



In the warehouse –



I work in the warehouse of a big *do-it-yourself* shop. I like it because there's lots of variety in the things I have to do and I meet a lot of people.

There are deliveries to be checked in and shelves to be stacked. Customers' orders have to be processed, loaded into the vans and delivered.

Do I use numbers in my job? Well, I have to recognise the stock numbers of all the things we sell and I have to count how much stock there is. I need to check how many items there are in each packing case and what will fit on to the shelves in the warehouse. I organise the deliveries, so I need to work with distances. So, yes, I use numbers every day.



Talk about it

Do you ever do any DIY?

Do you ever go to big DIY shops?

Do you ever have to pack or stack things?

Have you planned a journey and thought about the distance?

What maths skills do you think you might need for these tasks?

These are the skills you will practise in this unit.

Which are the most useful for you? Tick the boxes.

- ☐ Using, **adding** and **subtracting** numbers up to 1000
- ☐ **Multiplying** and **dividing** two digits by one digit
- ☐ **Approximating** numbers and **estimating** answers
- ☐ Understanding miles and kilometres as **distances**
- ☐ Sorting mathematical **shapes**

Skill code

N1/E3.1, 2, 9

N1/E3.4, 6, 9

N1/E3.7, 8

MSS1/E3.4

MSS2/E3.1

Getting things in the right order

It's a big warehouse. When I put an order together for a customer, I have to use the stock code numbers. Everything has a different number. I start at one end of the warehouse where the lowest stock codes are and work my way to the other end where the highest stock codes are.

The things Mrs Brown wants are shown below. The list on the right has the same items as the list on the left, but the order has been changed so that the stock code numbers are in **ascending order**.

Ascending order means that the numbers are arranged with the lowest number first e.g.

1, 2, 3, 4, 5

or 100, 102, 106, 153.

For Mrs Brown's order, the lowest stock number is 450, the next lowest is 746 and so on.

DIY4ALL

Customer name and address:
Mrs Brown, 4 Hawthorn Gardens, Hambledon.

Stock code	Description	Price
746	Blue paint	
928	Pale blue wallpaper	
907	Paste	
450	Brush	

DIY4ALL

Customer name and address:
Mrs Brown, 4 Hawthorn Gardens, Hambledon.

Stock code	Description	Price
450	Brush	
746	Blue paint	
907	Paste	
928	Pale blue wallpaper	

Activity 1

Here is an order form for Mr Taylor. Sort the items into ascending order of stock code numbers.

DIY4ALL

Customer name and address:
Mr Taylor, Unit 12, Cornley Estate

Stock code	Description	Price
744	Dark green paint	
730	Light green paint	
792	White paint	
248	Roller	
324	Tray	
951	Mint wallpaper	
836	Border	
907	Paste	

DIY4ALL

Customer name and address:
Mr Taylor, Unit 12, Cornley Estate

Stock code	Description	Price
248	Roller	
.....	
.....	
.....	
.....	
.....	
.....	
.....	

Tip

Sorting numbers

$384 = 300 + 80 + 4 = 3 \text{ hundreds} + 8 \text{ tens} + 4 \text{ units}$

$306 = 300 + 00 + 6 = 3 \text{ hundreds} + 0 \text{ tens} + 6 \text{ units}$

So 306 is lower because it has the same number of hundreds, but fewer tens.

In sequence

When I'm looking for a stock item in the warehouse and I see number 227, I know that 127 will be in the aisle before and 327 will be in the aisle after.



The numbers go in **sequence**: 127, 227, 327, 427 etc.

Can you continue the sequence? Talk about sequences in your group.

Think about places where numbers are used in order or in sequence.

Activity 2

1 Fill in the missing numbers in the following sequences.

a 10 20 30 60 100

b 13 23 33 43 73 103

Check your answers before going on.

c 98 88 78 48 8

d 100 200 300 600 1000

e 137 237 337 637 937

f 952 852 752 452 52

2 These sequences have been jumbled up. Put the numbers back in **ascending** order. You will find it helpful to cross out a number when you have put it in the right place.

a ~~25~~ 65 ~~5~~ 45 95 85 55 ~~15~~ 35 75

5 15 25

b 91 11 81 71 21 1 41 51 61 31

.....

c 145 645 245 545 945 845 345 445 745

.....

3 Put these numbers into **descending** order.

384 184 684 984 584 284 784 484 884

.....

Remember

- **Ascending** means from lowest up to highest.
- **Descending** means from highest down to lowest.

Address the order

Today one of the vans is delivering goods along Great Western Road.

Which would be the best order to make the stops?



Activity 3

Here are the order forms for goods that have to be delivered in Great Western Road. Write the addresses in **ascending** order of house number.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

DIY 4 ALL

B. Bridges, 384 Great Western Road

DIY 4 ALL

D. Sangster, 851 Great Western Road

DIY 4 ALL

Car Kits, 225 Great Western Road

DIY 4 ALL

Mo's Muncher, 369 Great Western Road

DIY 4 ALL

Akrams, 492 Great Western Road

DIY 4 ALL

Cut & Curl, 348 Great Western Road

DIY 4 ALL

Able Alarms, 467 Great Western Road

DIY 4 ALL

S. Davies, 94 Great Western Road

DIY 4 ALL

Sports United, 326 Great Western Road

DIY 4 ALL

A.Crosby, 122 Great Western Road

DIY 4 ALL

M. Watson, 175 Great Western Road

DIY 4 ALL

E. McKenzie, 59 Great Western Road

Odds and evens

Think about a street you often walk along.

How are the houses or shops arranged?

How does the postal worker know which house is which?

Which numbers are **odd** and which are **even**?

Odd numbers end in 1, 3, 5, 7 or 9. Even numbers end in 0, 2, 4, 6 or 8.

For example, 641 is an odd number and 642 is an even number.

Tomorrow I'm delivering stock along the High Street. The traffic is really busy, so it's best to deliver to all the odd numbers along one side first and then come back down the other side starting with the highest even number.

Activity 4

Put the addresses in order for the High Street deliveries – odd numbers in ascending order first, followed by even numbers in descending order.

DELIVERIES **DIY 4 ALL**
N. Garth, 47 High Street

DELIVERIES **DIY 4 ALL**
ABC Writers, 196 High Street

DELIVERIES **DIY 4 ALL**
S. Beck, 88 High Street

DELIVERIES **DIY 4 ALL**
L. Pegram, 265 High Street

DELIVERIES **DIY 4 ALL**
International Inc, 123 High Street

DELIVERIES **DIY 4 ALL**
McKie's, 181 High Street

DELIVERIES **DIY 4 ALL**
Trelims Ltd, 224 High Street

DELIVERIES **DIY 4 ALL**
M. Heads, 52 High Street

1
2
3
4

5
6
7
8

Remember

- Odd numbers end in 1, 3, 5, 7 or 9.
- Even numbers end in 0, 2, 4, 6 or 8.



Review

Do you need more practice in putting numbers in order, sequencing or understanding odd and even numbers?

Yes ☐ No ☐

For more work on this, go to H1, H2 and H3 (page 20) or E1 (page 22).

Paying by cheque

Customers have to pay for an order when it is delivered. If they write a cheque I have to make sure that the amount of money is correct and that the amount in words is the same as the amount in figures.

Have you used cheques to pay for goods or services?

Look at the cheque below. In your group talk about how it has been completed.

20-34-01
800908 82232579

DATE 6th Jan 2003

PAY DIY 4 ALL

one hundred and forty-three pounds £ 143.52
and fifty-two pence only

N GARTH

Cheque No. Sort Code Account No.
"100257" 50"9870" 92257118



Activity 5

1 Complete these cheques with the missing amounts in numbers or in words.

a

55-12-12
100908 65874125

DATE 12th Feb 2003

PAY DIY 4 ALL

£ 156.75

L PEGRAM

Cheque No. Sort Code Account No.
"911267" 01"5872" 84266328

b

99-02-05
548511 65874568

DATE 18th March 2003

PAY DIY 4 ALL

£ 236.00

M HEADS

Cheque No. Sort Code Account No.
"524789" 11"5478" 74723655

c

21-04-55
858630 78452147

DATE 24th Apr 2003

PAY DIY 4 ALL

£ 465.20

S BECK

Cheque No. Sort Code Account No.
"356875" 05"5874" 98745008

d

00-29-65
658505 10235003

DATE 30th May 2003

PAY DIY 4 ALL

seven hundred and six pounds
and 50 pence only

£

G MCKIE

Cheque No. Sort Code Account No.
"025889" 45"5657" 45689778

e

05-77-89
658758 25568798

DATE 22nd Aug 2003

PAY DIY 4 ALL

£ 573.43

S DAVIES

Cheque No. Sort Code Account No.
"689600" 11"6458" 32564550

f

25-99-20
547854 44005228

DATE 29th June 2003

PAY DIY 4 ALL

Three hundred and twenty-nine pounds
and 14 pence only

£

A CROSBY

Cheque No. Sort Code Account No.
"658210" 00"1451" 85472014

g

50-18-78
245654 35478562

DATE 19th Sept 2003

PAY DIY 4 ALL

Six hundred and fourteen pounds and 61 pence only

£

NAKRAM

N Akram

Cheque No. Sort Code Account No.

"235645" 99"5687" 12458789

h

23-58-52
256245 53689547

DATE 25th July 2003

PAY DIY 4 ALL

Eight hundred and eighty-two pounds and 37 pence only

£

E WATSON

E Watson

Cheque No. Sort Code Account No.

"456850" 10"6525" 12321458

- 2 Look at these two cheques. The amount in words is incorrect. Write the correct amount in words underneath each.

a

57-84-11
356214 55886541

DATE 16th Oct 2003

PAY DIY 4 ALL

Thirty-six pounds and 40 pence only

£ 306.40

B BRIDGES

B Bridges

Cheque No. Sort Code Account No.

"065897" 22"6532" 25600112

b

05-77-89
658758 25568798

DATE 13th Nov 2003

PAY DIY 4 ALL

one hundred and fourteen pounds 50 pence only

£ 140.05

D SANGSTER

D Sangster

Cheque No. Sort Code Account No.

"689600" 11"6458" 32564550

- 3 Look at these two cheques. The amount in figures is incorrect. Write the correct figures underneath.

a

25-99-20
547854 44005228

DATE 10th Dec 2003

PAY DIY 4 ALL

Five hundred and two pounds and 10 pence only

£ 52.10

A KNIGHT

A Knight

Cheque No. Sort Code Account No.

"658210" 00"1451" 85472014

b

91-22-07
325648 25689785

DATE 3rd March 2003

PAY DN 4 ALL

Two hundred and nineteen pounds and 24 pence only

£ 219.42

M MUNCHER

M Muncher

Cheque No. Sort Code Account No.

"211565" 58"6589" 54755874



Review

Do you need more practice in writing numbers in figures and in words?

Yes ☐

No ☐

For more work on this, go to H4 (page 20).

Approximately

Talk about it

Can you make up a sentence with the word 'approximately' in it?

- Approximately how many chairs are in the room?
- Approximately how many steps does it take to get to the top floor of a ten-storey block of flats?
- Approximately how many days or weeks are there until December 31?

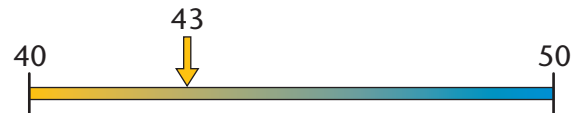
Did you give 'round' numbers in your answers?

Tip

- A **round** number often ends with the round figure 0 or sometimes 00.

43 is approximately 40, **rounded** to the nearest 10.

It is rounded to 40 because 43 is closer to 40 than to 50.



47 is approximately 50, rounded to the nearest 10.

It is rounded to 50 because 47 is closer to 50 than to 40.



Sometimes the DIY manager asks approximately how much of a certain item is in stock. She wants to know if there is plenty of stock, or if it is nearly time to order more. The manager is asking for a number to the nearest 10.



Activity 6

Round these paint stock numbers to the nearest 10.

- 53 tins of blue paint is approximately**50**..... tins.
- 28 tins of green paint is approximately tins.
- 46 tins of yellow paint is approximately tins.
- 35 tins of indigo paint is approximately tins.
- 67 tins of lilac paint is approximately tins.
- 81 tins of peach paint, rounded to the nearest 10 is tins.
- 74 tins of cream paint, rounded to the nearest 10 is tins.
- 92 tins of white paint, rounded to the nearest 10 is tins.
- 19 tins of cerise paint, rounded to the nearest 10 is tins.

Tip

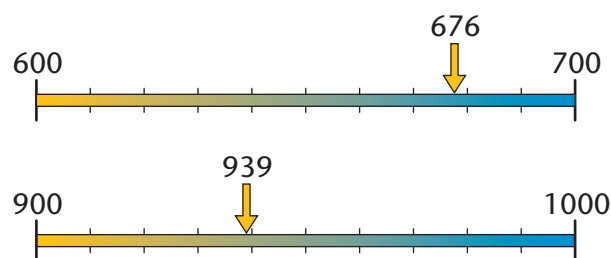
Rounding to the nearest 10

- Numbers ending in 0, 1, 2, 3 and 4 are rounded to the 10 below.
- Numbers ending in 5, 6, 7, 8 and 9 are rounded to the 10 above.

For larger amounts such as 676 or 939, we **approximate** by **rounding** to the **nearest 100**.

676 is approximately 700, rounded to the nearest 100. It is rounded to 700 because 676 is closer to 700 than to 600.

939 is approximately 900, rounded to the nearest 100. It is rounded to 900 because 939 is closer to 900 than to 1000.



Activity 7

Round these tile stock numbers to the nearest 100. Remember to look at the last **two digits** of the number to help you decide how to round it. You may find it helpful to cover the hundreds digit with your finger.

Tile pattern	Number in stock	Number in stock rounded to the nearest 100
Daisy	268	300
Shell	518	
Fish	136	
Star	375	
Leaf	666	
Swirl	372	
Bubbles	419	
Ribbon	185	
Corn	250	

Tip

Rounding to the nearest 100

- For numbers ending in **01 to 49**, go to the 100 below.
- For numbers ending in **50 to 99**, go to the 100 above.



Review

Do you need more practice rounding numbers?

Yes ☐

No ☐

For more work on this, go to H5 (page 21).

Adding to the stock

When deliveries arrive at DIY 4 All, the new stock is added to the old stock to give a new total.

For example, if there are 75 rolls of meadow pattern wallpaper in stock and another 240 rolls are delivered, then the new stock total is $75 + 240 = 315$ rolls.

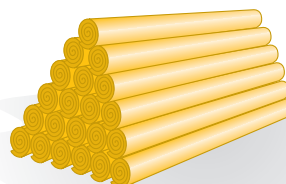
To work this out, it helps to think about hundreds, tens and units.

Remember

240 means $200 + 40 + 0$

75 means $70 + 5$

$$\begin{array}{r}
 \text{H} \quad \text{T} \quad \text{U} \\
 200 + 40 + 0 \\
 \text{add} \quad \quad 70 + 5 \\
 \hline
 200 + 110 + 5 = \underline{315}
 \end{array}$$



Talk about it

- How do you add up in your head? How do you write it down?



Activity 8

Practise by adding the deliveries of wallpaper to the stocks.

Wallpaper pattern	Number of rolls in stock	Number delivered	Total
Poppy	146	72	
Stripe	65	230	
Floral	114	425	
Scroll	218	124	
Wave	142	375	
Train	136	180	
Swirl	19	380	
United	245	245	
Birds	153	77	
Fern	307	108	
Feather	256	248	

Poppy

$$\begin{array}{r}
 \text{H} \quad \text{T} \quad \text{U} \\
 100 + 40 + 6 \\
 \text{add} \quad \quad 70 + 2 \\
 \hline
 \end{array}$$

Tip

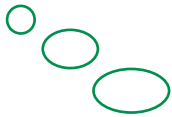
For written calculations, keep the hundreds, tens and units in columns **H T U**

Are you right?

When you do a sum, how do you know the answer is right? How can you check your calculations?

Try to think of different ways of checking. Talk about it in your group.

One way of checking is by making an **estimate** or an **approximate** answer first, to see the **size** of answer to expect.



If there are 83 tins in stock (that's approximately 100) and another 235 (that's approximately 200) are delivered, then my total is approximately $100 + 200 = 300$. Easy!

$$83 + 235 = 318$$

Quite close to my estimate, so I think I'm right.



Activity 9

Work with another person. Take turns to do the estimate and then the calculation.

	Estimate	Exact answer	Space for working out
1 $315 + 122$	<u>$300 + 100 = 400$</u>	<u>437</u>	
2 $483 + 516$	
3 $266 + 632$	
4 $375 + 254$	
5 $294 + 614$	
6 $426 + 384$	
7 $490 + 88$	
8 $327 + 284$	
9 $79 + 843$	



Review

Do you need more practice in rounding and adding numbers with three digits?

Yes ☐

No ☐

For more work on this, go to H6, questions 1–6 (page 21).

Taking stock away

When customer orders are taken from the stock, I have to calculate how much stock is left.

If I take 160 away from 576, I get exactly 416.

Talk about it

When do **you** use **subtraction**? How do you subtract in your head? How do you write it down? Share your methods in your group. Think about how you can get an approximate answer.

$$576 - 160 = \text{approximately } 600 - 200 = 400$$

	H	T	U
	500	+ 70	+ 6
subtract	100	+ 60	+ 0
	400	+ 10	+ 6 = 416

You can check a **subtraction** by doing an **addition**.

Add 160 and 416. What do you get?

If you get back to 576, you know your subtraction is correct.



Activity 10

Here are some orders picked from stock this month.

Work out how much stock is left. Don't forget to check your answers.

When orders come in to DIY 4 All, the items are picked from stock. You can work out how much is left by **subtraction**.

Door handles	Starting stock	Stock picked	Stock left
Large mahogany	475	231	244
Medium mahogany	568	333	
Small mahogany	356	215	
Large beech	640	235	
Medium beech	347	162	
Small beech	241	175	
Large ash	205	63	
Medium ash	327	188	
Small ash	402	276	



	H	T	U
	300	+ 40	+ 7
subtract	100	+ 60	+ 2
We need some more tens.			
	200	+ 140	+ 7
subtract	100	+ 60	+ 2
	100	+ 80	+ 5 = 185



Review

Do you need more practice in subtraction?

Yes ☐

No ☐

For more work on this, go to H6, questions 7–12 (page 21).

How many in a case?

Stock comes to the shop in all sorts of sized packets! Paint brushes come in packs of five. Tins of paint come in eights if they are small ones, and in fours if they are large ones. Things that come in plastic wrap can have any number – whatever will wrap easily. Curtain poles come in sevens! When the supervisor wants to know how many we have in stock, I have to count in these numbers – I have to know the **multiples**.



Count items in twos like this 2, 4, 6, 8, 10, 12, 14, 16.

Count items in fives like this 5, 10, 15, 20, 25, 30, 35, 40.

Activity 11

Count the multiples to complete this check on stock. (You may need to use a tables square or a calculator.)

Stock item	
Paint brushes in fives	5, 10, 15, 20,, 45,, 65
Tins of paint in eights	8, 16, 24, 32,, 64,, 96
Curtain poles in sevens	7, 14, 21,, 49,, 77
Fence posts in nines	9, 18, 27,, 54,, 90,
Packs of nails in 100s	100, 200, 300,, 800,
Packs of door knobs in 50s	50, 100, 150, 200,, 400,, 550
Boxes of work gloves in 20s	20, 40, 60,, 140,, 200,
Rolls of wallpaper in 25s	25, 50, 75,, 175,, 250,

Can you describe the patterns? Talk about them in your group.

Review

Do you need more practice in multiplying two-digit numbers by one-digit numbers?

Yes ☐ No ☐

For more work on this, go to H7 (page 21) or E3 and E4 (page 22).

This work links to mini-project M1 (page 23).

Paint stocks

*In the DIY 4 All warehouse we receive small tins of paint in packing cases of 36 tins. To find out how many tins are in four packing cases, I have to **multiply** 36 by 4.*

In four packing cases there are $36 \times 4 = 144$ tins.

There are other ways of working this out.

$$36 = 30 + 6$$

So $30 \times 4 = 120$

$$6 \times 4 = 24$$

then add $36 \times 4 = 144$

	H	T	U
		3	6
×		2	4
	1	4	4



Talk about it

How do you multiply? How do you multiply in your head? How do you write it down?



Activity 12

Calculate how many of each paint colour and size there are in stock.

Small: 36 tins per case		Medium: 24 tins per case		Large: 16 tins per case	
Cases	Tins	Cases	Tins	Cases	Tins
2 red	$36 \times 2 = 72$	3 red		5 red	
4 blue		6 white	$24 \times 6 =$	7 blue	
8 white		7 white		9 white	

Small red

	H	T	U
		3	6
×		2	
	7	2	

Medium white

	H	T	U
		2	4
×		6	

Space for working



Talk about it

How can you check that your multiplying is correct? You could use a calculator.

If you have access to a computer, you could use a spreadsheet.

What other methods can you use? What about reversing the calculation and using division as a check?

For example, if $36 \times 5 = 180$ then $180 \div 5 = 36$. Check!

Using a calculator:

Then, to **check** the answer:

Or, you could use estimation again.

36 is approximately 40, rounded to the nearest 10.

$40 \times 5 = 200$ so that means the answer 180 is the right size, since it is close to 200.

There are lots of different ways of checking multiplication.



Activity 13

Try out some of the methods. Work with another person to calculate and check these wallpaper stocks.

Wallpaper patterns	Stock	Space for working
Orchard	14 boxes of 8 rolls = rolls	
Fruit	35 boxes of 8 rolls = rolls	
Grapes	72 boxes of 6 rolls = rolls	
Circles	64 boxes of 6 rolls = rolls	
Spirals	58 boxes of 4 rolls = rolls	
Spots	29 boxes of 4 rolls = rolls	
Squares	53 boxes of 6 rolls = rolls	
Nursery	27 boxes of 8 rolls = rolls	



Review

Do you need more practice in multiplying?

Yes ☐ No ☐

For more work on this go, to H8 (page 21) or E2, E3 and E4 (page 22).

Packing up

If a customer orders 20 tiles, I need to know how many boxes of tiles to collect from the warehouse. Some come in boxes of five, but others come in boxes of two, or three or four.

DIY 4 ALL
Customer name and address:

Mrs Brown, 4 Hawthorn Gardens, Hambledon.

Stock code	Description	Price
	20 leaf pattern tiles	
	26 daisy pattern tiles	

Leaf pattern tiles come in boxes of 5.

So I need to work out $20 \div 5$.

$20 \div 5 = 4$ exactly, so four whole boxes are needed.

You can think of **division** as **repeated** subtraction, because

$20 - 5 = 15$, $15 - 5 = 10$, $10 - 5 = 5$, $5 - 5 = 0$.

That's four lots of 5.

You can check your answer by using **multiplication**: $4 \times 5 = 20$

If 26 tiles are needed and they come in boxes of 4, the calculation is

$26 \div 4 = 6$ remainder 2.

Howard will need to get 6 whole boxes, plus another 2 tiles.

$26 - 4 = 22$,

$22 - 4 = 18$,

$18 - 4 = 14$,

$14 - 4 = 10$,

$10 - 4 = 6$,

$6 - 4 = 2$.

That's six lots of 4 and 2 more.

Talk about it



You can use a calculator to help. How can you use the decimal number on the calculator to find out how many extra tiles are needed?

Try typing this into your calculator:

2 **6** **÷** **4** **=** answer **6.5**.

The **whole number** part is 6, so we need 6 **whole boxes**.

On the calculator type **6** **×** **4** **=** answer **24**.

So we need **another 2 tiles** to make 26.

Talk about dividing calculations in your group. How do you record written calculations?



Activity 14

Work out how many full boxes and how many extra tiles are needed for these tile orders.

28 bubbles pattern tiles (boxes of 2) $28 \div 2 = 14$ 36 fish pattern tiles (boxes of 4)

23 shell pattern tiles (boxes of 2) 45 star pattern tiles (boxes of 4)

18 corn pattern tiles (boxes of 3) 64 swirl pattern tiles (boxes of 5)

25 swirl pattern tiles (boxes of 3) 70 wave pattern tiles (boxes of 5)



Review

Do you need more practice in division?

Yes ☐

No ☐

For more work on this, go to H8 (page 21) or E2 (page 22).

How far?

Talk about it

How far can you walk in 20 minutes?

How far do you travel from home to work or home to college?

How far do you travel if you go to visit a friend or relative?

How far do you travel if you go on holiday?

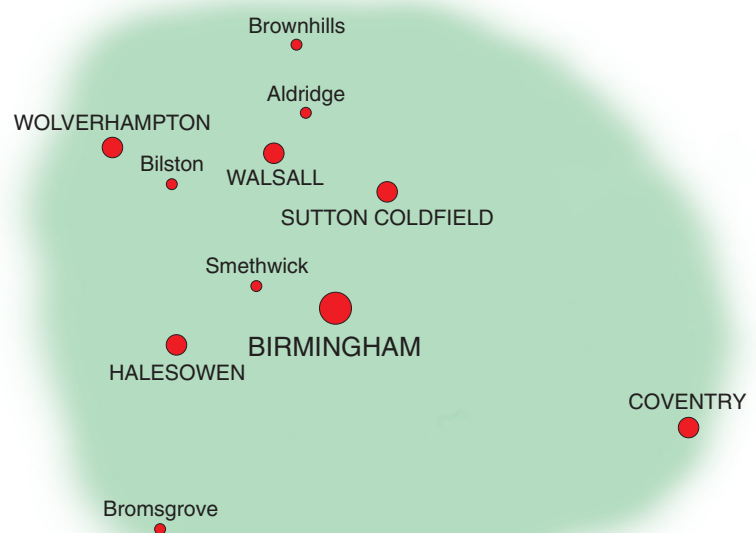
What units are used to measure long distances in the UK and in other countries?

Activity 15


Here is a list of distances from *DIY 4 All* to places around Birmingham. Rank the names in order of distance from Birmingham, nearest to furthest. Use numbers to show the order.

Birmingham to

Walsall	8 miles	.....
Wolverhampton	14 miles	.....
Coventry	18 miles	.....10
Bromsgrove	13 miles	.....
Sutton Coldfield	6 miles	.....
Smethwick	3 miles	.....1
Brownhills	12 miles	.....
Aldridge	9 miles	.....
Bilston	10 miles	.....
Halesowen	7 miles	.....



Activity 16

 The distances are used to calculate delivery charges for *DIY 4 All* customers. The charge is 65p per mile. So the cost of a delivery to Aldridge is $9 \times 65\text{p} = 585\text{p} = \text{£}5.85$

Calculate the delivery charges to:

- 1 Halesowen
- 2 Smethwick
- 3 Sutton Coldfield

Review

Do you need more practice on distance?

Yes ☐

No ☐

This work links to mini-project M3 (page 23).

Mathematical shapes

The items stocked at DIY 4 All come in many different shapes and sizes. Some are easy to pack and stack and others are not so easy.

Talk about it

Look around the room you are in.
Describe the shapes you see.

Which shapes have **right angles**?

Which shapes have **lines of symmetry**?

Look at tables, windows, shelves, ceiling or carpet tiles, books and paper.

Open a book and look at the different **angles** you can make between the pages.

Compare the **side lengths** of different shapes.



Activity 17

In your group, look at the picture of the *DIY 4 All* items at the top of the page.

List the shapes with right angles and those without.

Shapes with right angles	Shapes without right angles



Activity 18

Draw the lines of symmetry on these shapes.



Displays

When there is a special promotion at DIY 4 All, we make a display.



Activity 19

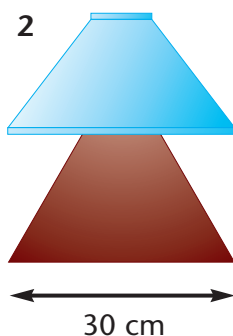
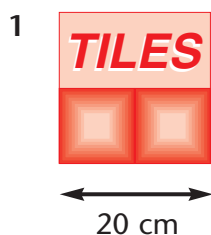
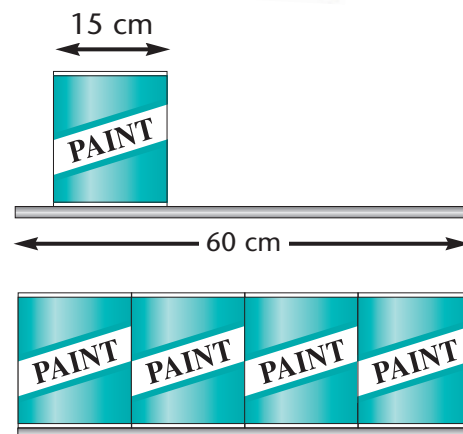
Think about the shelves at *DIY 4 All*. Each shelf in the display area of the shop is 60 cm wide.

The tins of paint are 15 cm across.

$$4 \times 15 \text{ cm} = 60 \text{ cm}$$

So, four tins of paint would fit on the shelf.

Calculate how many of each item would fit on a 60 cm shelf. Make a sketch to show it. (Use separate paper.)



Activity 20

Use all the same shapes or a mixture of two shapes to design your own display. Try **cylinders** (cans), **cubes** or **cuboids** (boxes).

If you have access to a computer, you could use a drawing package or some of the drawing icons from the drawing toolbar.

Review

Do you need more practice in working with shapes?

Yes ☐

No ☐

For more work on this, go to H9 (page 21) or E5 (page 22).

This work links to mini-project M2 (page 23).

Activity H1

Think about all the different three-digit numbers you can make with 3, 1, and 7 using each digit just once for each number.

317 713 731 371 137 173

- 1 Write down all the different three-digit numbers can you make with 4, 5 and 6. Use each digit once in each number.
.....

- 2 Choose three digits of your own and make as many different numbers as you can.
What happens if one of the digits that you choose is 0?

Activity H2

- 1 Work with another person to put these numbers in **ascending** order.
That means lowest number first, so look for the 100s first and decide which of these is lower. Then look at the 200s, then the 300s and so on. Cross the numbers off the list when you've put them in the right place.

468 219 ~~105~~ 335 637 260 401 156 339 587 ~~132~~ 200
105 132

- 2 Put the next list in **descending** order. That means you have to find the highest number first and then the next highest, so look at the 900s first, then 800s and so on.

873 425 681 ~~999~~ ~~982~~ 704 810 644 555 403 500 350
999 982

Activity H3

Put a ring round all the **even** numbers in this list. Remember that even numbers end in 0, 2, 4, 6 or 8.

153 76 229 248 842 981 980 455 404 676 767

Activity H4

Draw a line to link the number in figures to the same number in words.

143	seven hundred and fifty-two	207	six hundred and nineteen
378	one hundred and forty-three	330	eight hundred and forty-eight
906	four hundred and fifty	619	two hundred and seven
752	three hundred and seventy-eight	848	five hundred and eighty-seven
450	nine hundred and six	587	three hundred and thirty

Activity H5

- 1 Round these distances to the nearest 10 miles.
- | | |
|--|--|
| a 47 miles is approximately <u>50</u> miles. | d 63 miles is approximately miles. |
| b 22 miles is approximately miles. | e 76 miles is approximately miles. |
| c 58 miles is approximately miles. | f 81 miles is approximately miles. |
- 2 Round these distances to the nearest 100 km (kilometres).
- | | |
|--|-------------------------------------|
| a 368 km is approximately <u>400</u> km. | d 421 km is approximately km. |
| b 839 km is approximately km. | e 666 km is approximately km. |
| c 520 km is approximately km. | f 228 km is approximately km. |

Activity H6

Some mistakes have been made in these addition and subtraction calculations. Check them and decide which are right. Correct the ones that are wrong.

- | | | |
|---------------------|---------------------|----------------------|
| 1 $425 + 74 = 499$ | 2 $355 + 123 = 478$ | 3 $347 + 431 = 888$ |
| 4 $352 + 174 = 426$ | 5 $416 + 394 = 810$ | 6 $589 + 298 = 786$ |
| 7 $496 - 256 = 240$ | 8 $876 - 543 = 333$ | 9 $765 - 432 = 222$ |
| 10 $493 - 37 = 457$ | 11 $648 - 592 = 46$ | 12 $411 - 231 = 180$ |

Activity H7



- 1 Use a calculator to find the first few multiples of 50. Add 50 each time.
Look for the pattern and continue it up to 500.
50 100 150
- 2 Use a calculator to find the first few multiples of 100. Add 100 each time.
Look for the pattern and continue it up to 1000.
100 200 500
- 3 Use a calculator to find the first few multiples of 25. Add 25 each time.
25 50 75 150

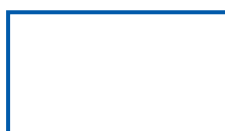
Activity H8

Try these multiplication and division calculations. Work them out. Then check the answers with a calculator.

- | | |
|---|---|
| 1 How many tins of paint? | 2 How many boxes of tiles? |
| a 43×2 b 45×5 c 38×3 d 27×4 | a $24 \div 2$ b $75 \div 5$ c $64 \div 4$ d $98 \div 3$ |

Activity H9

Draw all the lines of symmetry on these shapes.





Extension



Activity E1

Work with another person. Use 0, 2, 5 and 7 to make as many different three-digit numbers as you can.

You can repeat the digits, e.g. 222 or 255 or 727. They will all count.

How many of your numbers are even and how many are odd?



Activity E2

Complete the cross number.

1			2	3	
				4	5
	6		7		
			8		
9		10			11
12					

Across

- 1 16×5
- 2 $69 \div 3$
- 4 31×3
- 6 51×5
- 8 10×5
- 12 107×3

Down

- 1 43×2
- 3 13×3
- 5 $68 \div 2$
- 6 $96 \div 4$
- 7 11×5
- 9 $99 \div 3$
- 10 $84 \div 4$
- 11 $90 \div 5$



Activity E3



Use a calculator or spreadsheet to investigate multiplying numbers by 10.

Start by multiplying single digits by 10, then try multiplying some two-digit numbers by 10.

Write down your answers. What do you notice about the answers? Can you write down what happens each time?



Activity E4



Use a calculator or spreadsheet to investigate multiplying numbers by 100.

Start by multiplying single digits by 100, then try multiplying some two-digit numbers by 100.

Write down your answers. What do you notice about the answers? Can you write down what happens each time?



Activity E5

If you have access to a computer, use a drawing package or the drawing toolbar to draw some three-dimensional (3-D) shapes. Draw different sizes of cubes, cuboids, cylinders and pyramids.



Mini-projects



Activity M1

- 1 On a 100 square, cross off or colour in all the even numbers. Notice the pattern.

Repeat this with

a multiples of 3 **b** multiples of 4 **c** other multiples.

OR

Use a 100 square. Cross off the number 1.

Cross off all the multiples of 2, except 2 itself.

Cross off all the multiples of 3, except 3 itself

Cross off all the multiples of 5, except 5 itself.

Cross off all the multiples of 7, except 7 itself.

Make a list of all the numbers that have not been crossed through. These are special numbers called **prime numbers**. Ask your teacher about them.



Activity M2

Go to a supermarket, DIY shop or other large shop and look at the way items are stored on shelves or in special promotional displays. Draw or sketch what you have seen. How are boxes or cans stacked and displayed?



Activity M3

Find out the distances between the towns near where you live. Some maps have the distances between towns marked in miles or kilometres. Some maps have a table of distances between large towns.

Calculate how long it would take you to walk from one town to another. You can probably walk at 2 or 3 miles per hour, so divide by 3 to find the answer, or by 2 to be on the safe side. If your distance is in kilometres, then divide by 5 to find out how many hours your journey would take.

If you have access to the Internet then you can find the distance between places using the AA (Automobile Association) website www.theaa.com.



Activity M4

If you have access to the Internet, use the AA (Automobile Association) website www.theaa.com to investigate the distances between places such as London and Edinburgh, London and Cardiff, Birmingham and York – or choose some destinations of your own.



Check it



Activity C1

Put these numbers in ascending order.

425 273 189 378 211 400 ~~65~~ 1000 125 99 763
65



Activity C2

Draw a ring around the odd numbers.

121 400 276 345 297 777 350 243 478 419 792



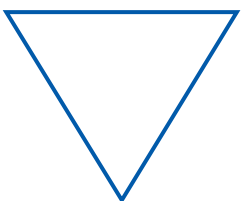
Activity C3

- 1 If there are 145 tins in stock and another 260 are delivered, how many are there altogether?
- 2 If 320 rolls of wallpaper are in stock and 146 are sold, how many are left?
- 3 If there are four tins of paint in a box and there are 45 boxes, how many tins of paint are there altogether?
- 4 If there are five tiles in each box, how many boxes will be needed for an order of 40 tiles?



Activity C4

Draw the lines of symmetry on the shapes and put a tick under the shapes that have right angles.



Activity C5

What is the approximate distance between London and Birmingham? Draw a ring around your answer.

2 miles 120 miles 4000 miles

How am I doing?

Now look back at the skills listed on page 1.

Then complete the sentences below.

I am confident with

.....

.....

I need more practice with

.....

.....

Date



Answers

Activity 1

Stock code	Description	Price
248	Roller	
324	Tray	
730	Light green paint	
744	Dark green paint	
792	White paint	
836	Border	
907	Paste	
951	Mint wallpaper	

Activity 2

- 10 20 30 40 50 60 70 80 90 100
 - 13 23 33 43 53 63 73 83 93 103
 - 98 88 78 68 58 48 38 28 18 8
 - 100 200 300 400 500 600 700 800 900 1000
 - 137 237 337 437 537 637 737 837 937
 - 952 852 752 652 552 452 352 252 152 52
- 5 15 25 35 45 55 65 75 85 95
 - 1 11 21 31 41 51 61 71 81 91
 - 145 245 345 445 545 645 745 845 945
- 984 884 784 684 584 484 384 284 184 84

Activity 3

- E. McKenzie, 59 Great Western Road
- S. Davies, 94 Great Western Road
- A. Crosby, 122 Great Western Road
- M. Watson, 175 Great Western Road
- Car Kits, 225 Great Western Road
- Mo's Muncher, 309 Great Western Road
- Sports United, 326 Great Western Road
- Cut & Curl, 348 Great Western Road
- B. Bridges, 384 Great Western Road
- Able Alarms, 467 Great Western Road
- Akrams, 492 Great Western Road
- D. Sangster, 851 Great Western Road

Activity 4

- N. Garth, 47 High Street
- International Inc, 123 High Street
- McKie's, 181 High Street
- L. Pegram, 265 High Street
- Trelims Ltd., 224 High Street
- ABC Writers, 196 High Street
- S. Beck, 88 High Street
- M. Heads, 52 High Street

Activity 5

- One hundred and fifty-six pounds 75 pence
 - Two hundred and thirty-six pounds only
 - Four hundred and sixty-five pounds 20 pence
 - £706.50
 - Five hundred and seventy-three pounds 43 pence
 - £329.14
 - £614.61
 - £882.37
- Three hundred and six pounds 40 pence
 - One hundred and forty pounds 5 pence
- £502.10
 - £219.24

Activity 6

- 50 tins
- 30 tins
- 50 tins
- 40 tins
- 70 tins
- 80 tins
- 70 tins
- 90 tins
- 20 tins

Activity 7

Tile pattern	Number in stock	Number in stock rounding to nearest 100
Daisy	268	300
Shell	518	500
Fish	136	100
Star	375	400
Leaf	666	700
Swirl	372	400
Bubble	419	400
Ribbon	185	200
Corn	250	300



Activity 8

Poppy	$146 + 72 = 218$
Stripe	$65 + 230 = 295$
Floral	$114 + 425 = 539$
Scroll	$218 + 124 = 342$
Wave	$142 + 375 = 517$
Train	$136 + 180 = 316$
Swirl	$19 + 380 = 399$
United	$245 + 245 = 490$
Birds	$153 + 77 = 230$
Fern	$307 + 108 = 415$
Feather	$256 + 248 = 504$

Activity 9

1 437	2 999	3 898	4 629	5 908
6 810	7 578	8 611	9 922	

Activity 10

Large mahogany	$475 - 231 = 244$
Medium mahogany	$568 - 333 = 235$
Small mahogany	$356 - 215 = 141$
Large beech	$640 - 235 = 405$
Medium beech	$347 - 162 = 185$
Small beech	$241 - 175 = 66$
Large ash	$205 - 63 = 142$
Medium ash	$327 - 188 = 139$
Small ash	$402 - 276 = 126$

Activity 11

Paintbrushes	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65
Tins of paint	8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96
Curtain poles	7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77
Fence posts	9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99
Nails	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000
Door knobs	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550
Work gloves	20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220
Wallpaper	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275

Activity 12

Small red	$36 \times 2 = 72$
Medium red	$24 \times 3 = 72$
Large red	$16 \times 5 = 80$
Small blue	$36 \times 4 = 144$
Medium blue	$24 \times 6 = 144$
Large blue	$16 \times 7 = 112$
Small white	$36 \times 8 = 288$
Medium white	$24 \times 7 = 168$
Large white	$16 \times 9 = 144$

Activity 13

Orchard	14 boxes of 8 rolls = 112 rolls
Fruit	35 boxes of 8 rolls = 280 rolls
Grapes	72 boxes of 6 rolls = 432 rolls
Circles	64 boxes of 6 rolls = 384 rolls
Spirals	58 boxes of 4 rolls = 232 rolls
Spots	29 boxes of 4 rolls = 116 rolls
Squares	53 boxes of 6 rolls = 318 rolls
Nursery	27 boxes of 8 rolls = 216 rolls

Activity 14

$28 \div 2 = 14$ boxes of 2 tiles
$23 \div 2 = 11 \text{ r } 1 = 11$ boxes of 2 + 1 more tile
$18 \div 3 = 6$ boxes of 3 tiles
$25 \div 3 = 8 \text{ r } 1 = 8$ boxes of 3 + 1 more tile
$36 \div 4 = 9$ boxes of tiles
$45 \div 4 = 11 \text{ r } 1 = 11$ boxes of 4 tiles + 1 more tile
$64 \div 5 = 12 \text{ r } 4 = 12$ boxes of 5 tiles + 4 more tiles
$70 \div 5 = 14$ boxes of tiles

Activity 15

1 Walsall	8 miles	4
2 Wolverhampton	14 miles	9
3 Coventry	18 miles	10
4 Bromsgrove	13 miles	8
5 Sutton Coldfield	6 miles	2
6 Smethwick	3 miles	1
7 Brownhills	12 miles	7
8 Aldridge	9 miles	5
9 Bilston	10 miles	6
10 Halesowen	7 miles	3

Activity 16

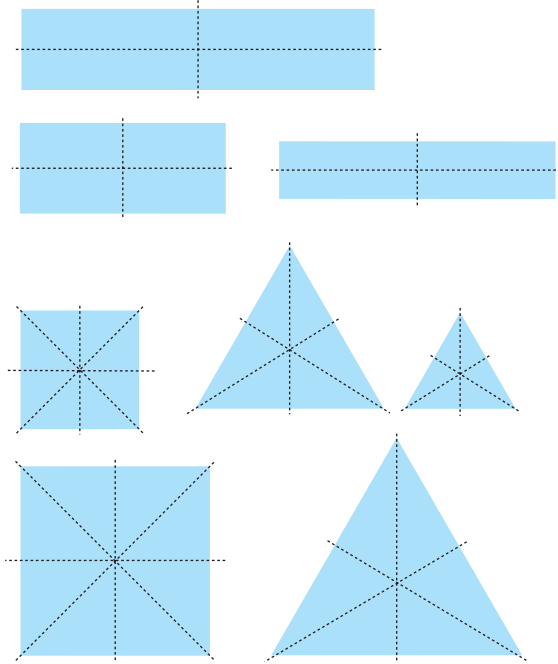
Halesowen	$7 \times 65\text{p} = 455\text{p} = \text{£}4.55$
Smethwick	$3 \times 65\text{p} = 195\text{p} = \text{£}1.95$
Sutton Coldfield	$6 \times 65\text{p} = 390\text{p} = \text{£}3.90$



Activity 17

Your teacher will check your list of shapes.

Activity 18



Activity 19

Tiles: 3

Lampshades: 2

Spray adhesive: 6

Show your drawings of the shapes on the shelf to your teacher.

Activity 20

Check your answers with your teacher.

Help

Activity H1

1 456 465 546 564 645 654

2 Show your answers to your teacher.

Activity H2

1 105 132 156 200 219 260 335 339

401 468 587 637

2 999 982 873 810 704 681 644 555

500 425 403 350

Activity H3

Even numbers: 76 248 842 980 404 676

Activity H4

143 seven hundred and fifty-two
378 one hundred and forty-three
906 four hundred and fifty
752 three hundred and seventy-eight
450 nine hundred and six

207 six hundred and nineteen
330 eight hundred and forty-eight
619 two hundred and seven
848 five hundred and eighty-seven
587 three hundred and thirty

Activity H5

1

- a 47 miles is approximately 50 miles.
- b 22 miles is approximately 20 miles.
- c 58 miles is approximately 60 miles.
- d 63 miles is approximately 60 miles.
- e 76 miles is approximately 80 miles.
- f 81 miles is approximately 80 miles.

2

- a 368 km is approximately 400 km.
- b 839 km is approximately 800 km.
- c 520 km is approximately 500 km.
- d 421 km is approximately 400 km.
- e 666 km is approximately 700 km.
- f 228 km is approximately 200 km.

Activity H6

- 1 $425 + 74 = 499$ ✓ $7\ 496 - 256 = 240$ ✓
- 2 $355 + 123 = 478$ ✓ $8\ 876 - 543 = 333$ ✓
- 3 $347 + 431 = 888$ ✗(778) $9\ 765 - 432 = 222$ ✗(333)
- 4 $352 + 174 = 426$ ✗(526) $10\ 493 - 37 = 457$ ✗(456)
- 5 $416 + 394 = 810$ ✓ $11\ 648 - 592 = 46$ ✗(56)
- 6 $589 + 298 = 786$ ✗(887) $12\ 411 - 231 = 180$ ✓

Activity H7

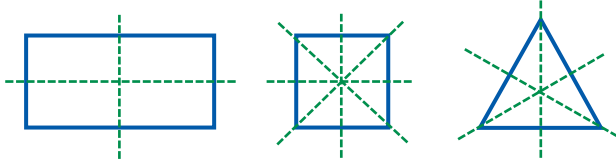
- 1 50 100 150 200 250 300 350 400
450 500
- 2 100 200 300 400 500 600 700 800
900 1000
- 3 25 50 75 100 125 150 175 200 225
250



Activity H8

- 1 a $43 \times 2 = 86$ b $45 \times 5 = 225$ c $38 \times 3 = 114$
 d $27 \times 4 = 108$
 2 a $24 \div 2 = 12$ b $75 \div 5 = 15$ c $64 \div 4 = 16$
 d $98 \div 3 = 32 \text{ r } 2$

Activity H9



Extension

Activity E1

<u>222</u>	<u>220</u>	225	227	<u>202</u>	<u>252</u>	<u>272</u>
257	275	205	<u>250</u>	207	270	
555	<u>550</u>	<u>552</u>	557	505	525	575
527	<u>572</u>	<u>502</u>	<u>520</u>	507	570	
777	<u>770</u>	<u>772</u>	775	707	727	757
725	<u>752</u>	<u>702</u>	<u>720</u>	705	750	
<u>200</u>	<u>500</u>	<u>700</u>	255	277	<u>522</u>	577
<u>722</u>	755					

There are 21 even numbers (underlined) and 27 odd numbers.

Activity E2

¹ 8	0		² 2	³ 3	
6				⁴ 9	⁵ 3
	⁶ 2	5	⁷ 5		4
	4		⁸ 5	0	
⁹ 3		¹⁰ 2			¹¹ 1
¹² 3	2	1			8

Activity E3

When you multiply a number by 10, all the digits move one place to the left.

Activity E4

When you multiply a number by 100, all the digits move two places to the left.

Activity E5

Show your shapes to your teacher.

Mini-projects

Show the results of your projects to your teacher.

Check it

Activity C1

65 99 125 189 211 273 378 400 425
 763 1000

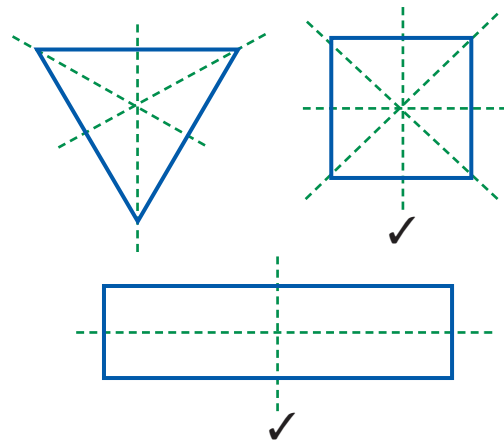
Activity C2

Odd numbers: 121 345 297 777 243 419

Activity C3

- 1 $145 + 260 = 405$ 3 $45 \times 4 = 180$
 2 $320 - 146 = 174$ 4 $40 \div 5 = 8$

Activity C4



Activity C5

120 miles