Part One: Dictionary of Math Games Along with Notes from the Field

Division Football

Essential Question: How do you divide using partial Quotients (Super Seven) strategy?

Materials: Each pair of students will need a game board (Appendix 7), a scratch paper to show all of their work, a two-in-one die (one larger see-through dice with a smaller dice in the center) and a ten sided die and two game pieces. I use the yellow and red counter circles for game pieces. If you do not have a two-in-one die, then they can roll a regular die twice.

Procedures:

Student rolls the two sided die first to get their dividend.

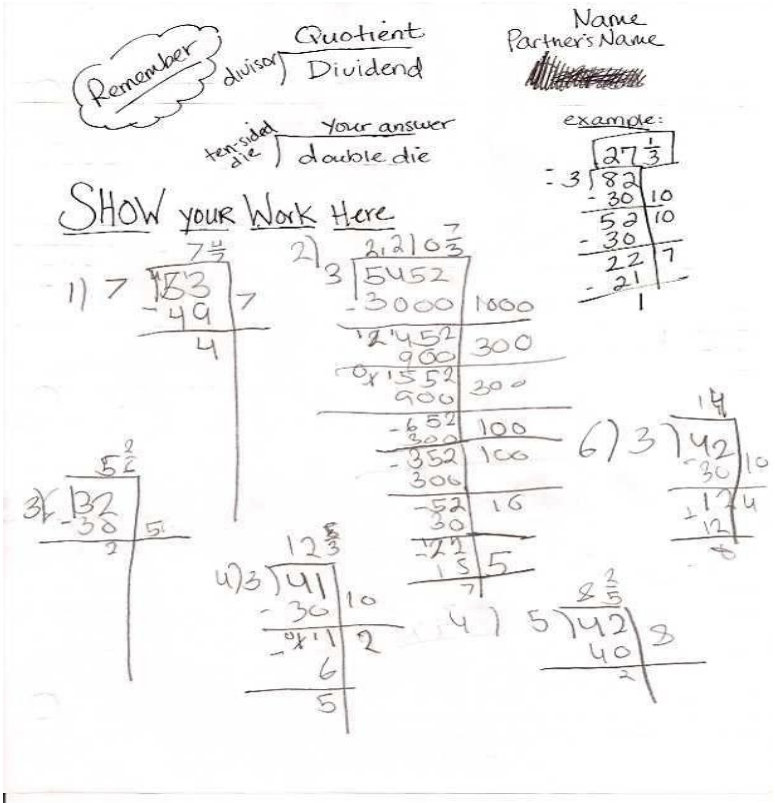
Then, they roll the ten sided die to get their divisor. Each student rolls separately and records their work on separate paper.

Each student solves their division problem. After they solve their own problems, they switch their papers with their partner's and check each other's work to make sure their solutions are correct. The student with the larger quotient moves their game piece ten sides down their football field. The object of the game is to score a touchdown.

Benefits of the Game: This game provides opportunity for differentiation because students that need more of a challenge can roll the two-in-one dice twice to get a larger dividend to divide. Division Football is a great opportunity for students to discuss their mathematical reasoning with each other and use the teaching strategy, reciprocal teaching. If a student gets the problem or the process incorrect, then their partner teaches them how to solve the problem and helps that student understand where they made their mistake. Since students know that their partners will be checking their work, this helps to increase the student's accuracy in their calculations. It seemed that the novelty of competing against one another in the form of a football field, as well as using the "new" two-in-one die, helped to motivate students and increase their engagement.

Notes from the field: A large portion of my students begin sixth grade not fully understanding how to divide. Most often, they have learned the division algorithm that most of us learned when we were younger, "divide, multiple, subtract, and bring the number down." A more conceptual approach to teaching division is called Partial Quotients. It seems more and more math teachers are teaching this method of division. Instead of breaking the dividend apart, you look at the number as a whole. I teach students to think about the number being divided as a whole and ask themselves this question, "How many times does ___ fit into ____?" Choosing easy numbers to work with, such as numbers that are multiples of tens, makes it easier for students to understand the concept of division in order to accurately solve the problem. Please refer to the student work

sample from Division Football below as an example of the Partial Quotients method of dividing.



Above is an example of a division problem using the Partial Quotients strategy.

Division football was the first game that we played in our class this year. After introducing the Partial Quotients way of dividing, students had a chance to practice what they learned and help teach each other when they got stuck. There was an extremely high level of student engagement throughout this game and students were asking me when we could play it again. When I gave my two minute warning before clean up time, students were sighing, expressing they were bummed that they had to stop playing. Several months later, students were planning our "Family Math Game Night." They were deciding which games they wanted to make available for families to play. I overheard one of my students, Ricky, say, "Let's add Division Football to the packet and put it in the front." This was a student favorite. It is amazing how a fun game board such as a football field can get students so pumped about math work!

The Dart Booth:
Essential Question: How does the order of Operations affect the solution to a problem?
Materials: A Dart Board chart that you will prepare prior to playing (Appendix 8), each student will need to bring their imagination to this game since you; the teacher will be throwing invisible darts towards their dart board chart. The darts are invisible for obvious reasons.
Procedures:

Introduce the dart board. Let students know that you will be throwing three darts and that you will let them know which numbers they hit on the board. (You may use four to make the game more advanced)

Give students a target number. This is the number that their equation should equal. Students can either multiple, divide, add, subtract and use parenthesis in order to create an equation using all of the numbers hit on the dart booth that equals the target number specified.

Benefits of the Game: This is a great game to either launch, or practice the concept of Order of Operations. Students will explore how they can manipulate numbers and operations in order to get different values. They will also learn that by moving the parenthesis around within an expression can give you a different value. The Dart Booth game also allows for numerous solutions, which helps to increase student's confidence levels and allows for more differentiation. This game helps to meet students at their independent learning level since students can create simple or more elaborate equations as their solutions. I usually allow students to work in partnerships or teams so there are more opportunities for discussion about their math thinking and students can then rely on each other for help. This game is flexible and can be modified to fit your students' needs. For example, if your class is just beginning to explore the Order of Operations, then you might want to open this game with a question like this, "I have just thrown three darts. They have landed on ___, ___, and ___ number. Using the four operations to create different equations, how many different values can you find?" Maybe you don't give them a target at first and have the students come up with many different values or targets? Lastly, another benefit to this game is that is can be quick if you want it to be. Sometimes, I will play one quick round to summarize the lessons.

Notes from the field: Students loved this game and often if we have a few minutes left at the end of class, a student will ask, Can we play a round of Dart Booth?" I first introduced this game before introducing the concept of Order of Operations. I explained the rules, and began to throw my imaginary darts. Students definitely loved this part, especially when I created my funny sound effects for throwing my darts, or accidently hit a student whom was sitting near the dart board with my imaginary dart, and had to go and remove my imaginary dart from them. Relax, it was imaginary, no one got hurt! I began with a more open ended approach where students could use the three numbers along with any operation; add, subtract, multiply or divided in order to come up with as many different equations as they could think of. This allowed a variety of math readiness levels to access the problem. Students then came up to the board to share their many different equations with their peers. Once we compiled a long list of equations, we discussed whether or not it mattered which order students solved the problem. This was a great lead in to a discussion about the Order of Operations and which operations we need to solve first.

As our class continued to explore the Order of Operations, I began to make different variations of the Dart Booth game. Students had to come up with equations that hit a specific target number. This was more challenging; however, they worked with a partner to solve this. I learned through experience, that some targets can be very difficult to solve, so I planned accordingly. As

I threw my darts, I already had my plan in mind with exactly which numbers my imaginary darts would hit, along with a specific target value planned. Once I threw my darts, sixteen out of twenty-one students began to rapidly record their different equations they tried. The remaining five students seemed to ponder the numbers for a few minutes before actually writing down their equations. I try to get student in the habit of writing down their thinking, even if their answer is wrong, this way they can solve a problem in a more systematic approach. The five remaining students seem to need a bit more time to think before diving into the problem. However, after a few minutes, every student in the class was engaged in trying to figure out an equation using the numbers thrown that equal the target number chosen. The great thing about this game is that since there are numerous solutions, no one is really done, until I choose when time is up. After about five minutes, students shared out their responses with their peers. As we drove a bit deeper into the Order of Operations, we began to explore how parenthesis can impact the value of an equation. For example, 3 X 5-2= 13, whereas 3 (5-2)= 9. Students then focused on manipulating parenthesis, along with numbers and operations to create an equation with a specific target value. This game continues to evolve and get more complex, the more the students learn and explore the concept.

Win-A-Row:

Essential Question: How do you add positive and negative integers?

Materials: One Win-A-Row game board per partnership (Appendix 9)

Procedures:

The object of the game is to strategically place your numbers on the game board so that you can win the largest number of rows. Players decide who is going to have the positive numbers and which one will be negative. Let's pretend that player one is positive and player two is negative.

1. Player one places any of their positive number on the game board and crosses that number out from their list. They may use each number once.
2. Player two places one of their negative numbers on the game board and then crosses that number from their list.
3. Players alternate back and forth until all of their numbers have been placed on the game board.
4. They then add the numbers in each row and column and record the sum on the appropriate line. If the row or column is positive, then player one gets a point and if it is negative, then player two gets a point.
5. If there is a tie, then students can add one diagonal line downward from left to right in order to break the tie and determine who wins.

Benefits of the Game: Students really enjoyed this game and it requires very little prep and materials. One of the great aspects of this game was that students were able to play the game at their own mathematical level. You will notice students that are more advanced will create more elaborate strategies on how to win the row.

Notes from the field: This is a game that can be played to review adding positive and negative numbers. At the point that I gave students this game, they had previously learned how to add positive and negative numbers by drawing tile integers, or pluses and minuses. At this point in their learning, Win-A-Row helped students to calculate the sum mentally. My intentions were for students to move from concrete math thinking into more abstract thought.

Scaling Adventures

Essential Question: How do you use patterns to help scale a number line properly?

Materials: Each student will need one Scaling Adventure Game board (Appendix 10), and one ten-sided dice per partnership

Procedures:

1. In the game Scaling Adventures, each student had a game card that consisted of various number lines that were missing the numbers. There is a box on each number line students fill in according to which number they roll on their die.
2. Students keep this number a secret from their partner. After they fill in the clue box, they switch papers and solve each other's missing numbers on that number line based on the clue their partner provided.
3. After completing the problem, students switch papers back and check their partner's work. If their partner was correct, they would place a star on that problem, if they were incorrect, they would help their partner by asking questions and giving them clues to help them solve the problem.

Benefits of the Game: This is a game that would be called co-constructional. This means that it can be played alongside minimal direct instruction in order to teach a new concept. This game engaged my student in a lot of conversation about the math concepts of scaling axes and number patterns. Another benefit to this game is that there was little competition, therefore, students that get anxious during competitive activities, felt more relaxed.

Notes from the field: I have been having math game days as least one day a week. During math game days, I have been recording various table groups and partnerships. This week I listened to students' conversations while playing the math game, Scaling Adventures.

While students were playing, I made several interesting observations on the overall attitudes and affect of the students. This game did not have the competitive aspect that other games often have. This seemed to have affected students' attitudes while playing the game in different ways. Students that often get worked up and frustrated if they are not winning at a particular game, seemed more at ease and less stressed out. I also noticed on the contrary, a couple of students that usually get really pumped and excited while playing more competitive games, did not quite seem as motivated during this game. In the case of this game, Scaling Adventures, the competition was a bit more subtle, which both motivated some students while almost inhibiting others from reaching their full potential.

As I walked around students were very involved in "math talk" and the game involved a higher level of thinking. Students were not only solving problems, but they were creating

problems for their partners to solve. For example, Angel rolled a four on his die. On his number line, he needed to figure out what his clue would be by skip counting in multiples of four. Here is an example problem from Angel's work after he rolled a 4.

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I felt by creating their own problems students bought into the game more and this also helped to hold them accountable for the math they were doing. If they did not give the correct hint, then most often times, their partner could not solve the problem.

In order to assess the effect this math game had on students' academic and achievement level, I gave students a pre-game and post-game problem to solve. These two problems were similar in difficulty level and helped me determine how much this math game affected their knowledge about Scaling Axes and graphs. Independently, students solved one problem before playing the game and then directly after finishing, they solved a different, yet similar problem. I was happy to see the results I found on these two problems. Eleven out of twenty-one students answered the pre-game problem correctly, while seventeen out of twenty-one students answered the post problem correctly. This led me to believe that the Scaling Adventure math game helped to increase students' proficiency level on this topic since five students that didn't quite understand the concept before playing the game, answered the post-game problem correct.

Game Show Review Game

Purpose: To review previous concepts learned.

Materials: Each student will need a resource paper, (I often have students use graph paper, or loose leaf lined paper to show all of their work on), one chart that includes all of the rules (Appendix 11), two die per class, one white board marker per team, one copy of game show questions to be projected for the class to see, and an answer key for the teacher to check if students problems are correct. Be sure to make the answer key before you play the game.

Procedures:

Preparation: This game is teacher led and involves a little bit of classroom preparation before playing. I have one long white board that I divide into 5 or 6 sections, depending on how many students I have and how many teams I split the class into. I write the different team names on the top of their section of the white board. Each team gets one section of whiteboard they will use to solve their problem. I color code their sections by giving each team a different color white board marker. You should also make a large chart that displays the rules and expectations of the Game Show and share this with the students before the game begins.

Students get their resource page (either graph or lined paper). They split their paper into 8 sections. This will allow for them to solve 8 problems on one side and then 8 problems on the back. I tell students that teams that have shown all of their work on their resource pages correctly will receive 1,000 bonus points.

Arrange students in teams of four to six students. Each team will choose one score keeper who will keep track of their team's points on line paper. Have the score keepers keep a running total of points as they go as this will be easier at the end of the Game Show when they are calculating their total points earned.

Be sure each team knows where their spot on the white board is. Count off students so that each student has a different number. If there are four students per teams, then each student should have a number from either one to four. Each team member will receive a different number.

The teacher rolls two die. Two team members from each team that have been given that number will solve their problem together on the white board, while their remaining team members will solve the problem on their resource pages.

At this point, the teacher is watching teams at the board. If a team is done solving the problem and has clearly shown all of their mathematical reasoning, then they raise their hand and cap their white board markers. The team who finishes first, gets 500 points, the next team to follow, gets 400 points and so forth down to 100 points. If you have six teams, then the first place team will receive 600 points. Teams that are finished and have checked in with me, then erase their section of the white board and report back to their score keeper with their points earned for that problem. You can either give students a few minutes before beginning the next problem to update their resource page, or you can have students that go to the board write "at the board" on that problem.

Continue rolling the two die before each problem to determine which students go up to board.

At the end of the Game Show, the score keepers write the total points earned, staple their score cards along with their team member's resources pages and pass into me. I will later review their scores and teams that have filled in their resource pages will receive a 1,000 point bonus.

Benefits of the Game: This Game is a great way to engage and motivate your students. You can use a Game Show when reviewing or teaching any new concepts. It is also a fun way to take an ordinary math problem and present it in a more exciting way. This game involves all students and encourages teamwork among students since students are required to solve problems together. This game also involves ALL students equitably since students go up to the board to solve problems based on the randomness of the number rolled on the die. Adding in the bonus 1,000 points rewarded to groups that show ALL of their work on their resource pages helps to hold all students accountable for showing their work completely and accurately. This was also a great motivator. However, since students love novel things, I would not overuse the Game Show idea.

Notes from the field: My administrator, Joel, came in to observe me lead a Game Show with my first block. The first comment that he shared with me during our debrief time was, "Wow, the whole class looked like they were having so much fun with you." He then went on to say, "I can tell you are also having a great time teaching your students. You seemed very relaxed." I have never had so much fun while teaching. In all my four years of teaching math, this year is by far

the greatest for me. I feel already this year, I have developed stronger connections with my students and have looked forward to teaching more than in the past. Last year, I felt like I was getting bored and I didn't find that I had enough energy to make math always fun and exciting. Now, along with my students, I also find myself thinking, "Yes… this is a game day, awesome!" Math games have rekindled my passion for teaching and seem to be refreshing for my students as well. Joel also commented on the fact that throughout the entire lesson, I had nearly 100% engagement from the students. As he observed students, he noticed that ALL students were involved and on task and he was really impressed with the way students were discussing their math thinking with each other. He said, "It is evident that you have really developed high expectations for how students were to discuss their math thinking with each other." He was impressed! I believe math games have helped to contribute to this level of math discourse my students are partaking in. Many of the games they have played require students to explain their thinking to their partner and teach their partners about different math strategies they are using.

Hidden Treasure/ Battle Ship

Essential Question: How do you plot an Ordered Pair on a coordinate plane?

Materials: Each student needs a Hidden Treasure Game board (Appendix 12) and some sort of privacy board to place in between themselves and their partner

Procedures:

There are two coordinate grids on each game board. The grid on the right is for students to mark their ships on, and the grid on the left is for students to record the guesses they have made in order to hit their opponents' ship. This allows them to keep track of their guesses so they do not repeat them more than once.

Students first create different battle ships and mark them on the right coordinate grid on their game board. I usually have students plot three ships, one that is five points long, one that is four points long and another that is three points long. You can vary this depending on your students.

To keep their ship's locations secret, they are not allowed to see each other's board. I have them put up a privacy board in between them and their partner.

They then take turns asking their opponent a particular ordered pair. Their opponent will either say, "You hit a ship" or "You missed." If you hit, student puts a star on the left coordinate grid and if they missed, they can put an X over that point.

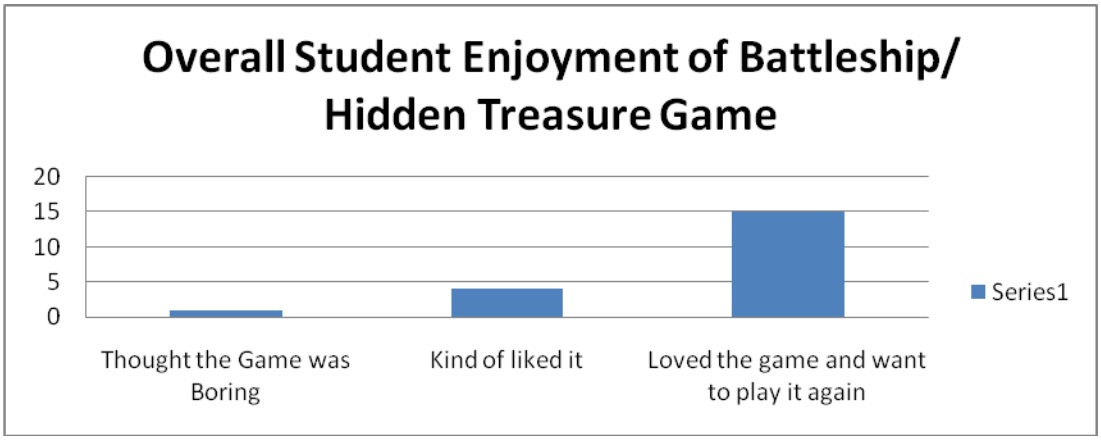
The object of the game is to find the other player's hidden points and be the first player to sink all of their opponents' ships.

Benefits of the Game: As you will see in the graph below, students loved this game. Many of them have played the game called Battleship before; therefore, they were already familiar with this game. This was a major benefit of this game. Another benefit of this game was that students have to articulate to their partner which point they are trying to hit. This helped to reinforce the concept of ordered pairs and that the X goes over to the right or left before the Y goes up or down.

Notes from the field: Many of the games students have played thus far have required a certain level of cooperative learning with their partner. Since students were not allowed to see their opponent's game board, this game was more centered on individual learning and did not allow for much cooperative learning. Students were not discussing their thinking, but instead, they were just announcing their ordered pairs. This posed a bit of a problem for the students who needed more guidance on plotting an ordered pair correctly. There were two students in particular, who were getting their X and Y coordinates confused as well as their positive and negative directions. For example, Albert asked his partner if there was a ship on (-3, 2). His partner, Isaac, started at the origin, went down three spaces and then over to his left two spaces. He replied that his partner missed his ship. However, he should have started at the origin, gone left three spaces and then up two. Since I was circulating the room, I was not able to help him with this at the time. Finally, Albert called me over to ask me why he did not hit any of his ships yet. This is when I noticed that Isaac had been plotting the coordinates incorrectly.

The important part of the game that kept each other's ships secret, also posed a challenge in that students could not help their opponents throughout their learning. This happened with a few different groups. When I have my students play this game again, I will have the partner that is listening for the ordered pair, say the direction of the point out loud. This way both partners can check each other's ordered pairs and articulate how to plot the ordered pair aloud. For example, if John asks his partner, "Is the ship at (3,-4), his partner will reply, "No I do not have a ship at 3 over to the right and 4 down." This will solve the problem that Albert experienced and hopefully eliminate any confusion or miscommunications that arise when a student is not plotting the points correctly.

As you can see in the graph below, the majority of students enjoyed playing the game, while only one student thought the game was boring. Interestingly, this student, John, happened to be one of the student's that was graphing the points incorrectly. I wonder if he might have felt like he was frustrating his opponent and needed more help in graphing.



The above graph demonstrates students overall enjoyment of the Battleship game.

When analyzing question #2 on student exit slips, "Describe the math this game involved," I can see there are definite misconceptions about what students consider to be "math" related work. I

got extremely vague responses to this question. Some responses were, "You may need to know how to graph positive and negative numbers." “I graphed points.” “…how to plot an ordered pair.” This showed me that I need to model what my expectations are for articulating math thinking and when pin pointing exactly what math tools they are using.

Subtraction Football

Essential Question: How do you use tile integers to draw a picture representation of subtracting negative and positive integers?

Materials: a copy of the key for what different cards represent, various dice for differentiating (I use a ten sided and a six sided), a deck of cards per partnership, one football field game board per partnership, a subtraction football resource paper for each student (Appendix 13)

Procedures:

1. Each partnership receives a football field, two playing pieces, a deck of cards and a dice. I posted the key that tells students which cards represent which integer.

2. Student rolls the dice and flips a card. If the card is black, their integer rolled is positive, if their card is red, their integer is negative.

3. On their resource page, they draw a picture representation using pluses and minuses (tile integers) and solve the problem. Some students may still use the manipulatives to help them draw the picture representation.

4. Their partner then takes their turn. After, they switch paper to check each other’s picture representation. Whoever has the larger difference moves their game piece ten yards down the football field.

5. Whoever scores a touchdown first, wins.

Benefits of the Game: This game encourages teamwork and cooperative learning as it requires students to depend on one another before moving onto the next problem. Since students need to check each other’s problems before proceeding to the next, they are held accountable to one another. This game also allows for easy modifications for differentiating according to student’s independent learning levels. I have students that need more of a challenge use two ten-sided dice in order to come up with a more difficult double digit integer, or I will give students a six-sided dice rather than a ten-sided dice in order to create easier subtraction problems.

Notes from the field: Students loved this game. In fact, in a group interview I conducted, students said this was their favorite game. Davan said, “I like the game best because you get to use draw pictures and use the football field. I like anything to do with sports.” Nearly all students were engaged and the majority of students wrote in an exit card that they would like to play it again. They were just previously introduced to subtracting positive and negative numbers. This game would be considered a co-constructional game, or a game that is used along with minimal

direct instruction to teach a concept. Students hadn't yet discovered any rules or procedures for subtracting integers. Instead, they learned how to model this concept using pictures or tile integers of positive and negatives. By drawing the models for multiple subtraction problems throughout the game, as a summary after students played the game, they were able to look back to their picture representations and make observations about what they notice was happening when, for example, you take away a negative from a positive. From there, students were able to come up a rule for subtracting integers, Stephanie said to the class, "Oh, it is like the same thing as adding the opposite." This game provided a great lead into the formation of the rule "Keep-Change-Change" for subtracting integers, where you keep the first integer the same, change the sign from subtraction to addition and change the sign of the second integer.

Pig Race

Essential Question: How does the Order of Operations change the solution to a problem?

Materials: four die per class, one pig race resource page (Appendix 14) and scratch paper for each student

Procedures:

Student work either in teams or with partners to come up with their equations. I go over the various solutions and how many yards they move their pigs for each solution before we play.

I roll four dice, one being the "special target" and students come up with equations that have either the target solutions, or one of the other solutions listed on their resource page. They shade in the yards that they move after each round on their pig race game board on their resource page.

I have students come up to the board to record their solutions after each round.

Benefits of the Game: The pig race is very similar to the Dart Booth. It also can be used to either launch the concept of the Order of Operations or to further explore and extend student learning within this concept. Unlike the Dart Booth Game, this game takes a little more time in order to completely travel through the game board race. One great aspect to this game is that there are multiple solutions to one problem. Students can pick from various target numbers, some harder to reach than others in order to come up with their equation. This also helps to differentiate for a variety of students learning levels. This game also encourages cooperative learning and gets students sharing their math thinking with one another.

Notes from the field: In order to ensure that every student is engaged, be sure to group your students accordingly. The first time I played this, I noticed that although all students were working on coming up with the equation to match a specific target number, there were the same one or two students in every team that was getting to the equation first. When we played the game again, I had students grouped according to their pacing, or how quickly, or slowly they work. This helped to keep students from zoning out and waiting for their partner to come up with the solution. This also worked well because in the pig race game, once students come up with

one equation that equals the special target, they can continue to work towards coming up with alternative equations. Therefore, they can never say, "I'm done, now what?"

Rock- Paper- Scissors

Essential Question: How do you use tile integers to add positive and negative integers?
Materials: a key for the values of rock-paper-scissor combinations, one bag or tile integers (positive and negative math manipulatives) and a rock-paper-scissors resource paper per partnership (Appendix 15)
Procedures:

> Review the key that tells students what the value for each rock, paper, and scissor combination is. Students play rock paper scissors for five rounds and record their negative and positives received for each round.
>
> At the end of the five rounds, each student finds the sum of the value of positive and negative numbers. The student with the higher value wins that game.

Benefits of the Game: This pre-instruction game can be played to introduce the concept of adding integers, or positive and negative numbers. Students will explore the concept of a Zero Pairs, or that a positive and a negative integer together equals zero. Students are drawn to this game, because many of them have played rock-paper-scissors before. This game seems to invoke positive feelings from students due to their previous experience with playing this non threatening game. Because students are motioning rock- paper- scissors with their hands, this game is also great for more kinesthetic learners that learn best through movement. You will see this game is highly engaging and students will get excited before even beginning to play, just by looking at the title of the game!
Notes from the field: This was one of the games that students played during our family math game night. As I walked around to observe all of my students playing our math games with their families, I sat down with one of my students, Tyrel and his mother. Tyrel's mother said to me, "Oh this game… Tyrel's already made me play this game before with him. I think I have probably spent three nights playing it." This shows that Tyrel enjoys the math game enough to play outside of school with his family members. How cool, students are bringing these math games home and forcing their tired parents to play with them. I told Tyrel's mom thanks for playing with him at home. This helps to reinforce the concept of adding positives and negative numbers.

Family Math Game Night

Back in November, at the end of class, I had a group of about four students that walked up to me to ask me if they could come after school to plan a family math game night. Although I had planned for this happening, I hadn't yet mentioned it to my students. I thought, "This is great, now students can take ownership in planning and leading our family math game night. So…I had a group of six students that came after school to begin the planning process. I spread

out a copy of all of the games that we have played so far this year. Students discussed which games were their favorites and which ones they wanted to include in our family game night. I tried to just sit back and listen to their talk and absorb the feedback they were indirectly giving me about the games we have played.

As they chose various games to play, they showed a lot of excitement for the idea that many people would be brought together to play math games. This happened all because of their hard work and planning. Ricky asked John, "How many people do you think we can get to show up?" John replied, "Let's try to put up signs around the school and get all our friends to show up." They were determined to create a successful night and took pride in their planning. This also showed me that games are a big part of our math curriculum and that students see that too. They wanted a chance to show off what they do in the classroom to their families. "This is awesome," I thought. "These six boys are going to continue to plan for our upcoming family math game night in December." Students were taking a leadership role. They are attending Keiller *Leadership* Academy! What a great way for our students to exhibit what we do to their families. I thought that if this could bring math games into my students' households, then not only could this reinforce the math concepts we were exploring, but it might also help break the math phobia that many of their parents and family members experienced too.

As students began to create flyers to hang up around the school, others worked on typing up the invitation that was to be passed out to all of my students. As the rsvps began to trickle in, I started to get a little worried about the numbers being too large for the space we were to hold the Family math game night. Many of my students were attending and bringing their entire families along with them. My student planners and I were very excited. I realized that instead of having the event in my classroom, I better reserve and set up the auditorium. With a little help from other teachers, the auditorium was set with plenty of large tables, math games displayed throughout and student-created welcome posters. We were all ecstatic to have this night come finally come to fruition.

As I looked around the crowded auditorium on the night of our family math game night, I felt an overwhelming sense of family and community in the room. Over eighty parents, guardians, relatives, siblings and students were engaged in playing math games. How amazing, parents that probably worked all day and were exhausted took one hour out of their busy night's schedule to come and play math games with their children. What a great way to involve my students' families in their schooling.

I noticed a tremendous sense of leadership and pride within my students as they wore the hat of the teacher and taught their family members how to play their favorite math games. There was an overwhelming energy present in the auditorium as students conversed with their little brothers and sisters, their parents, aunts, uncles, and grandparents. Students and families were excited about math! I felt a sense of pride both in my students, as well as in myself as a teacher. The math games were working! By listening to students' conversations with their families, it was evident that they had mastered the math concepts because they were able to teach it to their

families. Students were also asking me if they could take home and keep their packets. I replied, "Of course you can, I would love to see you playing these games at home!"

Thirty out of sixty of my math students showed up to Family Math Game Night. Of those thirty students, many of them were students that originally expressed that they did not enjoy math in the beginning of the year when they took their surveys in September. As I walked around, I had two different parents that came up to speak with me. Albert's dad said, "Albert used to hate math… but he is so good at it. He seems to really enjoy math year. He likes the games." For me, one sign that Albert likes the math games we are playing is that he chose to bring his Dad to our Family Math Game Night. He was a student who previously said in his initial survey that there was no point to learning math. He also referred to himself as a ticking atomic bomb that was about to explode when writing his math analogy in September. I can see his attitude towards math has made a tremendous shift.

Another student, Oscar, told me back in October afterschool during tutoring, that he hated math and wished he didn't have to take it. I replied, "I am so sorry to hear that, I hope that I can change your mind about math this year." Well… his mother found me during family math game night and said, "Oscar really struggles with math and gets frustrated when he doesn't understand something. He seems to get it more this year. He told me he actually likes your class. He has never liked math before. So… thanks for whatever you are doing." I then went on to tell her that the math games that we play in class are really fun and Oscar is more than welcome to take home the games we play to share them with his family at home too. Well, if that doesn't make a teacher smile, I am not sure what will!