Nature Buddies

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Table of Contents

Course Outline and Overview

Nature Buddies is a program that resulted from the desire I had to see my students become more interested in Science. Students love Science if given the opportunity to truly implement it the way that it should be, by guiding them to explore the world around them and seek answers to the questions they come up with about their world. The added bonus is that they get to do this with younger students in a cooperative manner. Nature Buddies gives them a chance to go outside on our school grounds, sit with their "buddy" and write, discuss, and illustrate what they observe.

Throughout the years, I have found that due to my student's economic situations, in addition to other factors such as dealing with family problems (in some cases homelessness), my students needed an outlet that would encourage their love for their own neighborhood, and school community. Since I started "Nature Buddies" I have found that they have become so appreciative of living things; they look at plants, trees, bugs, butterflies and other parts of nature with a caring attitude.

Nature Buddies also provides students with the opportunity to build on their character. Students serve as "mini-teachers" helping to guide the younger students in the "nature of inquiry." They become more responsible, and in many cases, mature in working together.

As an adapter of this program, you will find that it is very flexible to where your student's are academically, and emotionally. They will grow, as a result, of taking ownership of their learning, and becoming responsible for the Science learning of their buddy.

You will also observe that the program actually encourages them to do better, because it is a tool that can be used as part of classroom management. Students are aware that because they serve as role models, their behavior and attitude plays an integral part of whether they get to do "nature buddies" when it's scheduled.

Nature Buddies will serve as a reminder when they leave you as a time that they were able to "teach" their younger peers about the importance of nature and it's role in Science learning. They will no longer see where they live as plain apartment buildings, or an unstable environment. It will provide them with an outlet that encourages them to become more responsible regarding their community, loving where they live, and recognizing that Nature is all around us if we just take the time to sit back and observe!

Introduction

Nature sets the stage for children to learn all about Scientific Inquiry. It provides them with a "visual" outlook on living things, and peaks their curiosity. This enables them to ask questions, and seek answers, which is the primary goal of Science. Nature Buddies is a program that I started approximately 9 years ago while working on my Masters' Degree. The purpose of Nature Buddies is to encourage students of all ages to become more active in their Science learning, and share it with their young counterparts. It links older students (fifth grade) with younger students (primarily Pre-K and Kindergarten) and offers them an opportunity to go out on our school grounds and observe "nature" and as good Scientists, record and share their observations in their journals with their buddy. I believe this has contributed to my student's love for Science, exemplified by those students that, as they get older and move on in grades, will continue to see me in the hallway and ask me "can we still do Nature Buddies".

Goals and Objectives

Next Generation Sunshine State Standards (Common Core Standards in Science are presently linked to Reading and Language Arts)

SC.H.1.2.2 - knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate their results.
SC.H.1.2.1 - uses the scientific processes and habits of mind to solve problems.
SC.H.2.2.1 - understands that most natural events occur in comprehensible, consistent patterns
SC.H.1.2.3 – knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions.
SC.H.1.2.4 – knows that to compare and contrast observations and results is an essential skill in science.
SC.H.3.2.1 – understands that people, alone, or in groups, invent new tools to solve problems and do work that affect aspects of life outside of science.
SC.H.3.2.2 – knows that data are collected and interpreted in order to explain an event or concept.
SC.H.3.2.4 – knows that through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas.

Strand F: Processes of Life
Strand G: How Living Things Interact with their Environment
Standard 1 – The student describes patterns of structure and function in living things
SC.F.1.2.4- knows that similar cells form different kinds of structures
SC.G.1.2.1 – knows the way plants, animals, and protists interact.
SC.G.1.2.3 – knows that green plants use carbon dioxide, water, and sunlight energy to turn minerals, and nutrients into food for growth, maintenance, and reproduction.
SC.G.2.2.3 – knows that changes in the habitat of an organism may be beneficial or harmful.
SC.G.1.2.4 – knows that some organisms decompose dead plants and animals into simple minerals and nutrients for use by living things and thereby recycle matter.
SC.G.1.2.5 – knows that animals eat plants or other animals to acquire energy they need for survival
SC.G.1.2.6 – knows that organisms are growing, dying, and decaying and that new organisms are being produced from the materials of dead organisms.

Strand B: Energy

Standard 1 – The student recognizes that energy may be changed in form with varying efficiency.

SC.B.1.2.1 – knows how to trace the flow of energy in a system

SC.B.1.2.2 – recognizes the various forms of energy system

SC.B.2.2.1 – knows that some source of energy is needed for organisms to stay alive and grow.

Strand A: Matter

Standard 1 – understands that all matter has observable, measurable properties.

SC.A.1.2.2 – knows that common material (e.g., water) can be changed from one state to another by heating and cooling.

SC.A.1.2.4 – knows that different materials are made by physically combining substances, and that different objects can be made by combining different materials.

SC.A.1.2.5 – knows that materials made by chemically combining two or more substances may have properties that differ from the original materials.

SC.5.N.1.In.a – ask a question about the natural world, use selected reference materials to find information, work with others to carry out a simple experiment, and share results.

The Practice of Science –

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

SC.5.N.Pa.b – Recognize that people use observation and actions to get answers to questions about the natural world.

SC.5.N.Pa.a – Explore, observe, and select an object or picture to respond to a question about the natural world.

Resources

Books

Science Adventures (Nature Activities for Young Children) by Elizabeth A. Sherwood, Robert A. Williams, and Robert E. Rockwell

The Everything Kids Nature Book by Kathiann M. Kowalski

Learning from Nature (Cross-Curricular Activities to Foster Creative and Critical Thinking) by Robert Myers
****This book covers all content areas such as, Science, Language Arts, Math, Social Studies, & Creative Arts**

Fun with Nature (a Take-Along Guide) NorthWord Press (I would probably say this has to be my favorite and it can be purchased at Target!)

Big Book of Science (Elementary K-6) by Dinah Zike's (Awesome Foldables!!!)

**America's Seashores (Guide to Plants and Animals) by Marianne D.
Wallace**

Book of Family Nature Activities (50 simple projects and activities in the Natural World) by Page Chichester

Internet Websites

www.donorschoose.org
www.sciencebuddies.org
www.natureexplorers.com
www.naturerocks.com
www.outdoor-nature-children.com

Museums/Organizations

Miami Museum of Science
Zoo Miami
Everglades National Park
Biscayne Nature Center
Fairchild Tropical Garden
Dade County Science Teacher Association
(Presently the Elementary Liason Board member)
SECME

Speakers

Professor Whys (FPL)
Park Rangers
Wildlife Officers
Division of Forestry
Anti-venom Unit

Material/Budget List

Pencils
Crayons
Colored pencils

Composition Book
Yellow Manila Envelope
Camera (optional)
Microscope
Computer
Magnifying lense(s)
Paper
Rulers, metersticks
Construction Paper
Books on Nature
Rocks
Feathers, googly eyes (optional)
Chalk
Flashlights (optional)
Towel
Blanket (optional)

Depending on what you purchase, the supplies you will need can range from a few dollars to $400, if for example, you wanted to purchase a camera to catch your student's moments of "wonder and discovery." The other costly items would include the microscope/s or flashlights. Most of the materials can be purchased at local stores such as Target, K-mart, or Wal-mart. Craft materials can be purchased at the Dollar Tree, or Michael's.

Vocabulary List

Nature
Inquiry
Observation (all senses except taste!)
Illustrate (draw)
Microscope
Discuss
Characteristics
Plants
Meterstick/Yardstick
Leaves
Flowers
Seed/s
Rocks
Energy
Transfer/Transformation
Organisms (living and non-living)
Matter
Ruler
Solid, Liquids, Gas
Symmetry
Patterns
Sun
Environment
Discover
Color, shape, length
Weight
Study
Adaptations
Similar/difference
Identify
Classify
Habitat

Record
Describe
Collaborate

Measuring
Measurement
"hand-span"
Responsibility
Chemical Change
Physical Change

Lessons

As the initial teacher, it will be your responsibility to find a teacher from a primary grade that will be willing to participate in Nature Buddies. Once you have established the class your students will be linked with, set a date for them to meet each other. Prior to meeting, however, make sure that you go over the "Rules" (see page 11) with your students. Discuss with your teacher partner which student's have specific needs or language barriers so that you can make sure those student's are accommodated. In addition, reflect on who would make "great buddies", and be conscious of not always linking boys with boys and girls with girls, though most buddies should be linked in this way. If by chance, you have a boy and a girl left, you can always connect them with a pair of students that will establish a balance.

Though I have put the following plans daily, they should be done either weekly, if possible, or bi-weekly depending on your schedule and your teacher-partner's schedule.

First Step – Let's Meet Our Buddies

Students will initially meet with their buddy. Their first lesson will be getting to know their buddy and getting specific information, such as their name, their age, their teacher's name, favorite subject, and what are their hobbies. Other information will be obtained (such as siblings, friends…) as the older student gets to know their buddy. All of the information will be recorded in their Science Journal.

Let's Talk

Next Step – About Nature

- Nature Buddies will go outside on school grounds, and guided by the older students, discuss what they observe. This may include not only what they see, but also what they hear, smell and touch. The younger students can illustrate their observations in the Science journal. Intermediate students become "mini-teachers" showing primary students the first objective of Science which is Inquiry.

- **Nature Buddies will then write about what they observe! As stated above, the younger students can illustrate their observations in the Nature Buddy Journal.**

Lessons Cont'd.

Activities:
"Looking through a microscope"
Nature Buddies will meet in the classroom and teacher will provide different slides containing a variety of plant, animal and insect cells. This is a great activity for the younger students to explore using a microscope for the first time. If there is a shortage of microscopes in your school, there are several resources you can try to obtain one or a few from. This would include any "old" Foss kits that might be in your school, or you can write a grant through donorschoose.org for these types of supplies for your

classroom (see Resource page). You can also improvise by using hand lenses, though students will only be able to explore, write, and illustrate surface textures. A word of caution, make sure that the intermediate students already have experience working with microscopes.

"Reading about Nature"
This activity can be implemented by encouraging the intermediate students (especially those that are reluctant readers) to check-out books on nature that they can read to their buddy. There are several ways you can do this, such as "reading picnic blanket" outside on school grounds, in the media center, or my favorite "reading under the stars". During this time, my students have created a "campground" in my classroom and have invited their buddies to share the fun of reading "under the stars". We shut off the lights, and "glow in the dark stars" illuminate the classroom. They then use their flashlights (see materials list) to read from the pages to their buddy. You can do a lot with this activity with writing also. Loads of fun!!!

"Pet Rocks"

In this activity students will gather rocks or teacher can supply them (I found some great rocks at Olive Garden or Red Lobster, of course I asked the manager, but if you take enough for your class, they won't mind). The rocks should have a smooth surface. The older students can discuss with their nature buddies the surface, texture, luminosity, shape, color and help them describe what they observe. Following this, the nature buddies then create their own "pet rock". The great thing about this activity is that students can use their creativity. I've had everything from "rock and roll" rocks, "fish" to "birds"(This is where the feathers and googly eyes come in!)

"Leaf Book/Mobile"

In this activity students will collect leaves of different shapes, and colors and create a leaf book or a leaf mobile. They can "press" the leaves to create their book. They can also use small twigs and/or branches to create a leaf mobile. The students can use descriptive words, encouraging the use of the vocabulary and writing skills.

As nature buddies get to know each other throughout the year, lessons can be expanded to include Lab experiments and other science activities that expand on their learning. The important concept of Nature Buddies is that students will be working together, not only to learn about Science, but build on other aspects such as character building and responsibility.

Holiday/Seasonal Activities for Nature Buddies

-Creating a Reindeer (Winter) – use pipe cleaners, googly eyes & candy canes
-Harvest Pictures (Fall) (see pictures)
- Hat with Shapes (Extension for Math or Black History Month)
- Leaf Rubbings Booklet (Fall)
- Halloween Costumes (Fall) (see pictures)
- Making Butterflies (Spring) (Nature Buddies explore symmetry)
- Snowman (Winter) (Physical change) (illustration with chalk on black light blue construction paper show change in states of matter)

Extension Activity using Lego's

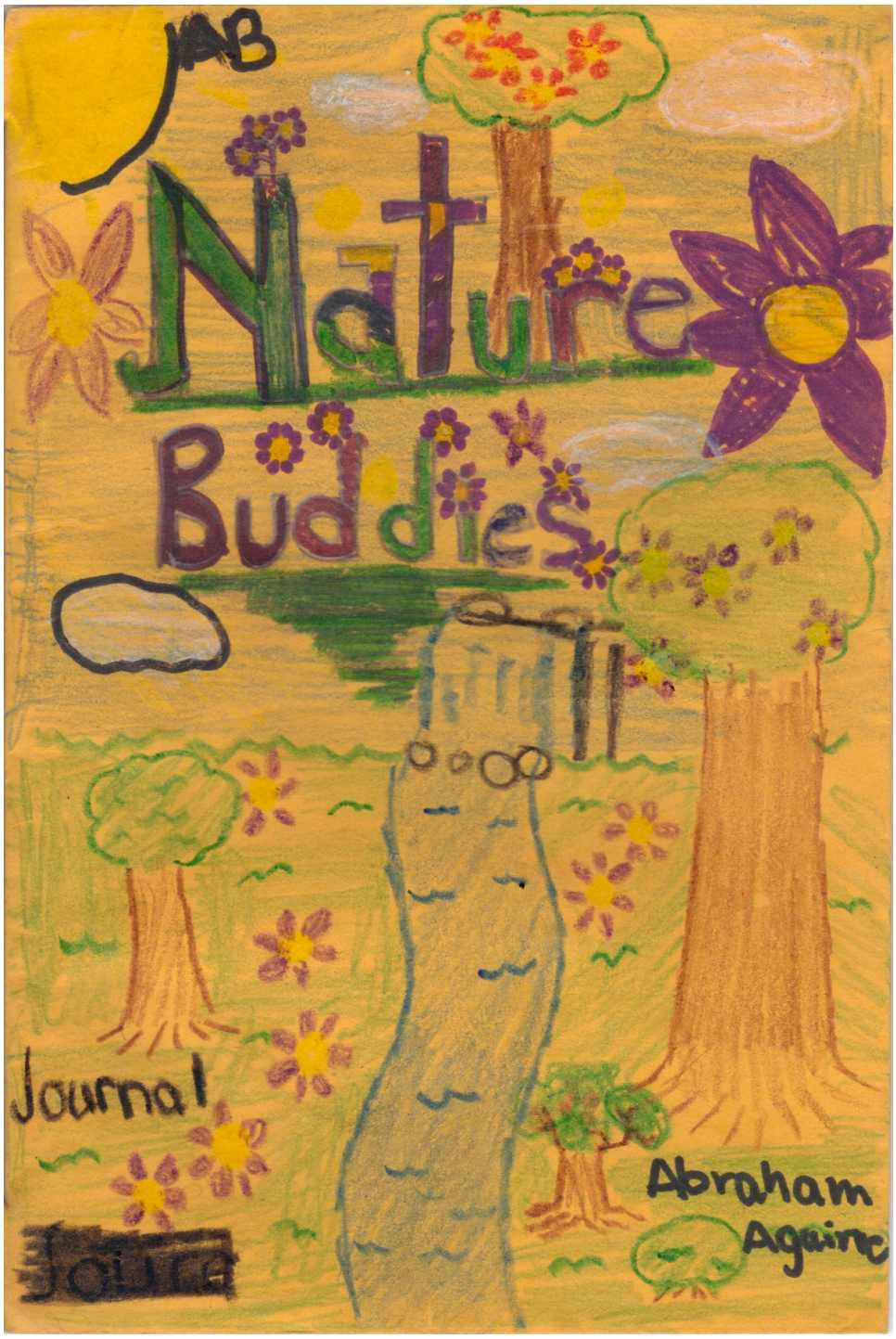
Though students are not really exploring Nature during this activity, they are still learning about the Inquiry process by designing, and creating simple machines using legos.

16

Rules

- **Always behave appropriately with your buddy (no foul language or comments)**
- **Do not pick up, carry or chase your buddy – simply ask them to stop and listen to your voice**
- **Be respectful of all living things – do not pick plants, leaves, flowers unless they are already on the ground – those you can collect!**
- **Think of yourselves not only as "mini-teachers", but also collaborators – you may end up learning something from your buddy!**
- **Ask your teacher if you aren't sure about what to do if your buddy needs help with something**
- **Remember you are the Role Model for your buddy**
- **Have Fun observing nature and discussing the wonders that you will discover!!!**

Student Work Sample


AB
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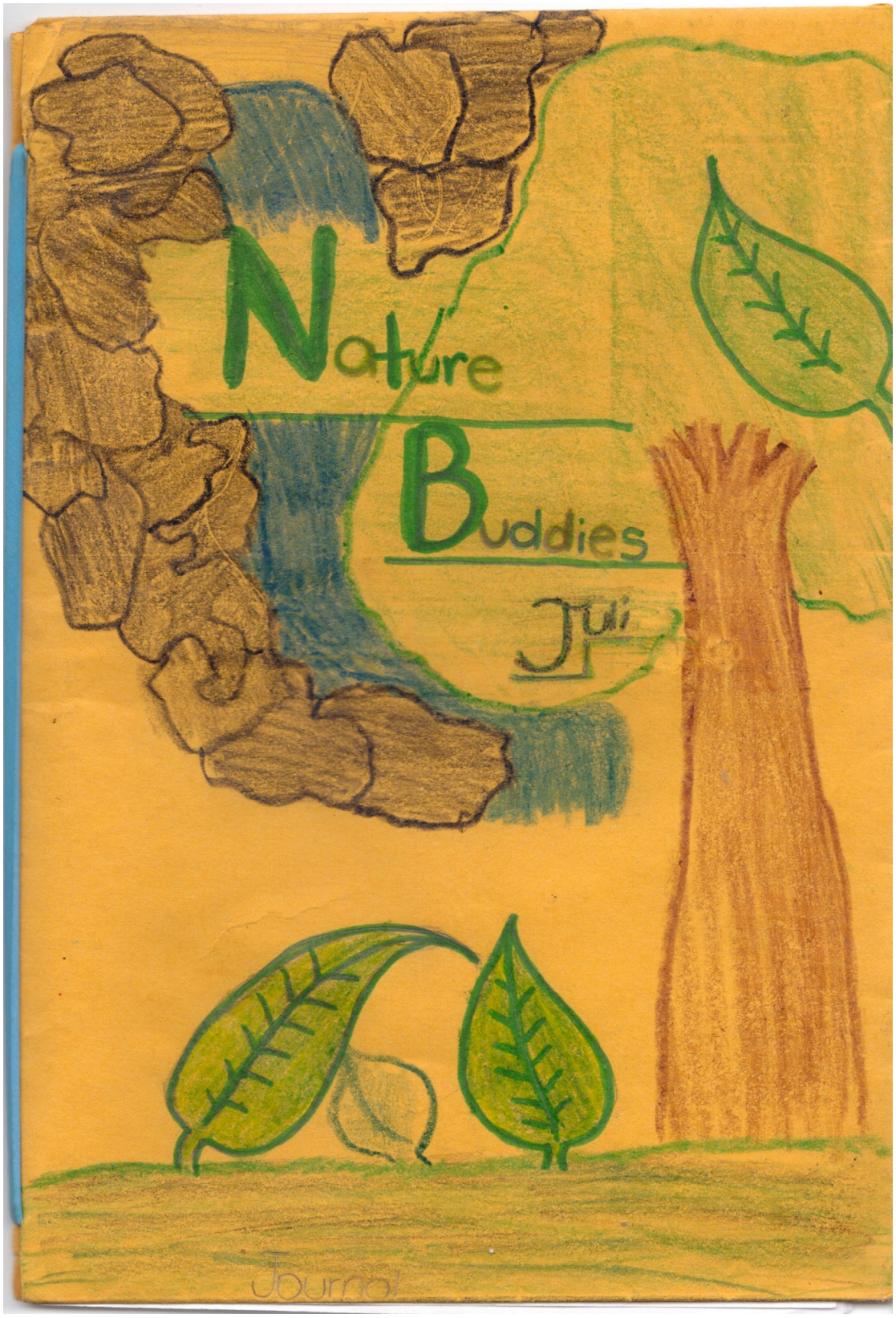

Nature
Buddies
Juli
Journal

4/7/10

Investigate: Does the direction seed planted affect the direction the roots grow

Materials

1 paper towels

cup

4 pinto beans

D1 My Buddy and I were find out if the 4 pinto bean seed can grow roots

4/13/10

D1 My buddy and I were plant pinto beans.

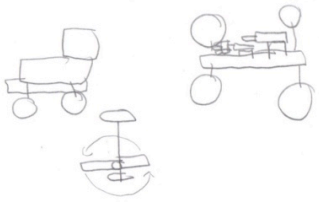
D2 Plant 1, 2, 3 and 4 were grown in different dictions.

Position of Bean	
1	
2	
3	
4	

1) 2) 3) 4)

5/5/10

My Buddy, Jeffrey and I had built with our Lego a cars and a fan. My car have a laser and 3 Rocket. Jeffrey's car is almost like a tank and Jamor built a fan that spin



May 5, 10

My nature Buddie is folowying with...

* dinosaurs
* beetles
* turtles... and more

She is tickleish

She gave us nicknames...

Kiana = Strawberry
Aliyah = Salad
Kenneth = Blakie

It was halarious!!!

Wenesday April 17, 20

Investigate: Does the direction seeds are planted affect the direction the roots grow?

Position of Bean	Direction of root grow
1	
2	
3	
4	

Day1-I had planted with my buddy.

Day2-My plant had a bug but their were no roots.

Day3-Their were no roots

SCIENCE JOURNAL:

NAME:_____