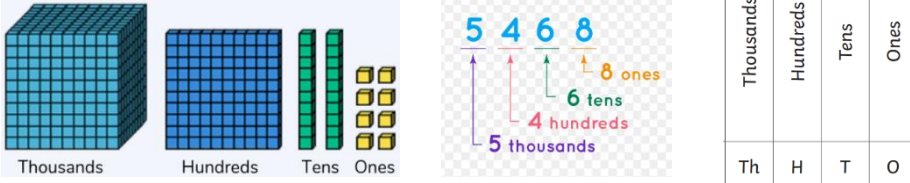


**Term 1: The Stone Age- Can you survive the Stone Age?**

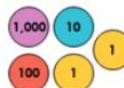
Objectives	Approximate number of lessons (70 total)	Investigations/variation	Context
<p>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</p>	<p>10</p>	<ul style="list-style-type: none"> <li>Children know that 10 ones is the equivalent to 1 ten- able to show this through pictorial representations, base ten/numicon and oral explanation.</li> <li>Children recognise and can represent 4-digit numbers using base ten and numicon.</li> <li>Children to identify the thousands, hundreds, tens and one digit in a four digit number.</li> <li>Children know the thousand number holds the most value and ones hold the least.</li> </ul>  <p>Match 4600 to numbers with the same value.</p> <p>460 tens 460 hundreds 46 hundreds 4600 ones 46 tens</p> <p>4600</p> <p><b>INVESTIGATIONS:</b> Guessing the number based on given clues for each digit.</p>	<p>Use Dienes to support children's understanding.</p>
<p>Order and compare numbers beyond 1000.</p>	<p>2</p>	<ul style="list-style-type: none"> <li>Children to order and compare 4-digit numbers using their place value knowledge.</li> <li>Can orally explain why a number is bigger or smaller- including key terminology in their explanation.                             <ul style="list-style-type: none"> <li>i.e: thousands, hundreds, tens, ones, value, higher, lower.</li> </ul> </li> <li>Children to use more than, less than or equal to sign to compare number value.</li> </ul>	<p>Comparing numbers related to the Stone Age Use &lt;, &gt; or = to fill in the blanks of questions.</p> <p>Add up the daily miles walked from one week and compare them to another using &lt;, &gt; or =.</p>

- Children can order numbers in ascending and descending order and know the difference between.

Compare the numbers using  $<$ ,  $>$ ,  $=$ .

4,003 \_\_\_ 4,030

4. Which statement is incorrect?

- A. Six thousand and seven  $<$  6,700
- B. 5,897  $>$  6,000 + 700 + 70 + 4
- C.  = 1,112

Explain why.

Ascending order...

4658      2839      6740      1829      5759

Descending order...

5652      6786      9562      7621      5961

How would you compare two numbers that had the same amount of thousands and hundreds?

3789      3794

### INVESTIGATIONS:

#### 1 Fluency

- Underline the smallest amount.
- a) Two thousand, three hundred and ninety seven      3792
- b)  $6000 + 400 + 50 + 6$       6455
- c) 9 thousands, 2 hundreds and 6 ones      9602

Compare and order the following numbers in ascending order.

d) 4,925   4,259   4,529   4,592   4,295   4,952

Compare and order the following numbers in descending order.

e) 5278   6728   4373   4390   9083   3981   4582

#### 2 Reasoning

- Do, then explain...
- 2a) 5035   5053   5350   5530   5503

If you wrote these numbers in order starting with the largest, which number would be third? Explain how you ordered the numbers.

#### 3 Problem solving

5000 years ago Egyptians carved number symbols on their tombs:

⌋ = 1  
⌋⌋ = 10  
⌋⌋⌋ = 100

What is the value of these Egyptian numbers?

⌋⌋⌋⌋

⌋⌋⌋⌋ + ⌋⌋⌋⌋⌋

⌋⌋⌋⌋⌋⌋ + ⌋⌋⌋⌋⌋⌋⌋⌋⌋⌋

Here are the distances (as the crow flies) in km from London to various cities in the world.



Sort out these journeys in order according to the distances involved.

Round any number to the nearest 10, 100 and 1000.

5

- Children know that the value of 5 and above round up.
- Children know what digits to look at when rounding to either the nearest 10, 100 or 1000.
- Children have to explain their understanding verbally as well as showing it through written methods.
- Children can highlight errors and amend mistakes.

NUMBER	NEAREST 10	NEAREST 100	NEAREST 1000
327	330		
192	190	200	
853			1000
769			
407			
250			
1436			
1825			
2413			
3179			
5734			
6952			
4577			
9552			

3. Laura asks, "If 45 is halfway between 40 and 50, why is it rounded up to 50 when rounding to the nearest 10?"

Explain to Laura why 45 is rounded up when rounding to the nearest 10.

**INVESTIGATIONS:**  
**Reasoned Rounding**

**Age 7 to 14**  
**Challenge Level ★**

Reasoned Rounding is a rounding game for 2 players. You will need a [recording sheet](#) shared between the 2 players. One sheet is enough for three games. ([Recording sheet](#) pdf version.)

The first player rolls a 0-9 die twice and chooses which two-digit number they would like to make from the numbers rolled. They then have to round this to the nearest value of 10, find the matching circle on the recording sheet and write their two digit number in one of the spaces in that circle.

Player two rolls the die twice to take their turn in a similar way.

A circle is complete when it has two numbers in it and this scores a point for the person who wrote the **second number** in. (Even if the first number was written in by the other player.)

The game is over when all the circles are full and then the points are counted up to find the winner.

Think of day-to-day task when rounding is used.  
Rounding numbers to the nearest 10, 100 and 1000 to make maths simpler.

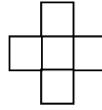
Find 10,100 and 1000 more or less than a given number.

3

- Children to know what digit to look at when finding 10, 100 or 1000 more or less- able to include place value knowledge and terminology when explaining.

Children to be able to answer problem solving questions as well as arithmetic style questions that relate to this.

- Children know that only the main number changes and the remaining numbers do not- exception when crossing over 90 to 100 or 900 to 1000- (MAP and HAP to access this).
- Children use nets to show understanding:
  - Given number in the middle
  - Left = 10 less
  - Right = 10 more
  - Above = 100 less
  - Below = 100 more




*Can be changed to focus on 100 and 1000 more or less or to 1 and 10 more or less depending on ability.*

### INVESTIGATIONS:

Lost in the Maze: aim to reach the trophy by following the pattern of 1000 more or less of the numbers in the grid.

#### Lost in the Maze

I can find 1000 more or less than a given number.  
Cody needs to find his way to the golden cup. Choose a starting number from the top of the grid. Counting 1000 more from that number each time, find the path to the cup. You can travel in any direction apart from diagonally.

506	389	783	546	1546	783
406	1389	1290	1390	2456	1783
306	2389	3389	2290	3783	2783
206	1206	4389	3390	4783	5783
7839	6839	5389	4390	5733	6783
8893	11783	10783	9783	8783	7783
	12783	13838	5390	8934	2873

Roman Numerals to 100

3

- Children to learn the main 6 Roman Numerals:  
 $1 = I$                        $5 = V$                        $10 = X$                        $50 = L$   
 $100 = C$
- Children learn the rules of Roman Numerals
- Children can write Roman Numeral 1 – 100
- Children can be given a Roman Number and work out the number- to be done in reverse as well.
- Children can identify mistakes and understand the misconception within- relating back to the rules.

**INVESTIAGTIONS:**

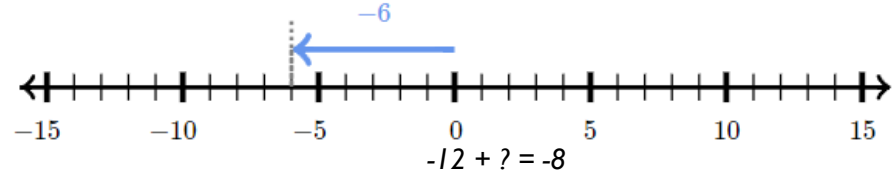
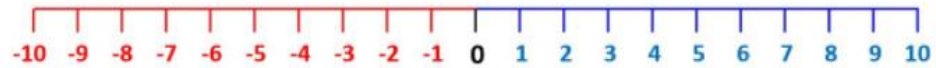
The answer to each question will give you a letter. Solve the Roman numeral calculations and then figure out what the word is.

XX + XX = _____	A=L	H=III	P=XXIV
VIII + VI = _____	B=I	I=XXIII	Q=XXVI
XXI - XVII = _____	C=IX	K=VI	R=XIV
XLI + IX = _____	D=XX	L=XXII	S=C
XXV - XX = _____	E=IV	M=X	T=V
XXIII - XIX = _____	F=XVI	N=XXV	U=XII
LXXX + XX = _____	G=XL	O=XI	W=XIX
XX - XV = _____			

Negative Numbers

3

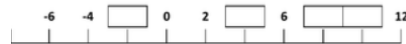
- Children use a number line to see positive and negative numbers.
- Children know that when adding or subtracting negative numbers, zero is always counted.
- Children can compare negative numbers- knowing that the numbers closer to 0 are bigger.
- Children can fill in missing numbers on number lines and in calculations.



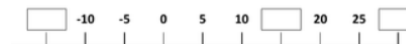
$7 - 9 = ?$



$-6 + ? = 14$

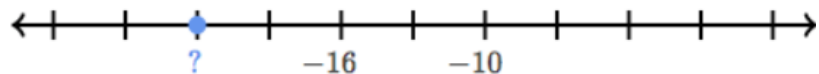


$-3 - 5 = ?$



$-1 - ? = -13$

What is the value of the blue dot?



Link negative numbers with temperature as children will be familiar with seeing negative numbers in this context.

The colder the temperature the smaller the number- this will help minimise misconceptions about negative numbers, i.e. -20 being more than -2.

**INVESTIGATIONS:**  
 Researching the temperatures of countries and ordering them in ascending order.

**FRIDAY MATHS INVESTIGATION**  
 Your Task:  
 Research where these places are in the world. Then find out the average temperature of each place. When you have finished, order the temperatures from coldest to hottest.

<b>Mount Everest</b> Country: Temperature:	<b>The Grand Canyon</b> Country: Temperature:
<b>Vostok Station</b> Country: Temperature:	<b>London</b> Country: Temperature:
<b>Paris</b> Country: Temperature:	<b>Moscow</b> Country: Temperature:
<b>Lut Desert</b> Country: Temperature:	<b>Siberia</b> Country: Temperature:
<b>Rome</b> Country: Temperature:	<b>Zimbabwe</b> Country: Temperature:
<b>Alaska</b> Country: Temperature:	<b>North Antrim</b> Country: Temperature:

Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

10

- Children know when to use column addition and column subtraction.
- Children can use the correct written method for both column addition and subtraction; ensuring digits are in the same columns and understand the importance of this.
- Children can answer questions requiring carrying over and exchanges.
- Children can use column addition to add more than 2 numbers.
- Children can highlight deliberate mistakes as well as their own and amend effectively.
- Children will be able to apply column addition and subtraction methods to reasoning and problem solving questions as well as arithmetic.

	H	T	O						
	4	5	3						
+	1	2	5						

		Th	H	T	O				
		6	0	7	5				
	+		9	4	8				

b)

		Th	H	T	O				
		4	7	1	2				
	+	3	4	9	2				

Compare calculations using more than or less than sign.

Relate to Stone Age artefacts and objects found at different camps. Add up the number of objects found, include animal teeth, animal fur, weapons, fires etc.

2 Who has got each question correct? Tick your answer.

a) Nijah 

	H	T	O
	4	4	5
+	3	4	8
	78	1	3

 Scott 

	H	T	O
	4	4	5
+	3	4	8
	7	9	3
		1	

b) Nijah 

	Th	H	T	O
	4	8	2	6
+	1	7	8	
	6	6	0	6
	1	1		

 Scott 

	Th	H	T	O
	4	8	2	6
+		1	7	8
	5	0	0	4
	1	1	1	

What mistake has the other person made in each calculation? Talk about it with a partner.

5,435 – 2,036

b) 5,436 – 2,036

c) 5,437 – 2,036

4 Complete the calculations.

a) 

	Th	H	T	O
	7	3	2	5
-	2	4	0	6

c) 

	Th	H	T	O
	7	1	0	2
-		3	9	8

b) 

	Th	H	T	O
	5	6	3	4
-	2	7	4	5

d) 

	Th	H	T	O
	5	0	0	0
-	1	7	3	3

### INVESTIGATIONS:

I have fifteen cards numbered 1 – 15.

I put down seven of them on the table in a row.



The numbers on the first two cards add to 15.  
 The numbers on the second and third cards add to 20.  
 The numbers on the third and fourth cards add to 23.  
 The numbers on the fourth and fifth cards add to 16.  
 The numbers on the fifth and sixth cards add to 18.  
 The numbers on the sixth and seventh cards add to 21.

What are my cards?

Can you find any other solutions?

How do you know you've found *all* the different solutions?

### REACH 100

Here is a grid of four "boxes":



5	2
1	9

You must choose four **different** digits from 1-9 and put one in each box. For example:

This gives four two-digit numbers:

52 (reading along the 1st row)  
 19 (reading along the 2nd row)  
 51 (reading down the left hand column)  
 29 (reading down the right hand column)

In this case, the sum is 151.

Try a few examples of your own and see what numbers you end up with.

#### CHALLENGE:

Your challenge is to find four **different** digits that give four two-digit numbers which add to a total of 100.

How many ways can you find of doing it?

Recall multiplication and division facts for multiplication tables up to  $12 \times 12$

10  
(and then revised throughout the year)

- Children to use TT Rockstars at least three times a week during school time.
- Children focus on different times tables at the beginning of the week.
- Children's time and accuracy increases.
- Children know the inverse division facts as well.

#### INVESTIGATIONS:

These sixteen children are standing in four lines of four, one behind the other. They are each holding a card with a number on it.



Each child in blue is holding a number which is four more than the child in the same row wearing red.

The children in yellow shirts each have a number which is double the number of the child in the same row wearing red.

Some of the numbers that the children in red, blue or yellow shirts are holding have got rubbed off. What should the numbers be?

Can you work out how the numbers that the children in green are holding have been worked out? What are the two missing numbers?

If there was another row of four children standing behind the fourth row, what numbers would they be holding?

Children to take part in TT Rockstar battles within school and against the academy.



Estimate and use inverse operations to check answers to a calculation

5

- Children display increasing confidence in column addition and subtraction, as well as multiplication facts up to  $12 \times 12$  and divides.
- Children use column addition and subtraction to check inverse calculations of numbers up to 4-digits.
- Children use whole-part-whole methods to visualise calculations.
- Children use times table number facts to work out the inverse of multiplication and division calculations.
- Children use inverse calculations when checking their own work.
- Children use inverse calculations in problem solving questions.



Using the same numbers, complete the second number sentences.

- $25 - 7 = 18$        $18 + \square = \square$
- $38 + 9 = 47$        $47 - \square = \square$
- $5 \times 6 = 30$        $30 \div \square = \square$
- $45 \div 5 = 9$        $9 \times \square = \square$
- $36 - 8 = 28$        $\square + 28 = \square$

since  $9 \times 8 = 72$       since  $6 \times 6 = 36$   
then  $72 \div 9 = \square$       then  $36 \div 6 = \square$

since  $5 \times 6 = 30$       since  $7 \times 6 = 42$   
then  $30 \div 5 = \square$       then  $42 \div 7 = \square$

since  $6 \times 5 = 30$       since  $6 \times 9 = 54$   
then  $30 \div 6 = \square$       then  $54 \div 6 = \square$

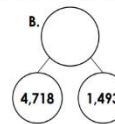
**INVESTIGATIONS:**

Multi-step questions that include mistakes; making children use the inverse to identify mistakes and solve questions correctly.

2. True or false? C totals the largest number. Complete each calculation to check.

A.

Th	H	T	O
●●●	●●●●	●●●●	●●●●
+	●	●●●●	●●●●



C.

2,360	4,857

3. Arthur has filled in the boxes in the calculation to total the answer below.

	3	7	5	4
+	3	7	7	8
	6	4	2	2
	1	1	1	

Is he correct? Prove it.

Equivalent Lengths:  
m and cm

2

- Children know the meaning of equivalent and can use this when explaining reasons verbally, as well as written.
- Children know 1m is equivalent to 100cm (up to 10m).
- Children know that when converting metres to centimetres, if the measurement is less than 100cm it cannot be converted into a metre.
- Use whole-part-whole method when partitioning units.
- When measuring, children know when to use meters and when to use centimetres.
- Children can solve reasoning and problem solving questions related to equivalent lengths: m and cm.

- 1 meter = 100 cm
- 2 meters = 200 cm
- 3 meters = 300 cm
- 4 meters = 400 cm
- 5 meters = 500 cm
- 6 meters = 600 cm
- 7 meters = 700 cm
- 8 meters = 800 cm
- 9 meters = 900 cm
- 10 meters = 1000 cm

Can you match the equivalent measurements?

100 cm	9 m
5 m	200 cm
300 cm	500 cm
2 m	1 metre
900 centimetres	3 m

#### Equivalent Lengths m and cm

1. Match the object to the most efficient unit of measurement.

tractor



m

trumpet



cm

racket



house



Not to scale

4. Tess has measured the length of an object. It measured the amount shown here.

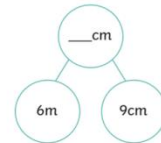
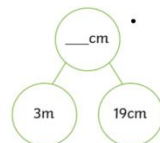
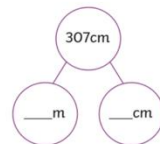
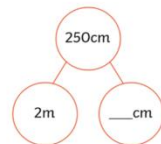
0 m 4 m

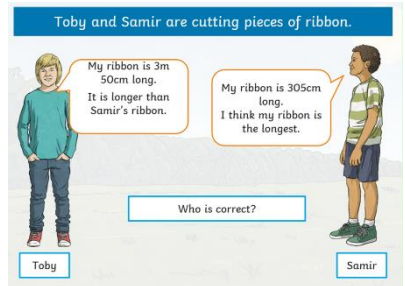
Which of the objects below do you think she measured?



Not to scale

Explain your answer.





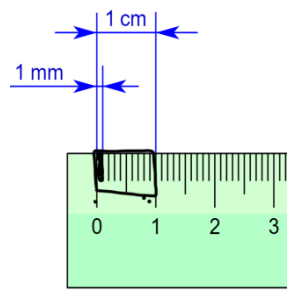
**INVESTIGATIONS:**  
 Discuss and choose. Children to measure objects around the classroom and outside, converting each measurement. Children to discuss the most appropriate unit to measure each object. Children then order measurements.

Equivalent Lengths:  
 cm and mm

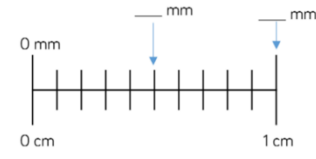
2

- Children know the meaning of equivalent and can use this when explaining reasons verbally, as well as written.
- Children know cm is equivalent to 100mm (up to 10cm).
- Children know how to convert centimetres and millimetres,
- When measuring, children know when to use meters and when to use centimetres or millimetres.

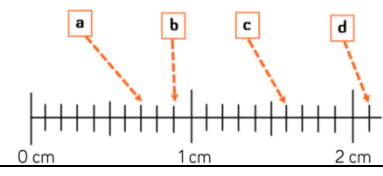
10cm	100mm
20cm	200mm
30cm	300mm
40cm	400mm
50cm	500mm



he blanks.



There are \_\_\_ mm in 1 cm.



- a = \_\_\_ cm \_\_\_ mm
- b = \_\_\_ cm \_\_\_ mm
- c = \_\_\_ cm \_\_\_ mm
- d = \_\_\_ cm \_\_\_ mm

Discuss and choose appropriate measurements when measuring Stone Age artefacts and when designing Stone Age weapons.

Look at Neanderthals and their facial structure, hand span, foot size etc. measure and compare this with their own- discuss findings.

**INVESTIGATION:**  
 Discuss and choose. Children to measure objects around the classroom, converting each measurement. Children to discuss the most appropriate unit to measure each object. Children then order measurements.

**TASK 1**  
 Select one object at a time from around the classroom. Use a ruler to measure to object accurately in cm.  
 Remember that cm to mm will get larger and mm to cm will get smaller.

OBJECT	CM	MM
Exercise book	21.9 cm	219 mm

**TASK 2**  
 Order the measurements from smallest to largest, using either cm or mm.

Adding and Subtracting lengths:  
 m, cm and mm

5

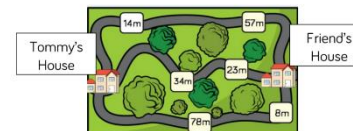
- Children know when adding/subtracting lengths to use column addition or subtraction.
- Children know that when adding or subtracting lengths, the units must be the same.
- Children can convert/find the equivalent lengths and work out the totals of lengths.
- Children can convert answers into different measurements.

1.  $7m\ 82cm + 921cm$
2.  $137cm + 2m\ 77cm$
3.  $2910cm + 3m\ 68cm$
4.  $19m\ 34cm + 653cm$
5.  $962cm + 213cm$
6.  $82m\ 2cm + 1327cm$

Ron builds a tower that is 14 cm tall.  
 Jack builds a tower than is 27 cm tall.  
 Ron puts his tower on top of Jack's tower.  
 How tall is the tower altogether?

**INVESTIGATION:**  
 Answer reasoning and problem solving questions.

4. Isla has completed her homework. Tommy needs to travel to his friend's house. He wants to take the shortest possible route. Which way should Tommy go?
- A.  $7\ m\ and\ 40\ cm - 217\ cm = 523\ cm$
  - B.  $8\ m - 510\ cm = 2\ m\ and\ 90\ cm$
  - C.  $190\ cm - 106\ cm = 84\ cm$
  - D.  $360\ cm - 220\ mm = 140\ cm$
- Explain the mistake that Isla has made.



Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres

3

- Children know the definition of perimeter and know that it is related to a closed 2-D shape.
- Children know to add all the lengths of each side of the shape to work out the perimeter.
- Children know and recognise equivalent lengths in squares and rectangles and can verbally justify their reasonings.
- Children can work out missing lengths and then work out the perimeter.
- Children know to include the units of measurement when writing the answer.
- Children can work out the perimeter of irregular shapes.

Work out the perimeter of Stonehenge and of Stone Age camps.

MATHS 25.1.2021

**STARTER:**

1.  $2391 + 7825 =$     3.  $9826 - 5364 =$     5.  $9612 \times 0 =$     7.  $8421 + 853 =$   
 2.  $34 \times 7 =$     4.  $52 \times 8 =$     6.  $9 \times 11 =$     8.  $4522 - 309 =$

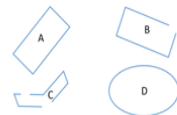
LO: To find the perimeter of a given shape

What is perimeter? -----  
 -----

TASK 1: Circle all the 2-D Shapes



TASK 2: Circle all the closed shapes

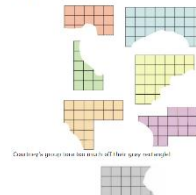


**INVESTIGATIONS:**

**Torn Shapes**

**Age 7-11**  
**Challenge level**  
 Robin's class cut out rectangles and some shapes which were not rectangles (not all squares) from one sheet of paper. They then counted how many squares the shapes took up.

Robin has three more of these sets of pieces of torn shapes to make a puzzle for the class to solve. Can you help him by using up every piece from these shapes before he has to take any? The shapes, blue, orange and yellow shapes were rectangles. The broken torn shapes, which are pink, orange and purple, were each torn rectangles given originally.



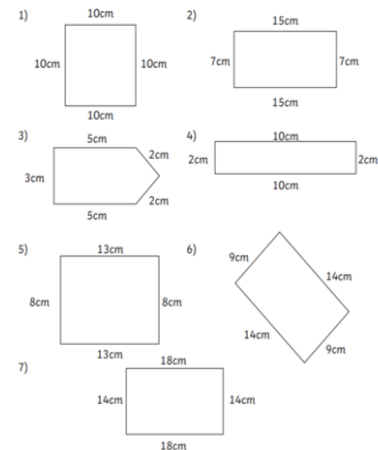
Can they give him answers to all their questions?  
 What is the smallest number of squares it could have had?  
 What is the largest number of squares it could have had? It was not longer than the longest of the other shapes?

LO: Measure Perimeter

22.11.21

**YOUR TASK: FIND THE PERIMETER OF THESE SHAPES!**

Calculate the perimeter of each of these shapes. Write the answer inside the shape. Always check the units of measure and remember that these drawings are not to scale!



**Challenge:**

I am thinking of a shape, one side is 6cm long, another is 9cm long, another is 10cm and the last side is 8cm long.

Draw out this shape accurately using a ruler.

Even though my shape has 4 sides, it is not a square.

