

# 1

## Outside catering



My name is Victor. I work as a mobile caterer. I have a van and travel around the area catering for events like weddings, christenings and parties. I work in people's houses or places that people can hire for parties.

I really enjoy my work. I like meeting lots of different people and helping them to enjoy a special occasion. It can be hard work and involve long hours, but I am my own boss. I make the decisions, and take the blame if things go wrong.

All I have to do is keep the customers happy and make some money! Making enough money to live on is sometimes the hard bit, and it's where I have to be careful when I do the sums!

### Talk about it

- Have you ever held or organised a party?
- How do you decide how many people to invite?
- What kind of things might they like to eat and drink?
- How do you work out how much food and drink you might need?
- How do you work out how much it might cost?

### These are the skills you will practise in this unit.

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

- ☐ Recognising negative numbers in practical situations
- ☐ Multiplying and dividing whole numbers by 10 and 100
- ☐ Working out ratios and proportions
- ☐ Rounding numbers to get approximate answers to questions
- ☐ Working out parts of quantities e.g.  $\frac{1}{3}$  or  $\frac{3}{4}$  of something
- ☐ Working with weight, capacity and temperature
- ☐ Changing pence to pounds, and grams to kilograms, and back
- ☐ Using metric measures

### Skill code

- N1/L1.2
- N1/L1.4
- N1/L1.7
- N1/L1.8, 9
- N2/L1.2
- MSS1/L1.4
- MSS1/L1.7
- MSS1/L1.7

# Working it out quickly

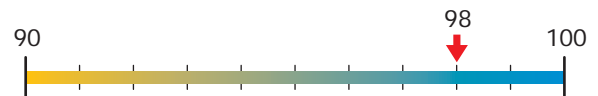
*Sometimes people ring up unexpectedly and might ask how much it would cost to cater for a party of, for example, 98 people.*

*So I might use 100 instead of 98 to work out my estimate quickly. I need to tell them immediately or they might go to someone else.*

*It helps if you can do the sum in your head, but I always have a calculator handy!*

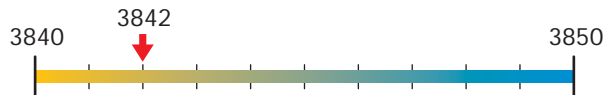
*I need to give them a rough estimate there and then.*

Sometimes it may help if you use a number line. Then you can actually see which number is nearer.

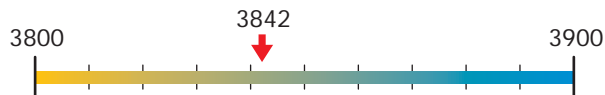


Numbers can be rounded to the nearest 10, 100, 1000 and so on depending on how accurate you want to be.

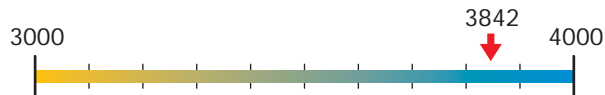
3842 = 3840 to the nearest 10



3842 = 3800 to the nearest 100



3842 = 4000 to the nearest 1000



Try these. Draw a number line if it helps.

6357 to the nearest 10 =

6357 to the nearest 100 =

6357 to the nearest 1000 =

Sometimes you might round to the nearest 5 if you need to be more accurate.

For example, 2423 to the nearest 5 would be 2425.

So 6357 to the nearest 5 is

## Remember

- If the number to be rounded to the nearest 10 is 15, then the number should be **rounded to the next ten** (20), even though 15 is halfway between 10 and 20.
- Similarly, 150 to the nearest 100 is **rounded to the next hundred** (200), 1500 to the nearest 1000 is **rounded to the next thousand** (2000), and so on.

## Activity 1

Working with another person or on your own, round these numbers as indicated.

1 1780 to the nearest 100

2 5300 to the nearest 1000

3 1230 to the nearest 100

4 656 to the nearest 5

5 1800000 to the nearest 1000000

6 2732 to the nearest 5

7 1592 to the nearest 10

8 854 to the nearest 10

9 850 to the nearest 100

10 900 to the nearest 1000

## Activity 2

To give a reasonably accurate estimated answer to  $2146 + 7224$ , round the two numbers to the nearest 5. This is:

$$2145 + 7225 =$$

If the answer doesn't need to be so accurate, round the numbers to the nearest 100. This is:

$$2100 + 7200 =$$

## Talk about it

When do you round numbers to the nearest 5, 10, 100, 1000 or 1000000 etc?

In each of the examples below say whether you would round them to the nearest 5, 10, 100, 1000 or 1000000 and write the answers in the box.

- 1 The distance to the next town is 12 miles. Someone asks you, 'About how far is it to the next town?' What answer would you give?

About

To the nearest

- 2 The distance from where you live to London is 294 miles. Roughly how far would you say it was?

About

To the nearest

- 3 The attendance at last week's football match was 21253. If you were writing a report on the match, roughly how many would you say went?

About

To the nearest

- 4 The distance from here to the moon is 249630 miles. How far is that roughly?

About

To the nearest



Sometimes you have to **round numbers up**. For example, if burgers are only sold in boxes of 24, and Victor needs 50 burgers, he will need three boxes.

- Two boxes only give him 48 burgers, which is not enough.
- He can't buy the extra two on their own so he has to buy three whole boxes.
- He has rounded up the number of boxes needed to three, even though 48 burgers in two boxes is nearer to 50.
- Victor needs to work in **complete** boxes.

*The extras will have to go in the freezer until next time!*

### Activity 3

With another person, work out the answers to these examples.

- 1 I need 15 glasses for a party. How many boxes will I need if there are 10 in a box?

- 2 I need 5 kg of sugar. How many 2 kg bags will I need?

- 3 My van carries 1000 kg. I need to move 1250 kg of food from my stores to a new warehouse. How many journeys will I need to make?

- 4 A party has 105 guests. How many tables will I need if one table seats 10 people?

- 5 A school has 100 children in it. There are no more than 30 in a class. What is the smallest number of classes that would be needed?

- 6 At a party for 20 people, each person drinks five bottles of beer. A box holds 30 bottles of beer. How many boxes will I need?

### Remember

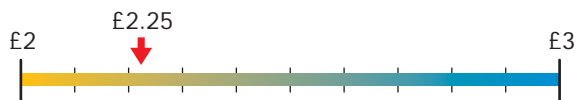
- When working with money we have to remember that 100 pence = £1.
- In £5.20 the '5' tells you that there are 5 pounds (£5).
- The number '20' after the decimal point tells you that there are 20 pence (20p).

Quite often Victor has to round amounts of money.

Round £28 to the nearest £10.

What is £2.25 to the nearest £1? Is it £1 or £2 or something else?

£2.25 is between £2 and £3 so rounding it to the nearest pound must be



### Talk about it

What makes rounding money different from rounding ordinary numbers?

If Victor is giving an estimate for a job to someone, how is it best to round the money?

### Activity 4

Round the amounts to the nearest pound. (Watch out for where the 0s are.)

1 £1.25

2 £5.75

3 £3.60

4 £9.90

5 £4.50

6 £0.70

7 £120.65

8 £9.05

9 £90.99

### Talk about it

Think of some other times when rounding numbers and estimating might be useful.

### Review

Do you need more practice with rounding numbers?

Yes ☐ No ☐

For more work on this, go to H1 (page 20).

# A rough idea!



## Activity 5

*Sometimes I need to work out something to get a rough idea of how much to charge or how much something might cost.*

To do this, you can use rounded numbers to give an **approximate** answer to a calculation.

To give his customers an estimate for 96 meals costing £7.25 each, Victor can use **rounding** to give an approximate answer.

He can round the 96 to 100 (rounded to the nearest 100). It then becomes:  $100 \times £7.25 = £725$

or

He can round the £7.25 to £7.00 (rounded to the nearest £). It then becomes:  $96 \times £7.00 = £672$

or

He can round the 96 to 100 **and** £7.25 to £7. It then becomes:  $100 \times £7.00 = £700$

or

If he wants to work it out **accurately**, it is  $96 \times £7.25 = £696$

## Talk about it

Which way would you choose?

Is it always best to round numbers to the **nearest** 100, 1000, £1, £10 etc?

Are there other ways of doing it?

*When I give an estimate I need to be careful not to underestimate and make a loss.*



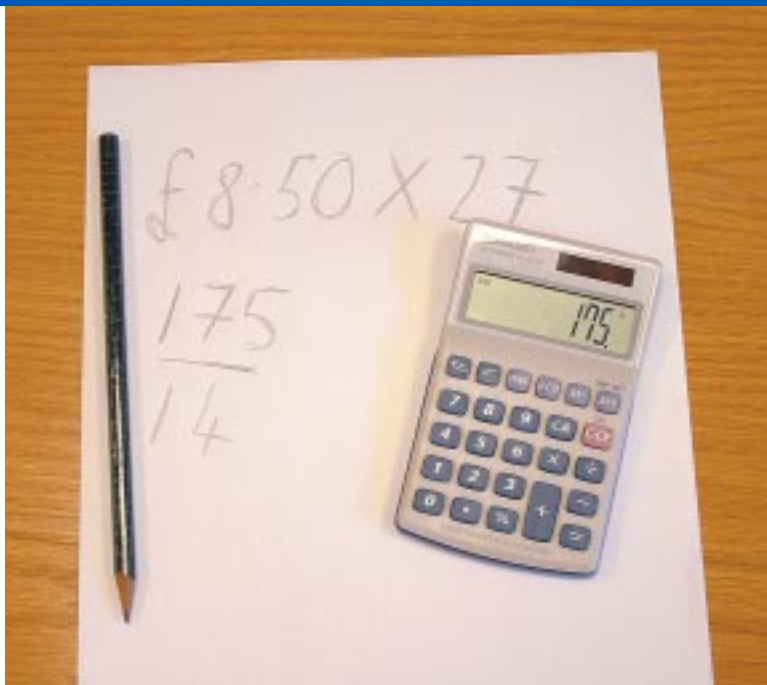
## Activity 6

Estimates are useful, but be careful! Should I round up or down? Talk about these examples and work out what I did wrong. What should I have done?

- 1 My supermarket bill is: eggs 64p, milk 33p, bread 54p, margarine 51p.

I have £2.00 in my pocket. Have I got enough? To make a guess I round all the prices to the nearest 10p and work out the cost to be roughly £1.90. When the bill is printed I am 2p short. Where did I go wrong?

- 2 I need carpet for a hotel dining room that is 21 m by 23 m. I round the numbers to the nearest metre and get 20 m  $\times$  20 m. I estimate that I need 400 sq m of carpet. When the carpet arrives I don't have enough. Why not?
- 3 I am asked for a quote for 91 meals at £9.25 each. I round the numbers and quote £810. The actual costs turn out to be £841.75 and I make a loss on the job of £31.75. Where did I go wrong?



*I find that it's always important to check my calculations, even if I've done them on a calculator. Just the other day I was quickly working out the price for a job on my calculator ...*

Victor did this sum: (£)7.00 × 100. The answer showed (£)70 000, which didn't look right! It was much too big for the numbers he'd been working with.

Try it on a calculator and see what you get.



7

.

0

0

×

1

0

0

=

## Talk about it

Can you work out where Victor went wrong?

## Activity 7

Here are some of Victor's calculations. Give estimated answers and say whether the results make sense. Round numbers up or down. Try to do the calculations in your head if you can. If you think Victor got it wrong, talk about it and work out where he went wrong.

- |   |                        |                    |                      |  |
|---|------------------------|--------------------|----------------------|--|
| 1 | $64 + 27 = 91$         | It should be about | <input type="text"/> | Does the answer make sense? Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 2 | $58 - 22 = 80$         | It should be about | <input type="text"/> | Does the answer make sense? Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 3 | $90 \times 49 = 441$   | It should be about | <input type="text"/> | Does the answer make sense? Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 4 | $£1.50 + 50p = £51.50$ | It should be about | <input type="text"/> | Does the answer make sense? Yes <input type="checkbox"/> No <input type="checkbox"/> |

## Review

Do you need more practice with estimating answers?

Yes ☐ No ☐

For more work on this, go to H2 (page 20) or E1 (page 22).  
This work links to mini-project M1 (page 23).

## How much do I need?

*At home I don't have to be too careful how much food I cook for the family – it depends on how hungry everyone is!*

*It's very different if I'm catering for a large party as part of my job. I have to make a living, and that depends on making a profit on the jobs I do. If I'm too generous with the portions, it's my profits they're eating!*

*If I allow 20 grams too much on one portion, it's not too bad. Multiply that by 100, or more, and it soon adds up. There are set amounts to allow for each person for different things.*



### Catering amounts per person

<b>Vegetables</b>	Peas	85 grams
	French beans	85 grams
	Carrots	110 grams
	Mashed potatoes	170 grams
	New potatoes	110 grams
	Rice – before cooking	55 grams
<b>Meat and fish</b>	Prawns – as a starter	75 grams
	Prawns – as a main course	140 grams
	Whole salmon – before cleaning and with head and tail on	400 grams
	Chicken	450 grams
	Lamb	275 grams
	Pork	175 grams

### Talk about it

What do you think about the catering amounts?

Do you weigh things accurately at home when you're cooking?

Using the chart I can work out how much of the different foods I need to feed different numbers of people at events.

I've got a computer and I'm learning how to use a **spreadsheet** to work things out.

I can't always get to my computer so I have to use other ways of working things out.

Sometimes I work them out in my head, sometimes I use pen and paper, and sometimes I use a calculator. Whichever method I use, I always check my answers. My living depends on it!



## Talk about it

Which method works best for you?

If you were catering for a small party of 10 and all the guests wanted prawn cocktail, you should allow 75 grams of prawns for each person. That makes  $75 \text{ grams} \times 10$ , which comes to 750 grams.

$$75 \times 10 = 750$$

If there were 100 in the party and they all wanted prawn cocktail, you would need  $75 \text{ grams} \times 100$ .

What weight of prawns would you need?  $75 \times 100 =$   grams

When multiplying by 10, all the digits move one place to the left (add zeros to fill the spaces).

$$\begin{array}{ll} \text{So} & 45 \times 10 & 300 \times 10 \\ & = 450 & = 3000 \end{array}$$

When multiplying by 100, all the digits move two places to the left (add zeros to fill the spaces).

$$\begin{array}{ll} \text{So} & 39 \times 100 & 420 \times 100 \\ & = 3900 & = 42000 \end{array}$$

When dividing, the digits move to the right.

e.g. If 100 people want pork, Victor needs  $175 \text{ g} \times 100 = 17\,500 \text{ grams}$ .

Change this to kilograms:  $17\,500 \div 1000$  ( $1000 \text{ g} = 1 \text{ kg}$ )

$$\begin{array}{rcl} & = & 17.5 \\ 17\,500 \text{ grams} & = & 17.5 \text{ kg} \end{array}$$

## Activity 8

How much of each kind of food below will Victor need? Write the answers in grams.

	grams (g)	kilograms (kg)
1 A party of 10 all want lamb.	<input type="text"/>	<input type="text"/>
2 A wedding party of 100 want prawns as a main course.	<input type="text"/>	<input type="text"/>
3 10 people at a party want chicken.	<input type="text"/>	<input type="text"/>
4 10 people at a reception want rice.	<input type="text"/>	<input type="text"/>
5 At a party 100 people want peas.	<input type="text"/>	<input type="text"/>

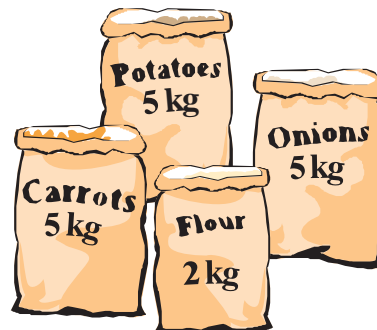
### Remember

- Metric weights: remember 1000 grams = 1 kilogram.
- To change grams to kilograms, divide by 1000.

Now write down how many kilograms would be needed in the last column.

## Activity 9

*Sometimes when I get a job, I already have some of the things that are asked for. I need to be able to work out whether I have enough for the job. For example, in the freezer I've got 10 kg of carrots. A party of 100 all want carrots. Have I got enough?*



If Victor divides 10 kg (or 10 000 g) by 100, that makes 100 g. The set amount for each person is 110 g, so he doesn't have enough. How much more does he need?

$$100 \times 10 \text{ g} = \boxed{\phantom{00000}}$$

Working with another person, try these.

- I've got 5 kg of chicken. Is this enough for a party of 10? Yes ☐ No ☐
- I have a booking for 100 who all want new potatoes. I've got 10 kg of new potatoes. Have I got enough? Yes ☐ No ☐
- 10 people want rice. I've got 1 kg. Have I got enough? Yes ☐ No ☐
- I've got 30 kg of lamb. Is this enough for 100 people? Yes ☐ No ☐
- Is 2 kg of pork enough for 10 people? Yes ☐ No ☐

## Activity 10

Victor has to make sure that he charges the customers enough to cover his costs. If he has a group of, say, 10 or 100, he needs to know how much 10 or 100 of something might cost.

If a drink costs 12p and 100 of them are needed, the cost will be  $12\text{p} \times 100 = 1200\text{p}$ , which is the same as £12.

If a drink costs 50p and 10 are needed, the cost will be  $50\text{p} \times 10$ .

How much should Victor charge to cover the costs?

Try these on your own, with another person, or in a group.

1 How much do I need to charge a party of 100 for drinks, which cost me £1.50 each?

2 I decide to charge £30 for 100 drinks that cost me 25p each. Have I charged enough to cover my costs?

Yes ☐ No ☐

3 If 10 drinks cost £1.75, how much do I need to charge for 100 to cover my costs?

4 I charge £275 for 100 drinks that cost £25 for 10. Am I charging enough?

5 What is the minimum I need to charge 100 people who all have a drink each, when each drink costs me 75p?

## Activity 11

In small groups, or as a whole group, try changing the items on this menu so that you can work out how much you need to feed 10 people and then 100 people. The amounts are for one person.

**Starter** Prawns 70 g

**Main course** Mashed potato 170 g, Peas 85 g, Carrots 110 g, Lamb 275 g

Complete the table.

Menu item	Amount for 1 person	Amount for 10 people	Amount for 100 people
Prawns			
Mashed potato			
Peas			
Carrots			
Lamb			

## Review

Do you need more practice multiplying and dividing by 10 and 100?

Yes ☐ No ☐

For more work on this, go to H3, H4 and H5 (page 21) or E2 (page 22).

## Mixing the drinks

*If I'm mixing a drink like orange cordial, I need to mix the right amount of water with the right amount of cordial so that it tastes right and I don't waste any.*



The label on the bottle usually tells you the right **proportion**, or **ratio**, to mix together.

If I'm making up a large quantity for a party, I might mix 1 bottle of cordial with 4 bottles of water. So a bottle of cordial is **one part** and four bottles of water are **four parts**.

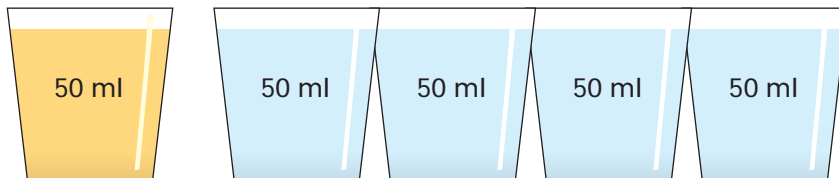
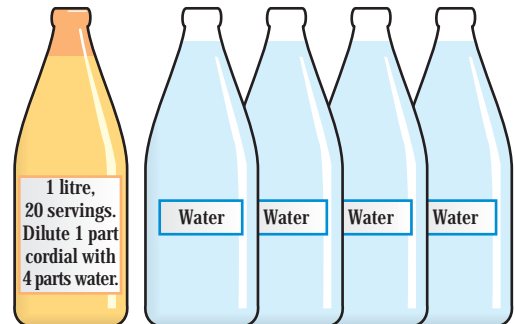
If I were making up one drink, I would need to know what amount of cordial would be needed for one drink. The bottle holds 1 litre and is enough for 20 servings.

1 litre = 1000 ml and is enough for 20 drinks.

The cordial for one drink would be 1000 ml divided by 20, which is 50 ml.

This amount is the **one part** of cordial.

The **four parts** of water would be four lots of 50 ml.



In this case the **amounts** are different. But the ratio of one part cordial to four parts water is the same. The drinks would taste the same because the ratio of cordial to water is the same.

There are other occasions when we use ratio without even thinking about it. For example, when you buy two bottles of lemonade and get a free bottle.

This is a ratio of 2 bottles bought to 1 bottle free.

If you decide to buy 4 bottles of lemonade, you will get 2 extra bottles free.

So you get **more** free bottles, but the **ratio** stays the same. For every 2 bottles you buy, you will get 1 free.



### Talk about it

How many extra free bottles would you get if you bought 6 or 8 bottles?

6 bottles

8 bottles

## Doubling and halving recipes

You can use this idea to change recipes. Here is a recipe for 8 syrup flapjacks

**50 g butter   100 g golden syrup   50 g demerara sugar   100 g rolled oats**

If you wanted to make 16 flapjacks, you would need to double **all** the amounts of the different ingredients. You would need  $2 \times 50$  g of butter, which works out to 100 g.

What amounts of the other ingredients would you need for 16 flapjacks?

What amounts would you need if you wanted to make 4 flapjacks?

Write your answers in the table.

For	Butter	Syrup	Sugar	Oats
16	100g			
4				

### Activity 12

With another person, or as a group, try these.

- 1 a If I am making mortar for bricklaying, the ratio of sand to cement is three parts sand to one part cement. If I use three buckets of sand, how many buckets of cement do I need to use?

- b I find that I need twice as much mortar as I had thought in question 1a. How many buckets of sand and cement will I need?

sand  cement

- 2 A recipe for pastry needs 200 g of flour and 100 g of margarine. How many parts flour to margarine is that?

flour  parts   margarine  parts

- 3 I have a bottle of cordial holding 2 litres of cordial. The correct ratio of cordial to water is one part cordial to five parts water. How many litres of water should I mix with it?

- 4 Another bottle of cordial holds 2 litres. But the ratio of cordial to water is one to four. How many litres of water should I mix with the cordial?

cordial  water

### Review

Do you need more practice working out ratios and proportions?

Yes ☐ No ☐

For more work on this, go to H5 (page 21) or E2 (page 22).

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

# Working out the parts

*Sometimes I have an order for a number of people at a party and then they'll ring me and say something like, 'Only 30 people are coming now instead of 40', so I have to reduce my food order to fit. I was going to order one chicken leg, three sandwiches, two pieces of cake and a drink for each person.*

How did Victor do his calculations?

Original order    40    people

New order        30    people

He only needs     $\frac{30}{40}$     of the food.

$\frac{30}{40}$  is the same as  $\frac{3}{4}$ .

So, for example, he was going to order  $2 \times 40$  pieces of cake, which is 80 pieces.

To work out  $\frac{3}{4}$  of that, first work out what  $\frac{1}{4}$  of 80 is.

80 divided by 4 = 20.

$\frac{3}{4}$  is three times  $\frac{1}{4}$ .

So  $\frac{3}{4}$  of the original order =  $3 \times 20 = 60$

## Remember

- The 4 on the bottom is called the **denominator**, which tells you **how many equal parts** the whole is divided into.
- The 3 on the top is called the **numerator**, which tells you **how many equal parts** there are.

As a group, work out how many chicken legs, sandwiches and pieces of cake Victor now needs to order.

## Activity 13

As a group or with another person, try these.

- 1 My order for a party of 20 people who wanted three sandwiches and two drinks each has been changed to a party of 15.

What should my order be?  sandwiches  drinks

- 2 My order for 60 meals had to be changed when I was told that  $\frac{2}{3}$  of the people were vegetarians.

How many vegetarian meals did I need to order?

- 3  $\frac{3}{4}$  of the 120 meals I was asked to cook had to be chicken.

How many was that?

- 4  $\frac{1}{3}$  of the 600 meals I make each month are vegetarian.

How many meals do I make with meat?



## Activity 14

Recipes often say 'Serves 4', which is fine if there are four people. If you had to serve 25 people, work out how much would be needed.

Here's a recipe for macaroni cheese:

Serves four		Serves one	
macaroni	100 g	macaroni	25 g
margarine	40 g	margarine	10 g
flour	40 g	flour	10 g
cheese	200 g	cheese	..... g
milk	600 ml	milk	..... ml

Find out how much is needed for one serving first. Divide the recipe by four. You would get 25 g of macaroni, 10 g of margarine and 10 g of flour.

As a group, can you work out how much cheese and milk you would need for one? Write your answers in the table above.

Now you know how much you need for one person. If you have to cater for 25, you need to multiply these quantities by 25.

So the amount of macaroni you would need would be  $25 \text{ g} \times 25 = 625 \text{ g}$ .

Work out how much of the other ingredients you would need. Write your answers in the table below.

For	Macaroni	Margarine	Flour	Cheese	Milk
25	625 g				
10					
15					
3					

With another person or on your own, work out the amounts you would need to make macaroni cheese for:

- 1 a party of 10 people      2 a party of 15 people      3 three people.

Add your answers to the table.

On your own, or with another person, find a recipe that serves a set number and work out the ingredients needed for 15 people and then for three people.

## Review

Do you need more practice in finding and changing amounts?

Yes ☐ No ☐

For more work on this, go to H5 (page 21) or E2 (page 22).

# Thinking negatively!

*In catering I need to understand about **negative** numbers.*

Numbers that are **more than zero** are called **positive numbers** and are the ones we usually use.

Some examples of positive numbers are: 2, 6, 7, 12.

Numbers that are **less than zero** are called **negative numbers**.

They are written with a minus sign in front of them.

Some examples of negative numbers are: -2, -6, -7, -12.

Notice that the numbers are the same but the negative numbers have a **minus** sign in front of them.



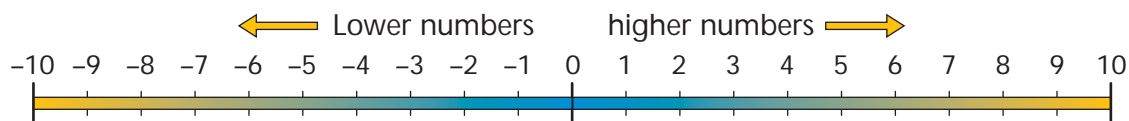
## Activity 15

### Talk about it

Can you think of times when we might use negative numbers?



A number line can help us to understand negative numbers. It's a bit like a thermometer scale.



### Remember

- The more you move to the right on the number line, the higher the number gets.
- The more you move to the left on the number line, the lower the number gets.

So,

**7 is a higher number than 3** because it is further to the right on the number line.

**-7 is a lower number than -3** because it is further to the left on the number line.

It's easy to make the mistake of thinking that -7 is higher than -3 because we are used to thinking of 7 as being bigger than 3. If you look at the number line you can see that it's not the case for -7 and -3.

Which number is lower: -5 or 3?

## Activity 16

### Talk about it

Look back at  $-9$  and  $-4$  on the number line on page 16. The  $-9$  is further to the left than  $-4$ .

Which is higher,  $-9$  or  $-4$ ?

Look at  $-3$  and  $3$ . The  $3$  is further to the right than  $-3$ .

Which is lower,  $-3$  or  $3$ ?

With another person, try these.

1 Which is higher,  $3$  or  $-7$ ?

2 Which is lower,  $4$  or  $2$ ?

3 Which is lower,  $-2$  or  $-6$ ?

4 Which is higher,  $-9$  or  $5$ ?

5 Is  $-10$  higher or lower than  $1$ ? Ring your answer. Higher Lower

6 Is  $-5$  higher or lower than  $5$ ? Ring your answer. Higher Lower

Negative numbers are used to show temperatures below  $0^{\circ}\text{C}$ .

$0^{\circ}\text{C}$  is the temperature at which water freezes. Any temperature lower than that (below freezing) is shown as a negative number.

Winter weather maps sometimes show the temperature below freezing.

## Activity 17

Look at the temperatures opposite.

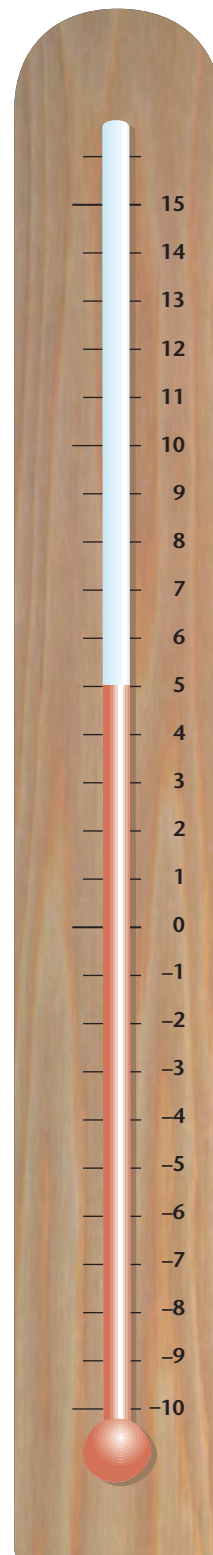
Which is the coldest place?

Which is the warmest place?

Put these temperatures in order starting from coldest and going to the warmest.

Place	Temperature

Place	Temperature
Aberdeen	<input type="text" value="-10"/>
Glasgow	<input type="text" value="-2"/>
Manchester	<input type="text" value="0"/>
London	<input type="text" value="5"/>
Norwich	<input type="text" value="-3"/>
Newquay	<input type="text" value="12"/>



## Freezers

### KEEP FROZEN

This product will keep until the 'Best before date' only if kept at or below  $-18^{\circ}\text{C}$

****	Food freezer	Until best before date
***	Freezer compartment	Until best before date
**	Freezer compartment	1 month
*	Freezer compartment	1 week

### DO NOT REFREEZE AFTER DEFROSTING

Food may be stored at low temperatures. Freezers keep food very cold and allow us to store it for a long time.

Freezers are given 'star ratings' depending on how cold they keep the food. The colder they are, the longer the food can be kept.

### Star rating      Temperature

*	$-6^{\circ}\text{C}$	Keeps ready-frozen food for up to a week
**	$-12^{\circ}\text{C}$	Keeps ready-frozen food for up to a month
***	$-18^{\circ}\text{C}$	Keeps ready-frozen food for up to 3 months
****	$-18^{\circ}\text{C}$	Will keep frozen foods for a long time and is able to freeze fresh foods effectively

### Activity 18

- 1 How long can I keep a packet of frozen peas in a two-star freezer?
- 2 Which star-rated freezer should I use to freeze my homemade pizzas?
- 3 Which freezer keeps food at the highest temperature?
- 4 What is the lowest temperature indicated?

### Review

Do you need more practice in using negative numbers?

Yes ☐

No ☐

For more work on this, go to H6 (page 21) or E3 (page 22).  
This work links to mini-project M2 (page 23).

## How much of each, and is it worth it?

Imagine you were asked to provide a meal for 20 people.

Everybody wanted prawns as a starter.

A quarter of the people wanted salmon for main course, the rest wanted pork.

So  people wanted salmon

and  people wanted pork.

Everybody wanted new potatoes.

One half wanted peas and the other half wanted French beans.

So  people wanted peas and  people wanted French beans.



### Activity 19

As a group, fill out the order. (Use the information given on page 8.)

Item	Amount per person	Number of people	Total
Prawns			
Salmon			
Pork			
New potatoes			
Peas			
French beans			

The cost per meal to buy the ingredients was £6.50.

If you charged a total of £125, would you make a profit?

If you wanted a profit of a quarter of the costs, what would you have to charge?

### Review

Do you need more practice in working out portions?

Yes ☐ No ☐

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

## Activity H1

With another person, round these numbers to the **nearest 10**.

1 14	<input type="text"/>	2 26	<input type="text"/>	3 52	<input type="text"/>
4 45	<input type="text"/>	5 82	<input type="text"/>	6 78	<input type="text"/>

With another person, round these numbers to the **nearest 100**.

1 86	<input type="text"/>	2 124	<input type="text"/>	3 288	<input type="text"/>
4 350	<input type="text"/>	5 899	<input type="text"/>	6 465	<input type="text"/>

With another person, round these numbers to the **nearest 1000**.

1 997	<input type="text"/>	2 2432	<input type="text"/>	3 6759	<input type="text"/>
4 9897	<input type="text"/>	5 1456	<input type="text"/>	6 3500	<input type="text"/>

## Activity H2



With another person, round each number to the nearest 10 to estimate the answers.  
Use a calculator to work out the accurate answers if you wish.

	Estimate	Accurate answer
$12 + 9 + 23$	$10 + 10 + 20 = 40$	44
$105 - 32$		
$19 + 18 + 63$		
$49 \times 8$		
$289 \times 99$		
$£9.85 \times 11$		
$£64.25 \times 102$		



### Activity H3

With another person, do these calculations.

- |                   |                      |                   |                      |                   |                      |
|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| 1 $15 \times 10$  | <input type="text"/> | 2 $45 \times 100$ | <input type="text"/> | 3 $124 \times 10$ | <input type="text"/> |
| 4 $36 \times 100$ | <input type="text"/> | 5 $150 \div 10$   | <input type="text"/> | 6 $150 \div 100$  | <input type="text"/> |
| 7 $480 \div 10$   | <input type="text"/> | 8 $550 \div 100$  | <input type="text"/> |                   |                      |

### Activity H4

Put in the missing signs or number.

- |  |  |  |
|--|--|--|
| 1 $250$ <input type="text"/> $10 = 25$     | 2 <input type="text"/> $\times 100 = 1500$ | 3 $1500$ <input type="text"/> $100 = 15$ |
| 4 $25 \times$ <input type="text"/> $= 250$ | 5 $500 \div$ <input type="text"/> $= 5$    | 6 <input type="text"/> $\div 10 = 65$    |



### Activity H5

The first row of the table gives the recipe for 10 scones.

Work out the ingredients needed for different numbers of scones and fill in the table.

No. of scones	Butter	Sugar	Eggs	Flour	Milk
10	30 g	25 g	1	100 g	150 ml
20					
5					
15					



### Activity H6

Use a number line to work out the temperatures and fill in the chart.

Temperature now	Fall or rise in temperature	New temperature
3	A fall of 6 degrees	
-4	A rise of 10 degrees	
2	A fall of 8 degrees	
-5	A rise of 2 degrees	
7	A fall of 7 degrees	



## Extension



### Activity E1

- 1 There are 41 guests travelling to a wedding by minibus.

Each minibus holds 12 passengers.

How many buses will be needed?

- 2 You need 52 bottles of wine for a party.

A box holds 6 bottles.

How many boxes will you need?

- 3 There are 100 guests at a wedding.

Each table in the room seats 8 people.

How many tables will you need?



### Activity E2

Use a recipe book, magazine or the Internet to find a recipe that serves a set number of people.

Scale the recipe up or down to serve three-quarters of the number of people it is meant to serve.

Now work out how much you would need for 10 and then 100 people.



### Activity E3

The chart shows the temperature in London on one day.

Work out the temperatures in the other places and complete the chart.

Place	Difference in temperature from London	Temperature (°C)
London	_____	-1
New York	10 degrees colder	
Sydney	21 degrees warmer	
Moscow		-25
Hong Kong		28
Oslo	13 degrees colder	
Rio de Janeiro		26



# Mini-projects



## Activity M1

You have been asked to organise 24 packed lunches for a day trip.

Each person gets:

- 1 cheese sandwich      1 ham sandwich (two slices of bread for each)
- 1 packet of crisps      1 chocolate bar
- 1 piece of fruit (one-third want an apple and the rest want an orange)
- 1 orange cordial drink (1 litre each)

Look in local shops and supermarkets, or on supermarket websites, for the costs of the contents of the lunches.

Round the prices and give an estimate of the costs. Compare it with the actual costs.

Work out how many loaves of bread, how many packets of ham, etc. you would need.

The organiser then tells you that one-quarter don't want ham and would prefer two cheese sandwiches. How many more cheese sandwiches would you need to make?



## Activity M2

The milk delivery person has to estimate each day how many bottles of milk he needs for each street. The chart shows how many he estimated for one week. He didn't always get it right. Fill in the rest of the table.

Day	Bottles estimated	Actual delivery	Difference
Monday	10	15	-5
Tuesday	8		-2
Wednesday	9		-1
Thursday	11	9	
Friday	14		2
Saturday	16		-4
Sunday	4	6	

As a group, work out how many bottles of milk are used by the group each week. Talk about times when you might need more or less milk. Imagine you're a milk delivery person. As a group, make up a table of your own. Try different numbers and see what results you get.



## Check it

### Activity C1

Ring the correct answers.

- |                                      |        |        |      |
|--------------------------------------|--------|--------|------|
| 1 365 multiplied by 10 is            | 36 500 | 3605   | 3650 |
| 2 £500 divided between 100 people is | £50    | £5     | 50p  |
| 3 750 divided by 10 is               | 750    | 75     | 7500 |
| 4 5500 divided by 10 is              | 55     | 55 000 | 550  |
| 5 23 multiplied by 100 is            | 2300   | 23 000 | 230  |

### Activity C2

Ring the correct answers.

- |  |      |       |       |
|--|------|-------|-------|
| 1 A good estimate for $19 \times 21$ is    | 500  | 400   | 4000  |
| 2 A good estimate for $12 + 17 + 21$ is    | 40   | 60    | 50    |
| 3 A good estimate for $52p + 66p + 79p$ is | £2   | £1.80 | £3.10 |
| 4 A good estimate for $199 \times 9$ is    | 9999 | 2000  | 200   |
| 5 A good estimate for 199 divided by 9 is  | 19   | 20    | 29    |

### Activity C3

Use estimation to check whether these answers make sense. Do them in your head if you can.

- |                          |                              |                             |
|--------------------------|------------------------------|-----------------------------|
| 1 $19 \times 18 = 4000$  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2 $12 + 9 + 48 = 69$     | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 3 $448 - 321 = 769$      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4 63 divided by 21 = 30  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 5 149 divided by 29 = 50 | Yes <input type="checkbox"/> | No <input type="checkbox"/> |



### Activity C4

Ring the correct answers.

- |   |                                     |        |      |      |
|---|-------------------------------------|--------|------|------|
| 1 | 156 rounded to the nearest 100 is   | 150    | 100  | 200  |
| 2 | 2563 rounded to the nearest 1000    | 2000   | 2600 | 3000 |
| 3 | 4679 rounded to the nearest 100 is  | 5000   | 4600 | 4700 |
| 4 | 362 rounded to the nearest 100 is   | 300    | 4000 | 400  |
| 5 | 1234 rounded to the nearest 1000 is | 12 000 | 2000 | 1000 |

### Activity C5

Put these numbers in the right order, starting with the lowest.

10, -6, -23, 23, 7, 32, -2, 0, 4, -1, 12, -9

--	--	--	--	--	--

lowest

--	--	--	--	--	--

highest

### 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 .....

## Introduction to Activity 1

6360, 6400, 6000

6355

## Activity 1

- |           |         |        |       |
|-----------|---------|--------|-------|
| 1 1800    | 2 5000  | 3 1200 | 4 655 |
| 5 2000000 | 6 2730  | 7 1590 | 8 850 |
| 9 900     | 10 1000 |        |       |

## Activity 2

9370, 9300

- | About    | To the nearest               |
|----------|------------------------------|
| 1 10     | 10                           |
| 2 290    | 10 or 300 to the nearest 100 |
| 3 21000  | 1000                         |
| 4 250000 | 1000                         |

## Activity 3

- |      |     |     |
|------|-----|-----|
| 1 2  | 2 3 | 3 2 |
| 4 11 | 5 4 | 6 4 |

£28 to nearest £10 is £30.

£2.25 to nearest £ is £2.

## Activity 4

- |        |      |       |
|--------|------|-------|
| 1 £1   | 2 £6 | 3 £4  |
| 4 £10  | 5 £5 | 6 £1  |
| 7 £121 | 8 £9 | 9 £91 |

## Activity 5

Talk to your teacher.

## Activity 6

- I rounded the amounts down so I didn't allow enough money to pay the bill. I should have rounded up to make sure I had enough.
- The room was bigger than my rounded values, so I was short of carpet.
- The estimate didn't cover my costs because both of my rounded values were less than the actual values.

## Activity 7

- |        |     |  |
|--------|-----|--|
| 1 90   | yes |  |
| 2 40   | no  | He added instead of taking away  |
| 3 4500 | no  | He missed the 0 of the 90  |
| 4 £2   | no  | He counted the 50p as £50. It should have been entered on his calculator as .5 |

## Activity 8

- |           |    |         |
|-----------|----|---------|
| 1 2750 g  | or | 2.75 kg |
| 2 14000 g | or | 14 kg   |
| 3 4500 g  | or | 4.5 kg  |
| 4 550 g   | or | 0.55 kg |
| 5 8500 g  | or | 8.5 kg  |

## Activity 9

He needs another 1000 g or 1 kg of carrots.

- |       |      |       |       |       |
|-------|------|-------|-------|-------|
| 1 Yes | 2 No | 3 Yes | 4 Yes | 5 Yes |
|-------|------|-------|-------|-------|

## Activity 10

£5

- |        |       |          |       |       |
|--------|-------|----------|-------|-------|
| 1 £150 | 2 Yes | 3 £17.50 | 4 Yes | 5 £75 |
|--------|-------|----------|-------|-------|

## Activity 11

Menu item	Amount for 1 person	Amount for 10 people	Amount for 100 people
Prawns	70g	700g	7000g or 7kg
Mashed potato	170g	1700g or 1.7kg	17 000g or 17kg
Peas	85g	850g	8500g or 8.5kg
Carrots	110g	1100g or 1.1kg	11 000g or 11kg
Lamb	275g	2750g or 2.75kg	27 500g or 27.5kg

## Talk about it

Free bottles of lemonade      buy 6 get 3 free  
    Buy 8 get 4 free

Doubling and halving recipes

For	Butter	Syrup	Sugar	Oats
16	100 g	200 g	100 g	200 g
4	25 g	50 g	25 g	50 g

## Activity 12

- 1 bucket of cement
  - 6 of sand and 2 of cement
- 2 parts of flour to 1 part of margarine
- 10 litres of water
- 8 litres of water

## Activity 13

- 45 sandwiches and 30 drinks
- 40 vegetarian meals
- 90
- 400



### Activity 14

For one person, I would need 50 g of cheese and 150 ml of milk.

For	Macaroni	Margarine	Flour	Cheese	Milk
25	625 g	250 g	250 g	1250 g	3750 ml
10	250 g	100 g	100 g	500 g	1500 ml
15	375 g	150 g	150 g	750 g	2250 ml
3	75 g	30 g	30 g	150 g	450 ml

### Activity 15

-5 is lower

### Activity 16

-4 is higher than -9

-3 is lower than 3

1 3    2 2    3 -6    4 5    5 Lower    6 Lower

### Activity 17

The coldest place is Aberdeen.

The warmest place is Newquay.

Place	Temperature
Aberdeen	-10
Norwich	-3
Glasgow	-2
Manchester	0
London	5
Newquay	12

### Activity 18

1 One month    2 Four-star  
3 One-star    4 -18 °C

### Activity 19

Item	Amount per person	Number of people	Total
Prawns	75 g	20	1500 g/1.5 kg
Salmon	400 g	5	2000 g/2 kg
Pork	175 g	15	2625 g/2.625 kg
New potatoes	110 g	20	2200 g/2.2 kg
Peas	85 g	10	850 g
French beans	85 g	10	850 g

1 No  
2 I would have to charge £162.50.

### Help

#### Activity H1

To nearest 10

1 10    2 30    3 50    4 50    5 80    6 80

To nearest 100

1 100    2 100    3 300    4 400    5 900    6 500

To nearest 1000

1 1000    2 2000    3 7000  
4 10 000    5 1000    6 4000

#### Activity H2

	Estimate	Accurate answer
$12 + 9 + 23$	$10 + 10 + 20 = 40$	44
$105 - 32$	$100 - 30 = 70$	73
$19 + 18 + 63$	$20 + 20 + 60 = 100$	100
$49 \times 8$	$50 \times 10 = 500$	392
$289 \times 99$	$290 \times 100 = 29000$	28611
$£9.85 \times 11$	$10 \times 10 = £100$	£108.35
$£64.25 \times 102$	$60 \times 100 = £6000$	£6553.50

#### Activity H3

1 150    2 4500    3 1240    4 3600  
5 15    6 1.5    7 48    8 5.5

#### Activity H4

1  $\div$     2 15    3  $\div$     4 10    5 100    6 650

#### Activity H5

No. of scones	Butter	Sugar	Eggs	Flour	Milk
10	30 g	25 g	1	100 g	150 ml
20	60 g	50 g	2	200 g	300 ml
5	15 g	12.5 g	$\frac{1}{2}$	50 g	75 ml
15	45 g	37.5 g	$1\frac{1}{2}$	150 g	225 ml

#### Activity H6

Temperature now	New temperature
3	-3
-4	6
2	-6
-5	-3
7	0



### Activity E1

1 4      2 9      3 13

## Activity E2

Check your work with your teacher.

### Activity E3

Place	Difference in temperature from London	Amount
London	–	–1
New York	10 degrees colder	–11
Sydney	21 degrees warmer	20
Moscow	24 degrees colder	–25
Hong Kong	29 degrees warmer	28
Oslo	13 degrees colder	–14
Rio de Janeiro	27 degrees warmer	26

## Mini-projects

### Activity M1

Check your work with your teacher.

## Activity M2

Day	Bottles estimated	Actual delivery	Difference
Monday	10	15	−5
Tuesday	8	10	−2
Wednesday	9	10	−1
Thursday	11	9	2
Friday	14	12	2
Saturday	16	20	−4
Sunday	4	6	−2

## Check it

### Activity C1

1 3650      2 £5      3 75      4 550      5 2300

## Activity C2

- 1 400
- 2 50 Discuss other answers.
- 3 £2 Discuss other answers.
- 4 2000
- 5 20

### Activity C3

1 No      2 Yes      3 No      4 No      5 No

### Activity C4

1 200      2 3000      3 4700      4 400      5 1000

## Activity C5

lowest highest

-23 -9 -6 -2 -1 0 4 7 10 12 23 32