

**14 mats. 7 activities (x 2 stations – one for each class for each activity). 4 children per station.**

**6 minutes per activity.**

**5 minute introduction**

**45 minute session with children**

| Activity no. | Curriculum area                               | Brief description of activity                                                                                                                                                                                                                      | Resources required for each station (so x2)                                                                  | Alternative domestic resources                                             |
|--------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1            | Mental methods of addition                    | <p>Introduce strategy of equal sum.</p> <p>Explore with beadstring.</p> <p>Practise with given numbers and beadstring</p> <p>Children select two or three digit numbers from a basket. They add them together by regrouping to the nearest 10.</p> | <p>Beadstrings.</p> <p>3 Laminated activity cards.</p> <p>Whiteboard and pens.</p> <p>Numbers in basket.</p> | Beads or penne pasta                                                       |
| 2            | Mental methods of subtraction                 | <p>Introduce Equal difference as a mental method of subtraction.</p> <p>Explore with multilink.</p> <p>Practice with multilink.</p> <p>Find different ways of solving with equal sum.</p>                                                          | <p>Multilink cubes</p> <p>3 Laminated activity cards.</p> <p>Whiteboard and pens.</p>                        | lego bricks, coins                                                         |
| 3            | Understanding the structure of multiplication | <p>Build arrays with counters and understand link to multiplication.</p> <p>Solve multiplication problems with arrays.</p>                                                                                                                         | <p>3 Laminated activity cards.</p> <p>Counters</p> <p>Whiteboard and pens.</p>                               | buttons, pasta or beads, coins                                             |
| 4            | To interpret data from a graph                | <p>Questions which progress in difficulty about a temperature graph (including information in</p>                                                                                                                                                  | <p>3 x Laminated activity cards.</p> <p>Whiteboards.</p> <p>Pens</p>                                         | Try using a thermometer or an iPad app to collect and plot own data! There |

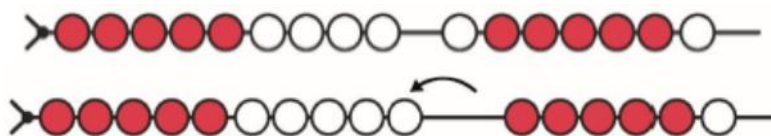
Maths Workshops Year 4 2018

|   |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                         |                                                                    |
|---|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
|   |                                                           | <p>between given data points)</p> <p>Children can make their own statements at the end.</p>                                                                                                                                                                                                                                                                                                            |                                                                                                         | <p>are decibel apps, lux apps...</p>                               |
| 5 | Finding perimeter of rectilinear shapes                   | <p>Explore perimeter by constructing rectangles with matchsticks,</p> <p>Use different methods to calculate perimeter.</p> <p>Create as many rectangles as possible with given perimeter.</p>                                                                                                                                                                                                          | <p>3 Laminated activity cards</p> <p>Whiteboard and pens.</p> <p>A3 grids</p> <p>matchsticks</p>        | <p>Matchsticks, long lego bricks broken spaghetti, penne pasta</p> |
| 6 | Finding area of rectilinear shapes                        | <p>Explore area by constructing rectangles with practical resources.</p> <p>Calculate areas of given shapes.</p> <p>Create as many shapes as possible with given area.</p>                                                                                                                                                                                                                             | <p>3 Laminated activity cards</p> <p>Dienes cubes (1s only) or multilink</p> <p>Whiteboard and pens</p> | <p>Lego bricks, buttons, coins</p>                                 |
| 7 | To describe properties of shape (context: Quadrilaterals) | <p>Selection of laminated flags e.g. English flag, Scottish flag and Union Jack.</p> <p>Children need to identify and mark key features on flags:</p> <ul style="list-style-type: none"> <li>- Pairs of parallel lines</li> <li>- Pairs of perpendicular lines</li> <li>- Right angles, obtuse angles and acute angles</li> </ul> <p>Challenge what other facts can you tell me about these flags?</p> | <p>3 x Laminated activity cards</p> <p>Laminated flags</p> <p>Whiteboard pens.</p>                      | <p>Pictures in picture books, postcards, flags (see below)</p>     |

**Activity 1 Using Equal Sum as a mental method of addition**

**Explore**

Use the bead strings to prove that  $9 + 7 = 10 + 6$



What has changed and what has stayed the same?

Has the total number of beads changed?

If you take 3 beads from the 9 and give them to the 7 you get 6 and 10.

If you take one bead from the 7 and give it to the 9 you get 10 and 6.

$9 + 7$  has been rebalanced for an equal sum. You can rename this sum  $10 + 6$ . This is called the equal sum strategy.

Can you use this strategy to rename this sum:

$16 + 8 = 20 + \underline{\quad}$

**Practise**

**Use the equal sum strategy to solve**

|            |           |
|------------|-----------|
| $38 + 6$   | $38 + 16$ |
| $238 + 6$  | $38 + 26$ |
| $1238 + 6$ | $38 + 56$ |

You can record your answers on the whiteboards and use your bead strings to help you.

**Apply**

Take two numbers from the basket and use the 'equal sum' strategy to help you with the addition.

**Activity 2 Using Equal Difference as a mental method of subtraction**

**Explore**



Q: Using multilink cubes, build two towers: 8 and 5. What is the difference? What is the subtraction sentence?

A:  $8 - 5 = 3$

Add one cube to each tower. What is the subtraction sentence? What is the difference?

A:  $9 - 6 = 3$

Can you only add to the keep the difference constant / equal?

Can you only use adding or subtracting steps of 1 to the keep the difference constant / equal?

Now build  $28 - 13$ .

What can you add or subtract from either side to make the calculation easier? Use the multilink cubes .

For example:

$$\overset{+2}{28} - \overset{+2}{13} = 30 - 15 \quad \text{or} \quad \overset{-3}{28} - \overset{-3}{13} = 25 - 10$$

Is there more than one option?

Which is the best option? Why?

**Practise**

Have a go at the examples on the reverse.

**Challenge**

For each example on the reverse, discuss:

- Is there more than one option?
- Which is the best option? Why?

4LS3

Step 6 Rebalancing Recording Frame

**56 - 29**

|                     |                          |                                                     |
|---------------------|--------------------------|-----------------------------------------------------|
| Adding to each side | Subtracting to each side | We think _____ to each side makes it easier because |
|---------------------|--------------------------|-----------------------------------------------------|

**78 - 38**

|                     |                          |                                                     |
|---------------------|--------------------------|-----------------------------------------------------|
| Adding to each side | Subtracting to each side | We think _____ to each side makes it easier because |
|---------------------|--------------------------|-----------------------------------------------------|

**55 - 27**

|                     |                          |                                                     |
|---------------------|--------------------------|-----------------------------------------------------|
| Adding to each side | Subtracting to each side | We think _____ to each side makes it easier because |
|---------------------|--------------------------|-----------------------------------------------------|

**328 - 198**

|                     |                          |                                                     |
|---------------------|--------------------------|-----------------------------------------------------|
| Adding to each side | Subtracting to each side | We think _____ to each side makes it easier because |
|---------------------|--------------------------|-----------------------------------------------------|

**482 - 302**

|                     |                          |                                                     |
|---------------------|--------------------------|-----------------------------------------------------|
| Adding to each side | Subtracting to each side | We think _____ to each side makes it easier because |
|---------------------|--------------------------|-----------------------------------------------------|

**887 - 63**

|                     |                          |                                                     |
|---------------------|--------------------------|-----------------------------------------------------|
| Adding to each side | Subtracting to each side | We think _____ to each side makes it easier because |
|---------------------|--------------------------|-----------------------------------------------------|

**Activity 3 To use arrays to understand multiplication**

**Explore**

Arrange 24 counters to make 4 rows of 6 like these stars:



What is the multiplication sentence for the above array?

4 x \_\_\_\_ =            or    6 x \_\_\_\_ = \_\_\_\_

**Practise**

Use the counters to prove that  $3 \times 4 = 4 \times 3$

**Apply**



Sarah says that she can pack 36 donuts into a rectangular box. Is she correct? Can you prove it using counters?

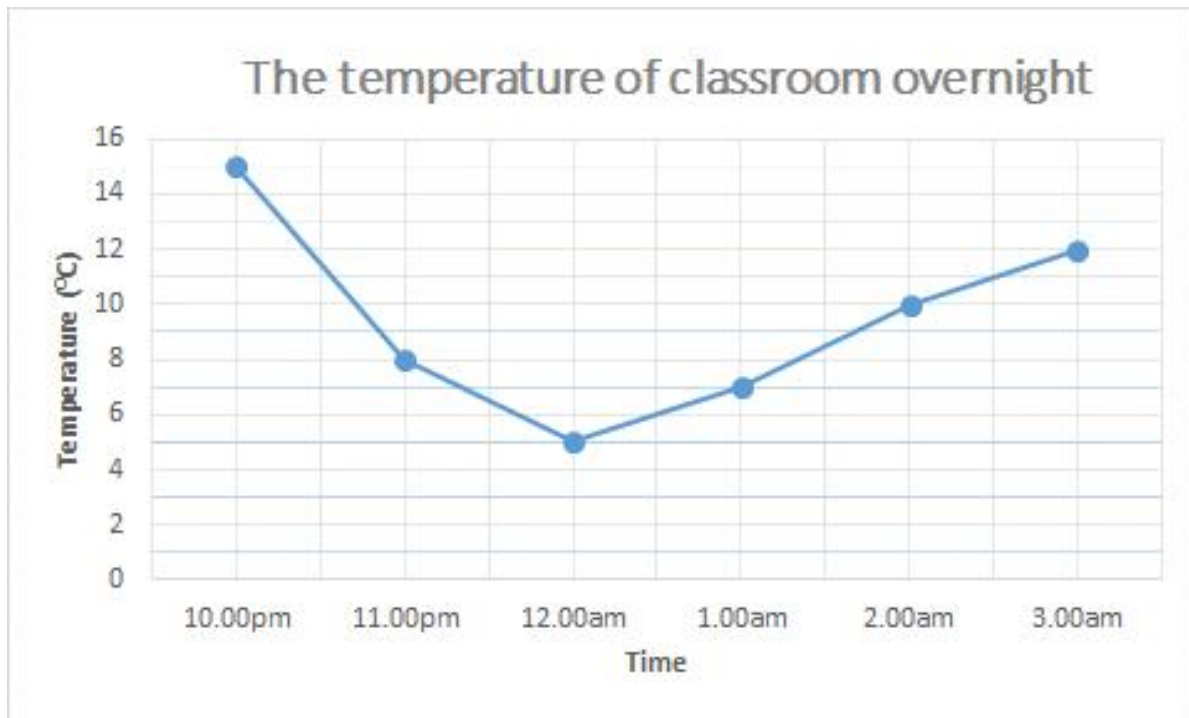
**Challenge**

How many different ways can Sarah fit 36 donuts into a rectangular box?

**Activity 4 To interpret a line graph**

This graph shows the temperature inside our classroom overnight last night recorded with a datalogger:

| Time           | 10.00pm | 11.00pm | 12.00am | 1.00am | 2.00am | 3.00am |
|----------------|---------|---------|---------|--------|--------|--------|
| Temperature °C | 15      | 8       | 5       | 7      | 10     | 12     |



**Explore**

- 1) For how many hours was the temperature recorded? \_\_\_\_\_
- 2) At what time was the highest recorded temperature? \_\_\_\_\_
- 3) What is the temperature at 2am? \_\_\_\_\_
- 4) At what time was the room 8°C \_\_\_\_\_

**Practise**

- a) What was the temperature at 12am? \_\_\_\_\_ at 1am \_\_\_\_\_?
- b) What is the difference between the temperature at 12am and 1am? \_\_\_\_\_
- c) What is the difference between the temperature at 10pm and 2am? \_\_\_\_\_

**Apply**

What was the temperature at 11.30pm? \_\_\_\_\_

**Challenge**

What other statements can you make based on this graph?

**Activity 5 To investigate perimeter**

**Explore**

Use the matchsticks to create the following rectangle:



Calculate the perimeter of the rectangle using the three different methods:

- Add all sides e.g.  $5 + 2 + 5 + 2$  \_\_\_\_\_
- Add length and width then double e.g.  $5 + 2 = 7$ , then double 7. \_\_\_\_\_
- Double length, then double width, then add together. Double 5 plus double 2. \_\_\_\_\_

Which method is easier? Why?

**Independent Practice**

Use the matchsticks to create other rectangles on your grids. Calculate the perimeters of these rectangles.

**Challenge**

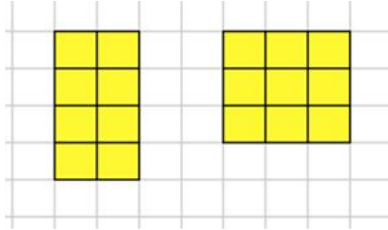
How many different rectangles can you create which have a perimeter of 12?



**Activity 6 To investigate area**

**Explore**

**Area is the space that a shape takes up. The following shapes are made up of squares:**



**SHAPE A**

**SHAPE B**

The area of shape A is 8 squares. The area of Shape B is \_\_\_\_\_ squares.

Take four cubes and put them together like a square. What is the area of your square? \_\_\_\_\_

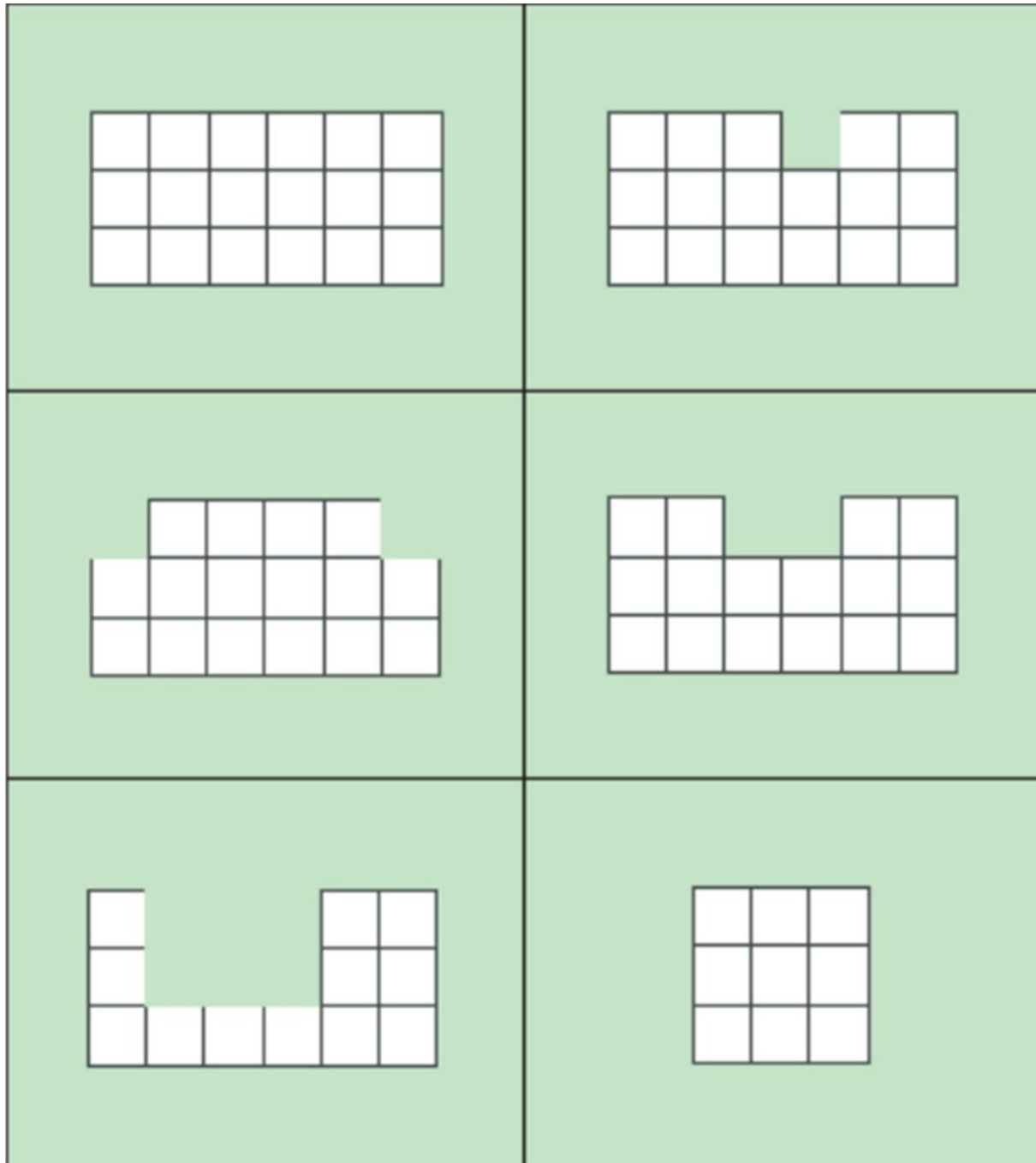
Use other cubes and explore building rectangles. What is the area of each rectangle that you build?

**Practise**

What is the area of the shapes on the reverse?

**Challenge**

How many different shapes can you make with an area of 12 squares? (You can use the cubes)



**Activity 7 To describe properties of shape (context: quadrilaterals)**

1) Identify and mark key features on the flags:

- a. Pairs of parallel lines
- b. Right angles
- c. Pairs of perpendicular lines



- 2) Label all obtuse angles **O**
- 3) Label all acute angles **A**



**Challenge**

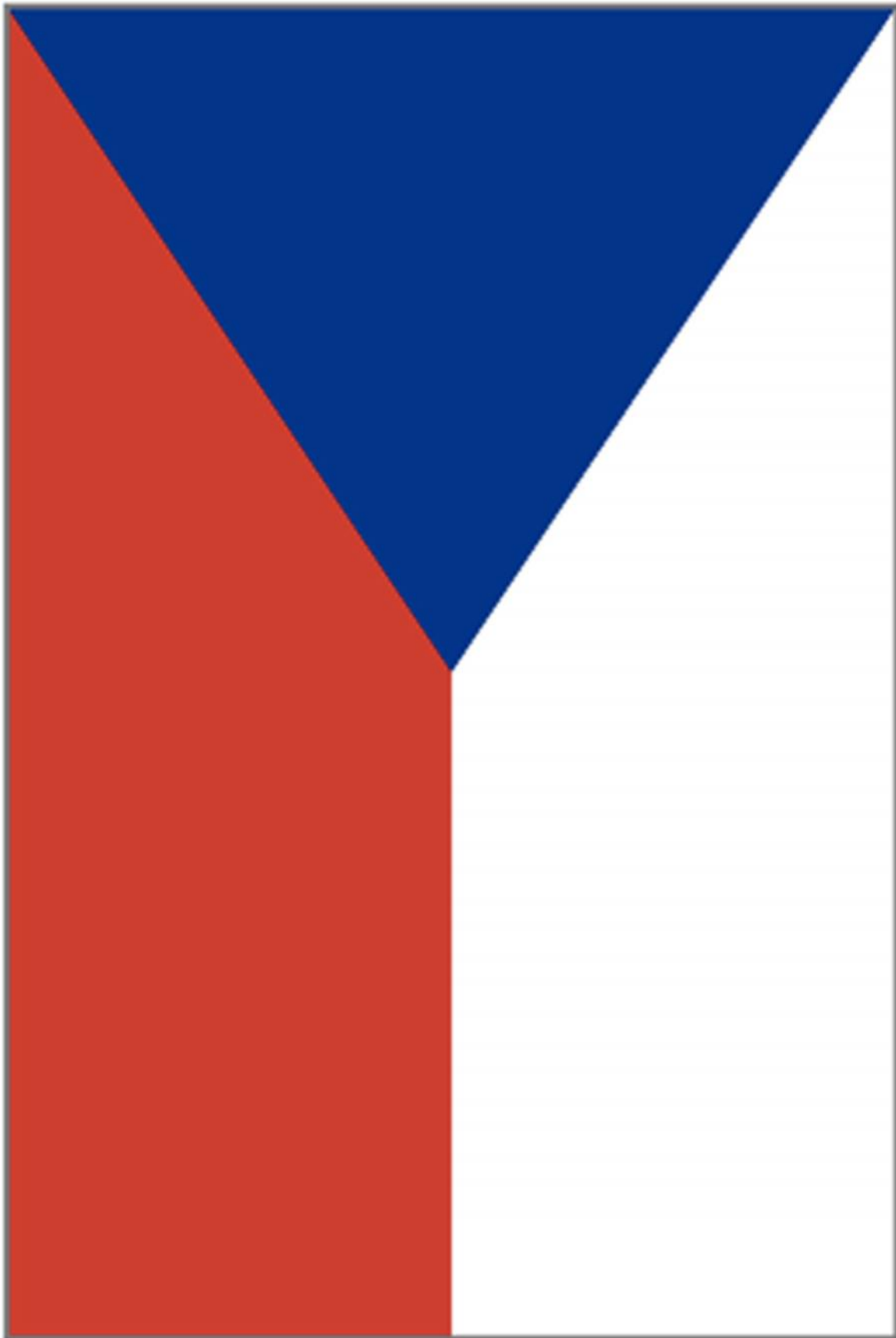
What other mathematical statements can you make about each flag?







Maths Week 22-26 January 2018  
Parent Workshop Outline





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