

10-30-08

Seeds and Plants  
Need light

The evidence

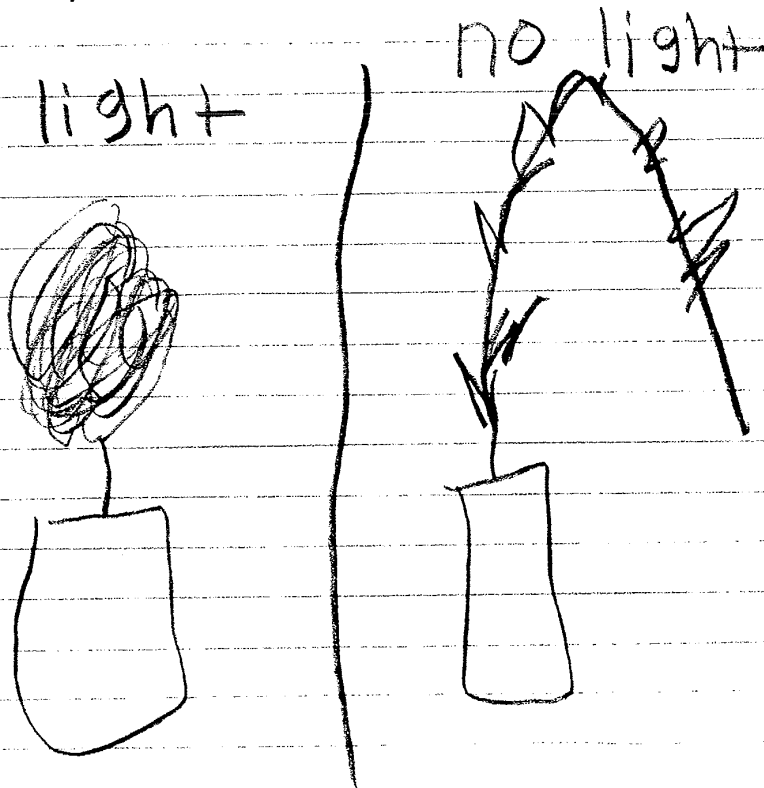
says that light

Plant is green <sup>stem</sup> and the ~~dark~~ ~~was~~  
is white stem

6) How have our ~~seeds~~ changed?

Plants

Our results show plants need light to be healthy. My evidence is the plants in the light are dark green but the plants in the dark are light green. I wonder what would happen if the plants were planted under water.



Our line plot shows which balls Bounces more times.

The ping pong Ball bounced 10 times and the rubber Ball Bounced only 8

times. The numbers show that ping-pong Ball is a Better Bouncer than rubber ball because Ping pong Ball Bounced 10 times and rubber Ball Bounced 8 times and ping pong Ball was the Better Bouncer.

The Rubberball  
bounced 8 times

and the Pin Pong Ball bounce  
d only 10  
times

The numbers show that  
Pingbe + ter bouncer  
than Rubber because  
ball

be Number on The  
9

3/2/10 how does the Speed of a ball affect how the ball moves or pushes an object?

I predict the two block ramp will move the object further Because it has more speed so I think the ball will move further.

<u>2 (two) block</u>	<u>1 (one) block</u>
1. <del>16</del> cm	1. <del>16</del> cm
2. <del>10</del> cm	2. <del>14</del> cm
3. <del>11</del> cm	3. <del>12</del> cm
4. <u>14</u> cm	4. <del>7</del> cm
5. <del>13</del> cm	5. <u>10</u> cm

→ right

The two block ramp moved the carton further. The one block ramp only pushed the milk carton to seven cm but the two block ramp pushed the milk carton all the way to 14 cm and that is double the times as high as the one block ramp. I think this happened because maybe if it's coming at the a fast speed it will have more power and if it has more power it's more likeley to push something further.

### First Grade, Sample A—*Organisms* Unit: Eva

- In this unit, students conduct an investigation to determine if plants can grow and be healthy in the dark and/or light. The frame for their conclusion is “Seeds and plants \_\_\_\_\_. The evidence says that \_\_\_\_\_.”
- Eva provides an accurate answer to the question about what she thinks seeds and plants need based on the investigation. Then she provides appropriate evidence to support her claim: “The evidence says that light plant [the plant grown in the light] is [has] green stem [stem] and the durk wun [dark one—the one grown in the dark] is white stem [has a white stem].” She knows from the class discussions and her observations that healthy plants have green stems.
- Note that she includes the evidence from both conditions. Students typically report data from only the condition that is most obvious to them or that supports their claim (in this case, that the plant grown in the light has a green stem). Eva has developed strong scientific skills and thinking at the same time that she has been learning English, her third language.

### First Grade, Sample B—*Organisms* Unit: Ella

- In this class, students study the *Organisms* unit in the spring, so their teacher expects their conclusions to be more complex and she provides only basic scaffolding: “Our results show \_\_\_\_\_. My evidence is \_\_\_\_\_. I wonder what would happen if \_\_\_\_\_.”
- Ella has written a complete and accurate conclusion, and her drawings reflect the important details of her results: lush leaves and a straight, shorter stem on the plant grown in the light as contrasted with the long, bent-over stem and the skimpy leaves of the plant grown in the dark. She has ended her entry with an idea that could lead to another controlled investigation.

### First Grade, Sample C—*Balls and Ramps* Unit: Kimberly S. L.

- In the next two samples, students write conclusions to their investigation about which ball is a better bouncer. They use the following frame: “Our line plot shows \_\_\_\_\_. The \_\_\_\_\_ ball bounced \_\_\_\_\_ times and the \_\_\_\_\_ ball bounced only \_\_\_\_\_. The numbers show that \_\_\_\_\_ is a better bouncer than \_\_\_\_\_ because \_\_\_\_\_.” Students are also given other options that are more open ended, but Kimberly and Bryan choose to use this structure.
- Kimberly accurately and coherently completes the frame. Her next step is to learn how to make a comparative statement instead of repeating the data after *because*. For example, she could have written, “because the Ping-Pong ball bounced *more* times than the rubber ball did.”

### First Grade, Sample D—*Balls and Ramps* Unit: Bryan

- Bryan provides correct information in his conclusion: the data for the rubber ball and the Ping-Pong ball are accurate, and the Ping-Pong ball is a better bouncer than the rubber ball. He might be having trouble making sense of the words in the frame, which would explain why he enters each ball's name and data in the wrong place. He also is learning English.
- Bryan concludes his entry by indicating that the numbers show that the Ping-Pong ball is a better bouncer because the number on the graph is bigger. This shows that he knows what to look for in interpreting the data in the line plot, which is important scientific thinking.

### First Grade, Sample E—*Balls and Ramps* Unit: Brooke

- Later in this unit, students conduct a more complex investigation. After they record their test results, they choose and circle the “middle number” of the results for each ramp, then place that number on the class graph. Students then write their conclusions based on the class data. To simplify the writing, students can use a kind of shorthand for writing about the two ramps. Older students might write, “The ball on the two-block ramp moved the carton farther than the ball on the one-block ramp did.” A less accurate but much simpler form is “The two-block ramp moved the carton farther.” (Students frequently use the word *further* instead of *farther*, but *further* does not refer to distance.)
- This entry includes some sophisticated thinking and language that has resulted both from the teacher's instruction and from Brooke's strong scientific thinking. The teacher has taught her first graders to make meaning of quantitative data by using *but* to contrast data and *only* to indicate data of a lower value or number. She also has taught them how to calculate the difference between numbers, which is why Brooke reports that the results from the steeper ramp are twice the distance as those from the less steep ramp. (She is using class data, not data from her own table.)
- As her teacher has modeled, Brooke introduces her inference using “I think this happened because . . .” She states that the fast speed will make the ball have “more power,” and then she goes on to say that “more power” is more likely to push something farther. Most students would not think of (let alone write) that last “if-then” sentence. To help her clarify her thinking and her explanation of it, you might ask, “A scientist would wonder what you mean by ‘more power.’ How could you explain your thinking to her?”