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The Ultimate Game

An engaging game for practice and test prep that works in any content area.

By Brad Fulton
Educator of the Year, 2005
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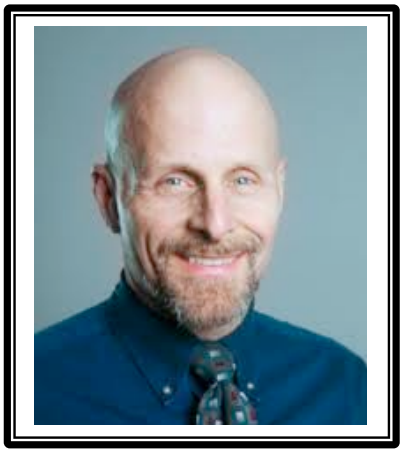

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Brad Fulton

Educator of the Year

- ♦ Consultant
- ♦ Educator
- ♦ Author
- ♦ Keynote presenter
- ♦ Teacher trainer
- ♦ Conference speaker

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 for nearly 40 years. In addition, he has co-authored over three dozen 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

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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!)

Discounted 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...

- ☐ a) Effective staff development
- ☐ b) Affordable staff development
- ☐ c) Ongoing staff development
- ☐ d) *ALL OF THE ABOVE!*

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Great DVD presentations offer quality mathematics staff development at a fraction of the cost!

- **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.

Winning Ways with Integers

Overview:

It's called the Ultimate Game because it meets *all* my requirements:

- It requires *no* preparation,
- works with *any* size class,
- works with *uneven teams*
- requires *no* materials,
- can be played anytime,
- in any subject,
- at a moment's notice,
- it's fast-paced,
- encourages the simultaneous participation of all students,
- *and* it's my students' favorite!

What more could we ask of a game? Subtle rules help to keep the game orderly and the score close. It works for skills practice, content mastery, and test preparation.

Required Materials:

☒ Paper

Optional Materials:

☐ Sample questions

Procedure:

1	2	3
4	5	6
7	8	9

1. This game is played on a tic-tac-toe grid. The object is to get three X's in a row horizontally, vertically, or diagonally. There are no O's in this game. The squares of the grid are numbered one through nine as shown. Each student should copy the scoring grid onto a piece of paper.

2. Divide the class into three to six teams. It is not necessary that the teams have the same number of players. In fact, it is best if teams are *not* divided equally.

3. For round one, the first person on each team stands. A question is asked. (Some sample questions related to math are given at the end of this activity, but you can use questions from *any* content area. I often use this game the day before a test by asking sample test questions.) The first *standing* student to shout the correct answer wins square one for their team. Every person on that team then marks an X on square one of their score sheet. The other teams do not make any marks on their grids for that round.

4. Those participants sit down, and the next person on each team stands to play round two for square number two. A second question is asked. Play continues in this way. When a team has used all their players, their first competitor stands again for the next round. If the teams are uneven, this will cause people to compete against new players each time.

5. The game continues until one team has scored three X's in a row. At that time, the winning team earns one point. All teams then draw a new scoring grid and a new game is played. At the end of the class period, the team with the most points (games won) is the champion. A sample scoreboard is shown here.

A	B	C	D	E
I	II	I	III	II

6. The following rules help keep the game orderly and ensure that everyone is focused and participating.

> **Good Tip!**
> This game is a great way to help your students review for a test. Simply ask them the types of questions they'll encounter on the exam. They'll enjoy the review and find out what to study for the next day!

   a) When a team claims to have won, every team member's gri must match and verify the win, or the win does not count. This ensures that all players participate and keeps them from losing their places.

   b) If a seated team member says an answer, whether correct or incorrect, that team cannot answer questions for the next round. This happens often due to the students' excitement. I simply asked them to sit out a round, but was punitive or condescending about it.

   c) *Incorrect answers from a standing participant do not disqualify the student from continuing to answer during that round*. Thus if a student says 4 + 9 = 12, he or she can then correctly say that 4 + 9 = 13. (See rule "f" for an exception to this.) This helps students overcome the paralyzing fear of being wrong and encourages them to engage and to try. Simply counting numbers in the hope of hitting the answer is not allowed though.

   d) If rounds one through nine are completed without a team scoring three X's in a row, play proceeds to square one again. Other teams can now compete to earn square one also. The team that previously held square one does not lose it. They should still try to win the round though in order to keep other teams from scoring three in a row. In the example shown in the margin, team A has already won the first square. However, if team B wins it they will score three in a row vertically.

Team A

~~1~~	2	3
4	~~5~~	~~6~~
~~7~~	~~8~~	9

Team B

1	~~2~~	3
~~4~~	5	6
~~7~~	8	~~9~~

   e) If two players have answered correctly simultaneously, all other players sit down, and the two remaining players have a tiebreaker question.

   f) The "Sit Down Rule" keeps everything close. This rule goes into effect after the first game has been won and remains in effect thereafter. It applies only to the team (or teams) in the lead. The leading team is told,

> "I have good news and bad news for you. The good news is that you are in the lead. The bad news is that you must abide by the 'Sit Down Rule'. If the person standing for your team gives an incorrect answer, he or she must sit down and not answer again in that round."

This is a one-strike rule and is the exception to rule "c" above. This ensures that the leading teams stay within reach of the trailing team.

Journal Prompts:

If you could change or add one rule to this game, what would you change? Describe how that would affect the game. How would that make the game better?

Homework:

This game can be a good preview to daily practice work. For example, if you had planned to assign some problems on converting fractions to decimals, just make sure that most or all of the game's questions deal with that topic.

Taking a Closer Look:

Be creative in changing the rules or the complexity of the questions to suit the needs of your class. You may decide to not use the Sit Down Rule, or you may wish to have students write their answers and submit them. This would slow the game down and alleviate some of the pressure of the fast-paced format.

Assessment:

When a team announces a victory, check to see that all players on that team have identical score grids. There is no need to collect or correct papers unless you wish to do so.

Good Tip!

Vary the complexity and type of question frequently. This keeps the students on their toes. It also requires them to be excellent listeners. You can even insert questions that require pencil and paper calculations or multiple steps.

Sample questions:

Use correct order of operations to answer the following questions.

1.	4 x 6 + 3 =	27	16.	11 x 26 =	286
2.	8 ÷ 2 + 13 =	17	17.	14 x (99 + 1) =	1400
3.	(4 + 6) x 3 =	30	18.	28 x .5 =	14
4.	11 – 6 x 4 =	–13	19.	28 ÷ .5 =	56
5.	11 x 5 + 1 =	56	20.	88 – 44 – 22 – 11 =	11
6.	11 – 6 + 3 =	8	21.	5! =	120
7.	(11 – 6) x 3 =	15	22.	4! – 3! =	18
8.	18 ÷ 6 + 3 =	6	23.	5! ÷ 4! =	5
9.	13 x 2 x 11 x 0 =	0	24.	56 ÷ 5 =	11 R 1 or 11.2
10.	4 x 25 + 30 =	130	25.	56 ÷ 15 =	3 R 11 or 3.73
11.	8 x 7 – 8 =	48	26.	18 x 18 ÷ 18 =	18
12.	4 + 6 x 3 =	22	27.	321 – 123 =	198
13.	6 x 9 – 6 x 9 =	0	28.	987 – 789 =	198
14.	6 x (9 – 6) x 9 =	162	29.	2.5 x 4 =	10
15.	4 x (6 + 3) =	36	30.	(8 – 6) x (8 + 6) =	28

Fill in the blank with the correct word.

1. A five-sided polygon is called a <u>pentagon</u>.
2. A right angle has <u>90</u> degrees.
3. The distance around a circle is called the <u>circumference</u>.
4. An octagon has <u>eight</u> interior angles.
5. A triangle with exactly two congruent sides is an <u>isosceles</u> triangle.
6. The perimeter of a 4 x 7 rectangle is <u>22</u> units.
7. A quadrilateral with four congruent sides is called a <u>rhombus</u>.
8. A cube is a rectangular prism with six identical <u>faces</u>.
9. A cube is a rectangular prism with eight <u>vertices</u>.
10. A cube is a rectangular prism with twelve <u>edges</u>.
11. 3.14 is an approximation of <u>pi</u>.
12. A pyramid with a triangular base has <u>four</u> faces.
13. An angle of more than 90° and less than 180° is called <u>obtuse</u>.
14. To measure angles, we would use a <u>protractor</u>.
15. A 3” x 2” x 5” rectangular prism has a volume of <u>30</u> cubic units.

State the probability of each event as a simplified fraction.

What is the probability of…

1. …flipping two coins and getting heads on both? $^1/_4$
2. …flipping two coins and getting one head and one tail? $^1/_2$
3. …rolling a six-sided die and getting an even number? $^1/_2$
4. …rolling a six-sided die and getting a number greater than 2? $^2/_3$
5. …rolling a six-sided die and getting a number? 1
6. …rolling a six-sided die and getting a seven? 0
7. …a month having exactly 30 days? $^1/_3$
8. …a month having at least 30 days? $^{11}/_{12}$
9. …a birthday being in February? $^{28}/_{365}$
10. …a day in December being even? $^{15}/_{31}$
11. …Christmas falling on a Tuesday? $^1/_7$
12. …Christmas falling on a weekend? $^2/_7$
13. …Christmas falling on the 4th of July? 0
14. …of a family with two children having both girls? $^1/_4$
15. …of a family with three children having all three girls? $^1/_8$

Solve for x in each equation.

1.	$3x=18$	6	16.	$x^2+9=18$	±3
2.	$4x=76$	19	17.	$3x^2=75$	±5
3.	$x+19=36$	17	18.	$x^2-64=0$	±8
4.	$x-19=36$	55	19.	$2x^2+4=6$	±1
5.	$2x+4=26$	11	20.	$x^2=.25$	±.5
6.	$8x+21=29$	1	21.	$3x=2x+14$	14
7.	$4x-34=46$	20	22.	$4x+36=6x$	18
8.	$13x+5x=72$	4	23.	$5x+8=2x+29$	7
9.	$42x-35x=63$	9	24.	$9x-18=6x-3$	5
10.	$\frac{x}{8}=22$	176	25.	$6x-14=2x+18$	8
11.	$\frac{9x}{3}=39$	13	26.	$3x+18=6x+3$	5
12.	$\frac{x}{6}-9=4$	78	27.	$2x-8=7x+7$	−3
13.	$x^2=484$	±22	28.	$x^2+4=2x^2$	±2
14.	$5x+48=33$	−3	29.	$x^2+25=169$	±12

15. $-12x-17=7$ −2 30. $3x+9=7x-4x$ Ø

What do these numbers have in common?

1. 2, 56, 84, 12, 18, 2,000	Even
2. 7, 11, 19, 2, 23, 89	Primes
3. 24, 28, 84, 8, 100, 56	Multiples of 4
4. 1, 2, 3, 4, 6, 8, 12, 24	Factors of 24
5. 87, 9, 102, 33, 15, 6	Multiples of 3
6. 20, 220, 85, 90, 60, 45	Multiples of 5
7. 13, 8, 34, 1, 3, 21, 55, 2	Fibonacci numbers
8. 0, 64, 16, 36, 49, 25, 9	Square numbers
9. 8, 1, 27, 125, 64, 216	Cubic numbers
10. 84, 35, 63, 14, 91, 21	Multiples of 7
11. 18, 3, –5, 0, -34, 62	Integers
12. 50%, 2 ÷ 4, .5, 5 ÷ 10	$^1/_2$
13. 10, 3, 21, 15, 1, 28	Triangular numbers
14. 66, 48, 54, 18, 30, 42	Multiples of 6
15. 8, 2, 32, 1, 128, 4	Powers of 2

What do these items have in common?

1. Apple, pear, palm, pine, oak, cedar	trees
2. Washington, Ohio, Alaska, Wyoming, Arizona	states
3. Mississippi, Colorado, Ohio, Rio Grande, Columbia	rivers
4. Michigan, Ontario, Huron, Erie, Superior	Great Lakes
5. U, I, E, A, O	vowels
6. You, I, we, them, she, it	pronouns
7. Mars, Milky Way, Crunch, Twix, Snickers	candy bars
8. Ford, Lincoln, Bush, Polk, Harrison, Adams	presidents
9. Cirrus, stratus, nimbus, cumulus	clouds
10. Falcon, eagle, lion, bear, dolphin, jaguar	NFL mascots
11. Chair, desk, lamp, bed, table, desk	furniture
12. Water, flower, double, trundle, bunk, futon	beds
13. Knot, furlong, inch, meter, foot, mile	linear measures
14. Cricket, curling, track, soccer, volleyball	sports
15. Fish, middle, traffic, college, elementary	school
16. Coffee, multiplication, end, dining	table
17. Indian, Arctic, Antarctic, Pacific, Atlantic	oceans
18. Rocky, Smokey, Appalachian, Sierra Nevada	mountain ranges
19. News, tissue, scratch, rice, binder	paper
20. Yard, fish, match, drum, glue	sticks

Just for fun:

1. The number of eyes in this class.
2. The ratio of males to females in this class, including the teacher.
3. The ratio of girls to students in this class.
4. The number of heads plus the number of eyes in this class.
5. Four times the number of ears plus three times the number of noses in this class.
6. The ratio of teachers to students in this class.
7. The ratio of doors to windows in this class.
8. The number of chair legs in this class.
9. Half the number of students' ears in this class.
10. The square of the number of windows in this class.
11. Two times the number of boys plus six times the number of girls in this class.
12. The number of boys' eyes minus half the number of girls' noses in this class.
13. The number of students whose last names come after the letter "S" in this class.
14. The number of consonants in the teacher's last name times the number of vowels in the teacher's last name.
15. The number of fingers in this class minus the number of boys' noses.
16. This room number squared.
17. The sum of the girls' thumbs and ears in this class.
18. The product of the last answer and seven.
19. The current hour on the clock divided by two.
20. The dismissal time of school plus and hour and 45 minutes.
21. The number of minutes in lunch period plus 5 x 16.
22. The number of minutes in a week. 10,080
23. The age in hours of a 20-year-old. 175,200
24. The age in years of a six-month-old baby. 0.5
25. The age in seconds of a two-week-old baby. 1,209,600
26. The number of planets times the grade you are in minus the day of this month.
27. The number of sides on a hexagon plus two and a half times the number of days in April. 81
28. All the birthday candles blown out by a ten-year-old in his or her life. 55
29. How old you will be when you blow out your 100th candle. 14
30. The number of seconds in this class period.

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- *Four in a Row* – An engaging and strategic way to practice multiplication of whole numbers, fractions, decimals, integers, monomials, and binomials.
- *Fast Facts and Fractions* – My most popular handout shows how I helped my struggling students master their multiplication facts and all four fraction operations in only 5 minutes a day!
- *Horses, Pigs, and Cows* – A great way to help students practice addition of whole numbers, fractions, decimals, and integers while exploring proportional reasoning and even algebra.
- *Managing the Math Class, volumes 1 & 2* – Stop the paper chase. Here are two proven approaches to minimizing your paperwork so that you can focus on what matters most: your students, your lessons, and coffee!

Feel free to contact me if you have questions or comments or would like to discuss a staff development training or keynote address at your site.

Happy teaching,

Brad