

MAD PUZZLES [MAD = Multiplication and Division]

Because Component Su Doku puzzles have proved to be such a popular and productive way to practise addition and subtraction facts, I decided to adapt the same style of puzzle to create an enjoyable way of practising mixed multiplication and division facts.

Make sure your pupils know the key facts for each table, from which they can derive any other fact using logic and reasoning together with efficient mental addition strategies. No counting in ones on fingers is allowed, and chanting the whole table from 1x is to be discouraged.

All my puzzles are designed to be solved without resorting to guesswork or trial and error.

Many more MAD puzzles at varying levels of difficulty can be found in my latest book, *The Dyscalculia Resource Book* (Sage, 2011).

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In the MAD puzzle below, one digit should be written inside each circle and the numbers from 1 to 5 should appear once, and once only, in each row and in each column. The number shown at the top left of a rectangle enclosing two circles is the product of the two circled numbers, i.e. the result of multiplying them together.

*TIP: First practise all the facts that might be needed to solve the puzzle below: make sure the key facts about the first five tables (the 2x, 5x and 10x steps) are securely known, then practise how to find all the other facts by reasoning, in as few calculation steps as possible, from one of the known key facts.*

Digits 1 – 5

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In the MAD puzzle on this page, the numbers from 1 to 6 appear only once, and once only, in each row and in each column. The number shown at the top left of a rectangle enclosing two circles is the product of the two circled numbers, i.e. the result of multiplying them together.

*TIP: First practise all the facts that might be needed to solve the puzzle below: make sure the key facts about the first six tables (the 1x, 5x and 10x steps) are securely known, then practise how to find all the other facts by reasoning, in as few calculation steps as possible, from one of the known key facts.*

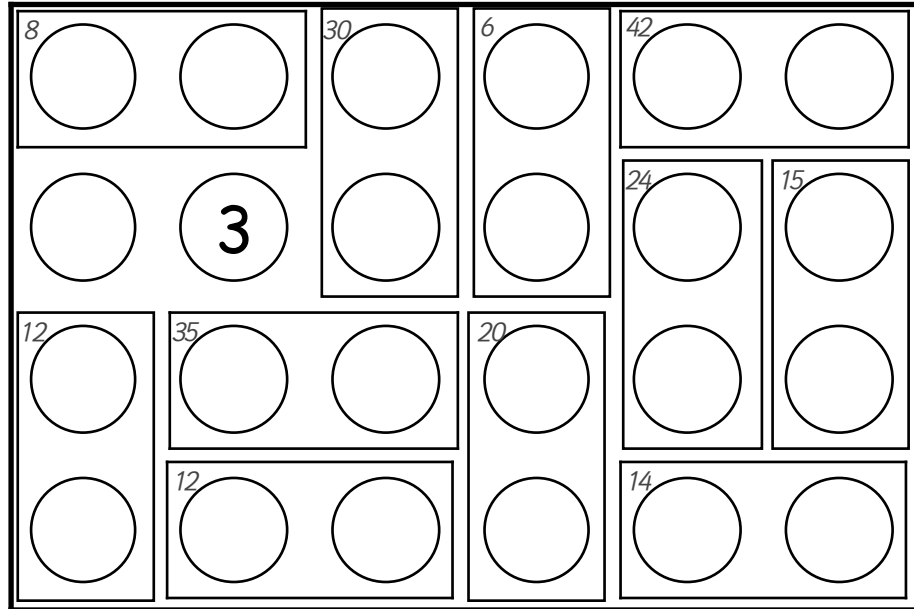
Digits 1 – 6

|         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|
| 24<br>○ | 2<br>○  | 30<br>○ | ○       | 6<br>○  | ○       |
| ○       | ○       | 3<br>○  | ○       | 20<br>○ | ○       |
| 15<br>○ | ○       | 12<br>○ | ○       | 12<br>○ | 6<br>○  |
| 6<br>○  | 4<br>○  | ○       | 20<br>○ | ○       | ○       |
| ○       | 12<br>○ | ○       | ○       | 6<br>○  | 10<br>○ |
| 5<br>○  | ○       | 12<br>○ | ○       | ○       | ○       |

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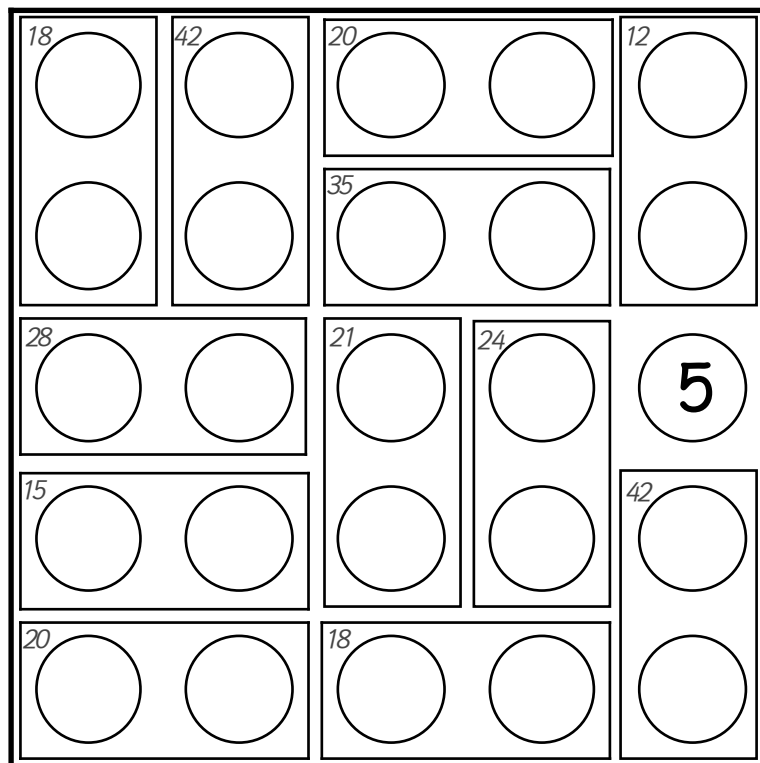
In the MAD puzzles at the top of this page, the digits 2 to 7 appear once in each horizontal row and no number is repeated in any vertical column. In the puzzle at the bottom of the page, the digits 3 to 7 appear once in each column and each row. The number shown at the top left of a rectangle enclosing two circles is the product of the two circled numbers, i.e. the result of multiplying them together.

Digits 2 – 7



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Digits 3 – 7



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In the MAD puzzle on this page, the digits 3 to 8 appear once in each row and in each column. The number shown at the top left of a rectangle enclosing two circles is the product of the two circled numbers, i.e. the result of multiplying them together.

Digits **3 – 8**

|    |    |    |    |    |
|----|----|----|----|----|
| 48 | 21 | 35 |    | 24 |
|    |    | 18 | 20 | 40 |
| 24 |    |    |    | 28 |
| 20 | 40 | 48 | 21 |    |
|    | 28 |    | 15 | 48 |
| 42 | 12 |    | 15 | 48 |