. Roach's class,

After reading your post the students in my class came up with some ideas about where they think your missing snail may have gone!

Good luck 😊



It went to see his mom.

We have a snail that has been hiding in the soil for a couple days now. [redacted] tells us that this is what they do when they are going to have babies, but we also know that this is what they do when they are getting ready for winter. How did you know that your snail was having babies? Did she have a big tummy? We know that snails have 1 big foot as a tummy, so was she able to move when she was pregnant? Has she already laid her eggs? Are her eggs against the glass where you can see them? How long does it take snail eggs to hatch?

We are very excited for you, and really hope that we get babies too.

Happy snail trails,

[redacted]

Last Friday we read a book called Snail Trail: in search of a modern masterpiece, by Jo Saxton. In this book there was a snail that was looking for a masterpiece that was inspired by his shell. On his way he saw a lot of different pieces of art, but none of them were quite right. Finally he found the piece of art he was looking for. This piece of art was by a man named Henri Matisse. After we read the book we made snail masterpieces of our own. We worked with small cut up pieces of paper just like Matisse.

Happy Snail Trails,



Hi Everyone!

Thanks for all of your wonderful comments, so interesting!

We think that our snails are more active at night. However, when we bring them out in the daytime they seem to be happy!

Here's a funny fact that we learned... when you feed snails tomatoes, their poop turns red! Also, Miss [REDACTED]'s class LOVES the word poop! They all laugh so hard every time Miss [REDACTED] says the word!

I wonder if there is snails in the desert.

K

Thank you!

We hope you are inspired to
bring living things into your
library...

Any questions?

Feel free to contact us 😊

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Nancy.Brockelbank@peelsb.com

Beverly.Vinski@peelsb.com