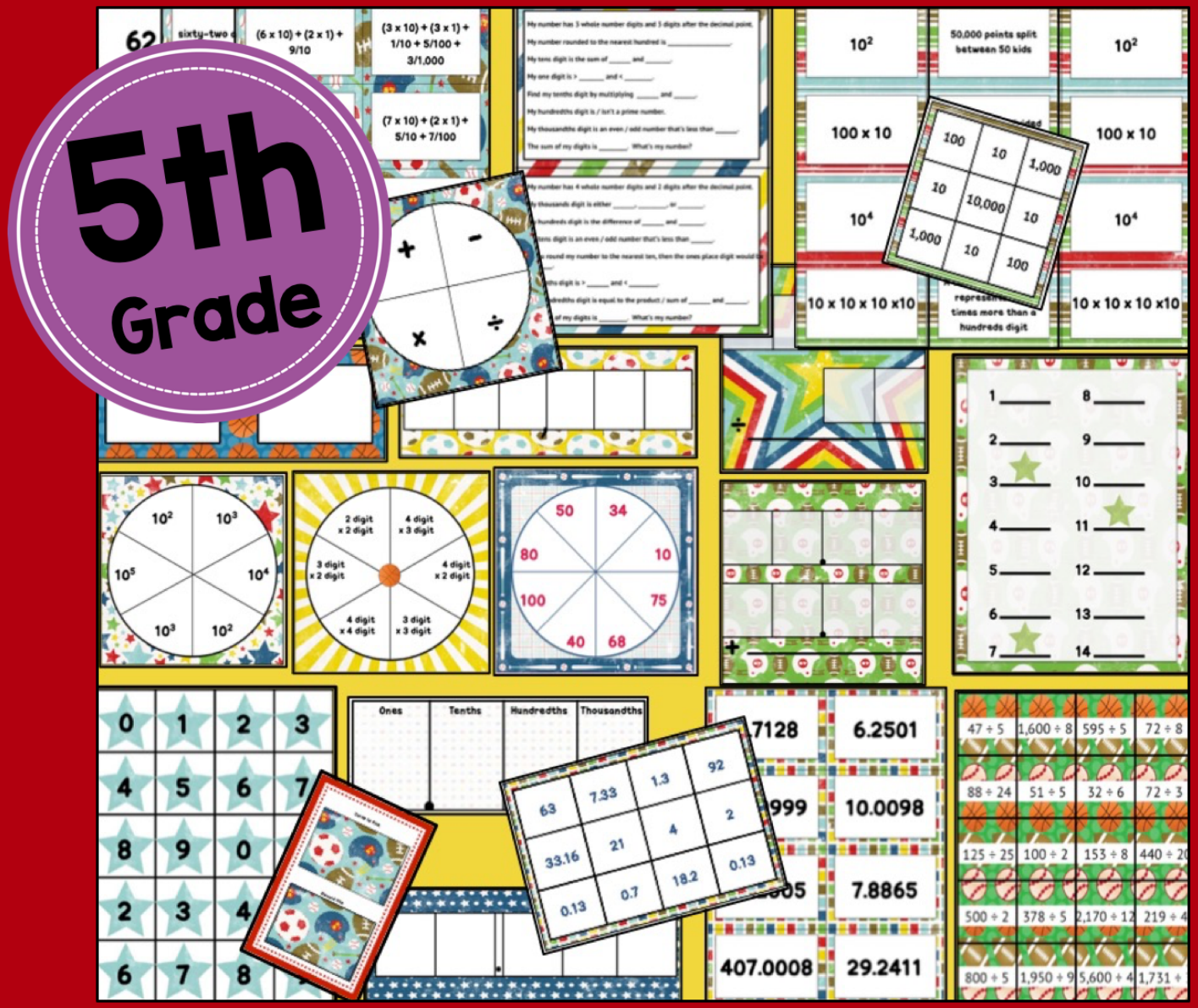
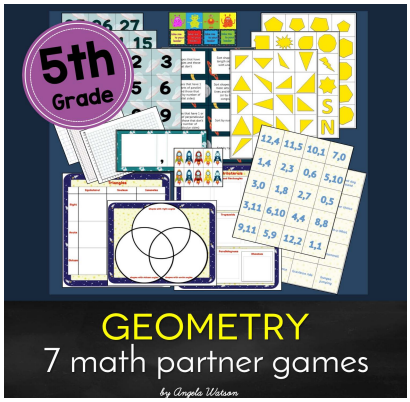


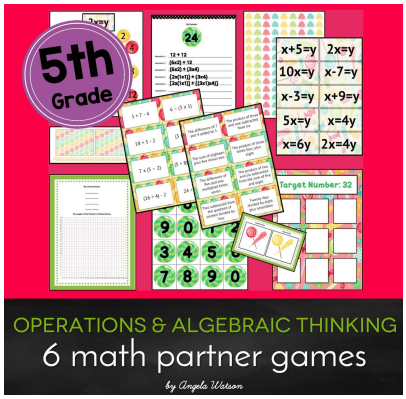
NUMBER & OPERATIONS IN BASE TEN

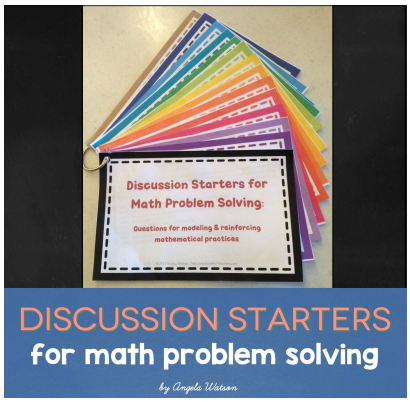
14 place value partner games

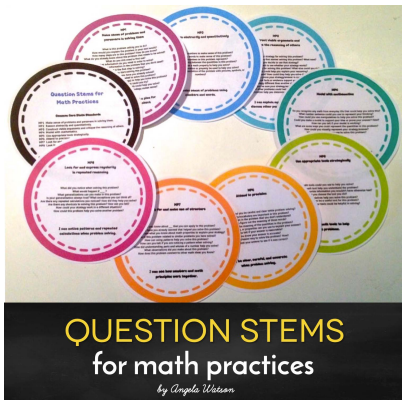
by Angela Watson

Check out the complete product line for 5th grade math!









Digit Reveal

Materials: decimal cards (base ten numerals only), operations spinner, two Digit Reveal cover pieces, paper or math journals, pencils

Directions: Both players take a game mat and marker. Deal the decimal cards so each player gets half. Keep your cards in a face down stack. On the count of three, you and your partner each flip over one card from your own stack and place the cards next to each other. One of you then spins the spinner to see which operation to use. Then you both use your paper and pencil to solve the problem you created. (For example, if your partner's card reads 2.8 and yours reads 3.47 and you spun addition, you would add those two numbers together.) Don't let your partner see your answer, and cover it up with the Digit Reveal card when you're done. When you are both finished, slide back your cards to reveal the card furthest to the right in your number (the smallest place.) If you and your partner both show the same digit in that place, slide your reveal piece again and show the next digit. Keep going until you've both shown the whole number. Anytime your digits aren't the same, talk about why and figure out which answer is correct. You can each award yourselves one point for every correct digit in the number. Keep playing until time is up. The person with the most points wins!

Challenge: Use the expanded form or number name cards instead of base ten numeral cards. You and your partner must both correctly write the number in standard form in order to solve!

Math Talk:

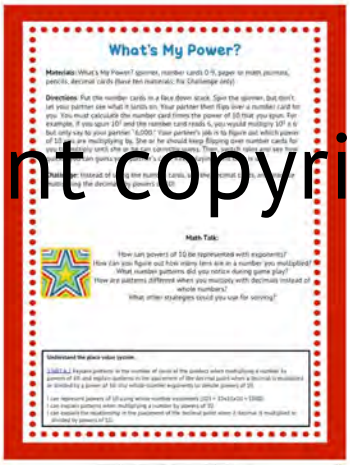
How do the rules of whole numbers relate to decimals?
How did you know when you needed to borrow or regroup?
What are some patterns you noticed when multiplying and dividing by decimals?
What were some common mistakes you and your partner made?
How did revealing digits one at a time help you find the mistakes?
How could you write a number sentence for the problem?

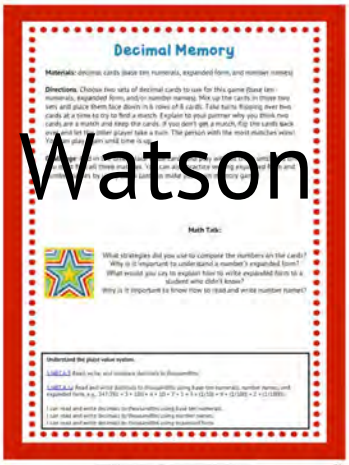
Perform operations with multi-digit whole numbers and with decimals to hundredths.

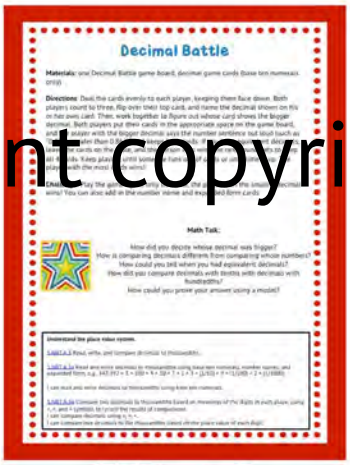
5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

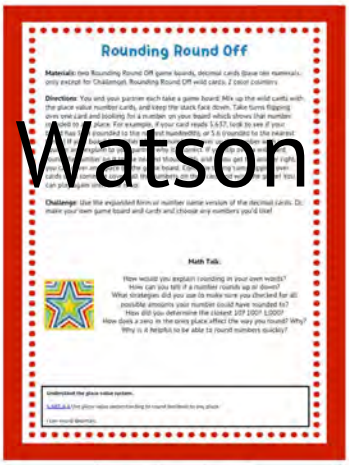
I can add, subtract, multiply, and divide decimals to hundredths.
I can explain the reasoning used to solve decimal problems in written form.

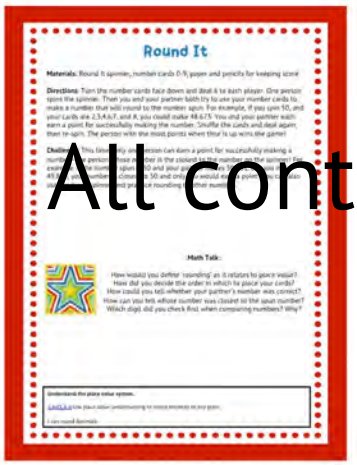
Game Direction Pages

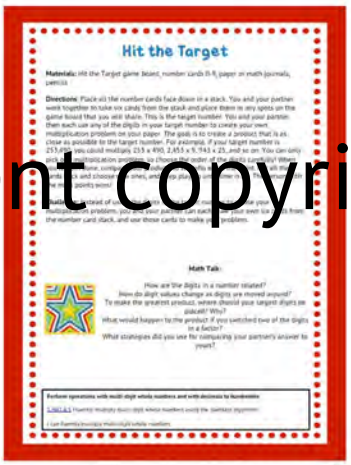


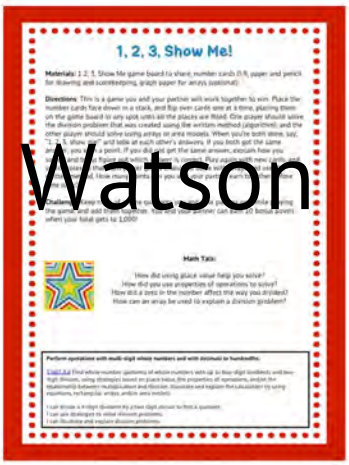


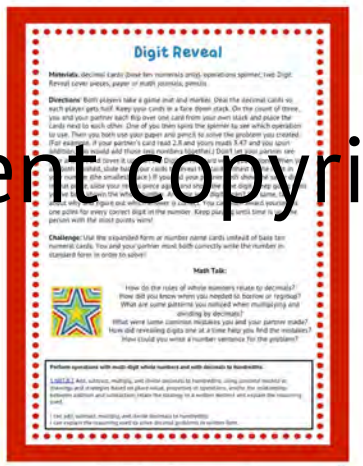


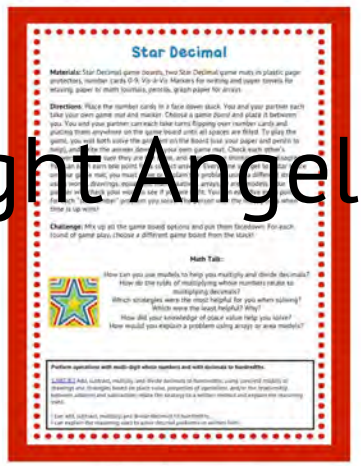




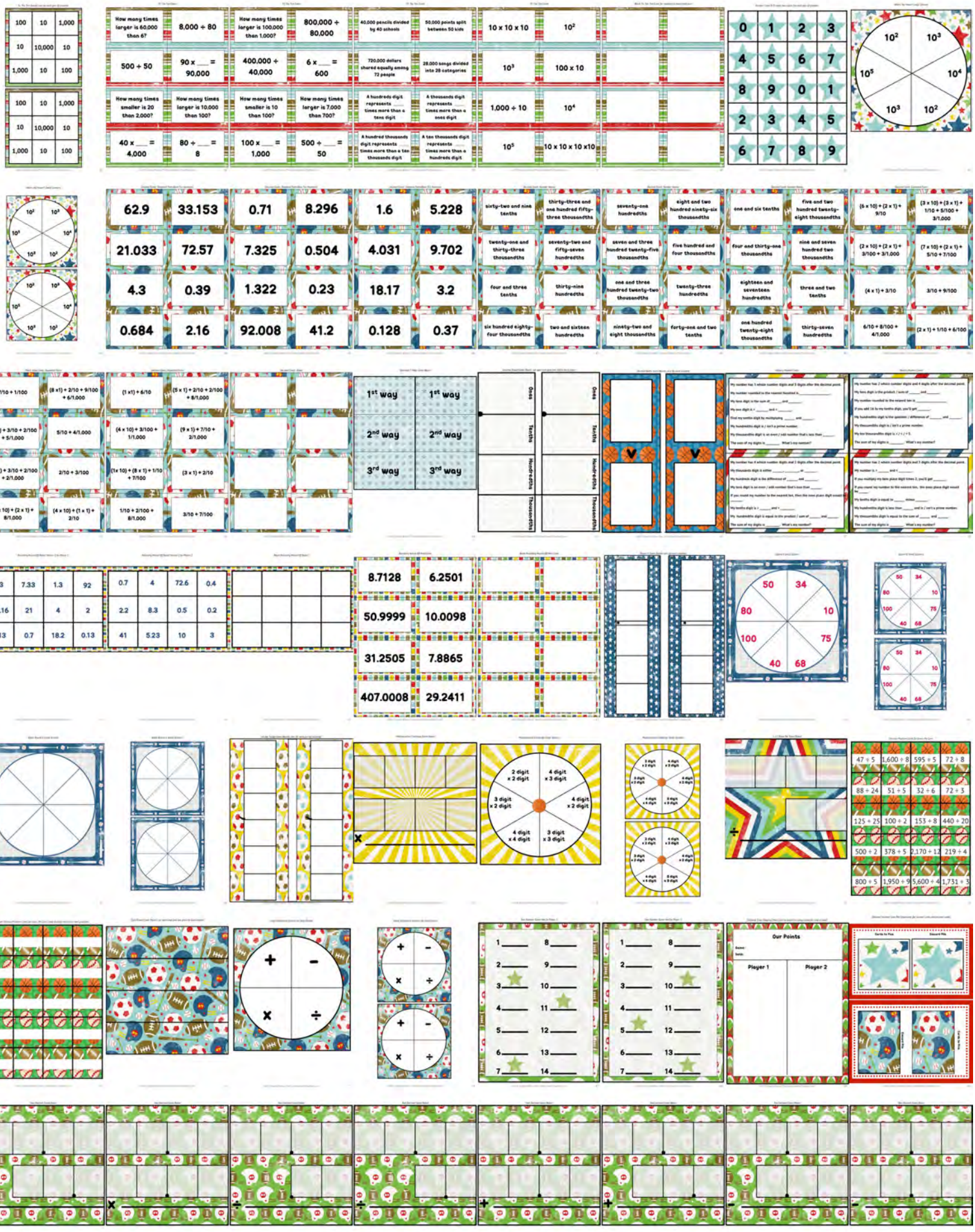








Game Resource Pages: Cards, Game Boards, Etc.



All Pages in Product

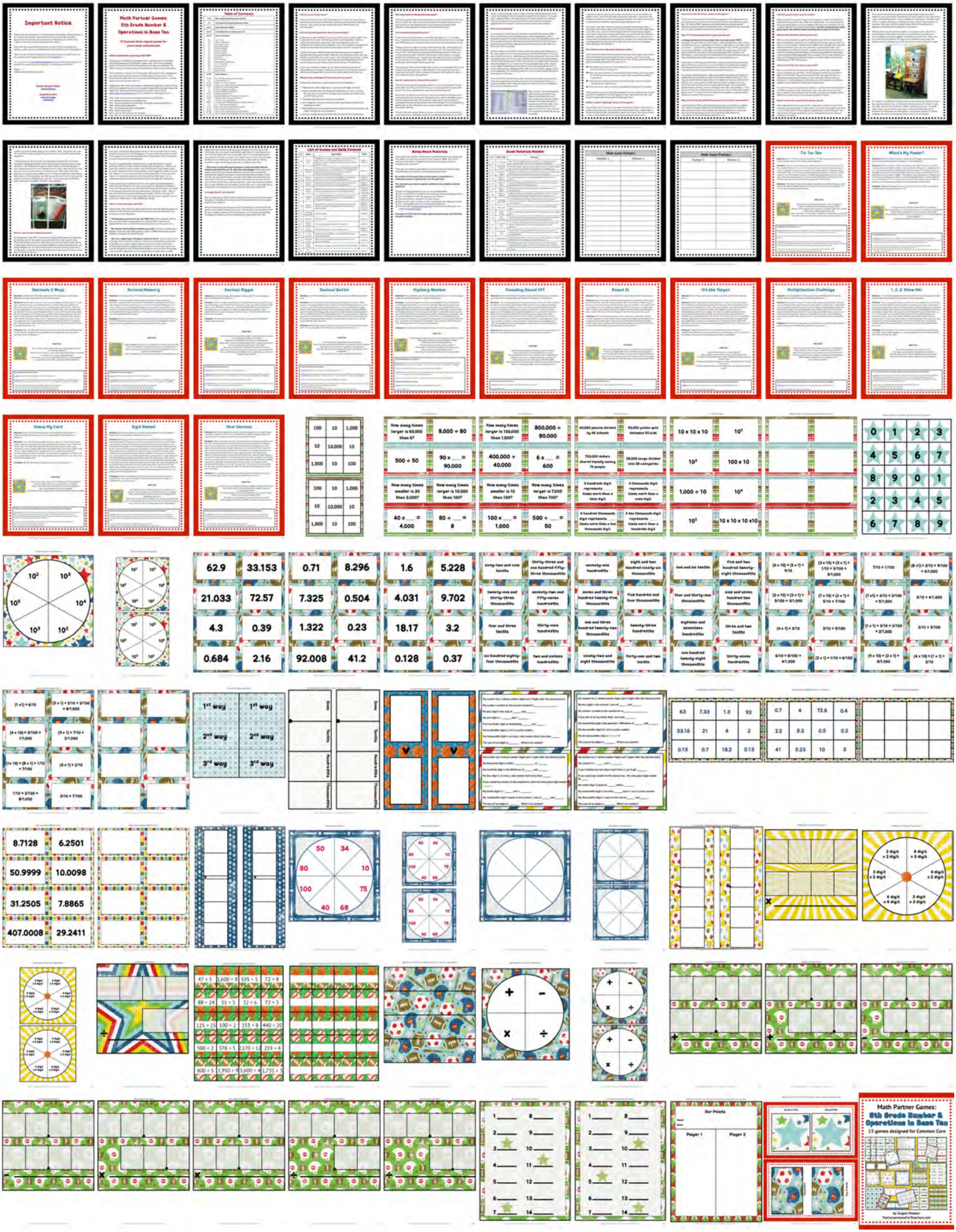


Table of Contents

List of Games and Skills Covered

Pg	Game	Main Skills	CCSS
20	Tic Tac Ten	Recognize that a digit in one place represents 1/10 of the place value to its left; represent powers of 10 using exponents; explain patterns when multiplying a number by powers of 10	5.NBT.A.1 5.NBT.A.2
21	What's My Power?	Represent powers of 10 using exponents; explain patterns when multiplying a number by powers of 10; explain the placement of the decimal point when a decimal is multiplied or divided by powers of 10	5.NBT.A.2
22	Decimals 3 Ways	Read and write decimals to thousandths using base ten numerals, number names, and expanded form.	5.NBT.A.3 5.NBT.A.3a
23	Decimal Memory	Read and write decimals to thousandths using base ten numerals, number names, and expanded form.	5.NBT.A.3 5.NBT.A.3a
24	Decimal Biggie	Read and write decimals to thousandths using base ten numerals; compare two decimals to the thousandths	5.NBT.A.3 5.NBT.A.3a 5.NBT.A.3b
25	Decimal Battle	Read and write decimals to thousandths using base ten numerals; compare two decimals to the thousandths; compare decimals using > = <	5.NBT.A.3 5.NBT.A.3a 5.NBT.A.3b
26	Mystery Number	Read and write decimals to thousandths using base ten numerals; compare two decimals to the thousandths; round decimals	5.NBT.A.3 5.NBT.A.3a 5.NBT.A.3 5.NBT.A.4
27	Rounding Round Off	Round decimals	5.NBT.A.4
28	Round It	Round decimals	5.NBT.A.4
29	Hit the Target	Fluently multiply multi-digit whole numbers	5.NBT.B.5
30	Mult. Challenge	Fluently multiply multi-digit whole numbers	5.NBT.A.2 5.NBT.B.5
31	1, 2, 3 Show Me	Divide a 4-digit dividend by a two digit divisor using a variety of strategies	5.NBT.B.6
32	Guess My Card	Divide a 4-digit dividend by a two digit divisor using a variety of strategies	5.NBT.B.6
33	Digit Reveal	Add, subtract, multiply, and divide decimals to hundredths	5.NBT.B.7
34	Star Decimal	Add, subtract, multiply, and divide decimals to hundredths	5.NBT.B.7

Notes About Materials

There are several version of some of the game boards and cards so that you can choose the ones that are best for your students' needs. Each of the spinners is available in a large and a small version, so you can print whichever one you prefer.

There are also optional card organizers and score keeping sheets to help students keep their materials organized during game play.

Be sure to print the game cards on stock paper or mount them on construction paper so students can't see through them!

The only items you need to supply in addition to the printables from this packet are:

- ❑ Class set of page protectors (or you can laminate items)
- ❑ Class set of Vis-à-Vis (or dry erase) markers for writing on page protectors
- ❑ Class set of paper towels for page protector "erasers"
- ❑ Class set of pencils and paper or math journals
- ❑ Class set of 2 color counters or other manipulatives for bingo/tic tac toe
- ❑ Class set of graph paper for drawing arrays (optional)
- ❑ Half class set of clear spinner overlays, or paperclips to make your own spinners (directions here).

Game Materials & Assembly Instructions

Pg	Game	Materials
20	Tic Tac Ten	One Tic Tac Ten game board to share, Tic Tac Ten game cards, 2 color counters, paper and pencil for keeping score (optional) (print pgs 35-40)
21	What's My Power?	What's My Power? spinner, number cards 0-9, paper or math journals, pencils, decimal cards (base ten numerals; for Challenge only) (print pgs 42-43; print pgs 44-46 for the challenge)
22	Decimals 3 Ways	One Decimals Three Ways game board for each player, decimal cards (base ten numerals, expanded form, number names) (print pgs 44-52, 54)
23	Decimal Memory	Decimal cards (base ten numerals, expanded form, and number names) (print pgs 44-52)
24	Decimal Biggie	Two Decimal Biggie game boards, number cards 0-9, math journals or paper and pencils for keeping score (print pgs 41 and 55)
25	Decimal Battle	One Decimal Battle game board, decimal game cards (base ten numerals only) (print pgs 44-46 and 56)
26	Mystery Number	Mystery Number cards in plastic page protectors, Vis-à-Vis markers, paper towels for erasing, blank paper or math journals, pencils (print pgs 57-58)
27	Rounding Round Off	Two Rounding Round Off game boards, decimal cards (base ten numerals only except for Challenge), Rounding Round Off wild cards, 2 color counters (print pgs 44-46 or 44-52 for the challenge, and 59-63)
28	Round It	Round It spinner, number cards 0-9, paper and pencils for keeping score (print pgs 41, 64-68)
29	Hit the Target	Hit the Target game board, number cards 0-9, paper or math journals, pencils (print pgs 41 and 69)
30	Mult. Challenge	Two Multiplication Challenge game boards, Multiplication Challenge spinner, number cards 0-9, math journals/paper and pencils (print pgs 41 and 70-72)
31	1, 2, 3 Show Me	1 2, 3, Show Me game board to share, number cards 0-9, paper and pencil for drawing and scorekeeping, graph paper for arrays (optional) (print pgs 41 and 73)
32	Guess My Card	Guess My Card division problem cards, math journals or paper for problem solving and to keep score, pencils, graph paper for drawing arrays (optional) (print pgs 74-75)
33	Digit Reveal	Decimal cards (base ten numerals only), operations spinner, two Digit Reveal cover pieces, paper/math journals, pencils (print pgs 44-46, 76-78)
34	Star Decimal	Star Decimal game boards, two Star Decimal game mats in plastic page protectors, number cards 0-9, Vis-à-Vis Markers for writing and paper towels for erasing, paper or math journals, pencils, graph paper for arrays (print pgs 41, 79-88)

Math Partner Games: 5th Grade Number & Operations in Base Ten

15 Common Core-aligned games for place value and decimals

How do math partner games align with CCSS?

The games in this PDF were created for (not retro-fitted to) the Common Core State Standards (CCSS) for fifth grade math. There are at least two games for each of the number and operations in base ten standards. The table on page 15 shows you which standard(s) are addressed in each game.

The standards as well as "I Can" statements with child-friendly language are included in each game's instructions. Since there isn't one set of "I Can" statements that all states use, I've chosen terminology that I think is simple and easy for you to make sense of.

Additionally, the "Model and reinforce mathematical practices" domain of the CCSS is integrated in each and every game through the actual game play, the "math talk" discussion/reflection prompts, or both. (You can find more math talk questions here.) The standards for math practices are:

MP1 Make sense of problems and persevere in solving them.
MP2 Reason abstractly and quantitatively.
MP3 Construct viable arguments and critique the reasoning of others.
MP4 Model with mathematics.
MP5 Use appropriate tools strategically.
MP6 Attend to precision.
MP7 Look for and make use of structure.
MP8 Look for and express regularity in repeated reasoning.

What's a math partner game?

Similar to math tubs, the math partner games I use are two-player games that reinforce a variety of math skills, including problem solving and logical thinking. The games are open-ended and easily differentiated and individualized.

Are math partner games the same as math centers?

It depends on your definition. Typically in my classroom, partner game time is separate from center time because centers are independent activities while math games are multi-player and encourage discussion and collaborative problem solving. However, if you have students complete math centers cooperatively, then math partner games would be a perfect fit!

There IS one major difference between the partner game arrangement I describe here and typical centers. When kids are in centers, usually you (the teacher) are working with a small group. Since you're busy teaching, it's hard to tell whether the rest of the class is actually learning anything in their centers and games or if they've just mastered the art of looking busy.

During the math partner game set up I recommend here, you are *not* responsible for small group instruction, so you're free to facilitate students' thinking and engage kids in conversations about what they're learning.

What are the advantages of using math partner games?

Math partner games are a great opportunity for the teacher to:

- Take anecdotal notes and/or assess children in meaningful scenarios
- Support students who are struggling academically as well as socially, because you'll have the time to help solve disputes and model social problem solving skills
- Challenge high-achievers who are easily bored
- Allow students to actively construct knowledge through collaborative hands-on activities
- Model logistical thinking and encourage discussion (connecting words and math is difficult for many students)
- Provide problem solving and math skill practice that kids really enjoy

How many times do kids play the same game?

Generally, students play the same game for an entire week so that they have time to master the rules. Once they understand the basics, they can really start focusing on the targeted math skills, determining patterns and strategies, and engaging in higher-level thinking discussions.

For how long do kids play the games?

I prefer to have pairs of students work with each game for 7-15 minutes daily. Though some games naturally lend themselves to the shorter or longer end of that range, ten minutes is pretty optimal and a good target to aim for.

Though most of the games end only when time is up, ALL of the games are open-ended enough that students won't need to ask, "I'm done, now what should I do?" The instructions also provide Challenge activities which you can have students do if they have time, or you can assign them to certain students for differentiation. I usually have the class do the extra challenge for the last two or three days of the week, unless they haven't yet shown proficiency with the basic level of game play.

There are also Math Talk questions which you can have students reflect on in writing using math journals or other formats. Once a week (or even more often), you may want to allow several extra minutes for students to talk or write about the Math Talk questions.

How do I make time for math partner games?

There are many ways to incorporate game time into your schedule. I prefer using them daily for up to 15 minutes, but I've also used them as fun math practice on Friday afternoons for about 25 minutes each week.

For awhile, my district required that I conduct standardized test prep/spiral review practice with the kids for 20 minutes at the start of the math period. I chose to follow that with 10 minutes for math partner games, and then launched into my math concept/skill lesson for the day. The active, hands-on partner games were the perfect way to clear students' heads before instruction resumed.

The fact that math partner games are great for breaking up long periods of direct instruction and guided practice is increasingly important as the CCSS

moves us toward deeper study of math concepts. Many teachers now have longer math periods and are expected to spend several weeks on the same topic (whereas before, we might have only had several days per concept). Math partner games are a way to fill that extra time with meaningful opportunities for students to explore and talk about math concepts.

How are kids paired up?

I recommend that math game partners be selected by the teacher (rather than self-selected) so that students are paired homogeneously. This is important because if you have heterogeneous pairs (mixed ability levels), the less advanced child will lose frequently and get frustrated. Kids only enjoy playing the games if they regularly experience success and feel like they have a fair shot at winning.

Another reason why I think it's better to pair kids with similar ability levels for math partner games is so that game play can be differentiated. You'll be able to spend more time supporting your struggling students since they'll be working together. And having your highest-performing kids paired together will be extremely valuable for them because they can play quickly and enjoy being challenged in a way that doesn't always happen during the average mixed-ability cooperative activity. Since most of us have students work in mixed-ability groups throughout the school day, math partner games can be a rare opportunity for students to work one-on-one with another child who's learning at a similar pace.

I also think it's important to consider students' personalities when pairing. I don't like to pair kids who know each other too well because they'll play around, but if they don't like each other or are both very shy or competitive, there can be problems as well.

Math Game Partners

Partner 1	Partner 2
Gabriella	Fadlaine
Angel	Claritza
Rolando	Lucas
Mabelin	Ana Jennsy
Nickolas	Jerrell
Manny	Peterson
Amy	Keisha
Carlo	Anna
Isaiah	

6 Minute Solution Partners

	Partner 1	Partner 2
A	Gabriella	Angel
B	Claritza	Amy
C	Fadlaine	Keisha
D	Peterson	Manuel
E	Isaiah	
F	Rolando	Lucas
G	Nickolas	Mabelin

Pages 18 and 19 are blank partner lists which you can fill out and display so students know who their partners are. Before sending students off to play the games, I usually have the class look at the list and raise their hand if their partner is not in the room so that I can re-partner students for the day as needed.

I generally make changes to the partner list based on my observations and student input. I've found that some kids want to keep the same partner for months, but most kids want to change partners every few weeks, and I try to accommodate them either way so they enjoy the games more.

For variety, I do allow students to pick any partner they want on special occasions (short weeks, days when we have an assembly and the math block is cut short, etc.) as well as when we go back to review previously taught skills. Some kids choose to play with friends that are more or less advanced than them, and that allows them to experience the game in a different way. Interestingly, I've found that about half the students still choose their regular math game partner: the kids tend to get into certain rhythms and playing styles and enjoy the familiarity.

Can students choose the game they want to play?

Yes! After a few weeks when you have introduced several games, you can let each set of partners choose one of the games to play, and have the class practice playing different games at the same time. I highly recommend doing that occasionally throughout the year, such as:

- Short weeks when you only have school for 2-3 days and therefore don't want to introduce a new game.
- When you want to review a variety of skills and concepts. Do two or three 10 minute sessions back to back, and let kids change their games for each session.
- When a lot of students are absent: let kids pick their own partners and own games for a special treat.
- At the end of the year when you have already introduced all the games.

When students are all playing different games, you may need to have printed directions available in case kids forget the rules. You should also talk with students about what they should do if they get stuck.

How do I use the "Challenge" section of the games?

You can offer the challenge as an option for students if they'd like to try it, or assign it only to certain students to differentiate game play. Another idea is to use that section after students have played the regular way several times, or later in the school year when reviewing previously taught skills.

How do I use the "Math Talk" section of the games?

You can teach students to talk about these questions with their partners, or ask the questions yourself as an informal assessment while observing game play. Or, use the Math Talk questions to facilitate mini-lessons and/or debriefing sessions before and after game play. The questions also work well as math journal prompts and written reflection topics.

How do I introduce math partner games to my class?

I strongly recommend that you model how to play the games FIRST. Introduce the games one at a time to your class, one game per week. During the modeling, you can demonstrate the basics of the game by playing against a volunteer. I used an Elmo (document camera) to help with this, placing the pieces under the Elmo so the class could see what was happening. I then guided two other volunteers as they played together for the class. This technique is a great way to model mathematical thinking and reasoning and draw attention to the math strategies you want students to use.

Right after the modeling/demonstration, release students to try playing the game with their partners. If you see a lot of kids making the same mistakes or demonstrating major misconceptions, end the game time a little early. Talk about it afterward, and do more modeling the next day.

For younger students (and for most classes at the beginning of the year), I'd suggest modeling the game on the first *two* days students play it. The first day, your demonstration should be very in-depth and focus on what to do if kids get stuck or disagree with one another, as well as what to do when they're finished and how to clean up the game properly. The second day's demonstration can focus more on applying math skills and strategies. I often do two or three days of demonstrations/skill mini lessons with more complex games, even if it's just a quick refresher with two student volunteers before releasing the rest of the class to play.

Why not have kids play all different games at once, like in math centers?

I like having the whole class play the same game because you can conduct mini-lessons/strategy discussions around shared experiences before and after game play. Also, since students play the same game for a week, you have lots of targeted opportunities for identifying and addressing misconceptions and scaffolding student learning.

Could the games also be used as centers?

Sure! It's totally your choice how to use the games—they'd work just fine in traditional centers, math tubs, math work stations, etc. You could choose to play some of the games using the system I describe here, and place the rest in centers for kids to explore independently. **I do still recommend you model game play for the students before expecting them to play on their own.**

How do I open the math partner game time?

When you first introduce a game at the beginning of the week, you'll start your math partner game time with modeling. By mid-week, you can start the time with a mini lesson focusing on the higher-order thinking skills you want students to develop. You can pose particular scenarios that might arise during game play and have students suggest strategies for solving them, or mention a challenge that one team of students experienced the day before and have students talk about what they would do. You can also mention any classroom management issues that arose, or remind students of skills and strategies you'd like them to apply.

How do I close the math partner game time?

You can end the math partner game time with a whole-class debriefing session. Students can talk about which strategies worked well and which didn't. Use the Math Talk questions provided for each game to help you facilitate the discussion. Students can also reflect on these questions in writing (i.e. in math journals), or by talking with their partner (or a different partner in a turn and talk or think-pair-share activity.)

You can switch up your approach as needed, or make a schedule and debrief in a different way each day of the week. Again, the conversations will be more superficial at the beginning of the week and will move toward critical thinking as students have more experiences with the game.

How do I store and organize math partner games?

You'll need to have *half* a class set of all your game cards and most of the materials, such as spinners. In other words, if you have 26 students, you need 13 sets of each game. In many games, students share a game board, so you only need a half class set of those, but in other games, students will each need their own board.

The type of organizational system you choose should be based on the materials you have and the size/type of your math games. If you have lots of larger materials that you're using in addition to the games in this PDF, you'll need to consider that in your planning. I'll share with you the systems I've used over the years, and then explain what I think is the best way to organize and distribute this particular set of games.

My first year using math partner games, I simply had a milk crate full of plastic baggies with materials inside. As my collection of games grew, I started keeping the plastic baggies in plastic tubs (containers). Some were the small kind you'd find at the dollar store and some were larger like dishwashing tubs, depending on the size of the materials that went inside.

Eventually I found the toy organizer you see pictured above. (Mine was from Big Lots, but I believe you can still get something similar at Target.) I used the large, colorful bins to hold the partner games my class was currently using. There was one bin for each game, and each bin held the set of materials for that game. For most games, I had a plastic baggie or manila envelope for each pair of students, so the bin for a certain game

usually had about a dozen baggies or envelopes inside. The games for units we weren't currently studying were hidden away in cabinets or other plastic containers.

I also kept one set of each game in a hanging shoe organizer, which you could see hanging on the door in the previous page's picture and as a close up below. Later in the school year, I'd allow students to choose the game they wanted to play. Each set of partners would simply walk over to the shoe organizer, pick a game and take out the materials, then return them after game play. I also allowed students to use the games in the shoe organizer at other times in the day (before and after school, during indoor recess, etc.) We called it "Free Choice Math Partner Games." I had a milk crate to hold the games that were too large to fit in the shoe organizer.

How do I pass out and collect the games?

For the games in this PDF, I recommend using just two baggies for each pair of students, one for the place value cards and one for the number cards. There will be times when you want kids to use multiple sets of cards during a single game, so having similar cards altogether makes sense and saves you plastic baggies. It's not a bad idea to mark some place on each card with a symbol, color, or number to indicate which bag it came out of, in case a stray piece is found on the floor.

Each day as you begin math partner games, write on the board which cards students should take out of the baggies. They can leave the rest of the cards in the bag (or even choose to include them if they decide with their partners to make the game more challenging.)

Each set of game boards could be kept in a single file folder or manila envelope: ditto with other materials needed, like the spinners. When you're ready for students to play a game, place the file folder full of game boards (or other materials) and the corresponding set of baggies on a table. Have all the "Partner 1s" in your math partner list (see pages 18-19) come up to the table in an orderly line and take one of everything. The Partner 2's are responsible for returning the materials to the same spot after game play.

If you practice your expectations for this, the system for distributing and collecting game materials will go very, very quickly. Sometimes it helps to set a timer for one minute: at the end of the minute, all the partner 1s should have the necessary materials and both partners should be in their "spot" in the room where they play the math partner games. If there is any pair of students who has not yet begun game play when the timer goes off, you can assist them with whatever they need to get started.

How can I save ink, paper, and time?

Some of the same cards and game boards can be used for multiple games, so that helps a lot. Here are some other tips to help you save ink, paper, and time as you create the games:

✓ **Pick the games you want to use, and THEN print**. You'll probably find that there are more than enough games here and you won't have time to implement them all, so don't print anything until you're sure you'll use it.

✓ **Be selective about the game resources you print.** There are multiple game boards and spinners for some games so you can differentiate game play for students. You might not need them all.

✓ **Use only a digital copy of the game instruction sheets**. You can use an LCD projector with a document camera or interactive whiteboard to project the directions for the class to see if needed. But the only time you'll need a printed copy (other than possibly for yourself) is if you decide to place one copy of the game in a Free Choice Math Partner Game area like the hanging shoe organizer I described, or if you want kids to use the games in math

centers/stations. In those instances, you could print a single copy of the instructions. But, for regular math partner game time, it's not necessary to print the instructions for each pair of kids. You will have already modeled game play for the class multiple times (which means they'll know the game far better than if they'd just read the directions), and you'll be walking around the room facilitating as kids play in case they need help.

✓ **Print most (or all) of the game resources in black and white and have students color them for you. Or, print onto colored paper!**. Black and white copies can still be very visually appealing, and you have the option of printing onto colored stock paper or using colored pencils/markers to add interest. You may want to print your class set in black and white, and then make one or two full color copies to use when modeling the game for the class and for later on if you place the games in your math centers or stations. You can let a different pair of students use the full color version each day as recognition of exemplary work in the previous day's math game time.

I'm ready! How do I get started?

Start by figuring out which standards you want students to practice through the games. The table on the next page of this packet tells you which games align to each standard.

Read the instructions for the games you're interested in, and check out the game resources (game boards, cards, etc.). Decide which ones are the best fit for your students' needs, and print! Use pages 16-17 to help you assemble the games and collect any extra materials you might need. Have fun!

ANGELA WATSON'S
truth *for* teachers

BUT WAIT! THERE'S MORE...

I'm Angela Watson, the creator of this resource. I'm a National Board Certified Teacher with a masters degree in Curriculum and Instruction, and have 11 years of classroom teaching experience and over a decade of experience as an instructional coach. I currently work as a Productivity and Mindset Specialist in the area of educational consulting. In practical terms, this means I author books, design curriculum, and provide professional development services. Everything I do is centered on sharing more effective, efficient, and *enjoyable* ways of teaching and learning!

I founded my website (**TruthforTeachers.com**) in 2003 to connect with other educators. You can now find thousands of ad-free articles and resources there from me and our K-12 teacher-writer's collective.

Check out my other resources below:

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