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First Grade

Six and Seven Year Olds

Marlborough Elementary School

Robin Fairfield

Light and Sound

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**Part I: Background Knowledge**

A: Developmental Level-General (Standard 1a)

 This spring for seven weeks I will be working with children in first grade at Marlborough Elementary. The ages range from six to seven. Along with the age range the developmental levels of the children vary. There are ten students in my classroom. Each student is an individual and has a different level of development within cognitive, language/literacy, social/emotional and physical development.

Piaget felt that “children between the ages five-seven develop cognitive development the most” (Copple, 2009. P. 271). “Children older than seven think differently than children younger” (Copple, 2009. P. 271). Children between the ages five and seven are beginning to think about things differently and solve various problems. Children age seven and eight can typically reverse direction such as left and right so this may take place if at all in the later part of first grade. Children of primary grades are less egocentric however; a seven year old may believe that because he did not score soccer goal means he is not a good athlete he may hold onto that despite the evidence to the contrary (Copple, 2009. P. 271).

Vygotsky believed that children are ready to focus their attention to learn (Copple, 2009. P. 271). They can retain information on purpose and be able to compare the process of their own learning with teacher expectations. Primary grade children have enhanced their ability to classify, sort and organize materials. Around ages seven-ten children are beginning to understand their own capacity. Children under age nine greatly can use memory strategies but they must be introduced by the teacher. This could be as simple as the teacher stating that you will need to remember this or introduce graphic organizers and memory strategies. Around the age of six or seven children are beginning to understand and consider decisions and fairness. Teachers can promote cognitive development by providing children with challenges that they can meet. During the younger primary years children’s brains continue to develop.

“Changing cognitive capacities at this age are in part the result of processes such as lateralization, wherein the two hemispheres of the brain start to function more efficiently as learning occurs. Brain lateralization further improves with maturation of the corpus callosum (the tissue connecting the two halves of the brain), and this speeds mental processing of information.” (Copple, 2009. P. 271)

Children in primary grades increase their language and literacy development through reading and listening to reading. A huge shift takes place after kindergarten. Children were originally focusing on listening, speaking, and emerging reading skills this transition to ‘real’ reading and written self expression. (Copple, 2009. P. 281) At age six children’s vocabulary will double by the time they reach age eight. Children are learning to understand parts of words and to apply that understanding to other words. Children’s receptive vocabulary is expanding during age six not just by listening but also by emergent reading and their expressive vocabulary expands (Copple, 2009. P. 281). Around age six binocular visions is well established. Binocular vision is when the eyes have developed the ability to work together. This aids in the children participating in reading and focusing closer on work. They have improved ability to track left from right. Large print is still necessary because at this age children are beginning to develop and experience nearsightedness or farsightedness. Teachers may notice that children cover one eye to focus. (Copple, 2009. P. 261)

Children in primary grades are increasing their knowledge of how their behavior affects others, their roles in society, and the importance of showing empathy. Peer relationships grow and strengthen. Children flourish in environments that they feel comfortable and safe in. Teachers need to create a classroom community to support that. Peer groups age’s six to eight are important, but children tend to come and go from peer groups. Bullying in schools is very prevalent during the primary school years. Teachers need to be proactive in creating a classroom community that supports children’s independence. By age six children fully understand that their gender is a permanent characteristic; it cannot be changed by the clothes you wear or the toys you choose to play with (Copple, 2009. P. 265). Children are developing their self-concept and self esteem. Children develop self-esteem through adults helping them develop confidence with in skills such a literacy, mathematics, language and social skills. Teachers need to create environments that promote self esteem and positive self image. Teachers should create a harmonious, cooperative, minimized competition which in turn will enhance children’s want to learn. (Copple, 2009, P. 264-271).

During the primary school years physical growth has slowed but it is still steady. Children encounter growth spurts. Children have improved their gross motor skills which allows for more fine motor development. “The average 6-year-old in the United States weighs about 45 pounds and is just over 3 ½ feet tall (Craig & Baucum 2002).” On average children grow two to three inches a year and gain three to five pounds a year. Access to nutrition can be a factor within that statement. Children have a better coordination, balance and movement skills. However, the younger primary grade children still have slow reaction time. Gender skills between sexes are mostly insufficient. Children during the primary school years become more interested in team sports which not only develops their physical abilities but their cognitive and social awareness such as following the rules and cooperation. At the primary school age children are becoming more aware of the skills and comparing themselves to their peers. Teachers can promote gross motor development through including gross motor activities throughout the entire curriculum areas. Children need opportunities to move freely during recess and not just in organized games. Teachers can incorporate large muscle movement activities throughout various curriculum strands, circle time, reading, mathematics, etc…

Fine motor development increases throughout the primary school years. Children’s writing becomes more precise and controlled. Towards the end of first grade (between the ages seven and eight) children’s fine motor development is very precise and intricate. Teachers can promote fine motor development through writing, play dough, cutting activities, drawing, etc… (Copple, 2009, P. 260-264). As children grow we need to provide them with ways to express themselves; that may be through art, music, sports, and reading. As a teacher I will need to know my students very well and understand what helps them to express themselves.

As teachers we can support cognitive, language/literacy, social/emotional and physical development throughout curriculum. We need to plan learning experiences and our classroom accordingly to help support the development of children.

B: Developmental Level – Class Composition (Standard 1b, 2a)

 My first grade class is a joyous group of individuals. They all have their strengths, weaknesses, and individual family structures. Nine out of ten of my students are living in a two parent household. One family is currently going through a divorce. Two of the students in my class are adopted. Both of the students know that they are adopted. O is very open to discussing his adoption as well as R. O was adopted when he was little and R was recently adopted by her step dad. She started off the school year with one last name and as of recently has been adopted and changed her last name.

O lives in a family with five other siblings. He often does not get his homework done because his family says that it is too chaotic in their household. R’s step father helps her out tremendously with her homework. Last week when R was sent home with a math sheet for homework she came in the next morning saying that she and her mom tried their best but her mom did not understand how to do it. K takes part in extracurricular activities such as dance and gymnastics so she does not get her homework done either because she does not have time to do it with all her afterschool activities. A almost always comes in with her homework done and takes part in reading the books that Mrs. Fairfield sends home. I is currently homeless living with another family. He has two other siblings and he is the middle child. Mrs. Fairfield encourages families to if nothing else read to their children. Have older siblings read to younger siblings. It is incredibly important to get books into children’s hands! With this information, I will be spending time reading with O. He loves to look at books during snack. That will be a time where I can read to him informally. I will make a point to take advantage of the little bits of time and read to the children.

D is working with a speech therapist. Mrs. Fairfield and I make sure to annunciate our words with D. He sometimes leaves the beginning sound off of words. We will then repeat to D what he just said paraphrasing, so that he can hear the sounds. S has recently been evaluated by an occupational therapist and we are waiting on her input. S cannot control his body. Mrs. Fairfield believes this is directly related to S recently stopping his gymnastics class. He cannot stand without falling over. He cannot walk anywhere and keep his body in control. When he writes he uses his left hand and his right hand to control the pencil together.

There are two different behavior needs that stick out primarily in the classroom. I has a specific plan in which he earns checks for keeping his body in control and safe. He often takes ‘2 minutes’ to help himself calm down. At times he needs to go to the time out room in which Mrs. Fairfield and Coach Jay support him. Two people have to go with him because he needs to be restrained. The other behavior problem is N he excessively talks. The other day during snack I happened to be sitting next to him and he was talking for a solid ten minutes no one responded or acknowledged that he was talking. I said N who are you talking to? He did not notice and continued talking. Mrs. Fairfield is currently working with his family to create a plan for him. At times he has missed out on specials; for instance this week he talked all through music and had to spend his recess time in music. He is missing out on learning experiences because he does not stop talking.

P and M both are developing students. M is very eager to help. She will always tell me how things are run. P is a talker but he is also paying attention. We were doing a geography lesson on the promethean board and talking about oceans. P asked if the earth is round how can the water stay on the earth. It was amazing to see how he formed that question.

C. Content Knowledge – Background Knowledge for the Teacher (Standard 5a, 5b)

 The students are entering this unit with varying amounts of knowledge. The students will most likely have basic knowledge of sound is what they hear and light is what they see. This unit will help the students dig deeper and explore more of their senses and what light and sound truly are. Through this unit I will be using the following vocabulary to help describe this unit to the children. (SAU 29 Science Curriculumn PS-2)

Here is a list of vocabulary:

Light- form of energy that travels in waves and can move through empty space where there is no air.

Prism- a solid object that is transparent and separates light into colors of the rainbow.

Rainbow- arc of colors; red, orange, yellow, green, blue, indigo, violet.

Reflection- bouncing back of light rays from a surface.

Shadow- the dark image or shade cast by an object where it blocks the light.

Sound- form of energy produced by vibrating objects.

Spectrum- band of colors into which white light is separated by using a prism as light passes through.

Vibrate- rapid back and forth motion of an object.

(SAU 29 Physical Science Curriculumn. August 2008)

 I will be encouraging the children to explore what makes a shadow. The children will take part in learning experiences to learn the colors in a rainbow and what happens when you point a light at a mirror. As a class we will be discovering what makes a sound and what senses experience sound. (Light Energy 1990 AIMS Education Foundation):

 Our primary source for light on Earth is from the Sun. Light energy travels through space strikes the earth and is changed to heat energy which warms the air. Without this heat, the earth would quickly become too cold. The light from the sun is also stored as energy in green plants. Millions of years ago, plants died and were buried by sediment and became coal, natural gas, and oil. Today, we burn these fuels for energy.

 Light can be produced in various ways. Hot materials glow. The light from the fire is due to the hot gases in the flame. The sun and stars are masses of intensely hot gas; the light of an electric light bulb comes from tiny, hot glowing wire. Light travels in straight lines because we cannot see around corners and objects. It ultimately casts shadows.

 When light strikes an object it is reflected, absorbed, or it passes through. When light strikes a highly reflective surface such as a mirror, it bounces off in a straight line at the same angle that it hit the mirror. Objects can be described as transparent, translucent, or opaque. Transparent material allows light to pass through easily. Translucent materials allow some light to pass through and scatter the rest. Opaque materials block or absorb all light.

 Light travels at enormous speeds (186,000 miles per seconds). When light passes through transparent substances such as glass, air, or water, it slows down. When light changes speed, its path is changed so that light rays are bent as they pass through. This sudden change in the direction of a light beam is called refraction.

The following content knowledge is organized in a way I plan to teach it to the students.

(Sight (Foresman 1989, A Taste of Science 1992):

Sight happens when light rays come into the eyes and stimulate nerves to send signals to the brain. Light rays come into the eye through the lens, which gathers them and focuses them in one bright image on the retina at the back of the eye. The retina is a layer of very fine nerve cells which are sensitive to light. They react to the light and send signals along the optic nerve, which runs from the back of the eye to the brain. The brain receives the information upside down, but the brain has learned to put things right-side up, and understands it as a picture.

When looking at your eyes you only are able to see part of them. The complete shape of the eye is shaped like a ball; hence it is called an eye ball. The eye is protected by an outer layer of tough white tissue. The clear cornea, in front, is part of this layer. It protects the lenses. The second layer of the eyeball is dark and full of blood vessels. The front part of the layer, the iris, is between the cornea and the lens. The iris has a hole in the middle called the pupil, and muscles that can make the pupil smaller or larger, controlling how much light gets to the lens and into the eye. The color of the iris- blue, gray, brown, etc. – is what we call the color of our eyes. The third layer is inside the eyeball it is called the retina. It is a layer of light censored cells. The eye is filled with a clear jelly-like substance which helps focus the light rays even more, and which helps the eyeball keep its shape. The eyes have upper and lower eyelids to protect them. Behind each upper eye lid there is a tear gland. This is where tears come from. Tears are not only for crying, they also keep your eyes moist and clean. Your eyelids blink about twenty times a minute, this helps to keep dust out of your eyes, and to keep them moistened with tears.

(Sound (1990 AIMS Education Foundation)

Sound is all around! Wind moving through trees, cars going down the street, friends laughing, music playing, and countless other sounds surround us. Hearing never stops, not even when you are asleep. All sounds that you hear have one thing in common. Sounds are produced by objects vibrating back and forth which make sound waves. These vibrations are transmitted to anything the vibrating object touches including air. The waves go out in every direction so that if you could see them, they would look like concentric rounded shapes spreading out from the source like ripples that spread out when a pebble is dropped in a pond. The plucking of the strings of a guitar causes it to vibrate. The movement of the strings pushes against the adjacent air molecules in a back and forth manner. The disturbed air molecules in turn push against the neighboring molecules, disturbing them. The molecules do not move very far but the energy travels away from the strings at the speed of sound.

Sound travels through solids, liquids, and gases at different speeds. It travels about 350 meters (1,129 feet) per second through air, 1500 meters (4,794 feet) per second through water, and 4,500 meters (12,620 feet) per second through wood. The only thing that sound cannot travel through is an absolute vacuum.

The sense of hearing involves the ear, ear drum, auditory nerve and the brain. The outer ear picks up sound waves and transfers vibrations through the ear canal to the eardrum where it passes to three tiny bones that stimulate nerve cells. The auditory nerve carries the electrical impulses to the brain where it is interpreted as sound. Sounds can be either high or low. The difference in the highness or lowness of the sound is called pitch. Pitch depends on the speed of the vibration of the sound source. If an object vibrates very fast, the ear will receive many vibrations per second and the brain will interpret it as a high pitch sound. The faster the vibration, the higher the pitch. Humans can hear vibrations between 20 and 20,000 cydes per second. Sounds of higher frequency can be heard by animals such as dogs, bats, and dolphins.

**Part II. The Plan**

A: Goals/Standards (1c, 2a, 5c)

My goal for this unit is for the first graders to be able to answer the following questions about light and sound. For light my goal is for the first graders to be able to answer: How can you make a shadow? What colors are found in the rainbow? What happens when you point a light at the mirror? For sound I would like my students to be able to answer: What objects make sound? What senses do you use to experience sound? The national standards are: Physical Science PS2-Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed but cannot be destroyed. For K-2 Energy S:PS2:23.1 Recognize that sound is produced by vibrating objects and that the pitch of the sound can be varied by changing the rate of vibration. S:PS2:2:3.2 Explain that the Sun provides the Earth with heat and light.

B. Objectives (Standard 1c, 5c)

Light:

1. The children will be seeing the relationship between shadow, size, and shape to the position of a light source.
2. The children will be observing light as it comes from a source, travels through the air, and bounces off objects.
3. The children will be exploring prisms in the light.

Sound:

1. The children will hear sound as it comes from a source, travels through air, and bounces off objects.
2. The children will observe that sound is created by parts that vibrate.
3. The children will be hearing me use the vocabulary listed. The children will be able to describe the meaning or understand what I am asking when using the vocabulary.

C. Unit Assessment Plan (Standard 3a, 3b, 3c)

I will be collecting samples of the students work. This will help me understand where to go next and how the learning experience went. I will take photographs of experiments. I will capture the children participating and discovering light and sound properties. I will take anecdotal notes to help retain what the children have stated during the learning experiences. All three of these assessments will help me to know how the unit went and which learning experience to do next and how to do it. I will share my findings with the cooperating teacher.

D. Child Guidance Plan (Standard 4a, 4b)

In order for children to develop naturally and flourish they need to be in a setting that is safe, warm and inviting. Children need to feel welcome in their home and away from home. In order to support children’s development I will provide a classroom full of developmental appropriate books, learning experiences, materials, etc… Providing children with various developmentally appropriate learning experiences that touch on the individual interests of the children encourages learning.

Mistaken behaviors will be handled in an appropriate way that encourages growth (2004 Gartrell). If the behavior is a group behavior I will conduct a group meeting where we discuss the behavior and we will come to a solution as a group. We are a classroom community I will put a strong emphasis on the fact that we all are part of the community and work together. If the mistaken behavior is a single child it will be handled in a private manner. The child will know that the behavior is not appropriate and I will let him and/ or her know what is appropriate. I will focus on logical consequences with the children. If a child is having trouble being safe when sitting on focus cushion they will not be able to use the focus cushion at that time. When conflict arises I first observe to see if the children can work out the problem together; if needed I may ask probing questions helping the children come to a solution on their own.

Each child will be welcome and their individual characteristics will be valued. We will encourage families and different cultures in my classroom; one way in particular children’s family photos will be hung up. This will help encourage diversity but still unifying us as one. Children will be guided to learn strategies on how to solve conflicts themselves. Each child will be respected and valued in my classroom. The children will have responsibilities such as jobs line leader, door holder etc… this encourages belonging. I will be actively observing throughout the day with the children watching to see if I am needed to help support the children. This leads to the development of life skills.

E. Planning Process (Standard 4a, 4b)

Mrs. Fairfield suggested that I plan a unit on light and sound for the first graders. I began this by researching myself what light and sound was. At first this seemed like a daunting task. Then Mrs. Fairfield gave me some helpful resources. She gave me the SAU 29 Science Curriculum, Grade One Light Sound Heat Packet, and Sounds All About by Illa Podendorf. The light, sound, heat packet provided me with background information, and suggested activities. The benefit of this packet was that it was written in words that I can easily adapt to my first graders. The suggested activities are easily adaptable to each classroom. I used the SAU 29 Curriculumn to base my learning experiences off of. I know what the end goal is and I can plan the learning experiences to meet those curriculum goals. To begin the unit I went to the Marlborough School library and checked out a handful of books. The books were books about light and sound. I used these books as a way for me to understand the language of first graders. I plan to encourage the children to look at these books as well as me read some to them.

F. Scope and Sequence (Standard 4c, 5c)

To begin the unit on light and sound I read Sound All About by Illa Podendorf. This story got the children thinking about sound. I then did a picture walk of the books that I had checked out from the library. After reading a few stories to the students, we went over a KWL chart. I asked them what they knew and what they wanted to know. They knew some of the vocabulary from hearing it in the book. However, I am going to extend that so that they are able to describe for instance what pitch means. The children listed what they knew and what they hoped to learn. I explained to them that for the next few weeks we will be answering your questions doing multiple learning experiences; at the end we will come back to this chart and discover what we have learned. I plan to do this for light as well.

Sound

1. Sounds All About by Illa Podendorf- I read this story to the students to help get them thinking about sound. This story helped the students collect their thoughts.
2. KWL- This will help the students and myself assess what they already know. The children are then able to take part in their learning process because they get to state what they want to know. I used the KWL chart to help me decide what to focus on in some of my learning experiences. The children have the vocabulary they just may not know the meaning.
3. Taping your Finger- I will begin our unit on sound with this activity because the children will be physically feeling the sound. They will be taping their finger on a table while their head is down. The children will be exploring placing their head off the table and on the table. The children will explore placing their finger close, further away, and taping their finger loud and soft.
4. Vibration Stations- The students will be creating vibrations and physically feeling them. The children will be hearing sound through vibrations in their mouth with a fork and spoon. They will discover after you tap the fork and spoon together and you can no longer hear the sound put it between your teeth and you will be able to hear the sound again because of the vibration. The students will be creating vibrations with rulers. The will be discovering how they vibrate; moving them around on the desk further in and further out. The students will discover how sound can travel through air by creating a foam cup.
5. KWL- To conclude we will return to the KWL and write down what we have learned. We will see if our questions have been answered. If not we will discuss how we can find answers.

Light

1. STORY- I will read a book about light to get the children thinking about light.
2. KWL- This will help the students and myself assess what they already know. The children are then able to take part in their learning process because they get to state what they want to know. I used the KWL chart to help me decide what to focus on in some of my learning experiences.
3. Light Sources- The children will take part in a group activity in discovering and determine what light sources are. This will lead us into the rest of the unit.
4. Made in the Shade- This activity takes place with the children trying to guess which object is placed on the overhead and making a shadow. This activity will help children to witness a light source being blocked. They will begin to understand that a shadow occurs when a light source is blocked.
5. Just Passing Through- The children will be using flashlights to discover if light passes through certain objects. The children will learn vocabulary such as translucent, transparent and opaque.
6. KWL- To conclude we will return to the KWL and write down what we have learned. We will see if our questions have been answered. If not we will discuss how we can find answers.

G. Family and Community Involvement Plan (Standard 2b, c)

I plan to send a letter home to families discussing the unit.

Dear Families,

For the next few weeks your child will be participating in a light and sound unit. Your child will be learning about where sounds come from and how they are created. We will be learning about our main source of energy, which is the sun. Your children will be discovering other sources of energy as well. As a class we will be doing many learning experiences to support our learning. We will begin our unit by creating a KWL(Know, Want to Know and Learned) chart which is where we discuss what we already know, describe what we would like to know, and then at the end of the unit we will discuss what we have learned. To support our learning of light and sound we will be reading many books about light and sound. We have a small selection in our classroom right now that we checked out from the library.

We will be discovering how shadows are made, which objects light passes through, what happens when you shine light at a prism, and how sound is created through vibration. We will be using various materials such as prisms, flashlights, silverware, rulers, and cups to explore light and sound.

I encourage you to discuss light and sound with your child. If you happen to be going to the library suggest books on light and sound. If you have any resources for our light and sound unit please feel free to share with us.

Sincerely,

Miss MacMurray

Student Teacher

H. Technology Plan (Standard 4b, 5b)

I plan to utilize the overhead projector to help the students discover that shadows occur when the light source is blocked. The students will be guessing what the object is that is being projected. The children will be discovering that a shadow occurs because the light source is blocked. I plan to research what kind of benefits that promethean board may be. I am going to log on to promethean website and research light and sound learning experiences to add to the unit.

**Part III: Annotated Bibliography**

A: Content Knowledge Sources

A Taste of Science 1992

1990 AIMS Education Foundation

Foresman 1989

The previous sources were given to me by my cooperating teacher. The packet contained information to help me plan my unit. The packet included information about heat, light, and sound. It explained it in such a way that was not only easy to understand by me but in language that I could easily translate for the children. The packet provided many suggested activities. I picked and tweaked the activities to fit to my individual classes needs. I added steps or reduced steps to support the resources that we had in the classroom. For instance one of the activities required four stations and they were stations that required teacher support. I contemplated splitting the stations up but ultimately decided to go with fewer stations. This booklet provided me with a lot of information.

Gartrell, D. (2004). The Power of Guidance. Washington: Delmar Cengage Learning.

I used Gartell to help describe my child guidance philosophy. I used his work to help describe my own personal belief on working with children.

B: Children’s Literature Sources

**(1995). *The Magic School Bus In the Haunted Museum.* New York: Scholastic Inc.**

I am planning on reading this book to the children because many of them have seen the show or read the books; they will be familiar with the story. The Magic School Bus provides a interesting story that promotes the learning of sound.

**Arvetis, C., C. Palmer. (1983). *What is a Rainbow?* Middletown, CT: Field Publications.**

I am planning to read this story to the class when we look at prisms in the light. Today the science teacher provided me with some great prisms. The story will help to get the children thinking about a rainbow, where does it come from, and what colors are in the rainbow.

**Branley, F. (1998) *Day Light Night Light*. New York: Harper Collins Publishers.**

I am planning on reading this book to the students because they can relate to night and day light. They already know what the two are. They will hopefully be interested to learn about the two and how they differ.

**Goldsmith, M. (2007). *Light and Sound*. Boston: Kingfisher Young Knowledge.**

I am planning on reading this book to extend what we are learning in our activities. The children love listening to stories. They often take part in answer questions and making sounds that go along with the story. This book will reinforce what we are learning.

**Lilly, M. (2004). Sound. Vero Beach, Florida: Rourke Publishing.**

I chose to read this book on the first day because the cover was bright and cheerful. The children would be able to look at the cover and predict what was going to happen with in the story. The story asked many questions which allowed for the students to actively partipate.

**Pheffer, W. (1999). *Sounds All Around*. New York: Harpers Collins Publishers.**

I read this story to the children prior to doing an activity on sound. I read this book because it would help the children to start thinking about sound again. The children were able to take away from the book and the activity that sound travels through vibration. The book was a nice complement to the activity.

**Podendorf, I. (1970). *Sounds All About.* Chicago: Children’s Press.**

I chose to read this book as a opener to our Light and Sound unit because there were a lot of different aspects to the book. There were animal sounds, truck sounds, music sounds, and construction sounds. There was something for everyone. The book had pauses in it where you would ask the class to recall if they have ever heard the sound. That allowed for the children to process what they were hearing and extend and connect it to their life.

**Rosinsky, N. (2003). *Sound*. Minneapolis: Picture Window Books.**

I am planning to read this book to the students to extend their leanring of sound. We will use the book as a review, an extentiction, ect.. of sound.

**Trumbauer, L. (2004). *All About Light*. New York: Children’s Press.**

I chose to have this book as part of our science collection because the book was small enough for the children to hold. It is written in such a way that the children can pick it up and read a few of the words or look at the pictures and learn about light. I plan to read this book to the children to extend our learning of light.

**Twist, C. (2006). *Light and Sound*. New York: Bearport Publishing Company Inc.**

I chose to have this book as part of the unit because it is a nice resource book for light and sound. I am planning to read certain sections depending on the topic to extend and activity and r to review a topic that we recently studied.

C. Other Teacher Resources Consulted

1. Robin Fairfield (Cooperating Teacher)

2. Librarian

3. Middle School Science Teacher