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The Effects of Physical Activity and Movement on Learning

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After performing research into the effects of physical activity and movement on learning, I was asked to present my findings at a school-wide colloquium. This gathering was well-attended by students and faculty members alike. The university professors seemed highly interested in what I had discovered and asked many in-depth questions. The majority of the questions dealt with the same major issue: implementation.

No one questioned whether the presented information was true or not. The questions that came were how it would be possible to incorporate movement in the classroom in ways that were not distracting from the content. While the point of my research was for eventual implementation, I was not prepared for these questions. I had not had many opportunities to put into practice what I had researched. I did the best that I could to answer the questions that were asked of me, but it left me thinking and reflecting long after the colloquium. *How do you allow students to move during a lesson without it being a distraction from the lesson itself?*

Thus, I embarked on the journey of practicing what I preached. I realized that research is only valuable if you learn from it and apply it. I wanted to be able to present a variety of methods of physical activity taking place inside of the classroom that enhanced the learning process. While I believe that any movement is good, my desire was that the physical activities in my lesson would improve the entire learning experience. My one lesson of success prior to the colloquium along with the continual reverberation of the professor's questions provided me with the drive necessary to take the extra steps to develop feasible plans that included physical movement in the classroom.

My success story occurred when I was teaching language and literacy lessons to a small group of third graders approximately one time a week. I had one student who was

beyond grade level, a student who was at grade level, and a student who was below grade level. All three were verbally intelligent, but my below grade level student seemed highly disinterested in one of my lessons. Upon reflecting on this lesson, I decided that I needed to change things up. I determined that it was time to implement the concepts that I was currently researching. I knew that the risk was high. There were many other small groups in the classroom, and I would have limited space. But I decided that the chance of engaging this one student was worth the chance; I refused to let this student continue with an apathetic attitude towards learning when I was teaching.

The physical movement that I applied to this lesson was not difficult. I gave the students a stack of beanbags and placed two buckets next to me. One was labeled “beckoned” and the other was labeled “commenced.” These had been two of the more difficult vocabulary words from the book we had completed. Rather than simply asking the students to respond verbally to which vocabulary word would complete a sentence, I allowed them to toss the beanbag into the appropriate bucket. It was such a small thing and took a minimal amount of effort, but the pay-off was extraordinary. My struggling student was not only interested in the lesson but also grasped the meaning of two higher-level vocabulary words. I knew that I had made the right decision and incorporated physical movement throughout the rest of the small group lessons. Never again did that student become disinterested during our small group lesson. He performed higher than I would have ever expected.

My aspiration is that movement in the classroom is not something that only students in my classroom will experience. I wanted to be prepared to share ideas and sample lessons plans to other teachers or anyone interested in the idea of adding

movement activities in the classroom. While I could have expanded my research and learned more about the science behind this fascinating idea, I realized that teachers unfamiliar with adding physical movement to their lessons would not see two or three lessons as a valuable resource. These prototypes are intended to serve as a resource for teachers seeking to implement physical activity and movement in their classrooms. The lessons are written for first through fifth grades, all with physical movements included as an integral component. Some lessons have movement as a major part of the learning while in others movement is more supplemental to the lesson. The main factor is not the amount of time students are out of their seats and on their feet, but the single factor that the students are learning through movement activities.

Generations of elementary students have been instructed to sit quietly in their seats, keep their hands and feet to themselves, and get up only when necessary. These young students are forced to sit in uncomfortable chairs at desks or tables for eight hours a day with limited breaks during the school day. Many teachers feel that they are doing the best thing for their students by constantly reminding them to sit still in their chairs because that was the way they were taught. They believe if students are sitting quietly they are in their best position for learning. What recent studies have discovered is this may not be so. Research has proven that proper physical activity, one of the most highly reprimanded things in the classroom, actually increases a student's learning potential rather than decreasing it due to distraction which teachers so often associate with movement (Park, 2012, p.19).

The research reported is not simply observational. Medical professionals are now engaged in observations of the neural connections and their relation to learning. Students are often labeled at a young age on the degree of their intelligence. Little thought is given to whether they have the ability to drastically improve their positioning. Whether this categorization occurs verbally or only in the minds of those observing young children, it is a common occurrence in which people believe some students are just naturally smarter than others. But people are not given a level of intelligence that they are forced to accept. If this was so, there would be no need for schooling or academic instruction. Each person would have already reached their potential. Some have said there is a range of intelligence that lies within each person, but there are things that can help each person reach the high end of their spectrum.

The brain is an incredible workshop where nerves are constantly firing and communicating based upon what is going on around the person. According to Carla Hannaford (1995), the “constant molecular communication can be restructured, depending on usage, undergoing coherent synchronized change as learning occurs...In a sense, we custom design our own nervous systems to meet the choice and challenges of our interests and livelihoods” (p.23). This is a commonly overlooked characteristic of the brain: malleability. The nerves in the brain are constantly changing based upon what activities the person chooses to participate in. These neural changes are what give us the ability to engage in the process that we call learning (Hannaford, 1995, p.17). The nerve cells communicate with one another through networking and connecting to help us with not only learning but the entire thought process (Hannaford, 1995, p.18).

Because learning occurs when the nerves are activated, the surrounding environment and sensory activities are highly important in the function of learning. As stated by Hannaford (1995), “The richer our sensory environment and the greater our freedom to explore it, the more intricate will be the patterns for learning, thought and creativity” (p.30). When students are forced to sit in their seats for hours without the freedom to move about their sensory environment is stifled. The students may be sensing the seat under their body, the desk upon which their paper lies, and the pencil in their hand, but after repeatedly feeling the same things every day their bodies become attuned to the environment. This may lead to students struggling with innovation or having the feeling of brain blockage when asked to write. Experience is the foundation for thought, learning, and creativity. Our bodies were formed to receive sensory information through our experiences and interactions with the world surrounding us (Hannaford, 1995, p.29-

30). If students do not experience the world by using their senses they are not fully engaging their brains.

Touch is one of our five bodily senses. We have receptors all over our bodies that transmit information to the brain via the nerve cell communications aforementioned. The functioning of both motor and mental processes decreases when touch is decreased (Hannaford, 1995, p.39). There are two different ways that touch can be incorporated with learning. One way is positive physical touch from another person. For instance, if a teacher gently touches a student's shoulder during the reading process, that student's brain correlates the act of reading with the encouragement of the physical touch thus enhancing the desire to read (Hannaford, 1995, p.41). Hannaford (1995) believes an improvement in education could occur if the students had an emotional bond with learning: if relationships and emotions were more of a focus in the classroom or the home environment (p.56). The teacher's encouraging touch during reading is an example of an action that involves three aspects: sensory, emotional, and physical. Combining these three elements leads to one of the most effective methods of learning (Hannaford, 1995, p.63).

The other form of touch that improves learning is that of physical activity or movement. The brain is primed to learn when the vestibular system is stimulated. Every bodily movement that occurs awakens the vestibular system. These two statements provide a simple explanation of the process that links movement to learning. The brain is ready to learn because of the stimulation of the vestibular system through the act of movement (Hannaford, 1995, p.36). The education process has become skewed in recent years. There has been an increase in the emphasis placed on standardized test scores.

While test scores can be useful in adjusting curriculum to best fit the students, it only measures one part of a student's intelligence. Oftentimes we think of learning as solely a mental process. When we are thinking or creating ideas, we believe that all of the processes that are occurring take place inside of our minds. It is ideas like these that have led to the near elimination of physical activity during the school day.

Even recess, one of the few chances for students to engage in the free expression of physical movement during the school day, is being shortened or completely abolished. Teachers believe students need more time in the classroom in order to work on the academics that will be represented on the standardized tests. What many of these teachers or school board members do not realize is that by eliminating recess they are taking away an activity that not only supports the development of the holistic child but is also specifically necessary for cognitive improvement. Ashley Montague stated, "It [play] is a basic ingredient of physical, intellectual, social and emotional growth." When recess and outdoor play are eliminated the circadian rhythms in the brain are disrupted. The brain sets the body's internal clock based upon daylight exposure. When a school removes recess time, they take away each student's exposure to natural light which affects their ability to sleep at night. Many students complain during the morning hours in the classroom about being tired or being forced to wake up in the morning. While this may appear to be the fault of the parent, if the school is failing to provide adequate time outside in the daylight for play they may be hindering the students from participating in their normal sleep patterns (Blaydes, 2000, p.17). According to Hannaford (1995), a lack of regular physical activity can also obstruct a student's sleep cycle. Many children are so wired when bedtime comes around because they have not expended the pent up energy

during the day. Teachers who understand the importance of recess will be quick to tell you that student behavior differs greatly between the days where the students are given recess time and the bad weather days where they are forced to stay inside. Students need this break time to move about and reenergize not only their bodies but their minds as well.

Recess is not the only physical activity time being eliminated. Physical education classes have been cut down or cut out of many school districts due to budget cuts or the time factor. But research has shown that the time students spend in organized physical activity is invaluable to academic improvement. A Canadian study reported that the students who participated in an extra hour of gym class performed better on the academic assessments than their less active peers (Hannaford, 1995, p.101). Another study that took place in the Netherlands revealed that the students who got more daily exercise, whether it was during the school day or independently, had higher tests scores and GPAs in relation to their fellow classmates with less vigorous lifestyles (Park, 2012, p.19). With positive outcome studies like these, we must question why movement inside the classroom environment is being stifled and outside the classroom is being eliminated.

Blood flow to the brain increases when physical activity takes place. Because physical movement causes a rise in the oxygen that reaches the brain, the essentials for learning-memory, creativity, and attention-all improve (Park, 2012, p.19). However, the opposite effects have also been observed. As stated by Jean Blades (2000), "Oxygen is essential for learning...A lack of oxygen to the brain results in disorientation, confusion, fatigue, sluggishness, concentration, and memory problems" (p.16). Typical breathing patterns are interrupted when anxiety overtakes a person. This is why there is an oxygen

deficit in the brain when stress hormones are present (Ratley & Hagerman, 2008). When regular physical activity occurs, the brain appears to function better; studies have shown that when a person participates in exercise their short-term memory is enhanced. Additionally, the brain is able to have a more acute focus two to three hours following the exercise period. This increase in focus improves the ability to prioritize, block out distractions, and concentrate on what is occurring at the present time (Cohen, 2012). The ability to focus on what is being discussed is often a difficult task for young students, especially those suffering from disorders such as attention deficit disorder and attention hyperactivity disorder. It is of the utmost importance that these students receive the proper amount of oxygen for brain functioning in order to provide the most beneficial environment for learning.

In addition to increasing learning the oxygen reaching the brain to support concentration and memorization, physical movement also provides higher levels of chemicals that improve the mood of the student ("Physical activity may," 2012). The chemicals produced also help suppress stress, one of the many causes for learning problems in students (Park, 2012, p.19). Stress and anxiety cause an increase in cortisol levels that kill brain cells. Exercise produces endorphins that function as neurotransmitters which counteract the stress and anxiety reactions while producing a more positive mood. By neutralizing the stress levels, the exercise helps block the increase in cortisol (Groberman, 2012). Dr. John Ratley (2008) refers to exercise as the body's natural anti-depressant. Exercise also generates the release of a brain-derived neurotrophic factor (BDNF) which provides communication between neurons. BDNF is an essential part of neurogenesis. When a student sits for longer than twenty minutes, a

reduction in the flow of BDNF occurs. It is essential that students take are actively involved in their surrounding environment to allow for the flow of BDNF (Ratley & Hagerman, 2008).

No teacher would honestly admit they are trying to prevent their students from success in the classroom by removing physical activity. The problem is that many teachers have not taken the time or have not been informed of the correlation between movement and academic improvement. This is because teachers so often fall into the trap of “considering the mind and body to be separate entities” (“Is it the,” 2011). While many teachers believe there is no association between the physical movements the body makes and the academic learning in the brain, they may also believe that physical activity is actually detrimental to educational goals (“Physical activity may,” 2012). While any physical movement can help stimulate the brain, there are ways that physical movement can be implemented into the classroom to help the movement-wary teacher realize that the body can be involved in the learning process as an equal partner to the mind.

In a 2012 article, Dr. Steven Geir, the director of sports medicine at the Medical University of South Carolina in Charleston, reported, “If intellectual activities are incorporated with physical activities, children will benefit both ways” (“Physical activity may,” 2012). It is important to realize there are ways to have organized physical activity that provides immediate feedback for academic learning. Combining the learning activities with physical movements is a great way to help students remember the material. Reports have shown that after taking part in an organized physical activity in the classroom the mental focus and concentration levels of students increases significantly. These structured physical activities can range widely to include things like role-playing,

acting out an idea, or reviewing a lesson through a catch and throw game (Blaydes, 2000, p.14-15). Dr. Jean Blaydes stated in her book, *Thinking on your Feet*, that “Movement helps to encode information and strengthen neural pathways for memory retrieval” (p.22). Review games that encourage students to physically participate are entertaining for the students and make them want to review past material. Additionally, these physical movements have mental benefits that may translate to higher scores on tests when memory recall is desired. Memory recall is a key skill for success on the standardized tests so highly emphasized by the classroom teacher. Movement can be incorporated into any content area and allows for students to participate in the lesson in the way they learn best: learning by doing (“Is it the,” 2011).

Exercise is no longer a word to be used only in gym class only. It is impossible for students at a young age to learn something in one sphere without it influencing the other domains (“Is it the,” 2011). Every student needs to participate in physical activity in order to receive the benefits for their health and to obtain the profits that come mentally. Research has proven that school-based physical activity has increased concentration, memory, self-esteem, and verbal improvements in participating students (“Physical activity may,” 2012). The brain, specifically the basal ganglia, cerebellum, and corpus callosum, are all strengthened when exercise takes place. Strengthening these parts of the brain that are essential for learning is a byproduct of the physical activity. Exercise can also produce short-term benefits that can be of great value to a teacher. When a teacher implements physical activity, the effects of these movements can improve a sluggish student’s learning state to a properly primed spot to receive what is being taught. This physical activity can allow for thirty to sixty minutes of focus

depending upon the individual student (Blaydes, 2000, p.16). Although it is often overlooked and regularly being eliminated from the school day, regular physical activity can improve both the brain and body, producing the best possible frame of mind conducive for learning.

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First Grade: Reading

Flossie & the Fox: Vocabulary 1st Grade

Objective:

- After the read aloud of the grade level content Flossie & the Fox, the students will exhibit understanding of meanings of the words “commenced” and “beckoned” by correctly using the words on ¾ boxes in the vocabulary graphic organizer.

Framework or Common Core Standard:

- L 1.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.
 - L 1.4a Use sentence-level context as a clue to the meaning of a word or phrase.

NAEYC Standard:

- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Flossie & the Fox
- Start picture
- “Commenced” definition card
- “Beckoned” definition card
- Buckets (2)
- Beanbags (9)
- “Commenced” and “Beckoned” labels
- Notecards (2)
- Sentences with blanks paper
- Vocabulary graphic organizer (3)
- Pencils
- Crayons
- Secret spots
- Stickers

Introduction:

TTW:

- Welcome the students.
- Have students sit on their secret spots.
- Display the “start” picture for the students.
- Ask students if they know what this picture means.
- Allow students time to respond to the question.
- Write down the students’ responses on a note card.
- Motion to students in a “come here” gesture.

- Ask students if they know what this motion means.
- Allow students time to respond to the question.
- Write down the students' responses on a note card.
- Tell students that today we are going to learn words that mean the same thing as those two words after I read a book aloud.

Procedures:

TTW:

- Display the book Flossie & the Fox to the students.
- Ask to describe the front cover to me.
- Read the book aloud to the students, questioning as I read:
 - "What is Flossie going to get?"
 - "What animal does Flossie come to first?"
 - "Is Flossie scared of the fox?"
 - "What animals does Flossie say the fox is?"
 - "Does Flossie know that it is a fox?"
 - "What is after the fox?"
- Display the "commenced" card.
- Model how to say the word and have students repeat.
- Read the definition of the word to the students.
- Explain to students that this was a word used in the book.
- Read the sentence with the word "commenced" in it: "Flossie commenced to skip along, when she come upon a critter she couldn't recollect ever seeing."
- Have students say what the word "commenced" means.
- Display the "beckoned" card.
- Model how to say the word and have students repeat.
- Read the definition of the word to the students.
- Explain to students that this was a word used in the book.
- Read the sentence with the word "beckoned" in it: "Fox beckoned for Cat to speak up."
- Have students say what the word "beckoned" means.
- Set up the buckets with the labels on them.
- Explain to the students that you are going to read a sentence but leave a word out.
- Tell the students that they are supposed to listen to the sentence and figure out if the word "commenced" or "beckoned" fits in better.
- Explain that the students will throw their bean bag into the bucket with the word that they think best fits.
- Read a sentence from the blank sentences paper to the students.
- Ask each student to individually throw their beanbag into the bucket of the word they think fits while the other two students cover their eyes.
- Check into the buckets and see how many students picked each word.
- Explain what the right choice was.
- Repeat these steps until all of the sentences have been read.
- Distribute the vocabulary graphic organizer to the students.
- Explain to the students how to fill out the graphic organizer by writing each word, what it means, what it is the same as, a sentence using the word, and a picture utilizing the word.
- Allow students adequate time to complete graphic organizer, assisting students when necessary.

Culmination:

TTW:

- Ask the students what we learned today.
- Display the “start” picture for the students.
- Ask students what word we learned today that would be a good word for the picture.
- Allow students time to respond to the question.
- Review the definition of “commenced.”
- Motion to students in a “come here” gesture.
- Ask students what word we learned today that would be a good word for this action.
- Allow students time to respond to the question.
- Review the definition of “beckoned.”
- Tell the students that tomorrow we will learn what the word “synonym” means.

Assessment:**TTW:**

- Informally assess the students by questioning during the read aloud.
- Informally assess whether students know the definition of “commenced” and “beckoned” by checking for accuracy in the bean bag toss.
- Formally assess students by checking the vocabulary graphic organizer for the correct utilization of each of the words in $\frac{3}{4}$ blanks.

Extension:

- Writing: Have students rewrite the story from the fox’s perspective.
- Music: Have students create a song about Flossie and all the animals she claimed the fox was.
- Art: Have students draw a picture of Flossie’s journey in the forest.

Accommodations:

- Students with delayed literacy development will be given more time to complete graphic organizer.
- Students with ADD will be allowed to demonstrate the bean bag toss as an extra outlet for movement.
- Gifted/Talented students will be encouraged to write multiple sentences utilizing the words.

Technology:

- Watch the DVD version of “Flossie and the Fox.”

A Turkey for Thanksgiving:(Comprehension/Summarizing) 1st Grade

Objective:

- After the read aloud of A Turkey for Thanksgiving, the students will display the ability to retell the story by summarizing the central message of the book by completing the remembering a story graphic organizer with 4/5 correct answers.

Framework or Common Core Standard:

- L 1.2 Retell stories, including key details, and demonstrate understanding of their central message or lesson.

NAEYC Standard:

- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- A Turkey for Thanksgiving
- Turkey
- Book pictures (5)
- Tennis balls (5: Someone, Wanted, But, And so, Finally)
- Selection bucket
- Rolling bucket
- Remembering a story board
- Remembering a story graphic organizer (3)
- Sharpie
- Pencils
- Crayons
- Secret spots
- Stickers

Introduction:

TTW:

- Welcome the students.
- Have students sit on their secret spots.
- Ask students what holiday yesterday was.
- Allow students time to respond to the question.
- Ask students if they know what holiday is next.
- Allow students time to respond to the question.
- Display the turkey to the students.
- Ask each student to name one thing they think about when they hear the word "Thanksgiving."
- Allow students time to respond to the question.

- Tell students that today we are going to listen to a story about Thanksgiving and afterwards learn how to retell it to a friend.

Procedures:

TTW:

- Display the book A Turkey for Thanksgiving to the students.
- Ask the students to describe the front cover to you.
- Allow time for students to respond.
- Ask the students what they think might happen in the story based upon the title and front cover.
- Allow time for students to respond.
- Read the book aloud to the students, questioning as you read:
 - “What does Mrs. Moose want for Thanksgiving?”
 - “Where did the goats see a turkey?”
 - “How does the turkey look when he sees all the animals?”
 - “Why doesn’t the turkey want to go with Mr. Moose?”
 - “Did the Moose family want to eat the turkey?”
- Ask the students if the end of the story surprised them.
- Tell the students that we are going to learn a way to retell the story’s main points in case a friend wanted to know about the book.
- Tell the students that retelling a book in a short way without telling every single thing that happened in the story is called “summarizing.”
- Ask the students to say the word “summarizing.”
- Display the “Retell a Story” board.
- Explain to the students that we are going to answer five questions that will help us be able to summarize the book.
- Ask the students who the “Someone” in the book was.
- Record the students’ response on the board while placing the book picture.
- Ask the students what this character “Wanted.”
- Record the students’ response on the board.
- Ask the students “But” what happened that stopped him from getting what he wanted.
- Record the students’ response on the board while placing the book picture.
- Ask the students “And so” what did he do to solve this problem.
- Record the students’ response on the board while placing the book picture next to the response.
- Ask the students what “Finally” happened at the end of the book.
- Record the students’ response on the board while placing the book picture.
- Model to the students how to read the board in a way that summarizes the whole book.
- Have the students read the book with you to display how to summarize the book.
- Explain to the students that we are going to play a game that will help us remember what happened in the book.
- Tell the first student to select a tennis ball out of the selection bucket.
- Ask the student to answer the question that is written on the ball.
- Tell the student to roll the ball into the bucket.
- Repeat this process so that each student gets five turns (3 times through the summary questions)
- Distribute the Remembering a story graphic organizer.
- Explain to the students that we are going to fill out our own summary paper just like the one we did together on the board.
- Allow students time to complete their graphic organizer.
 - If time allows, have students draw pictures that correspond to their written answers.

- Collect the completed graphic organizer from the students.

Culmination:

TTW:

- Ask the students what we learned today.
- Allow students time to respond.
- Ask students what word we learned today that means to tell what happens in a book in a short way without telling every single thing that happened.
- Allow students time to respond; prompt student to say “summarizing” if they need assistance.
- Allow students time to respond to the question.
- Display the Retell a story board for the students.
- Ask students to summarize what happened in A Turkey for Thanksgiving.
- Tell the students that tomorrow we will learn how to summarize an informational text.

Assessment:

TTW:

- Informally assess the students by questioning during the read aloud.
- Formally assess students by checking the retelling a story graphic organizer for the correct responses on 4/5 blanks.

Extension:

- Writing: Have students write their own short story using the “Someone, wanted, but, and so, finally method.
- History: Have students imagine and discuss the feelings of the Pilgrims on the first Thanksgiving.
- Art: Have students create a toilet paper turkey with things they are thankful for on the feathers.

Accommodations:

- Students with delayed literacy development will be given more time to complete graphic organizer.
- Students with ADD will be allowed to demonstrate the tennis ball roll as an outlet for movement.
- Gifted/Talented students will be allowed to illustrate pictures on graphic organizer.

Technology:

- Show “I Will Survive” Thanksgiving turkey video
<http://www.youtube.com/watch?v=UDzPqnqtjBA>

Space:(Informational Text) 1st Grade

Objective:

- After the read aloud of Space, the students will identify the main topic and retell key details of a text by completing a “Who Am I?” graphic organizer with 9/11 correct responses.

Framework or Common Core Standard:

- I 1.2 Identify the main topic and retell key details of a text.

NAEYC Standard:

- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Space
- Pictures (Universe, Milky Way, Solar System, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune)
- Dry erase poster board
- “Who Am I?” question cards
- Word floor cards (11)
- “Who Am I?” Space graphic organizer (3)
- Sharpie
- Pencils
- Secret spots
- Stickers

Introduction:

TTW:

- Welcome the students.
- Have students sit on their secret spots.
- Show students pictures of the planets.
- Ask students if they know what these are pictures of.
- Allow students time to respond to the question.
- Ask the students if they know how many planets there are.
- Allow students time to respond to the question.
- Tell students that there are eight planets in our solar system.
- Ask the students if they can name any of the planets.
- Allow students time to respond to the question.
- List the names of the planets on the board.
- Display the solar system picture on the board.

- Point at each of the planets and name them for the students.
- Tell students that today we are going to listen to a story that talks about the planets and things even bigger in a book called Space.
- Tell students that we are going to listen and look for anything that describes the things in space.

Procedures:

TTW:

- Display the book Space for the students.
- Ask the students to describe the front cover to you.
- Allow time for students to respond.
- Read the book aloud to the students, stopping to record descriptors on the board for the universe, **Milky Way**, Solar system, and planets as described by the students.
- Ask the students if we recorded everything there is to know about these planets on the board.
- Allow time for students to respond.
- Ask students if they remember what word we learned last week that means “to tell a story in a short way.”
- Allow time for students to respond, guiding them to the answer of “summarizing.”
- Explain to the students that when we list some of the details of the things in space we are also summarizing what we know so that we can tell our friends about it.
- Review with the students what we recorded about each item from the book.
- Display the first picture card for the students.
- Ask the students which item on the board this looks like based upon the details we listed.
- Allow time for students to respond.
- Allow first student to place the picture on the board.
- Repeat these steps rotating students until all of the pictures have been placed on the board.
- Explain to the students that we are going to play a game that will help us remember the key details about the things in space that we learned from the book.
- Explain to the students that they are going to select a card from the bucket and hand it to you so that you can read the “Who am I?” question to them.
- Place the word floor cards on the ground and explain to the students that these are the answers to the questions that they will go stand on after you read the question.
- Have the first student select a card.
- Read the card aloud to the student and ask them to stand on the card with the right answer.
- Repeat this process until all of the “Who am I?” question cards have been chosen.
- Distribute the “Who am I?” Space graphic organizers.
- Explain to the students that we are going to answer the “Who am I?” questions on our paper just like we did on the board and in our game.
- Allow students time to complete their graphic organizer.
- Collect the completed graphic organizers from the students.

Culmination:

TTW:

- Ask the students what the main topic was that we learned about today.
- Allow students time to respond.
- Ask students if they can name the eight planets.
- Allow students time to respond.
- Ask students if they remember the word that means to tell the story in a short way or just tell the **main** details about something.

- Allow students time to respond; prompt student to say “summarizing” if they need assistance.
- Ask the students to summarize the information for three of the planets.
- Tell the students that tomorrow we will read a book about the moon to find out key details.

Assessment:**TTW:**

- Informally assess whether students know the key details about the things of space as told in the book by listening and watching for appropriate responses when writing on the board and participating in the physical activity.
- Formally assess students by checking “Who am I?” graphic organizer for the correct responses on 9/11 blanks.

Extension:

- Writing: Have students write a poem about one of the planets.
- History: Have students research Neil Armstrong.
- Art: Have students create a model solar system.

Accommodations:

- Students with delayed literacy development will be given more time to complete graphic organizer.
- Students with ADD will sit closer to the teacher during the read aloud to keep from becoming distracted.
- Gifted/Talented students will be asked to draw a picture of the planets in order after completing graphic organizer.

Technology:

- Show “Solar System Song” to the students:
http://www.youtube.com/watch?v=BZ-qLUIj_A0&feature=relmfu

Second Grade: Math

Money Lesson #1

2nd Grade

Objective:

- The students will solve problems requiring the addition of quarters, dimes, nickels, and pennies through correctly completing 6/6 word problems on a graphic organizer and correctly decoding the secret message.

Framework or Common Core Standard:

- 2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.

NAEYC Standard:

- Standard 4: Using Developmentally Effective Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials/Technology:

- Elf toy
- Smart Board Slides
- 10 buckets
- Play money (5 sets with 10 of each coin)
- Colored elf pictures
- Graphic organizer (1 per student)
- Money, Money, Money!: <http://www.youtube.com/watch?v=W2I9AIYp2zk>

Introduction:

TTW:

- Welcome the students to math class.
- Tell the students that we are going to be working with something this week that they probably see every day.
- Tell the students that you are going to give them clues to see if they can figure out our new topic.
- Clue #1: I can be made out of paper or metal.
- Clue #2: I can be a rectangle or circles.
- Clue #3: You use me to buy things.
- Allow the students time to respond until they discover the new topic is money.
- Tell the students that we are going to quickly review how much each coin is worth by watching a song on the SmartBoard.
- Play “Money, Money, Money” video for the students.

- Tell the students that today we are going to work on adding coins together.

Procedures:

TTW:

- Tell the students that we are going to spend some time today in Santa's workshop.
- Explain to the students that we will be helping our elf friend figure out how much each stack of his money is worth.
- Show first slide on Smart Board.
- Ask the student what they see in this picture.
 - Example: 2 quarters and one penny.
- Ask a student how much each quarter is worth.
- Write 25 above each quarter.
- Ask a student how much the penny is worth.
- Write 1 above the penny.
- Ask a student how much we have all together.
- Remind the students that we know how to skip count by fives.
- Ask the students how many fives are in one quarter.
- Tell the students that they can count on from twenty-five to find out how much two quarters are worth by adding five more fives to twenty-five.
- Count "thirty, thirty-five, forty, forty-five, fifty" with the students.
- Write 50 above the two quarters.
- Ask the students how many more cents we have to add.
- Ask the students what our total amount is.
- Write 51 cents on the board.
- Repeat the process with the rest of the slides, discussing the amount fives in dimes and nickels as well.
- Tell the students that now they are going to get a chance to count with money.
- Tell the students that they are going to be divided into five groups.
- Explain that there will be a bucket full of play coins for each group.
- Tell the students that you will be reading an amount of money and writing it on the board so they can see it.
 - Model process by saying, "Fifty-four cents" and writing 54 cents on the board.
- Tell the students that they are to work as a group to select the right amount of coins from the bucket.
- Explain that they must all work together to count the right amount of coins.
 - Model selecting two quarters and four pennies from a bucket.
- Tell the students that every round there will be a different "delivery elf" who will be in charge of bringing the money and placing it in the bucket at the front of the class that has the same color elf as their team's bucket.
 - Model placing the six coins in the bucket.
- Tell the students that when every group has placed their coins in their bucket we will count to see if they were correct.
- Ask students if they have any questions.
- Place students in pre-determined groups and send each group to a different table.
- Read first card to the students and write the number on the board.
- Allow students time to count and bring their money to the bucket.
- Go through each bucket, counting the money to see if they were correct.
- Explain how there are different ways to reach the same amount.
- Repeat the process seven more times.
- Ask the students to return to their seats.

- Tell the students that they are now going to get a chance to solve a message that Santa gave the elf.
- Tell the students that they are to find out how many cents each set of coins has and write that number in the blank.
- Tell the students that after they have found each amount out they are to use the secret code box on the bottom of the page to find the word that goes with each number.
- Explain to the students that they are to write the word for each number in the blank on the write.
- Tell the students that if they have answered all of the problems correctly they will find out what Santa's message is.
- Distribute graphic organizers to the students.
- Allow students time to complete graphic organizers.

Culmination:

- Collect the graphic organizers from the students.
- Review each question and answer with the students for clarification of any problems.
- Ask a student what Santa's message was.
- Tell the students that tomorrow we will continue working with money by helping someone else at the North Pole.

Assessment:

- Formally assess students through checking the graphic organizer for 5/5 correctly completed problems and correct message decoding.
- Informally assess students by counting money in each team's bucket during whole-group activity.
- Informally assess students by monitoring and checking progress as the students complete their independent activity.

Extension:

- Writing: Have the students create a story about how the elf lost Santa's message.
- Social Studies: Have the students create a map showing the location of the North Pole.
- Art: Have the students illustrate a comic strip about an elf spilling his coins in the snow.

Accommodations:

- Students with visual disabilities will be provided with a cover sheet to help them focus on only one problem at a time.
- Students with ADD/ADHD will be allowed to be the first "delivery elves" to help prevent lack of focus.
- Gifted/Talented students will be asked to find the total amount of coins from the five problems.

Money Lesson #2

2nd Grade

Objective:

- The students will solve problems requiring the addition of quarters, dimes, nickels, and pennies through correctly completing 6/6 word problems on a graphic organizer.

Framework or Common Core Standard:

- 2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.

NAEYC Standard:

- Standard 4: Using Developmentally Effective Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials/Technology:

- Dollar and cents chant Smart Board slide
- Decimal point cut-out (1 per student)
- White boards and markers (1 per student)
- Graphic organizer (1 per student)
- Money, Money, Money!: <http://www.youtube.com/watch?v=W2I9A1Yp2zk>

Introduction:

TTW:

- Welcome the students to math class.
- Ask the students if they remember what we have been talking about.
- Allow students time to respond, guiding them to something similar to “money/counting money/adding money.”
- Ask the students if they remember what the title of our song from the video was yesterday.
- Allow students time to respond, guiding them to “Money, Money, Money” if necessary.
- Play the video on the Smart Board and have the students sing along.
- Say the dollar and cents chant for the students.
 - Dollars and cents, money are both,
 - But how would I write them quickly in a note?
 - “There must be sign!” I want to shout.
 - We’ll learn about it today without a doubt.
- Display the words to the chant on the Smart Board.
- Have the students repeat the chant with you.

- Tell the students that today we are going to learn about two special symbols we use to symbolize dollars and cents.

Procedures:

TTW:

- Show the students three dollar bills.
- Ask the students how much money this is.
- Ask the students how they would write this down.
- Allow a student to come to the board and write down their response.
 - Possible responses: 3; 3 dollars; three dollars; \$3
- Tell the students that instead of writing the word “dollars” we have a special symbol that represents the word.
- Write \$ on the board.
- Explain to the students that \$ means dollar.
- Tell the students, “If I say that I have three dollars, I write it like this.”
 - Write \$3 and \$3.00 on the board
- Ask the students if they know why I put the decimal point and two zeroes after the three.
- Explain to the students that we use a decimal point to represent a part of a whole.
- Tell the students that when we have cents, we do not have a whole dollar.
- Explain to the students that whenever we hear how many cents we have we write it after the decimal point.
- Tell the students, “If I say that I have five dollars and forty-two cents, I write it like this.”
 - Write \$5.42 on the board.
- Tell the students that our trigger word is the word “and.”
- Ask the students if they know what part of the \$5.42 represents the word “and.”
- Explain to the students that the word “and” means we write a decimal point.
- Distribute one decimal point dot to each student.
- Ask the students to stand up, push their chairs in, and put the dot on the floor directly behind their desk.
- Tell the students that we are going to practice where the numbers go when we have a decimal point.
- Explain to the students by saying, “If I say four dollars and twenty cents, I would jump to the left of my decimal point for the four, under my decimal point for the and, and to the right for the twenty.”
- Model the process for the students.
- Tell the students that I am going to say some amounts of money and we are going to jump to the appropriate spot together while saying the numbers.
- Say, “Six dollars and eighty-four cents.”
- Have the students jump to the left and say, “Six dollars.”
- Have the students jump to below the decimal point and say, “and.”
- Have the students jump to the right of the decimal point and say, “eighty-four cents.”
- Repeat this process multiple times.
- Say, “Three dollars and two cents.”
- Ask a student to come to the board and write this number down.
- Explain to the students that we must always have two numbers after the decimal point.
- Tell the students that whenever we hear, “one cent, two cents, three cents...nine cents” we must put a zero in front of the number.
- Tell the students that we are going to speed it up now.
- Say, “Nine dollars and eighteen cents
- Have the students quickly jump to the three spots while saying the words.
- Say, “Thirty-four cents.”

- See how the students respond.
- Ask the students to put their decimal points on their desk and sit back in their chairs.
- Tell the students that whenever we have no dollars and only cents we have another special sign to use.
- Write 34¢ on the board.
- Tell the students that the ¢ is a symbol for cents.
- Tell the students that they might have seen this symbol on their elf sheet from yesterday's lesson.
- Tell the students that they can remember what this symbol looks like because it is the letter that the word cents starts with a line through the middle.
- Ask students to take out their white boards.
- Model drawing the cents sign.
- Have students practice drawing the cents sign.
- Model drawing the dollar sign.
- Have students practice drawing the dollar sign.
- Tell the students that you are going to say an amount of money, and you want them to write it on their board.
- Say, "One dollar and fourteen cents."
- Repeat the process multiple times, checking for proper use of dollar sign and decimal point.
- Say, "twenty-six cents."
- Check for proper use of the cents sign.
- Repeat the process multiple times, interchanging amounts with dollars and cents and amounts with only cents.
- Ask the students to put their white boards away.
- Tell the students that they are going to get a chance to practice what we have been doing on their own.
- Show the students the graphic organizer.
- Explain to the students that Santa needs a new outfit but needs help figuring out how much each piece of his suit costs.
- Tell the students that they are to look at the price tag for each piece of the suit and read the number.
- Tell the students that they are to write the price of each piece on the line by the word using the dollar sign, decimal point, or cents sign.
- Ask the students if they have any questions.
- Distribute graphic organizers to the students.
- Allow students time to complete graphic organizers.

Culmination:

- Collect the graphic organizers from the students.
- Display a blank graphic organizer on the Smart Board.
- Review each question and answer with the students for clarification of any problems.
- Ask the students what the most expensive part of Santa's suit was.
- Ask the students what the cheapest part of Santa's suit was
- Tell the students that tomorrow we will continue working with money by going on a shopping trip at Miss Lemos's toy store.

Assessment:

- Formally assess students through checking the graphic organizer for 6/6 correctly completed problems

- Informally assess students by watching for correct location when jumping side to side of the decimal point.
- Informally assess students by checking white boards during whole group activity.
- Informally assess students by monitoring and checking progress as the students complete their independent activity.

Extension:

- Writing: Have the students create a poem about Santa Claus.
- Reading: Have the students read Santa Claus and the Three Bears.
- Art: Have the students draw a picture of Santa in his brand new suit.

Accommodations:

- Students with visual disabilities will be provided with a graphic organizer that is lined up straight to provide for easier reading.
- Students with physical disabilities will be given an elf friend to move back and forth over the decimal point.
- Gifted/Talented students will be asked to order the pieces of the suit from most expensive to least expensive.

Money Lesson #3

2nd Grade

Objective:

- The students will solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately through correctly completing 4/4 word problems on a worksheet in a shopping activity.

Framework or Common Core Standard:

- 2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.

NAEYC Standard:

- Standard 4: Using Developmentally Effective Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials/Technology:

- Teddy bear, yo-yo, baby doll
- 5 toy pictures
- 30 money cards
- 5 buckets
- 16 items with price pictures
- Play money (1 set for each student: 5 dollar bills, 5 quarters, 5 dimes, 5 nickels, 5 pennies)
- White boards and markers (1 per student)
- Graphic organizer (1 per student)

Introduction:

TTW:

- Welcome the students to math class.
- Ask the students if they remember what we have been working on.
- Allow students time to respond, guiding them to something similar to “money/dollars and cents” if necessary.
- Show students the teddy bear, yo-yo and baby doll.
- Ask the students what all three of these things have in common.
- Explain to the students, if necessary, that all of these things can be purchased at a toy store.
- Tell the students that today we are going to be continuing to work with counting money by pretending to buy some toys for the Christmas season.

Procedures:

TTW:

- Tell the students that they have now entered Miss Lemos's toy store.
- Explain to the students that we are going to see if we have enough money to buy some toys.
- Place first pictures of a toy on the board.
- Ask the students how much the toy costs.
 - Example: Teddy Bear-64¢
- Ask a student to come fill in the first part of the word problem on the board.
 - Example: The toy costs **64** ¢.
- Have a student come draw a card out of the bucket.
- Ask the student to read the card to the class.
 - Example: 1 quarter, 2 dimes, 3 nickels, 2 pennies
- Ask the students to use their white boards to figure out how much money we have.
- Tell the students to hold their boards up when they have figured out how much money we have.
- Ask a student to come fill in the second part of the word problem on the board.
 - Example: We have **62** ¢.
- Read the third part of the word problem to the students.
 - Example: Do we have enough money to buy the toy?
- Ask the students to stand up if they think we have enough money to buy the toy.
- Model how to find out how much total money we have for the students.
- Repeat this process for all the toy pictures.
- Tell the students that they are going to go on a shopping trip around Miss Lemos's toy store.
- Explain that there are four items on each table in the corners of the classrooms.
- Tell the students that they are to select one item which they want to purchase and circle that item on their graphic organizer.
- Tell the students that the price for each item is listed on the picture.
- Explain to the students that this price will be what they write in the first blank of their word problem
- Tell the students that they are to pull a number card from the bucket on the table.
 - Example: 1 dollar bill, 3 quarters, 1 dime, 2 nickels, 6 pennies
- Explain to the students that they are to copy down how many of each piece of money they have.
- Tell the students that they are to total the amount of money they have and write this in the second blank of their word problem.
- Tell the students that the last part of their word problem asks if they have enough money to buy the item.
- Explain to the students that they are to say whether they have enough money or not and explain why they believe this is true.
- Tell the students that they will have five minutes to work at each station before rotating.
- Tell the students that they will have a chance to go to all four tables.
- Model the process for the students.
- Ask the students if they have any questions about what we will be doing.
- Tell the students that they will be receiving a bag of play money if they would like to use it to help them solve the problems.
- Distribute graphic organizers and play money to the students.
- Place students in pre-determined groups and send each group to a different table.
- Put five minutes on the Smart Board clock.
- Have the students rotate every five minutes.
- Walk around the classroom as the students work on the activity.

Culmination:

- Have the students return to their desks.
- Ask one student from each group to come to the front of the class.
- Have each student share what they bought from one table, what their number card had on it, what their total was, and if they had enough money to buy it.
- Write down each part on the board as the students discuss them.
- Have the students return to their desks.
- Tell the students that tomorrow we will continue working with money through a graphing activity.

Assessment:

- Formally assess students through checking the graphic organizer for 4/4 correctly completed word problems.
- Informally assess students by checking white boards during whole group activity.
- Informally assess students by monitoring and checking progress as the students complete their independent activity.

Extension:

- Reading: Have the students create a poem telling about one of the coins.
- Social Studies: Have the students create a poster displaying information about the historical figure from each coin.
- Writing: Have the students journal after going to the store about what items they saw that they could buy with \$5.00.

Accommodations:

- Students with visual disabilities will be provided with a cover sheet to help them focus on only one problem at a time.
- Students with ADD/ADHD will be placed in separate groups to prevent distraction during independent activity.
- Gifted/Talented students will be asked to write multiple methods of using the coins to achieve the same total.

Third Grade: Social Studies

Buckingham Palace

3rd Grade

Objective:

- The students will examine the significance of the key aspects of Buckingham Palace by listening to a read aloud of *Does the Queen Wear Her Crown in Bed?* and using definitions to find the corresponding key facts/terms to create The Queen's crown with 100% accuracy.

Framework or Common Core Standard:

- C.5.3.1. Examine the significance of national symbols and the role they play in fostering effective citizenship.
- R.L.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

NAEYC Standard:

- Standard 4: Using Developmentally Effective Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Book – *Does the Queen Wear Her Crown in Bed?*
- Introduction pictures: telephone booth, underground sign, English pound, British flag, map of England)
- Queen's Crown pieces
- Tape
- KWLS Chart
- Crayons

Introduction:

TTW:

- Welcome students to the class.
- Tell the students that you have a very special lesson for them today.
- Ask the students if they think that they can guess what the lesson is about if you give them some clues.
- Show the students the items one by one.
 - Telephone booth
 - Underground sign
 - English pound
 - British Flag
 - Map of England

- Allow the students to discuss what they think the topic is with their talking partner after each object has been shown.
- Allow students to guess what the topic is.
- Guide students to the answer of England, specifically the capital London.
- Tell the students that there are some very special structures in London that we want to tell them all about.
- Show students the video of Miss Lemos in front of Buckingham Palace.
- Explain to the students that Miss Lemos was at the Palace and answer any initial questions they have.

Procedures:

TTW:

- Show students the map of London and point out where Buckingham Palace is located.
- Have a student place a picture of the Palace on the map.
- Tell the students that we are about to read a book about Buckingham Palace that is full of facts.
- Before reading, create a class list of the things they already know about Buckingham Palace.
- Have each student fill out a note card with something that they already know.
- Allow students to come to the board and place the note cards in the “Know” column.
- Discuss some of the things the students already know.
- Ask the students if there is anything that they want to know about Buckingham Palace
- Have each student fill out a note card with something that they want to know.
- Allow students to come to the board and place the note cards in the “Want to Know” column.
- Discuss some of the questions.
- Read the book *Does the Queen Wear Her Crown in Bed?* to the students.
- Stop and question throughout the read aloud and point out any of the facts the students wanted to know.
- After the read aloud, make a class list about the things they learned about Buckingham Palace.
- Have each student fill out a note card with something that they learned.
- Allow students to come to the board and place the note cards in the “Learned” column.
- Discuss some of the things the students learned.
- Review the “Know” column on the board.
- Ask the students to correct any facts that they may have previously misunderstood.
- Review the “Want to Know” column on the board.
- Ask the students which of these questions we answered during our read aloud.
- Transfer any unanswered questions to the “Still Want to Know” column on the board.
- Allow students to add any other questions they still have to this column.
- Explain to the students that you would like them to use any resources they have at home to try to answer these questions and report back what they have found.
- Tell the students that you will do your best to also discover these answers.
- Tell the students that they are going to use these new facts they have learned about Buckingham Palace to create the Queen’s crown.
- Distribute crown pieces to each student.
- Ask the students to keep their hands in their lap and their pencils on their desk while we go over the activity.
 - Tell the students that there are six different definitions written on the crown pieces.
 - Explain that there are six answer pieces with scrambled words that they must decode to find the key terms.
 - Tell the students to write the unscrambled words on the line below and then match it to its corresponding definition.
 - Explain that if all the pieces are in the correct spot it will form the Queen’s Crown.

- Tell the students that when all of the pieces fit together perfectly they are to use small pieces of tape to connect each piece together.
- Point out resources to students that they can use to help them complete their crown.
 - facts on the board
 - talking partner
 - teachers
 - book
- Allow students time to complete the activity.
 - If a student finishes before the other students, allow them to color/decorate their crown being conscious of leaving their answers visible.
 - Remove the picture of Buckingham Palace from the map as the students near completion.
- After all of the students have completed their crowns, collect the crowns.

Culmination:

- Assign the students to groups of three.
- Tell the students to each give a one minute talk with their group including some of their favorite facts like the video at the beginning of the lesson.
- Set the timer for one minute.
- Ask students to rotate speakers.
- Repeat until all members of the group have had a chance to share.
- Allow the students to share what they have learned by discussing the terms on the Crown.
- Ask the students what their favorite fact they learned about Buckingham Palace is.
- Show the students the map of London.
- Ask one student to point out where Buckingham Palace is located.
- Tell the students that in the next lesson they will be learning about another famous place in London.

Assessment:

- Informally assess students through questioning throughout read aloud to engage and check for understanding.
- Informally assess students through the use of the KWLS chart.
- Formally assess students through checking the Queen's Crowns for 100% accuracy.

Extension:

- Math: Have students create a pictograph representing the students' favorite aspects of London.
- Drama: Have students create skits about the Changing of the Guards, the Queen's Coronation, etc.
- Writing: Have students create a narrative story about what they would do if they spent a day with the Queen of England.

Accommodations:

- Students with visual disabilities will sit closer to me during the read aloud to be able to see the book.
- Students with ADD/ADHD will be asked to find Buckingham Palace on the map as an extra outlet for movement.

- ESL students will be seated near proficient students to allow for questioning and assistance.

Technology:

- Show videos of visit to Buckingham Palace

London Bridge

3rd Grade

Objective:

- The students will display an understanding of the various building materials and the time periods they were used to form the London Bridge through completing a group presentation including a written portion and achieving 12/12 on the project rubric.

Framework or Common Core Standard:

- C.5.3.1. Examine the significance of national symbols and the role they play in fostering effective citizenship.
- W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
- W.3.7 Conduct short research projects that build knowledge about a topic

NAEYC Standard:

- Standard 4: Using Developmentally Effective Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- PowerPoint
- Buckets (9)
- Beanbags (15)
- Question cards (3 sets)
- Popsicle Sticks
- Legos
- Play-doh
- True/False Cards
- Graphic organizers

Introduction:

TTW:

- Welcome students to the class.
- Ask the students if they remember what city and country we have been talking about.
- Allow students time to respond, guiding the students to London, England if necessary.
- Tell the students that today we will be learning about another famous site in London.
- Ask students to get out their whiteboards and markers.

- Tell the students that I am going to play a song without the words and they are to write down on their board what they think we will be talking about today.
- Play “London Bridge Is Falling Down” for the class.
- Allow students time to write down their answers.
- Remind students to hold up their boards when they have written their answer.
- Ask one student to share what they believe we will be talking about.
- Tell the students that today we will be talking about the London Bridge.

Procedures:

TTW:

- Show students the map of London and point out where the London Bridge is located.
- Have a student place a picture of the bridge on the map.
- Tell the students Miss Lemos walked across the London Bridge.
- Show the students the video clips from London Bridge.
- Distribute graphic organizers to the class as they watch the videos.
- Tell the students that we will be discussing three different materials that the bridge has been built out of.
- Ask students if they know any materials the bridge has been built out of.
- Tell the students that we will be discussing the three different times when the bridge was built out of timber, stone, and granite.
- Tell the students that as we go through the PowerPoint they are to take notes on their graphic organizer under the section we are discussing.
- Remind students that they should take detailed notes but not write down every word.
- Remind students to use their best handwriting because they will be using these notes later for a project.
- Display PowerPoint for students.
 - Informally question throughout
 - Answer students’ questions
- Explain to the students that we are going to break up into groups to do a physical activity to review what we just heard during the PowerPoint.
- Divide students up into three groups, sending each group to a corner.
- Tell the students that there are three buckets in front of them each labeled with one of the materials the London Bridge was once built out of.
- Ask the students what the three materials are.
- Tell the students that you are going to read a question card that describes one of the three materials.
- Explain that after you read the question, they are to throw their bean bags into the corresponding bucket one at a time.
- Tell the students that they will stand in a single-file line to throw the bean bags.
- Tell the students that the first thrower will also be the retriever for the next round and will then go to the back of the line.
- Read the students a sample question as practice.
- Ask students the questions, discussing the answers and the reasons behind the answers after each question.
- Direct each group to a section of desks.
- Explain to the students that they are going to be given one of the materials on which as a group they must give a small presentation.
- Explain to the students that as a part of their presentation they will be writing a few sentences about their bridge.
- Remind the students what their sentences should look like by asking questions.
 - How does my sentence start?

- How does my sentence end?
- What types of words will I include in my sentence to make it the most interesting?
- Call on students to answer each question and then explain again what was said.
- Ask for a volunteer to come write a quality sentence on the board about a castle.
- Allow the class to help write the sentence.
- Explain how each part of the sentence helps to make it a quality sentence.
- Remind the students that this sentence will be left on the board to be used as a reference while they are writing their sentences about their bridges.
- Tell the students that they are going to build a bridge out of their material and write four sentences about their bridge.
- Assign each member of the group a job: scribe, checker, presenter, etc.
- Distribute building materials to each group (timber-popsicle sticks, stone-legos, granite-play-doh)
- Tell the students that they will have ten minutes to construct their bridge and write their report.
- Allow students time to work, monitoring to make sure that they are not spending too much time building their bridge.
- Give the students a five minute and two minute warning.

Culmination:

- Ask each group to have their presenter come to the front of the class.
- Remind the students that they are to show respect to their classmates as they read.
- Allow each group a chance to read and display their bridge.
- Thank the students for their hard work and ask the presenters to return to their seats.
- Collect the papers from the students.
- Collect the graphic organizers from the students.
- Ask the students to get out their True/False cards.
- Review the key points of the PowerPoint by having the students respond with their cards.
- Show the students the map of London.
- Ask one student to point out where the London Bridge is located.
- Tell the students that in the next lesson they will be learning about another famous place in London.

Assessment:

- Informally assess students through questioning throughout the PowerPoint to engage and check for understanding.
- Informally assess students through the beanbag toss.
- Informally assess students through their presentations for knowledge.
- Formally assess students through checking the presentation sheets for the achievement of 12/12 on the rubric.

Extension:

- Reading: Have students read Where is London Bridge.
- Music: Have students create new verses to “London Bridges Falling Down” based upon what they have learned.
- Science: Have students create a poster displaying the affects erosion has on bridges and other structures.

Accommodations:

- Students with tactile sensitivity will be given a job that does not involve touching the building material.
- Students with ADD/ADHD will be asked to find the London Bridge on the map as an extra outlet for movement.
- Students with dyslexia will be given the job of builder.

Technology:

- Show videos of visit to the London Bridge.

Big Ben

3rd Grade

Objective:

- The students will examine the significance of Big Ben and tell and write time to the nearest minute through in class discussions and a fact card activity to achieve 100% accuracy on the answer sheet.

Framework or Common Core Standard:

- C.5.3.1. Examine the significance of national symbols and the role they play in fostering effective citizenship.
- 3.MD.A.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Video
- Map
- Clock
- Fact cards
- Answer sheets
- Question cards
- Answer cards
- Checklist

Introduction:

- Welcome the students to the class.
- Ask students if they remember the place that we learned about in the last lesson.
- Guide students to remember that the London Bridge and Buckingham Palace are located in London, England.
- Tell the students that you have a riddle about the place we will be learning about today.
 - What has a face but cannot see and hands but cannot touch?
- Let the students brainstorm answers with their talking partner.
- Allow students to answer out loud.

- Guide students to the answer a clock.
- Tell the students that today we are going to be learning about a famous tower that has four clocks.
- Show students the video of Miss Lemos in front of Big Ben.
- Allow students to ask questions about the video.
- Explain that Miss Lemos was standing in front of Big Ben which is a great clock tower in London.

Procedures:

- Show students the map on London and point out where Big Ben is located.
- Have a student place a picture of the Big Ben on the map.
- Have the students describe its position in reference to the London Bridge and Buckingham Palace.
- Ask the students if they know what time it was during Miss Lemos' video in front of Big Ben.
- Allow students to answer and guide them if necessary to 3 o'clock and that we can know by the clock hands or number of chimes.
- Ask a student to come and move the hands on the clock on the board to 3 o'clock.
- Explain to the students that we are going to use our bodies to be the clocks.
- Tell the students that our right arms are going to be the hour hand and our left arms are going to be the minute hand.
- Model to the students making your right arm smaller than your left, pointing it to the "3" and the left arm to the "12" for 3:00.
- Ask the students what time it would be when Miss Lemos finished if it took her thirty minutes to record herself in front of Big Ben.
- Allow students to answer and guide them to 3:30 if necessary.
- Ask a student to come and move the hands on the clock on the board so it says 3:30.
- Have the students move their arms to be 3:30.
- Tell the students that we are going to practice telling time to the nearest minute.
- Guide the students to see that there are thirty little minute spots from 3 to 3:30.
- Show the students what the clock would look like if it was 3:27.
- Have the students slightly move their arms to account for the the minute change.
- Allow a student to come up to the board and move the clock to a different minute time and tell the class what time it is.
- Have the students move their arms to the fixed time.
- Explain how the student moved the minute hand to show the minutes on the clock.
- Show the students that Big Ben pictures on the board.
- Tell the students that they will have an answer card under one of their seats but not to look yet.
- Tell the students that they will have to match the times to the clocks on the wall and read the facts to the class.
- Have the students pull the answer cards from under their seats and discuss what they say with their table.
- Call on one table to bring their answer card to the front and match it with the correct time on the board.
- Have one student read the fact to the class.

- Elaborate on what the fact that was read allowing students to ask questions.
- Repeat the process until all of the clocks have been completed.
- Allow time for students to ask any additional questions about the facts on the clocks.
- Tell the students that now they will get to display their knowledge of Big Ben.
- Tell the students that they will work with their talking partner to match the time and answer to the fact cards.
- Tell the students that one student will match the clock to the time in minutes and the other students will match the answer to the question.
- The students will then switch roles for the next question.
- Both students will write down the time and the answer on their answer sheets.
- Hand out supplies to the students and allow them to complete the activity.
- Monitor the students making sure they are taking turns answering the time and facts.
- When a group finishes early have them practice telling time in minutes by moving the clock hands and the other person reading the time and then switch until time is up.

Culmination:

- Collect the supplies from the students.
Have the students tell three people a fact that they learned about Big Ben in today's lesson.
- Have the students find their seats again.
- Have three students share their fact and a fact one of their peers had learned that day.
- Point out on the map where Big Ben and Buckingham Palace are located.
- Tell the students that they will use this knowledge to learn about another famous landmark in London tomorrow.

Assessment:

- Informally assess students throughout with questioning.
- Informally assess students using the clock on the board.
- Informally assess students work with the fact cards by observation throughout activity.
- Formally assess students work with the fact cards by checking their answer sheets for 100% accuracy.
- Formally assess students using the checklist for 5/5 completed steps.

Extension:

- Writing: Have students create a story about visiting Big Ben.
- Art: Have students create a model of Big Ben.
- History: Have student research the history of Big Ben.

Accommodations:

- Allow kinesthetic learners to use the manipulatives (clocks) throughout the lesson to help problem solve.
- Place answer cards under the seats of students with attention disorders to provide incentive to stay focused.
- Assign a GT student to work with an at-risk student to provide extra support.

Technology:

- Show students the videos Big Ben visit.

Fourth Grade: Writing

Ancient Egypt: Math

4th Grade

Objective:

- The students will use domain-specific vocabulary in their creation of a poster board diagram explaining how to identify lines of symmetry as measured as a result of achieving 8/8 on the provided rubric.

Common Core Standard:

- G.4.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line symmetric figures and draw lines of symmetry.
- W.4.2d Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Video clip: <http://www.history.com/topics/ancient-egypt/videos#the-great-pyramids-deconstructed>
- Construction paper (1 piece per student)
- Scissors (1 per student)
- Smart Board pictures (circle, square, heart, star, pyramid)
- Cut-out half shape (1 per student)
- Mirror (1 per pair of students)
- Poster board (1 per pair of students)

Introduction:

TTW:

- Display the pyramid video clip for the students: <http://www.history.com/topics/ancient-egypt/videos#the-great-pyramids-deconstructed>
- Ask students to discuss with their talking partners what they noticed about the physical structures of the pyramids from the video.
- Ask pairs of students to share what they discussed.
- Distribute a piece of construction paper to each student.
- Model folding the paper in half.
- Explain to the students that they are going to be cutting a triangle along the folded side of the paper.
- Model cutting out a triangle from the paper.
- Allow students time to cut out their triangles.
- Have students unfold their papers.
- Ask students if there is anything in the middle of their triangles.
- Allow students time to respond.

- Tell the students that the line down the middle of the triangle is known as the line of **symmetry**.
- Tell students that today we are going to be learning about what this line is and why it is **important**.

Procedures:

TTW:

- Ask students if they know what symmetry means.
- Allow students time to respond.
- Tell students that the line of symmetry is a line across a figure such that the figure can be folded **along** the line into matching parts.
- Display pictures on the Smart Board of shapes that have symmetry.
 - Circle
 - Square
 - Heart
 - Star
- Model drawing the line of symmetry on the circle.
- Ask a student to come to the board and draw the line of symmetry for each of the displayed shapes.
- Distribute a cut-out half shape to each student.
- Explain to students that they must find their other half from another student.
- Tell students that they are to sit by the person with their other half.
- Allow students time to move about the classroom.
- Have each pair stand and show their completed shape.
- Ask each pair to draw a line with their finger along the line of symmetry on their shape.
- After each pair has shared, thank the students for their cooperation and ask them to return to their seats.
- Explain to students that all of these shapes are examples of a specific type of symmetry: reflection symmetry.
- Tell students that reflection symmetry is a shape where one half of the figure is the reflection of the other half separated by a line of symmetry.
- Model to the students how to hold a mirror to reflect a half-shape to create a whole shape.
- Distribute a mirror to each pair of students.
- Have students use the mirror to discover how reflection symmetry works with their cut-out half shapes.
- Ask each pair of students to share with their talking partner what they see from the reflection.
- Distribute half-pyramids to each pair of students.
- Ask the students to repeat the reflection process with their half-pyramids.
- Tell the students that the Ancient Egyptians used reflection symmetry to build their pyramids in such a way that they have lasted for centuries.
- Explain to the students that each side of the pyramid looks exactly like the other side.
- Display a picture of a pyramid on the SmartBoard.
- Ask the students what shape pyramids are composed of.
- Allow time for students to respond, guiding them to “triangles” if necessary.
- Explain to the students that the triangles of the pyramid are known as the “faces” of the pyramid.
- Explain to the students that all four faces of the pyramid are made up of triangles.
- Tell the students that today we are focusing on this two-dimensional shape that makes up the three-dimensional pyramids.
- Explain to the students that where the faces meet is known as the “side” of the pyramid.
- Explain to the students that where all four sides of the pyramid meet at the top is known as the “**peak**” of the pyramid.
- Explain to the students that the part of the pyramid that sits on the ground is known as the “**base**.”
- Draw the line of symmetry from the peak of the face of the pyramid straight to the base.

- Ask students what this line is called.
- Allow time for students to respond, guiding them to “line of symmetry” if necessary.
- Tell the students that they are going to be working in groups to make a diagram of a pyramid and write out step-by-step procedures about how to find and check that this shape has reflection symmetry.
- Display the rubric on the board.
- Review each section of the rubric in order to clarify expectations.
- Distribute a poster board to each pair of students.
- Allow students time to work on their poster board.

Culmination:

TTW:

- Ask pairs of students to share their poster board.
- Remind the students to be respectful towards their peers and give them their full attention while they read their paragraphs.
- Collect the poster board from each pair after their presentation.
- After all of the pairs have shared, thank the students for sharing with the class.
- Ask a student if they can define what line of symmetry is.
- Allow student time to respond.
- Ask students if they can find any objects with lines of symmetry in the classroom.
- Allow students time to find and share their discoveries.
- Ask students if they remember what type of symmetry a pyramid has.
- Allow time for students to respond, guiding them to “reflection symmetry” if necessary.
- Tell the students that since we have now discussed a person from and a landmark from Ancient Egypt we are now going to be talking about its environment in Science.

Assessment:

TTW:

- Informally assess students by questioning throughout the lesson to check for understanding of the concept of symmetry, line of symmetry, and composition of pyramids.
- Formally assess students’ posters for 8/8 points achieved on the rubric that illustrates the ability to use three or more domain-specific vocabulary words, five or more steps of how to find reflection symmetry, a drawing of a pyramid including labels of three or more parts.

Extension:

- Art: Students will create a mosaic design using only shapes with reflection symmetry.
- Music: Have students create short songs with notes that have reflection symmetry.
- Theatre: Students will create a mimic scene with a partner to show the idea of reflection.

Accommodations:

- Allow students with visual impairments to come up to the board to draw the lines of symmetry in order to provide a larger view of the shape.
- Allow students with ADHD to distribute materials as an extra outlet for movement.
- Have Gifted/Talented students pair up with At-Risk students for the creation of the poster.

Technology:

- Video: <http://www.history.com/topics/ancient-egypt/videos#the-great-pyramids-deconstructed>
- Students will use Smart Board to draw lines of symmetry on pictures of shapes.

Ancient Egypt: Reading

4th Grade

Objective:

- After reading an excerpt from *Who Was King Tut?*, the student will explain the concept and importance of cultural events utilizing facts, definitions, and concrete details in their writing of a paragraph that satisfies 10/10 on the provided rubric.

Common Core Standard:

- RIT.4.3. Explain events, procedures, ideas, or concepts in a historical, scientific or technical text, including what happened and why, based on specific information in the text.
- W.4.2.b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- *Who Was King Tut?*
- iPad (1 per student)
- QR Code (1 per student)
- 4 Pics 1 Word worksheet (1 per student)
- SmartBoard
- Graphic Organizer (1 per student)
- Reading Response Paragraph
- Sample paragraph
- White board/marker (1 per student)
- Online timer
- Rubric (1 per student)

Introduction:

- Welcome the students to the class.
- Tell students that we are going to start learning something new today.
- Hand out 4 Pics 1 Word depicting Ancient Egypt.
 - Sphinx
 - Pyramid
 - Nile River
 - Jackal
- Allow students to work with their talking partner on the 4 Pics 1 Word.
- Allow pairs to share their responses.

- Guide the students to the answer Ancient Egypt if necessary.
- Tell students that we are going to be going on a journey through Ancient Egypt.
- To start our journey we are going to read about another student's experience in Egypt.
- Tell students to take out their iPad and use the QR code on the 4 Pics 1 Word to read his blog.
- Allow time for students to read the blog.
- Allow time for students to discuss their reading with their talking partner.
- Gain classes attention.
- Tell students that today we are going to be learning about a special boy's experience living in Ancient Egypt.

Procedures:

- Ask students if they know what the name was for the supreme ruler of Ancient Egypt.
- Allow time for students to respond.
- Guide the students to answer pharaoh if necessary.
- Ask the students if they know of any famous Egyptian pharaohs.
- Allow time for students to respond.
- Explain to students that we will be learning about a famous pharaoh, King Tut, by reading a few chapters out of the book *Who Was King Tut?*
- Distribute a graphic organizer to each student.
- Tell students that they are to fill out their graphic organizer by taking notes on important things about King Tut and explain why they are important.
- Inform the students that after all of our reading today we will be writing reading response paragraphs about what we have read.
- Read the first chapter out of *Who Was King Tut?*
 - "Who Was King Tut?"
- Explain to the students that they are going to partner read with their talking partners the next chapter.
 - "Gifts of the Nile"
- Allow students time to read the chapter, monitoring and reminding students to continue to fill out their graphic organizer as they read.
- Instruct students to independently read and take notes on the third chapter when they have finished their partner read.
 - "The Boy King"
- After all students have finished their independent reading, bring the class back into a whole group.
- Ask a few students to share something interesting that they heard or read.
- Allow time for students to respond.
- Explain to students that they are now going to write a reading response paragraph about the importance of King Tut, remembering to support their writing with examples or reasons why he was important from their graphic organizers.
- Ask students what makes up an informative paragraph.
- Tell students that informative paragraphs are full of details about the topic they are discussing.
- Tell students that we are going to look at an example informative paragraph and find the details together.
- Put the sample paragraph on the SmartBoard.
- Ask a student to read the paragraph to the class.
- Have students turn to talking partner and discuss what they think the topic of the paragraph is.
- Bring the students back together and ask several groups what the topic is.
- Tell students that because we know the topic we can now pick out the details in the paragraph.
- Instruct each student to write down one key detail from the paragraph on their white board.

- Tell the students that they must get up and find another student who has found the same **key detail** as them.
- Explain that when they have found a partner they are to sit down on the ground **together with their white boards** in their laps.
- Remind the students not to push or run.
- Tell the students that they have twenty seconds to find a partner and start the clock.
- Call on a pair of students to tell the class what detail they found in the paragraph.
- Highlight the key details in the paragraph that they student pointed out.
- Tell the students to wipe their boards and write a different key detail than the one we discussed ~~or the~~ one they had previously written.
- Repeat the process of pairing up and answering until all key details are highlighted in the paragraph.
- Review that the words highlighted are the key details provided in the paragraph.
- Distribute a copy of the rubric to each student.
- Allow time for students to write their paragraphs.
 - If students finish early, allow students to use the classroom resources to find more facts about King Tut that we did not discuss in class.

Culmination:

TTW:

- Ask the students to come up to the author's chair to share their paragraphs.
- Remind the students to be respectful toward their peers and give them their full attention while they read their paragraphs.
- After a few students have finished reading, thank the students for sharing with the class.
- Collect the graphic organizers and reading response paragraphs.
- Ask the students what the name is for the supreme ruler of Ancient Egypt.
- Allow the students to respond.
- Guide the students to the answer of "pharaoh" if necessary.
- Ask the students if anyone in their reading discovered where they buried the pharaohs of Ancient Egypt.
- Allow the students to respond.
- Tell the students that pharaohs were buried in pyramids.
- Tell the students that today in Social Studies we will be discussing the cultural tradition of the Ancient Egyptians involving pyramids.
- Thank the students for their great focus and attention.

Assessment:

TTW:

- Informally assess students by questioning throughout the lesson.
- Formally assess the students' comprehension using the graphic organizer.
- Formally assess the students' paragraphs for 10/10 points received on the rubric displaying three or more facts, three or more definitions, three or more concrete details, a complete paragraph, and a high level of neatness.

Extension:

- Art: Students will create and decorate a word collage of the Nile River using the vocabulary words learned.
- Music: Students will research the particular items that were buried in King Tut's tomb and create a rap about them.
- Theatre: Students will create a dramatic play about the life of young King Tut.

Accommodations:

- Allow students with attention disorders to move seats while reading with their partner to a quiet corner of the room.
- Allow extra time for struggling language arts students for graphic organizer completion.
- Allow students with hearing impairments to sit close to the teacher while reading aloud.

Technology:

- The teacher will display the 4 pics 1 word on the SmartBoard.
- Students will use iPads to read the blog about a boy who visited Egypt, as well as the chapters of the book.

Ancient Egypt: Social Studies

4th Grade

Objective:

- The students will research Egyptian culture and respond by using sensory details to convey the cultural elements of Egyptian burials through writing a blog entry and achieving 10/10 on the writing rubric.

Common Core Standard:

- G.2.4.1 Research elements of culture in a community, state, or nation (e.g. food, clothing, housing, language, sports/recreation, customs, traditions, art, music, religion)
- W.4.3d Use concrete words and phrases and sensory details to convey experiences and events precisely.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- *The Mummy*
- White Board
- Splash poster
- Note cards (1 per student)
- KWLS chart sheets (1 per student)
- SmartBoard
- Vocabulary note cards (1 set per student)
- PowerPoint slides
- Non-descriptive paragraph
- Descriptive paragraph
- Vocabulary word wall cards
- Social Studies journals (1 per student)
- iPads (if necessary)

Introduction:

TTW:

- Play a clip from the movie *The Mummy*.
- Display the mummy therapist comic on the SmartBoard.
- Explain to the students that we will be doing a creative writing activity to fill in the word bubble for the therapist speaking to the mummy.
- Model writing a quotation on a note card for the students.
- Place the note card on the board.
- Distribute a note card to each student.
- Tell the students that we will be doing a word splash with their quotations.

- Allow students time to fill out their note cards.
- When all of the students have finished, ask students to come up by row to place their note cards on the board.
- Read four of the note cards to the class.
- Tell students that today we are going to be learning about the Egyptian processes of embalming, mummifying, and burying in pyramids.

Procedures:

TTW:

- Distribute KWLS chart to the class.
- Remind the students that the “K” stands for what they know.
- Remind the students that the “W” stands for what they want to know.
- Remind the students that the “L” stands for what they have learned after the lesson.
- Remind the students that the “S” stands for things they still want to know after the lesson.
- Have students write down at least two things they know and two things they want to know about the Ancient Egyptian burial rituals.
- Allow students to fill in the first two columns of their KWLS charts.
- Ask students to raise their hands if they would like to share one thing that they would like to know.
- Write down these questions on the white board.
- Instruct students to turn over their charts and place them in the top left corner of their desks.
- Distribute vocabulary note cards.
- Display the PowerPoint and ask students to take notes in their Social Studies journals.
 - Discuss the four vocabulary words.
 - Have students match the vocabulary word with the definitions on the SmartBoard.
 - Go over each word in more detail.
- Re-read the “Want to Know” questions from the board.
- Ask students if they now know the answer to any of these questions.
- Allow time for students to respond.
- Record their answers on the board.
- Have students record on their KWLS chart at least two things that they have learned.
- Allow time for students to fill out the last column on their KWLS chart to ask any questions they still have.
- Remind the students that you will look at these questions and do your best to find the answers so that we can discuss them in class tomorrow.
- Tell students that they can look up the answers for the questions they have written and bring them to class tomorrow to share.
- Display the non descriptive paragraph on the SmartBoard.
- Ask a student to read the paragraph.
- Allow students time to share what they think is wrong with this paragraph.
- Explain to the students that this paragraph does not have any descriptive words that appeal to the senses.
- Display the descriptive paragraph on the SmartBoard.
- Ask a student to read the paragraph.
- Ask the students to find the words that make this paragraph better than the one before.
- Allow students time to talk with their partners.
- Call on a group to give an example of a descriptive word in the paragraph that appeals to the senses.
- Highlight on the SmartBoard the students’ answers.
- Ask students what senses were utilized in the second paragraph.
- Allow students time to respond, guiding them to “hearing, seeing, and feeling” if necessary.

- Write the senses next to each of the highlighted sentences.
- Ask students if they remember reading the blog entry about the boy's trip to Egypt.
- Tell students that they will now be writing their own blog entry using sensory details and our new vocabulary words to tell about the Ancient Egyptian burial ritual.
- Tell the students that we are going to quickly review our vocabulary words before we sit down to write.
- Explain to the students that you have put up a vocabulary word wall card up for each word.
- Point out to the students where the cards are located.
- Tell the students that you will read off the definition or show a picture of what the word means, and they must go to the correct vocabulary word.
- Read the definition of culture.
- Allow students time to go to the word.
- Discuss the correct answer with the students.
- Repeat the process until all of the definitions have been read and a picture has been shown for each vocabulary word.
 - Culture
 - Mummification
 - Embalm
 - Pyramid
- Ask the students to return to their seats.
- Distribute a copy of the rubric to each student.
- Review with the students each element on the rubric to clarify what is expected.
- Remind students that they can use their notes from their Social Studies journals and their KWLS charts to write their blog entry.
- Allow time for students to write their blog entry.
 - If students finish early, allow them to use their iPads to type their blog entry.

Culmination:

TTW:

- Collect the blog entries and KWLS charts from students.
- Explain to the students that we will now be reviewing our vocabulary words using our vocabulary note cards.
- Read the definition of one of the vocabulary words.
- Ask students to hold up the vocabulary card that corresponds to the definition.
- Discuss why this is the correct answer to clarify any incorrect responses.
- Repeat with all of the vocabulary words.
- Ask students to share what the three senses we discussed today were.
- Allow time for students to respond, guiding them to "hearing, seeing, and feeling" if necessary.
- Ask students to give an example of a detail for each sense.
- Allow time for students to respond.
- Ask students what the large architectural structure that the pharaohs were buried in was called.
- Allow time for students to respond, guiding them to "pyramids" if necessary.
- Tell the students that today in Math we will be discussing a very special feature of pyramids.
- Thank the students for their great focus and attention.

Assessment:

TTW:

- Informally assess students by questioning throughout the lesson to check for understanding about sensory details and the mummification process.

- Informally assess students for understanding of vocabulary words by performing a vocabulary card check.
- Formally assess students' comprehension using the KWLS chart.
- Formally assess students' blogs for 10/10 points achieved on the rubric displaying the usage of at least three sensory details that convey about the Egyptian cultural element of burial, three or more vocabulary words, and a high level of overall neatness.

Extension:

- Art: Students will create a paper mache model of a mummy.
- Music: Students will create (in groups) a song about one of the senses.
- Theatre: Students will create a skit to visually display each of the vocabulary words.

Accommodations:

- Provide ESL and At-Risk students with example blog entries for added structure.
- Allow students with attention deficit hyperactivity disorder to distribute and collect the blog entries and KWLS charts as an outlet for movement.
- Allow Gifted/Talented students to share prior knowledge about Ancient Egyptian burial rituals before displaying the PowerPoint.

Technology:

- Students will use iPads to record their blog entries and share them with their classmates.
- Students will be engaged in a PowerPoint on the SmartBoard including a vocabulary matching review game.

Fifth Grade: Science

The Moon's Orbit: Day 1

5th Grade

Objective:

- The students will display knowledge of the process by which the Moon orbits the Earth by writing an informative paragraph in their science notebooks and receiving 20/20 on the rubric.

Next Generation Science Standard:

- 5-ESS1-b. Use a model of the relative positions and motion of the Sun, Earth, and Moon to describe the observed pattern of daily changes in length and direction of shadows, day and night, and the phases of the Moon.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Computer
- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php
- Moon Cards (1 note card per student per day)
- Venn Diagram (1 per student)
- [The Moon Seems to Change](#)
- Science Journal (1 per student)
- Cut-outs (Sun, Earth, Moon)

Introduction:

- Greet the students.
- Tell students that we are going to look every day this week at what the Moon looks like.
- Distribute a set of "moon cards" to each student
- Explain to students that, since today is the first day, we are going to draw a picture on our moon card.
- Have students draw a picture of what they believe the Moon looks like currently.
- Display website: http://www.calculatorcat.com/moon_phases/phasesnow.php.
- Ask students to record on the back of their "moon card" what the current moon phase is and draw a picture of it.
- Ask students if they remember what the Earth spins around.
- Allow time for students to respond, guiding them to "Sun" if necessary.
- Ask students if they remember how many days it takes for the Earth to go completely around the Sun.
- Allow time for students to respond, guiding them to "365 days/1 year" if necessary.
- Tell students that today we will be learning about how the Moon spins just like we learned about how the Earth goes around the Sun.

Procedures:

- Distribute a Venn Diagram to each student.
- Tell students to write “Sun” on the left circle and “Moon” on the right circle.
- Ask students to compare and contrast the Sun and the Moon by using the Venn Diagram.
- Allow time for students to complete their Venn Diagram.
- Display Venn Diagram on the SmartBoard.
- Ask students to share what some of the similarities and differences are between the Sun and Moon.
- If students do not answer that they both revolve, explain to students that the Moon also spins.
- Ask students if they know how the Moon spins.
- Allow time for students to respond.
- Explain to the students that the word “orbit” means “to move or travel along a curved path around a celestial body.”
- Ask students if they know what the Moon orbits.
- Tell the students that we are going to read a book that will help us better understand how the Moon orbits.
- Read The Moon Seems to Change to the students.
- Question the students throughout the read aloud.
- After the read aloud, ask students to share one thing they learned from the book.
- Tell the students that we are now going to use our bodies to represent how the Moon orbits while also reviewing how the Sun revolves.
- Designate one student to be the Sun and have them hold the Sun cut-out.
- Designate one student to be Earth and have them hold the Earth cut-out.
- Ask these two students to demonstrate how they would show the Earth’s revolution.
 - *Student Earth should walk around Student Sun as practiced in last week’s lesson.*
- Thank students for helping us review.
- Designate one student to be the Moon and have them hold the Moon cut-out.
- Ask students if they know what the Moon orbits.
- Explain to students that the Moon orbits Earth at the same time as Earth revolves around the Sun.
- Have Student Moon walk quickly around Student Earth while Student Earth stands still.
- Ask students how many days it takes for the Moon to orbit the Earth.
- Allow students time to respond.
- Tell students that it takes about 27 days for the Moon to orbit Earth.
- Ask students approximately how many times the Moon would orbit Earth in one year.
- Allow students time to respond, guiding them to “12 months/1 year” if necessary.
- Tell Student Moon that they are to walk around Student Earth twelve times before Student Earth makes it around Student Sun one time.
- After students demonstrate, break the students up into groups of three.
- Have each group model the orbiting process.
- Ask students to pull out their science notebooks.
- Tell the students that they are to write an informative paragraph explaining how the Moon orbits Earth.
- Allow students time to write their paragraphs.
- Collect Venn Diagrams as students write.

Culmination:

- Ask three students to share their paragraphs.
- Ask students what word means “to move or travel along a curved path around a celestial body.”
- Allow time for student to respond, guiding them to “orbit” if necessary.
- Ask students what the Moon orbits.
- Allow time for students to respond, guiding them to “Moon” if necessary.
- Ask students how many days it takes for the Moon to orbit Earth.
- Allow time for students to respond, guiding them to “about 27 days” if necessary.
- Tell the students that tomorrow we will be learning about how the Moon looks different in the sky during this time period.

Assessment:

- Informally assess students by questioning throughout the lesson.
- Formally assess students’ science notebooks for achievement of 20/20 on the rubric.

Extension:

- Writing: Students will create an acrostic for the word “orbit.”
- Art: Students will create scale models of the Sun, Earth, and Moon.
- Drama: Students will create a short skit with the Sun, Earth, and Moon interacting.

Accommodations:

- Have students with ADHD be the models to provide extra outlet for movement.
- Provide ELL student with identification cards for the Moon, Sun, and Earth to help distinguish the planetary bodies and their spellings.

Technology:

- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php.

Basic Background Knowledge:

- Earth revolves around the Sun. It takes approximately one year for the Earth to complete a full revolution around the Sun. The Moon orbits the Earth once every 27.3 days. Orbit means to move or travel along a curved path around a celestial body.

Conclusions:

- The Moon orbits Earth.
- It takes approximately 27 days for the Moon to orbit Earth.
- The Sun and Earth have similarities and differences.

Phases of the Moon: Day 2

5th Grade

Objective:

- The students will display knowledge of the visual characteristics of four phases of the Moon by correctly drawing and describing 4/4 phases in their science journal.

Next Generation Science Standard:

- 5-ESS1-b. Use a model of the relative positions and motion of the Sun, Earth, and Moon to describe the observed pattern of daily changes in length and direction of shadows, day and night, and the phases of the Moon.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Computer
- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php
- Moon cards(1 note card per student per day)
- “Phases of the Moon” PowerPoint
- Flashlight (1 per pair)
- Softball (1 per pair)

Introduction:

- Greet the students.
- Ask the students if they remember what phase of the Moon we recorded yesterday.
- Allow time for the students to respond.
- Ask students to pull-out a new “Moon card.”
- Have students predict on the front side of the card what phase of the Moon they believe will be shown today.
- Display website: http://www.calculatorcat.com/moon_phases/phasesnow.php.
- Ask the students to record on the back of their “Moon card” what the current Moon phase is.
- Ask the students if anyone can remember what word we learned about yesterday.
- Allow time for the students to respond, guiding them to “orbit” if necessary.
- Ask students if they can describe in their own words what the word “orbit” means.
- Allow students time to respond.
- Ask students how many days it takes for the Moon to orbit the Earth.
- Allow students time to respond, guiding them to “about 27” if necessary.
- Tell students that today we are going to begin to talk about four of the ways the Moon looks in the night sky.

Procedures:

- Display the first six slides of the PowerPoint.
- Discuss with the students how half of the Moon is always lit up by the Sun, it just depends what part we see.
- Turn off the classroom lights
- Ask a student to hold the flashlight and be our class “Sun.”
- Explain to the students that I will represent the class “Earth.”
- Hold a softball directly in front of the flashlight.
- Explain to the students that the back half of the softball is lit up.
- Ask students if they can see any light on the ball facing me.
- Display slides seven and eight.
- Explain that when the lighted side of the Moon faces away from the Earth it is called a new Moon.
- Ask students to cover their eyes.
- Tell students when there is a *new* surprise they cover their eyes and cannot see anything; this symbolizes the new Moon.
- Hold the ball out in front and turn counterclockwise until a half of the ball (the right side) is lit up.
- Ask students how much light is showing.
- Display slides nine and ten.
- Explain that after a new Moon the next biggest stage in the Moon’s orbit is called a first quarter Moon.
- Ask students to hold up their right hand and form the number one.
- Tell students that this is the hand that most of them write with, so it is the first one they would turn to; this symbolizes the right side of the Moon being the *first* quarter Moon.
- Turn until the entire side of the ball facing you is lit up.
- Display slides thirteen and fourteen.
- Explain that when the half of the Moon that is facing the Earth is lit up we have a full Moon.
- Ask students to form a circle with their hands and place it over their stomachs; this symbolizes the full Moon.
- Hold the ball out in front and turn until a half of the ball (the left side) is lit up.
- Ask students what the difference is with the light now.
- Display slides eleven and twelve.
- Explain that this is the opposite of the first quarter and is known as the third quarter or last quarter.
- Ask students to hold up their left hand and form the number three.
- Tell students that this symbolizes the left side of the Moon being the *third* quarter Moon.
- Ask students what phase of the Moon this is the opposite of.
- Divide the students up into pairs.
- Distribute a ball and flashlight to each pair.
- Ask students to use the flashlight and ball to go through the four phases of the Moon that we just did.
- Have students draw a picture of what they see during each phase in their science journals.

Culmination:

- Collect the balls and flashlights from the pairs.
- Ask a student what the first phase of the Moon is.
- Allow time for student to respond.
- Ask students to show the visual cue that helps us remember new Moon.
- Repeat until the students have named all four phases of the Moon.

- Tell the students that tomorrow we will be learning about four more phases of the Moon that come in between the phases that we learned today.

Assessment:

- Informally assess students by questioning throughout the lesson.
- Formally assess students' science journals for 4 visual depictions and 4 descriptions.

Extension:

- Math: Students will create a chart for percentage of light shown during each phase of the Moon.
- Writing: Students will create a poem about the phases of the Moon.
- Art: Students will create a poster representing one of the phases of the Moon.

Accommodations:

- Have student with ADHD be the Sun.
- Have a Gifted/Talented student provide assistance for an ESL student on the graphic organizer.

Technology:

- Website: http://www.calculatorcat.com/Moon_phases/phasesnow.php.

Basic Background Knowledge:

- The Moon reflects the light of the Sun. Because of this, the side of the Moon facing the Sun is always lit up. We see different phases of the Moon based upon how much of the lit up side of the Moon is visible from Earth. The four major phases of the Moon are the New Moon, First quarter Moon, Full Moon, and Third/Last quarter Moon.

Conclusions:

- Half of the Moon is always lit up.
- The Moon reflects the light of the Sun.
- The Moon has four major phases.
- The major phases in order are:
 - New Moon
 - First quarter
 - Full Moon
 - Third/Last quarter

Phases of the Moon: Day 3

5th Grade

Objective:

- The students will display knowledge of the visual characteristics of four phases of the Moon by correctly drawing and describing 4/4 phases in their science journal.

Next Generation Science Standard:

- 5-ESS1-b. Use a model of the relative positions and motion of the Sun, Earth, and Moon to describe the observed pattern of daily changes in length and direction of shadows, day and night, and the phases of the Moon.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Computer
- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php
- Moon cards(1 note card per student per day)
- “Phases of the Moon” PowerPoint
- Flashlight (1 per pair)
- Softball (1 per pair)

Introduction:

- Greet the students.
- Ask the students if they remember what phase of the Moon we recorded yesterday.
- Allow time for the students to respond.
- Ask students to pull-out a new “Moon card.”
- Have students predict on the front side of the card what phase of the Moon they believe will be **shown** today.
- Display website: http://www.calculatorcat.com/moon_phases/phasesnow.php.
- Ask the students to record on the back of their “Moon card” what the current Moon phase is.
- Ask the students if anyone can remember how many phases of the Moon we talked about **yesterday**.
- Allow time for the students to respond, guiding them to “four” if necessary.
- Ask students if they can name one of the phases of the Moon.
- Allow students time to respond.
- Repeat process until all four phases have been named.
- Review the four major phases discussed yesterday in order with the hand **motions**.
 - New Moon (cover eyes)
 - First quarter (one finger up on right hand)

- Full Moon (circle over stomach)
- Third/Last quarter (three fingers up on left hand)
- Tell students that today we are going to talk about four other phases of the Moon that **come in between** these phases.

Procedures:

- Tell students that you are going to show them a video about the phases of the Moon, and **they are to** record the phases they see that we have not talked about in their science journals.
- Show students the phases of the Moon song video: <http://www.youtube.com/watch?v=c4zpRmUdu7I>.
- Ask students what phases they saw that we have not discussed before.
- Explain to the students that there are four more phases:
 - Waxing crescent
 - Waxing gibbous
 - Waning gibbous
 - Waning crescent
- Tell the students that we are going to view the PowerPoint before doing the activity we did yesterday.
- Display slides fifteen through seventeen.
- Explain that after the new Moon the light from the Moon slowly grows until there is a small piece that is lit up on the right side.
- Tell students that this small piece is called a “crescent.”
- Ask students if they have seen any foods that look like this.
- Allow students time to respond; tell them about crescent rolls if necessary.
- Ask students if they know what happens when you wax a car.
- Allow students time to respond; tell them that waxing makes the car’s shine increase or grow if necessary.
- Tell students that since this is the when the light shining begins to increasing it is known as a waxing crescent.
- Ask students to form a “C” with their right hand and make a small waxing motion to symbolize the waxing crescent.
- Display slides eighteen and nineteen.
- Explain that after the first quarter Moon there is a phase in before the full Moon.
- Tell students that this is known as the waxing gibbous.
- Have students repeat the word gibbous.
- Explain that because the Moon’s shine is still growing, it is still known as waxing.
- Tell the students that gibbous is a hard word to remember but we are going to remember it by taking the first three letters of the word and saying them backwards: “big” because a big part of the Moon is lit.
- Have students make a big waxing motion with their hand formed into a “G” to symbolize the waxing gibbous.
- Display slides twenty and twenty-one.
- Explain that when after the full Moon, the light of the Moon slowly begins to decrease.
- Ask students if they notice anything similar about this phase.
- Allow students time to respond, guiding them to “It’s a gibbous too” if necessary.
- Tell students that it is still a big part of the Moon that is lit, but it is getting smaller.
- Explain to the students that “waning” means to decrease, or get smaller.
- Have students make a “G” with their left hand and make a big waxing motion to symbolize the waning gibbous.
- Display slides twenty-two and twenty-three.

- Explain that after the third quarter a small part of the Moon is still lit up before it becomes a new Moon again.
- Tell students that just like the waning gibbous, this phase of the Moon is named the same as one of the first phases.
- Ask if anyone remembers what this phase is.
- Allow students time to respond, guiding them to “waning crescent” if necessary.
- Tell students that this is the last phase before the new Moon.
- Have students form a “C” with their left hand and make a small waxing motion to symbolize the waning crescent.
- Tell students that today you are going to allow them to discover for themselves what the new phases of the Moon look like using the flashlight and softball.
- Explain to the students that they can use their science journal from yesterday to reference what the phases looked like.
- Divide the students up into pairs.
- Distribute a ball and flashlight to each pair.
- Ask students to use the flashlight and ball to go through the four phases of the Moon that we just did.
 - *Teacher note: Be sure to monitor during this time due to the fact that the students are participating in self-discovery and may need more assistance than yesterday.*
- Have students draw a picture of what they see during each phase in their science journals.

Culmination:

- Collect the balls and flashlights from the pairs.
- Ask a student what phase of the Moon comes after the new Moon and has a small piece of the Moon lit up on the right side.
- Allow time for student to respond.
- Ask students to show the visual cue that helps us remember waxing crescent.
- Repeat until the students have named all four of the new phases of the Moon.
- Tell the students that tomorrow we will be working on putting all of the phases of the Moon into the proper order.

Assessment:

- Informally assess students by questioning throughout the lesson.
- Formally assess students’ science journals for 4 visual depictions and 4 descriptions.

Extension:

- Social Studies: Students will research who first named the phases of the Moon.
- Writing: Students will create a book for first graders to help them understand the phases of the Moon.
- Drama: Students will create a “Charades” game to act out the phases of the Moon.

Accommodations:

- Have student with ADHD be the Sun.
- Have a Gifted/Talented student provide assistance for an ESL student on the graphic organizer.

Technology:

- Website: http://www.calculatorcat.com/Moon_phases/phasesnow.php.
- Video: <http://www.youtube.com/watch?v=c4zpRmUdu7I>

Basic Background Knowledge:

- There are eight phases of the Moon. There are four similar phases of the Moon that come in between the four major phases. These phases are the Waxing crescent, Waxing gibbous, Waning crescent, and Waning gibbous. “Waxing” means to grow or increase. “Waning” means to lessen or decrease.

Conclusions:

- The Moon has four other phases that come in between the four major phases.
- The other phases in order are:
 - Waxing crescent
 - Waxing gibbous
 - Waning crescent
 - Waning gibbous
- “Waxing” means to grow or increase.
- “Waning” means to lessen or decrease.

Phases of the Moon: Day 4

5th Grade

Objective:

- The students will display knowledge of the visual characteristics of all eight phases of the Moon by completing the phases of the Moon graphic organizer with 100% accuracy.

Next Generation Science Standard:

- 5-ESS1-b. Use a model of the relative positions and motion of the Sun, Earth, and Moon to describe the observed pattern of daily changes in length and direction of shadows, day and night, and the phases of the Moon.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Computer
- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php
- Moon cards(1 note card per student per day)
- “Phases of the Moon” PowerPoint
- Oreo cookies (8 per pair)
- Paper plate (1 per pair)
- Popsicle stick (1 per pair)
- Graphic organizer (1 per student)

Introduction:

- Greet the students.
- Ask the students if they remember what phase of the Moon we recorded yesterday.
- Allow time for the students to respond.
- Ask students to pull-out a new “Moon card.”
- Have students predict on the front side of the card what phase of the Moon they believe will be shown today.
- Display website: http://www.calculatorcat.com/moon_phases/phasesnow.php.
- Ask the students to record on the back of their “Moon card” what the current Moon phase is.
- Ask the students if anyone can name all eight phases of the Moon
- Allow time for the students to respond.
- Use the PowerPoint to review the eight phases of the Moon and their visual representations.
- Tell the students that today we will be working on a sweet way to remember all eight phases of the Moon.

Procedures:

- Ask a student to come to the board and write down one of the phases of the Moon.
- Repeat the process until all of the phases of the Moon are written on the board.
 - New Moon
 - Waxing crescent
 - First quarter
 - Waxing gibbous
 - Full Moon
 - Waning gibbous
 - Third/Last quarter
 - Waning crescent
- Explain to the students that they are going to work with their talking partner to make a visual representation out of Oreos of all of the phases of the Moon.
- Ask the students if they know what part the cream will represent.
- Allow time for the students to respond.
- Display Oreo cookie to the students.
- Model how to open the cookie carefully.
- Remind the students that we are not supposed to eat our science lesson.
- Ask a student to pass out one paper plate to each pair of students.
- Ask a student to pass out one popsicle stick to each pair of students.
- Explain to the students that they will be using the popsicle stick to remove any cream necessary for each phase.
- Distribute eight cookies to each pair of students.
- Ask the students to create each of the phases of the Moon out of the cookies.
- After allowing time for the students to work, tell the students that they are to arrange their Moons on the paper plate in order.
 - Explain that the first phase should be on the top and the other seven should follow in clock-wise order.
 - Draw a picture of a circle on the SmartBoard and illustrate where they should start and where each phase should be placed.
- When the students have completed their representations, ask one pair share what their first phase is.
- Have one member of the pair come to the SmartBoard and write on the circle the first phase.
- Repeat the process until all of the phases are properly recorded.
- Remove the SmartBoard illustration from view.
- Distribute a graphic organizer to each student.
- Ask the students to independently complete their graphic organizer by putting the words from the word bank into the order of the phases.
- Ask the students to draw a visual depiction of the phase in the box above the number.

Culmination:

- Collect the graphic organizers and cookie plates from the students.
- Ask a student what the first phase of the Moon is.
- Allow time for student to respond.
- Repeat until the students have named all eight phases of the Moon.
- Ask the students what phase of the Moon we currently see.
- Allow time for students to respond.

- Tell the students that tomorrow we will be learning about a special phenomenon that occurs when the Moon, Earth, and Sun are all lined up.

Assessment:

- Informally assess students by questioning throughout the lesson.
- Formally assess students' graphic organizers for 100% accuracy.

Extension:

- Math: Students will create a graph depicting fractional amounts for each phase of the Moon.
- Art: Students will create paper plate diagrams for each phase of the Moon.
- History: Students will create a research presentation on either Neil Armstrong, Buzz Aldren, or Alan Shepard.

Accommodations:

- Have student with ADHD help distribute materials.
- Have a Gifted/Talented student provide assistance for an ESL student on the graphic organizer.

Technology:

- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php.

Basic Background Knowledge:

- The Moon has eight different phases: New Moon, Waxing crescent, First quarter, Waxing gibbous, Full Moon, Waning gibbous, Third/Last quarter, and Waning crescent. The only reason we see the Moon is because it reflects the light from the Sun. The amount lit that we see changes as the Moon orbits the Earth.

Conclusions:

- The Moon has eight phases.
- The eight phases in order are:
 - New Moon
 - Waxing crescent
 - First quarter
 - Waxing gibbous
 - Full Moon
 - Waning gibbous
 - Third quarter
 - Waning crescent

Total Solar/Lunar Eclipses: Day 5

5th Grade

Objective:

- Students will show understanding about the locations of the Sun, Earth, and Moon during a total solar eclipse and total lunar eclipse through correctly illustrating the positions of the Sun, Moon, Earth, and their shadows on the graphic organizer.

Next Generation Science Standard:

- 5-ESS1-b. Use a model of the relative positions and motion of the Sun, Earth, and Moon to describe the observed pattern of daily changes in length and direction of shadows, day and night, and the phases of the moon.

NAEYC Standard:

- Standard 1: Promoting Child Development and Learning
- Standard 4: Using Developmentally Appropriate Approaches
- Standard 5: Using Content Knowledge to Build Meaningful Curriculum

Materials:

- Computer
- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php
- Moon cards(1 note card per student per day)
- Globe
- String
- Chair
- Styrofoam moon (much smaller than globe; approximately 3")
- Lamp without shade
- Graphic organizer (1 per student)

Introduction:

- Greet students.
- Ask students if they remember what phase of the Moon we recorded yesterday.
- Allow time for students to respond.
- Ask students to pull-out a new "Moon card."
- Have students predict on the front side of the card what phase of the Moon they believe will be shown today.
- Display website: http://www.calculatorcat.com/moon_phases/phasesnow.php.
- Ask students to record on the back of their "Moon card" what the current Moon phase is.
- Tell students that today we are going to be learning about two special phenomenons that occur when the Earth, Moon, and Sun line up.

Procedures:

- Tell students that they are going to be reporters; they must take detailed observations in their science journals about what they see during the demonstration.
- Explain to students that you are going to allow them to make their observations before you discuss the science behind it.
- Hang the globe from the ceiling so that it sits approximately 2.5' off the ground.
- Ask a student to come place a star sticker on our state.
- Take a chair and secure the yardstick to it so that the yardstick is parallel to the ground.
- Hang the Styrofoam Moon from the yardstick.
- Set the Moon about 1' away from the globe.
- Place the lamp near the Moon ball so that it casts a shadow on the Earth.
- Allow time for students to take observation notes.
- Ask students what they observed happening.
- Explain to students that when the Moon lines up perfectly with the Sun and the Earth a total solar eclipse occurs which makes this shadow.
- Tell students that the word "solar" refers to the Sun.
- Tell students that the word "eclipse" means that light is blocked.
- Ask students if they think everyone in the world sees this shadow.
- Allow time for students to respond.
- Explain to students that the total solar eclipse only covers part of the daytime side of the Earth's surface.
- Ask students how long they think a solar eclipse lasts.
- Allow time for students to respond.
- Tell students that because of the constant orbits of the Earth and the Moon, a total solar eclipse only lasts for a few minutes and is only seen during the day.
- Tell students that there is another special phenomenon that occurs when the Earth, Moon, and Sun are lined up a different way.
- Ask students to write down their predictions in their science journal about what they think would happen if we switched the position of the Moon and the Earth.
- Allow time for students to make and share their predictions.
- Move the globe so it sits in between the Moon and the Sun.
- Ask students to write down their observations.
- Ask students where the Earth's shadow was cast.
- Explain to students that a total lunar eclipse occurs when the Earth comes between the Sun and the Full moon, causing the Earth's shadow to obscure the light of the moon.
- Tell students that the word "lunar" refers to the Moon, and that a total lunar eclipse can only be seen at night.
- Ask students which they think occurs more often: a total solar eclipse or a total lunar eclipse.
- Allow students time to respond.
- Explain to students that a total lunar eclipse is more common because the Earth is bigger than the Moon; it is rarer for the small Moon to line up perfectly with the Sun.
- Distribute graphic organizers to students.
- Explain to students that they are to draw the position of the Sun, Moon, and Earth during a total solar eclipse (along with the shadows) on one side of the sheet and the position of the Sun, Moon, and Earth during a total lunar eclipse (along with the shadows) on the other side of the sheet.

Culmination:

- Collect the graphic organizers from students.
- Ask a student what the word “eclipse” means.
- Allow time for student to respond.
- Ask a student what the word “solar” means.
- Allow time for student to respond.
- Ask a student what the word “lunar” means.
- Allow time for student to respond.
- Ask a student to come to the board and draw a solar eclipse.
- Ask a student to come to the board and draw a lunar eclipse.
- Thank the students for their hard work learning about the moon this week.
- Tell the students that we will continue to record on our “Moon cards” for an entire month.

Assessment:

- Informally assess students by questioning throughout the lesson.
- Formally assess students’ graphic organizers for 100% accuracy.

Extension:

- Math: Students will create a chart displaying the dates of the last 10 solar eclipses.
- Art: Students will create a construction paper representation of either a solar or lunar eclipse.
- Writing: Students will create a persuasive poster encouraging people to not look directly at an eclipse.

Accommodations:

- Have student with ADHD help distribute materials.
- Have a Gifted/Talented student provide assistance for an ESL student on the graphic organizer.

Technology:

- Website: http://www.calculatorcat.com/moon_phases/phasesnow.php.

Basic Background Knowledge:

- When the Moon lines up directly with the Sun a shadow is cast upon a portion of the Earth. This is known as a solar eclipse. When the Earth comes in between the Sun and the Moon a lunar eclipse occurs. Because of the sizes of the Earth and the Moon, lunar eclipses are much more common. Eclipse means that the light is blocked. Solar refers to the sun, and lunar refers to the moon. Solar eclipses are seen only during the day, and lunar eclipses are seen only during the night. There are different types of eclipses but total eclipses occur when the light is blocked entirely.

Conclusions:

- A total solar eclipse occurs when the Moon lines up directly with the Sun and casts a shadow on the Earth.
- A total lunar eclipse occurs when the Earth comes between the Sun and the Moon and obscures the Moon.

- Lunar eclipses occur more often than solar eclipses.
- Solar eclipses are seen during the day; lunar eclipses are seen during the night.

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