To support math practice during these weeks, we are sharing with teachers some of the games from our AfterSchool KidzMath program. These games are organized by grade level and topic and include instructions and game boards if needed.

The program includes manipulative materials that your students may already have at home, such as playing cards, dice, and marbles, or that you can provide as PDFs. One component of the program is a book of wipe-off game boards. We have included the boards in the PDFs. They can be printed and used with a crayon or pencil. A few of the games are intended for large groups and can be adapted to distance playing.

The materials used in each game are listed on the first page of the game instructions.

• Rectango
• Multiplication Basketball
• Multiplication Bowling
• Multiplication Uncovered
• Multiplication Baseball
• Three Tac Toe
• Forehead Factors
• The Leader Says Divide
• Target
• Disappearing Pyramid
• Stadium Tour, USA
**GAME SUMMARY**

The players roll two dice to determine the length and width of rectangles. They draw their rectangles on the grid-like game board, trying to cover as much of the game board as possible.

**PLAYERS:** Grades 3–5, small groups of two, three, or four

**YOU’LL NEED**

For each group of players:

*IN KIDS’ KIT*

- 2 dice
- Dry-erase markers
- “Rectango 1” game board
**MATH SKILLS**

- Use a visual model of multiplication
- Multiply by six or less

**SOCIAL SKILLS**

- Consider all ideas before making a decision

**About the Math Skills**

In this activity, a grid with small squares is a physical model that helps children develop a mental picture of multiplication. (For example, to picture $3 \times 4 = 12$, they can see that a rectangle that is three squares tall and four squares wide has a total of twelve squares.) Having a mental picture helps children solve multiplication problems on paper.

**About the Social Skills**

In this game, the children make decisions together about the best place to draw each rectangle on the game board. As they strategize together, they learn to share their ideas, compromise, and reach agreement.

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**Tips**

- Before introducing the game, decide on the mathematical and social questions you might ask. Use a highlighter pen or a pencil to mark the “talk about” questions you are going to use.

- Use eye contact while asking questions and stay interested while listening to the response.

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**GET READY**

1. Read the game directions and pages 50–51, and play the game yourself before introducing it to the children.

2. If you are playing with more than two children, decide how you will divide them into groups of two to four to play the game.
GOAL: Together fill in the largest possible number of squares on the game board

1. The players choose fairly who goes first, second, and so on.

2. The first player throws two dice to determine the length and width of her rectangle. (For example, if the player rolls a four and a five, the rectangle can be either four squares long and five squares wide or five squares long and four squares wide. Either way the rectangle will have a total of twenty squares.)

3. The players decide together where the first player will draw the rectangle on the game board.

4. The first player traces the outline of the rectangle and writes the multiplication fact that describes the rectangle.

5. The players take turns until a rectangle is rolled that does not fit on the grid.

6. The players calculate the number of squares they filled in and write the total in the scoring box.

7. They erase the board and play again.
BEFORE THE GAME

Explain the game as you play it with a child as your partner.

**TALK ABOUT**

- **What is a rectangle?** (Note: If the children roll two of the same number, such as a five and a five, they will make a square on the game board. A square is a type of rectangle.)
- **Where is a good place to draw the rectangle? Why?**
- **What can we do if we do not agree about where to draw a rectangle?**
- **How many squares did we fill in? What two numbers did we roll?** What multiplication fact do we write in the squares?

DURING THE GAME

1 Help the children as they play.

**TALK ABOUT**

- **How can you find out the number of squares inside the rectangle?** What’s another way?
- **How are you making sure that you both agree before one of you draws a rectangle?**

2 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

**TALK ABOUT**

- How did you figure out the best places to draw the rectangles? **What are some other ideas?** (For example, draw small rectangles in the corners so there is room in the middle of the grid for larger rectangles.)
- How does this game help you learn multiplication?
- What is the total number of squares you and your partner filled in out of 144? Did you fill in half, more than half, or less than half of the total number of squares? **How do you know?**

**Changing the Game**

1. **To make the game less challenging:**
   - Have the children use one die. In this version, all rectangles will be either one square long or one square wide.
   - Have the children choose a number from one to six to be one side of all the rectangles in a game. The children roll one die to get the length of the other side.

2. **To make the game more challenging:**
   - Use the “Rectango 2” game board.
   - Include the option of using a rectangle that has the same area as the rectangle rolled. (For example, if a three and four are rolled, a child could make any of these three rectangles, whose area is 12 squares: \(1 \times 12\), \(2 \times 6\), \(3 \times 4\).)

3. **To change the game:**
   - Have the children decide on different shapes to make for the game board (for example, a pyramid or house).

4. **Ask the children how to play the game differently and try their ideas.**
To play, you need

- 2 dice
- Dry-erase markers

Number of squares filled:

OUT OF 144
Number of squares filled:

OUT OF 107

TO PLAY, YOU NEED

- 2 dice
- Dry-erase markers
Before playing, the players decide on the point value for the ball and the number of points to reach. The players roll a die and multiply the point value of the ball by the number rolled on the die to determine the number of points the group will score if the ball makes it through the basketball hoop. To play this game, you need a large space, like a gym or outdoor area.

**PLAYERS:** Grades 3–6, large group of ten or fewer

**YOU’LL NEED**

For each group of players:

**IN LEADER’S KIT**
- Multiplication table (on the back of the dry-erase writing board)
- Die
- Dry-erase writing board
- Dry-erase marker

**OTHER MATERIALS**
- Basketball hoop (if you don’t have a basketball hoop see “Tips”)
- Basketball
- Plastic or paper cup to roll the die in
**MATH SKILLS**

- Multiply by 12 or less
- Add

**About the Math Skills**

Practicing multiplication facts in many different ways, such as through movement, helps children memorize them. This game gives the children a chance to practice one set of multiplication facts at a time — for example, the facts for four (0 × 4, 1 × 4, 2 × 4, and so on).

**SOCIAL SKILLS**

- Encourage others

**About the Social Skills**

Before you start, discuss ways to encourage one another while playing this game. Playing together to reach a final score and cheering for other players help children feel like part of a team. Before playing, talk about how to be respectful when a player misses the basket.

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**Tips**

- If you do not have a basketball hoop, you can use containers such as boxes, bowls, or small trash cans. If you are using such containers, use small balls or crumpled pieces of paper instead of basketballs. Collect as many containers and balls as you need for the children to play in groups of four or five.

- You may want to review multiplication tips by reading “Basic Multiplication and Division Facts” on page 40.

- Help the children build on other people’s ideas. You might say, “Did anyone figure it out a different way? If so, would you explain it to us?”

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**GET READY**

1. Read the game directions and pages 62–63 before introducing the game to the children.

2. If you are playing with more than one group, explain and practice the game with everyone first, then divide the children to play. Monitor each group to make sure the game is fun and fair for all.
GAME DIRECTIONS

**GOAL:** To reach the target number of points

1. The players choose fairly who goes first, second, and so on.

2. The players decide on the point value of the ball for the game (any number from 2 to 12) and the target number of points the team will try to reach.

3. The players stand in line next to the basketball court.

4. The first player shakes the die in the cup, says the number, and multiplies it by the point value of the ball. (For example, if the ball is worth three points and the die lands on five, a basket will be worth 15 points because \(3 \times 5 = 15\).)

5. If the first player makes the basket on the first shot, she writes the number of points on the dry-erase board and her turn is over. If she doesn’t make it, she gets one more try.

6. The players take turns trying for baskets and recording the new total on the dry-erase board until the team reaches the target number of points.
BEFORE THE GAME

Explain how to play the game, and practice as a group.

**TALK ABOUT**

- How many points should each basket be worth? How many points should we play to? How can we decide in a fair way?
- What can you do if you need help figuring out how many points your basket is worth?
- How can we cheer one another on and work as a team? Why is this important?
- How should we act if someone misses a basket? Why is this important?

DURING THE GAME

1. Help the children as they play.

**TALK ABOUT**

- How many more points do we need to reach our goal? How do you know?
- What can you do if you need help figuring out the number of points your basket is worth?

2. If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
**AFTER THE GAME**

Help the children think about the math and how they played together.

**TALK ABOUT**

- How did you make everyone feel supported?
- How did this game help you learn the multiplication facts?
- What are some tips that make certain numbers easy to multiply? (For example, to multiply a number by three, first double the number, then add the answer to the number: $3 \times 9$ is nine doubled plus nine more.)

**Changing the Game**

1. To make the game less challenging:
   - Make the game an addition, rather than a multiplication, game. Add the number rolled on the die to the starting point value of the ball to determine the value of the basket.

2. To make the game more challenging:
   - Choose a point value for the ball. Use two dice. Roll the dice, add the numbers rolled, and multiply the total by the point value of the ball to determine how many points each basket is worth.
   - Assign a starting value of 12 points to the ball. Roll the die and divide the number rolled into 12 to determine how many points the basket is worth. (If the number rolled does not go evenly into 12, the player rolls the die again.)

3. Ask the children how to play the game differently and try their ideas.
GAME SUMMARY

Players bowl using plastic bottles and a tennis ball, adding points toward a target score. Players multiply to find the point value of the fallen bottles. To play this game, you need a large space, like a gym or outdoor area.

PLAYERS: Grades 3–6, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN LEADER’S KIT
- Multiplication table (on the back of the dry-erase writing board)
- Dry-erase marker
- Dry-erase writing board

OTHER MATERIALS
- Tennis ball
- 6 empty plastic bottles to be the bowling pins
- One-foot-long piece of masking tape to make the shooting line
- Grocery bag with handles (optional, see “Tips”)
MATH SKILLS

- Multiply by ten or less
- Add to 200 or less

About the Math Skills
Learning all of the multiplication facts at once can be overwhelming for children. This game gives them a chance to practice one set of multiplication facts at a time—for example, for six (0 × 6, 1 × 6, 2 × 6, 3 × 6, and so on)—by having them choose a single point value for the plastic bottles for several rounds of bowling.

SOCIAL SKILLS

- Make decisions together
- Stay involved while waiting for a turn

About the Social Skills
In this game, it may be challenging for the children to stay involved while waiting for a turn. It is important to discuss things they can do to remain involved: keeping score, cheering on other players, retrieving the ball, and setting up the bottles or cans.

Tips
- To manage the materials, you may want to put the masking tape, tennis ball, and bottles for each group in a grocery bag with handles. When it is time to play, give each group a bag.
- You may want to review multiplication tips by reading “Basic Multiplication and Division Facts” on page 40.
- Walk around while the children play to make sure that all of the groups are working well together, learning math, and having fun.

Get Ready

1. Read the game directions and pages 68–69, and play the game yourself before introducing it to the children.

2. If you are playing with more than four children, decide how you will divide them into groups of two to four to play the game.
**GAME DIRECTIONS**

**GOAL:** To work together to reach a target number of points

1. The players:
   - arrange the plastic bottles in a triangle formation, decide where the shooting line will be, and place the masking tape there.
   - pick a single number from one to ten to be the value of each bottle.
   - choose a target score from 100 to 200.
   - decide fairly who goes first, second, and so on.

2. The first player:
   - rolls the tennis ball from behind the shooting line to knock down bottles.
   - multiplies the chosen value of the bottles by the number of bottles knocked down to find the score.
   - records the score on the group’s dry-erase board. (For example, if each bottle is worth six points and three bottles are knocked over, the score recorded is 18 because $6 \times 3 = 18$.) If the player doesn’t knock any bottles down, she gets another turn.

3. The second player takes a turn, adding his score to the previous one on the group’s scoreboard.

4. The players take turns until they reach the target score.

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BEFORE THE GAME

1 Explain that the children will play a bowling game. Discuss past experiences with bowling.

   • Who has bowled before? How do you play?

2 Explain the game as you play it with a child as your partner.

   • How much should each bottle be worth?
   • What do you think would be a good target score to choose for this game? Why do you think so?
   • How can we decide where to place the shooting line? What can we do if we cannot agree?
   • If I knock down five bottles worth eight points each, how many points will that be? How do you know?

DURING THE GAME

1 Help the children as they play.

   • How are you staying involved while waiting for your turn?
   • How many more points do you need to reach your target score? How did you figure that out?

2 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

TALK ABOUT

• How did you stay involved while waiting for your turn?
• What are some tips that can make certain numbers easy to multiply?
  (For example, to multiply a number by nine, first multiply the number by ten, and then subtract the number from the answer. See “Introduction to Multiplication and Division Games,” pages 39–40, for more tips.)
• Was it difficult to reach your target score? Why or why not?
• How did you decide the point value for each bottle and for your target score? What did you do when you had different ideas?

Changing the Game

1. To make the game more challenging:
   • Assign greater values to the bottles (between 12 and 25), and choose larger target numbers.
   • Play with ten bottles and a larger target score.
   • Give each bottle the value of \(\frac{1}{6}\) of a point and have the children add fraction scores to reach a total of five points. (For example, if the first player knocks down two bottles, her score is \(\frac{2}{6}\). If the next player knocks down five bottles, her score is \(\frac{5}{6}\) and she adds her score to her partner’s score to get a total of \(\frac{7}{6}\) or \(1\frac{1}{6}\).)

2. Ask the children how to play the game differently and try their ideas.
GAME SUMMARY

Players choose a group of multiplication facts on a game board and cover the numbers with game markers. They roll dice to determine a multiplication problem, say the answer, and uncover a square on the game board to see whether or not they are correct.

PLAYERS: Grades 3–5, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT
- 36 game markers
- “Multiplication Uncovered” game board
- 2 dice covered with stickers
(see “Get Ready”)
MATH SKILLS

- Multiply by 12 or less

About the Math Skills
The multiplication table is a valuable tool in learning multiplication facts. In this game, the players use a multiplication table as a game board. When they see all of the facts in a chart, children begin to recognize patterns in them. This enables them to visualize the answers to multiplication problems when they do not have the chart.

SOCIAL SKILLS

- Be respectful when others make mistakes
- Stay involved while waiting for a turn

About the Social Skills
When children of different skill levels are playing together, children who figure out the answers quickly often have trouble staying involved while the others are working out the answers. While demonstrating the game, discuss what the children can be doing while they are waiting for their turn (figure out the math in their head, help their partner if needed, and so on).

Tips

- The game board for this game is a multiplication table. Familiarize yourself with the table and how to use it. (For example, if you want to find the answer to $3 \times 6$, put a finger of your right hand on the three at the top of the chart and a finger of your left hand on the six at the left side of the chart. Slide your fingers in straight lines across the chart until they meet at 18.)

- You may want to review multiplication tips by reading “Basic Multiplication and Division Facts” on page 40.

GET READY

1. Read the game directions and pages 75–76, and play the game yourself before introducing it to the children.

2. Prepare two dice for each group of players. Cover the dice faces with round stickers from the kit. On the first die, write 1, 2, 3, 4, 5, 6 on the faces. On the second die, write 7, 8, 9, 10, 11, 12 on the faces.

3. If you are playing with more than four children, decide how you will divide them into groups of two to four to play the game.
**GAME DIRECTIONS**

**GOAL:** To remove three game markers in a row from one section of a game board

1. The players choose fairly who goes first, second, and so on and which section of the board they will play in first. They cover each number in the chosen section with a game marker.

2. The players figure out which dice they will use for the section they choose. The children use the dice that correspond to the numbers on the rows and columns of the part of the game board they are using. (Refer to the illustration.)

![Game board sections with dice options A, B, C, and D]
GAME DIRECTIONS

(continued)

3 The first player rolls the dice that match the chosen section to determine a multiplication problem.

4 The player says the problem and the answer, and uses the game board to check her answer by removing the game marker from the square that corresponds to the problem. (For example, if the child rolls a four and a three, she says, “Four groups of three equal twelve.” She finds the corresponding space on the game board and removes the game marker to see if she is correct.)

5 If the player is incorrect, she returns the game marker. If she is correct, she removes the game marker. The player may also state other multiplication problems with the same answer and uncover the squares for those problems. (For example, if the child rolls four and three, she can also uncover the squares for the problem two groups of six. In both cases, the answer is twelve.) Play passes to the next player.

6 Play continues until three game markers in a row have been removed from the target section. (Emphasize that the players are working together to remove the game markers, not individually collecting the game markers they remove.)

7 The players choose another section of the game board and play again.
BEFORE THE GAME

1. Explain the game as you play it with a child as your partner.
2. Discuss how to use the game board and how to play together.

TALK ABOUT

• What does this game board look like? (You may need to explain that it is a multiplication table and show the children how to use it.) How can you use it to help you learn the multiplication facts?

• How can we decide which section of the game board to play on first?

• How do we know which dice to use?

• How can you stay involved when you are waiting for your turn?

• What should you do if your partner makes a mistake?

DURING THE GAME

1. Help the children as they play.

TALK ABOUT

• How is this game helping you learn the multiplication facts?

• How are you staying involved when it is not your turn?

• Which are the hardest facts to learn? The easiest? Why?

2. If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

**TALK ABOUT**

- What has helped you learn the multiplication facts?
- What are some tips that make certain numbers easy to multiply?
  (See “Introduction to Multiplication and Division Games,” pages 39–40, for tips.)
- Was it hard or easy to stay involved while waiting for your turn?
  What helped you?

**Changing the Game**

Ask the children how to play the game differently and try their ideas.
To play, you need:

- 36 game markers
- 2 dice: 1–6 and 7–12

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GAME SUMMARY

The players form a baseball team, trying to beat the score of a made-up team (called Team 1). They roll two dice, multiply the rolled numbers, find the baseball play that corresponds to the answer, and move markers on the game board to complete baseball plays.

PLAYERS: Grades 3–6, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT

- 9 game markers to represent the nine players on a baseball team
- 2 dice
- Dry-erase marker
- “Multiplication Baseball” game board
- “Baseball Play Sheet”
### MATH SKILLS

- Multiply by six or less

### About the Math Skills

Children need many experiences with multiplication facts before they recall them easily. Knowing the multiplication facts helps children solve multiplication and division problems with larger numbers.

### SOCIAL SKILLS

- Be respectful when others make mistakes
- Give help respectfully when asked

### About the Social Skills

In this game, the children may make mistakes multiplying or following the baseball rules. Children often worry that others will tease them if they give an incorrect answer. Discussing how they want to be treated when they make mistakes helps the children create a caring community where they can help each other and take risks.

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**Tips**

- You may want to review multiplication tips by reading “Basic Multiplication and Division Facts” on page 40.
- You may want to put children familiar with baseball in a group with children who aren’t.
- Encourage all the children to use math strategies that work for them. Some children may refer to the multiplication chart on the back of the dry-erase writing board, while others will rely on memorized multiplication facts.

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**GET READY**

1. Read the game directions and pages 80–81, and play the game yourself before introducing it to the children.

2. If you are playing with more than four children, decide how you will divide them into groups of two to four to play the game.
**GAME DIRECTIONS**

**GOAL:** Together beat Team 1’s score

1. The players choose fairly who goes first, second, and so on.

2. Team 1 is a made-up team that the players will try to beat. To determine the score for inning 1 for Team 1, the players roll a die and record the number rolled in the inning 1 box on the “Baseball Play Sheet.”

3. The players are Team 2. They place nine game markers to represent Team 2 in a line behind home plate on the game board.

4. The first player:
   - rolls two dice.
   - multiplies the numbers.
   - uses the “Baseball Play Sheet” to find the play that corresponds to the answer.
   - completes the play by moving her game marker and recording any runs or outs on the play sheet. (For example, if she rolls a six and a two, $6 \times 2 = 12$, and 12 is a “single.” She moves the game marker from home plate to first base.)

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GAME DIRECTIONS

(continued)

5 The players take turns, moving game marker runners and recording runs and outs.

6 After each inning for Team 2, the players roll the die again to determine the score for Team 1 for the next inning.

7 The players play three innings, clearing all the game marker “runners” from the bases between innings.

8 Play continues until Team 2 has completed three innings. The players total their score and Team 1’s score and compare the scores.
BEFORE THE GAME

1 Explain that the children will play a baseball multiplication game with dice, and talk about some of the baseball vocabulary they will use.

- What is an inning in baseball? How many outs are there per inning?
- What is a strike in baseball?
- What is a walk in baseball?

2 Explain the game as you play it with a child as your partner.

- If you roll a six and a five and multiply them what is the answer?
- What is the play on the “Baseball Play Sheet” for 30? What would you do with the game marker? Do you need to record anything?
- How do you record a strike? A run?
- How do you know when an inning is over and you need to go to the next inning? (Each inning has three outs.)
- If your partner makes a mistake during the game, what is a respectful way to act?

DURING THE GAME

1 Help the children as they play.

- Do you think you will be able to beat Team 1’s score? Why or why not?
- How are you and your group helping each other?

2 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

TALK ABOUT

• How did your score compare to Team 1’s score? How many runs apart were your scores?

• How did this game help you learn multiplication? Why is learning multiplication important?

• What were the easiest multiplication facts for you in this game? Which were the hardest? What are some tips that make certain numbers easy to multiply? (For example, any number times four is the number doubled twice. For more tips, see “Introduction to Multiplication and Division Games,” pages 39–40.)

• How did you help each other?

Changing the Game

1 To change the game:
   • Play the game outside. Set up a small baseball diamond and have the children themselves move around the bases according to the instructions on the “Baseball Play Sheet.” (Use a paper or plastic cup to roll the dice, and have one player act as scorekeeper.)

2 Ask the children how to play the game differently and try their ideas.
MULTIPLICATION BASEBALL

TO PLAY, YOU NEED

- 9 game markers
- 2 dice
- Dry-erase marker
- “Baseball Play Sheet”
# Baseball Play Sheet

## BASEBALL PLAY

<table>
<thead>
<tr>
<th>Answer</th>
<th>Baseball Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–3</td>
<td><strong>Walk</strong>: Batter to first base; runners move forward one base. Record a tally mark if a run is scored.</td>
</tr>
<tr>
<td>4–5</td>
<td><strong>Double</strong>: Batter to second base; all runners already on base score. Record a tally mark for each run scored.</td>
</tr>
<tr>
<td>6–8</td>
<td><strong>Strike Out</strong>: Batter out. Record an out.</td>
</tr>
<tr>
<td>9–11</td>
<td><strong>Home Run</strong>: Batter and runners score. Record a tally mark for each run scored.</td>
</tr>
<tr>
<td>12–18</td>
<td><strong>Single</strong>: Batter to first base; runners move forward one base. Record a tally mark if a run is scored.</td>
</tr>
<tr>
<td>19–24</td>
<td><strong>Fly Out</strong>: Batter out. Record an out.</td>
</tr>
<tr>
<td>25–36</td>
<td><strong>Triple</strong>: Batter to third base; all other runners score. Record a tally mark for each run scored.</td>
</tr>
</tbody>
</table>
THREE TAC TOE

GAME SUMMARY

Players take turns rolling and adding two dice and crossing out a number that is a multiple of the total on a game board. Players try to cross out three numbers in a row as many times as possible.

PLAYERS: Grades 4–6, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT

- 2 dice
- Dry-erase marker
- “Three Tac Toe” game board
**MATH SKILLS**

- Find *multiples*
- Multiply by 12 or less

**About the Math Skills**
Children with different levels of multiplication skill can play together using different strategies. Some will have memorized the multiplication facts, some will skip count (count by units other than one), and others may use the game board itself. In this game the children work on finding multiples, which helps them learn multiplication. A *multiple* is the result of any whole number multiplied by another whole number. (For example, multiples of 4 are 4, 8, 12, and so on because $4 \times 1 = 4$, $4 \times 2 = 8$, and $4 \times 3 = 12$.)

---

**SOCIAL SKILLS**

- Help without giving the answer

**About the Social Skills**
It is important to teach children how to give help without telling the answer. This way, the child who needs help can learn to rely on himself for answers to difficult problems. Show the children how to help by giving a clue or asking a question.

---

**GET READY**

1. Read the game directions and pages 92–93, and play the game yourself before introducing it to the children.

2. If you are playing with more than four children, decide how you will divide them into groups of two to four to play the game.

---

**Tips**

- Before playing, make sure that you understand what a *multiple* is. You may want to brush up on your own understanding of multiples by reading “Introduction to Multiplication and Division Games” on pages 39–40.

- Before introducing the game, practice explaining the game directions out loud.

---

*Special Notice: This game is designed for children aged 3–6. It is an extension of *Doubles Games*, so you may want to brush up on your own understanding of doubles by reading “Introduction to Doubles Games” on pages 39–40.*
**GAME DIRECTIONS**

**GOAL:** To get three numbers in a row as many times as possible

1. The players choose fairly who goes first, second, and so on.

2. The first player rolls the dice, adds the rolled numbers together, and chooses a *multiple* of that number to cross out on the game board. (For example, if a two and a four are rolled, the total is six. Multiples of six are the result of six times any whole number. Six, 12, and 18 are multiples of six because $6 \times 1 = 6$, $6 \times 2 = 12$, $6 \times 3 = 18$.)

3. The players take turns rolling the dice and crossing out numbers, trying to get three numbers in a row. The rows can be vertical, horizontal, or diagonal. Players work together, not against each other, to cross out three in a row.

4. The players earn points each time they complete a row of three. They record the points on the game board – one point for each row of three numbers less than 71 and two points for each row of three numbers more than 71 (green area on the game board).

5. Play continues as long as the game holds the group’s interest or for a set time.
BEFORE THE GAME

1 Explain the game as you play it with a child as your partner.

TALK ABOUT

• What is a multiple? (For example, a multiple of three is the result of three times a whole number [for example, $3 \times 1 = 3$, $3 \times 2 = 6$, $3 \times 3 = 9$], so some of the multiples of three are three, six, and nine.)

• What are ways to find multiples if you don’t know the multiplication facts? (See “About the Math Skills.”)

• How can you help your partner without telling the answer?

DURING THE GAME

1 Help the children as they play.

TALK ABOUT

• What are some of the multiples of nine? How do you know?

• How are you helping each other without telling the answer?

• How many numbers larger than 70 have you crossed out?

2 If a player is having difficulty figuring out a number’s multiples, help by demonstrating how to “skip count” by that number on the game board. (Skip counting is counting by a unit other than one, for example by two: 2, 4, 6, 8, 10, 12.)

3 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate. (For example, the children might make up a rule that you must use numbers that are not already part of a row of three when counting three numbers in a row.)
AFTER THE GAME

Help the children think about the math and how they played together.

**TALK ABOUT**

- What are the benefits of playing the game together instead of against each other?
- What were the hardest multiples to figure out? The easiest?
- What strategies did you use to get three in a row?
- How does learning multiples help you in math?

**Changing the Game**

1. To make the game less challenging:
   - Use only one die.
2. To make the game more challenging:
   - Use three dice.
3. To change the game:
   - Allow the players to add one or two to a multiple of the number rolled to get the number to cross out. This provides a way for players to be strategic about the numbers they get. (For example, a player who rolls a three and wants to cross out ten, may do so because ten is one more than nine, which is a multiple of three.)
4. Ask the children how to play the game differently and try their ideas.
### Three Tac Toe

To play, you need:
- 2 dice
- Dry-erase marker

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</tbody>
</table>
GAME SUMMARY

The dealer (called the “foreheader”) deals a playing card to each of the other two players and says, “Foreheads!” Each player puts the card face up on their forehead without looking at their number. The “foreheader” multiplies the numbers on the two cards and says only the answer. The players with the cards on their foreheads try to guess the number of the card they are holding.

PLAYERS: Grades 4–6, small groups of three or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT

- Deck of playing cards, with jacks, queens, and kings removed (ace equals one)
- Multiplication table (on the back of the dry-erase writing board)
**MATH SKILLS**

- Multiply or divide by ten or less
- Find factors

**About the Math Skills**

Children often find division more challenging than multiplication. In this game, they can use their multiplication knowledge as a strategy to figure out the answers to division problems. (For example, if the “foreheader” says 30 and the other player’s card is a six, a child can think about the problem as “What number times six equals 30?” or “How many groups of six in 30?”) This game also uses factors (numbers that divide evenly into another number.) (For example, three is a factor of 12 because there are four groups of three in 12 with no leftovers.)

**SOCIAL SKILLS**

- Be respectful when others make mistakes
- Help without giving the answer

**About the Social Skills**

In this game, some children may easily figure out the number on their card on their first guess, while others may need several guesses. Encourage the children to help each other by giving hints or asking questions rather than telling the answer.

---

**Tips**

- Before playing, make sure that you understand what a factor is. You may want to brush up on your own understanding of factors by reading “Introduction to Multiplication and Division Games” on pages 39–40.

- Familiarize yourself with how to use the multiplication table. (For example, to find the answer to $3 \times 6$, put a finger of your right hand on three at the top of the chart. Put a finger of your left hand on six at the left side of the chart and slide your fingers straight across the chart until they meet at 18.)

---

**GET READY**

1. Read the game directions and pages 104–105 before introducing the game to the children.

2. If you are playing with more than four children, decide how you will divide them into groups of three or four to play the game.
GAME DIRECTIONS

**GOAL:** To guess the number of the card on their forehead

1. The players stand or sit facing each other.

2. The players decide fairly who will be the “foreheader” first, second, and so on.

3. The “foreheader” gives two of the other players one card each. The players do not look at their cards.

4. When the “foreheader” says, “Foreheads!” the players put their cards face up on their foreheads without looking at their own cards.

5. The “foreheader” multiplies the two cards together and says the answer. (The “foreheader” should say only the answer, not the two numbers that were multiplied.) If there is a fourth player, she can help the foreheader make sure he has the correct answer.

6. The two players look at each other’s cards and each says what he thinks the number on his card is.

7. The “foreheader” and the fourth player say whether or not the number is correct. If the number is correct, the player can look at his card. If the number is incorrect, the “foreheader” or fourth player can give hints or ask questions until the player guesses the correct answer. (A hint might be, “How many groups of six are in 18?”)

8. The players switch roles until everyone has had a chance to be the “foreheader,” or as long as the game holds their interest.
BEFORE THE GAME

Explain the game as you play it with two children as your partners.

TALK ABOUT

• How can the “foreheader” use the multiplication table without the other players seeing, if she does not know how to multiply the two numbers on the cards?

• If a player has a six card and does not guess her number correctly, what are some hints the “foreheader” could give her? (For example, “Your number is between five and ten. Your number is an even number.”)

• How do you want to be treated if you guess an incorrect answer?

DURING THE GAME

1 Help the children as they play.

TALK ABOUT

• After a child guesses her number correctly ask: How did you figure out your number?

• If a child did not guess correctly, ask the foreheader: What hints could you give to help him guess his number? (For example, one hint might be “How many groups of six equal 30?”)

2 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

**TALK ABOUT**

- What are some hints or questions you used to help your partner guess her number? How helpful were the hints or questions?
- What math did you use to play this game?
- How did you treat each other when you guessed the wrong number? What will you do the same way or differently the next time you play?
- Why is this game called “Forehead Factors”? What is a factor? (A factor is a number that divides evenly into another. For example, one, two, three, and six are all factors of six. A factor can also be explained as one of two or more numbers that are multiplied to get a result.)

**Changing the Game**

1. To make the game less challenging:
   - Have the “foreheader” add the two cards instead of multiply them.
   - Use only the cards from ace to five.

2. To make the game more challenging:
   - Choose a target number greater than 20. The “foreheader” adds the cards mentally and states their difference from the target number. The other players guess the numbers on their cards. (For example, if the target number is 25 and the cards are six and eight, the “foreheader” says eleven because six plus eight equals 14 which is eleven less than 25.)

3. Ask the children how to play the game differently and try their ideas.
GAME SUMMARY

This game is based on “Simon Says.” The players choose an action and figure out how many times to do that action according to instructions from the leader. No player is ever out, so that all the players practice division. To play this game, you need a large space, like a gym or outdoor area.

PLAYERS: Grades 3–5, large group of twenty or fewer

YOU’LL NEED

For each group of players:
- “How Many Times? Division,”
  pages 112–116
MATH SKILLS

▶ Divide by 10 or less
▶ Practice mental math

About the Math Skills
Dividing numbers in our heads without a pencil and paper is a skill needed in everyday life. In this game, the children practice dividing numbers mentally in a fun way. They combine division with physical movements such as jumping or clapping. Learning all of the division facts at once can be overwhelming for children. This game gives them a chance to practice one set of division facts at a time — for example, the threes table — dividing by 3 (0 ÷ 3, 3 ÷ 3, 6 ÷ 3, 9 ÷ 3, and so on).

SOCIAL SKILLS

▶ Be respectful when others make mistakes

About the Social Skills
Children often worry that others will tease them if they give an incorrect answer. Discussing how the children want to be treated when they make mistakes helps create a caring community where children feel comfortable taking risks.

Tip
▶ Be sensitive to older children who are having difficulty with math concepts. Children learn at different rates, so acknowledge everyone’s effort and encourage the children to help one another.

GET READY

1 Read the game directions and pages 110–111, and play the game yourself before introducing it to the children.

2 Decide which division table the children will work on first (for example, dividing by 4, dividing by 7, or dividing by 9), see “How Many Times? Division,” pages 112–116.
**GAME DIRECTIONS**

**GOAL:** Do an action when the directions include “the leader says”

1. The players stand facing the leader with enough space between them to move freely.

2. The players take turns choosing an action for the group to do (for example, clap, jump, roll shoulders backward).

3. Once an action is chosen, the leader restates the action, gives a division problem, and gives the children time to think. The leader then says, “Go!” and the children count the answer as they do the action. (For example, the leader says, “The leader says touch the floor 25 divided by 5 times,” gives the children time to think, and says, “Go!” The children say, “One, two, three, four, five” as they touch the floor five times.) The leader uses the “How Many Times? Division” lists for division problems. The players follow the directions only if the leader says, “the leader says” before giving the direction.

4. Play for as long as the game holds the group’s interest or until each player has had a chance to choose an action.
BEFORE THE GAME

Explain how to play the game, and practice it as a group.

TALK ABOUT
• What kinds of actions can we do?
• What are some ways to find the answer to 45 divided by 9?
• What is 49 divided by 7? How do you know?
• What can you do if you don’t know how many times to do an action?
• What should we do if someone makes a mistake? Why?

DURING THE GAME

1 Help the children as they play.
2 Talk about strategies for finding the number of times to do an action.

TALK ABOUT
• How did you figure out the number of times to do that action? Did anyone figure it out a different way? How?

3 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

**TALK ABOUT**

- Which were some of the easier problems to figure out? Why?
- Which were some of the more difficult problems to figure out? Why?
- Did we make it comfortable to make a mistake? If so, how? If not, what could we do differently the next time we play? Why is it important to make it comfortable for others if they make a mistake?
- When do you use division in everyday life?

**Changing the Game**

1. To make the game less challenging:
   - Use “The Leader Says” from *AfterSchool KidzMath™* Primary Games.
   - Have the children add and subtract with three numbers to arrive at a total. (For example, “The leader says hop on one foot 8 – 3 + 6 times.”)

2. To make the game more challenging:
   - Use the “How Many Times? Mixed Division” list (p. 117).
   - Use division facts for 11 and 12. (Prepare a list of facts before starting to play so that the game will go smoothly.)

3. Ask the children how to play the game differently and try their ideas.
**HOW MANY TIMES?**

**DIVISION**

Use this sheet to give you ideas for how many times to ask players to do an action. Choose one set of division facts to work on at a time (for example, “Dividing by 6”). The answers are in parentheses.

The leader says,…

<table>
<thead>
<tr>
<th>DIVIDING BY 1</th>
<th>DIVIDING BY 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 divided by 1 times (3)</td>
<td>6 divided by 2 times (3)</td>
</tr>
<tr>
<td>6 divided by 1 times (6)</td>
<td>14 divided by 2 times (7)</td>
</tr>
<tr>
<td>0 divided by 1 times (0)</td>
<td>18 divided by 2 times (9)</td>
</tr>
<tr>
<td>2 divided by 1 times (2)</td>
<td>0 divided by 2 times (0)</td>
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<tr>
<td>8 divided by 1 times (8)</td>
<td>20 divided by 2 times (10)</td>
</tr>
<tr>
<td>9 divided by 1 times (9)</td>
<td>2 divided by 2 times (1)</td>
</tr>
<tr>
<td>4 divided by 1 times (4)</td>
<td>4 divided by 2 times (2)</td>
</tr>
<tr>
<td>5 divided by 1 times (5)</td>
<td>8 divided by 2 times (4)</td>
</tr>
<tr>
<td>1 divided by 1 times (1)</td>
<td>12 divided by 2 times (6)</td>
</tr>
<tr>
<td>10 divided by 1 times (10)</td>
<td>16 divided by 2 times (8)</td>
</tr>
<tr>
<td>7 divided by 1 times (7)</td>
<td>10 divided by 2 times (5)</td>
</tr>
</tbody>
</table>
HOW MANY TIMES?
DIVISION

Use this sheet to give you ideas for how many times to ask players to do an action. Choose one set of division facts to work on at a time (for example, “Dividing by 6”). The answers are in parentheses.

The leader says,…

<table>
<thead>
<tr>
<th>DIVIDING BY 3</th>
<th>DIVIDING BY 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 divided by 3 times (8)</td>
<td>32 divided by 4 times (8)</td>
</tr>
<tr>
<td>21 divided by 3 times (7)</td>
<td>36 divided by 4 times (9)</td>
</tr>
<tr>
<td>9 divided by 3 times (3)</td>
<td>0 divided by 4 times (0)</td>
</tr>
<tr>
<td>18 divided by 3 times (6)</td>
<td>12 divided by 4 times (3)</td>
</tr>
<tr>
<td>6 divided by 3 times (2)</td>
<td>16 divided by 4 times (4)</td>
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<td>15 divided by 3 times (5)</td>
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<td>27 divided by 3 times (9)</td>
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<tr>
<td>3 divided by 3 times (1)</td>
<td>24 divided by 4 times (6)</td>
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<tr>
<td>0 divided by 3 times (0)</td>
<td>28 divided by 4 times (7)</td>
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<td>12 divided by 3 times (4)</td>
<td>20 divided by 4 times (5)</td>
</tr>
<tr>
<td>30 divided by 3 times (10)</td>
<td>40 divided by 4 times (10)</td>
</tr>
</tbody>
</table>
HOW MANY TIMES?
DIVISION

Use this sheet to give you ideas for how many times to ask players to do an action. Choose one set of division facts to work on at a time (for example, “Dividing by 6”). The answers are in parentheses.

The leader says,…

<table>
<thead>
<tr>
<th>DIVIDING BY 5</th>
<th>DIVIDING BY 6</th>
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<tbody>
<tr>
<td>10 divided by 5 times (2)</td>
<td>42 divided by 6 times (7)</td>
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<tr>
<td>0 divided by 5 times (0)</td>
<td>0 divided by 6 times (0)</td>
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<td>5 divided by 5 times (1)</td>
<td>12 divided by 6 times (2)</td>
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<td>35 divided by 5 times (7)</td>
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<td>40 divided by 5 times (8)</td>
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<td>30 divided by 5 times (6)</td>
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<td>45 divided by 5 times (9)</td>
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<td>50 divided by 5 times (10)</td>
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<tr>
<td>20 divided by 5 times (4)</td>
<td>6 divided by 6 times (1)</td>
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<td>25 divided by 5 times (5)</td>
<td>54 divided by 6 times (9)</td>
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</tbody>
</table>
HOW MANY TIMES?

DIVISION

Use this sheet to give you ideas for how many times to ask players to do an action. Choose one set of division facts to work on at a time (for example, “Dividing by 6”). The answers are in parentheses.

The leader says,…

<table>
<thead>
<tr>
<th>DIVIDING BY 7</th>
<th>DIVIDING BY 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 divided by 7 times (4)</td>
<td>0 divided by 8 times (0)</td>
</tr>
<tr>
<td>7 divided by 7 times (1)</td>
<td>48 divided by 8 times (6)</td>
</tr>
<tr>
<td>42 divided by 7 times (6)</td>
<td>8 divided by 8 times (1)</td>
</tr>
<tr>
<td>0 divided by 7 times (0)</td>
<td>24 divided by 8 times (3)</td>
</tr>
<tr>
<td>63 divided by 7 times (9)</td>
<td>72 divided by 8 times (9)</td>
</tr>
<tr>
<td>70 divided by 7 times (10)</td>
<td>80 divided by 8 times (10)</td>
</tr>
<tr>
<td>35 divided by 7 times (5)</td>
<td>40 divided by 8 times (5)</td>
</tr>
<tr>
<td>49 divided by 7 times (7)</td>
<td>56 divided by 8 times (7)</td>
</tr>
<tr>
<td>14 divided by 7 times (2)</td>
<td>16 divided by 8 times (2)</td>
</tr>
<tr>
<td>21 divided by 7 times (3)</td>
<td>64 divided by 8 times (8)</td>
</tr>
<tr>
<td>56 divided by 7 times (8)</td>
<td>32 divided by 8 times (4)</td>
</tr>
</tbody>
</table>
**HOW MANY TIMES?**  
**DIVISION**

Use this sheet to give you ideas for how many times to ask players to do an action. Choose one set of division facts to work on at a time (for example, “Dividing by 6”). The answers are in parentheses.

The leader says,…

<table>
<thead>
<tr>
<th>DIVIDING BY 9</th>
<th>DIVIDING BY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 divided by 9 times (5)</td>
<td>60 divided by 10 times (6)</td>
</tr>
<tr>
<td>54 divided by 9 times (6)</td>
<td>0 divided by 10 times (0)</td>
</tr>
<tr>
<td>90 divided by 9 times (10)</td>
<td>20 divided by 10 times (2)</td>
</tr>
<tr>
<td>9 divided by 9 times (1)</td>
<td>40 divided by 10 times (4)</td>
</tr>
<tr>
<td>27 divided by 9 times (3)</td>
<td>10 divided by 10 times (1)</td>
</tr>
<tr>
<td>0 divided by 9 times (0)</td>
<td>90 divided by 10 times (9)</td>
</tr>
<tr>
<td>36 divided by 9 times (4)</td>
<td>50 divided by 10 times (5)</td>
</tr>
<tr>
<td>81 divided by 9 times (9)</td>
<td>100 divided by 10 times (10)</td>
</tr>
<tr>
<td>63 divided by 9 times (7)</td>
<td>70 divided by 10 times (7)</td>
</tr>
<tr>
<td>18 divided by 9 times (2)</td>
<td>30 divided by 10 times (3)</td>
</tr>
<tr>
<td>72 divided by 9 times (8)</td>
<td>80 divided by 10 times (8)</td>
</tr>
</tbody>
</table>
HOW MANY TIMES?

MIXED DIVISION

If you want to make the game more challenging, use this page to give you ideas for how many times to ask players to do an action. This page contains division facts that are from all the division tables. The answers are in parentheses.

The leader says,…

<table>
<thead>
<tr>
<th>25 divided by 5 times (5)</th>
<th>20 divided by 4 times (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 divided by 8 times (6)</td>
<td>12 divided by 6 times (2)</td>
</tr>
<tr>
<td>49 divided by 7 times (7)</td>
<td>14 divided by 2 times (7)</td>
</tr>
<tr>
<td>64 divided by 8 times (8)</td>
<td>72 divided by 8 times (9)</td>
</tr>
<tr>
<td>36 divided by 9 times (4)</td>
<td>3 divided by 1 times (3)</td>
</tr>
<tr>
<td>40 divided by 5 times (8)</td>
<td>42 divided by 7 times (6)</td>
</tr>
<tr>
<td>42 divided by 6 times (7)</td>
<td>35 divided by 5 times (7)</td>
</tr>
<tr>
<td>50 divided by 10 times (5)</td>
<td>0 divided by 8 times (0)</td>
</tr>
<tr>
<td>21 divided by 7 times (3)</td>
<td>15 divided by 3 times (5)</td>
</tr>
<tr>
<td>18 divided by 6 times (3)</td>
<td>60 divided by 6 times (10)</td>
</tr>
<tr>
<td>7 divided by 7 times (1)</td>
<td>27 divided by 9 times (3)</td>
</tr>
</tbody>
</table>
### HOW MANY TIMES?
#### FRACTIONS AND PERCENTS

Use this sheet to give you ideas for how many times to ask players to do an action.

<table>
<thead>
<tr>
<th>The leader says,…</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>½ of 10 times (5)</td>
<td>¼ of 12 times (3)</td>
</tr>
<tr>
<td>100% of 15 times (15)</td>
<td>50% of 16 times (8)</td>
</tr>
<tr>
<td>7⁄8 of 8 times (7)</td>
<td>10⁄10 of 10 times (10)</td>
</tr>
<tr>
<td>25% of 4 times (1)</td>
<td>¼ of 5 times (5)</td>
</tr>
<tr>
<td>½ of 22 times (11)</td>
<td>50% of 30 times (15)</td>
</tr>
<tr>
<td>¼ of 16 times (4)</td>
<td>6⁄10 of 10 times (6)</td>
</tr>
<tr>
<td>50% of 18 times (9)</td>
<td>½ of 2 times (1)</td>
</tr>
<tr>
<td>10⁄20 of 20 times (10)</td>
<td>¼ of 4 times (1)</td>
</tr>
<tr>
<td>25% of 100 times (25)</td>
<td>100% of 16 times (16)</td>
</tr>
<tr>
<td>7⁄12 of 12 times (7)</td>
<td>½ of 30 times (15)</td>
</tr>
</tbody>
</table>
GAME SUMMARY

Three rows of three cards are placed face up. Another card is turned face up to be the target number. The players take turns combining cards using addition, subtraction, multiplication, and division to make the target number. Once all possible combinations are removed from the face-up cards, the cards are replaced and partners continue to find equations that equal the target number.

PLAYERS: Grades 3–6, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT

- Deck of playing cards, with jacks, queens, and kings removed (ace equals one)
**MATH SKILLS**

- Add, subtract, multiply, and divide mentally

**About the Math Skills**

In this game, the children use addition, subtraction, multiplication, and division to make a target number. This helps them learn to think about numbers flexibly and do mental math.

**SOCIAL SKILLS**

- Help without giving the answer
- Give others time to think before offering help

**About the Social Skills**

Learning to give help, not the answer, is an important skill that benefits both the child needing help and the one giving it. The child giving the help deepens her understanding of the math by thinking of clues to support the other child. The child receiving the help has the opportunity to see the problem in a different way and still have the satisfaction of figuring out the answer herself.

---

**Get Ready**

1. Read the game directions and pages 128–129, and play the game yourself before introducing it to the children.

2. Think about the math skills of the children to determine whether they are ready for multiplication and division or need more practice with addition and subtraction. Change the game accordingly.

3. If you are playing with more than four children, decide how you will divide them into groups of two to four to play the game.

---

**Tip**

- Rather than telling a child who makes an error that he made a mistake, help him find his mistake by asking questions. (For example, “You said that 6 times 5 is 25. How did you find that answer?”)
GAME DIRECTIONS

GOAL: To remove all the cards by finding combinations of cards that equal the target number.

1. The players choose fairly who deals and who goes first, second, and so on.

2. The dealer places ten cards face up: three rows of three cards with one card on the side to be the target number. The target number stays the same for the entire game.

3. The first player removes cards that can be combined using multiplication, division, addition, and subtraction to equal the target number. (Ace equals one.) At least two cards must be removed at a time. (For example, if the target number is five, as in the illustration, there are several possible equations. A player could remove the two and three, because $2 + 3 = 5$; the six and ace, because $6 - 1 = 5$; or the two, three, two, and four, because two times three is six, plus four more is ten, divided by two equals five.)

4. When all possible combinations have been removed, the dealer fills the empty spaces, and the next player finds equations for the target number.

5. The partners take turns until they have used all of the cards or all cards are dealt out and no more equations that equal the target number can be made.
BEFORE THE GAME

1. Explain the game as you play it with a child as your partner.
2. If the children are ready, use examples of multiplication and division to encourage them to move beyond addition and subtraction. Also demonstrate giving help without giving the answer.

TALK ABOUT

- Do you see a way you could combine some of the cards to equal the target number? What is another way? Is there a way we could make the target number using more cards?
- How could you use multiplication and/or division to equal the target number?
- How could you use these two cards to make the target number?
- How do I know when I should help my partner?

DURING THE GAME

1. Help the children as they play.

TALK ABOUT

- How did you use those cards to make the target number?
- How are you helping each other without giving the answer?

2. If a child is having difficulty seeing combinations, help by asking questions.

TALK ABOUT

- How could you use these three cards to make the target number?
- How could you use division to make the target number? Multiplication? Addition? Subtraction?

3. If a player or group suggests a change in the rules while they are playing the game, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate. (For example, if all nine cards have been dealt out and there are no ways to make the target number, a group might decide to either keep playing by adding another row of cards or start over.)
AFTER THE GAME

Help the children think about the math and how they played together.

TALK ABOUT

• What target numbers were the easiest to get? The hardest?
• How did it work to give help instead of just giving the answer?
• How did you know when to offer help?

Changing the Game

1 To make the game less challenging:
   • Use ace to five from two decks of cards (40 cards).
   • Choose one “wild card” that can be used as any number.

2 To make the game more challenging:
   • Use a full deck of cards, including face cards. Make the jack equal eleven, the queen equal twelve, and the king equal thirteen.

3 Ask the children how to play the game differently and try their ideas.
GAME SUMMARY

This game is a variation of the card game “Solitaire.” Cards are laid out in a pyramid shape with one card at the top and a row of seven cards at the bottom. Players take turns finding two or more cards that equal ten and removing them from the pyramid. The goal is to make the pyramid disappear or to remove as many cards as possible.

PLAYERS: Grades 3–6, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT

- Deck of playing cards, with jacks, queens, and kings removed (ace equals one)
**MATH SKILLS**

- Add, subtract, multiply, and divide mentally

**About the Math Skills**

This game helps children move easily among addition, subtraction, multiplication, and division. At first, some children may use only addition. As they hear other children’s strategies for making ten, they will begin to use subtraction, multiplication, and division.

**SOCIAL SKILLS**

- Explain their thinking
- Make decisions together

**About the Social Skills**

To get the most from the game, each player should explain her strategy and make sure her partner agrees before she removes cards. The children will need to be reminded to slow down and do this.

---

**Tips**

- If necessary, teach the children to shuffle cards or show them an alternative, such as spreading the cards on the table, mixing them up, and then making a new pile.

- Talk about the importance and benefits of playing cooperatively. Help the children see that playing cooperatively makes the game fair for children of different skills and ages.

---

**GET READY**

1. Read the game directions and pages 135–136, and play the game yourself before introducing it to the children.

2. If you are playing with more than four children, decide how you will divide the children into groups of two to four to play the game.
**GOAL:** To make the card pyramid disappear by removing all the cards

1. The players choose fairly who lays out the pyramid and who removes cards first, second, and so on.

2. The dealer shuffles the cards and lays them face up in a pyramid shape, laying out one card to be the first row, and building the pyramid by adding rows, each one slightly overlapping the previous one. All the remaining cards are put in a pile face down.

3. The first player looks for cards that can be used to make equations that equal ten. Multiplication, division, addition, and/or subtraction may be used. (For example, a ten card by itself; a ten card and an ace \(10 \times 1 = 10\); or a nine, a three, and a two card \(9 + 3 - 2 = 10\).)

**Only cards that have no cards on top of them may be used.** If no equation can be made with the available cards, the player turns over a card from the face-down pile and looks for equations using the new card. If no equation is possible, cards are turned over from the face-down pile until the player is able to make ten.

(continues)
4 The player says the equation (for example, “Eight times two equals sixteen, minus six equals ten”). Both players must agree that the equation equals ten before the cards can be removed. The removed cards are placed face up in a “tens pile.”

5 The second player takes a turn.

6 The players continue taking turns.

7 If they have exhausted the face-down pile and no equations that equal ten are possible, the players may choose to continue to play with a new rule. They might turn over two cards at a time from the face-down pile, or they might decide on their own rule about how to continue.

8 Play continues until all the cards are removed from the pyramid or no more moves are possible.
BEFORE THE GAME

1 Start by discussing ways to make ten.

   - What are two or more numbers that equal ten?
   - Can anyone think of a way to make ten that uses subtraction? Multiplication? Division?

2 Explain the game as you play it with a child as your partner. Carefully lay out a pyramid of cards, showing the children how to make each row.

   - How could you make ten using these cards? What’s another way?
   - How can you let your partner know why you are taking those cards? What can you do if she doesn’t agree that those cards equal ten?
   - How will you know when your partner needs help?
   - What can you do if no moves seem possible?

DURING THE GAME

1 Help the children as they play.

   - Is there any way to use these cards to make ten?
   - Could subtraction help you to make ten with these cards?
   - If you can’t find an equation, what can you do?
   - How do you know that your partner agrees before you remove the cards?

2 If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.
AFTER THE GAME

Help the children think about the math and how they played together.

TALK ABOUT

- What are some equations that equal ten using two cards?
  Three cards?
- What are some equations that make ten using multiplication or division?

Changing the Game

1 To make the game less challenging:
   • Use only addition or only addition and subtraction to make ten.

2 To make the game more challenging:
   • Have the children make equations that equal 13, 15, 20, or 30.
   • Add the face cards to the deck. Have the children make equations for 20 or 30, using the jack to represent eleven, the queen to represent twelve, and the king to represent thirteen.

3 Ask the children how to play the game differently and try their ideas.
GAME SUMMARY

Players make a basketball “stadium tour” across the country — adding, subtracting, multiplying, or dividing numbers on three dice.

PLAYERS: Grades 3–6, small groups of two, three, or four

YOU’LL NEED

For each group of players:

IN KIDS’ KIT

- 3 dice
- 2 different-colored game markers
- Multiplication table (on the back of the dry-erase writing board)
- “Stadium Tour, USA” game board
**Math Skills**

- Add, subtract, multiply, and divide mentally

*About the Math Skills*

Playing this game, which requires that children use addition, subtraction, multiplication, and division, helps them learn to think flexibly and solve problems mentally.

---

**Social Skills**

- Give others time to think before offering help
- Help without giving the answer

*About the Social Skills*

Learning when and how to offer help takes time and experience. Children must learn to determine whether or not their partners have had enough time to think and would welcome help and how to ask if their partner would like help. They also need to learn how to help by asking questions rather than by telling the answers.

---

**Tips**

- Repeat a child’s answer back to her to make sure you understand. (For example, you might say, “You said that you count by fives 5 times to figure out that five times five equals 25. Is that right?”)

- Familiarize yourself with how to use the multiplication table. (For example, if you want to find the answer to $3 \times 6$, put a finger of your right hand on the three at the top of the chart. Put a finger of your left hand on the six at the left side of the chart. Slide each of your fingers in a straight line across the chart until they meet at the 18.)

---

**Get Ready**

1. Read the game directions and pages 140–141, and play the game yourself before introducing it to the children.

2. If you are playing with more than two children, decide how you will divide them into groups of two to four to play the game.
**GAME DIRECTIONS**

**GOAL:** To get seats for a game in each stadium

1. The first player:
   - rolls three dice.
   - adds, subtracts, multiplies, and/or divides the rolled numbers to get an answer that equals one of the seat numbers in the first stadium.
   - explains the answer to his partner.
   - places the marker on the game board on the first stadium (Oakland, California).

   For example, if the player rolls a five, three, and two, some of the possible solutions are:
   - “Five plus three equals eight. Eight minus two equals six.”
   - “Five times two equals ten. Ten minus three equals seven.”

2. If a player is not sure how to combine the numbers to make an equation that works, the other partner may offer help.

3. If all the players agree that the rolled numbers cannot be used, the player keeps rolling the dice until he can use the numbers he rolls to get an empty seat.

4. The dice pass to the second player, who rolls the dice until she can use the numbers she rolls to make one of the available seat numbers in the first stadium. The second player cannot sit in the first player’s seat (use the same answer as the first player).

5. The players follow the arrows to the next stadium on the game board. Neither player can move on to the next stadium until both players are seated in the current one.

6. The players take turns until they are both seated in the last stadium on the game board.
BEFORE THE GAME

1 Talk about a stadium.

TALK ABOUT

- What is a stadium? How many of you have been to a stadium? What did you see at the stadium?

2 Explain that in this game the players are two friends taking a trip to see basketball games in various stadiums across the country. In each stadium, there are only a few seats available. The players will roll three dice, then add, subtract, multiply, or divide the rolled numbers to find a combination that equals one of the available seat numbers. Explain that if there are four people in the group, each pair will share a game marker. If there are three people in a group, two of them will play as a pair.

3 Explain the game as you play it with a child as your partner.

TALK ABOUT

- (Show the game board.) What does this game board show? Which team plays at each stadium? (Warriors—Oakland, CA; Suns—Phoenix, AZ; Mavericks—Dallas, TX; Bulls—Chicago, IL; Knicks—New York, N.Y; Hawks—Atlanta, GA; and Heat—Miami, FL)
- Look at the numbers my partner just rolled. Can anyone find a way to use the numbers to equal one of the Oakland seat numbers?

4 Talk about how students who are still learning multiplication facts can use the table on the back of the writing board to multiply.

TALK ABOUT

- What is a multiplication table? How can you use it to help you play this game?
- What are some things that might tell you that other players have had time to think and might welcome help? What could you say to find out?
DURING THE GAME

1. Help the children as they play.

   - How could you use the numbers that you rolled to help you get one of the seat numbers in the next stadium? Can they be used to make any other of the seat numbers?

2. If a player is stuck, but a move is possible, allow time for him to think, then ask if he wants help. If he does, you or the child’s partner can give help by asking a question, such as “Since you need to make a very large number, which do you think would work best: addition, subtraction, multiplication, or division?”

3. If a player or group suggests a change in the rules while they are playing, allow them to discuss the change. Before changing the rule, make sure the change is fair to all players, everyone in the group agrees, and the math is still appropriate.

AFTER THE GAME

Help the children think about the math and how they played together.

- Which stadiums are the most difficult to get seats in? Why do you think they are difficult to get?

- Which stadiums had the easiest seats to get? Why do you think they were easy to get?

- How did you know when someone had enough time to think and was ready for help?
Changing the Game

1. To make the game less challenging:
   • Fill in the blank “Stadium Tour, USA” game board using only the numbers 1–12. Have players use only addition and subtraction to play the game.

2. To make the game more challenging:
   • Once the two players are in the same stadium, have them take turns rolling the dice until they are seated next to each other before moving on to the next stadium.
   • Fill in the blank “Stadium Tour, USA” game board using seat numbers 1–40. Have the players roll four dice to play the game.
   • Add stadiums from more cities to the game board.
   • Have the children decide on a different sport (for example, baseball, soccer, or football) or event (for example, concert) and illustrate the blank “Stadium Tour, USA” game board with drawings of their chosen sport.

3. Ask the children how to play the game differently and try their ideas.
TO PLAY, YOU NEED
- 3 dice
- 2 different-colored game markers
- Multiplication table (back of dry-erase board)
# Stadium Tour, USA

<table>
<thead>
<tr>
<th>Chicago, Illinois</th>
<th>New York, New York</th>
<th>Atlanta, Georgia</th>
<th>Miami, Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 24 25 26</td>
<td>4 5 6 7</td>
<td>13 14 15 16</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>27 28 29 30</td>
<td>8 9 10 11</td>
<td>17 18 19 20</td>
<td>5 6 7 8</td>
</tr>
</tbody>
</table>

**End**

© Center for the Collaborative Classroom
TO PLAY, YOU NEED

- 3 dice
- 2 different-colored game markers
- Multiplication table (back of dry-erase board)
STADIUM TOUR, USA

CHICAGO, ILLINOIS

NEW YORK, NEW YORK

ATLANTA, GEORGIA

MIAMI, FLORIDA

END