Reasoning and Problem Solving
Addition and Subtraction Consolidation – Year 5

National Curriculum Objectives

Mathematics Year 5: Add and subtract numbers mentally with increasingly large numbers
Mathematics Year 5: Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
Mathematics Year 5: Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
Mathematics Year 5: Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

About This Resource

This resource is aimed at Year 5 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Autumn Block 2 – Addition and Subtraction.

The questions are based on a selection of the same 'small steps' that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

Small Steps

Add whole numbers with more than 4 digits (column method)
Subtract whole numbers with more than 4-digits (column method)
Round to estimate and approximate
Inverse operations (addition and subtraction)
Multi-step addition and subtraction problems

More Addition and Subtraction resources.

Did you like this resource? Don't forget to review it on our website.

The Sweet Factory

Welcome to The Sweet Factory! Sammy is going to give you a tour of the magnificent factory. He needs some help with addition and subtraction. He needs your help. Before you enter the factory, Sammy needs you to calculate how many sweets have been made. The factory has been running for four years. Below is a table showing how many of each type of sweet was made in each year the factory has been open.

	Raspberry ZigZags	Strawberry Whirls	Chocolate Swirvels	Hazelnut Chewies
Year 1	5,681	4,612	7,384	1,823
Year 2	11,274	9,381	8,133	15,730
Year 3	25,252	28,736	27,632	22,527
Year 4	35,581	46,935	44,194	37,659

Using the column method:

1a. Calculate how many Raspberry Zigzags and how many Chocolate Swirvels were made altogether in year 3.

1b. Calculate how many Strawberry Whirls and how many Chocolate Swirvels were made altogether in year 4.

Sammy takes you in to the reception. He is worried about whether he can afford to keep the factory running and needs you to help him with his calculations.

Sammy says:

Last year, the factory made £23,480. This year we have struggled and the factory has only made £8,210.

2. Use the column method to calculate the difference in earnings of the factory from last year to this year.

It's time to start your tour of the factory. The first room Sammy takes you to is the Bubblegum room. The bubblegum machine makes 3 different flavours.

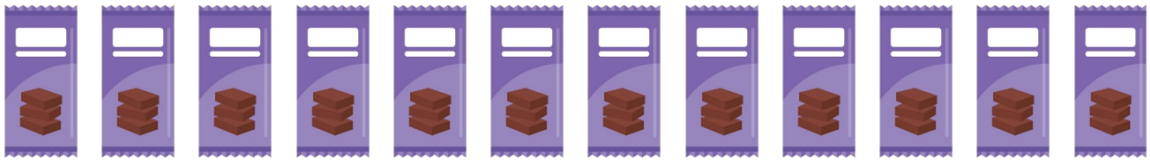
grapefruit

apple

peach

3. Each week, the machine makes 12,864 of the grapefruit flavour, 8,231 of the apple flavour and 23,489 of the peach flavour. Round each flavour to the nearest 10, 100 and 1,000 to estimate how many bubblegums are made each week.

Next up, the Melting room! This room is the home of the magnificent melting machine which is full of gooey chocolate. The machine melts hundreds of bars of chocolate each day.



On Mondays, the machine makes 15,682ml of melted chocolate.
On Tuesdays, the machine makes 12,532ml of melted chocolate.

True or False?
4a.15,682ml + 12,532ml gives the same answer as 15,682ml - 12,532ml.
4b. 15,682ml – 12,532ml gives a different answer to 12,532ml + 15,682ml.
Explain your answer.

In the Candy room, the sweets are weighed and packaged so they can be sold. Sammy wants to know how many grams of sweets the machines weigh each week.

On Mondays, Tuesdays and Wednesdays, the machines weigh 10,774g of sweets each day. On Thursdays and Fridays, the machines weigh 8,192g of sweets each day.

5. How many sweets do the machines weigh each week?

You've now come to the end of the tour, but there is one more task Sammy needs you to complete. His step-counting watch has broken and he wants to know how many footsteps you have both done whilst walking around the factory.

The table shows the amount of footsteps you and Sammy have taken in different parts of the factory.

	Entering the factory	Reception	Bubblegum room	Melting room	Candy room
You	1,294	2,521	52,573	3,863	42,485
Sammy	1,376	2,650	51,129	3,872	43,763

6. Calculate who walked the most steps overall.

6a. Who walked the most steps?

6b. What is the difference between the amount of steps you walked and the amount of steps Sammy walked?

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1a.

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

1b.

	4	6	9	3	5
+	4	4	1	9	4
	9	1	1	2	9
	1	1	1		

2.

	£	1 ~~2~~	1 3	4	8	0
-		£	8	2	1	0
	£	1	5	2	7	0

3a. Nearest 10:

	1	2	8	6	0
+		8	2	3	0
	2	3	4	9	0
	4	4	5	8	0
	1	1	1		

3b. Nearest 100:

	1	2	9	0	0
+		8	2	0	0
	2	3	5	0	0
	4	4	6	0	0
	1	1			

3c. Nearest 1,000:

	1	3	0	0	0
+		8	0	0	0
	2	3	0	0	0
	4	4	0	0	0
	1				

4a. False, because 15,682 + 12,532 = 28,214 whereas 15,682 - 12,532 = 3,150 which are not the same amounts.

4b. True, because 15,682 - 12,532 = 3,150 whereas 12,532 + 15,682 = 28, 214 which are different amounts.

5. Mon, Tues and Weds:

	1	0	7	7	4
+	1	0	7	7	4
	1	0	7	7	4
	3	2	3	2	2
		2	2	1	

Thurs and Fri:

		8	1	9	2
+		8	1	9	2
	1	6	3	8	4
	1	1	1		

Weekly:

	3	2	3	2	2
+	1	6	3	8	4
	4	8	7	0	6
			1		

6a. Me:

		1	2	9	4
+		2	5	2	1
	5	2	5	7	3
		3	8	6	3
	4	2	4	8	5
1	0	2	7	3	6
	1	2	3	1	

Sammy:

		1	3	7	6
+		2	6	5	0
	5	1	1	2	9
		3	8	7	2
	4	3	7	6	3
1	0	2	7	9	0
	1	2	2	2	

Sammy walked more steps.

6b. Sammy walked 54 more steps.

	1	0	2	7	8 ~~9~~	1 0
-	1	0	2	7	3	6
					5	4