Combining science and reading materials to teach comprehension strategies

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Combining Science and Reading Materials to Teach Comprehension Strategies

A Graduate Project

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Melena Haskovec

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# Table of Contents

## Main Body
- Introduction and Purpose ........................................................... 1
- Supporting Literature ................................................................. 2
- The Project ................................................................................... 9
- The Role of the Teachers ............................................................. 10
- The Methods ............................................................................... 11
- Results ......................................................................................... 15
- Future Plans .............................................................................. 21
- Concluding Remarks .................................................................. 23
- References .................................................................................. 25

## Appendixes
- A - Unit and Strategy Chart ....................................................... 28
- B - Lesson Plans ......................................................................... 29
- C - Books Ordered ..................................................................... 48
- D - Guided Reading Scores Chart ........................................... 51
- E - Samples of Student Work .................................................... 52
Combining Science and Reading Materials to Teach Comprehension Strategies

by Melena Haskovec

Can science and reading be taught simultaneously? How do you go about it? Can first graders and kindergartners help each other learn to read? How can first graders apply comprehension strategies in the content areas? The kindergarten teacher, Mrs. Fish, and I set out to find the answers to these questions. We wanted an innovative way to teach science and reading to our students. We knew we needed a plan and books to use. I was working on my masters in literacy education and Mrs. Fish was taking a set of science workshops and two workshops integrating reading and science. Through our classes we realized a need to improve our science programs with appropriate literacy experiences. Mrs. Fish came across a McElroy Excellence in Education Grant. We applied for $2000 to get science books for young children and we received the grant. Now the hard work and real journey began.

Purpose

We believe that science, children and books are a natural combination. Our goal with this Reading/Science project was to increase the reading and listening achievement of kindergartners and first graders by using grade level appropriate materials along with multi-age groupings. The focus was the application of strategies to increase reading and listening comprehension. Improved reading comprehension will elevate science understandings and the natural enthusiasm children have for science will help raise each child’s level of reading/listening comprehension (Fredericks, 2003). Our first step was to identify the need to improve our young children's comprehension with science materials. Next, we needed topics of study.

The standards and benchmarks in our school district are already established so we used them to choose four focus units. Our focus topics were: weather, force, thinking like
a scientist, and living things. Within each topic a comprehension strategy was taught and practiced. Now, we needed to look at how to make this project innovative.

This project was innovative in our district because we were stepping “out of the box” to work together with multi-age groupings, to enhance both our reading and science curriculum with grade level appropriate science trade books, and by purposely choosing to stress two district goals within one lesson.

What comprehension strategies are most appropriate for our age level? What strategies can children in kindergarten and first grade apply with guidance and on their own? The answers to these questions evolved throughout the project. In the beginning, we read articles and books to see what information was available.

Supporting Literature

“Informational text permeates our everyday lives. Newspapers, computer manuals, television directories, maps, cookbooks, and magazines are firmly woven into the texture of our culture. Yet, these are the very texts that learners tell us are the most challenging to them.” (Hoyt, 1999, p. 121).

This is why it is important for children to learn early on that reading is for meaning. It is not just a matter of decoding words. Why not start out with this important focus right from the beginning? Children need a chance to learn strategies as they listen and read and then they need to apply these strategies. The application of the strategies starts with guidance and then the teacher backs away and the children start to use the strategies on their own (Armbruster, Lehr, & Osborn, 2001, p. 53).

Another term that describes this concept is scaffolding (Bodrova & Leong, 1996). Scaffolding occurs when a task is given to a child and completed with assistance from a more knowledgeable person. Gradually, the assistance decreases until the child is able to do the task independently. This type of teaching follows Vygotsky’s zone of proximal
development (Bodrova & Leong, 1996). The teacher identifies a task in a child’s zone, then gives the child the necessary guidance to do the task, and gives a little less assistance each time (Bodrova & Leong, 2001).

In the book, *Children’s Comprehension of Text* (Muth, 1989), the researchers collected and read expository comprehension research and the “findings suggest that students’ knowledge and understanding of expository text structure in prose is crucial for the comprehension of the information in texts (p. 146).” For teachers this means that students at all levels need to have explicit instruction in identifying text structure and main ideas. This will help improve students’ comprehension. “It becomes apparent that we must aggressively engage them at the earliest stages of literacy development with nonfiction reading” (Hoyt, 1999, p. 7).

Harvey and Goudvis (2000) support the importance of teaching reading comprehension strategies and thinking. After all, constructing meaning is the reason we read. They “want students to enhance their understanding, acquire and use their knowledge, monitor for understanding, and develop insight (p. 8).” It is brought out that not only is comprehension thinking about what is being read, but also about what is being learned. Comprehension involves both the process and the content. It is easy to focus on one or the other, but the challenge is to bring them both into lessons. Harvey and Goudvis (2000) refer to using both the process and the content as ‘constructing meaning’ (p. 9).

It is easy for young children to get stuck on decoding words and not construct any meaning as they read. Young children need to be taught the strategies good readers use. They use the strategies in their simplest forms, but they are starting to become reader/thinkers and are laying a strong foundation that can be built on by others and their own reading.
Six strategies that good proficient readers used are listed by Harvey and Goudvis (2000). The strategies are: making connections between prior knowledge and the text, asking questions, visualizing, drawing inferences, determining important ideas, synthesizing information, and repairing understanding (p. 10-12). Armbruster, Lehr, and Osborn (2001) also list six strategies that have a scientific base for improving text comprehension. They are: monitoring comprehension, using graphic and semantic organizers, answering questions, generating questions, recognizing story structure, and summarizing (p. 49-53). Most of them match up with Harvey and Goudvis's list.

In recent years, many researchers on comprehension have included the idea of metacognition in their discussions. They contend that it is important for children to know about how they are thinking and be aware that they are using strategies. "They (readers) need to learn how to activate and utilize their own prior knowledge on the topic and to apply a wide range of metacognitive strategies for making meaning while seeking information" (Hoyt, 1999, p. 121). In their book, Mosaic of Thought, Keene and Zimmerman (1997) discuss metacognition at length and they outline what readers do if they are metacognitive. One cognitive strategy is to activate relevant, prior knowledge before, during, and after reading text. Another strategy is to determine the most important ideas and themes in a text. Readers should ask questions of themselves, the authors, and the texts they read. Other strategies are: to create visual and other sensory images from text during and after reading, activate relevant, prior knowledge before, during, and after reading, determine the most important ideas and themes in a text, ask questions of yourself, authors, and the text (Keene & Zimmerman, 1997, p. 22).

Brian Cambourne and Hazel Brown did a research project on reading and retelling. They wrote a book, Read and Retell, describing their process and what the students gained from it. During the sharing stage students "are learning the vocabulary and skills of
talking about written language (p. 9-10).” They refer to this as a ‘meta-linguistic’ level. The children are thinking about and learning how to write and speak about writing. When students are putting together their retellings not only are they developing comprehension, but they also need to think about the best way to organize it which involves thinking about how they interpret the text.

When looking at teaching reading comprehension using nonfiction, teachers should examine their own thinking and strategy use (be metacognitive) and look at the six strategies that have been suggested by research as a solid place to start. The next step is to have a clear understanding of expository text.

In *Children’s Comprehension of Text*, Muth (1989) defines expository text. Good expository text can be: informational, explanatory text, directional text, and narrative (p. 141-143). Research has suggested that students’ ability to use text structure and/or main ideas for comprehension purposes increases with age (Muth, 1989, p. 145). In the early grades teachers are exposing children to expository text and the idea that we can read to learn. Reading does have a purpose and one of the purposes is to learn new information. Most young children are eager to learn about the world around them especially animals and how things work.

Teachers need to know the categories of expository text as well as they know the components of narrative text. Students also need to be taught the difference. The major categories of expository text given by Muth are description, illustration, sequence, argument and persuasion, and functional (p. 147). The idea is that there are different types of text and that we read different ways depending on our purpose and what kind of text it is. The first concept children need to learn is that we read to remember and understand. From there teachers can begin to teach text structure and main idea. Muth
states, “Students who are able to identify main and supporting ideas in expository texts generally recall significantly more information than those who do not” (p. 164).

Several books offer a variety of comprehension strategies. Revisit, Reflect, Retell. Strategies for Improving Reading Comprehension by Linda Hoyt (1999) provides many strategies and forms. One of the forms focused on the reader and offered ideas to the reader before they read, while they read, and after they read (p. 124). This reiterates what Keene and Zimmerman said in their book about thinking throughout the process of reading. With young children you can focus on asking “I Wonder” questions before reading, stopping during the reading to talk about the pictures and what was read, identifying key concepts while reading, and writing or talking about what was read after reading. The “I Wonder” questions is a natural strategy when incorporating science and reading. Science materials lend themselves to inquiry and the scientific method is based on inquiry.

After examining our own reading comprehension, thinking about strategies, and exploring nonfiction text it is time to find a way to teach children how to use the strategies and become thinkers and reflectors while they read to learn and understand.

“Effective reading comprehension strategy instruction is explicit or direct” (Armbruster, Lehr, & Osborn, 2001, p. 53). The steps to teaching a strategy are direct explanation, modeling, guided practice, and application (Armbruster et, al., 2001, Harvey & Goudvis, 2000). Comprehension instruction should begin in the primary grades. “It is widely accepted that the roots of the process lie in a child’s emergent literacy phase of development (Block and Pressley, 2002, p. 219.)” Harvey and Goudvis (2000) give teaching examples using nonfiction in the primary classroom and so does Miller. Several sources have shown that comprehension and strategy instruction should start in the primary grades.
Part of learning is being in an environment that stresses learning and collaboration. Keene and Zimmerman (1997) list four key elements for learning environments. They are time, ownership, response, and community (p. 7). Teachers need to have time in their lessons for children to share what they are reading and writing. Children feel ownership when they have choices. This can be accomplished by allowing children to chose a center, chose a book to read, or to chose what they are writing about. After children read and write teachers can give them the opportunity to respond to the text and to each other. Some strategies for responses are drawing pictures, keeping a journal, holding a discussion, having an author’s chair, and tag. The ‘t’ stands for tell something about the text, the ‘a’ is ask a question, and the ‘g’ is give a suggestion. Children can build meaning from each others’ responses.

In order to build a community students need an opportunity to share ideas with each other, help each other and respond to each other. In Put Reading First (Armbruster, et al, 2001) the authors espouse cooperative learning. “Effective comprehension strategy instruction can be accomplished through cooperative learning” (p. 54). Reading is a social act. By working together children see other students use comprehension strategies, understand ideas more clearly, and gain more from text. When young children are excited about learning something new they naturally want to share that information. Then the other children want to read what they are reading.

Keene and Zimmerman (1997) support the idea of the importance of social interaction. “Meaning from text is constructed socially - how conversing about text deepens our understanding of virtually everything we read” (p. 7). The authors reinforce the idea that children need to work together and discuss text even at a young age. Children need guidance and structure to stay on task and actually be focused on the concept of the text.
Cambourne and Hazel (1987) have a share and compare stage in their retelling model. During peer readings they found value in having the children share and give suggestions or ideas. The children were learning and constructing comprehension from each other. An unexpected result of the retellings was that the students gained more confidence in themselves with their writing and speaking ability.

Reading comprehension is a complicated process that takes place in the brain. It involves thinking about how we think, learning new information, and connecting that information to what we already know. It has been repeatedly suggested that there are six main strategies good readers use. These are: monitoring comprehension, using graphic and semantic organizers, answering questions, generating questions, recognizing story structure, and summarizing.

Research also indicates the need for instruction of comprehension strategies in the primary grades, beginning with the concept that reading is an active and purposeful process. We need to think about what we are reading and construct meaning while we read. Strategy instruction starts with modeling and direct instruction, guided practice, and then application. “Reading is a complex process that develops over time” (Armbruster, Lehr, & Osborn, 2001, p. 55).

Collaboration becomes an important part of the learning environment and the learning process. Children need opportunities to gain new knowledge and strategy use from each other.

Finally, nonfiction has an important part in the primary grades. Children need a chance to learn that we read different books for different purposes and that different books have different structures. The ability to read and learn is something that cannot be taken away from a person. Reading means making meaning and reading is powerful.
Reading allows people to learn about anything they are interested in. The ability to reads opens up opportunities for life.

The Project

Our specials schedule runs on a six-day cycle so we do not follow the days of the week. Mrs. Fish and I decided to meet once a cycle from January through May. We set it up to focus on one theme a month with both classes doing activities at their level on the theme and then coming together once a cycle. The monthly themes were as follows: January - Force, February - Our Country, March - Thinking Like a Scientist, April/May-The Environment.

We started by bringing our classes together on Day 1 for fifty minutes. We planned the lessons ahead of time and wrote out a reflection after each lesson. After the lesson was planned I front-loaded with the first graders. In other words, I did some lessons to get the first graders prepared to work with the kindergartners. The first graders usually had to get books ahead of time and practice reading so they were prepared to read to their kindergarten buddy. I taught strategies during whole group reading lessons and during guided reading in the first grade classroom. I did this before we had our lesson together with the kindergartners. During the combined lesson we taught, modeled, or reviewed the strategies with the whole group and then the children worked with their partners.

For each theme we focused on a strategy. (See Appendix A for a chart with the topics and corresponding strategies.) For the "Force" unit the strategy was organizing what we read or listened to. We used graphic organizers, books, and charts. For "Our Country" the strategy focus was showing what you learned by being creative. We used songs, drama, and drawing. During the Thinking Like a Scientist unit the strategies were
choosing the important point, asking questions, and stopping on each page to discuss it. It was time to start bringing the whole comprehension idea together for the children.

In March we changed our meeting time to Day 3 at 1:10-2:00. We were trying to bring the children together at the best possible time. We started the project knowing we would need to be flexible and change things as the year went on. Communication between the two of us was crucial and we worked hard at keeping our focus in mind throughout the project. Our goal was to help the students use strategies to increase reading and listening comprehension in the context of science. We also expanded the goal to include social studies.

The Role of the Teachers

Mrs. Fish and I had to design the curriculum and choose the materials as we went. When we planned each lesson we also decided who was teaching each part and who was getting what materials ready.

We had a vision, but it was time to fit it altogether. Our roles and vision were modified as the project progressed. We wanted the students to know that the purpose of using these strategies is to understand and remember what you read and hear. The strategies we were teaching them are tools to help reach that end.

In January, our role was to model the comprehension strategies we had chosen and then give the students a chance to apply them. As the children started doing more buddy reading and applying the strategies our role also included monitoring growth and helping each group work together and stay on task.

An important role throughout the project was classroom management. We had 38 children working in one room most of the time. We wanted the time to be used productively and to be meaningful. An effective management technique was starting with a song or chant. Then all the children were focused up front and ready to go. Mrs. Fish
and I also have similar expectations and want all the students to be listening so while one teacher was teaching the other one was watching so the children stayed focused.

We also reviewed what buddy reading looked like and sounded like each time. This is that your hands are on your lap or on the book, your eyes are on the book, your ears are listening, and your brain is thinking. These applied to both the first graders and kindergartners.

The last role involved with each lesson was reflection by Mrs. Fish and me. We took a few minutes to discuss how the lesson went and where we wanted to go next. Then we decided on a time to get together to plan the next lesson. It was hard to find a common planning time every week so we just planned after school on a day we could both stay. We also had to stay on top of the planning so we could front-load the students and had time to get the materials ready. We could not plan the night before.

The Methods

Mrs. Fish and I started in January with a unit on “Force.” (See Appendix B for copies of our lesson plans.) We all met in the kindergarten room. The first strategy that was taught was how to organize information in a chart. We wanted the students to start learning how to organize information so they could read, listen, and remember (Keene & Zimmerman, 1997). The brain likes patterns and to be organized. “Graphic organizers help students read to learn from informational text in the content areas” (Armbruster et al, 2001).

For the first lesson we read aloud a book we ordered called, Make It Move! (Canizares & Chessen, 1999). Then we read aloud a poem about moving. After that we read a line and the children echo read and we asked them what the rhyming words were. Next the kindergartners and first graders were paired up and they worked together to fill in a chart with things that you push and pull. We also pointed out that push and pull
start with the same letter. We discussed how organizing information helps you understand and remember what you are reading and learning. After the students made their charts we came back together and shared some ideas. We recorded their answers on a chart. We found that the students cooperated and each group had responses on their paper. We chose to have the children keep the same partners each time to speed up the transitions and so they could get to know each other over time. During the force unit we focused on organizing information as our only comprehension strategy.

The second lesson began with a song about force. We made a list about force, read a book aloud, and modeled a chart. Then the first graders read to the kindergartners and together they made a force chart.

The third lesson we continued to focus on being organized and we made up a chant about being organized. The chant is:

President Bush is organized.
Mr. Parker is organized.
The GR Rebels are organized.
We can be organized.
Two thumbs up and give it some steam.

Then the children did an experiment about static electricity and made their own flap book organizing what they observed and the main point that static electricity is a force. For the flap book the children organized what they learned by their five senses.

We changed units at this time and switched to a social studies about our country. The strategy we focused on was using art to show what we have learned. This lesson started with a song called PEACE sung to Old McDonald. Here are the words:

Americans have a dream for P.E.A.C.E.
We have lots of love to share.
We spread kindness everywhere.

Americans have a dream for P.E.A.C.E.

We created a chart that said, Our Country is..., and the children listed ways to name our country. Then we listed symbols for our country and read aloud, *The Star Spangled Banner* (2002), printed by Scholastic. We talked about the most important word which is the highest word, free. Then we showed the children pictures of the statue of liberty and discussed this symbol. The children made crowns and torches like the statue of liberty. We ended with our song.

The next lesson focused on creating something based on what you read or heard. The first graders had symbol books they had made to read to the kindergartners. Then we added to our symbol list from last week and read about symbols from a *Weekly Reader* (2003). The children we divided up into groups and had to create a movement and a sound that went with their symbol. After they were done creating we read the *Weekly Reader* (2003) again and when their symbol was read the children had to stand up and do their movement and sound.

In March, our last lesson on creating focused on famous Americans. We started out with the first graders doing a choral reading about Martin Luther King and the kindergartners had a part to do together. Then the kindergartners sang a song about Martin Luther King to the first graders. Each first grader had a biography about a famous American to read to their buddy. The goal was to remember something about the famous American you read or heard about. After they read their books they made quilt squares about their famous American. Each child made a square and was to put the name of the famous American in the middle with a picture or sentence about the person. Then we had a red, white, and blue border and we attached all the squares together to make a quilt which we hung in the hallway.
The next unit focused on the main idea and the topic was thinking like a scientist. We reviewed why we read which is so we can learn and remember what we read. Then the children buddy read books about thinking like a scientist. After that we regrouped and read aloud, *The Important Book* (1949) by Margaret Brown and discussed picking out the important information. The last step was to have the children make lists of things a scientist does and have them circle the most important thing. Here we were bringing science, reading, and inquiry together.

For our first lesson in April, we built off the last lesson. We reread *The Important Book* (Brown, 1949). Then we introduced the VIP strategy (Hoyt, 1999). VIP stands for “very important point.” As each pair read their books about scientists, each child received a sticky note to place in their book to mark the page that has the most important point. We reviewed what buddy reading looks like and sounds like: eyes in the book, hands in your lap or on the book, and your brain is thinking about the book. Then the children filled out a form that followed the format of *The Important Book* (Brown, 1949) using the book they read. To close, a couple of groups shared their papers.

We were stretching thinking like a scientist to the environment and focusing on finding the main idea. We reviewed what we did last week and then the first graders did a reader’s theater called, “Hooray, Spring is Here” (Pugliano-Martin, 1998, p. 23-24). We introduced a main idea glove and filled out the graphic organizer for the reader’s theater. The main idea glove has a heart on the palm and the fingers are number. The heart is for the heart of the story or the most important part. The fingers are the details from the book that go with the main idea or heart. We drew a hand on paper and put the heart and numbers on it for a graphic organizer. Then the children buddy read and filled out the hand graphic organizer for their book. For closure we shared a couple of hand graphic organizers.
For the next lesson we focused on asking questions while you are reading. We started with a song about the heart of the writing. The words are:

We want to remember what we read so we can succeed.

Our fingers are the important facts

But the heart of the writing is the most important part

Of whatever we read.

Before this lesson the first graders had practiced their books and wrote questions on stop sign book marks. As the children read together they were supposed to stop and ask the kindergartners the questions on their bookmarks. Afterwards the children were to write down the answers to their questions. We closed with the song.

For this lesson we went back to focusing on the main idea and details with the topic of our environment. We started with the glove song and then previewed some of the words from The Lorax (1971) by Dr. Seuss. Then we discussed what the story could be about based on these words. I read aloud The Lorax (1971). We did a sample word sort together and then each set of partners did a word sort. If they finished one sort they we asked to sort the words a different way. At the end of the day we showed a video about the Lorax.

The last two lessons involved reviewing all the different strategies we used to show that we read to remember which were charts, songs, book making, drawing, the hand graphic organizer, drama, and asking questions. Then each pair had a nonfiction book that they read and reread and developed some way to show the rest of us what they learned from that book.

Results

In order to evaluate the success of the program I looked at a number of different factors. These included the children’s performance on comprehension measures,
students' demonstrations of the use of the strategies, and a sample of the children's perceptions of the kindergarten buddy project. Finally, I looked at the professional growth that occurred through collaboration with my colleague.

**Increased Comprehension**

In first grade the change in comprehension was measured by the Basic Reading Inventory or BRI (Johns, 1997), the S.T.A.R test (Renaissance Learning, 1998), and the guided reading level, based on Fontas and Pinnell's levels (1996). It is difficult to say this comprehension strategy project was entirely responsible for growth in the children's comprehension levels since it was only one piece in our language arts program.

For the BRI given in October, 13% or 2 of the 15 first graders scored 90% or better on the comprehension questions. In March 53% or 8 students scored 90% or better and in April 100% of the students scored 90% or better.

When given the S.T.A.R. test in December the average grade placement was 1.31, meaning first grade third month. In May the average grade placement was 1.81 or first grade eighth month. The change was 0.5 which is five months average growth in five months. The average instructional level growth in those five months was 1.9 which is almost two years according to the report generated from the S.T.A.R. program. For the class the average, the December grade equivalent score was 1.5 and in May it was 2.3. This is a growth of 0.8 or eight months, achieved in five months. All of the children showed growth; individual growth varied from one month to 2.5 years.

The guided reading levels are based on Fontas and Pinnell’s levels (1996) which are labeled by alphabet letters. The expectation for the end of first grade is level I. I used the Rigby PM Kit to evaluate the children’s reading growth and comprehension. Each month I had each child read a book from the kit while I took a running record. If they scored 90% or better I would test them at the next level. The Rigby PM Kit corresponds
to Fontas and Pinnell's levels. In February two children were on level D, one child on level E, one on level F, four on level G, five on level I, and two on level M. In May one child was on level E, one on level F, two on level H, four on level J, five on level K, and two on level U. (See Appendix D for a chart with the students' levels.)

It is expected that all children will show growth and that some will grow faster than others. Overall, this class has come a long way in their ability to read and comprehend first grade material.

**Completion of Tasks**

It is important to both Mrs. Fish and me that students are productive and on task. We have finished products as evidence of time on task and project completion. (See Appendix E for some student work samples.) We also monitored the group each time and redirected the children as needed.

At the end of the project the children had a nonfiction book about animals and they could choose any strategy to show the rest of us what they learned from the book. (See Appendix E for student work samples.) One group chose the important format and listed the most important thing and five details. Several groups chose to use the hand graphic and some drew pictures. When I was observing the children as they produced these products, their results appeared to be very "simplistic," without showing much understanding. However, when Mrs. Fish and I talked to the children they were able to express much more about the book than they were showing and they shared extra information with the rest of the class. We did ask the children questions about their books to see how in-depth their understanding was. Most of the groups also did write something on their pictures to go with their drawings. The children tended to write the main idea which went with several of our lessons.
Children's Perceptions

At the end of the year I took a survey from a sample of first graders. I selected a boy and girl from the lower third of the class, the middle third, and the top third based on their reading scores. I asked these six children five questions and I have included their responses.

1. What did you think about working with your kindergarten partner?
The answers were: good, it was kinda fun, it was fun (3 children), it was nice, they were nice and funny and good at math and listening to the stories. Overall, the first graders enjoyed working with the kindergartners.

2. Why do you think we did that?
The answers were: we liked it, to have fun, so we can learn about force and science stuff, to learn to remember and be organized, so we can get along and the kindergartners could learn some more stuff, and to learn about different things.

One student really had the goal which was to remember what you read or "comprehension." Several of the other children knew it was about learning new concepts either mentally or socially. The collaboration between the students and between us as teachers turned out to be one of the unexpected positive results of the project. It is interesting that one of the students picked up on this piece.

3. What do you remember about what we did?
The children answered: we made the Statue of Liberty, we made and read books, we made up a lot of songs, the songs, we read books and drew a picture about owls and told about them, and we learned about ice, water, and snow.

The children mentioned something from all of our units which shows that the students remembered information over time. Also, the songs helped the students remember the content and the strategies we were working on.
4. What did you learn from it? (What did you learn about reading?)

This question was aimed at seeing what the children learned about reading metacognitively. The answers were: there’s different animals, it’s good to read, we read to remember, that there are four different seasons, the important thing about a book, and lots of different things, how to make the statue of liberty crown and torch, and you can have fun while you read.

Some of the children just wanted to say a piece of information they learned while others did get to the strategies. One said the main point of the project to read to remember. Throughout the questions the word fun did come out. We concluded that the children were learning and enjoying it.

5. Is there anything else you want to tell me about our kindergarten buddy project?

None of the children had anything to add.

For the last three children I also asked, “Why do we read?” After the first three children answered I felt question four was not getting the children to talk about the purpose of reading, so I asked the rest. They said, so we can get good at it, to help you get better, and so we can learn more. It is interesting at this level to see what their perceptions are. I hope that as their skills progress that they don’t just see reading as something to get good at. The two students who said that are in the Title 1 special reading program and struggling a little bit. They are motivated to read because they do want to get better at it.

I asked one of the girls why she wants to get better at it and the answer was so we can read every word. She hasn’t started thinking about the content of what she is reading yet. On the other hand one of the students says she reads so she can learn more. She has
strong skills and is looking at the meaning. For me this demonstrates the different stages of reading development (Strickland & Strickland, 2000).

From this survey, I learned that these students enjoyed the project and were learning about reading strategies. They had different reasons for reading which included to get better at it and to learn more. The children are also at different stages in their reading development and this project was helping children at all the stages.

**Professional Growth and Collaboration**

One of the unexpected results was the teacher-to-teacher collaboration. Mrs. Fish and I met together to plan out each lesson and then after each lesson we met and reflected on the lesson. Our written reflections appear at the bottom of each lesson plan in Appendix B. This reflection time also helped us decide where we wanted the next lesson to go. We agree that for us one of the most powerful parts of the project was taking the time to reflect. After some lessons we felt differently about how the lesson went and this reflection time gave us the chance to talk about it and see what the other teacher was thinking. At the end of Lesson Two, for example, I realized each of us was focusing on our own grade level. This is not a negative aspect, but it showed that we were focusing on different aspects of the lesson and that our reflection time was important so we could improve the instruction for all the children. Also, each of us took something different away from the lessons. We were learning from each other. As the school year came to an end it was harder to find that reflection time, but we did.

One of the principles of the Vygotskian framework is that development cannot be separated from its social context (Bodrova & Leong, 1996). In our case this applies to both the students’ learning and to our professional growth as teachers. We learned from each other and enjoyed team teaching. Both of us brought different experiences and resources to our classrooms and to this project.
I found this to be the most meaningful curriculum project I have worked on for several reasons. First of all, I had not focused on comprehension strategies previously. I have always believed that we read for meaning and that if children are just saying words they are not truly reading. Previously, I did ask questions after reading and wanted the children to understand what they were reading, but we didn’t talk about strategies that you can use to help you understand. Until now I had focused on decoding strategies and teaching children what to do if they came to a word they don’t know. Now I tie more comprehension instruction into my guided reading lessons and read alouds. I have added a center where the children are choosing books to read and doing a retelling for the class after I model retellings and then we practice them together.

Secondly, I found a way to make rereadings more meaningful for my students. They were going to be reading to the kindergartners and they were the “big children.” They wanted to be fluent and sound like good readers. What a great way to motivate students without rewards or consequences!

I also felt like the students were learning information more in-depth. I kept notes about how the children started incorporating new vocabulary while they were talking to each other and answering questions. For example one child used the word *attract* in a group discussion after reading a book about magnets during our force unit. Another time while reading a book two girls recognized Abraham Lincoln and George Washington in the pictures on the wall in a book they were buddy reading. This was after we had done our unit on Our Country and discussed these two men.

Another unexpected result from this project was the relationship that I started forming with the kindergartners. We have single sections currently in lower elementary so I knew I would have these kindergartners the next year. It was nice to know all of them by name and to have an idea about each student when the school year started. We already
had spent some time together and the students and I were more comfortable at the
beginning of the 2003-2004 school year.

**Future Plans**

Mrs. Fish and I are going to continue the project in the 2003-2004 school year
from January to May. We are looking forward to seeing how the first graders do this year
since they worked on comprehension as kindergartners.

Already this year, 2003-2004, the first graders have started using the organize
chant on their own and they have asked several times when we get to have kindergarten
buddies. We have chosen to wait until January when the first graders have more reading
skills and can read some books independently. They are looking forward to getting
together with the kindergartners.

The first graders have also brought up the Statue of Liberty from the unit we did
together last February and they ask me if I remember that. They are so proud of the
work they are doing with comprehension. The strategy they have brought up the most is
the hand with the heart of the story. We have made a poster together over one of the
books we read. I am so proud of the connections the first graders are making from this
project. Some of them have shown that they can remember and apply these skills and
strategies.

This year we will use the same topics of study that are aligned with our standards
and benchmarks. We plan to do some different lessons and change the order of the
strategies. We are going to start with The Important Book (1949) and the main idea. We
will meet and plan the lessons like we did last year and they will not all be the same. We
feel the reflection part is the most important piece so we will continue doing that as well
after each lesson.
One management change we are making is to do the whole group activities and then when the children are working with their partners half of the groups are going in the first grade room and half in the kindergarten room. That way we can keep a closer eye on all the groups, make sure everyone is on task, and we will know that each group has been helped.

In both first and kindergarten we are also going to do more “front loading.” By front loading we mean doing lessons with the strategies ahead of time and having the children prepared to work together. For first grade this means having a book practiced each time with fluency built up if needed. The more we model the strategies to the children, the more they can apply the strategies independently or with guidance (Harvey & Goudvis, 2000).

**Concluding Remarks**

We started out asking these four questions. Can science and reading be taught simultaneously? How do you go about it? Can first graders and kindergartners help each other learn to read? How can first graders apply comprehension strategies in the content areas?

We did indeed discover that science and reading can be taught simultaneously. Our focus was on teaching the comprehension strategies using science materials and the children’s comprehension grew. This was evaluated formally and informally.

To go about accomplishing this we read articles and books about teaching young children comprehension strategies and about using nonfiction with young children. Then we chose topics, chose strategies, and created lessons. An important part was reflecting on each lesson before planning the next lesson.

Kindergartners and first graders can help each other learn how to read. The first graders had an audience which gave them a meaningful reason to reread text and become
fluent. The more times they read it the better they understood the concepts. The kindergartners had to respond to the books they heard and built their listening comprehension. Some of the first graders did a better job than others keeping the kindergartners on task which is to be expected. One way we are going to improve this is to split the groups into two classrooms so they can be monitored more closely. We reviewed what buddy reading looked like and sounded like almost every time so the children knew what was expected.

By doing this project, overall I spent more time on comprehension strategies. As a result, the first graders learned that we read for meaning and that they can think about their thinking. First graders can apply comprehension strategies by building fluency and by being responsible for a kindergarten partner. Comprehension strategies need to be modeled for young children and then they need a chance to practice the strategies with guidance. I was pleasantly surprised by how well the first graders did apply the strategies to the different books.

This whole project has been a professional growth journey for me as well as a benefit to my students. I believe that I am teaching young children comprehension strategies in a meaningful way and that there is so much that can be done. I want to keep reading, trying out ideas, and reflecting. It is amazing what young children can accomplish when they are given the proper tools. This project has changed my teaching for the better and I hope that after teaching 20 years I am still this excited about my profession and opening up the world of literacy for my students!
References


Dewitz, P. & Dewitz, P. K. (2003). They can read the words, but they can’t understand: Refining comprehension assessment. The Reading Teacher, 56, 422-435.


We are proud of our country. (2003, January, Week 4). *Weekly Reader.*
## Appendix A
### Strategies and Units Taught

<table>
<thead>
<tr>
<th>Units</th>
<th>Strategies Taught and Practiced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Country Feb.</td>
<td>Being Creative - Songs, Drawing, Drama, Our Purpose - To remember what we read and hear</td>
</tr>
<tr>
<td>Thinking Like A Scientist March</td>
<td>Main Idea and Details - VIP Strategy, The Important Book, Glove Asking Questions</td>
</tr>
<tr>
<td>Environment April-May</td>
<td>Main Idea and Details - Word Sort, Show What You Have Learned</td>
</tr>
</tbody>
</table>
Date: 1-16-03
Strategy: Organizing Information in a Chart
Unit: Force

Science/ Language Lesson Plan

Intro: Read aloud, Make It Move!

Activity: Poem, “Make It Move”
   Read the whole thing.
   Read a line and have the children echo
   Ask for the rhyming parts
   Chart - Pair up the first graders and kindergartners
   They work together to fill in the chart with things they push and pull. (They both start with ‘p’.)
   Sharing - Each kindergartner shares one thing they push or pull.
   Becky will record.

Closure: Review the strategy.

Reflection:

The kids worked well together. The vocabulary was taught by example. The kids are not sure about the strategy. We need to have more of a focus on the strategy. Next time we will look at different ways to organize the information.
Date: 1-26-03
Strategy: Organizing Information in a Chart
Unit: Force

Science/ Language Lesson Plan

Intro: Song Force (To the tune of Bingo)
There's something in this world of ours
That moves things around.
F-O-R-C-E (3 times)
Force moves things around.

Activity:
We are reading to remember so we will organize.
Discuss what a force is and list things that make things move.
(Melena records on the board.)
Read aloud, Sailing by Donald Crews
Discuss wind as a force
Model chart
-Things are moving in these pictures so let's
figure out what makes these things move.
-Show the words and the chart.
Partners read about different kinds of force and then
make a chart.

Closure: Group sharing - 1 idea for each force on the chart
Song

Reflection:
We ran out of time to make a whole group chart at the end. The first graders did a
good job today. I am proud of them. They have a purpose for reading and they
are enjoying it. The kindergartners were not listening to the first graders. For the next
time we need to emphasize the kindergartners' job and teach the first graders to
bring the kindergartners into the reading by talking about the pictures, asking
question, and making sure the kindergartners are looking. The song tied the lesson
together. For the strategy we need to say, "What are some ways we can organize
information? How have we used charts?" We will do one more group lesson with
force with experiences and organizing info by our senses in flap books.
Date: 2-4-03
Strategy: Organizing using a senses and making a book
Unit: Force

Science/ Language Lesson Plan

Intro: Everything we learn comes through our senses. (Point to each one.)
Our brain likes us to organize what we learn. There are lots of ways to do this. We have done it with a chart and webbing. Today we will organize what we have learned in a book.

Chant
President Bush is organized.
Mr. Parker is organized.
The G-R Rebels are organized.
We can be organized.
Two thumbs up and give it some steam.

Activity:
Read aloud - Electricity
Explain static electricity: We cannot see it, hear it, or touch it. We know it’s there because of what it does. It produces heat and light. We know the kind that comes through the outlets called current electricity. Electricity is made of tiny particles called electrons. We cannot see them. There’s another kind where the particles don’t move. The particles collect and stay still, this is called static electricity. What does static mean? Static means they don’t move.
Demonstrate by rubbing a balloon on your hair.
Explain the experiment with the sheets, have the children make predictions, and talk about working together.
Do the experiment.
Get back together and ask, “What happened? What was the force?”

Explain how to fill in the flap book
Have the kids make the flap book.

Closure: Share a book or two and say the chant.

Reflection:
Having the directions added literacy to the experiment. The kids really showed what level they were at when they made the books. We need to put AJ with another first grader. He is having a hard time doing his job. The chant was helpful. Again we ran out of time. We are planning too much. Some of the kids were on task and some of them were off task. The kids enjoyed the experiment and the book started to bring it together. Most of the first graders are learning about static electricity and to organize, but the kindergartners aren’t. The next lesson will be the last one with force and we are going to bring together all the ways we have organized. By doing this what can you remember about force?
Change of plans, we are moving onto a social studies unit called Our Country.
Static Electricity

1. Get a paper plate and spoon. K

2. Get the salt and pepper. 1st

3. Add the salt. K

4. Add the pepper. 1st

5. Rub the spoon. Both

6. Hold the spoon over the plate. Both

7. See what happens! Both
We learned that static electricity.

We learned that static electricity.

We learned that static electricity.

We learned that static electricity.
Date: 2-12-03  
Strategy: Art and Being Creative  
Unit: Our Country

Science/ Language Lesson Plan

Intro: Song, PEACE (Sung to Old McDonald)  
Americans have a dream for P.E.A.C.E.  
We have lots of love to share.  
We spread kindness everywhere.  
Americans have a dream for P.E.A.C.E.  
Discuss the purpose of using art to help us remember.  
Play the Star Spangled Banner

Activity: Have a chart and at the top write: Our Country is......  
(Have the kids list ways to say it.)  
What are some symbols? (List them.)  
Read aloud, The Star Spangled Banner  
What word in this book is the most important word?  
The highest word when you sing - free.  
Show pictures of the Statue of Liberty  
There is a word that means the same as freedom in her name. What is it?  
Give the instructions for how to make the crown and torch.  
(We split the kids in half and went in both rooms.)

Closure: Song PEACE and review our two points, American and the strategy.

Reflection:

We need a chant for art. The kids bring up the organized chant all the time in both classes. The kindergartners were active and it was good for their level. Most of them know the vocabulary word liberty. Ellie and Tyler W. asked good questions. We will follow up on the questions next time. We did not read, but we had a read aloud, made charts, broke words into sounds, spelled, and focused on remembering. Splitting the group up helped and we went through last recess. We need to read next time. Each class will have a So when we do plays have a question to pose at the beginning. The questions they asked were about the statue of liberty and were: What is it made of? How was it made?

Change - My student teacher addressed the questions in class.
Date: 2-21-03  
Strategy: Create  
Unit: Our Country

Science/ Language Lesson Plan

Intro:  Our purpose is to become stronger learners and to remember what we learn.  
Organized Chant  
New chant for create  
Right brain calling left brain  
Let's create! Ready, hit it!  
We can, we can dance (This part is We will rock you.)  
We can, we can sing (continue with act, write, paint)  
Hey, good job, good buddy.

Activity:  Read to each other our handmade books about our country.  
Regroup and add to the symbol poster we started last time.  
Read aloud from the Weekly Reader  
Divide the class into small groups, each group gets a symbol and has to create a movement and a sound for it. The symbols are: white house, flag, statue of liberty, eagle, president, and our country.  
Regroup and each group shares their action and sound.  
Then reread the Weekly Reader and when their symbol is read they have to stand up and do their action and sound.

Closure: Create Chant

Reflection:

All the kids did a nice job reading. Having the small groups each do a symbol worked out well. The kids were listening and creative.
Date: March 2003
Strategy: Create
Unit: Our Country
Science/Language Lesson Plan

Intro: Create Chant
Review our purpose: Listen and read to remember.

Activity: Choral Reading: He Had A Dream
- Have the kindergartners read the all part with us.
Melena
Song: The kindergartners stand up and sing to us.
Becky
Buddy Reading - 1/2 in each classroom
Melena
Explain what buddy reading looks like and sounds like.
Goal - To remember about a famous American
Make quilt squares: Put in the middle the name of the famous
American you read and a picture of something about
the person, then glue on the border.

Closure: Create Chant
Becky

Reflection:
We ran out of time so we're going to do the quilt squares separately. This is a bad
day for the kindergartners so we are going to skip to day 3 at this time. They have
too many specials and trouble focusing. The first graders biographies we too long
for the kindergartners so they didn't all pay attention. I need to have shorter books or
the first graders just read part of it. I have worked with the first graders on stopping
and talking about the pictures. Only a couple are applying it.
Date: 3-26-03  
Strategy: Main Idea  
Unit: Thinking Like a Scientist  
Science/Language Lesson Plan  

Teacher

Intro: Organizing Chant  
Reason we read: so we can learn and remember what we read.

Activity: Buddy reading  
Review jobs and discuss how we all have books about what scientists do.  
Regroup and read aloud, The Important Book  
Discuss picking out the important information.  
Buddy groups list things a scientist does and circle the most important thing.

Closure: Share a couple of lists. Ask what is the important thing a scientist does? (ask questions)  
Bring science, reading, and inquiry together.

Reflection:

We had to end the lesson 20 minutes early for an assembly so the kids did not make their lists. Most of the kids were on task during buddy reading. They were asking questions and discussing the books. We were both happy with how the lesson went. The kindergartners were more prepared ahead of time and were not as unattentive to their buddies. They also had a story about scientists on chart paper which we read together. This front loading before the lesson is beneficial for both the kindergartners and first graders. The first graders practice their books ahead of time each week.
The Important Book

The important thing about a scientist is that ______

__________________________________________________________________________

A scientist ____________________________

and ____________________________

and ____________________________

and ____________________________

It's true that a scientist ____________________________

__________________________________________________________________________

But the important thing about a scientist is __________

__________________________________________________________________________
Date: 4-3-03
Strategy: Main Idea
Unit: Thinking Like a Scientist
Science/ Language Lesson Plan

Intro: Reason we read
Reread The Important Book

Activity: VIP Strategy: (Very Important Point) Melena
As the kids buddy read their books about scientists each child
gets a sticky note to place in their buddy book. Each child decides
what the most important point is and marks that page.
Buddy Reading looks like: eyes in the book, hands in lap or on the book,
and your brain is thinking about the book
Buddy read and put in the stickies.
Fill out the important form.

Closure: Share 3 or 4 forms. Becky

Reflection:
The first graders are reading better. It helps to have 2 teachers and the kids were
the most on task they have been. It was a review lesson to bring things together.
The book ties the strategies together very well. The things they wrote down were
right on target and outstanding. We had just the right amount of time and did not feel
rushed. An extension idea is a book about our kids. The most important thing about
_______ ..... Rebecca said, “Do you know why I put my sticky note here? They were
asking a question.” I was happy with the kids using the VIP strategy because they
were applying and showing what they learned. For next time we are going to focus
on the main idea again.
Date: 4-11-03
Strategy: Main Idea
Unit: Thinking Like a Scientist/Environment
Science/ Language Lesson Plan

Intro: Organize Chant
What did we talk about last time?

Activity: Reader's Theater by the first grade, "Hooray, Spring is Here"
Show the main idea glove.
On the board fill out the hand for the reader's theater.
Buddy reading (Remind what it looks like.)
Each pair fills out a hand for their book.

Closure: Share a couple of hands.

Reflection:

I tied the ideas of main idea and the most important thing together over and over again. The visual was helpful. There were a few kids off task during buddy reading, but most were on. They stated their topic as the main idea which was very close. As kids finished I extended it so they were drawing pictures. Some of the kindergartners are wanting to write so next time I think everyone should get a pencil. Also, it may keep everyone more involved. I am glad we started with organizing because that really ties it together from session to session.
Date: 4-22-03
Strategy: Asking Questions
Unit: Thinking Like a Scientist/Environment
Science/ Language Lesson Plan

Intro: Review strategies: organizing, creating, main idea
Song and glove

The Heart of the Writing
We want to remember what we read so we can succeed.
Our fingers are the important facts
But the heart of the writing is the most important part
Of whatever we read.

Activity: Today we are going to practice asking questions and thinking about Melena the heart of the story.
(The first graders have practiced their story, wrote questions on little stop signs, and have them in their books like bookmarks.)
Buddy Read and stop to ask and answer the questions.
As you read stop to answer the questions on your paper.

Closure: Song

Reflection:

The kids were confused about what they were doing with the book, stop signs, and papers. They wanted to read the whole book and then ask the questions or when they started writing they didn't go back to the book. It was not as simple as I had imagined. They did demonstrate some learning from their books. We think it might be a better idea to use a read aloud to model the strategy some more. First graders have a hard time keeping their buddy on task. We did accomplish having the kids know why reading is important. Next time we are going to focus on pulling out the main idea and details. We are going to use the topic of environment. We want to get all the kids productive and involved.
Asking Questions

We ask questions while we read and listen.

The most important thing about reading and listening is ____________

______________________________________________________________

The title of our book is ____________________________

______________________________________________________________

The main idea or the most important thing is ________________

______________________________________________________________
Date: April 2003
Strategy: Main Idea and Details
Unit: Environment
Science/ Language Lesson Plan

Intro: Song - Glove - Melena - Becky was gone.
Activity: Preview some of the words from the Lorax on the overhead.
Discuss what the story could be about based on these words.
Read aloud - The Lorax
Do some example sorts.
Let the students sort with their partners.
Category examples: characters, good stuff, bad stuff, places
living/nonliving
When the kids show one sort have them sort another way.

Closure: At the end of the day show the video, The Lorax

Reflection:
The kids liked the book and listened well. Previewing the words before I read it
gave them more of a purpose for listening. I asked them to put their thumbs up
when they heard a word from the list in the story. They are starting to understand that
they should read to get the main idea or heart of the story. We ran out of time for the
word sort so we did it the next day. The word sort had everyone engaged and
working. This was one of the best lessons with active participation. Some of the
kids came up with new categories to sort and did several sorts. We have found that
the important thing to do is to come back to the purpose every time. The kids need
to understand that the words are the facts and that this was a way to organize the
information.
<table>
<thead>
<tr>
<th>Barba-loots</th>
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<th>Humming-fish</th>
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<tr>
<td>chopped</td>
<td>Thneed</td>
<td>factory</td>
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<tr>
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<td>crummies</td>
<td>harm</td>
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<td>Grickle-grass</td>
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<tr>
<td>care</td>
<td>Once-ler</td>
<td>water</td>
</tr>
<tr>
<td>Swomee-Swans</td>
<td>Truffala Trees</td>
<td></td>
</tr>
</tbody>
</table>
Date: May 2003 - Last two sessions.
Strategy: Show what you learned by choosing a strategy.
Unit: Environment

Science/ Language Lesson Plan

Intro: Review all the strategies we have used to help us remember what we read: Charts, Songs, Book Making, Drawing, Heart Graphic Organizer, Drama, Asking Questions

Activity: Each pair has a book and the first grader reads the book. Then the students choose a way to show what they learned from the book and reread the book. Then they choose a strategy to show what they learned and do it.

Closure: Share the projects.

Reflection:

On the first day the children buddy read and discussed what they read. On the second get together they reread the book and made their display to share with the other kids. The graphic organizer that was best for the kids and really showed growth was the hand organizer. Some of the kids did use drama, some drew and labeled a picture, some wrote the main idea and drew a picture, and some just had drawings and couldn't tell much about them. The kids were engaged, but some just took a few minutes and some took a long time to do their project. When the kids shared some of the kindergartners really know information from the books and most of the first graders did. While they were working Becky and I did go around to each student group and ask what the main idea of their book was. With guidance they could all make a main idea statement. We split the group in half for sharing and half were in the first grade room and half in the kindergarten room. It helped with time and with their attention spans.

For next year we would like to do more splitting up so we can focus on each group of kids and make sure we get to each group. We are also going to start with the main idea strategy and the important book. We need to do more whole group modeling and front loading the kids for our group lessons. Since we only meet once a cycle day we need to do more with some of the concepts in each of our classes. We also want the kindergartners to be more involved.

Overall, the children did a nice job of buddy reading and actually getting something out of each book.
Appendix C

Books Ordered

General Science
Scholastic Science Literacy Center B
Explore Matter with Toys Teacher’s Guide - Delta Education
Teaching Physics with Toys Teacher’s Guide - Delta Education

Six Packs
Thinking Like a Scientist
Science Fair - Newbridge
What Can Change - Newbridge
Our Senses - Newbridge
Sounds All Around - Newbridge
What Do Scientists Do - Newbridge
Up Close - Newbridge

Force and Machines
Simple Machines - Scholastic
Solid, Liquid, Gas - Scholastic
Up and Down - Scholastic
What Magnets Can Do - Scholastic
What is a Plane - Scholastic
What is a Pulley - Scholastic
Around and Around - Scholastic
Back and Forth - Scholastic
Push and Pull - Scholastic
Everyone Needs Tools - Newbridge
Flying - Newbridge
Gravity - Newbridge
Push or Pull - Newbridge
Using Tools - Newbridge
Wheels - Newbridge
Bikes - Newbridge

Living Things
Busy, Buzzy, Bees - Scholastic
Really Big Cats - Scholastic
Baby Bumblebee (Big book and 6 pack) - Wright Group
Nature’s Patterns - Newbridge
Owls - Newbridge
What Does a Garden Need - Newbridge
Corn: From the Farm to the Table - Newbridge
Taking Care of Baby - Newbridge
All From Oak Trees - Newbridge
Amazing Crickets - Newbridge
Ants - Newbridge
How Animals Move - Newbridge

Weather and Environment
How Do You Know It’s Fall - Scholastic
How Do You Know It’s Spring - Scholastic
How Do You Know It’s Summer - Scholastic
How Do You Know It’s Winter - Scholastic
Recycle That - Scholastic
Looking at Clouds - Newbridge
Wind Water and Ice - Newbridge
Watching the Weather - Newbridge
At the Beach - Newbridge
Fall - Newbridge
In Spring - Newbridge
A Pond - Newbridge
Snow - Newbridge
The Wind - Newbridge

Read Alouds - All from Acorn Naturalist
Animal Lives: The Frog
Animal Lives: Barn Owl
Secret Place
Pumpkin Circle
Water Dance
Dream Weaver
Morning on the Lake
The Gift of the Tree
Butterfly House
Lifetimes
The Raft
Eagle Boy
Sky Tree
Earth Tales From Around the World
Pushing Up the Sky
Pass the Energy Please
Old Turtle
Follow the Moon
Earthchild 2000

**Videos and Music - All from Acorn Naturalist**
Dirt Made My Lunch - CD
Bat Chorus - Tape
Dancing With the Earth Video
Appendix D

GUIDED READING LEVELS

<table>
<thead>
<tr>
<th>Children</th>
<th>February</th>
<th>May</th>
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<tbody>
<tr>
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<td>D</td>
<td>E</td>
</tr>
<tr>
<td>2</td>
<td>I</td>
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</tr>
<tr>
<td>3</td>
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<td>J</td>
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<tr>
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<td>I</td>
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<td>8</td>
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<tr>
<td>9</td>
<td>D</td>
<td>F</td>
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</tr>
<tr>
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<td>M</td>
<td>U</td>
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</tbody>
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Appendix E

Student Work Samples

- Force Chart
- The Important Book Form
- The Glove Graphic for Main Idea
- How the Children Sorted words from The Lorax
- 3 Ending Projects: A Quilt Square, a Picture, and an Important Form
Two Mighty Forces!

You use the forces of push and pull every day. Think about your school day. List the different ways that you use each force.

<table>
<thead>
<tr>
<th>The Force Of...Push</th>
<th>The Force Of...Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>You push a horn.</td>
<td>You pull a slate.</td>
</tr>
<tr>
<td>You push a person.</td>
<td>You pull a rope.</td>
</tr>
<tr>
<td>You push people.</td>
<td>You pull a weed.</td>
</tr>
<tr>
<td>You push a wagon.</td>
<td>You pull a screen.</td>
</tr>
<tr>
<td>You push a stroller.</td>
<td></td>
</tr>
<tr>
<td>You push a cart.</td>
<td></td>
</tr>
</tbody>
</table>
The Important Book

The important thing about a scientist is that **they** ask questions.

A scientist **work together**
and **work hard**
and measure
and **look close**

It's true that a scientist is **organized**

But the important thing about a scientist is **key** ask questions.
Reading and Science 55

1. Plant flowers
2. We play outside
3. We can go to the beach
4. You can pick apples
5. The main idea: summer
Lorax Word Sort Category Examples Used by Students

First Letter
Earth Made and Man Made
Made Up Words and Real Words
Good and Bad
Actors
Syllables
Animals and Words
Characters
Good or Clean and Bad or Dirty
Factory Words
Funny Words
They lay eggs.

They hatch from eggs.

Gee.

Wings.

Legs.

Laa laa laa laa laa They say.
they fly
they can see everywhere
other places

the family
good

Owls