

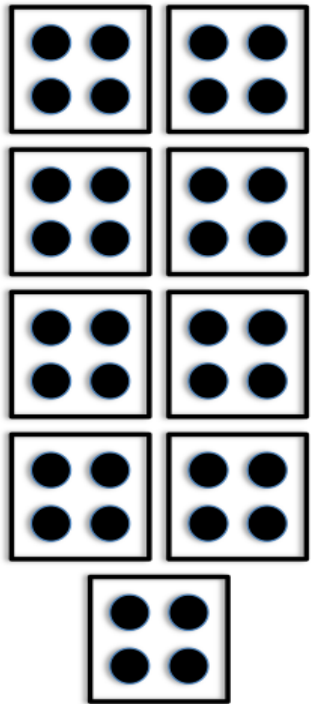
Math Cards

You will need

- one or more players
- 1 deck of cards (see next pages)

Many parents use ‘flash cards’ as a way of encouraging the learning of math facts. These usually include 2 unhelpful practices – memorization without understanding and time pressure. In our Math Cards activity we have used the structure of cards, which children like, but we have moved the emphasis to number sense and the understanding of multiplication. The aim of the activity is to match cards with the same numerical answer, shown through different representations. Lay all the cards down on a table and ask children to take turns picking them; pick as many as they find with the same answer (shown through any representation). For example 9 and 4 can be shown with an area model, sets of objects such as dominoes, and the number sentence. When students match the cards they should explain how they know that the different cards are equivalent. This activity encourages an understanding of multiplication as well as rehearsal of math facts.

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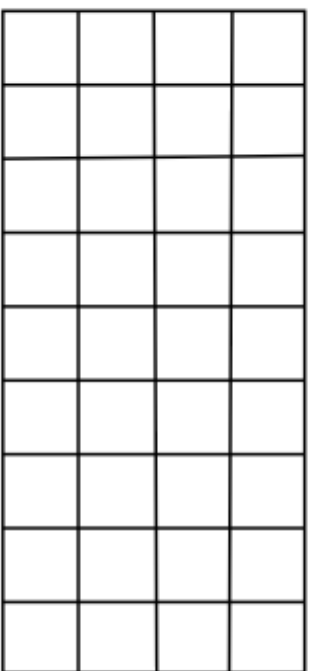
9 x 4

4 x 9

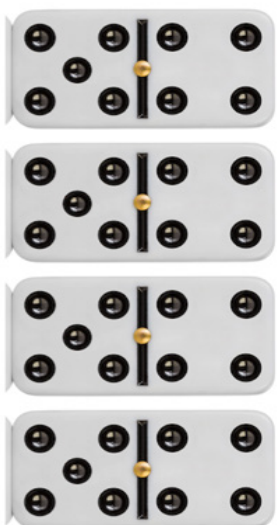
$$7 \times 9$$

$$9 \times 7$$

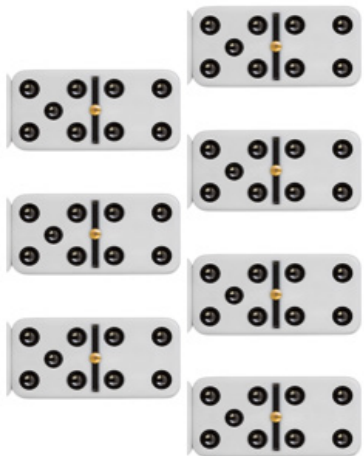
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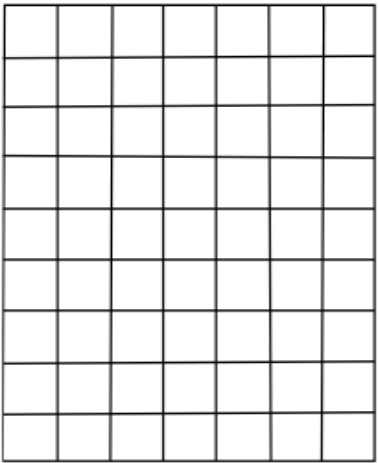
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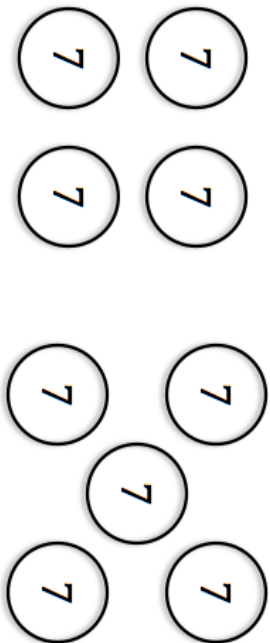
63



9



7



42

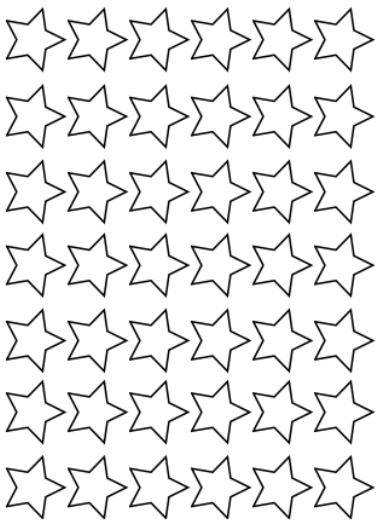
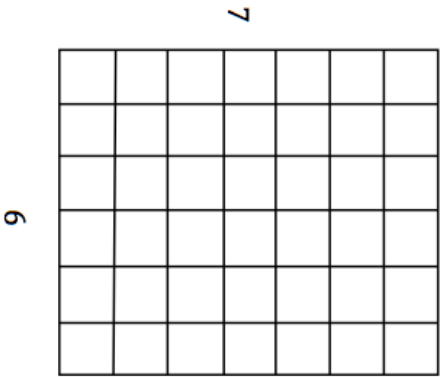


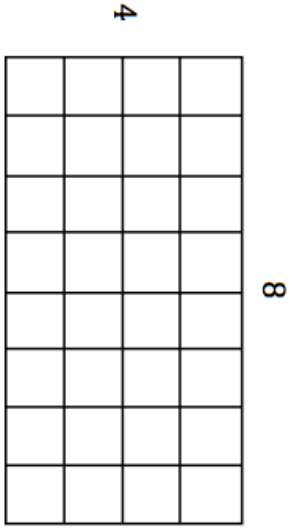
$$7 \times 6$$

$$6 \times 7$$

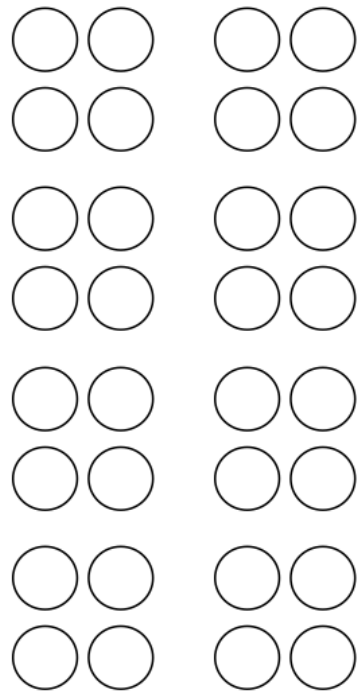
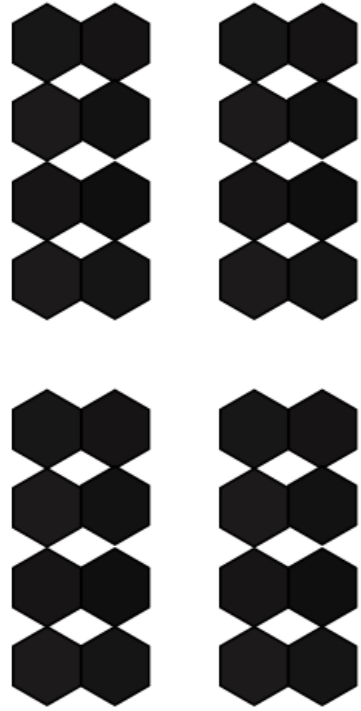
$$8 \times 4$$

$$4 \times 8$$



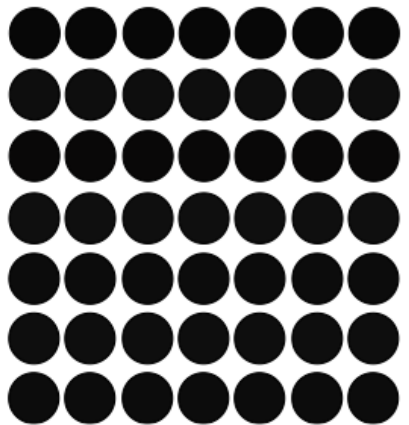
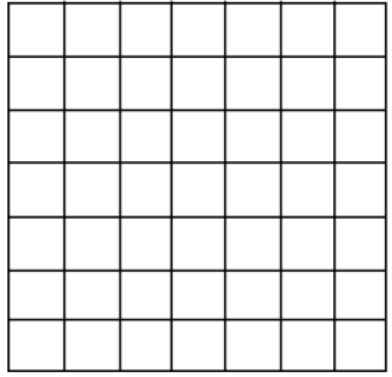


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$$7 \times 7$$

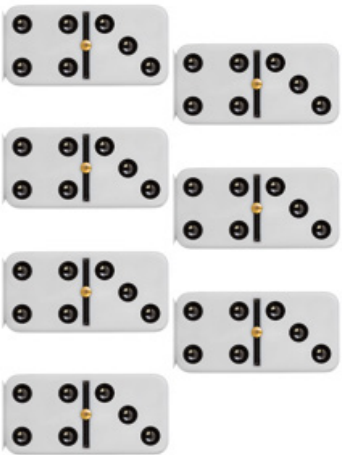
49



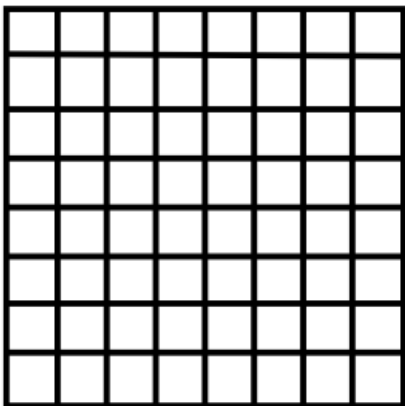
$$8 \times 8$$

64

72

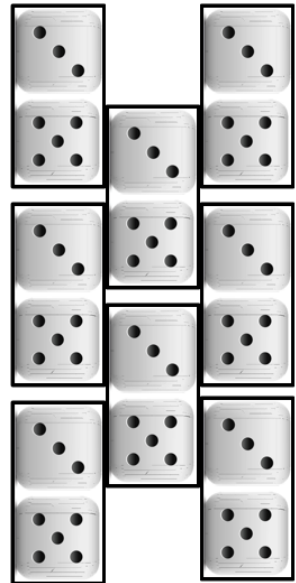
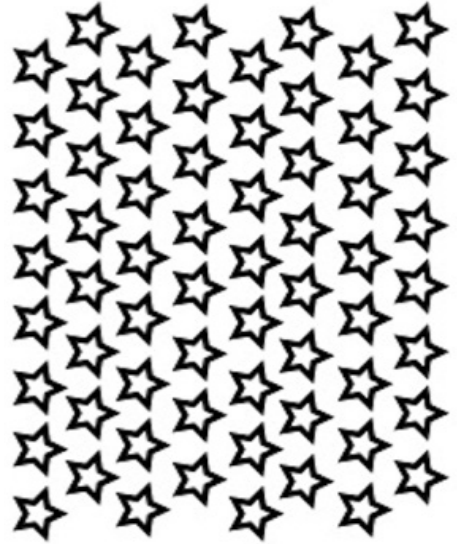


8
2

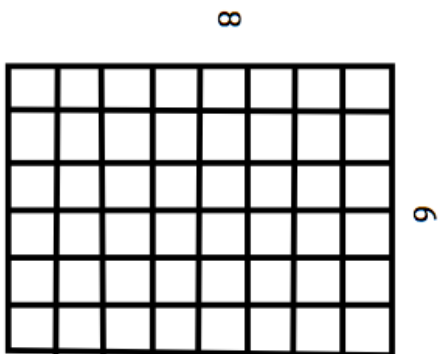


8

8

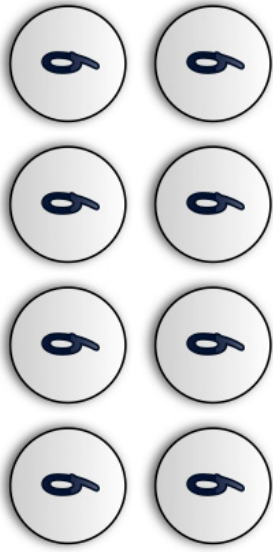


48



6 × 8

8 × 6



Books:

By Jo Boaler

Boaler, J. (2015). What's Math Got To Do With It? How Teachers and Parents Can Transform Mathematics Learning and Inspire Success. New York: Penguin.

By Jo Boaler and Cathy Humphreys

Boaler, J., & Humphreys, C. (2005). Connecting Mathematical ideas: Middle school video cases to support teaching and learning. Portsmouth, NH: Heinemann.

Math Solutions - <http://mathsolutions.com/>

Math Solutions is a publishing company that has a range of excellent books to help parents and teachers with number sense

for example:

Burns, Marilyn (2007), About Teaching Mathematics: A K–8 Resource, Third Edition

By Sherry Parrish

Parish, S. (2014). Number Talks: Helping Children Build Mental Math and Computation Strategies, Grades K-5, Updated with Common Core Connections. Math Solutions.

By Kathy Richardson

Richardson, K. (1998). Developing Number Concepts: Counting, Comparing, and Pattern. Dale Seymour Publications

Richardson, K. (1998). Developing Number Concepts: Addition and Subtraction Dale Seymour Publications

Richardson, K. (1998). Developing Number Concepts: Place Value, Multiplication and Division. Dale Seymour Publications

Dale Seymour Publications. Understanding Geometry (1999) Lummi Bay Publishing

By Cathy Fosnot and Maarten Dolk

Fosnot, C., Dolk, M. (2001). Young Mathematicians at Work: Constructing Number Sense, Addition, and Subtraction: Heinemann

Fosnot, C., Dolk, M. (2001). Young Mathematicians at Work: Constructing Multiplication and Division:

Heinemann

Fosnot, C., Dolk, M. (2001). *Young Mathematicians at Work: Constructing Fraction, Decimals and Percent* (2002: Heinemann)

By John Van De Walle and Lou Ann Lovin

Van de Walle, J. , Lovin, L.A. (2006). *Teaching Student Centered Mathematics, grades K – 3*: Pearson

Van de Walle, J. , Lovin, L.A. (2006). *Teaching Student Centered Mathematics, grades 5 – 8*: Pearson

By Heibert, Carpenter, Fennema, Fuson, Wearne and Murray

Hiebert, J., Carpenter, T., Fennema, E., Fuson, K., Wearne, D., Murray, H. (1997). *Making Sense: teaching and learning mathematics with understanding*. Portsmouth, NH: Heinemann.

Additional Games:

Set	http://www.setgame.com/set
Muggins!	http://www.mugginsmath.com/store.asp
Mancala	

Games & Apps:

Mathbreakers	https://www.mathbreakers.com
Motion Math	http://motionmathgames.com/
Dragon Box	http://www.dragonboxapp.com/
Refraction	http://play.centerforgamescience.org/refraction/site/
Wuzzit Trouble	http://innertubegames.net
Mancala	http://www.coolmath-games.com/0-mancala/