Year 5
Multiplication and Division B

Short multiplication

Thousands	Hundreds	Tens	Ones
2	4	2	0

	2	4	2	0
×				4
	9	6	8	0
	1			

2,420 × 4 = 9,680

Short multiplication

2543 × 7 = 17 801

	2	5	4	3
×				7
1	7	8	0	1
1	3	3	2	

Remember to move any exchanged digits into the next column. After the next multiplication, add the exchanged number to the answer.

Short division

9,306 ÷ 3 = 3,102

Thousands	Hundreds	Tens	Ones
3	0	6	

There are 3 groups of 3 thousands.
There is 1 group of 3 hundreds.
There are 0 groups of 3 tens.
There are 2 groups of 3 ones.

		3	1	0 2
3	9	3	0	6

Vocabulary

Multiplication multiply
product
represent
column
exchange
estimate
partition
short multiplication
long multiplication
division divide divisor dividend
quotient remainder
divisibility rules

Long multiplication

23 × 31

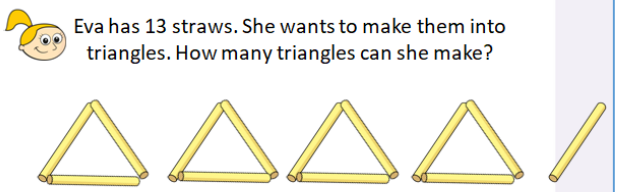
	H	T	O	
		2	3	
×		3	1	
		2	3	(23 × 1)
+	6	9	0	(23 × 30)
	7	1	3	
	1			

23 × 31 = (23 × 1) + (23 × 30)

2543 × 67 = 170 381

		2	5	4	3
	×			6	7
	1	7	8	0	1
1	5	2	5	8	0
1	7	0	3	8	1
1	1				

Before multiplying by the number in the tens column, remember to use zero as a placeholder because the 6 in 67 is 6 tens (60).



13 ÷ 3 = 4 r1

5,291 ÷ 4 = 1,322 r3

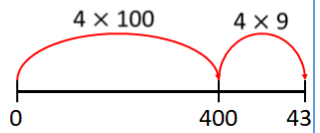
Thousands	Hundreds	Tens	Ones
1	3	2	2 r3

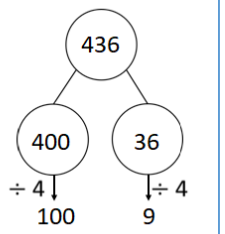
	1	3	2	2 r3
4	5	1 2	9	1 1

Efficient division

Here are four different methods to work out 436 ÷ 4

	1	0	9
4	4	3	3 6





436 ÷ 4 = 436 ÷ 2 ÷ 2
436 ÷ 2 = 218
218 ÷ 2 = 109

14 ÷ 7 = 2

Use this fact to work out the divisions.

140 ÷ 7 = 20
1,400 ÷ 2 = 700
140 ÷ 70 = 2
1,414 ÷ 7 = 202

Why did the fact help you calculate all of the divisions?

Use factors to work out the division.

126 ÷ 6 = 21
126 ÷ 6 = 126 ÷ 2 ÷ 3
126 ÷ 2 = 63
63 ÷ 3 = 21

Walmsley C.E. Primary School
Where getting better never stops

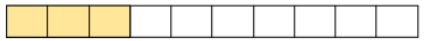
Year 5 Fractions B

Multiplying an integer by a fraction

$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{4}{7}$

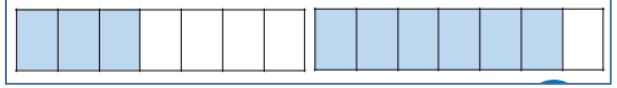
$4 \times \frac{1}{7} = \frac{4}{7}$

$\frac{1}{10} \times 3 = \frac{3}{10}$



To multiply a fraction by an integer, I multiply the numerator by the integer and the denominator remains the same.

$\frac{1}{7} \times 3 = \frac{3}{7}$ $\frac{2}{7} \times 3 = \frac{6}{7}$



$\frac{3}{10} \times 3 = \frac{3}{10} + \frac{3}{10} + \frac{3}{10} = \frac{9}{10}$

Multiplying an integer by a mixed number

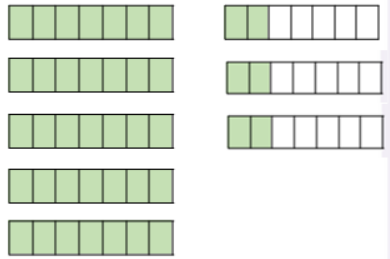
$3 \times 5\frac{2}{7} = 15\frac{6}{7}$

I can partition $5\frac{2}{7}$ into 5 and $\frac{2}{7}$

$3 \times 5 = 15$

$3 \times \frac{2}{7} = \frac{6}{7}$

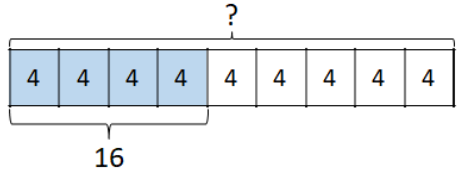
$15 + \frac{6}{7} = 15\frac{6}{7}$



Finding the whole amount

$\frac{4}{9}$ of 36 = 16

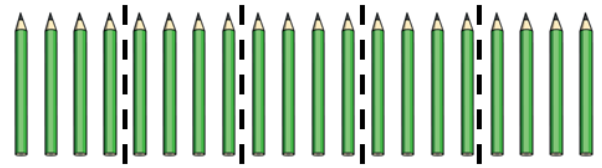
Finding the whole amount.



$16 \div 4 = 4$ $4 \times 9 = 36$

Fraction of a quantity

Find $\frac{2}{5}$ of 20

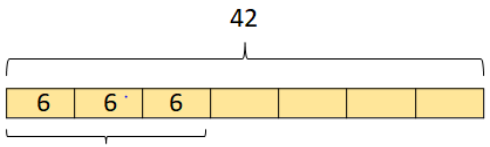


20 shared equally between 5 is equal to 4

$\frac{1}{5}$ of 20 is equal to 4

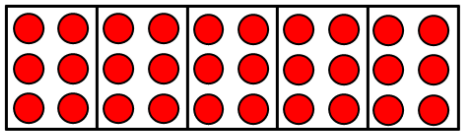
$\frac{2}{5}$ of 20 is equal to 8

$\frac{3}{7}$ of 42 = 18



$42 \div 7 = 6$

$6 \times 3 = 18$



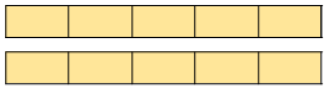
$\frac{1}{5}$ of 30 = 6 $\frac{4}{5}$ of 30 = 24

$\frac{2}{5}$ of 30 = 12 $\frac{5}{5}$ of 30 = 30

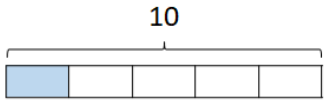
$\frac{3}{5}$ of 30 = 18

To find a fraction of an amount, I need to divide by the denominator then multiply by the numerator.

$\frac{1}{5} \times 10 = \frac{10}{5} = 2$



$\frac{1}{5}$ of 10 = 10 ÷ 5 = 2



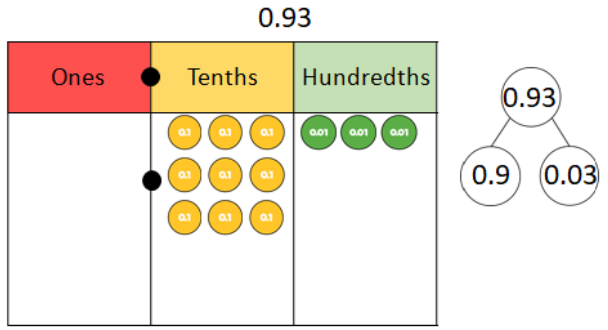
$\frac{1}{5} \times 10$ is the same as $\frac{1}{5}$ of 10

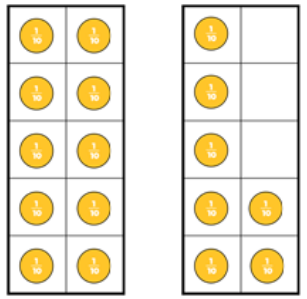
Vocabulary

Integer fraction
numerator
denominator
repeated addition
mixed number
improper fraction
partition
share equally
equal groups
equal parts
quantity
amount
whole

Year 5
Decimals and Percentages (page 1)

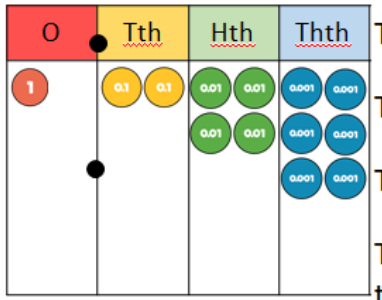
Decimals and equivalent fractions





Fraction $1\frac{7}{10}$

Decimal 1.7



There is 1 one.

There are 2 tenths.

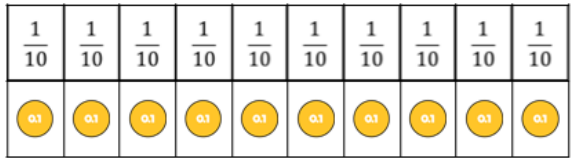
There are 4 hundredths.

There are 6 thousandths.

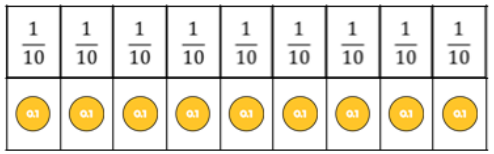
The number represented is 1.246

Vocabulary
Decimal
tenth
hundredth
thousandth
decimal places
equivalent
interval
equal part
10 times greater than
one tenth the size of
compare
order
round
percentage

Here is a bar model to show the equivalence of 0.1 and $\frac{1}{10}$



There are ten tenths in 1 whole.



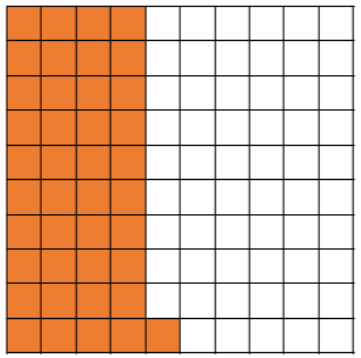
The fraction represented is $\frac{9}{10}$

The decimal represented is 0.9

The fraction $\frac{9}{10}$ is equivalent to the decimal 0.9

$$0.71 = \frac{71}{100} = \frac{7}{10} + \frac{1}{100}$$

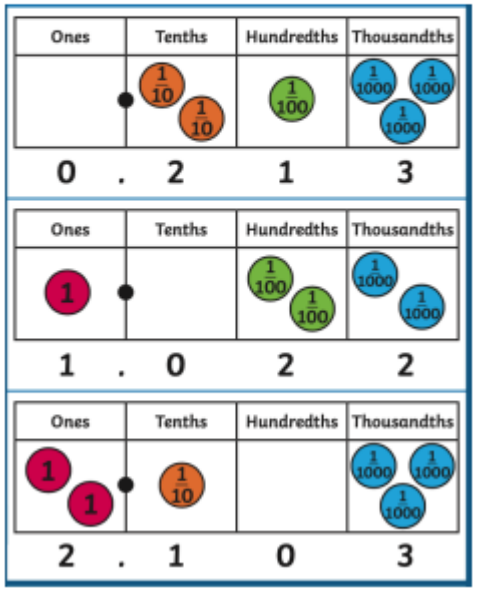
$$0.37 = \frac{37}{100} = \frac{3}{10} + \frac{7}{100}$$

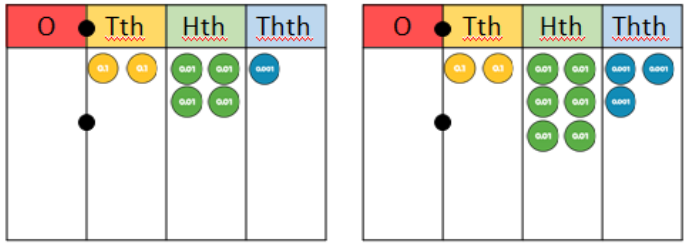


How many hundredths are shaded? 41/100

This number of hundredths as a decimal is 0.41

Compare and order decimals



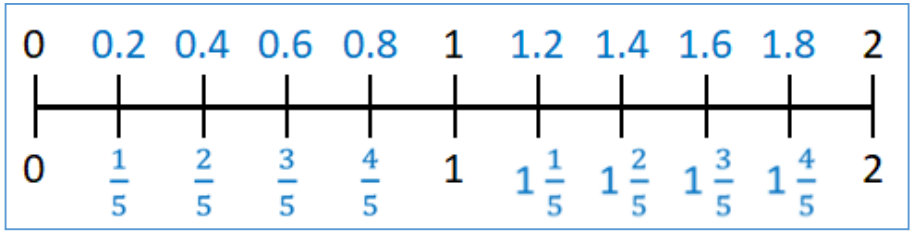


First, I need to look at the tenths column.
If the digits in the tenths column are the same, I need to look at the hundredths column.

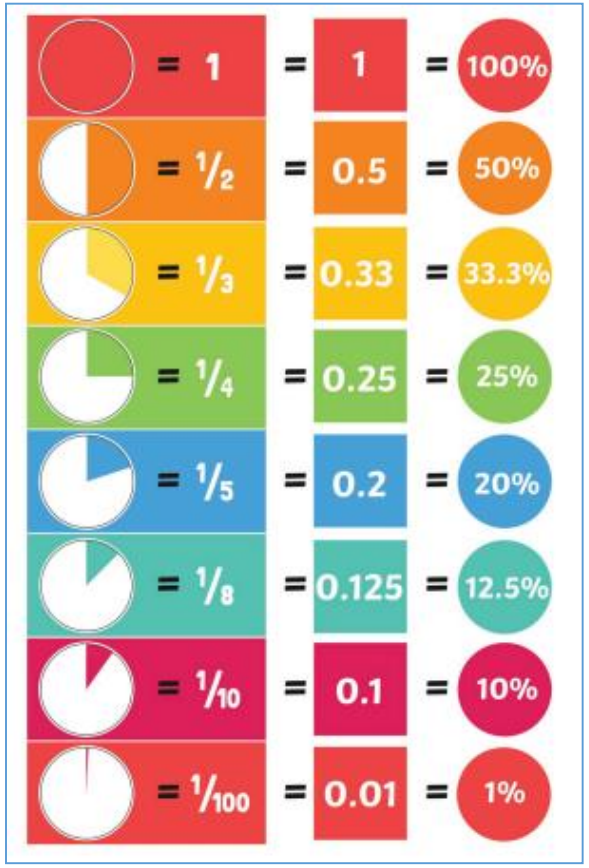
Year 5
Decimals and Percentages (page 2)

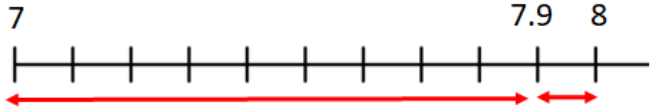
Fraction decimal and percentage equivalents

Percentages



Rounding decimals

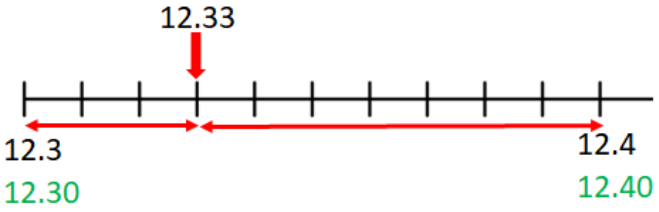




7.9 is between 7 and 8

The nearest whole number to 7.9 is 8

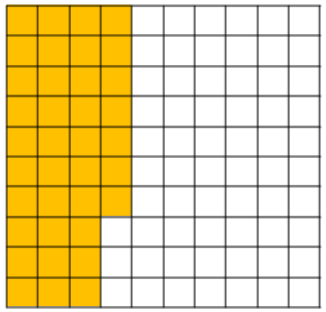
7.9 rounded to the nearest whole number is 8



12.33 is between 12.3 and 12.4

The nearest tenth to 12.33 is 12.3

12.33 rounded to the nearest tenth is 12.3

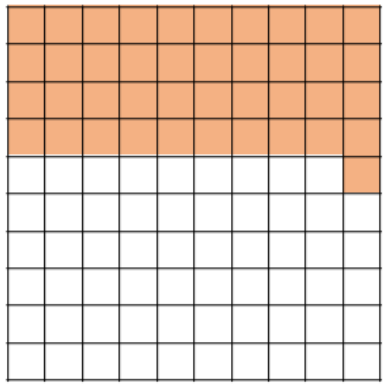


Percent means parts out of 100

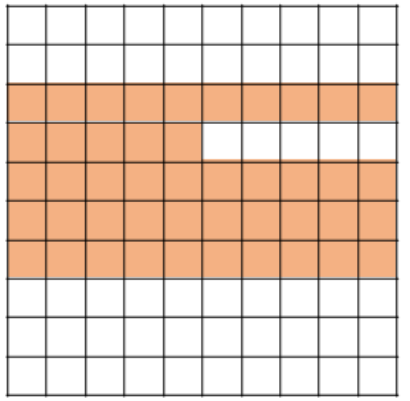
There are 37 parts out of a hundred shaded.

This is 37 %

Is 41% or $\frac{41}{100}$ greater?



41% = $\frac{41}{100}$



45 out of 100 $\frac{45}{100}$ = 45% = 0.45

10% = 0.1 50% = 0.5

30% = 0.3 0.7 = 70%

1% = 0.01 5% = 0.05

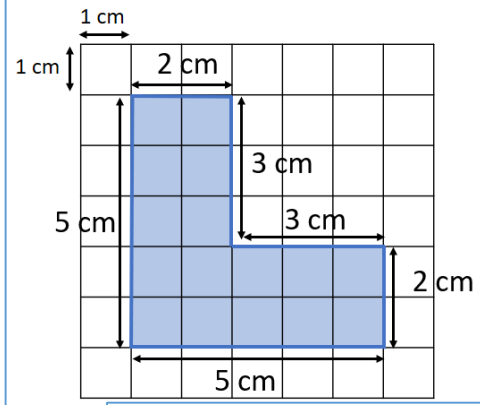
3% = 0.03 0.07 = 7%

Year 5
Area and Perimeter

Measure perimeter

What is perimeter?

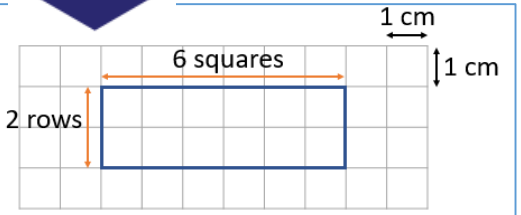
Perimeter is the distance around the outside of a two-dimensional shape.



A rectilinear shape has straight sides that meet at right angles.

2 cm + 3 cm + 3 cm + 2 cm + 5 cm + 5 cm = 20 cm

Area of rectangles



There are 2 rows.

There are 6 squares in each row.

There are 12 squares altogether.

$2 \times 6 = 12$

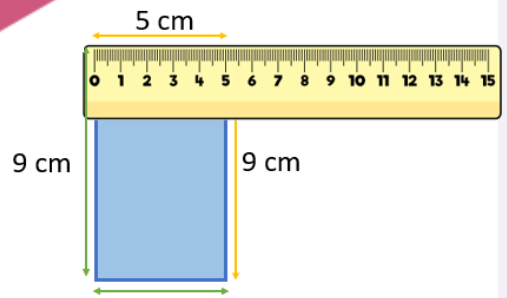
The area of the rectangle is 12 cm squared.

$12\ cm^2$

Vocabulary

perimeter
sides
width
length
rectilinear
polygon
regular
irregular
area
compound shape
approximate
estimate

Calculate perimeter



5 cm + 9 cm + 5 cm + 9 cm = 28 cm

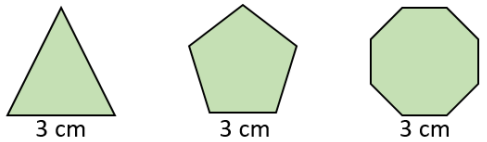
9 cm + 5 cm = 14 cm 14 cm × 2 = 28 cm

Measure the length (l) and width (w).

Perimeter = l + w + l + w or (l + w) × 2

The side length of each regular polygon is 3 cm.

All sides are equal.



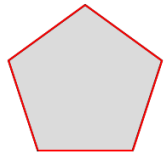
3 × 3 = 9 P = 9 cm

3 × 5 = 15 P = 15 cm

3 × 8 = 24 P = 24 cm

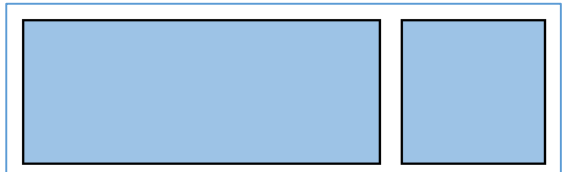
The perimeter of a regular pentagon is 90 cm.
Work out the length of one side of the pentagon.

18 cm



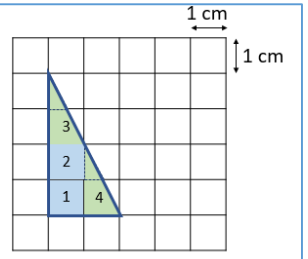
90 ÷ 5 = 18

90 cm				
18	18	18	18	18



Area is the space inside a two-dimensional shape.

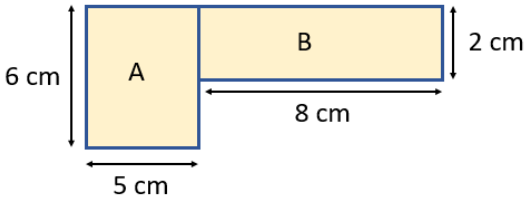
The area of a rectangle = length (l) × width (w).



We can estimate the area of this shape. 4 cm^2

Area of compund shapes

A compound shape is a shape made up of 2 or more shapes.



A

$6 \times 5 = 30\ cm^2$

B

$2 \times 8 = 16\ cm^2$

$30\ cm^2 + 16\ cm^2 = 46\ cm^2$

Walmsley C.E. Primary School
Where getting better never stops

Year 5
Statistics

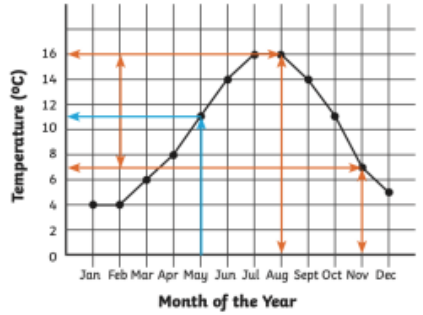
Interpret line graphs

Reading and understanding tables

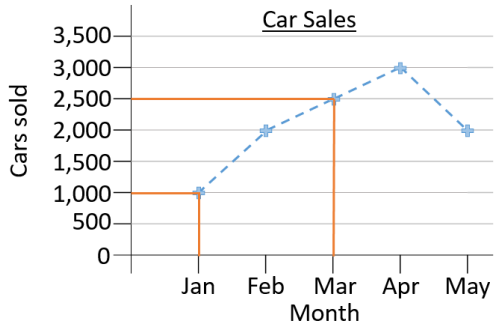
Here is a line graph showing the average temperature for each month.

The y-axis shows temperature in intervals of 2°C on a scale of 0°C to 16°C.

The points show the average temperature for each month.



The x-axis shows the months of the year.



How many more cars were sold in March than January? Mar = 2,500 Jan = 1,000

2,500 − 1,000 = 1,500 more cars

Favourite Film Types

Year 2

Film type	Number of children
Action	5
Cartoon	32
Comedy	18
Sci-Fi	3

Year 5

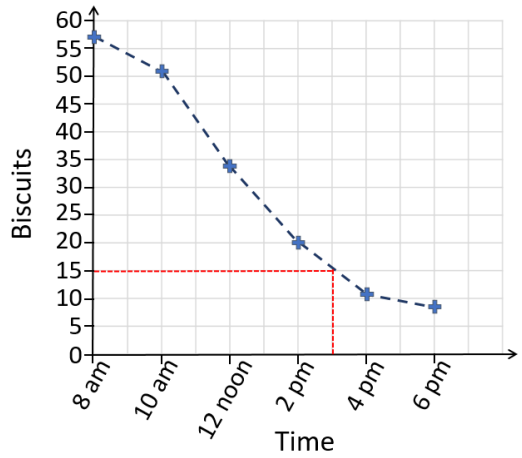
Film type	Number of children
Action	15
Cartoon	14
Comedy	23
Sci-Fi	11

How many more Year 5 pupils than Year 2 pupils preferred Sci-Fi? 11 − 3 = 8 pupils

Vocabulary

Line graph
vertical axis
horizontal axis
represent
interpret table
column row
unit of measure
timetable

Time	8 am	10 am	12 noon	2 pm	4 pm	6 pm
Biscuits in staff room	57	51	34	20	11	8



Estimate the number of biscuits at 3 pm.

15

Distances Between UK Cities (in miles)

Aberdeen			
490	Cambridge		
355	149	Leeds	
667	343	371	Truro

How far is it from Aberdeen to Leeds?

355 miles

Timetables

Bus Timetable

Bus Station	11:30	12:30	13:30	14:30
School	11:37	12:37	13:37	14:37
Swimming Pool	12:03	13:03	14:03	15:03
Health Centre	12:20	13:20	14:20	15:20
Library	12:35	13:35	14:35	15:35

1) Annie leaves the Health Centre at 13:55

What time will she arrive at the Library?

She catches the 14:20 bus from the Health Centre.

She arrives at the Library at 14:35