Ashaway School Science Journal

March of 2010
Trimester 2

The Ashaway School Science Journal highlights the observation and investigative work of our school's young scientists.

Ashaway School Teachers

Kindergarten

Kerri Smith
Tricia Koukas

Grade 1

Christine Austin
Patience Breault

Grade 1and 2 Split

Annie Campbell

Grade 2

Kim Allen
Gina Lee

Grade 3

Patricia Pearce
Kelly Vocatura

Grade 4

Clare Ornburn
Julie Young

Published by Principal Steven Morrone
Edited by Lori Bouchard

TABLE OF CONTENTS

Kindergarten

Kindergarten students at Ashaway School are starting to build their foundation for science writing. They are making predictions and observations about stories they are reading, weather, and activities they participate in.

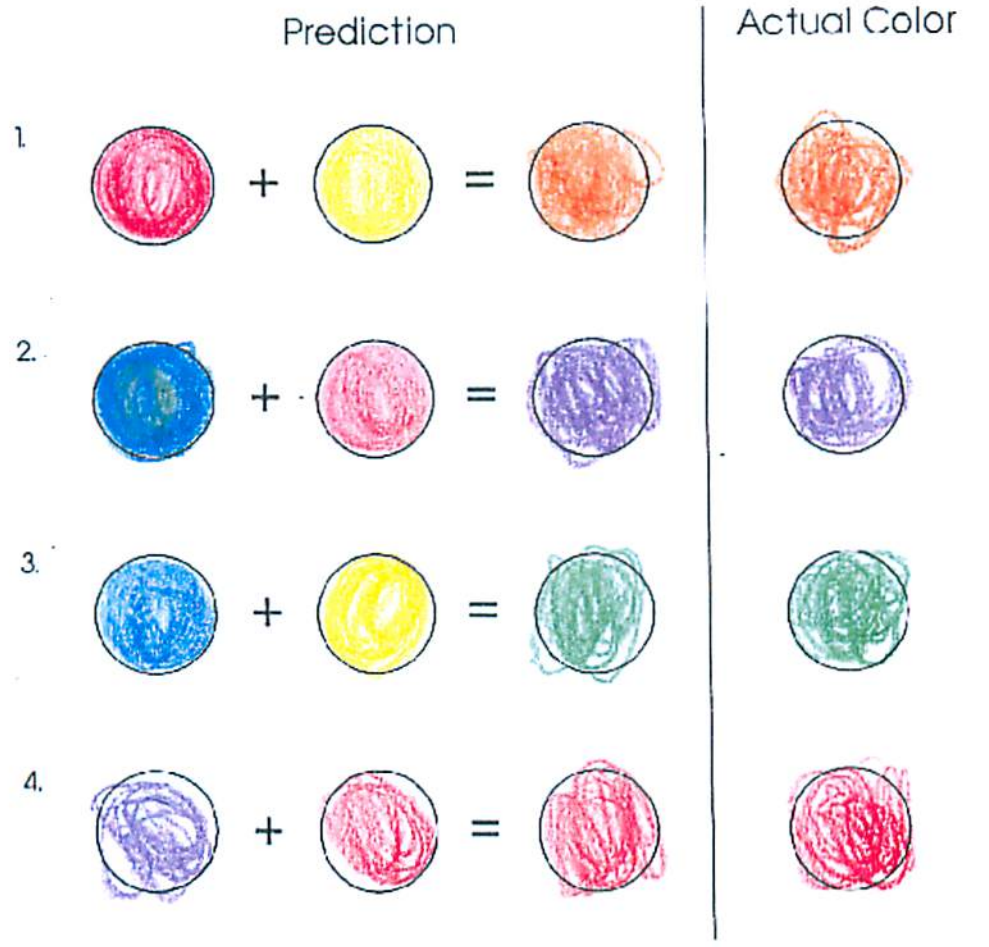
The following pieces of kindergarten student work display the use of observational statements and prediction statements about stories they read and a colors experiment. They use "I notice," "I observe," and "I predict" sentence frames to begin their statements.

Mrs. Koukas
Mrs. Smith

Name [illegible] Date _____

Rainbow Bags

Predict what new colors you will make when you mix two different colors together. Color the circles to match your predictions. Try all possible combinations. After mixing the dough, record the actual colors you made.



Students in kindergarten made predictions about what color would be made from mixing two colors together. After they made their predictions, they performed the experiment to see if they were correct.

Katelyn P.

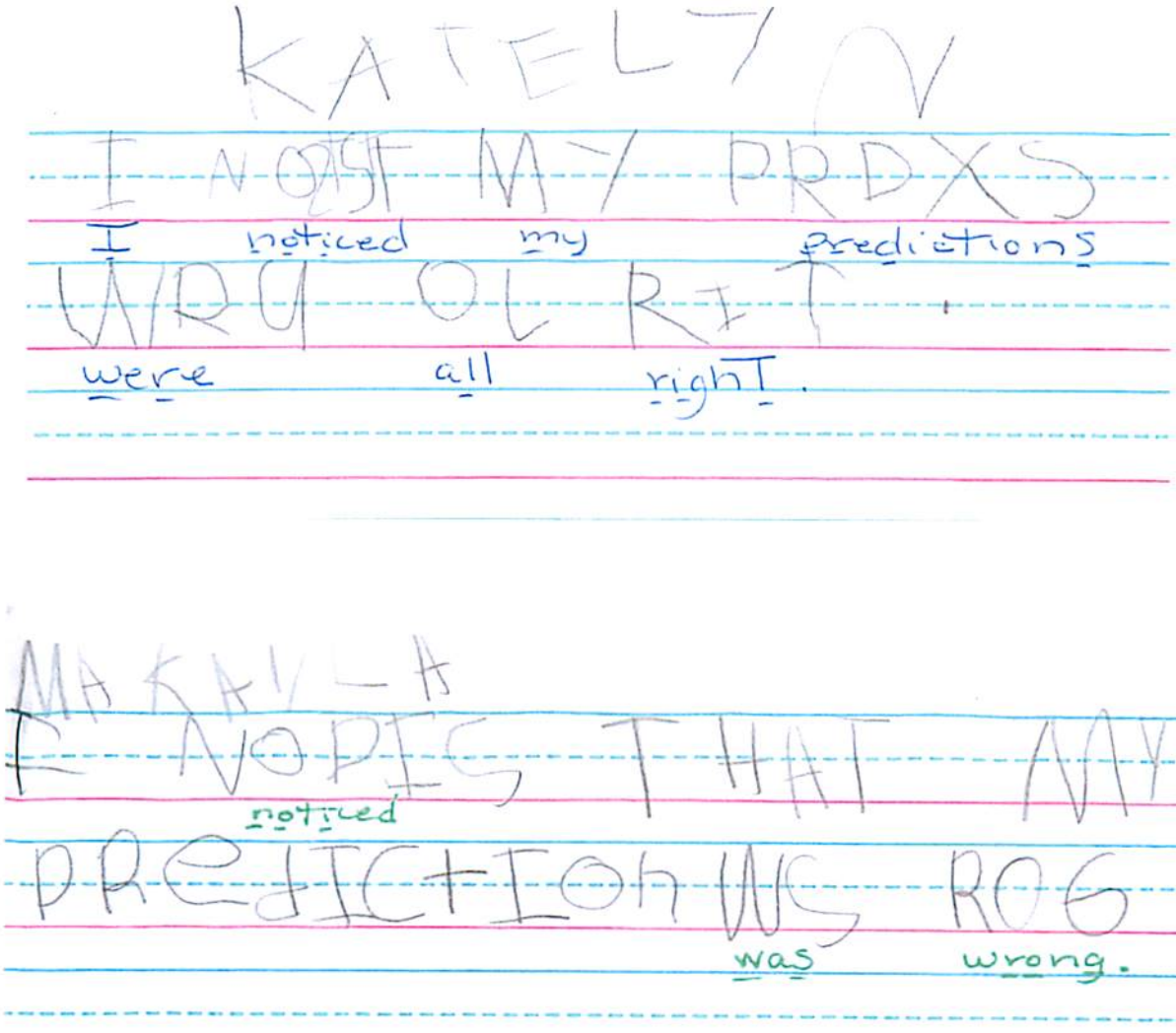
Name _____ Date _____

Rainbow Bags

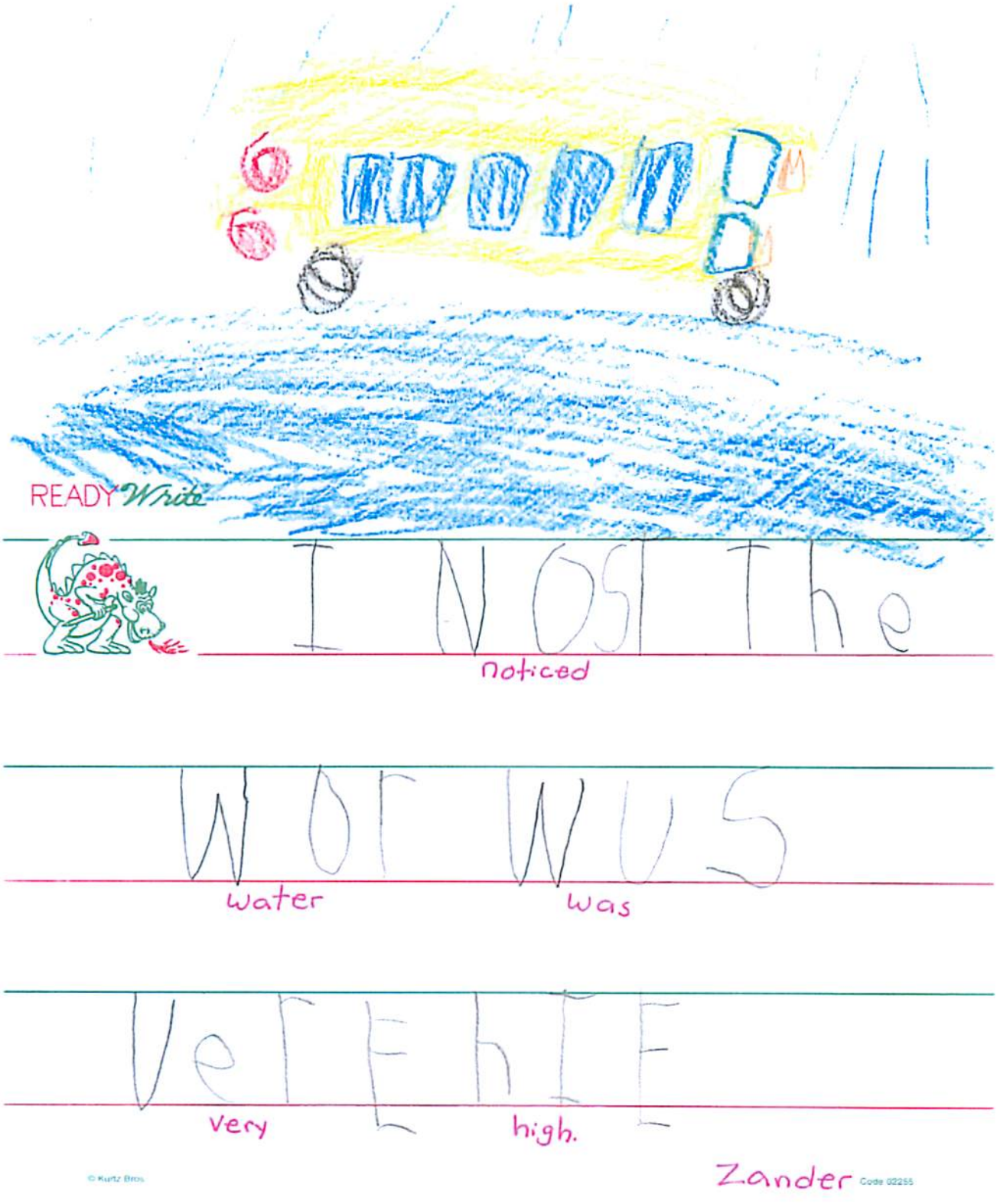
Predict what new colors you will make when you mix two different colors together. Color the circles to match your predictions. Try all possible combinations. After mixing the dough, record the actual colors you made.

	Prediction	Actual Color
1.		
2.		
3.		
4.		

Makayla B.
Kindergarten

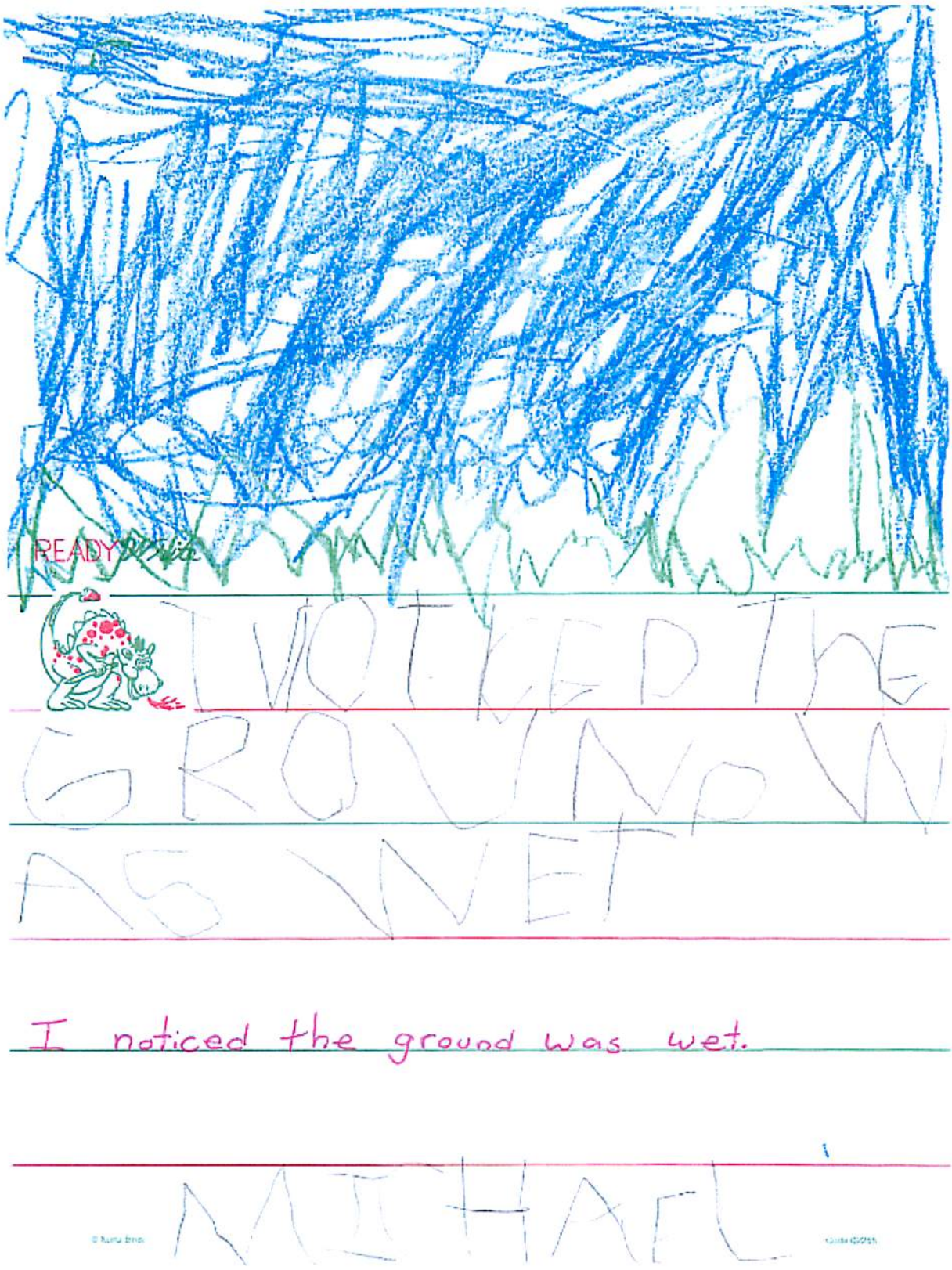


Katelyn and Makayla both stated whether their predictions were true or false. After kindergartners begin making predictions and accurate observations, they can go to the next step. The next step would be including a "because" statement.



Zander started his sentence with "I notice" after observing what he saw on his bus ride to school.

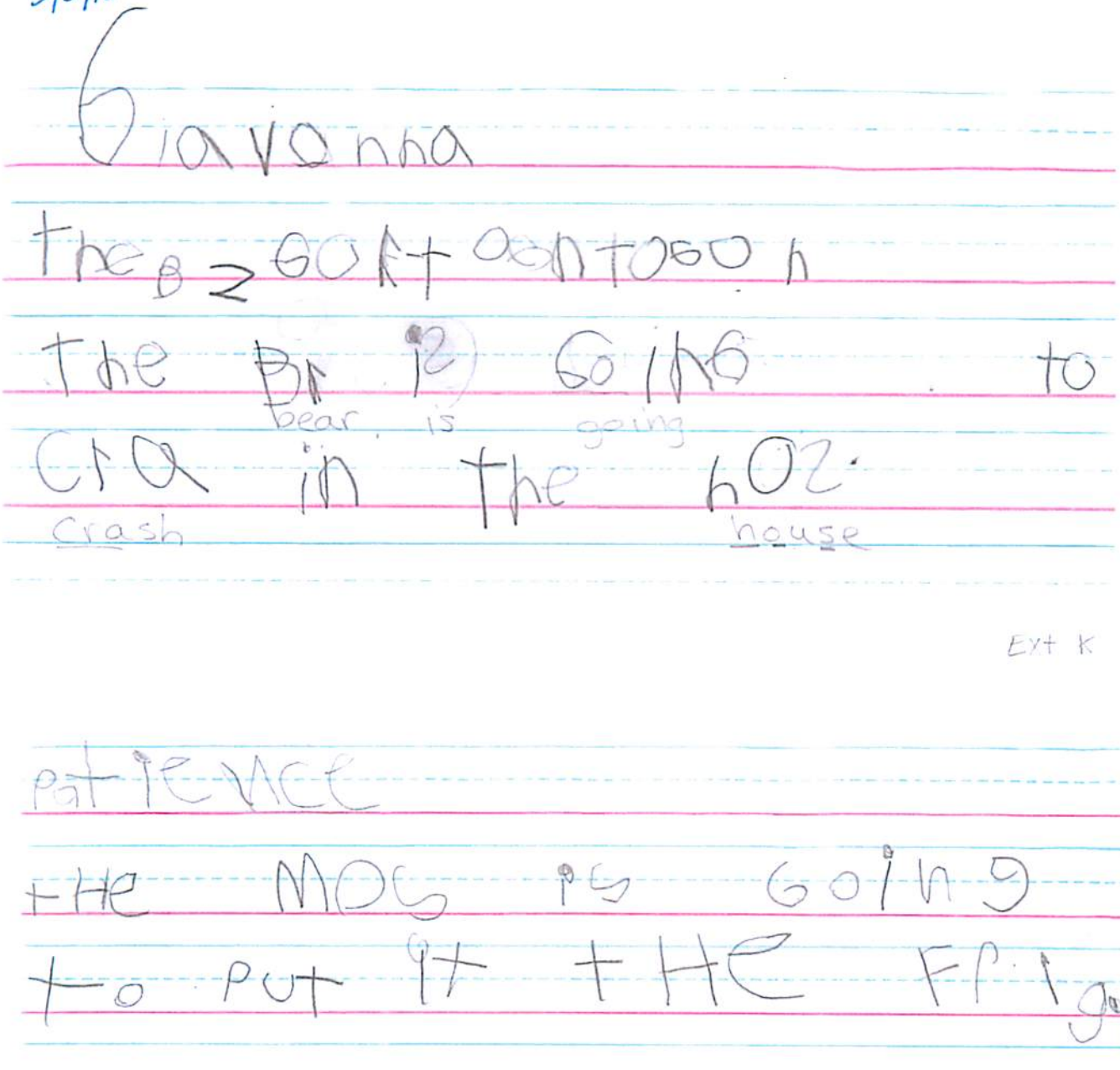
Zander P.
Kindergarten



Michael wrote an observation statement using the "I notice" starter.

Michael L.
Kindergarten

3/8/10



During Kindergarten reading instruction, students made observations about what they saw and read about in a story. This is to reinforce the observation process of science.

Patience H.
Giavonna M.
Kindergarten

First Grade

Plants

Students care for plants and learn what they need to grow and develop. They observed the structures of flowering plants and described changes that occur ed as plants grew.

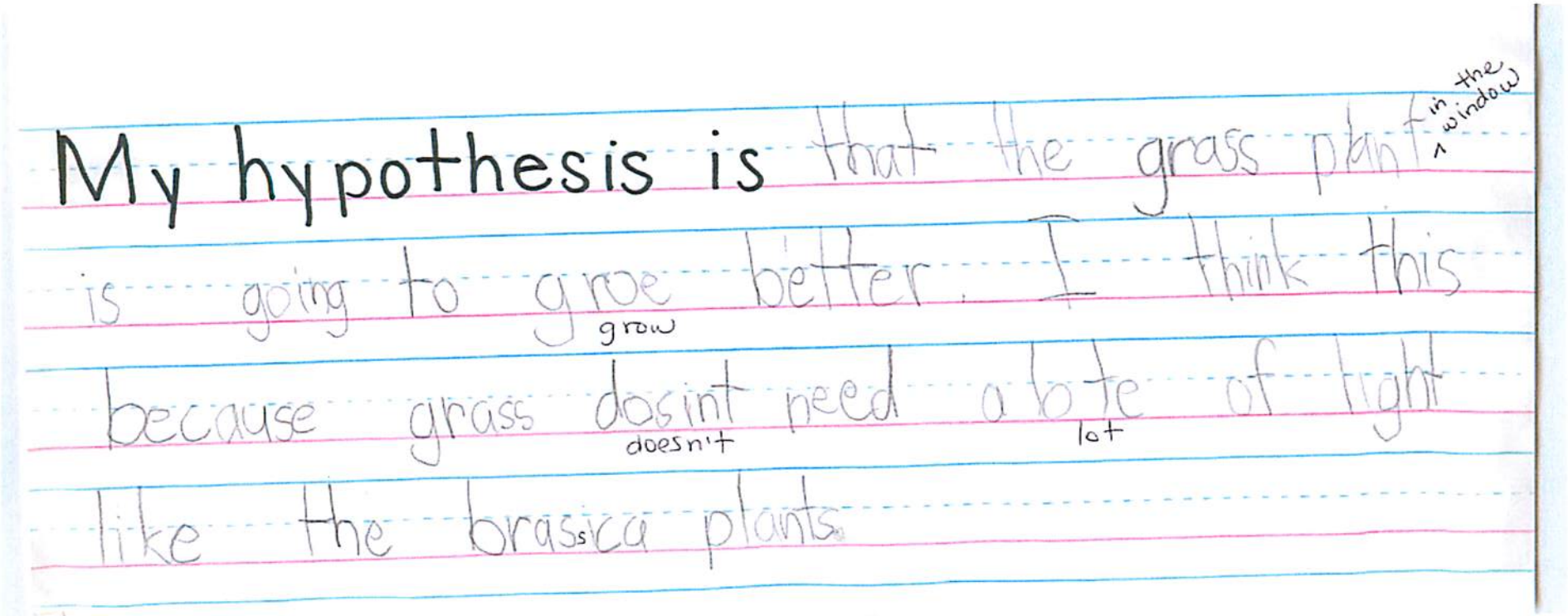
Students are expected to:

- Provide for the needs of growing plants
- Observe and describe the changes that occur as plants grow and develop
- Become familiar with the structures and functions of flowering plants (roots, stems, leaf, bud, flower, and seed)
- Discover ways that new plants can develop from mature plants
- Compare changes over time in different kinds of plants
- Organize and communicate observations through journal writing and scientific illustrations
- Acquire the vocabulary associated with the structures of the plant

Soil helps plants grow
Clouds have water in them
I see leaves grow on plants
Everybody needs seeds to grow plants
Need plants for oxygen
Can we eat plants? Yes we can.
Eat seeds By Sean P.

Mrs. Austin
Mrs. Breault

URI Student Teacher
Miss Sainsbury



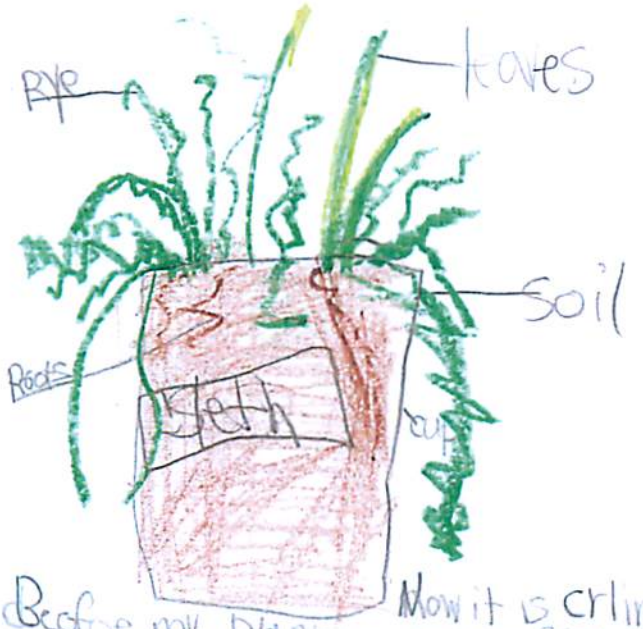
Students had to make a hypothesis based on the question which plant will grow better. One plant was placed in the window and the other was placed under a grow light.

Samantha has a great hypothesis because she wrote why she thought this and she also made a connection to prior learning regarding the brassica plant.

Samantha S.
Grade 1

Seth

grass



Before my plant here's tall and green and long.

Now it is curling and dark green.

Vandiver

wheat

Beofor the paper towl was on it.

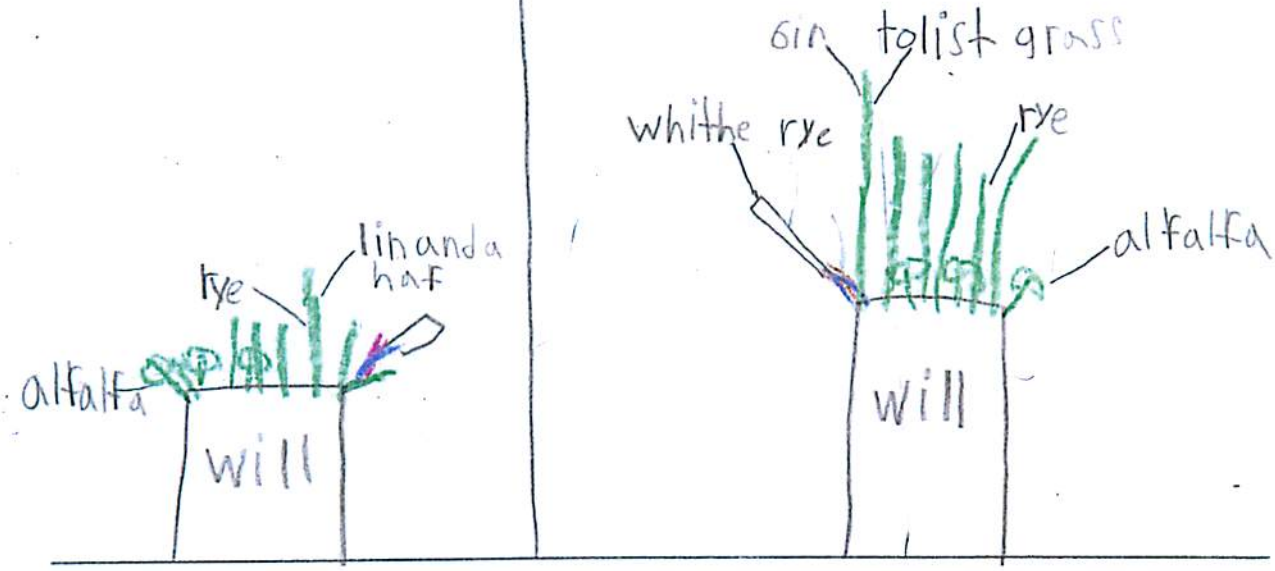
Now it is green

Students had to observe two different types of plants; grass and wheat.

Seth has an excellent example of a scientific illustration with details and labels. He also wrote what he noticed that changed in both of his plants.

Seth V.
Grade 1

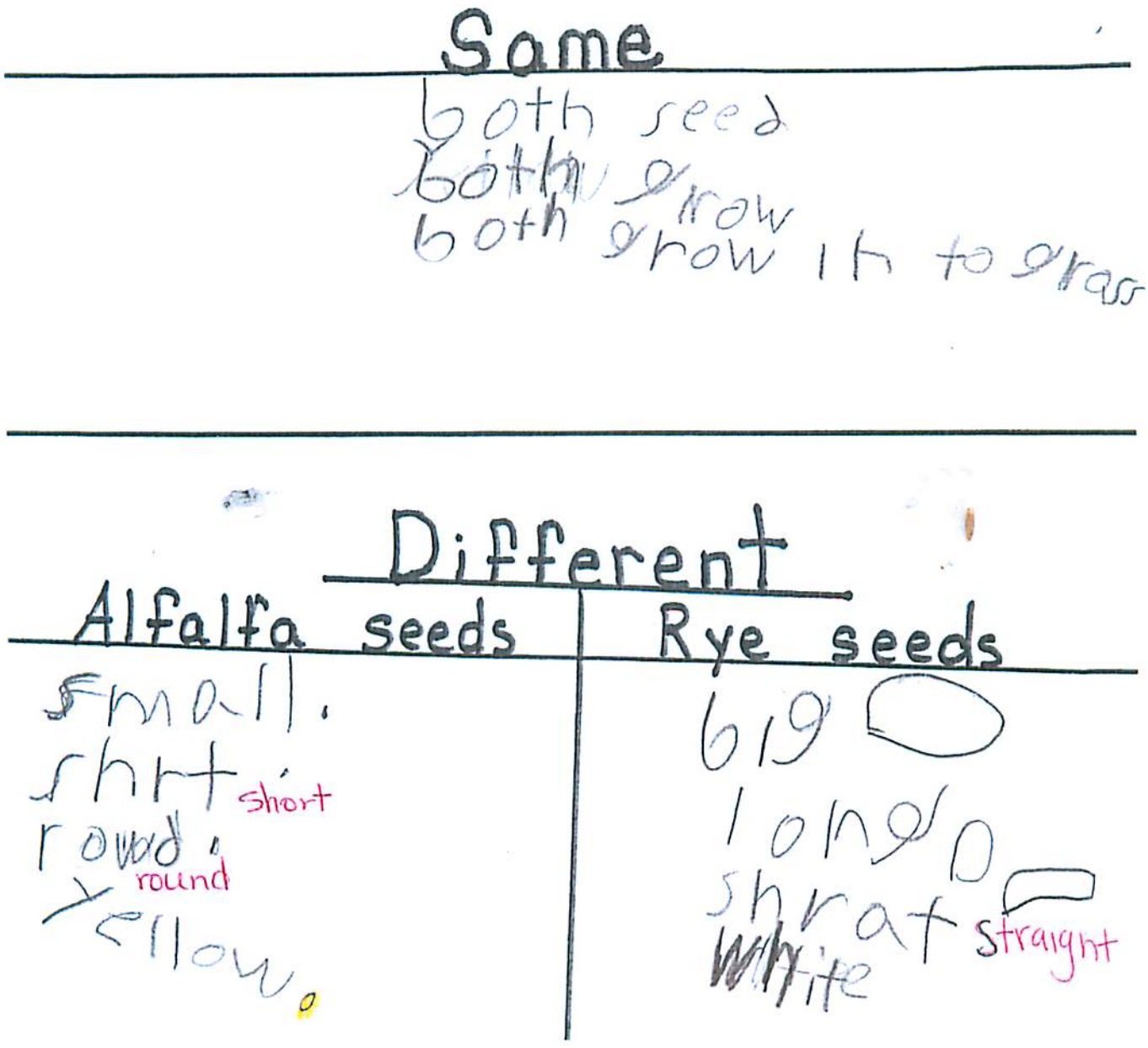
william 3-9-10



At first, my Plant was 6in inchr. one of my rye is whithe and browish purpleish. But now, my Plant is 1 inch. Because I cut my altalfa and my rye. I predict ti will grow Because I did not cut the crown.

Students had to observe plants before and after they were cut. William used labels to help with his illustration . He also made a prediction about what will happen to his plant based on his prior knowledge.

William L.
Grade 1



Students used a T-Chart to compare and contrast two different types of grass seeds. Drew provided lots of good describing words to compare the seeds.

Drew P.
Grade 1

Second Grade

Air & Weather Unit

The second grade students conducted many investigations around the study of air and how it relates to weather. Students observed evidence that air is matter, and is something real. Second graders noticed how air can be captured, compressed, and move things under pressure. Students applied vocabulary terms like resistance and compression. Observations were documented in their notebooks, using diagrams, graphic organizers, and written paragraphs. Students observed daily weather conditions such as temperature, rainfall, cloud coverage, wind speed, and wind direction. Students recorded all this data in a class calendar. They compared and contrasted types of clouds and made bar and line graphs with this data. Each student published a booklet consisting of four weather instruments and its uses.

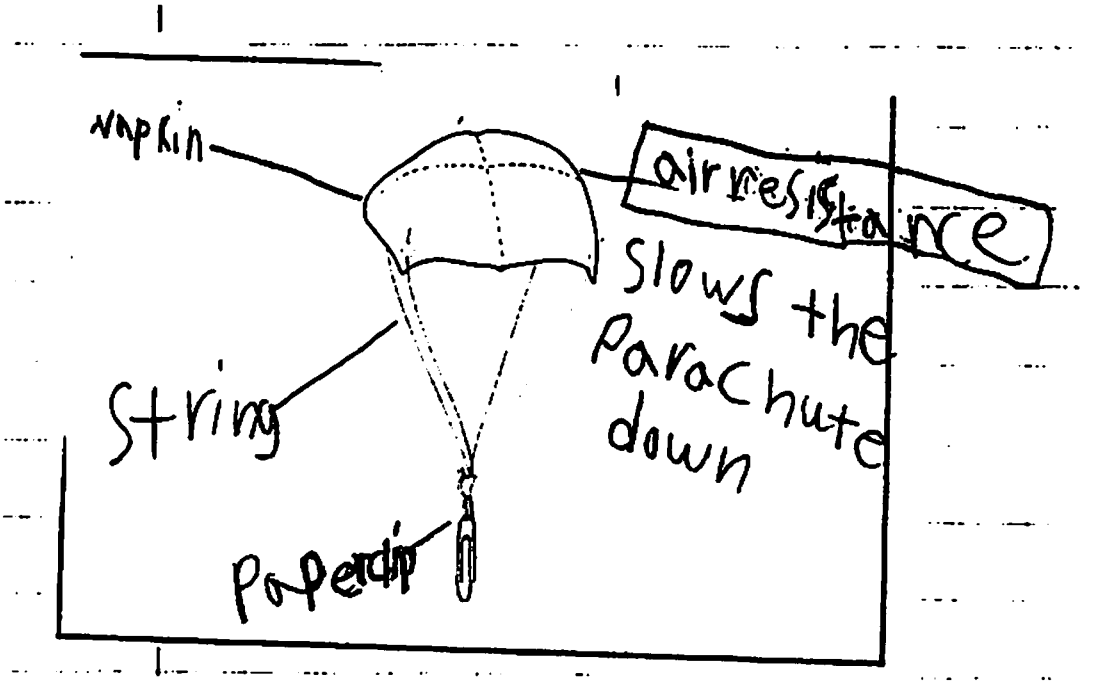
Mrs. Kim Allen
Mrs. Annie Campbell
Mrs. Gina Lee

Substitute
Mr. Godon

URI Student Teacher
Miss Porzucek

How does air affect how a parachute floats to the ground?

I noticed my parachute went down slow. It surprised me that it floted because I dint think that it would flot because it was just a napkin.



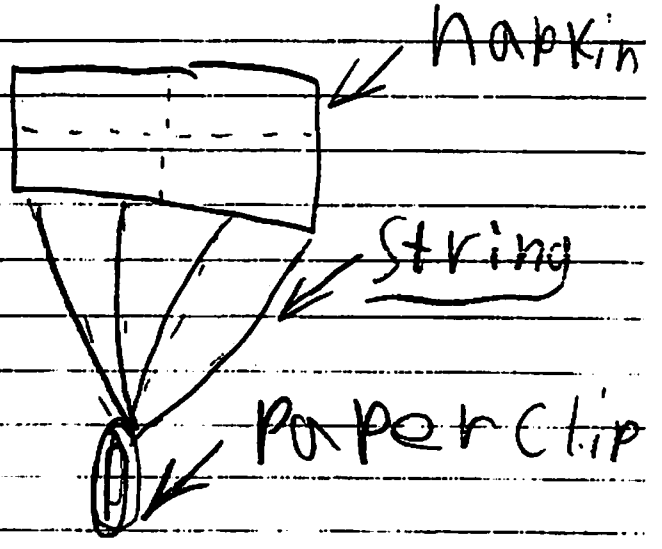
In this experiment, students first observed how a parachute moves. Then, students changed one variable and predicted how the new parachute would move. Finally, students tested the new design and compared the 2 parachutes.

This student work, and the following two pieces from Hanna, are samples of the students writing for this experiment.

Hanna B.
Grade 2

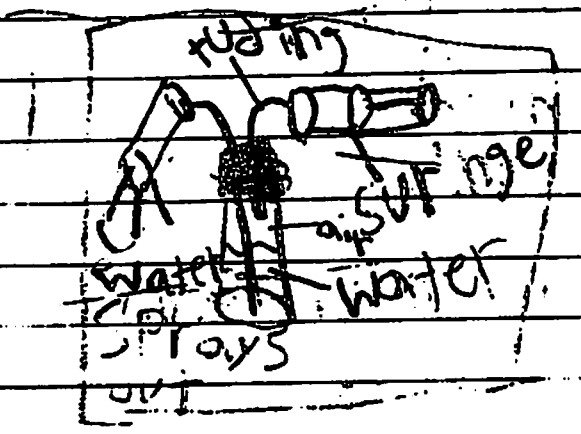
I predicti tions and my parachute will go prticte perfect Because it is smaller, and it went well when I testedit last time.

I changed the size of my parachute. I noticed the smaller parachute went down slower and the Biger one went down Faster Because the parachute was smaller and the other parachute was Biger.



Hanna B. Continued
Grade 2

How can I use air to push water around a system?



I observd when I and my partner pushd air with the small tube then water came out of the other side. air takes up space in a bottle and won't get out. Air pressure can push on water and make it move. it remins me of a thing you use to take water on

The students worked in partners to investigate how water can move through a system. Experimenting with air and water using a syringe an plunger, they discovered that compressed air causes pressure to move the water. In conclusion, this model represents the same action of a water fountain.

Dylan J.
Grade 2

Pinwheels. I predict if there is a strong breeze, the pinwheel will spin fast. I predict when there is a gentle breeze, the pinwheel will spin slow.

How can we use pinwheels to observe wind speed?

I observed when there was a modrate breeze the pinwheels flew out of our hands. When we went back into the classroom the pinwheels stoped moveing. At first when I used my own pinwheel at home it didn't move, but now when I used my self made pin wheel it moved.

What we learned:

- A pinwheel is like an anemometer because it can show you how fast the air is moving.
- The faster the pinwheel moves, the faster you know the wind is blowing

I wonder what would happen if the entire classes pinwheel spun

The second grade class was doing an investigation on pinwheels. In this experiment, students made a predication based on the questions "How can we use pinwheels to observe wind speed?" After the Experiment, the students had to write what they had observed.

Connor M.
Grade 2

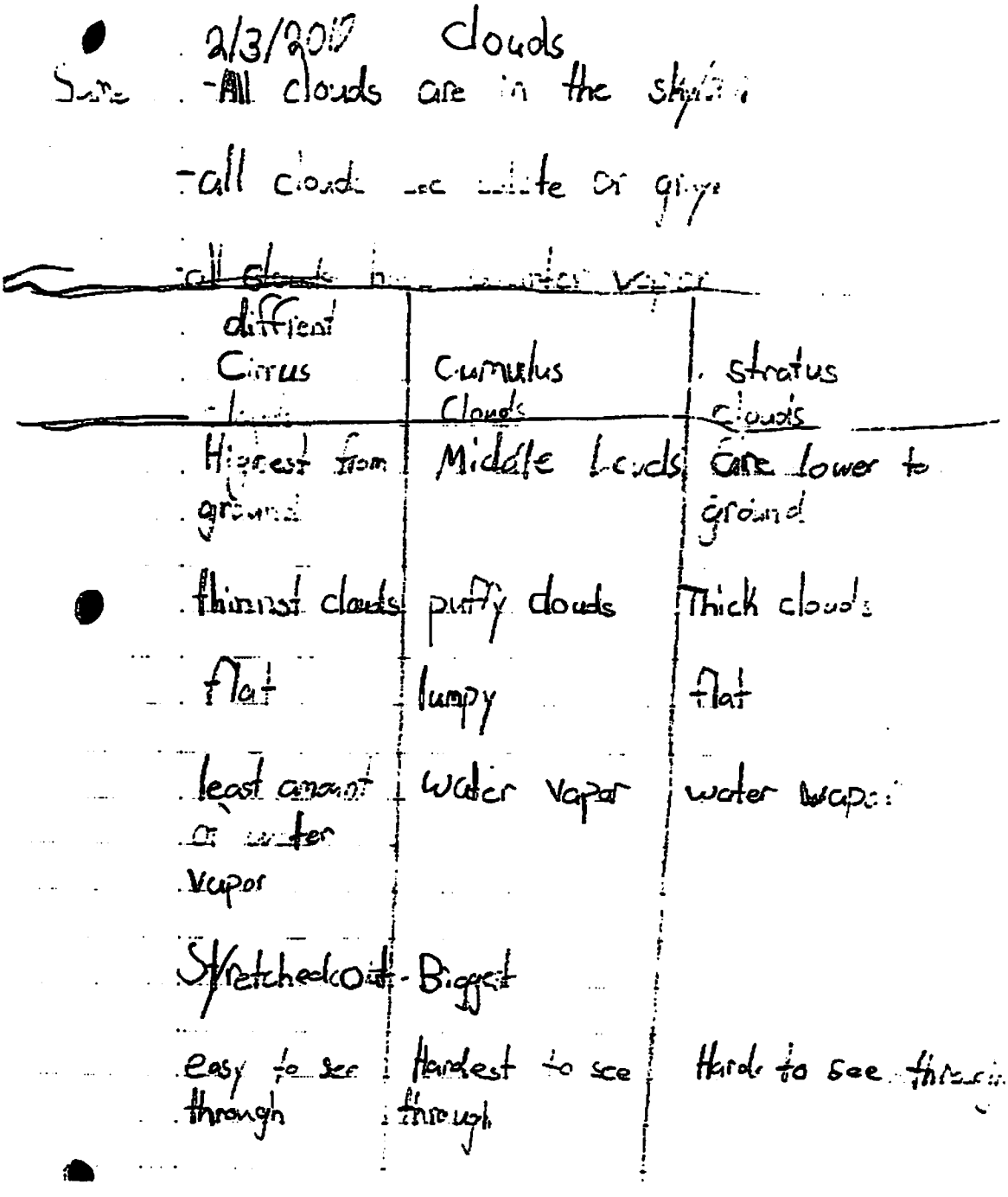
What can we change from yesterdays Investigation?

- use two paper clips
- use a pencil instead
- use 0 paper clips
- put a hole in the top of the parachute
- put a object up top of the parachute
- use a straw
- use diffrent stuff for the top of the parachute
- longer or shorter string.

Fair Test- (experiment) In a fair test, everything is kept the same except one variable. The one variable is tested to see how it effects or changes the results of the experiment.

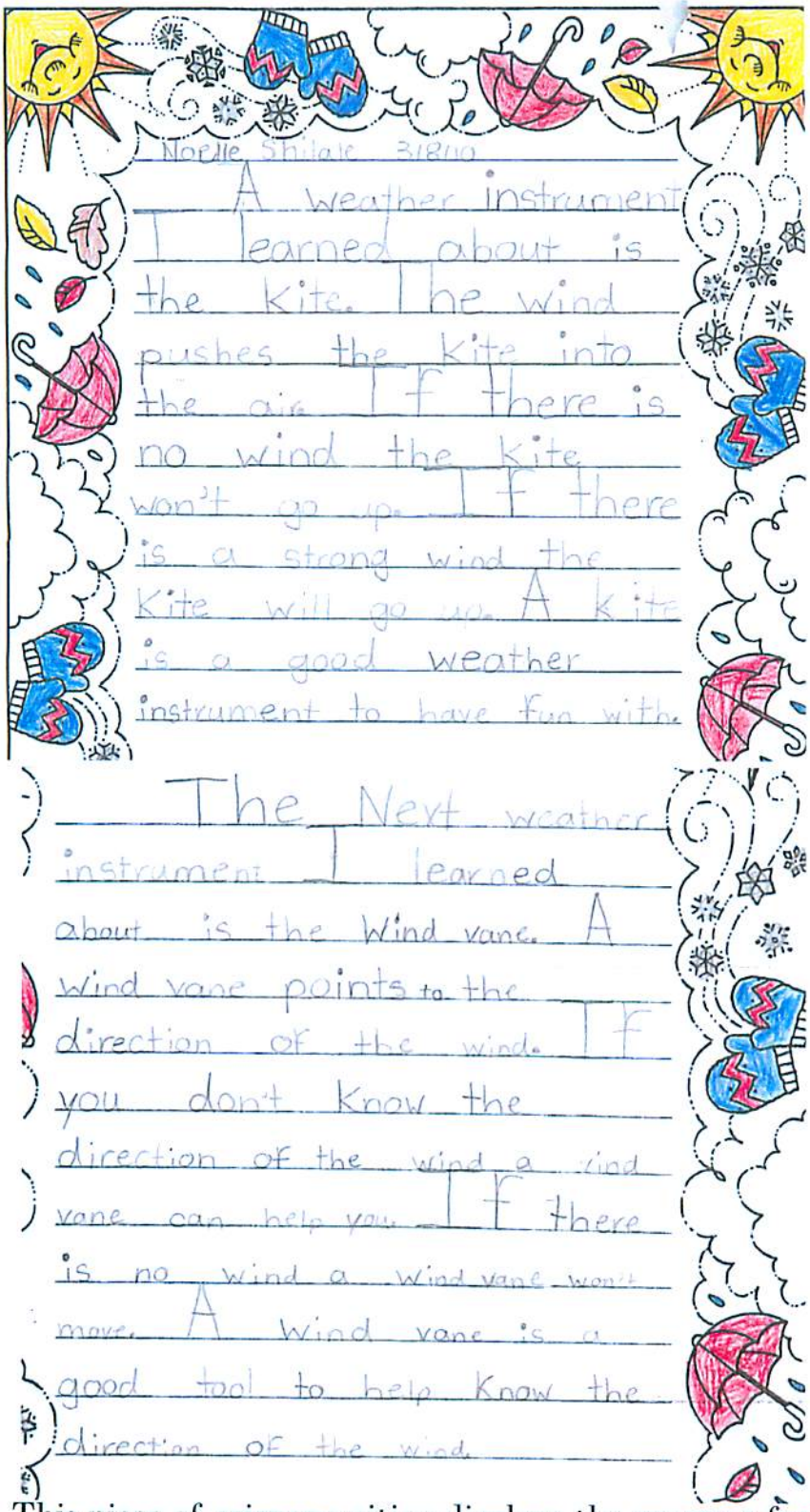
As a class, we brainstormed different variables to change to conduct a "fair test."

Haley S.
Grade 2



In a class discussion about clouds, we prompted students to create a graphic organizer to describe differences and similarities of three types of clouds.

Megan B.
Grade 2


Noelle Shilale 3/18/10

A weather instrument I learned about is the kite. The wind pushes the kite into the air. If there is no wind the kite won't go up. If there is a strong wind the kite will go up. A kite is a good weather instrument to have fun with.

The Next weather instrument I learned about is the Wind vane. A wind vane points to the direction of the wind. If you don't know the direction of the wind a wind vane can help you. If there is no wind a wind vane won't move. A wind vane is a good tool to help know the direction of the wind.

This piece of science writing displays the progress from journal writing to creating a published piece. Students used graphic organizers and science vocabulary to write a 4-paragraph essay on weather instruments.

Noelle S.
Grade 2

The third weather instrument I learned about is the anemometer. An anemometer measures the speed of the wind. The wind blows in the cups on the anemometer and makes it move. If there is a strong breeze the anemometer spins fast. The anemometer is a good tool for measuring wind.

The last weather instrument I learned about is the pinwheel. A pinwheel can measure wind speed. The wind makes the pinwheel move. If there is no wind the pinwheel will not move. A pinwheel can be fun and is a good tool for measuring wind.

Third Grade

Sound

Ashaway School third graders are performing experiments with sound. The concepts include learning that sounds are produced by vibrating objects and columns of air. Changing the length, tension, or thickness of vibrations also changes pitch and frequency. The human ear has a membrane that vibrates when sound reaches it and then the brain translates these vibrations into sound. Human vocal cords produce sound as air moves through the tightened cords.

The skills third graders are practicing include performing experiments, describing results of investigations using data, reflecting on experiences, predicting outcomes in new situations, applying previously learned concepts and obtaining more information about sound, hearing, and the vocal cords.

Mrs. Pearce
Mrs. Vocatura

URI Student Teacher
Miss Bilingino

Vibrating Ruler—What I Hear and See

Length of Ruler, Extending over Edge of Table	What I Hear		What I See	
	Predictions and Reasons	Sound Produced	Predictions and Reasons	Vibrations Produced
Long (Actual length: 26CM)	highpich	sound-boing very dull (low)	vibrating fast	Vibrated (slow) 
Medium (Actual length: 6 CM)	inbutween pich	Sound-blung inbutween sound	vidrating inbutweenpid	vibrated inbutween 
Short (Actual length: 6CM)	high pich	sound-[illegible] Low pich (high)	Vibrating slo	Vibrated very slow Very (fast) 

In the following exploration, the students were asked to explore how the lengths of the rulers would give off different pitches. They were asked to also predict what they saw as the ruler vibrated. The goal was to make the connection between the speed of vibrations and the pitch. At first they started with one ruler at different lengths. The following data table recorded their predictions first and then the class was free to explore what they heard and what they saw.

When looking at the data charts, many strengths were apparent. The students recorded the sounds they heard as they plucked the rulers. The descriptive words varied and were very creative, for example, flabby, buzzing, dull, and blung. Students are using onomatopoeia without even realizing.

Taylor K.
Grade 3

2-25-10

(2-1)

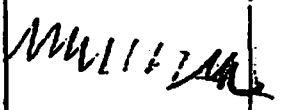
Vibrating Ruler—What I Hear and See

Length of Ruler Extending over Edge of Table	What I Hear		What I See	
	Predictions and Reasons	Sound Produced	Predictions and Reasons	Vibrations Produced
Long (Actual length: 29 cm)	High Pitch (low)	Low Pitch	Movie Slow	Move Fast (slow)
Medium (Actual length: 16 cm)	Medium Pitch	Medium Pitch	Move Fast	Move Fast
Short (Actual length: 6 cm)	Low Pitch (high)	high Pitch	Move Faster	Move Faster

As the class predicted the outcome of the experiment before the exploration, some predictions were incorrect. The following data charts show how the students were able to correct themselves after they explored with the rulers. They were asked to circle the corrections they made and explain them verbally to an adult to make sure they understood what they observed. An entire class discussion followed the data collection and exploration.

Joseph S.
Grade 3

Vibrating Ruler—What I Hear and See

Length of Ruler Extending over Edge of Table	What I Hear		What I See	
	Predictions and Reasons	Sound Produced	Predictions and Reasons	Vibrations Produced
Long (Actual length: 28 cm)	low pitch	Sound (loud) low	Vibrating fast	Vibrating (slow) slow 
Medium (Actual length: 16 cm)	medium pitch	Sound (medium)	Vibrating medium	Vibrating (medium) 
Short (Actual length: 6cm)	high pitch	Sound (high) high	Vibrating slow	Vibrating (slow) very fast 

Paige S.
Grade 3

How does the length of rulers affect pitch?

I observed the medium ruler made a high pitch. When I flicked the medium ruler, the vibration made a high inkisible sound wave. At first, I thought the pitch was it's going to be low, but now, My prediction was correct. The medium ruler was 16 cm. long.

→ I Observed the long ruler made a low, dull sound. When I tested the long ruler, the sound was very low. At first, I thought the long ruler was going to be a medium sound wave, but now the vibration was a slow vibration. The long ruler was 28 cm long.

→ I observed the short ruler made a high, loud sound wave. When I flicked the short ruler, it made loud sounds. At first, I thought the short ruler will make a fast vibration. And now, My guess was right. The small ruler is 6cm long.

→ I learned the smaller the ruler is, the highe, the pitch is, And the longer the ruler is, the lower the sound.

Using the writing in science frames, the class was then asked to turn their observations into a paragraph. The frames had been modeled twice previously using the same topic but with different explanations. It was then asked of the students to do this paragraph independently.

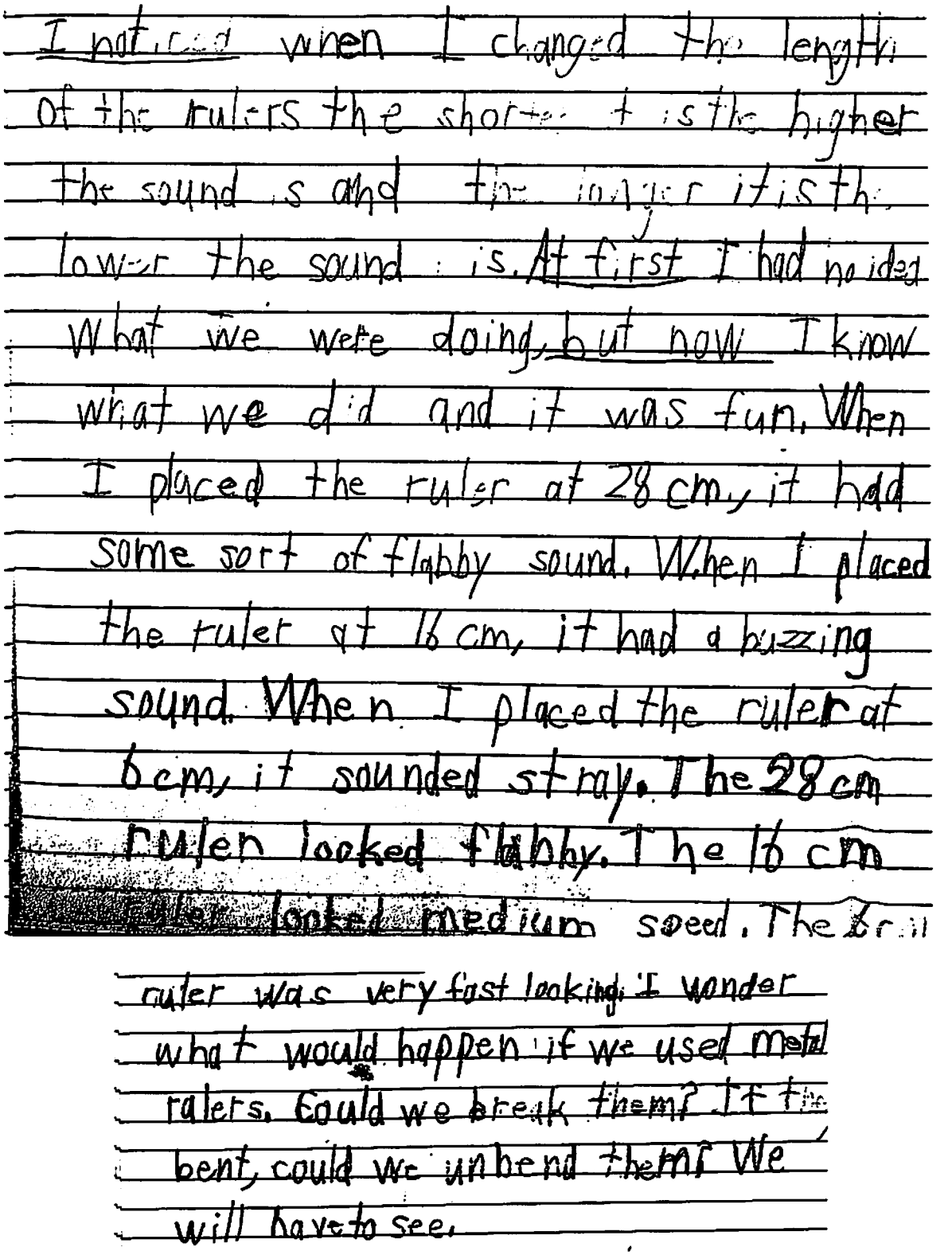
The paragraph below exemplifies the students' use of paragraphs. He is also using science vocabulary and is able to connect his predictions to the actual exploration being done. His conclusion is correct.

Trevor P.
Grade 3

Vibrating Ruler—What I Hear and See

Length of Ruler Extending over Edge of Table	What I Hear		What I See	
	Predictions and Reasons	Sound Produced	Predictions and Reasons	Vibrations Produced
Long (Actual length: 28 cm)	dull or low pitch	flabby sound	slow	looked flabby
Medium (Actual length: 16 cm)	medium pitched	buzzing sound	medium	looked medium speed
Short (Actual length: 6 cm)	high pitched	stray sound	fast	very fast

Alex W.
Grade 3



I noticed when I changed the length of the rulers the shorter it is the higher the sound is and the longer it is the lower the sound is. At first I had no idea what we were doing, but now I know what we did and it was fun. When I placed the ruler at 28 cm, it had some sort of flabby sound. When I placed the ruler at 16 cm, it had a buzzing sound. When I placed the ruler at 6 cm, it sounded stray. The 28 cm ruler looked flabby. The 16 cm ruler looked medium speed. The 6 cm ruler was very fast looking. I wonder what would happen if we used metal rulers. Could we break them? If the bent, could we unbend them? We will have to see.

In the second example, this student has many strengths. His science is even stronger because he is able to connect that the vibrations are related to sound. He has also shown voice, knowledge of science vocabulary and has used transition words in his science writing. At the end, his "I wonder" provided an entirely new science exploration to try.

Alex W.
Grade 3

3-1=10 3-1-10

How does the length of rulers affect pitch?

→ I observed that the longer ruler (28cm) has a low pitch and the shorter ruler (6cm) has a high pitch. I reminds me of the tunning forks because the longer one was lower and the shorter one was higher. When I put the ruler at 6 cm made a high sound. At first I thought that the smaller one would be easier to strum. But now I know that it is harder to strum because you don't have as much room. I am curious about why the smaller one has a higher pitch.

In the last exemplary piece, this student shows knowledge of science vocabulary and makes very good science- to- science connections. His use of data supports his claims and with the help of the science frames used, he shows critical thinking skills. He was also able to correct his predictions after he explored with true materials. His writing uses transition words and he was able to construct a meaningful paragraph from start to finish.

Ben H.
Grade 3

Fourth Grade

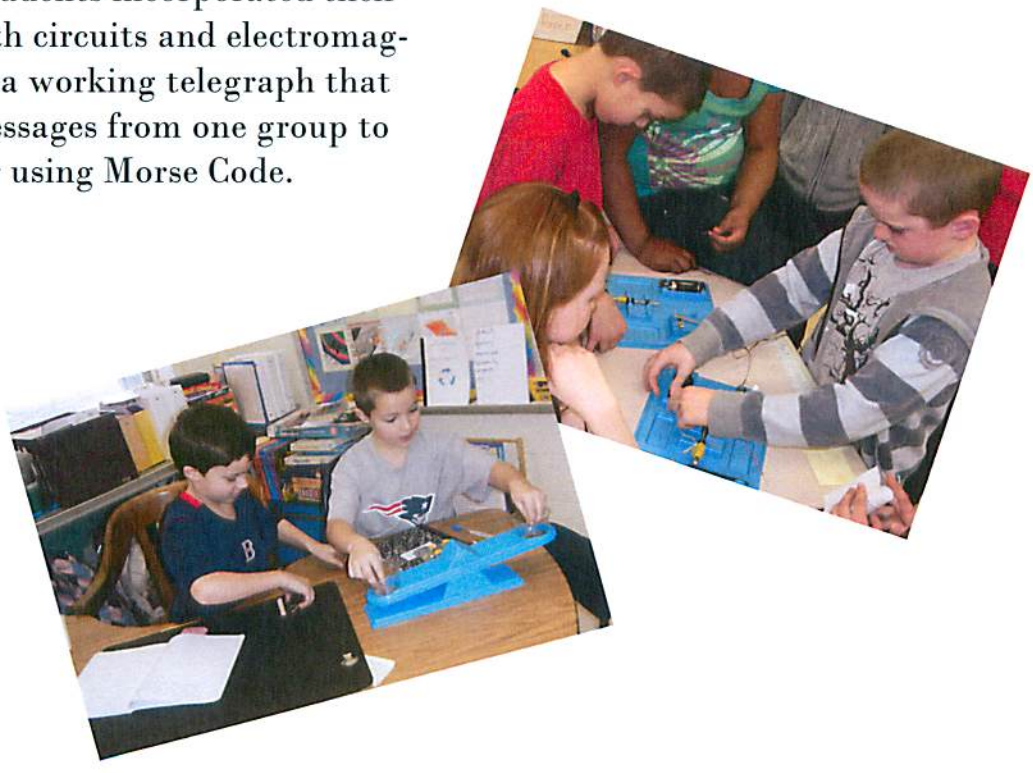
Magnetism and Electricity Module

The Magnetism and Electricity Module helps students investigate permanent magnets, build electric circuits powered by D-cells (flashlight batteries), and explore electromagnetism.

During the magnetism portion of the module, students observed the interaction of permanent magnets with a variety of common materials. They also discovered that magnets display forces of attraction and repulsion. Furthermore, they investigated the change in force between two magnets as the distance between them increases.

As students investigated the electricity portion of the module, they began by identifying materials that are conductors and insulators. They also learned how to construct open, closed, parallel, and series circuits.

Finally, they combined their knowledge of magnetism and electricity to construct electromagnets. They investigated the relationship between the number of turns of wire around an electromagnet core and the strength of magnetism. To conclude the module, students incorporated their experiences with circuits and electromagnets to create a working telegraph that could send messages from one group to another using Morse Code.



Mrs. Ornburn
Mrs. Young

URI Student Teachers
Miss Hitt
Miss Turco

1/21/10 1:42 Sunny and cold

What happens to the strenth of attraction between 2 magnets as the distance between them increase? I predict the strenth of the force will decrease while the distance between the magnet increases. I predict this because when the distance is farther it is hard to attract

# of washers	# of spacers
16	0
12	1
. . . . .	skip
6	3
5	4
4	5
3	6

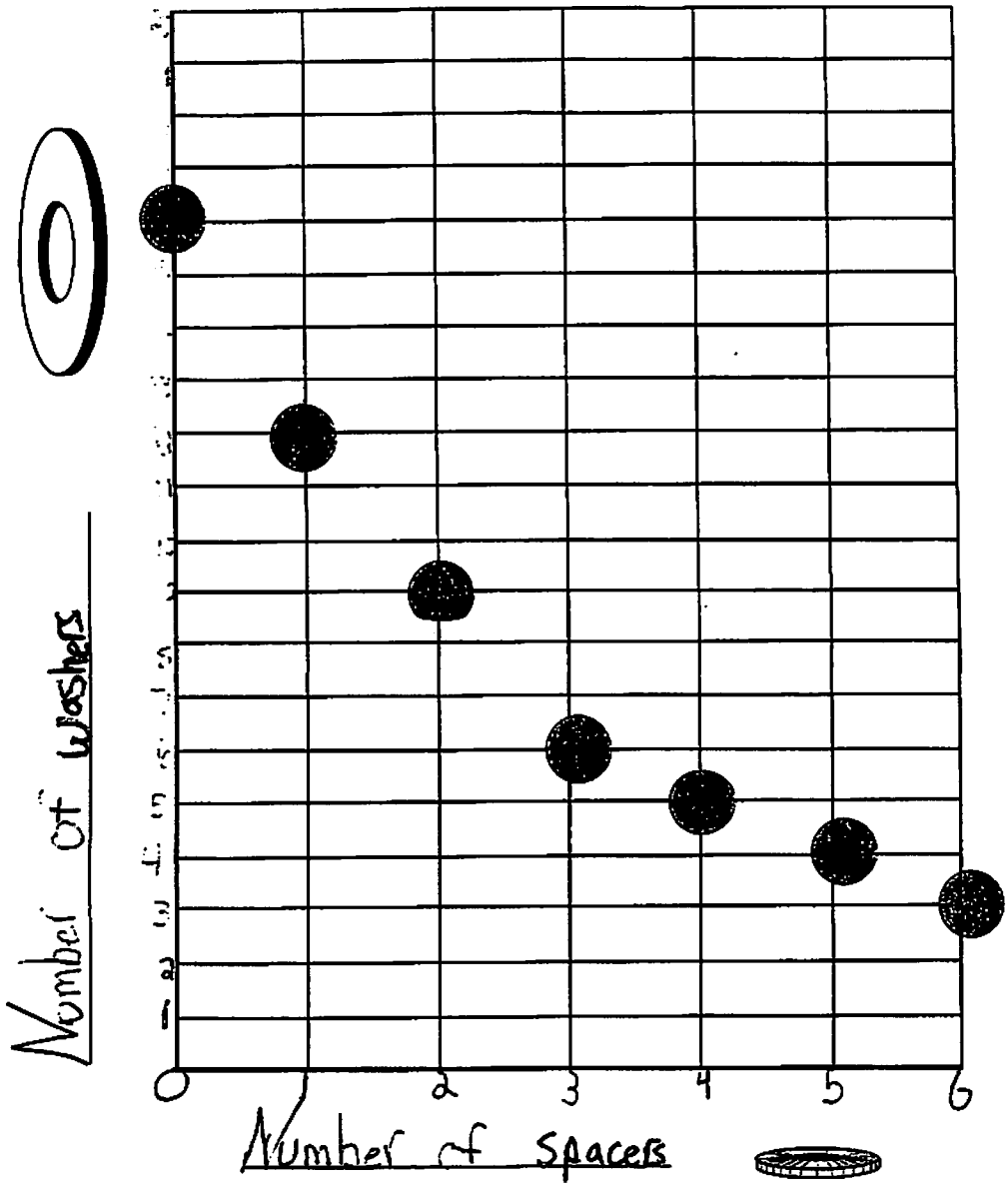
Students investigated what would happen to the strength of attraction between 2 magnets when the distance between them increased.

Ethan's prediction to this question demonstrates that he is accurately applying previous learning to make a prediction that extends to a new problem. After completing a fair test to investigate the question, Ethan recorded the data accurately in a T-Chart.

Ethan B.
Grade 4

Date

THE FORCE



The data was collected from the investigation and then graphed. Paul accurately labeled both the horizontal and vertical axis. He then graphed his data using blue dots. After recording the data on the graph, students were asked to make a prediction (labeled P) for the amount of washers it would take to break the force when using 2 spacers based on the trend represented in the graph. Paul predicted it would take 9 washers to break the force which was a reasonable inference based on the data.

Paul H.
Grade 4

What happens to the strength of attraction between 2 magnets as the distance between them increase?

This graph shows amount of washers it took to break the force between 2 magnets. As the distance between the magnet increased the amount of washers decreased. For example, when 0 spacers were used, it took 16 washers to break the force. In addition, when 6 spacers were used it took 3 washers to breeak the force

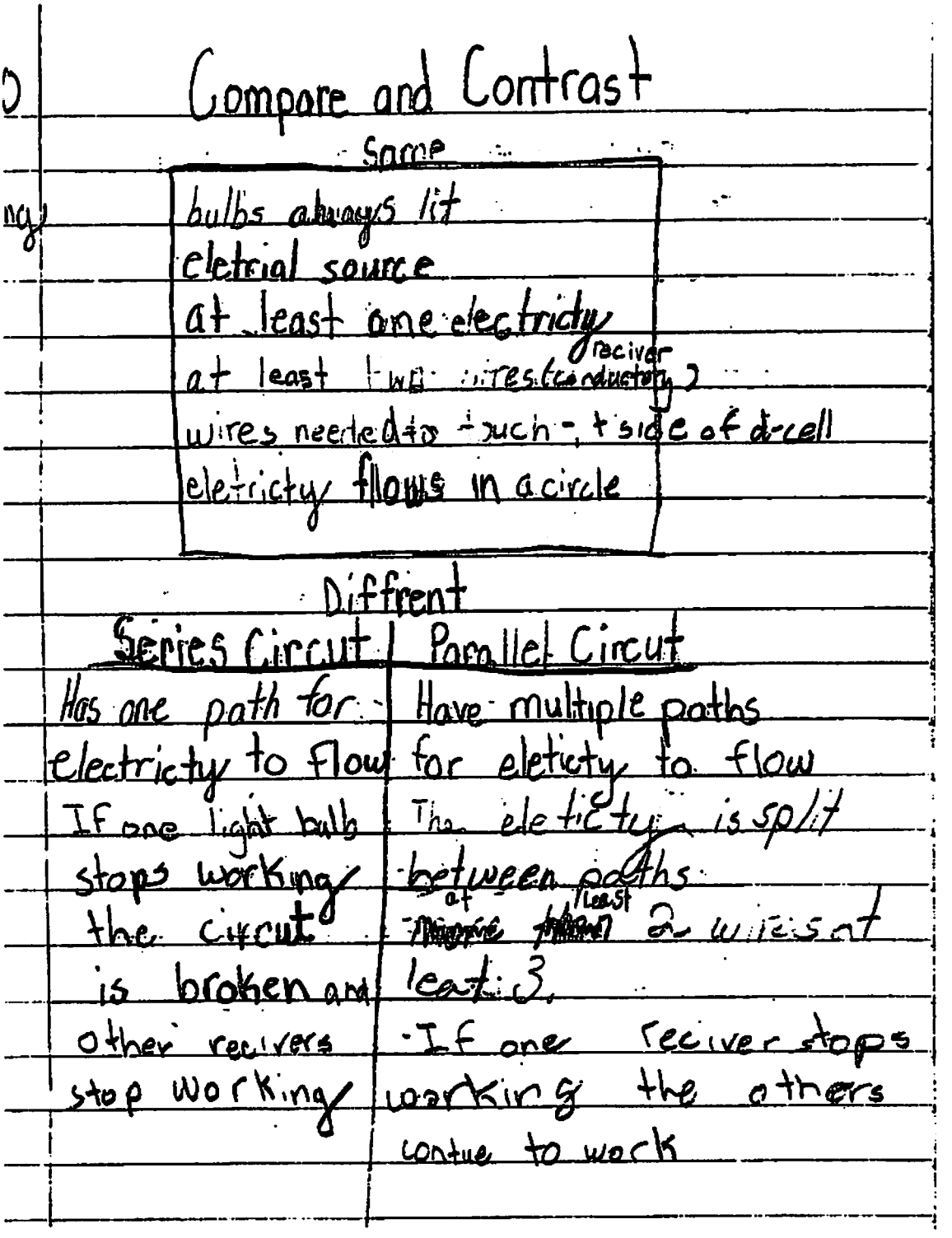
Therefore, I think when the amount of distance increased the force decreased and its harder to attract.

The data did support my prediction because I wrote the washers decrease when the distance increases

This information is important because for refrigherator magnets you need to know if the magnet can hold the item on the refrigherator.

In the final part of the investigation, students were asked to analyze the data that was collected in their groups. In Ethan's writing, he supports his explanations with appropriate data, and compares different data points accurately. He demonstrates the use of critical thinking skills by drawing inferences about his data and he is able to refer back to his prediction to determine if his data supported his initial thinking. He states his conclusion clearly with relevant details and his writing is organized using appropriate transition words and scientific vocabulary.

Ethan B.
Grade 4



Compare and Contrast

Same

- bulbs always lit
- eletrial source
- at least one electricty reciver
- at least two wires (conductors)
- wires needed to touch + side of d-cell
- eletricty flows in a circle

Diffrent

Series Circuit	Parallel Circut
Has one path for electricty to flow	Have multiple paths for eletiety to flow
If one light bulb stops working the circut is broken and other recivers stop working	The eletiety is split between paths at least 2 wires at least 3. If one reciver stops working the others contue to work

As a culmination of investigations 2 and 3, students demonstrated knowledge of series and parallel circuits by creating a Box and T-Chart to compare and contrast these types of electrical connections. Laurens chart shows she made accurate and full observations with complete records. She recorded her data completely and honestly.

Lauren P.
Grade 4

Lauren Poirier Feburary 24, 2010

What is similar between a parallel circut and a series circut?

The parallel circut is similar to the series circut because the bulbs always light in ether circut and each circut has at least one energy reciver. In addiion they are similar because a wire has to touch the negitive and positive side of the D-cell. Lastly there needs to be at least two wires in both circuts.

They are diffrent because the series circut has one path for the electricty to flow through while the parallel circut has multiple paths for the eletricty to flow through. Also another way they are diffrent is that a series can have as few as one wire however a parallel circut needs a least two wires. One other way that they are diffent is if one light stops working in the series circut the circt is broken and other recives will stop working. While in a parallel circut if one recives stops workin the other recives will conitinue to work. A few other reasons they are diffrent is that in a series circut all the electricty is shared but in a parallel circut the electricty is split between paths. I wonder if we could get three or more light to light brightly with one or two D-cells?

In her writing, Lauren demonstrated an understanding of the "big idea." Through her words she shows an accurate picture of series and parallel circuits. She extended her knowledge to think about new problems that she could investigate. Lauren also developed her idea fully, using relevant details and explanations. She used scientific vocabulary accurately and effectively.

Lauren P.
Grade 4

How do series and parallel circuits compare?

The series and parallel circuits have many similarities like they both have to have wires touching the positive and negative side of the D-cell. Some other similarities are they both at least 1 receiver and at least 2 wires. Also another similarity is they both have a electrical source.

The series and parallel circuits have many differences like the series circuit has 1 path for electricity to flow while the parallel circuit has multiple paths for electricity to flow. Some other differences are the series circuit all electricity is shared while the parallel circuit the electricity is split between paths.

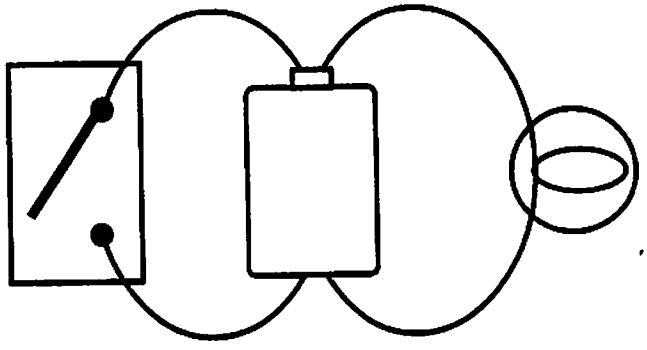
Nathan also wrote about the similarities and differences between series and parallel circuits. Nathan logically sequenced his details and used appropriate transition words to show logical connections. He used both scientific and nonscientific vocabulary accurately and effectively to clarify and explain his thinking. It is apparent that Nathan also has a full understanding of series and parallel circuits.

Nathan S.
Grade 4

Date March 1 2015

RESPONSE SHEET—REVERSE SWITCH

A student drew a plan for a circuit she thought would be interesting to build. She drew a picture to show how she would set it up (see below).



She wrote a note to her teacher:

I think this circuit will work in an unusual way. When the circuit is built and the switch is open, the light will shine. When the switch is closed, the light will go off.

① Do you agree or disagree with this student? ② What do you think will happen when the switch is open and when it is closed? ③ Explain why you think the circuit will work the way you described.

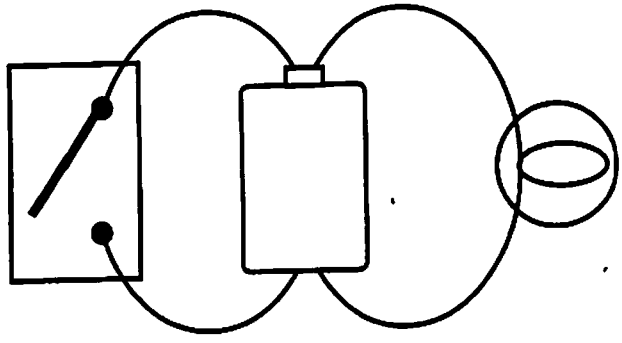
I agree with this student because when the switch is open it acts as if the switch isn't there, and then it's just the light bulb attached to the D-cell. When the switch is closed the light bulb does not light because the switch would rather take the path of least resistance.

The following two pages display two responses that show an understanding of content and scientific vocabulary.

Chandler C.
Grade 4

RESPONSE SHEET—REVERSE SWITCH

A student drew a plan for a circuit she thought would be interesting to build. She drew a picture to show how she would set it up (see below).



She wrote a note to her teacher:

I think this circuit will work in an unusual way. When the circuit is built and the switch is open, the light will shine. When the switch is closed, the light will go off.

Do you agree or disagree with this student? What do you think will happen when the switch is open and when it is closed? Explain why you think the circuit will work the way you described.

I agree with this student because if the switch is open it has no choice but to go to light the lightbulb, but if the switch is closed, it will take the path of least resistance and the switch is not an electrical resistor.

Mason T.
Grade 4

Can you make a rivet into a magnet that will turn on and off?

I noticed that the rivet would not pick up the washers enless most of the wire was rapped around the rivet. I also noticed that you could not pick up washers on both sids of the rivet. I observed that if the wire was not on the Side of the rivet you were trying to pick up the washers with that you would not pick up any of the washers

I wonder if I could get the rivet to pick up most of the washers? I also wonder what would happen if the rivet was a long magnet? In addishon I also would want to know if the rivet could pick up a biger washer?

In investigation 4 students were asked if they could make a rivet into a magnet that would turn on and off. Students were asked to create an "I notice, I wonder" chart as they did their investigation to document their observations. Afterward, they were asked to write an observational piece of writing based on their notes. Kara made accurate and full observations. She logically sequenced her details and used appropriate transition words to show logical connections. She was able to extend her thinking beyond the investigation by asking relevant questions.

Kara-Marie B.
Grade 4

Ashaway Elementary School

"Roaring with Pride and Ready to Learn"

12A Hillside Ave.
Ashaway, RI 02804

401-377-2211