SCHOLASTIC ACHIEVEMENT PARTNERS | Math Solutions FOUNDED BY MARILYN BURNS

I'M GAME, ARE YOU?

Meghan Alcorn, Rockwall ISD

Diane Reynolds, Math Solutions

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Outcomes

- Understand how research supports the effectiveness of games as an avenue for practice and application of skills.
- Experience math games modeled with intentional, explicit questioning strategies focused on maximizing learning opportunities.
- Learn how games can be a tool to assess students' understanding of concepts and skills.

Four Strikes and You're Out!

Supporting the Math

- Adaptive Reasoning
- Strategic Competence
- Conceptual Understanding
- Productive Disposition
- Procedural Fluency

National Research Council (2001). Adding it up: Helping children learn mathematics.

"Games can provide an environment for experiencing incorrect solutions not as mistakes but as steps in constructing pieces of mathematical knowledge."

-Shaftel, Pass, Schnabel (2005)

What makes a highly effective game?

- Connects deeply to the math content
- Includes clearly defined instructional objectives
- Elicits higher level thinking and discourse
- Helps students develop strategies
- Develops computation & problem solving
- Focuses on the learning

Swan, P. & Marshall, L. (2009a). Mathematical games as a pedagogical tool. CoSMEd 2009 3rd International Conference on Science and Mathematics Education Proceedings, 402-406, Penang, Malaysia.

Math Games

- Step by Step Instructions
- Teaching Tips
- Key Questions
- Differentiation Guides
- Reproducibles
- Game Directions

Math Games for Independent Practice by Jamee Peterson

Anything But Ten!

Combinations of 10

5 + 5

4 + 6	6 + 4
3 + 7	7 + 3
2 + 8	8 + 2
1 + 9	9 + 1
0 + 10	10 + 0

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

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11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

3 8 0 6 4 6

Processing the Game

- How does *Anything but Ten* help students develop and practice strategies for ten?
- What characteristics of highly effective games are evident in *Anything but Ten*?

Target 300
(A Multiplication Game)

Meghan

Round	Player 1	Player 2
1	3 x 20 60	4 x 20 80
2	4 x 10 40	5 x 10 50
3	1 x 50 50	2 x 30 60
4	3 x 30 90	1 x 50 50
5	5 x 10 50	4 x 20 80
Total	290	320

Diane

Round	Player 1	Player 2
1	3 x 20 60	4 x 20 80
2	4 x 10 40	5 x 10 50
3	1 x 50 50	2 x 30 60
4	3 x 30 90	1 x 50 50
5	5 x 10 50	4 x 20 80
Total	290	320

Processing the Game

- How does *Target 300* help students develop and practice multiplication strategies?
- What characteristics of highly effective games are evident in *Target 300*?

"Although assessment is done for a variety of reasons, its main goal is to advance students' learning and inform teachers as they make instructional decisions."

Assessment Standards for School Mathematics (NCTM, 1995, 13)

Using Games as Assessment

1. What understandings does the student's work reveal?
2. What does the student need to learn?

Math Game Tips

- Choose games that are accessible to all students.
- Play cooperatively and competitively.
- Choose games that require reasoning and chance.
- Teach the game to the entire class at the same time.
- Start a math games chart.

Burns, Marilyn (2009). Win-Win Math Games: Instructor Magazine.

Quiet Write

3 Points that resonated with you

2 Ideas you want to implement

1 Question you still have

Questions?

meghan.alcorn@rockwallisd.org

dreynolds@mathsolutions.com

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Thank You

mathsolutions.com
800.868.9092
info@mathsolutions.com