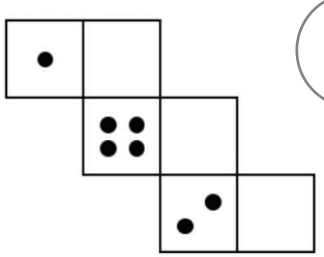
Y5 Learning at home activity sheet #5

Problem 1:

On a normal dice the dots on opposite faces add to seven. For example, 1 and 6 are on opposite faces since 1 + 6 = 7.



Draw the correct number of dots on the empty squares of this net so it will make a normal dice.

Problem 2:

The digits of this letterbox number are 2, 6, and 7.
The digits add to 15 (2 + 6 + 7 = 15).

What other two and three-digit letterbox numbers have digits that add to 15?

Problem 3:

Giovanni can afford only three toppings on his pizza. He has a choice of:

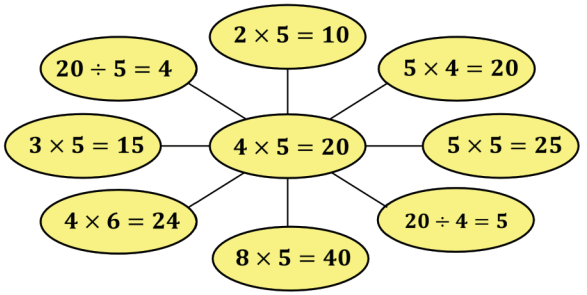
Mushroom	Salami	Onion
Tomato	Capsicum	Chilli

He can't eat chilli so that leaves 5 toppings.

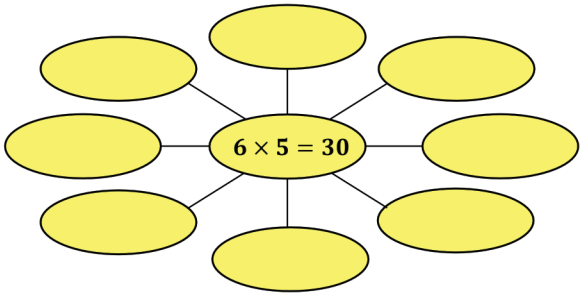
How many different pizzas could Giovanni order?

Spider web:

You can start with one basic fact and know many other facts from it. Here is a spider web of facts using 4 x 5 = 20.

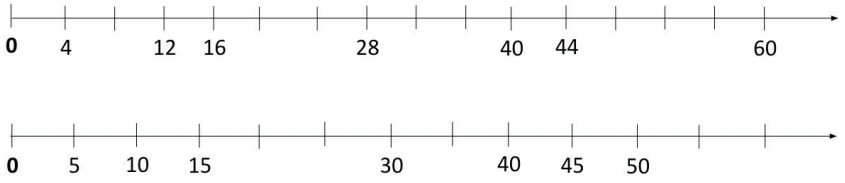


Finish this spider web for 6 x 5 = 30.



Placing numbers:

Write the missing numbers on these number lines.



Which numbers appear on both number lines?
Why does that happen?

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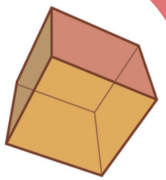
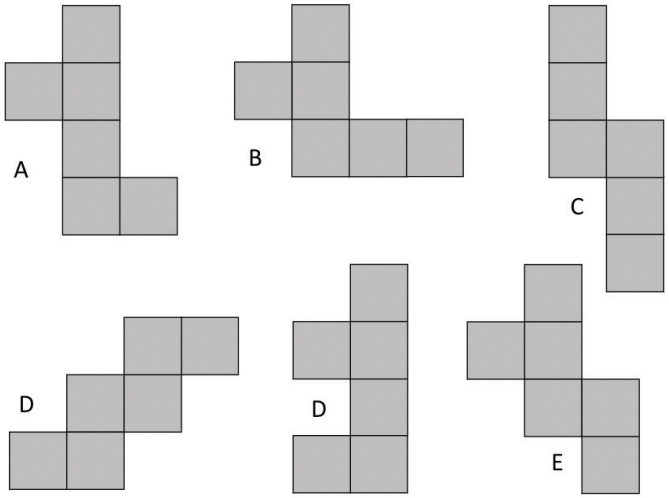
Nets for a cube:

Here are some flat patterns (nets) that might fold up to make a cube.

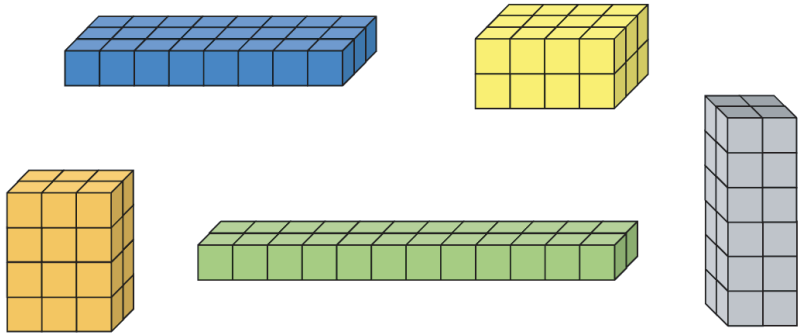


Some will work and some won't. Predict which nets work and make them to check.



Blocks:

How many small cubes make up each block?



What do you notice?
Draw another block made up of the same number of cubes.
Imagine you paint the outside of each block.
Which block has the most squares to paint?

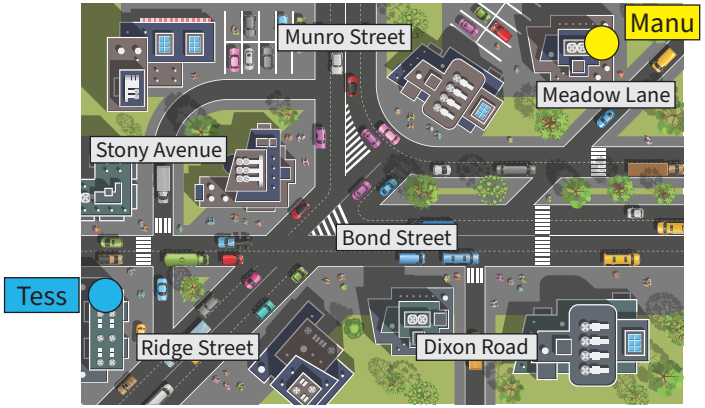
Pattern finding:

If the football jerseys are hung up in this pattern, what numbered jersey is next hung up on the left and on the right?

Explain your rule for working out the answer.

Getting there:

Manu wants to visit Tess. Write a set of instructions for him to walk to her house.



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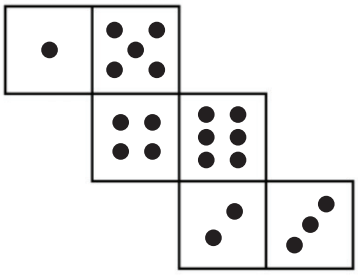
Learning at home: Notes for whānau

When your child finishes each activity, ask them to add a mouth to the face to show how they felt about that activity.

Problem 1:



This problem involves two things, making sums of seven and imaging folding the net to form a cube. Encourage your child to imagine the flat pattern (net) folding up to form a cube. You can always draw the net, cut it out, then fold it up to check predictions. A useful strategy is to assign one square as the base, say the square with four dots.

Which square will become... the top? .. the back? ...the front?

Problem 2:

Encourage a systematic approach. One strategy is to work through possible digits that sum to 15, as follows. Be careful not to duplicate digit trios so work from the lowest digit up.

Two digits:	6 and 9	7 and 8		
Three digits:	1, 5, and 9	1, 6, and 8	1, 7, and 7	
	2, 4, and 9	2, 5, and 8	2, 6, and 7	
	3, 3, and 9	3, 4, and 8	3, 5, and 7	3, 6, and 6
	4, 4, and 7	4, 5 and 6		
	5, 5, and 5			

Problem 3:

Make sure your child understands the problem; Giovanni uses only three toppings from the five available. That means he leaves two toppings off. Thinking about which two toppings get left off is easier than finding all the three topping combinations.

Let your child create some possible pizzas that Giovanni might make. Use the letters M, S, O, T and C to represent the toppings of Mushroom, Salami, Onion, Tomato and Capsicum. There are ten possibilities if the problem is approached systematically:

M, S, O	M, S, T	M, S, P	M ,O, T	M ,O, C	M ,T, C
S, O, T	S, O, C	S, T, P			
O, T, C					

Spider web:

This task is aimed at supporting your child to connect the multiplication facts by working with a known fact. Here are a few connections:

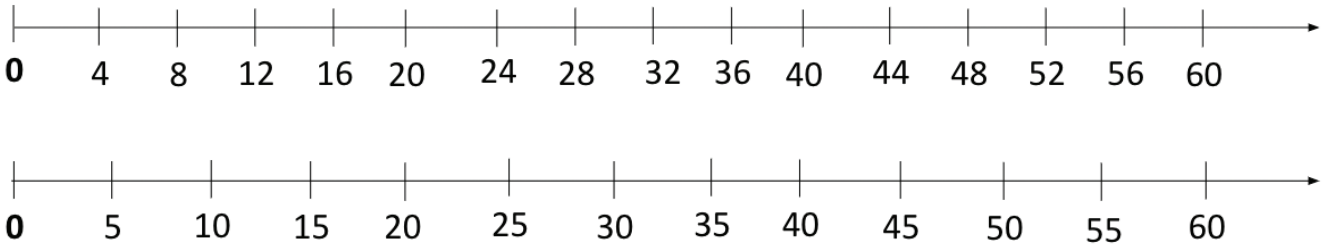
Doubling one factor and halving the other: 6 x 5 = 3 x 10.

Changing one factor by adding or subtracting one: 6 x 5 = 30 so 5 x 5 = 25, 7 x 5 = 35, 6 x 4 = 24 , and 6 x 6 = 36.

Division: 6 x 5 = 30 so 30 ÷ 6 = 5 and 30 ÷ 5 = 6.

Placing numbers:

The factors of 210 are: 1, 2, 3, 5, 6, 7, 10, 14, 15, 21, 30, 35, 42, 70, 105, and 210.



Your child should notice that the numbers 0, 20, 40, and 60 are on both number lines. Those numbers are called the common multiples of four and five. What are the next three common multiples of four and five?

Nets for a cube:

Encourage your child to predict whether, or not, each net will fold to form a cube. Ask your child to explain how they know their prediction. Expect them to imagine the act of folding the nets.

They can always make the nets from paper and fold the pattern into a cube.

The nets that work are A, C, D, and E. B and D do not work.

Getting there:

The task involves using language of direction and movement. Expect your child to use terms like, corner (or intersection), straight, turn (right or left) which may include angles like 45 degrees, and distance (may include metres though no scale is provided).

When your child has written a set of instructions, use a small object like a bottle top to represent Manu. Act out the instructions in sequence on the map or trace the path as directed. That will support your child to address any errors in the instructions.

Blocks:

If you have cube shaped blocks at home your child might make the blocks. Look to see if your child uses multiplication rather than counting the cubes one-by-one. For example, the blue block has 3 x 8 = 24 cubes. Three represents the number of rows and eight represents the number of cubes in each row. Similarly, the yellow block has two layers of 3 x 4 = 12 cubes. The total number of cubes in the yellow block is 2 x 3 x 4 = 24.

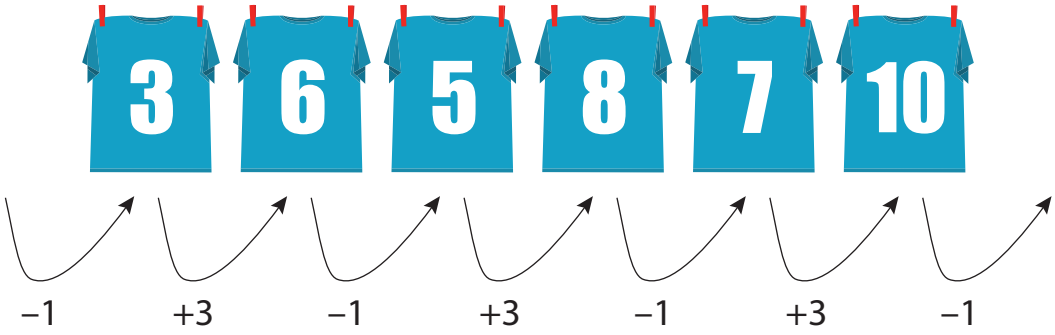
All the blocks are made from 24 cubes. Various other blocks are possible, such as 6 x 4 x 1 and 1 x 1 x 24.

The painting problem involves finding the surface area of the blocks. Each block has six faces, that are in parallel pairs. The orange block has two faces that are 4 x 3 squares (front and back), 4 x 2 (left and right), and 2 x 3 (top and bottom). In total it has 2 x 12 + 2 x 8 + 2 x 6 = 52 squares to paint. It has the same surface area as the yellow block because it is the same dimensions turned around. Since 2 x 3 x 4 is closest block to a cube that can be built with 24 small cubes, it has the least surface area.

Pattern finding:

Does your child notice that the differences between the jersey numbers rise and fall?

Do they record the differences in an organized way?



Your child might notice the repeating rule is + 3 then −1 and apply it to find the next right and next left jersey. The left jersey is numbered 4 since 4 – 1 = 3 and the next right jersey is numbered 9 since 10 – 1 = 9.