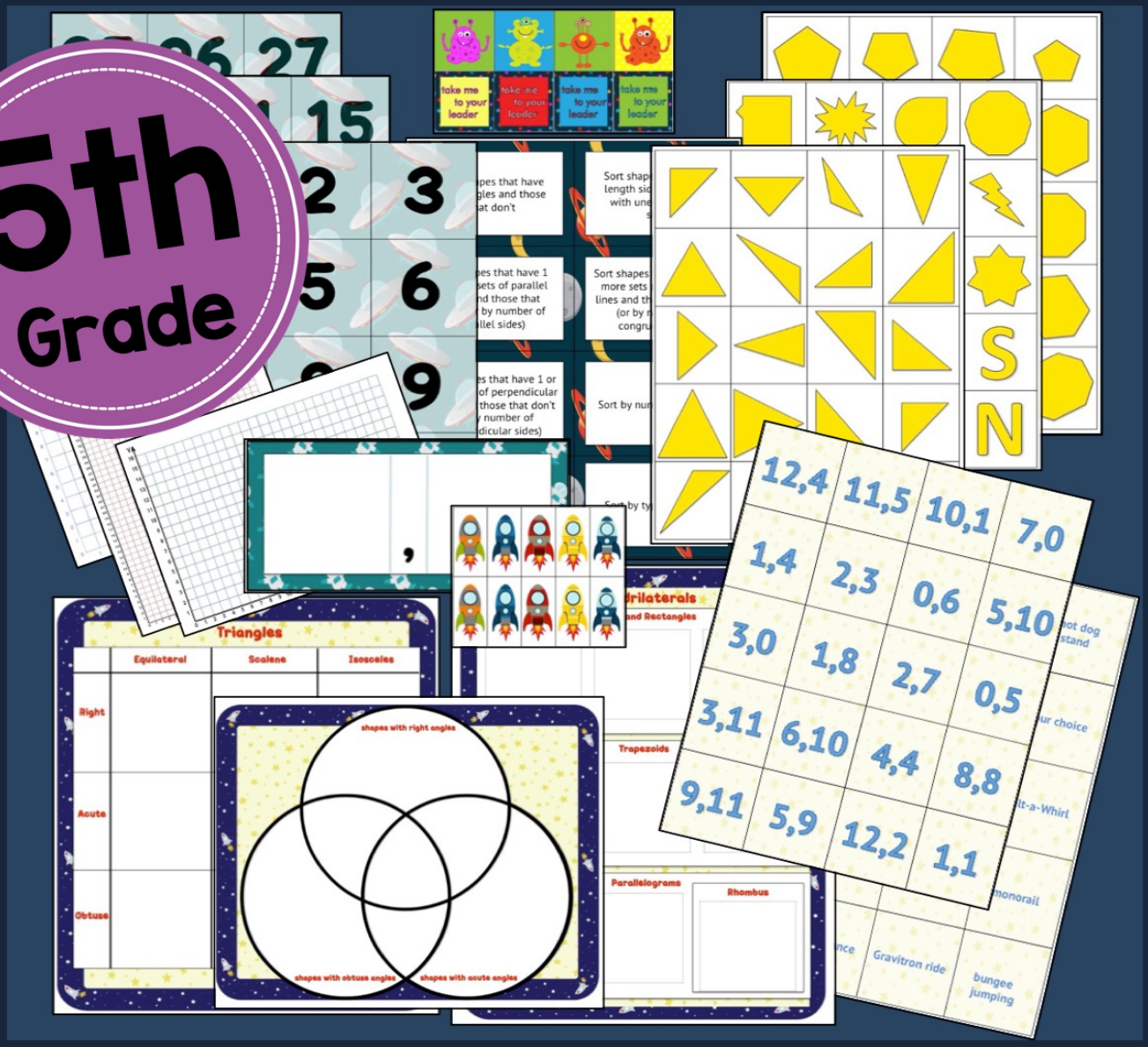
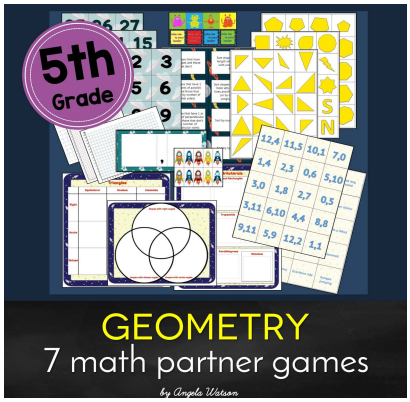


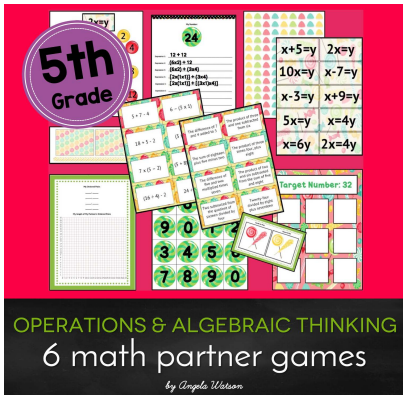
GEOMETRY

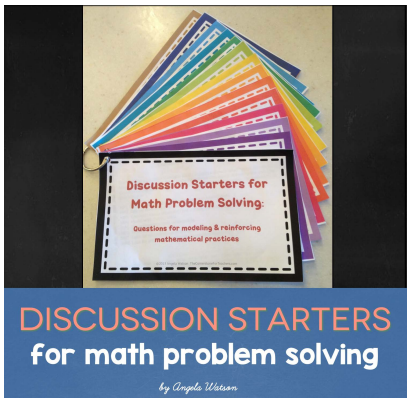
7 math partner games

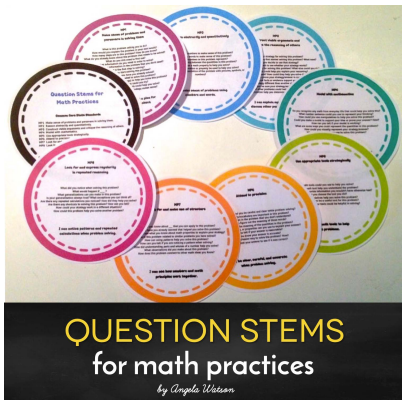
by Angela Watson

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









Coordinate Grid Connection

Materials: One Coordinate Grid Connection game board in a plastic page protector, one Coordinate Grid Connection Card Mat, two different color Vis-à-Vis markers, erasers for page protectors, number cards

Directions: Each player chooses one Vis-à-Vis marker color. Player 1 draws two number cards from the face down stack, and puts the two numbers together on the card mat to create an ordered pair. For example, if you draw a card with a 3 and a card with a 5, you could select the 3,5 ordered pair or 5,3. Use your marker to make a point on the coordinate grid at the ordered pair's location. Then put the two cards in a discard pile.

Take turns doing this with your partner. There may be times when both locations are already taken, and play passes to the next player. When you get two marks next to each other on the board (horizontally, vertically, or diagonally), draw a line to connect them. The goal is to get three points in a row. Keep playing until time is up and see which of you can connect the most points!

Challenge: Change the game rules: if one player has already marked a location on the grid with his or her color, the other player can "steal" the spot and mark over it with his or her own color!

Math Talk:

What does the first number in an ordered pair indicate? The second?
How could you tell where to place your coordinates?
How are the ordered pair and the x and y axes related?
What strategies did you use when playing this game?
How do coordinate grids help you organize information?

CCSS: Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

I can identify the x- and y-axis.
I can locate the origin on the coordinate system.
I can identify coordinates of a point on a coordinate system.
I can recognize and describe the connection between the ordered pair and the x- and y- axis.

Coordinate Grid Rocket Ship

Materials: 2 Coordinate Grid Rocket Ship game boards in plastic page protectors, Vis-à-Vis markers, paper towels or felt squares for erasing the page protector, pencils, paper or math journals

Directions: Each player takes a game board and 5 rockets. Set up a folder or book between you and your partner so you can't see each other's game boards. Place your rockets on the top part of your board anywhere along the lines. On your paper, write down all the ordered pairs that your rocket ships cover; each rocket should cover 3 ordered pairs.

Then take turns trying to guess where your partner placed his or her rockets by using coordinate grid locations (i.e, "Do you have a rocket ship at 3,4?"). If you guess incorrectly, place an X on that location on the bottom part of your board. If you guess correctly, your partner will say "Launch" and you should place a spot on your blank game board. Once you have correctly guessed the 3 ordered pairs that a rocket ship covers, your partner will say "Blast Off." The first person to correctly guess the coordinates of all 5 of his/her partner's rockets wins the game. You can play again until time is up.

Challenge: Use a larger coordinate grid game board so that you have more locations to guess. You can also make the game more challenging by placing some of your rocket ships diagonally.

Math Talk:

How can you use an ordered pair to locate a point on the grid?
What's the connection between the ordered pair and the x and y axes?
What strategies did you use to guess the rocket locations?
How does the coordinate grid help you identify specific locations?

CCSS: Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

I can identify the x- and y-axis.
I can locate the origin on the coordinate system.
I can identify coordinates of a point on a coordinate system.
I can recognize and describe the connection between the ordered pair and the x- and y- axis.

Coordinate Grid Connection

Materials: One Coordinate Grid Connection game board in a plastic page protector, one Coordinate Grid Connection Card Mat, two different color Vis-à-Vis markers, erasers for page protectors, number cards

Directions: Each player chooses one Vis-à-Vis marker color. Player 1 draws two number cards from the face down stack, and puts the two numbers together on the card mat to create an ordered pair. For example, if you draw a card with a 3 and a card with a 7, you could select the 3,5 ordered pair or 5,3. Use your marker to make a point on the coordinate grid at the ordered pair's location. Then put the two cards in a discard pile.

Take turns doing this with your partner. There may be times when both locations are already taken, and play passes to the next player. When you get two matching cards, connect each other on the board (horizontally, vertically, or diagonally), draw a line to connect them. The goal is to get three points in a row. Keep playing until time is up. The player with which of you can connect the most points!

Challenge: Change the games rules: if one player has already marked a location on the grid with his or her color, the other player can "steal" the point mark over it with his or her own color!

Math Talk:

What does the first number in an order pair indicate? The second?
How can you decide where to place your coordinates?
How are the ordered pair and the x and y axes related?
What strategies did you use when playing this game?
How do coordinate grids help you organize information?

CCSS: Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

I can identify the x- and y-axis.
I can locate the origin on the coordinate system.
I can identify coordinates of a point on a coordinate system.
I can recognize and describe the connection between the ordered pair and the x- and y- axis.

What's the Problem?

Materials: Coordinate grid cards, two What's the Problem? Game boards in plastic page protectors, Vis-à-Vis markers, erasers for page protectors, pencils, blank paper or math journals

Directions: Turn the coordinate grid cards face down and deal 6 to each player. You and your partner then flip over your cards and mark the ordered pairs on your own coordinate grids. You and your partner should each have a total of six points marked on your grid. On your paper, write a math problem that uses the data on your grid and the answer on the back of your paper. Switch papers with your partner and challenge one another to solve. Flip the page over to check your answers. You can earn 1 point for correctly writing a problem and for correctly solving a problem. Keep playing until time is up!

Challenge: Write a math story that uses all six points marked on your grid. Then let your partner read the story: she or he has to figure out the six points you marked and place them on a blank grid. When your partner is done, show him or her the grid you made to go with your story. If the grids match, you both win!

Math Talk:

What kind of information can be shown on a coordinate grid?
How can you identify patterns on a coordinate grid?
How are coordinates useful for solving problems in real life?

CCSS: Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

I can identify the x- and y-axis.
I can locate the origin on the coordinate system.
I can identify coordinates of a point on a coordinate system.
I can recognize and describe the connection between the ordered pair and the x- and y- axis.

5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

I can represent real world and mathematical problems by graphing points in the first quadrant.
I can interpret coordinate points in real world problems.

Map It

Materials: Two Map It game boards in plastic page protectors, Map It cards, two Vis-à-Vis markers, erasers for page protectors, coordinate grid cards

Directions: Set up a book or folder between you and your partner so you can't see each other's work space. Each player takes a game board. Place the coordinate grid cards and the Map It cards in separate face down stacks. One player flips over a coordinate grid card and the other player flips over a Map It card. Then both players mark the space on their coordinate grid which represents a map for an amusement park. For example, if the cards read 8,3 and Rollercoaster, you would both mark a point at 8,3 on your coordinate grid and write "rollercoaster" next to the point.) Leave the cards face up and visible on the table so you can check your work later.

When all the cards have been used, compare your maps. They should be exactly the same! If there are any differences, check the cards to see where the errors were made. If You can each earn one point for every correctly located point on your map. Play again until time is up!

Challenge: Design your own amusement park! Place 6 of your own park features anywhere you'd like on your map and record the ordered pair for each feature's location. Then switch maps with your partner and try to write the correct park feature location for each feature!

Math Talk:

What is the connection between the x and y axes?
How do ordered pairs help you located places on a grid?
How does the coordinate grid system help you understand other maps?

CCSS: Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

I can identify the x- and y-axis.
I can locate the origin on the coordinate system.
I can identify coordinates of a point on a coordinate system.
I can recognize and describe the connection between the ordered pair and the x- and y- axis.

5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

I can represent real world and mathematical problems by graphing points in the first quadrant.
I can interpret coordinate points in real world problems.

Category Match Up

Materials: 2D Shape Cards

Directions: Deal 7 cards to each player, being sure not to look at each other's cards. Put the extra cards in a face down stack. Each player looks at his or her own cards and tries to make a match between two figures that are NOT identical but DO belong to the same larger category. Lay down one of your matches face up for your partner to check and explain why you think they are matches, describing both the sub-categories and the larger category. For example, you might say, "This is a rectangle and this is a square, but they both have 4 right angles" or "This is a rhombus and this is a trapezoid, but they could both be categorized as quadrilaterals." Since all the cards are 2D figures, that doesn't count as a category, and only essential attributes count: you can't classify according to color or size.

Take turns doing this with your partner, one match at a time, until neither one of you can make any more matches. On your next turn, ask your partner for the type of match you need (i.e. a 2D figure with congruent sides and figure with a 90 degree angle.) If your partner has the card, s/he must give it to you, and you lay down the match for him or her to check. If your partner doesn't have it, you must draw a card from the pile. The first player to lay down all cards wins the game! Keep playing until time is up.

Challenge: Decide with your partner two categories you will NOT sort by, and try to describe the type of shape you need without using those categories!

Math Talk:

What strategies did you use to tell if two cards were a match?
How are two figures be in the same larger category but have different sub-categories?
How can angle and side measures help you classify shapes?
What properties do all lines have in common?
What properties do all angles have in common?
How did using math vocabulary help you play the game?

CCSS: Classify two-dimensional figures into categories based on their properties.

5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

I can recognize a two-dimensional shape is classified into a category and it subcategories.

Guess My Sort

Materials: 2D Shape cards, Guess My Sort game boards, two Cards That Don't Belong boards, Sort Suggestions cards (optional), pencils and paper or math journals

Directions: Deal 8 2D shape cards to each player and a Cards That Don't Belong board. Players then look at their cards and choose a game board to sort their cards on. You can choose a Sort Suggestion card if you need ideas. Place some cards on your Cards That Don't Belong board if needed (make sure your partner can see them.) Then try to guess the attributes you sorted by, being sure to note the subcategories. For example, you could write, "The whole board has triangles, and I sorted by types of triangles" or "The whole board has acute angles, and I sorted by number of sides."

When you and your partner are both done sorting, look at each other's game boards and try to infer how the cards were sorted. Write down your guesses without showing your partner—be sure to identify the categories and subcategories that you notice! On the count of three, hold up your papers or math journals so you can see what each other wrote. Explain your reasoning and make a decision together about whether each sort was done correctly and also if there is more than one way to describe the sort. You can earn 1 point for each correctly sorted set of cards and 1 point for each correctly guessed sort. The person with the most points at the end of time is up wins the game!

Challenge: Instead of using the Guess My Sort boards, make your own! Decide how you will sort your cards and draw your own with sections for sorting. You can also make your own game cards with more non-standard 2D shapes on them.

Math Talk:

What are some ways 2D figures be classified?
How did you use subcategories in your sort?
What properties do all shapes in a category have in common?
How did you use your knowledge of attributes to classify shapes?

CCSS: Classify two-dimensional figures into categories based on their properties.

5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

I can recognize a two-dimensional shape is classified into a category and subcategories.

5.G.4 Classify two-dimensional figures in a hierarchy based on properties.

I can recognize that two-dimensional shapes can be classified into one or more categories.
I can classify two-dimensional figures into categories and/or sub-categories (hierarchy) based on their attributes.

The Attributes Game

Materials: 2 of the same game board for The Attributes Game, 2D Shape cards, The Attributes Game cards (with aliens and "Take Me to Your Leader" on them)

Directions: Give each player one game board. Mix up the 2D shapes picture cards with The Attributes Game cards and put them in a face down stack. Take turns flipping over a card and deciding where it belongs on the game board. Be sure to explain your thinking (i.e., "This shape has 3 sides which are all equal, so I'm putting the card under Equilateral Triangles.")

If a card does not belong anywhere on the board, put it in the discard pile. Cards with aliens on them are "wild cards" that can go anywhere on the board, and cards with "Take Me to Your Leader" mean you lose a turn. The first person to get the required number of cards in each section of their game board wins. You can play again until time is up.

Challenge: Choose a different game board than you played and see which board gets completed first! Or, create your own game board and decide with your partner which categories you would like to use during the play. Then use blank sheets of paper and draw sections for each category and label each category. You can also create your own game cards with more non-standard 2D shapes.

Math Talk:

How did you decide where to place your cards on the board?
How can you check (or prove) your answers?
What properties do all the shapes in a section have in common?
What other ways can 2D figures be classified and compared?

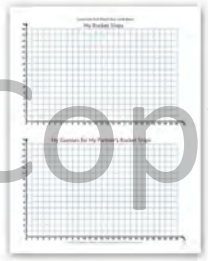
CCSS: Classify two-dimensional figures into categories based on their properties.

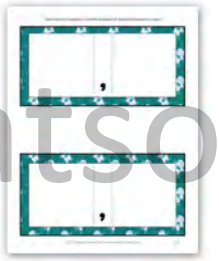
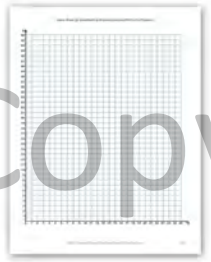
5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

I can recognize a two-dimensional shape is classified into a category and subcategories.

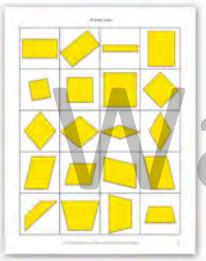
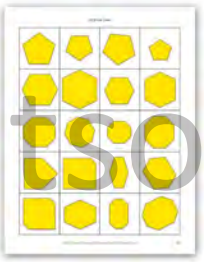
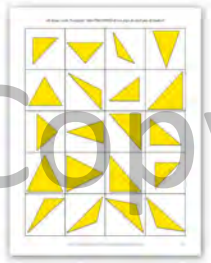
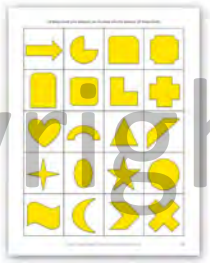
5.G.4 Classify two-dimensional figures in a hierarchy based on properties.

I can recognize that two-dimensional shapes can be classified into one or more categories.
I can classify two-dimensional figures into categories and/or sub-categories (hierarchy) based on their attributes.

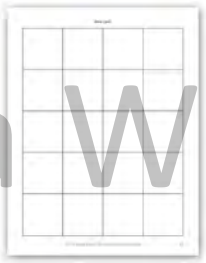


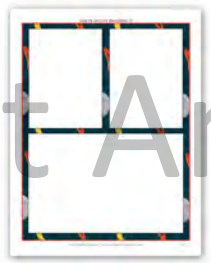




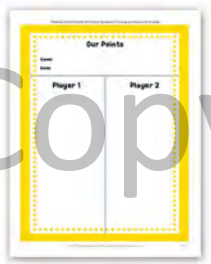












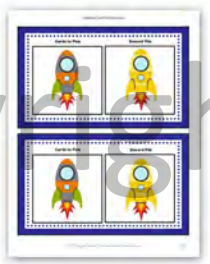


Table of Contents

List of Games and Skills Covered

Pg.	Game Title	Main Skills	CCSS
20	Coordinate Grid Rocket Ship	Identify the x- and y-axis; locate the origin on the coordinate system; identify coordinates of a point on a coordinate system; recognize and describe the connection between the ordered pair and the x- and y- axis.	5.G.A.1
21	Coordinate Grid Connection	Identify the x- and y-axis; locate the origin on the coordinate system; identify coordinates of a point on a coordinate system; recognize and describe the connection between the ordered pair and the x- and y- axis.	5.G.A.1
22	What's the Problem?	Identify the x- and y-axis; locate the origin on the coordinate system; identify coordinates of a point on a coordinate system; recognize and describe the connection between the ordered pair and the x- and y- axis; represent real world and mathematical problems by graphing points in the first quadrant; interpret coordinate points in real world problems.	5.G.A.1 5.G.A.2
23	Map It	Identify the x- and y-axis; locate the origin on the coordinate system; identify coordinates of a point on a coordinate system; recognize and describe the connection between the ordered pair and the x- and y- axis; represent real world and mathematical problems by graphing points in the first quadrant; interpret coordinate points in real world problems.	5.G.A.1 5.G.A.2
24	Category Match Up	Recognize that 2D shapes can be classified into one or more categories as well as sub-categories; classify two-dimensional figures into categories and/or sub-categories (hierarchy) based on their attributes.	5.G.A.3 5.G.A.4
25	Guess My Sort	Recognize that 2D shapes can be classified into one or more categories as well as sub-categories; classify two-dimensional figures into categories and/or sub-categories (hierarchy) based on their attributes.	5.G.A.3 5.G.A.4
26	The Attributes Game	Recognize that 2D shapes can be classified into one or more categories as well as sub-categories; classify two-dimensional figures into categories and/or sub-categories (hierarchy) based on their attributes.	5.G.A.3 5.G.A.4

Notes About Materials

Several games have multiple board game options. You can choose the ones that best meet your class' needs as a whole, or differentiate the games by selecting game supplies based on individual student needs.
There are also optional card organizers 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 felt squares, socks, paper towels, or other "erasers" for page protectors
- ❑ Class set of pencils, crayons/colored pencils, and paper or math journals (or use individual dry erase boards)

Game Assembly Instructions

Pg	Game	Materials	Instructions
20	Coordinate Grid Rocket Ship	2 Coordinate Grid Rocket Ship game boards in plastic page protectors, Vis-à-Vis markers, paper towels or felt squares for erasing the page protector, pencils, paper or math journals	Print and cut out pgs 27-28. Students will need to block off their work space with a folder or book so they can't see their partner's work..
21	Coordinate Grid Connection	One Coordinate Grid Connection game board in a plastic page protector, one Coordinate Grid Connection Card Mat, two different color Vis-à-Vis markers, erasers for page protectors, number cards	Print and cut out pgs 29-33.
22	What's the Problem?	Coordinate grid cards, two What's the Problem? Game boards in plastic page protectors, Vis-à-Vis markers, erasers for page protectors, pencils, blank paper or math journals	Print and cut out pgs 33-34.
23	Map It	Two Map It game boards in plastic page protectors, Map It cards, two Vis-à-Vis markers, erasers for page protectors, coordinate grid cards	Print and cut out pgs 34-36. Students will need to block off their work space with a folder or book so they can't see their partner's work.
24	Category Match Up	2D Shape cards	Print and cut out pgs 37-41.
25	Guess My Sort	2D Shape cards, Guess My Sort game boards, two Cards That Don't Belong boards, Sort Suggestions cards (optional), pencils and paper or math journals	Print and cut out pgs 37-41. Choose and print the game boards you want students to use (from pgs 44-51) or give them choices.
26	The Attributes Game	2 of the same game board for The Attributes Game, 2D Shape cards, The Attributes Game cards (with aliens and "Take Me to Your Leader" on them)	Print and cut out pgs 37-42. Choose the game boards you want students to use (from pgs 52-56) or give them choices.

Math Partner Games: 5th Grade Geometry

7 Common Core-aligned games for coordinate grids and classifying 2D shapes!

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 2-3 games for each of the geometry 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 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 one baggie for each set of partners, and putting all the geometry cards in it. 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:

PODCAST | COURSES | BOOKS

IN-PERSON PD | CURRICULUM | 40 HOUR WORKWEEK

Stay in touch and get new resources sent to you automatically via email!
I send a personal, uplifting message every Sunday night to over 95,000 educators.

GET THE FREE WEEKLY EMAIL