Understanding Cubes and Nets

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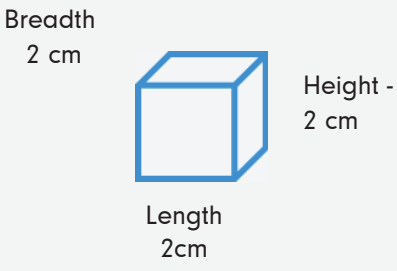
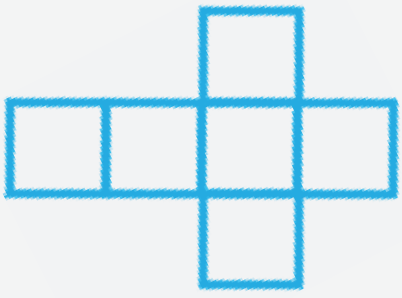
DO YOU FIND IT CONFUSING TO VISUALISE AND IDENTIFY WHICH NET SHAPES CAN BE FOLDED INTO CUBES ?

There are many varieties and you need to know all of them for PSLE. However, your school Maths books may not show you all these net shapes.

1. First understand that a cube is a 3 dimensional solid with 6 square faces and all its sides are of the same length.



2. For a cube to be formed, there must be a 2 dimensional net plan of 6 squares specially arranged forming a pattern shape. When the sides of the pattern shape are folded upwards, the cube is formed.



So how to identify which net shape can be folded into a cube?

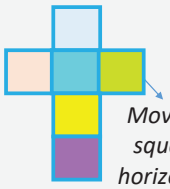
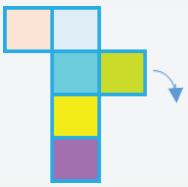
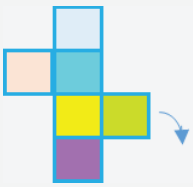
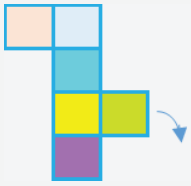
Just look out for the Upper case 'T' and Lower case 't' base net pattern arrangements consisting of 6 squares. Some 11 net pattern types can be derived from them and folded into cubes.

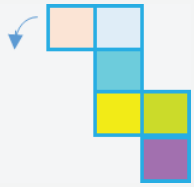
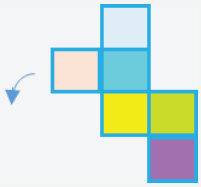
EASY!

They can be classified into 4 net groups namely:

6 patterns of Type 1-4-1 net
1 pattern of Type 3-3 net
3 patterns of Type 1-3-2 net
1 pattern of Type 2-2 net

NETS OF CUBES

TYPE	1-4-1 NET		3-3 NET
Description	1 square + 4 vertical squares + 1 square		2 sets of 3 vertical squares
	Uppercase T	Lowercase t	
Pattern 1	 *Move the last square in the horizontal row downwards*	 *Move the last square in the horizontal row downwards*	
Pattern 2			
Pattern 3	 =	 *When Pattern 3 is rotated 180°, Pattern 3 in the left column is formed.*	
Pattern 4			

NETS OF CUBES		
TYPE	**1-3-2 NET**	**2-2 NET**
Description	1 square + 3 vertical squares + 2 vertical squares	3 sets of 2 vertical squares
Pattern 1	 *Move the first square in the first horizontal row downwards*	
Pattern 2		
Pattern 3		

Cube Challenge!

Investigate by drawing these nets on plain paper, cut them out and see if they can be folded into cubes.

Label them according to their pattern type so that you can remember better; then try to spot them in your school work exercises.

HAVE FUN IN YOUR INVESTIGATION

THE WONDERS OF Multiple REMAINDERS

By Aishah Binte Abdullah (Albel)
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Do you know that at some point or other in our daily lives, we get ourselves involved with a Mathematical concept called remainders and multiple remainders?

All of us have quantities (e.g. money) that we need not use completely in one go. Sometimes, we may decide to use part of it for a certain purpose and leave behind the rest for future use. This portion that we leave behind is called the remainder. Again, at a separate time, we may decide to use parts of this remainder and leave the rest. The cycle then continues until we have nothing left.

This idea of using a part of a whole and leaving a remainder is usually tested in PSLE Maths. This is called the remainder concept.

At the P5S and P6S level, such questions may be extended by telling students that a part of the remainder is being used for a different function and getting students to find out either the whole or the remainder.

Here are the key features of a word problem involving multiple remainders:

1. There is a sequence of events involving the use of a quantity.
2. The word 'remainder' is used in the question
3. The remainder is sub-divided into parts.
4. New remainders are produced and separated.

Here is a typical example of a problem involving the Multiple Remainders concept:

Troy gave ½ of his savings and another $40 of it to his parents. He then donated ⅔ of the remaining savings. Finally he spent ⅓ of the balance of the savings on food and $10 on a box file. If he had $110 left, how much was his savings?

Organise the information on this problems in 3 steps

1	2	3
Organise the sequence of events into a table	**Represent the problem using a picture**	**To solve, work backwards from the last remainder to the original whole**

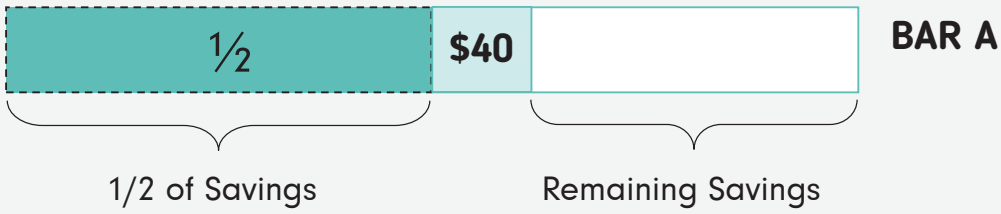
1 Organise the sequence of events in table.

PARENTS	DONATED	FOOD	BOX FILE	LEFT
1/2 of his savings and $40 more	2/3 of remaining savings	1/3 of balance savings	$10	$110

2 Represent the problem using a picture

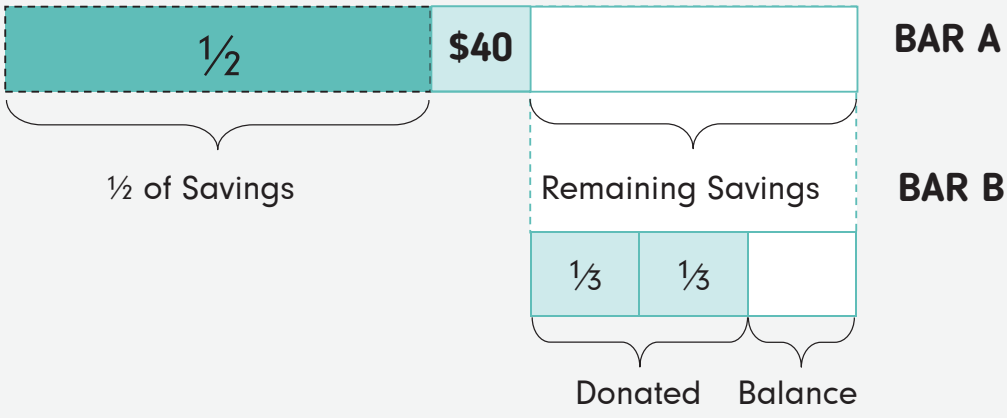
SENTENCE 1: Troy gave ½ of his savings and another $40 of it to his parents

- Draw a bar and divide it equally into 2 parts.
- Divide a small portion from the 2nd part and label "$40".
- Shade of the bar and the "$40" part.
- Label the remainder



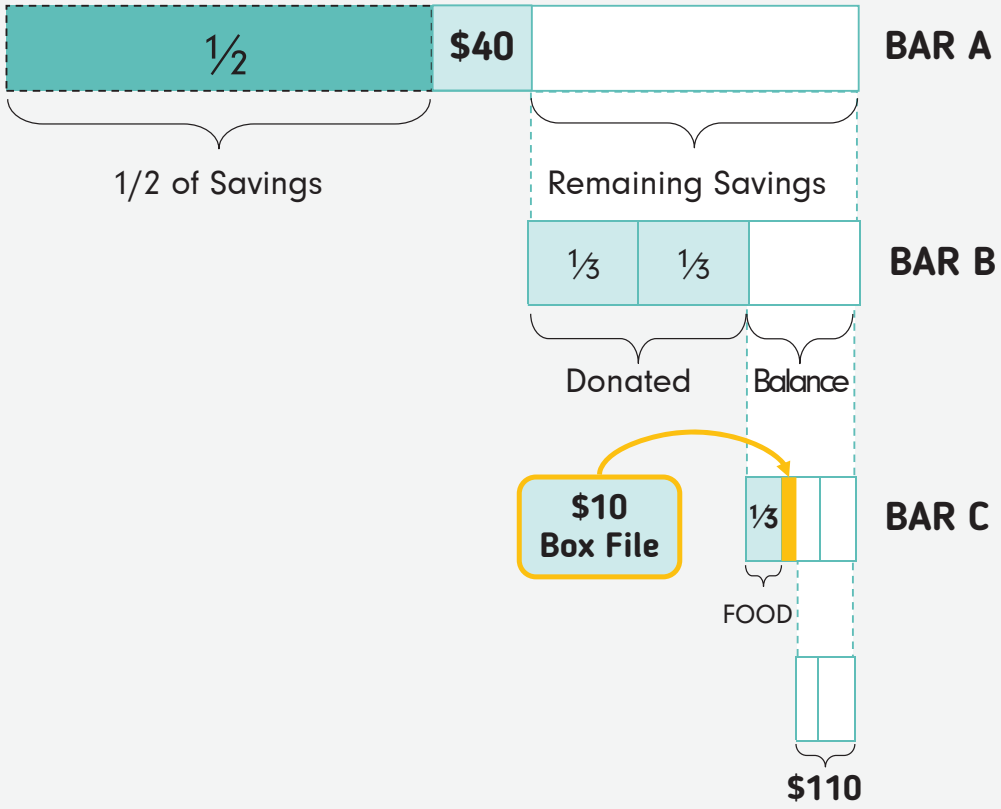
SENTENCE 2 - He then donated ⅔ of the remaining savings

- Draw dotted lines to bring down the remainder.
- Draw a new bar of the same size.
- Divide the new bar equally into 3 parts.
- Shade 2 out of the 3 parts.
- Label the balance.



SENTENCE 3 - He spent ⅓ of the balance of the savings on food and $10 on a box file.

- Draw dotted lines to bring down the remainder.
- Draw a new bar of the same size.
- Divide the new bar equally into 3 parts.
- Shade 1 out of the 3 parts.
- Divide a small portion from the 2nd part and label "$10".
- Label the balance.



3 **Since we are given the final value, we should work backwards from the last remainder to the find the original whole.**

BAR C CALCULATION	BAR B CALCULATION	BAR A CALCULATION
2 units = $110 + $10 2 units = $120 1 unit = $60 3 units = $60 x 3 = $180	1 unit = $180 So, 3 units $180 x 3 = $540	$540 + $40 = $580 ½ Bar A = $580 Total Bar A = 2 x $580 Total Savings = $1160

ANSWER: Troy's savings was $1160

THE WONDERS OF MULTIPLE REMAINDERS

Remainders Challenge!

Now try out this question on your own:

Mindy shared a packet of picture cards with 3 friends, Raj, Wendy and Yulin. She gave ⅓ of the cards and another 24 to Raj; then ¼ of the remaining cards and an additional 3 cards to Wendy. Finally she gave ⅓ of the balance cards and another 5 cards to Yulin. If she had 35 cards left, how many picture cards were in the packet at first?

Remember!
Organise the information on this problems in 3 steps

1	2	3
Organise the sequence of events into a table	**Represent the problem using a picture**	**To solve, work backwards from the last remainder to the original whole**

For the solution see the Student Gallery section.

Were you able to successfully work it out?
Should you need any help you may write to me

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