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From Simply Great Math Games by TTT Press
Known throughout the country for motivating and engaging teachers and students, Brad has co-authored over a dozen books that provide easy-to-teach yet mathematically rich activities for busy teachers while teaching full time for over 30 years. In addition, he has co-authored over 40 teacher training manuals full of activities and ideas that help teachers who believe mathematics must be both meaningful and powerful.

**Seminar leader and trainer of mathematics teachers**
- 2005 California League of Middle Schools Educator of the Year
- California Math Council and NCTM national featured presenter
- Lead trainer for summer teacher training institutes
- Trainer/consultant for district, county, regional, and national workshops

**Author and co-author of mathematics curriculum**
- Simply Great Math Activities series: six books covering all major strands
- Angle On Geometry Program: over 400 pages of research-based geometry instruction
- Math Discoveries series: bringing math alive for students in middle schools
- Teacher training seminar materials handbooks for elementary, middle, and secondary school

**Available for workshops, keynote addresses, and conferences**
All workshops provide participants with complete, ready-to-use activities that require minimal preparation and give clear and specific directions. Participants also receive journal prompts, homework suggestions, and ideas for extensions and assessment.

*Brad’s math activities are the best I’ve seen in 38 years of teaching!*
  
  Wayne Dequer, 7th grade math teacher, Arcadia, CA

*I can’t begin to tell you how much you have inspired me!*
  
  Sue Bonesteel, Math Dept. Chair, Phoenix, AZ

*Your entire audience was fully involved in math!! When they chatted, they chatted math. Real thinking!!*
  
  Brenda McGaffigan, principal, Santa Ana, CA

*Absolutely engaging. I can teach algebra to second graders!*
  
  Lisa Fellers, teacher

References available upon request
Like my activities? How about giving me a favorable rating on the Teachers Pay Teachers website? Four stars would be much appreciated and would help me sleep better at night.

Like me even more? Then please don’t make copies for your colleagues. I know it’s tempting when they say, “Wow! Groovy activity! Can I have a copy?” But this is how I make my money, and why are they still saying “groovy” anyway?

If we make copies for our friends, can we honestly tell our students not to copy or take things that don’t belong to them? (Ouch!)

Half priced site licensed copies are available on the TPT website. Please encourage them to take advantage of this affordable option. Okay?

Thanks and happy teaching,

Brad 😊
I want...

0 a) Effective staff development
0 b) Affordable staff development
0 c) Ongoing staff development
0 d) ALL OF THE ABOVE!

www.tttpress.com
brad@tttpress.com

♦ Effective because they are classroom-tested and classroom-proven. These popular DVDs of Brad’s trainings have been utilized by teachers throughout the country for years.

♦ Affordable because they are site-licensed. Buy only one copy for your whole school, print as many copies of the handouts as you need.

♦ Ongoing because when you hire new staff, simply hit “play” and the training begins. There’s no need to bring back the consultant.

Great DVD presentations offer quality mathematics staff development at a fraction of the cost!
**Overview:** Practicing multiplication of whole numbers, integers, variables, and binomials becomes a game in this highly motivational activity. As students use strategy to find four products in a row, they will solve and resolve numerous problems.

**Vocabulary:** factor, multiple, integer, monomial, binomial

**Procedure:**

1. Display the game board or give copies to the students. (You may wish to make up numbers or problems to create your own game board. However, some thought should be given to this ahead of time. The games provided on the following pages have been designed to avoid duplicate spaces on the board.)

2. The object of the game is to connect four products in a row vertically, horizontally, or diagonally. This is done by choosing the factors of that product.

3. Toss a coin to see which team will begin. The first team selects two factors, marking them with two paper clips, and places an “X” on the corresponding product. For example in the game on the right, the team begins by selecting the -5 and 11 for a product of -55.

   \[-5 \times 11 = -55\]

4. Team two may move one paper clip or marker to another factor. They draw a circle around their product. Thus team two might choose to move the -5 to the -9 to take -99.

   \[-9 \times 11 = -99\]

5. Play alternates between the two teams. After the placement of the two paper clips on the initial move, either one, but not both, of the paper clips may be moved to a new factor. However, it is permissible to move the two paper clips to the same factor to claim a square number. For example, in step four above, the...
second team could have moved the clip from the 11 to the -5. This would put both clips on negative five and the player could take positive 25.

\[-5 \times -5 = 25\]

6 Once a product has been taken with an “x” or an “o”, it may not be used again.

7 Play continues until one team has four in a row horizontally, vertically, or diagonally.

8 You will notice that students want a lot of time to plan their moves. This is good as they are solving many multiplication problems prior to announcing their move. Typically students are solving and discussing dozens of problems in the first few minutes. I encourage the teams to work quietly so that the opposing team does not hear their strategy. I also divide each of the two teams into smaller subgroups of about four students each. Then when it is time for team A to move, I call on one of the subgroups. Only the students in the subgroup can answer. This avoids the problem of a brainy student dominating all the moves for that team. It also gives struggling students a small discussion group with which to plan their move.

9 Because this is a game, students will correct their own errors as they plan their moves and you will not need to grade or correct their work.

10 Once a team has three in a row, a wonderful strategy occurs. The opposing team must be careful not to leave a marker on a factor the other team can use to complete their row. At that point, teams begin to play offense and defense.

11 Typically, one team will eventually get four in a row. By allowing plenty of time between moves to plan strategy, the typical game can take 30 to 50 minutes. However, you could play a few minutes at the start of class each day as a warm up. The game is very engaging and gets students in the mood for math.

Journal Prompts:
A team has asked for your advice. Their opponent can win by covering the positive 36. Tell them which moves would be good ones and which moves they should avoid. Explain your reasoning to them.

Homework:
Give students eight factors or let them choose their own. Have them fill in a six by six grid with the products. These individual game boards can be used to play the game in class the next day. You can also ask them to play the game at home with a parent or sibling.

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Taking a Closer Look:

You can use the other game boards involving fractions, decimals, and percents to practice these concepts. You could also mix fractions with whole numbers.

For an advanced game, introduce values for \(x\) and \(y\), then put the products of the factors in the game board. For example, if we let \(x = 3\), and \(y = -2\), then:

\[
(x + 1) (y - 1) = (3 + 1)(-2 - 1) = (4)(-3) = -12.
\]

In this case, the product \(-12\) should appear in the game board.

A blank template is also included so you can make a custom gameboard.

Assessment:

As students play their homework game boards in class the following day, their dialogue during the game will lead them to discover and correct their errors.
### Four-in-a-Row: Whole Numbers

**Rules:**

1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.

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Four-in-a-Row: Decimals

Rules:
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.

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.3  4  .5  .01  .6  .8  10  1.1
Four-in-a-Row: Fractions

Rules:
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.

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Four-in-a-Row: Percents

Rules:
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.

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# Four-in-a-Row: Integers

**Rules:**

1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and *circles* the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.

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Four-in-a-Row: Two-digit Numbers

Rules:
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.
Four-in-a-Row: Monomials

Rules:
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.
**Four-in-a-Row: Binomials**

**Rules:**
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and *circles* the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.

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<table>
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<tbody>
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<td>$2x-1$</td>
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Four-in-a-Row

Rules:
1. Team one picks two factors by marking them with paper clips. Place an “X” on their product on the grid.
2. Team two then moves one paper clip to a new factor and circles the new product.
3. Alternate moves, one paper clip at a time, until one team has four marks in a row.