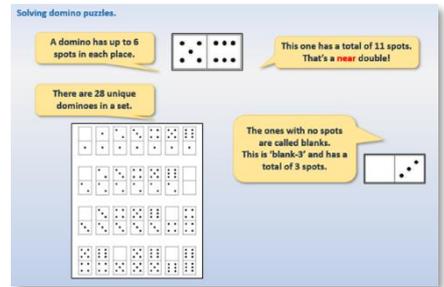


Week 15, Day 4

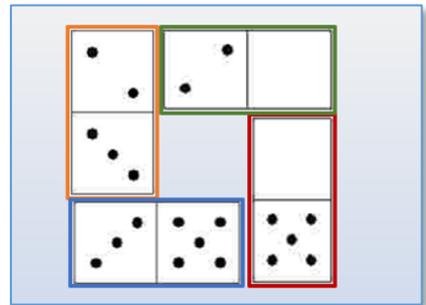
Solving mathematical puzzles: domino problems

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the **Learning Reminders**.



-
2. Think you've got it? Have a go at the **Investigative Practical Activity**.



-
3. Have I mastered the topic? A few questions to **Check your understanding**.

Identify the value of the '4' in the following numbers:

(a) 3.407
(b) 4.821
(c) 0.043
(d) 5.104
(e) 48,739

How many times must Dan multiply 0.048 by 10 to get 48,000?

What number is one hundred times smaller than 0.4?

Learning Reminders

Solving domino puzzles.

To solve today's puzzles we will be using our strategies for quickly adding single digits.

$4 + 2 + 6$

Spot the pair that add to 10!

$4 + 6 = 10; 10 + 2 = 12.$

$3 + 6 + 6$

Use your doubles!

$6 + 6 = 12; 12 + 3 = 15.$

$18 + 5$

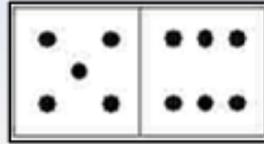
Use 20 as a 'bridge'.

$18 + 2 = 20; 20 + 3 = 25.$

Learning Reminders

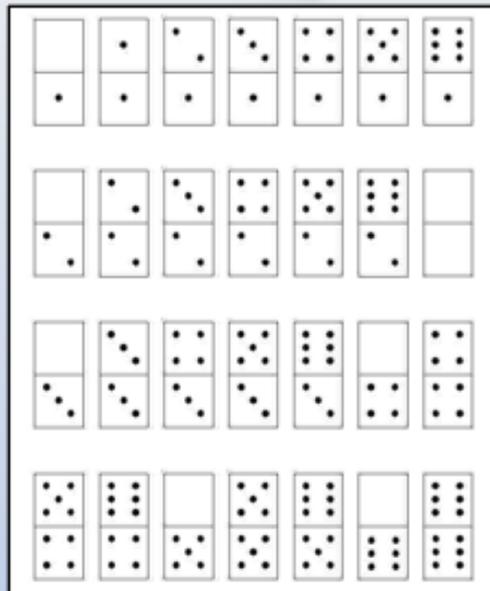
Solving domino puzzles.

A domino has up to 6 spots in each place.



This one has a total of 11 spots.
That's a **near** double!

There are 28 unique dominoes in a set.



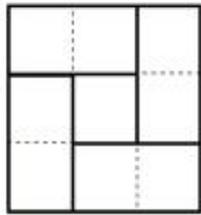
The ones with no spots are called blanks.
This is 'blank-3' and has a total of 3 spots.



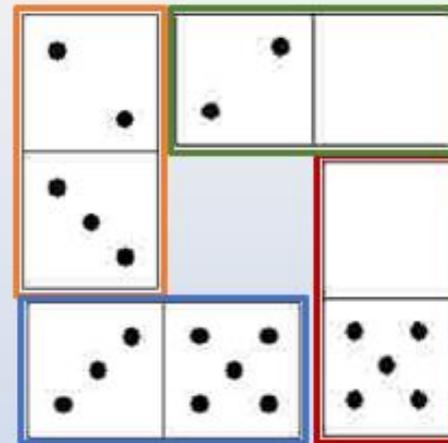
Learning Reminders

Solving domino puzzles.

In this puzzle 4 dominoes are used to make a square.



The ends of the dominoes must match.



This square uses the **3 and 2**, **2 and blank**, **blank and 5** and **5 and 3** dominoes.

Check that the total of all of the spots is 20.

I wonder whether this is the only solution for a total of **20 spots**...?

Investigative Practical Activity

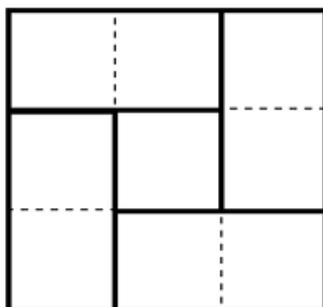
Domino squares

Things you will need:

a set of 0-0 to 6-6 dominoes (check that you have all 28), or cut out the set we provide



- Four dominoes are arranged in a square so that ends match, and the total of all the spots is 20. Find at least 4 different solutions.
- Use the page of blank square grids to record your solutions.



- Repeat, this time finding domino squares with a total of 30.
- What strategies did you apply from last time?
- What did you change?
- What was the same?
- Can a square of dominoes be made with an odd total?
- How can you explain this?
- What is the smallest total you can make? And the largest?

Challenge

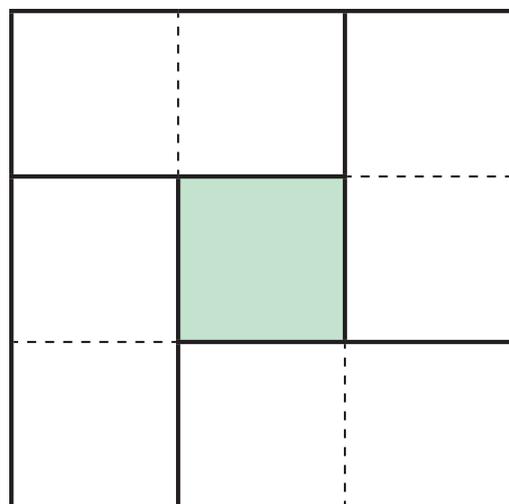
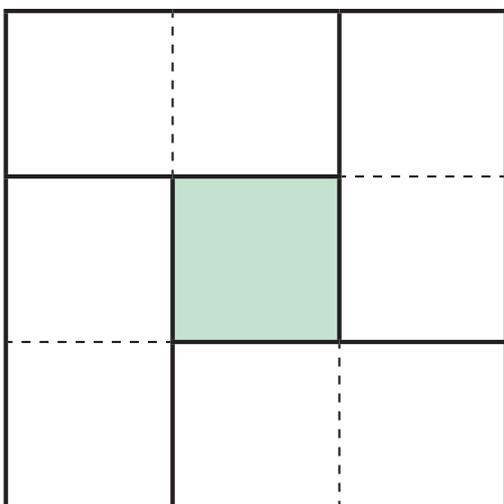
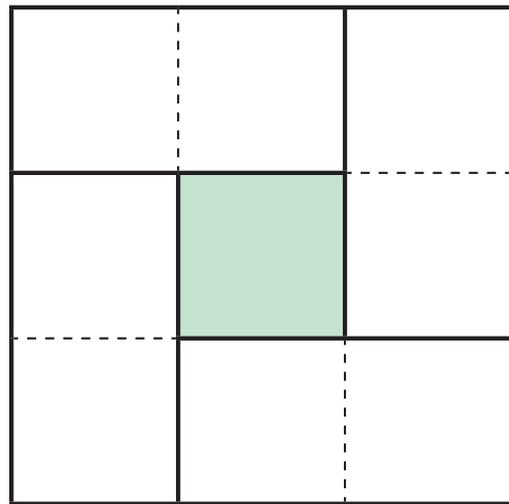
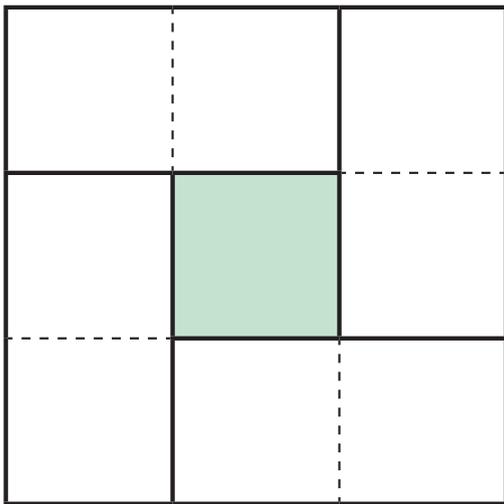
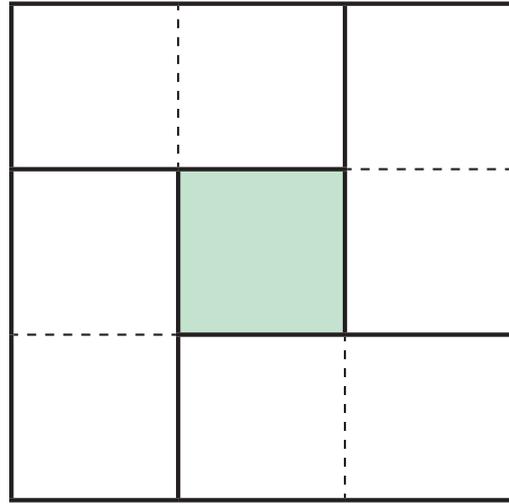
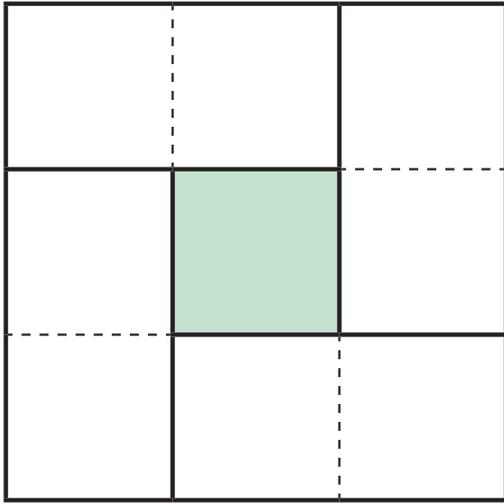
Use eight dominoes to make a square (2 on each side).

Again, the ends of each domino should match.

Make at least one square so that the total of all of the spots is 50.

Investigative Practical Activity

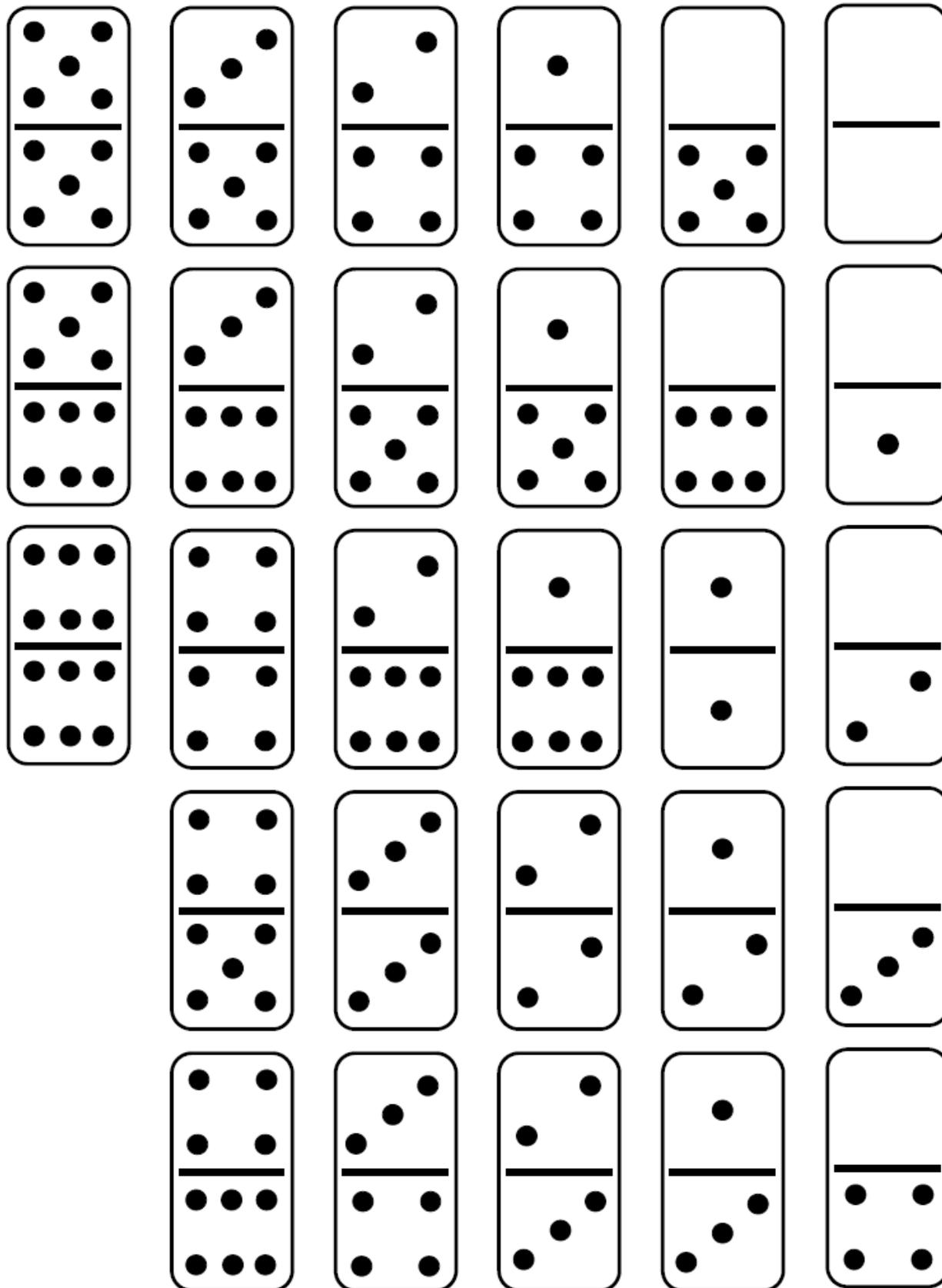
Domino squares



Investigative Practical Activity

Domino squares

Carefully cut out this set of dominoes to use if you do not have any at home.



Check your understanding

Questions

Make squares of four dominoes with the following totals.
Don't forget that the ends must match!

	12	

	16	

	26	

Fold here to hide answers

Check your understanding

Answers

Here are just some of the possibilities:

1	1	1
1	12	0
4	4	0

2	1	1
2	16	1
4	4	1

3	3	3
3	26	5
2	2	5