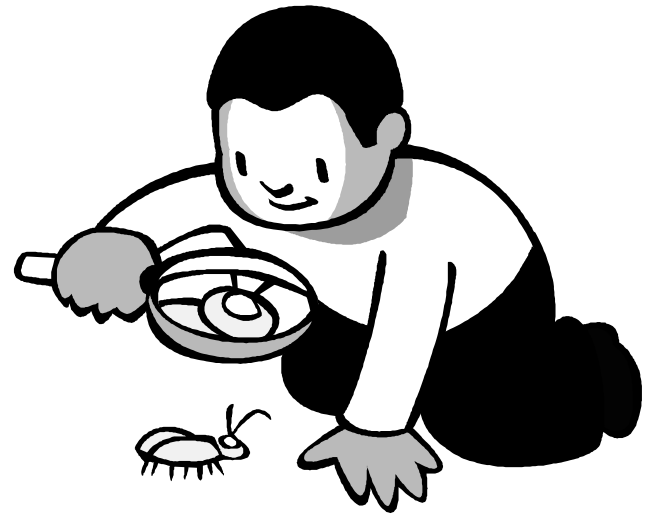


Find out more at your library!



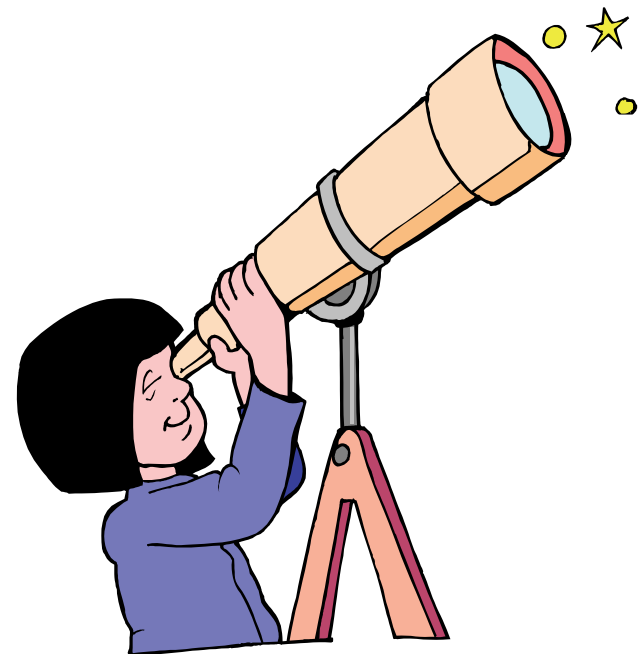
Science Adventures!



***Guidebook
&
Journal***

Congratulations on completing your Science Adventure!

We hope you had fun learning and exploring the world around you with science. But don't stop now! Keep looking and asking questions. You never know what you will find!



SCIENCE

Date:

Concept:

Description of Exploration:

Notes:

A Note For Parents:

Welcome to *Science Adventure!* The goals for *Science Adventure!* are similar to our Reading Program:



To provide a low key, fun, environment for children to retain and build the skills they learned during the school year.

To enjoy self-directed reading, learning and exploring.

To have Fun (of course)!

You are holding the *Science Adventure!* Guidebook. We hope that your child will use this Guidebook to explore science at home and complete their science log. Once completed, your child can return the log to the Library for a special prize.



What is Science Adventure and who can do it?

Science Adventure is a new addition to our summer reading program. We hope to inspire children of all ages to learn more about science and the world.

How do I do Science Adventure?

- 1) Choose an exploration from this guidebook.
- 2) Complete the exploration. A journal is provided for you to record your exploration results and observations.
- 3) Put a sticker on your science log.



What if my child is under 5?

Use the explorations as a framework for play. Playing and exploring are the beginning of science for the young child. We have a list of ideas available for young children at the library.

What if I do more than one exploration in a day?

Good job scientist! But remember, place only one sticker per day in your science log.

Can I do science explorations not listed in this guidebook?

Yes! You can make up your own explorations, use ideas from books, or from this guidebook.

What happens when I finish my log?

Congratulations! You are now a Science Explorer. You may bring your finished log into the library and receive a prize.

Can I keep doing science after I finish?

Yes! Create your own science journal and keep exploring.

Date:

Description of Exploration:

Notes:



Date:

Description of Exploration:

Notes:

What do I do with this Guidebook and Journal?

Here are a few thoughts to help you on your way:

- ◆ Real scientists record the results of their explorations in lab books and journals.
- ◆ We are including blank pages in the back of this guidebook. Feel free to use them to record the results of your own explorations.
- ◆ Every scientist has his or her own way of thinking. Your journal may look like ours or it may look totally different. You may choose to make your own journal at home and decorate it. Use this journal in the way that works best for YOU.
- ◆ Remember, staff at the library can help you with your questions.



What are some ways to *do* science?

There are many ways to do science. We've outlined a few ways to help you on your journey to become a Science Explorer!

OBSERVE:

Take the time to watch something closely and learn from it. Take in all the details and see if you notice something new. If you have a magnifying glass, use it! Ask questions while you're observing.

ASK/GUESS/TEST:

Ask a question, make a best guess answer (hypothesis) and then set up an experiment to test your question. This can be fun!

INVESTIGATE:

This is where you read or listen to information from a book, online source, interview, or any other way you can get the "nitty gritty" on what you're wondering about.

ORGANIZE/CATEGORIZE:

Scientists are always classifying objects into groups according to certain characteristics. Finding similarities and differences between objects helps us use what we know to organize them into groups that make sense to us. There's no right or wrong way to do this.



Date:

Concept:

Description of Exploration:

Notes:

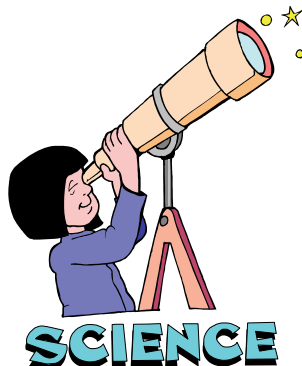


Date:

Concept:

Description of Exploration:

Notes:



The following four pages are examples of what science explorations might look like.

Date: June 21

Description of Exploration:

INVESTIGATE

Learn about sea ice by reading.

Notes:

Five things I learned about sea ice:

- Sea ice is frozen ocean water
- Sea ice is usually covered in snow
- Sea ice helps to moderate the globe's climate by reflecting back the sun's rays
- Sea ice can be a variety of textures and shapes
- Antarctica is land surrounded by oceans, and the Arctic is an ocean surrounded by land.

Books or online sources I looked at:

- I went online to <http://nsidc.org/quickfacts/seaice.html> to learn about sea ice



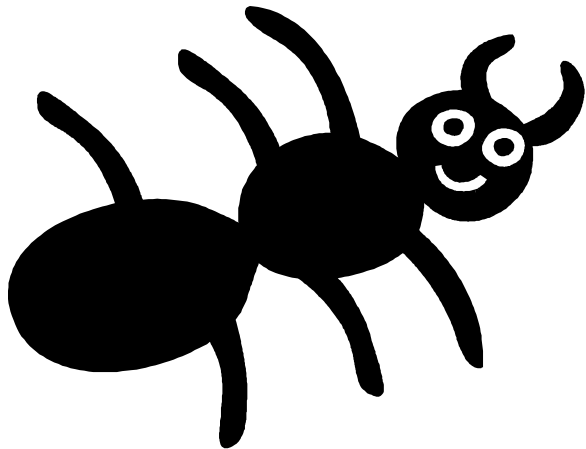
Date: June 22

Description of Exploration: OBSERVE

Observe the bugs on a nature walk. My dad and I took a walk in the field behind my house.

Notes:

- There is an ant hole right behind my house. The ants are tiny and it looks like there are thousands of them!
- The ants are making a trail from their hole to my house. Oh, oh!
- Near the ant hole I can hear grasshoppers or crickets, but I cannot see them. What can I do to try to catch one?
- Underneath a rock I found a potato bug and a worm.
- When I tried to pick up the potato bug, it curled up into a ball. I wonder if he's scared of me?



Date:

Concept: Learn how water travels to the leaves of a plant through OBSERVATION.

Description of Exploration: Put 2 sticks of celery with the leaves into a jar of water. Now add 3 drops of blue food coloring to the water. Leave the jar near a window for 4 hours and watch what happens to the leaves. How might these results explain how the leaves of a plant get their water?

Draw a before and after picture of the celery and its leaves. Explain what's happening if you can.

Before

After

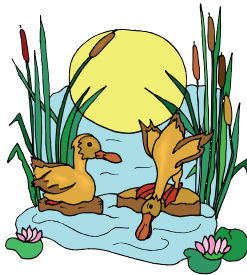


Date:

Concept: Learn about the pond habitat through OBSERVATION.

Description of Exploration: Go to a local pond (there's one in Villebois). Ask yourself, "How are plants, bugs and animals different in the pond than outside of the pond?" Look into the pond and really notice what's inside. What's moving? What's growing in there?

Draw and describe the plants and creatures in a pond below:



Date: June 23

Description of Exploration: ASK/GUESS/TEST

What will float in my bathtub? I picked 5 different things to put in my bathtub. First I guessed what would float and what would sink, and then I tested it.

Notes:

My Guess:

Toy boat: yes

Ice cube: yes

Wash cloth: no

Rock: no

Toilet paper: no

Test Results:

Toy boat: yes

Ice cube: yes

Wash cloth: floated until it got wet, then sank

Rock: no

Toilet paper: floated until it got wet, then sank



Date: June 24

Description of Exploration: ORGANIZE/CATEGORIZE
Sort the fruits in the refrigerator by color.

Notes:

RED:

- Apple
- Strawberry
- Raspberry

GREEN:

- Apple
- Grapes

BLUE:

- Blueberry
- Grapes

YELLOW:

- Banana
- Apple

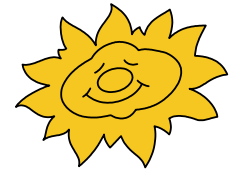


Date:

Concept: Learn about the moon, sun and stars (and possibly more) through OBSERVATION.

Description of Exploration: How does the night sky differ from the day sky? Take a few minutes during the day to notice what's there. Can you see the moon? At night, see if you can stay up to watch the stars come out. What do you notice?

Day sky notes:



Night Sky notes:



Date:



Concept: Learn about insects and their habitat through OBSERVATION.

Description of Exploration: ASK yourself, "What kinds of bugs live in the grass versus under rocks?" Go (with your magnifying glass if you have one) and get close to the ground. Look under rocks. What do you see? What about in the grasses? Look carefully. Journal with words and pictures what you discovered.

Draw and/or describe the kinds of bugs you found in the grasses:



Draw and/or describe the kinds of bugs you found under rocks:



Now it's your turn!



EXPLORE!

RECORD!



HAVE FUN!

SPLASH INTO SCIENCE!



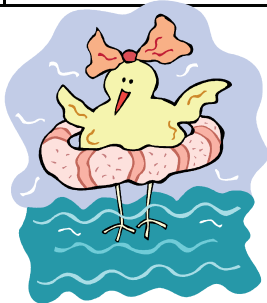
Date:

Concept: Learn about density through ASK/GUESS/TEST

Description of Exploration: ASK yourself," What will sink and what will float?" Find items around the house that can go into water. Put them in one of two piles, "float" or "sink." Test your GUESS by placing each item in the water.

Notes:

Object I am	Guess: Will it sink or float?	Results: Did it sink or float?



Date:

Concept: Learn about the value of sails through OBSERVATION.

Description of Exploration: Try using some everyday objects (straws, milk cartons or jugs, material for a sail, cardboard) to make 2 different sailboats. Float your boats in water to see which one goes the fastest. Why did one go faster than the other? What can you do to change the speed of the boats?

Sailboat #1: (Describe the boat and how it did))

Sailboat #2:

Can you change something on the boats to change their speeds?

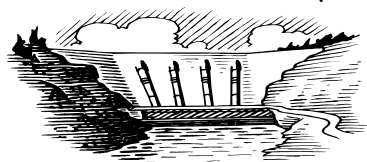


Date:

Concept: Learn about dams through ASK/GUESS/TEST.

Description of Exploration: Go to a sandy area which has water that flows into it. ASK yourself, "What would be the best way to build a dam out of sand so that the water doesn't break through it as easily?" Build a few different types of dams and test them by having the water flow into them. Which one holds up the best?

Notes:



Describe each dam below: (ex. Tall and skinny, or wide and short)	Guess: Order how you think your dams will work: 1 being best	Results: Put the dams in the order that they actually held: 1 being best

Date:

Concept: Learn about physical properties (solid vs. liquid) using OBSERVATION.

Description of Exploration: Mix one teaspoon at a time of corn starch with 1/2 cup of water. How does the substance change? Keep adding corn starch and keep watching to see how it changes. Once the substance becomes thickened, play with it!

Notes:

Describe what you noticed.

What does it feel like as you move it?

What does it feel like when you hold it without moving?

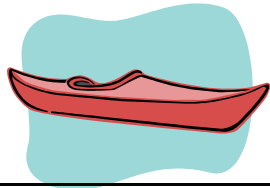
Why do you think it's doing this?



Date:

Concept: Learn about buoyancy through ASK/GUESS/TEST.

Description of Exploration: Build boats out of different materials (foil, egg carton, paper, clay, margarine tub.) Float each boat in water, then add weights (marbles; pennies; paper clips). ASK yourself, "Which boat will hold the most weight?" What did you discover?



Notes:

Describe the boat below:	GUESS: How many weights will it hold?	Results: How many weights did it actually hold?

Date:

Concept: Learn about classifying plants through ORGANIZE/CATEGORIZE.



Description of Exploration: Take a nature walk and collect leaves from a variety of plants (check with an adult). Once you have a nice collection, sort these leaves by color, size, and shape. Draw some of your groupings and leaves in your journal.

Notes:

Group 1 leaves	Group 2 leaves
Group 3 leaves	Group 4 leaves
Group 5 leaves	Group 6 leaves

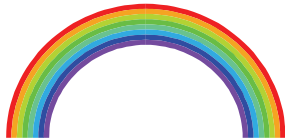
Date:

Concept: Learn about rainbows and light refraction through INVESTIGATION.

Description of Exploration: Maybe you've seen a rainbow, and now you want to know more about how they happen. Look up rainbows at the library or online and read about them. After you INVESTIGATE, write the answers to your wonderings in your journal.

Things I learned:

Fact 1:



Fact 2:

Fact 3:

Fact 4:

Books or Online resources I used:

Date:

Concept: Learn about classification through ORGANIZE/CATEGORIZE.

Description of Exploration: ORGANIZE/CATEGORIZE the objects in your bathroom drawers by size, color, use, or some other characteristic.



Notes:

This is how I organized the objects:

Category #1 _____

Objects that fit in that category:

Category #2 _____

Objects that fit in that category

Category #3 _____

Objects that fit in that category

Category #4 _____

Objects that fit in that category

Date:

Concept: Learn about simple machines and siphons through OBSERVATION.

Description of Exploration: Have you ever wondered how a toilet works? Find out! Take the lid off the back of the toilet (ask for help) and then flush the toilet. Watch what happens. You may need to do this a few times. Draw pictures and use words in your journal to explain what's happening.

Notes:

Draw a diagram of what's happening and include labels. Use words if you need to.



Date:

Concept: Learn about light refraction through OBSERVATION.

Description of Exploration: Turn on your sprinkler in a sunny spot. Ask, "Can I see a rainbow?" Look for the rainbow from different locations and angles in the yard. Where is the best place to see the rainbow? Journal and draw your OBSERVATIONS.

Notes:

Draw how you were finally able to see a rainbow.



What do you think caused the rainbow?



Date:

Concept: Learn about how air changes the density of an object through OBSERVATION.

Description of Exploration: Fill a wide glass or jar with clear carbonated soda (e.g. Sprite or 7up). Drop in 8 raisins and watch what happens. What is making the raisins go up and down?

Notes:

Draw a picture of what's happening:

What makes the raisins go up?

What makes them go back down?



Date:

Concept: Learn about chemical reactions through ASK/GUESS/TEST.

Description of Exploration: ASK yourself, "What would happen if I mixed vinegar with different white powders?" Put about a tablespoon of each of the following in different bowls: Salt, Sugar, Baking Soda, Baking Powder, and Corn Starch and then add about 2 tablespoons of vinegar to each bowl. One at a time watch and listen to what's happening. Journal your OBSERVATIONS.

Notes:

Powders	Guess: How do I think it will react with vinegar?	Results: What actually happened?
Salt		
Sugar		
Baking Soda		
Baking Powder		
Corn Starch		

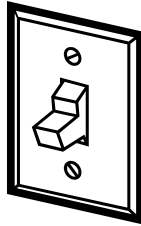
Date:

Concept: Learn about electricity through INVESTIGATE.

Description of Exploration: Do you wonder about the electricity that makes things in your house run? It's time to INVESTIGATE! Check out a book or look online at information about electricity. Write some facts or draw some pictures in your journal.

Things I learned:

Fact 1:

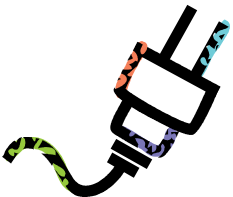


Fact 2:

Fact 3:

Fact 4:

Books or Online resources I used:



Date:

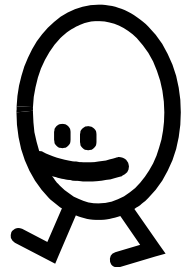
Concept: Learn about decalcification, and an egg's membrane through OBSERVATION.

Description of Exploration: Put a raw uncracked egg in a jar that is filled with vinegar so that it is completely covered. Put a lid on the jar. What will happen to the egg? Watch the egg every day for 1-2 weeks. Journal your observations.

Notes:

Draw what your egg looks like after 1-2 weeks of sitting in vinegar:

What do you think happened? What is keeping the egg together?



Date:

Concept: Learn about classification through ORGANIZE/CATEGORIZE.

Description of Exploration: ORGANIZE/CATEGORIZE the cans and/or boxes of food in your pantry by size, type of food (fruit, vegetable, meat, etc.), shape of container, date, or other characteristic.

Notes:

This is how I organized the objects:

Category #1 _____ (ex. Fruit)

Objects that fit in that category:

Category #2 _____ (ex. Veggie)

Objects that fit in that category

Category #3 _____ (ex. Meat)

Objects that fit in that category

Category #4 _____ (ex. Legume)

Objects that fit in that category

Date:

Concept: Learn about cohesion (water's skin) through ASK/GUESS/TEST.

Description of Exploration: ASK yourself "How many pennies can I fit into a glass of water filled to the very top of the rim?" Make a GUESS and then TEST it by carefully dropping in pennies one at a time. Watch what's happening. How do they all fit in there? What does the top of the water look like?

How many pennies do I think will fit in the full glass of water?	Results: How many pennies actually fit in the glass?

Notes:

Observe the top of the glass as you are putting in the pennies. What is happening?

What is keeping the water from overflowing?

