Literacy

Hour
Minute
Second
Duration
Period

Notation

24 hour OR
12 hour clock
(am or pm or
12 midnight
or 12 noon)

On the first day of Christmas…

Time

Memory

1 year = 52 weeks = 365 days
1 week = 7 days
1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds

Skills

1. Write these times using the twenty-four hour clock:
a) 7:35 am   b) 3:20 pm   c) 11:45 pm

2. Write these times using the 12-hour clock:
a) 08:30   b) 17:55   c) 16:40

3. Fill in the missing gaps in this table:

Starting Time	Finishing Time	Length of time taken for the journey
07:28	10:45	
11:18	17:37	
20:16		2 h 54 min
07:32		5 h 39 min
	17:28	3 h 15 min
	10:16	3 h 8 min

Stretch

1. A commercial break had three adverts:
• Advert 1 lasted 1 min 34 secs
• Advert 2 lasted 49 secs
• Advert 3 lasted 52 secs
What was the duration of the commercial break?

2. It takes 3 minutes to boil an egg.
How many seconds is this?

3. A bus journey takes two and three-quarter hours.
How many minutes is this?

4. The gestation period of a porcupine is 210 days.
How many weeks is this?

Literacy

Credit
Debit
Balance
Profit
Rate

On the second day of Christmas…

Money

Notation

Must include units (p OR £) but NOT both:

£2.60p ✗
260p ✓
£2.60 ✓

Skills

1. Write these amounts in £
a) 523p   b) 64p   c) 13000p   d) 3.7 on a calculator display

2. Find the change from £10 when the amount paid is
a) £5.20   b) 73p   c) £1.50 and 2.80

Pack of 6

3. 106 students go on a school trip. Each student needs a bottle of water.

a) How many packs are needed?

b) Each pack costs £1.79 but there is a buy two get one free offer on at the shop.
Work out the total cost.

4. Yasin's balance at the start of the month was £213.
During the month £539 was debited and £414 was credited to the account.
What was Yasin's balance at the end of the month?

Stretch

1. Eight identical pens cost £12. Work out the cost of ten of these pens.

2. One day Nima earned £60. She worked for eight hours.
Work out Nima's hourly rate of pay.

3. David buys a car for £7500. He pays a deposit of £1875. He pays the rest in 36 equal monthly payments.
Work out the amount of each monthly payment.

Literacy

Estimate
Approximate
Decimal place
Significant figure

Rounding

Memory

Decimal places – number of digits after the decimal point
Significant figures – number of non-zero digits (zero can be significant if between non-zero digits)

Skills

Value	Level of accuracy	Rounded answer
108.6832	1 decimal place	
2.749	1 dp	
11.6352	2 dp	
23.6487	3 dp	
4380	1 significant figure	
0.0574	1 sf	
2.86	2 sf	
0.5037	3 sf	

Stretch

1. A tower block is 200m high to the nearest 100m, and 170m high to the nearest 10m.

Write down one possible height for this tower block.

2. If

a = 30 rounded to the nearest ten

b = 400 to the nearest hundred

Work out the maximum and minimum values of

$$a + b$$

On the fourth day of Christmas…

Rounding 2

Memory

kilo means thousand
1 kilometre (km) = 1000 metres (m)
1 kilogram (kg) = 1000 grams (g)

milli means thousandth
1000 millimetres (mm) = 1 metre (m)
1000 milligrams (mg) = 1 gram (g)

Skills

1. Round the following numbers to 1 s.f. (significant figure) and then carry out the calculations:

a) 13 x 28

b) 109 x 44

c) 46 ÷ 54

2. Give the place value of the first significant figure:

a) 0.064

b) 704.3

c) 0.38

3. Estimate the answers to the following calculations:

a) $\dfrac{235 \times 19.6}{3.8}$

b) $\dfrac{12.9 \times 3120}{21 \times 48.3}$

Stretch

1. Use your calculator to work out the following and write your answer to 2 s.f.

a) 195 ÷ 382

b) 587 ÷ 99

c) 1 ÷ 12345

d) 22 ÷ 7

Do you recognise the answer to d)? What is this used for?

Literacy

Frequency tree
Fraction
Probability
Proportion
Ratio

On the fifth day of Christmas…

Frequency trees

Memory

Remember to check that your numbers add up correctly in each branch.

Skills

1. 78 people sat their driving test.

   43 are male, out of these 32 pass.
   8 females fail their driving test

a) Draw a frequency tree to display this data

b) Use your frequency tree to work out the probability that a person chosen at random is a male who failed the test.

2. 62 people took part in a talent show.

- 43 of the people were women.
- 10 people made it through the final and the rest were eliminated.
- 3 men made it to the final.

a) Draw a frequency tree to display this data

b) What is the probability that a person chosen at random is a woman who made it to the final?

Stretch

continued…

1.
c) Work out the probability that a person chosen at random is a female who passed the test.

d) What proportion of people passed the test?

continued…

2.
c) How many men were eliminated?

d) What proportion of the finalists were women?

Literacy

Frequency tree
Fraction
Probability
Proportion
Ratio

Memory

Remember to check that your numbers add up correctly in each branch.

Skills

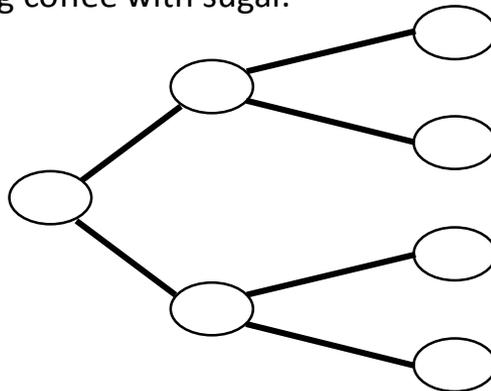1. There are 120 staff working in a school. They drink coffee OR tea and only take milk OR sugar (not both).

72 of the staff drink coffee.
Of the coffee drinkers, they take milk or sugar in the ratio 5:3.
The rest drink tea. They take milk or sugar in the ratio 3:1.

a) Complete this frequency tree.

b) Use your frequency tree to work out the probability of a member of staff chosen at random drinking coffee with sugar.

Stretch

continued...

c) Use your frequency tree to find the proportion of staff members who take sugar.

d) What is the ratio of tea drinkers to coffee drinkers?
Give your answer in its simplest form.

e) What is the probability that a member of staff who takes sugar drinks coffee?

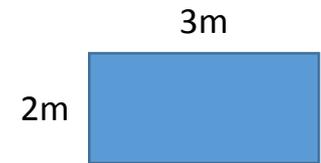# On the seventh day of Christmas…

Conversion

Memory

centi means hundredth
100 centimetres (cm) = 1 metre (m)
100 centilitres (cl) = 1 litre (l)

Skills

1) Convert the following into metres:

a) 200cm b) 320cm c) 4550cm d) 66cm e) 8cm f) 9.8cm

2) Find the number of millilitres in:

a) 2 litres b) ½ litre c) 0.85 litres d) 0.03 litres

3) Change the following masses into kilograms:

a) 3000g b) 32000g c) 9300g d) 220g e) 83g f) 6g

4) A can of coke contains 330ml. How many litres of coke are there in 6 cans? Show your working.

5) One lap of a running track is 400m. How many laps are run in an 10km race? Show your working.

6) A recipe for a dozen biscuits uses 240g of flour. Mrs Forster has 1.2kg of flour and plenty of the other ingredients. How many biscuits can she make? Show your working.

Stretch

1. Convert 6 m² to cm².

2. What is the area of this rectangle?

3m

2m

3. Convert each of the lengths of the rectangle into cm. Then use these answers to work out the area in cm².

4. Do you still agree with your answer to Question 1 above? Can you explain?

Literacy

Mass
Weight
Capacity
Metric
Imperial

On the eighth day of Christmas…

Conversion 2

Skills

1. Convert the following measurements

a) 6cm = _____mm

b) 450cm = _____m

c) 3700g = _____ kg

d) 0.45km = _____m

e) 7.25m = _____ cm

f) 0.04 tonnes = _____ g

2. Bethan is 1.6m tall. Lucy is 134cm tall. Who is tallest and by how much?

3. Five members of a football team are weighed. Two of them weigh 58.3kg, one weighs 76.4kg and another 81kg.
If their total was 337kg, what did the other person weigh?

4. Glasses of lemonade are poured from a 2 litre bottle at a Christmas party.
If each glass holds 180 ml and seven people have been served so far,

a)   How much lemonade is left?

a)   How many more glasses can be served from that bottle?

Stretch

Mike is paid £9 per hour. The table shows the hours that he worked one weekend.

How much did he earn this weekend?

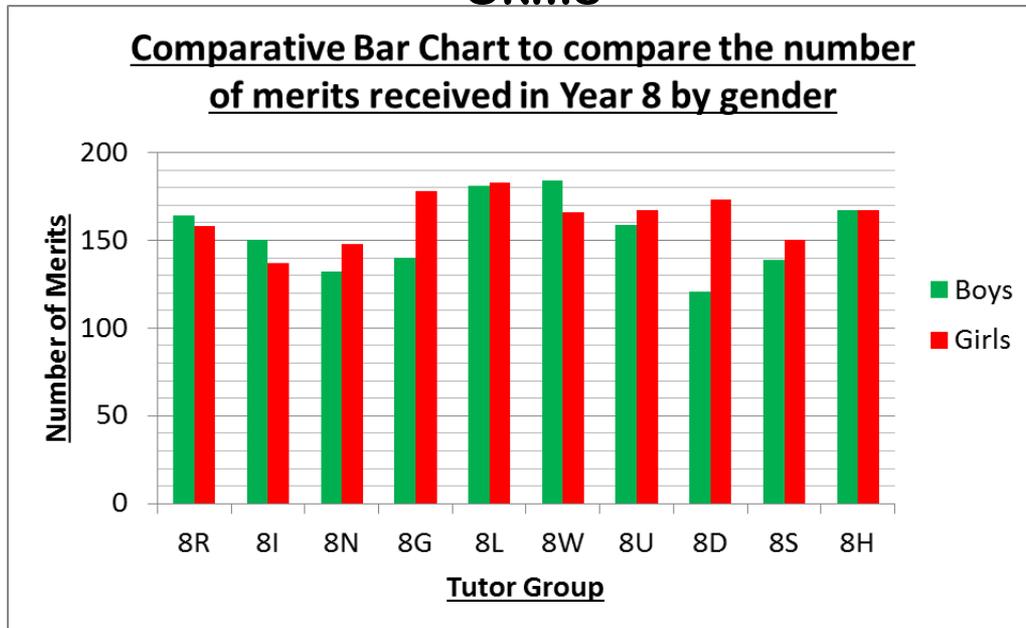| Day	Start Time	Finish Time
Saturday	0830	1615
Sunday	0948	1408

Literacy

Frequency
Comparative bar chart
Composite bar chart

On the ninth day of Christmas…
Displaying data

Memory

All bars must be equal width and equally spaced.
Frequency on the y-axis must be equally spaced.
Axes must be labelled and a key drawn.

Skills

Comparative Bar Chart to compare the number of merits received in Year 8 by gender

a) Which tutor group had the boys with the most merits?
b) In which tutor groups did the boys receive more merits than the girls?
c) In which tutor group did the boys and girls receive the same number of merits?
d) Who received more merits; 8D or 8S?

Stretch

Pupils at Mathsville School are given a choice of summer sports.
The numbers chosen for each sport are given below.

Draw a dual bar chart to display this data.

	Cricket	Athletics	Swimming	Rounders	Tennis
Girls	5	9	4	7	5
Boys	13	8	5	2	2

Use the memory cues to check your work.

Literacy

Frequency
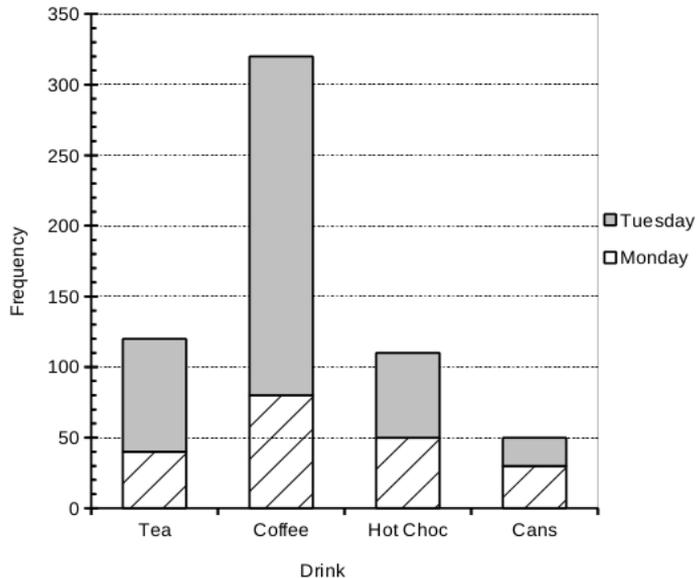Comparative bar chart
Composite bar chart

On the tenth day of Christmas…

Displaying data 2

Memory

All bars must be equal width and equally spaced.
Frequency on the y-axis must be equally spaced.
Axes must be labelled and a key drawn.

Skills

Drinks sold in Freda's cafe

1. How many people had hot chocolate on Tuesday?

2. How many cans were sold on Monday and on Tuesday?

3. How many drinks were sold altogether?

Stretch

A survey of men and women were asked what their preferred type of social media was.
The table below shows the results.

Draw a composite bar chart to represent the data.

	Facebook	Twitter	Instagram	Snapchat
Male	23	10	13	8
Female	17	13	21	7

Literacy

Impossible
Certain
Event
Outcome
Equally likely

On the eleventh day of Christmas…

Probability

Notation

Mathematicians write the probability of an event as:

$$P(\text{event}) = \ldots$$

The event being the outcomes you want to happen.

Skills

1. If there are 4 blue, 5 green, 7 yellow and 9 pink beads in a bag. Work out the probability of picking
a) yellow   b) blue or green   c) not blue

2. What is the probability of picking a vowel from the letters MATHEMATICIAN?

3. Which outcome is more likely - rolling a prime number on an ordinary 6 sided dice or rolling a square number?

4. The probability I pass a test is 0.8, what is the probability I fail?

5. There are red, blue and green counters in a bag, P(red) = 0.45, P(blue)= 0.2. What is the probability of picking green?

Stretch

1. The probability I am late to work is 0.6.
Out of 5 working days, how many can I expect to be late?

2.

Two ordinary dice are rolled.

a) What is the probability of the total on the dice being more than 8?

b) What is the probability the total of the two dice is less than 2?

c) What is the probability of rolling a double?

On the twelfth day of Christmas…

Probability 2

Memory

The probabilities of mutually exclusive outcomes should add up to 1.

Skills

	Red	**Green**	**Blue**	**Pink**
Probability	0.5	0.01	0.22	

1. What is the probability that the spinner will land on red **or** pink?

	Red	Green	Blue
Probability		0.25	0.05

2. If I spin this spinner 80 times, how many times would you expect it to land on red?

	Red	Green	Blue	Pink
Probability	0.5	x	0.22	x

3. Find x.

If I spin the spinner 120 times, how many times would you expect it to land on Green **or** Blue?

Stretch

1. Mary plays a game of throwing a ball at a target. In the game, you can score 0, 1 or 2. The probability that she scores 0 is 0.4. She is twice as likely to score 1 as 2. What is the probability she **does not** score 2?

2. There are only red counters, yellow counters, blue counters and green counters in a bag. They are in the ratio 1:2:3:4. Find the probability of picking each colour from the bag.

3. There are only blue, green and red counters in a bag. There are twice as many green counters as red counters. There are twice as many blue counters as green counters. What is the probability of **not** picking a red counter?