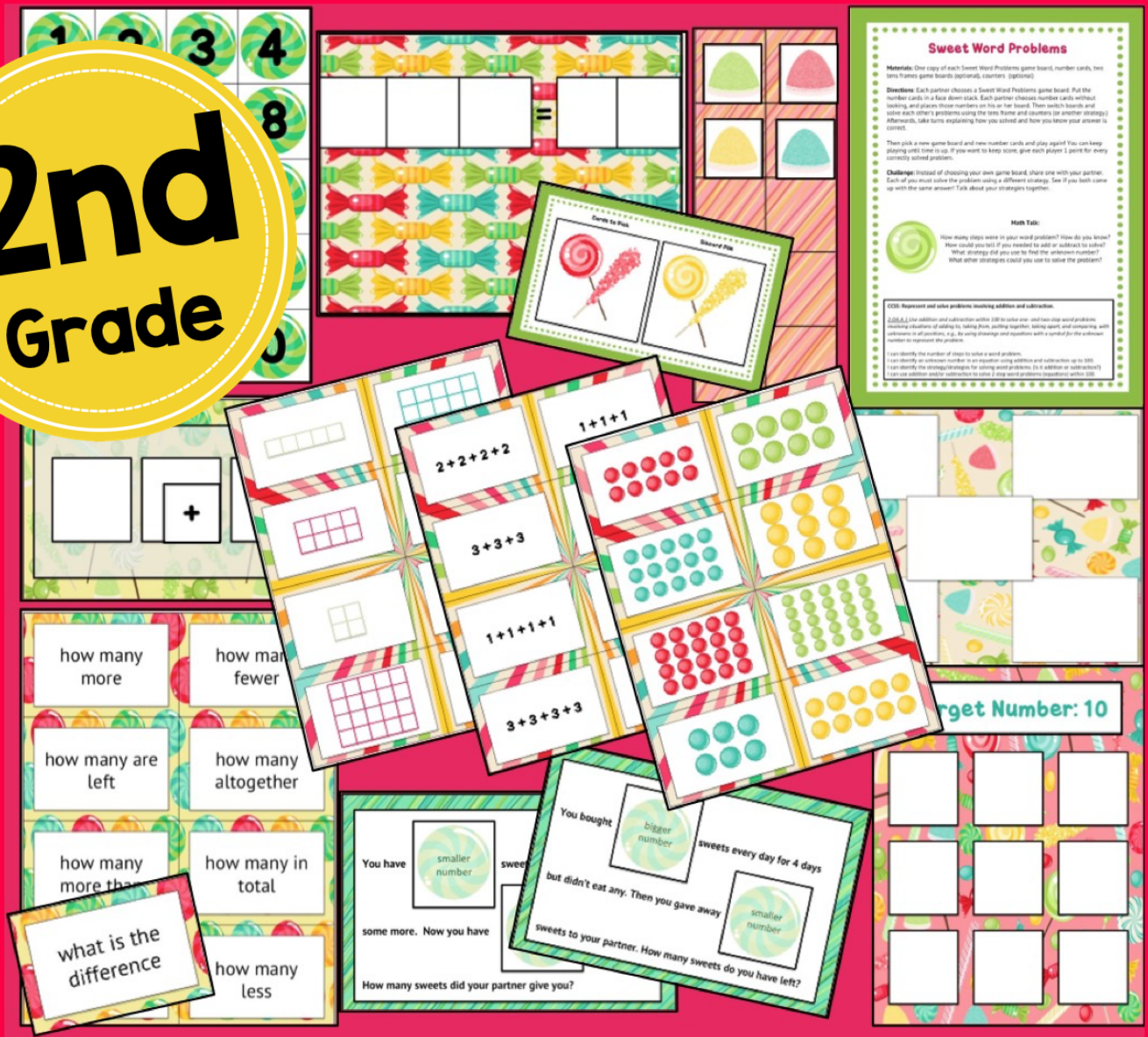


# 2nd Grade



# OPERATIONS & ALGEBRAIC THINKING

## 11 math partner games

by Angela Watson

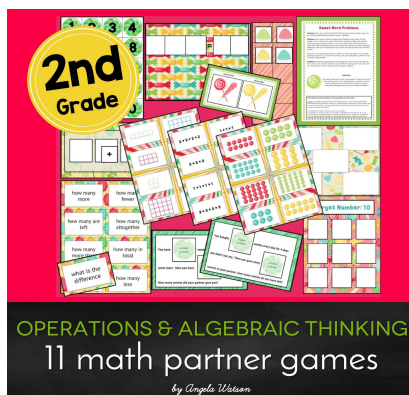
# Check out the complete product line for 2nd grade math!



**2nd Grade**

**NUMBER & OPERATIONS IN BASE TEN**  
14 place value partner games

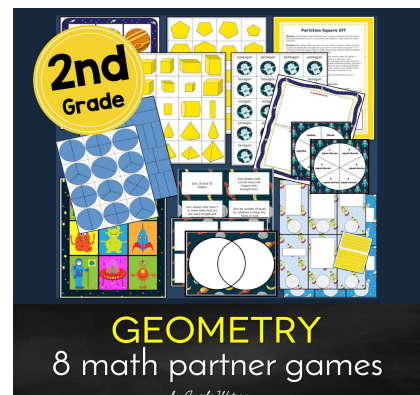
*by Angela Watson*



**2nd Grade**

**OPERATIONS & ALGEBRAIC THINKING**  
11 math partner games

*by Angela Watson*



**2nd Grade**

**GEOMETRY**  
8 math partner games

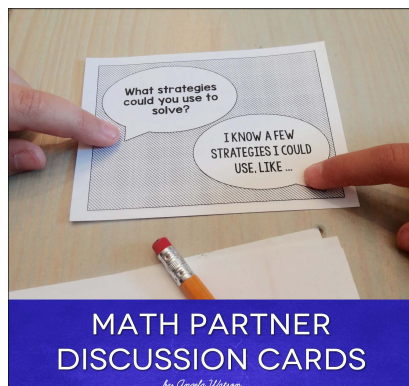
*by Angela Watson*

Editable fact practice games  
for school or home



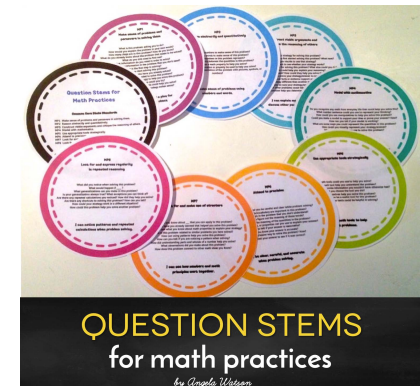
**ADDITION K.I.T.S.**

*by Angela Watson*



**MATH PARTNER  
DISCUSSION CARDS**

*by Angela Watson*



**QUESTION STEMS**  
for math practices

*by Angela Watson*

# Repeated Addition Arrays

**Materials:** Array picture cards, repeated addition cards

**Directions:** Place all the array picture cards face down in an array of 4 rows of 6. Place all the repeated addition cards face down in a different array with 4 rows of 6. Players take turns flipping over one card from each array and trying to find a match. If you make a match, explain your thinking to your partner and keep both cards. (For example: "This card has 4 rows of 3, and this card says  $3+3+3+3$ . Both have 4 groups of 3.") If you don't make a match, turn the cards over and let the other player take a turn. The person with the most cards wins! You can play again until time is up.

**Challenge:** Play the game with only the repeated addition cards (no array cards), and try to find two cards that show the same amount (for example,  $3 + 3$  and  $2 + 2 + 2$  both equal 6.) Keep playing until no more matches can be made. How could you change the repeated addition sentences on the leftover cards so that they would have matches?



## Math Talk:

How can you explain what *array* means in your own words?  
Can arrays have an odd number of objects? Why or why not?  
Why are equal groups needed for repeated addition?  
Is there more than one repeated addition sentence for each array?  
How can that be possible?

**CCSS: Work with equal groups of objects to gain foundations for multiplication.**

2.OA.C.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

I can identify a rectangular array with up to 5 rows and up to 5 columns.

I can understand that arrays can be written as repeated addition problems.

I can write and solve repeated addition equations to find the number of objects using rectangular arrays.

# Game Direction Pages

## Sweet Word Problems

**Materials:** One copy of each Sweet Word Problems game board, number cards, two tens frames game boards (optional), counters (optional)

**Directions:** Each partner chooses a Sweet Word Problems game board. Put the number cards in a face down stack. Each partner chooses number cards without looking, and places those numbers on his or her board. Then switch boards and solve each other's problems using the tens frame and counters (or another strategy.) Afterwards, take turns explaining how you solved and how you know your answer is correct.

Then pick a new game board and new number cards and play again. You can keep playing until time is up. If you want to keep score, give each player 1 point for every correctly solved problem.

**Challenge:** Instead of choosing your own game board, choose one with your partner. Each of you must solve the problem using a different strategy. See if you both come up with the same answer! Talk about your strategies together.

### Math Talk:

How many steps were in your word problem? How do you know? How did you tell if you needed to add or subtract to solve? What strategy did you use to find the unknown number? What other strategies could you use to solve the problem?

**CCSS:** Represent and solve problems involving addition and subtraction.

**2.OA.A.1** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- I can identify the number of steps to solve a word problem.
- I can identify an unknown number in an equation using addition and subtraction up to 100.
- I can identify the strategy/strategies for solving word problems. (Is it addition or subtraction?)
- I can use addition and/or subtraction to solve 2 step word problems (equations) within 100.

## Trade an Array

**Materials:** Trade an Array game board for players to share, array cards

**Directions:** Put the game board in between both players and place the array cards face up on the board. Then take a choice array card in each player's hand. Players flip over their four cards and take turns trying to find an array on the game board that shows the same amount in a row or column. The player to flip over the card with the array only gets one card to keep. The other player gets to keep the card. This continues until all array cards are used.

**Challenge:** Instead of using the array cards, draw your own arrays on both cards. You can also use the array cards with a repeated addition sentence for an array.

### Math Talk:

What is an array? What is a repeated addition sentence and a quotient? Can an array have any number of objects, or is it only 10? What strategies can you use to prove that two arrays show the same amount of objects?

**CCSS:** Work with equal groups of objects to gain foundations for multiplication.

- 2.OA.A.2** Determine whether a group of objects (up to 20) has an odd or even number of members. e.g., by counting objects by ones or twos, or by pairing objects or dots.
- I can identify a rectangular array with up to 10 rows and 10 columns.
- I can understand that arrays can be represented by repeated addition.
- I can write and solve repeated addition equations to find the number of objects in a rectangular array.

## Events Tap

**Materials:** Array cards

**Directions:** Put all the array cards in a face down stack. Take turns flipping over the top card. The player who flips over the card with an array gets to keep it. The amount in the array is added to the player's score. The player who flips over the card with an array gets to keep it. The amount in the array is added to the player's score. The player who flips over the card with an array gets to keep it. The amount in the array is added to the player's score.

**Challenge:** Add more to the game! Make your own pictures of objects using array cards. Another idea is to play the game with number cards instead of array cards. Can you make an array with the number cards?

### Math Talk:

What strategies do you use to quickly count the objects? How can you tell if the group of objects would be even? How did counting by 2's help you play the game? How do you know when you have an even number of objects? How can you tell if a number is even or odd without counting a group?

**CCSS:** Work with equal groups of objects to gain foundations for multiplication.

- 2.OA.A.2** Determine whether a group of objects (up to 20) has an odd or even number of members. e.g., by counting objects by ones or twos, or by pairing objects or dots.
- I can count a group of objects up to 10 by 1's.
- I can understand that arrays can be represented by repeated addition.
- I can write and solve repeated addition equations to find the number of objects in a rectangular array.

## Repeated Addition Arrays

**Materials:** Array picture cards, repeated addition cards

**Directions:** Place the array picture cards face down in an array of 4 rows of 5. Place all the repeated addition cards face down in a different area with 4 rows of 5. Players take turns flipping over one card from each array and trying to find a match. If you make a match, explain your thinking to your partner and give your partner only one card. This continues until all cards are used.

**Challenge:** Play the game with only the repeated addition cards (no array cards) and see if that makes it more difficult. Another challenge is to play with only the array cards (no repeated addition cards). Can you play with only the array cards?

**CCSS:** Work with equal groups of objects to gain foundations for multiplication.

- 2.OA.A.2** Determine whether a group of objects (up to 20) has an odd or even number of members. e.g., by counting objects by ones or twos, or by pairing objects or dots.
- I can identify a rectangular array with up to 10 rows and 10 columns.
- I can understand that arrays can be represented by repeated addition.
- I can write and solve repeated addition equations to find the number of objects in a rectangular array.

## Prove It!

**Materials:** Number cards, counters, tens frame game board (optional), dot representing points

**Directions:** Place all the number cards in a face down pile. Player 1 picks one card and reads it for Player 2 to see. Player 2 counts out the number to see if it is an even number, place the card in a dot space on the board. Player 2 must prove it by using a strategy to show the number is even or odd.

**Challenge:** Prove that two even numbers form an even sum and two odd numbers form an odd sum. For example, if you roll the number 11, you could have 6+5.

**CCSS:** Work with equal groups of objects to gain foundations for multiplication.

- 2.OA.A.2** Determine whether a group of objects (up to 20) has an odd or even number of members. e.g., by counting objects by ones or twos, or by pairing objects or dots.
- I can count a group of objects up to 20 by 1's.
- I can understand that arrays can be represented by repeated addition.
- I can write and solve repeated addition equations to find the number of objects in a rectangular array.

## Target Number Challenge

**Materials:** One Target Number Challenge game board to share, Target Number Challenge cards, number cards

**Directions:** Both players choose one Target Number Challenge card to share and place it on the game board. Turn the number cards face down in a stack and take turns picking them and placing them anywhere on the board. Then take turns trying to find cards on the board that equal the target number when added. For example, if the target number is 10, you could take the 3 and 7 cards and say "3+7=10", or take the 5, 2, and 3 cards and say "5+2+3=10".

If a player is able to make the target number, she or he says the number sentence out loud, keeps the cards, and takes more cards from the face down stack to fill the empty spaces on the game board. Both players take turns doing this. If you can't make the target number, say "pass" and give the other player's turn. If neither of you can make the target number, each of you takes an empty number card from the stack, lays it at the bottom of the game board so that there is a total of 11 cards on the board, and tries to be the first one to make the target number. The person with the most cards when no more matches can be made wins the game! Play again until time is up.

**Challenge:** Change the game so that subtraction is also allowed. For example, if your target number is 15, you could find the numbers 17 and 2 and say "17-2=15"

### Math Talk:

What strategies did you use to make the target number? How did you know you were right? How did you know if you needed to add or subtract to solve? How did you use mental math strategies help you play this game? How would this game be different if you used only subtraction?

**CCSS:** Add and subtract within 20.

**2.OA.B.2** Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

- I can know from memory all sums and differences of 2 one-digit numbers within 20.
- I can use mental strategies to add and subtract fluently within 20.

## Big Difference

**Materials:** Number cards, addition and subtraction sign cards (Challenge activity)

**Directions:** Deal the cards to both players, keeping them face down. On the count of three, both players flip over two of their cards and add or subtract the number from the bigger number. Both players must use their number cards and add, such as "3+4=7". Do not use the same card more than once. The player with the biggest difference gets to keep all four cards. Do it again until all cards are used.

**Challenge:** Play the game with only the addition sign cards. The player with the largest sum gets to keep all 4 cards. Do it with only the subtraction sign cards. The player with the biggest difference gets to keep all 4 cards.

**Challenge:** Play the game with only the addition and subtraction sign cards. The player with the biggest difference gets to keep all 4 cards.

**CCSS:** Add and subtract within 20.

- 2.OA.B.2** Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- I can know from memory all sums and differences of 2 one-digit numbers within 20.
- I can use mental strategies to add and subtract fluently within 20.

## Guess the Order

**Materials:** Two copies of each Guess the Order game board (1 is odd, number cards, addition and subtraction sign cards), addition and subtraction sentence cards

**Directions:** Each player makes an addition or subtraction number sentence and writes it down on paper. The number sentence should be one digit numbers. When you are sure your number sentence is correct, find the number cards and choose the game board you need with the 4 or 5 spaces left. For example, if your number sentence is 3+4=7, you would need the number cards 3, 4, 7, and 1, and choose the game board with 4 spaces left. Place the cards in the empty space at the bottom of your game board.

**Challenge:** Play the game with only the addition sign cards. The player with the biggest difference gets to keep all 4 cards.

**Challenge:** Play the game with only the subtraction sign cards. The player with the biggest difference gets to keep all 4 cards.

**CCSS:** Add and subtract within 20.

- 2.OA.B.2** Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- I can know from memory all sums and differences of 2 one-digit numbers within 20.
- I can use mental strategies to add and subtract fluently within 20.

## Race to 20

**Materials:** 1 copy of game board for each player, 1 number cube to share, counters

**Directions:** Each player takes 1 counter and places them on his or her game board. The rest of the counters stay in a pile. Player 1 guesses whether he will roll 10 or 20 on the number cube. If he is correct, he takes that many counters from the pile and places them on his game board. If he is not correct, he has to take that many counters from his game board and place them on the pile. For example, you might say, "I predict 10 or 20 on a 3." That's an odd number, so I'm correct! I get to take 3 counters.

**Challenge:** Play the game with only the addition sign cards. The player with the biggest sum gets to keep all 4 cards.

**Challenge:** Play the game with only the subtraction sign cards. The player with the biggest difference gets to keep all 4 cards.

**CCSS:** Add and subtract within 20.

- 2.OA.A.2** Determine whether a group of objects (up to 20) has an odd or even number of members. e.g., by counting objects by ones or twos, or by pairing objects or dots.
- I can count a group of objects up to 20 by 1's.
- I can understand that arrays can be represented by repeated addition.
- I can write and solve repeated addition equations to find the number of objects in a rectangular array.

## 1, 2, 3, Flip

**Materials:** 1, 1, 1 Flip game board, number cards, flip cards (the Challenge cards), addition and subtraction sign cards

**Directions:** Place the addition sign card in the center space of the game board. Put up the number cards one face down card, and deal them evenly so both players get the same amount.

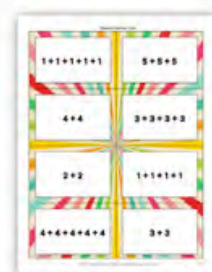
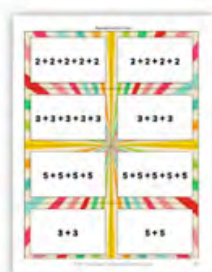
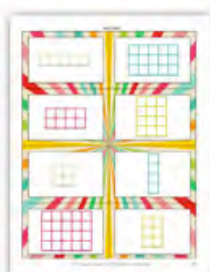
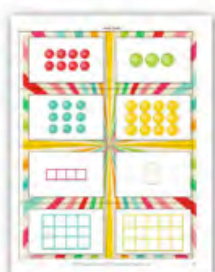
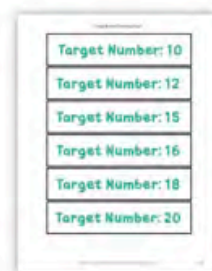
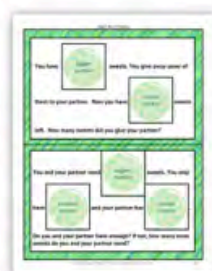
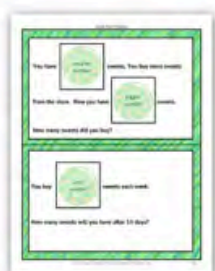
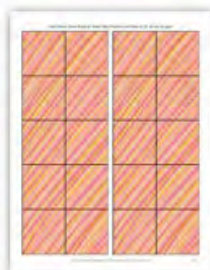
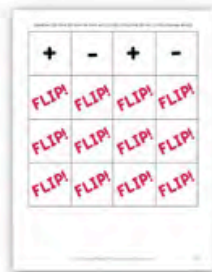
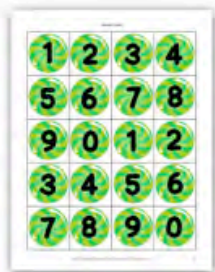
**Challenge:** Play the game with only the addition sign cards. The player with the biggest sum gets to keep all 4 cards.

**Challenge:** Play the game with only the subtraction sign cards. The player with the biggest difference gets to keep all 4 cards.

**CCSS:** Add and subtract within 20.

- 2.OA.B.2** Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- I can know from memory all sums and differences of 2 one-digit numbers within 20.
- I can use mental strategies to add and subtract fluently within 20.

# Game Resource Pages: Cards, Game Boards, Etc.



# All Pages in Product

## Table of Contents

|              |  |
|--------------|--|
| <b>3</b>     | <b>List of games and skills/standards covered</b>                        |
| <b>4-5</b>   | <b>Materials needed and assembly instructions</b>                        |
| <b>6-17</b>  | <b>How to use math partner game routines</b>                             |
| <b>18-19</b> | <b>Two different blank math partner lists</b>                            |
| <b>20-30</b> | <b>Game instructions</b>   |
| 20           | What's the Story?  |
| 21           | Sweet Word Problems  |
| 22           | Target Number Challenge  |
| 23           | Guess the Order  |
| 24           | 1, 2, 3 Flip   |
| 25           | Big Difference   |
| 26           | Race to 20   |
| 27           | Evens Tap  |
| 28           | Prove It   |
| 29           | Trade An Array   |
| 30           | Repeated Addition Arrays   |
| <b>30-59</b> | <b>Game resources</b>  |
| 31-32        | Number cards   |
| 33           | Operation sign cards and 1, 2, 3 Flip cards                              |
| 34           | Blank number cards   |
| 35-36        | Counters (multi-color & single color gumdrop versions)                   |
| 37           | Tens frame game board  |
| 38-39        | What's the Story? cards  |
| 40-43        | Sweet Word Problems cards  |
| 44-45        | Target Number Challenge game board and cards                             |
| 46-47        | Guess the Order game boards  |
| 48           | 1, 2, 3 Flip game boards   |
| 49           | Trade An Array game board  |
| 50-52        | Array cards  |
| 53-55        | Repeated Addition cards  |
| 56           | Blank array and repeated addition cards                                  |
| 57-59        | Optional score keeping sheets, blank work mats, and card pile organizers |

## List of Games and Skills Covered

| Pg. | Game Title               | Main Skills  | CCSS     |
|-----|--------------------------|--|----------|
| 20  | What's the Story?        | Addition and subtraction word problems   | 2.OA.A.1 |
| 21  | Sweet Word Problems      | Addition and subtraction word problems   | 2.OA.A.1 |
| 22  | Target Number Challenge  | Using mental math strategies to add and subtract fluently within 20  | 2.OA.B.2 |
| 23  | Guess the Order          | Using mental math strategies to add and subtract fluently within 20  | 2.OA.B.2 |
| 24  | 1, 2, 3, Flip            | Using mental math strategies to add and subtract fluently within 20  | 2.OA.B.2 |
| 25  | Big Difference           | Using mental math strategies to add and subtract fluently within 20  | 2.OA.B.2 |
| 26  | Race to 20               | Counting by 2s, recognizing whether a group of objects will pair evenly to 20, determining whether a group of objects is even or odd | 2.OA.C.3 |
| 27  | Evens Tap                | Counting by 2s, recognizing whether a group of objects will pair evenly to 20, determining whether a group of objects is even or odd | 2.OA.C.3 |
| 28  | Prove It!                | Counting by 2s, recognizing whether a group of objects will pair evenly to 20, determining whether a group of objects is even or odd | 2.OA.C.3 |
| 29  | Trade an Array           | Identifying arrays, connecting arrays and repeated addition as a foundation for multiplication                                       | 2.OA.C.4 |
| 30  | Repeated Addition Arrays | Identifying arrays, connecting arrays and repeated addition as a foundation for multiplication                                       | 2.OA.C.4 |



## Notes About Materials

You can use the gumdrop counters on pages 35-36 as counters, or use your regular counters. I have included a page of all yellow gumdrop counters in case your students find having various colors distracting when they are trying to group objects or count objects quickly in their heads.

There are optional card organizers, work mats, 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 pencils, crayons/colored pencils, and paper or math journals (or use individual dry erase boards)
- Half class set of number cubes (dice)

## Game Assembly Instructions

| Pg | Game                     | Materials  |
|----|--------------------------|--|
| 20 | What's the Story?        | What's the Story cards, number cards, pencils, math journals or paper, blank work mat for organizing cards (optional) (print pgs 31-32, 38-39)                                 |
| 21 | Sweet Word Problems      | One copy of each Sweet Word Problems game board, number cards, counters (print pgs 31-32, 40-43) (optional: two tens frames game boards and counters pgs 35-37)                |
| 22 | Target Number Challenge  | One Target Number Challenge game board to share, Target Number Challenge cards, number cards (print pgs 31-32, 44-45)  |
| 23 | Guess the Order          | Two copies of each Guess the Order game boards (4 in total), number cards, addition and subtraction sign cards, math journals or blank paper, pencils (print pgs 31-33, 46-47) |
| 24 | 1, 2, 3, Flip            | 1, 2, 3 Flip game board, number cards, flip cards (for the Challenge only), addition and subtraction sign cards (print pgs 31-33, 48)  |
| 25 | Big Difference           | Number cards, addition and subtraction sign cards (for Challenge activity) (print pgs 31-33)   |
| 26 | Race to 20               | A tens frame game board for each player, 1 number cube to share, counters (print pgs 37 and 35 or 36)  |
| 27 | Evens Tap                | Array cards (print pgs 50-52)  |
| 28 | Prove It!                | Number cards, counters (print pgs 31-32 and 35 or 36) (optional: tens frame game board to organize counters pg 37)   |
| 29 | Trade an Array           | Trade an Array game board for players to share, array cards (print pgs 49-52)  |
| 30 | Repeated Addition Arrays | Array picture cards, repeated addition cards (print pgs 50-52 and 56)  |

# Math Partner Games: 2nd Grade Operations & Algebraic Thinking

**11 Common Core-aligned games for teaching  
addition, subtraction, and more!**

## **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 second grade math. There are 2-3 games for each of the operations and algebraic thinking 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.



The image shows two tables. The first table, titled 'Math Game Partners', lists names in two columns: Partner 1 and Partner 2. The second table, titled '6 Minute Solution Partners', lists names in three columns: Partner 1 and Partner 2, with a third column for Partner 2.

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

|   | Partner 1 | Partner 2 |
|---|-----------|-----------|
| A | Gabriella | Angel     |
| B | Claritza  | Amy       |
| C | Fadhaine  | 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 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! Its 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 what 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 geometry games.

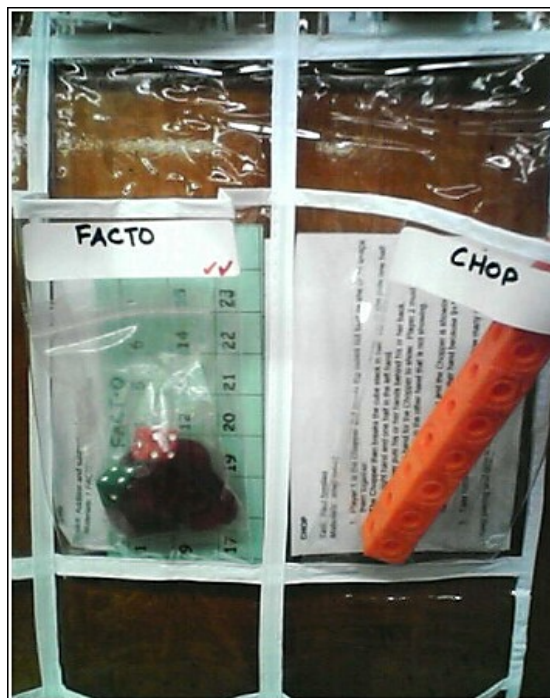
My first year using math partner games, I simply had a milk crate full of plastic baggies with materials inside. As my collection of games grew, I started keeping the plastic baggies in plastic tubs (containers). Some were the small kind you'd find at the dollar store and some were larger like dishwashing 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 number cards and one for the arrays/repeated addition sentence 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. 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 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!



## 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](https://www.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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