Addition and Subtraction: Rounding to Estimate and Approximate

Aim:	**Success Criteria:**	**Resources:**
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. To use rounding to check answers.	I can round up and down depending on the digit. I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000. I can use rounding to help me decide if an answer is correct or incorrect.	Lesson Pack 0-9 dice
	Key/New Words: Rounding, round, closer to, to nearest, estimate, approximate.	**Preparation:** Differentiated Check In Challenge Cards – 1 of each set Differentiated Check In Activity Sheet – 1 per child Diving into Mastery Activity Sheets – as required

Prior Learning: It will be helpful if children have a secure understanding of place value. They may have rounded numbers with up to six digits in previous lessons.

Learning Sequence

	**Remember It:** Children use inverse operations to help find missing numbers within the mathematical calculation shown on the Lesson Presentation.	
	**Rounding to Estimate and Approximate:** Ask children in their own words what it means to round numbers. Discuss with children why we round numbers. Explain that rounding can be used to estimate and check answers. Demonstrate using rounding to check the answers to the problems on the Lesson Presentation. Model selecting whether you are going to round to 10, 100 or 1000 and give reasons why. Can children round to the nearest 10, 100 and 1000? Could they round to the nearest 10 000 and 100 000?	
	**Round and Round:** Show the problems on the Lesson Presentation. On each slide, there are two possible rounded answers (on the left and right side of the slide). Children stand next to the side of the board that they think shows the correct answer. Can children use rounding to help decide if an answer is correct or incorrect?	
	**Estimation and Approximation:** Children estimate the answers to the addition and subtraction questions shown on the Lesson Presentation. They use their knowledge of rounding to support estimations, writing their estimations to each calculation before comparing answers with a partner.	
	**Check In!** Children complete differentiated Check In Activities Sheets, using rounding to check answers and solve problems.  Place chairs into a circle. Using the one-star level Check In Challenge Cards, place one on each chair. Children choose a seat, starting on that question first. They have a certain amount of time to finish before moving on to the next seat. Children use rounding to prove the answer is correct or incorrect, recording their answers on the one-star level Check In Activity Sheet. Give extra time for children to go back and complete questions at the end.  Using the two-star level Check In Challenge Cards, place one on each chair. Children choose a seat, starting on that question first. They have a certain amount of time to finish before moving on to the next seat. Children use rounding to prove the answer is correct or incorrect, recording their answers on the two-star level Check In Activity Sheet. If the answer is deemed incorrect using rounding, the children work out the correct answer.  Children complete the three-star level Check In Activity Sheet, solving word problems and checking answers by rounding.	

Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Children round numbers to the nearest thousand to support them in estimating answers to addition and subtraction of up to 5 digits.

Children answer reasoning questions involving rounding to estimate and approximate. They spot the mistake when a child was rounding to the nearest thousand. They identify what place value each child has rounded to when answering the same question, and reason which would be the quickest and which is most accurate.

Children solve addition and subtraction problems involving rounding to estimate and approximate. They add two 6-digit numbers and then round to the nearest ten, hundred, thousand and ten thousand before adding again to investigate which place value rounding was the best compromise between speed and accuracy.

Question Time: Children complete the questions on the **Lesson Presentation**. Discuss in pairs. How have they worked out the answer?

Exploreit

LearnIt: Children can use this **Knowledge Organiser** to support their understanding of addition and subtraction.

UseIt: Encourage children to use rounding to check their answers in future maths lessons.

Roll&Round It: Children roll a 9-sided dice eight times to produce two 4-digit numbers. They use rounding to estimate and approximate the sum and difference.

Maths

Addition and Subtraction

Rounding to Estimate and Approximate

Aim

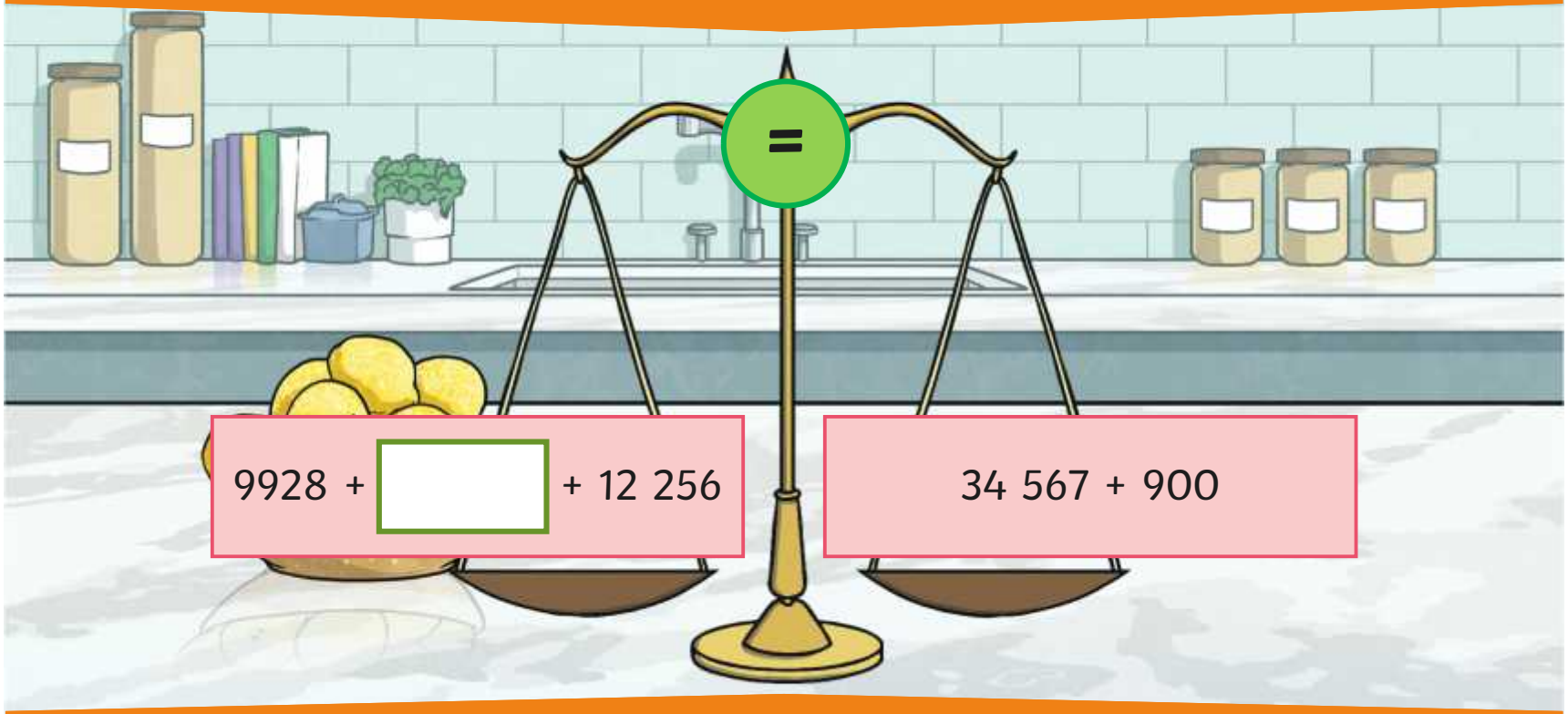
- To use rounding to check answers.

Success Criteria

- I can round up and down depending on the digit.
- I can round to the nearest 10, 100, and 1000, and could round to the nearest 10 000 and 100 000.
- I can use rounding to help me decide if an answer is correct or incorrect.

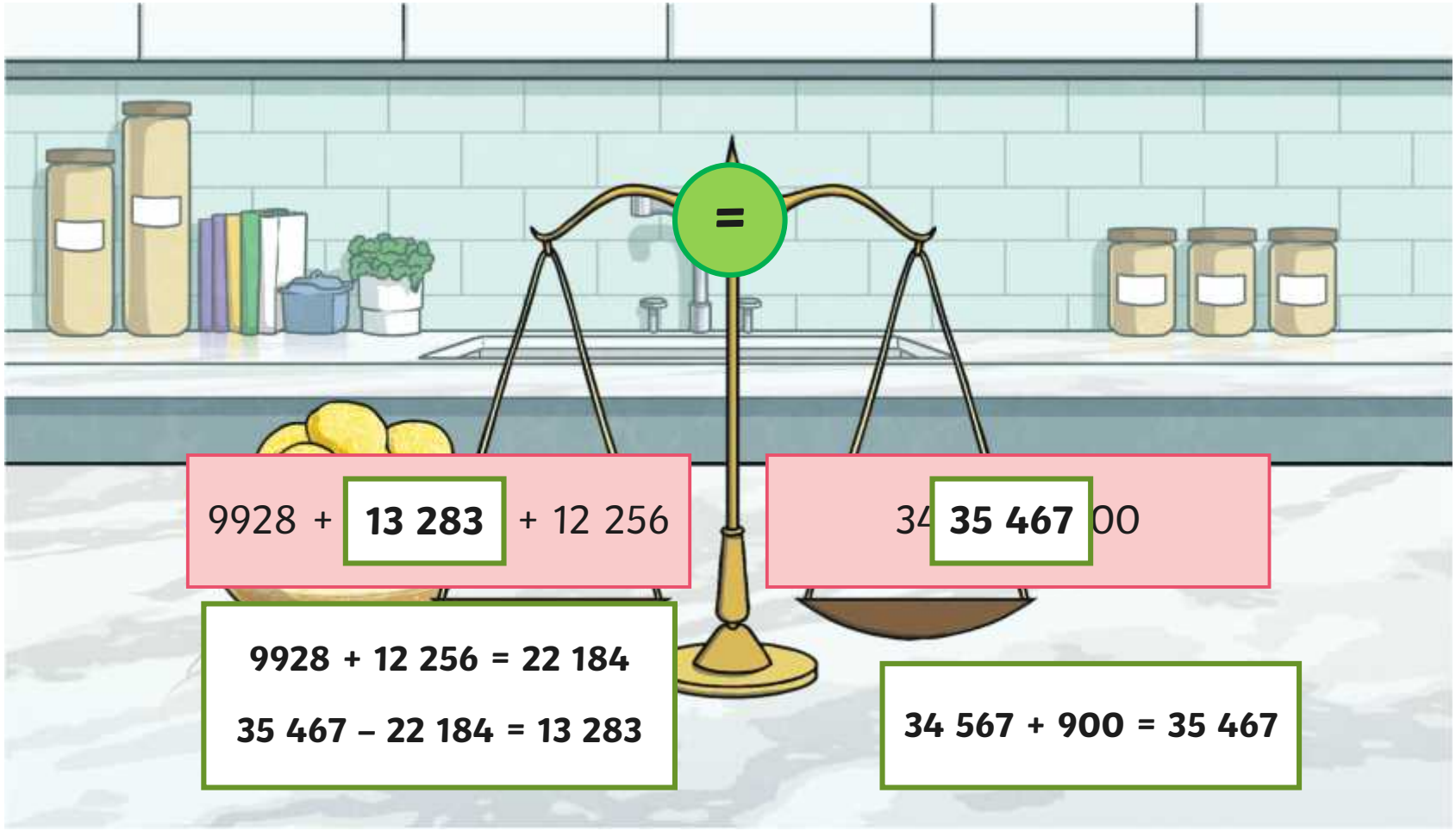
Remember It

In this calculation, the number under the green rectangle is unknown.
In mathematics, the equals sign is a balance.



What number is behind the green rectangle?

Remember It


=
9928 + 13 283 + 12 256
34 35 467 00
9928 + 12 256 = 22 184
35 467 – 22 184 = 13 283
34 567 + 900 = 35 467

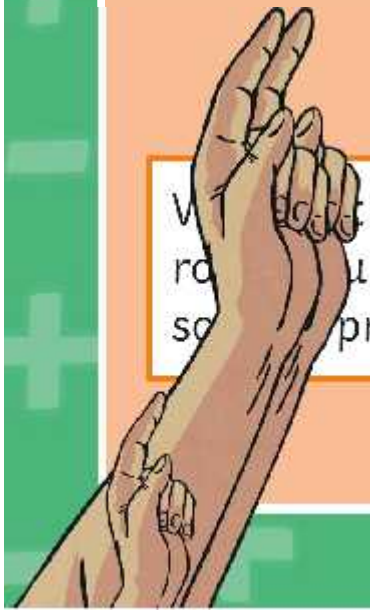
Rounding to Estimate and Approximate

What does it mean to round numbers?

Rounding means finding a value ending in zero that is close to a number.

Why do we round numbers?

We round numbers because an approximate number is often accurate enough. Multiples of ten, a hundred or a thousand that end in zeros are easier to work with.



W[illegible] helpful to ro[illegible]umbers when so[illegible] problems?

When solving problems, it is helpful to use rounding to give an approximate answer so we know if our answers are reasonable.

Rounding to Estimate and Approximate

When adding and subtracting, formal written methods can help to calculate precise answers.

Sometimes, we do not need precise answers.
In these cases, estimations are useful.

66 780	**+**	**29 990**

To quickly estimate the sum of two numbers, rounding can be used.

66 780 can be rounded to the nearest thousand.

67 000	**+**	**30 000**	**=**	**97 000**

So can 29 990.

Rounding to Estimate and Approximate

We are going to use rounding to check the answer to this question.

Nasim hired a car while on holiday. He wrote a list of how many miles he travelled on each journey he made.

When he returned the car, the hire company informed him that he had driven 120 miles.

Journey	Rounding
1	**10**
2	**10**
3	**0**
4	**20**
5	**10**
6	**20**

No, this is wrong. Rounding the numbers allows us to quickly check that Nasim drove approximately 70 miles.

Rounding to Estimate and Approximate

We are going to use rounding to check the answer to this question.

Jacqui has a shop that sells knitted hats and scarves. Here is the shop's profit for the last 6 months.

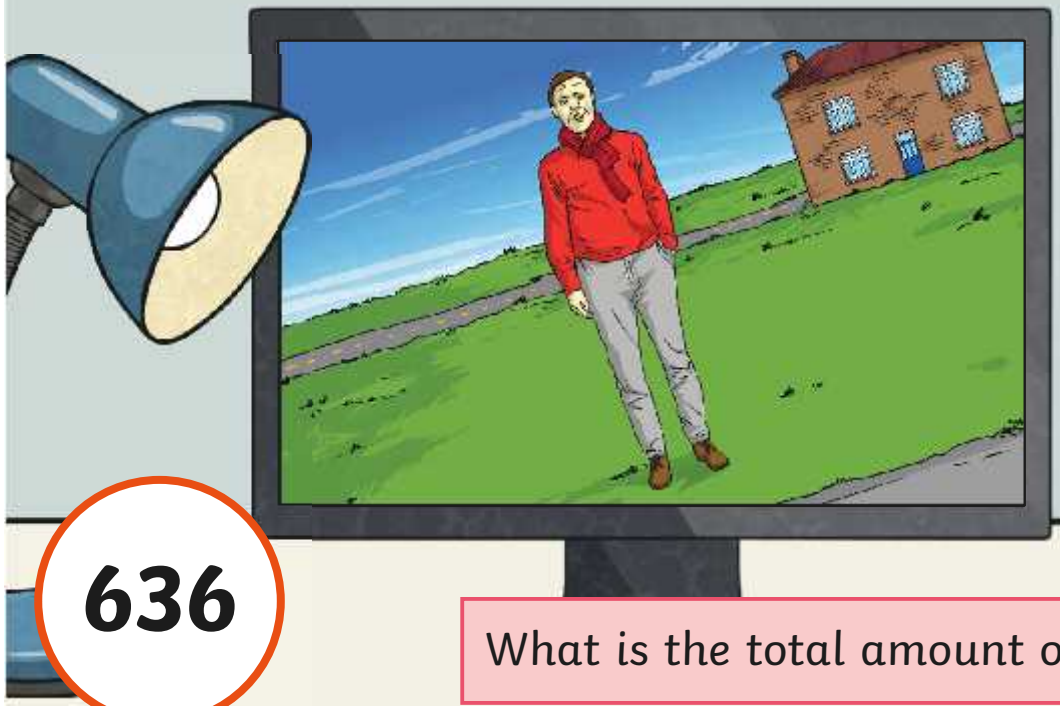
Her boss says that the shop has made less than £4500 profit.

Month	Rounding
January	**£1200**
February	**£900**
March	**£400**
April	**£600**
May	**£900**
June	**£300**

Rounding to the nearest £100 allows us to quickly estimate that the profit is approximately £4300, so Jacqui's boss is correct.

Round and Round!

Use your estimating and rounding skills to choose the correct total.
The table below shows the amount of views a video on TwinklTube has over 4 weeks.



Week	Number of Views
1	153
2	231
3	269
4	113

636

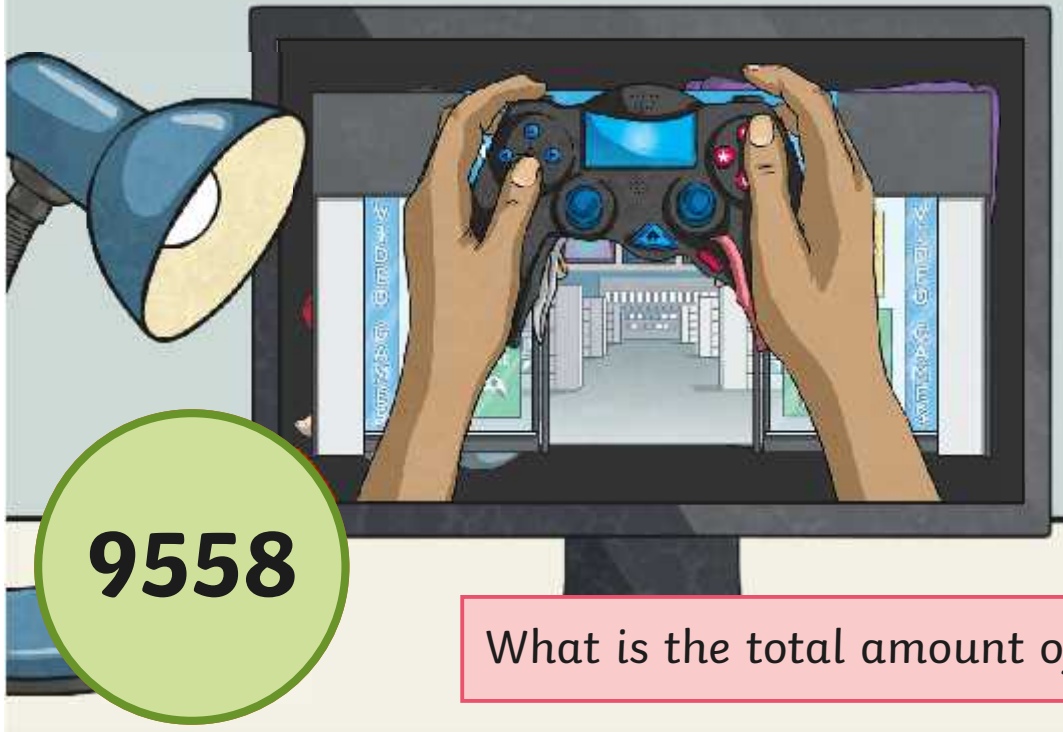
What is the total amount of views?

766

Round and Round!

Whole Class

Use your estimating and rounding skills to choose the correct total.
The table below shows the amount of views a video on a gaming website has over 4 weeks.



Week	Number of Views
1	1721
2	1092
3	3134
4	3611

9558

What is the total amount of views?

10 558

Estimation and Approximation

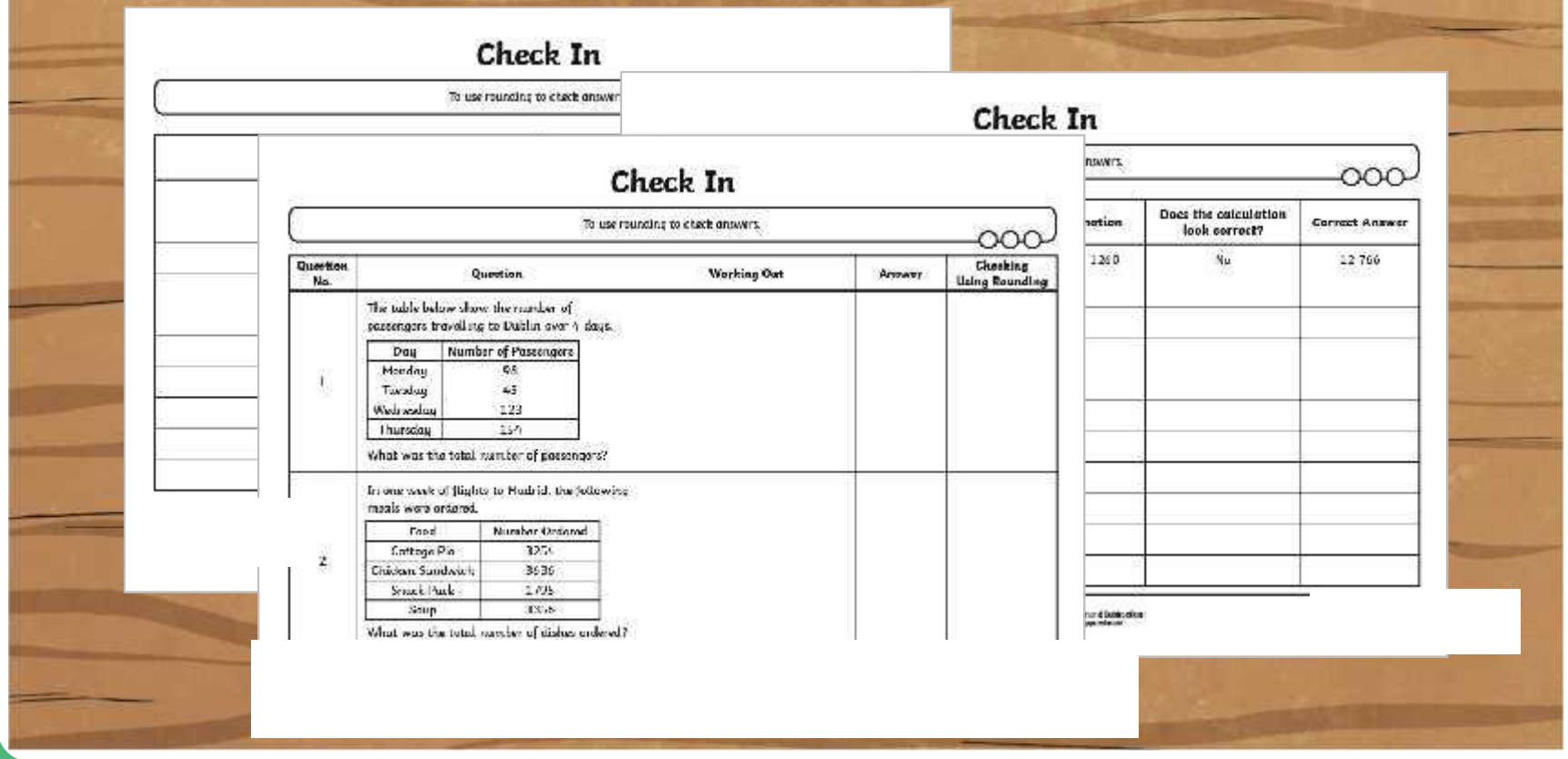
Estimate the answers to the following addition and subtraction questions, using rounding to support your estimations.

		Answer
1	258 + 49	**260 + 50 = 310**
2	1999 + 500	**2000 + 500 = 2500**
3	23 678 + 19 998	**24 000 + 20 000 = 44 000**
4	678 999 – 133 333	**680 000 – 130 000 = 550 000**
5	898 003 – 290 999	**900 000 – 300 000 = 600 000**

Write your estimation to each calculation and compare with a partner.

Check In!

Your employer, Iris Air, has asked you to check some information about previous flights.



Check In

To use rounding to check answers

Check In

To use rounding to check answers

Question No.	Question	Working Out	Answer	Checking Using Rounding
1	The table below show the number of passengers travelling to Dublin over 4 days.			
2	In one week of flights to Madrid, the following meals were ordered.			

Day	Number of Passengers
Monday	98
Tuesday	45
Wednesday	123
Thursday	157

What was the total number of passengers?

Food	Number Ordered
Cottage Pie	1254
Chicken Sandwich	3636
Snack Pack	2705
Soup	1006

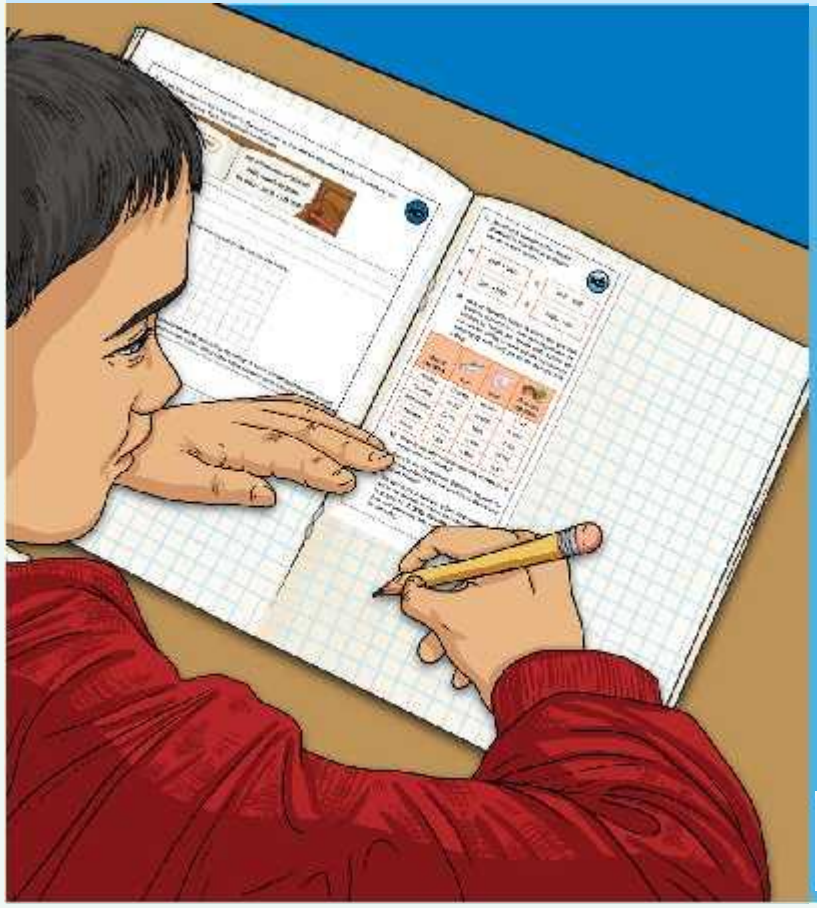
What was the total number of dishes ordered?

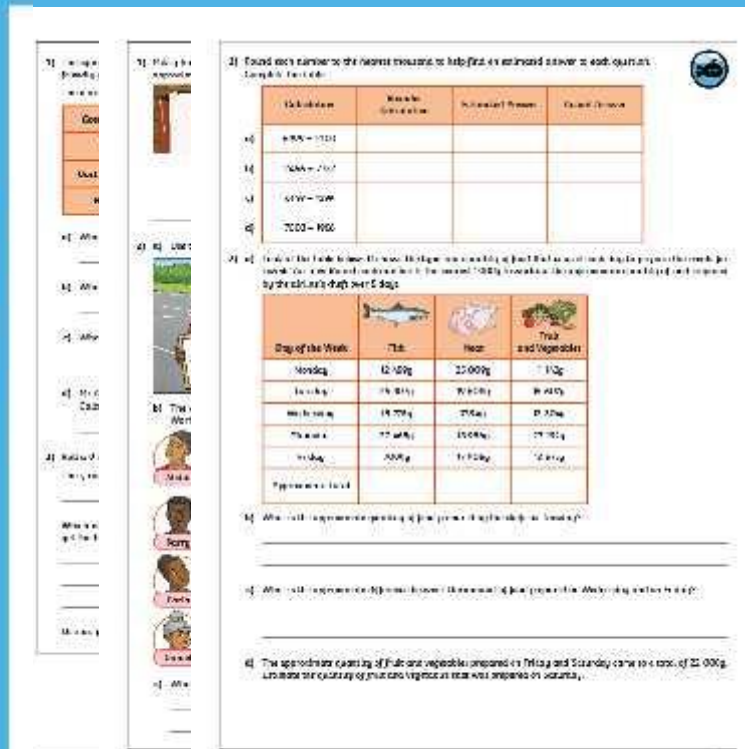
Check In

Question	Does the calculation look correct?	Correct Answer
1260	No	12 766

Diving into Mastery

Dive in by completing your own activity!





Question Time

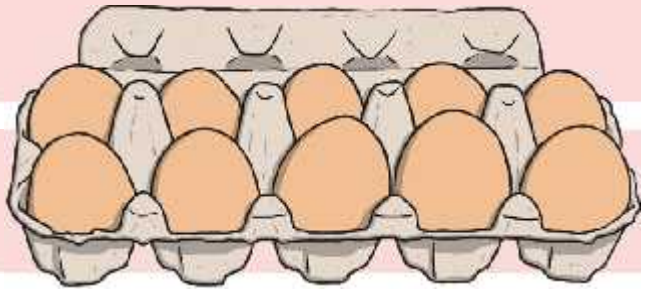
A chicken farmer collected 4521 eggs in May and 5368 eggs in June.
Approximately how many more eggs were collected in June?

a) 500 eggs

b) 850 eggs

c) 1000 eggs

d) 1800 eggs



Question Time

JJ has a paper round. He earns £5.40 an hour and works 1 hour each weekday and 2 hours a day at the weekend. What is the most reasonable approximation of JJ's weekly pay?

a) £5

b) £500

c) £50

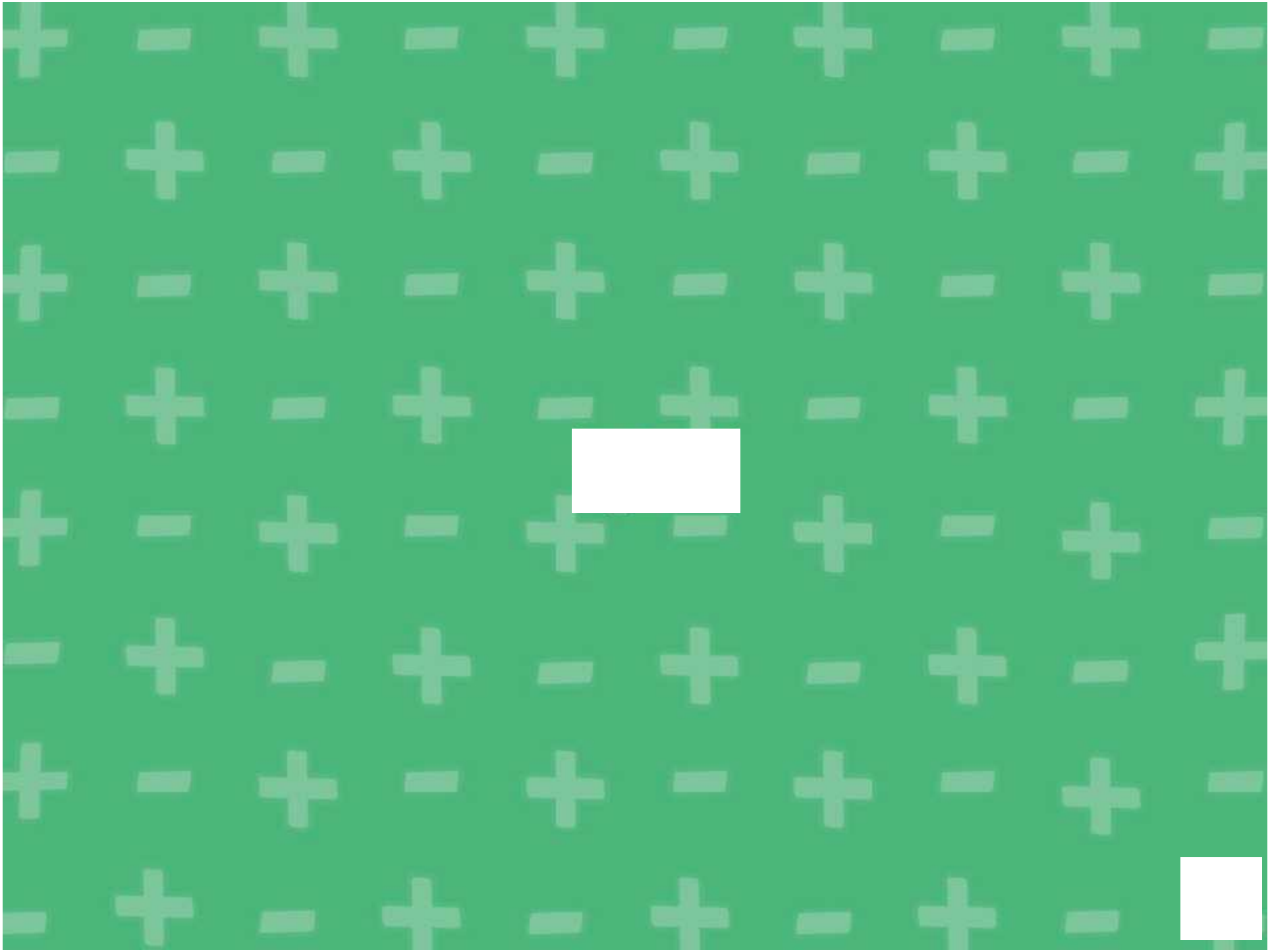
d) £40

Aim

- To use rounding to check answers.

Success Criteria

- I can round up and down depending on the digit.
- I can round to the nearest 10, 100, and 1000, and could round to the nearest 10 000 and 100 000.
- I can use rounding to help me decide if an answer is correct or incorrect.



Aim: To use rounding to check answers.				**Date:**					
				Delivered By:			**Support:**		
Success Criteria	**Me**	**Friend**	**Teacher**	**T**	**PPA**	**S**	**I**	**AL**	**GP**
I can round up and down depending on the digit.				**Notes/Evidence**					
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.									
I can use rounding to help me decide if an answer is correct or incorrect.									

Next Steps

- _____
- _____

T	Teacher	**I**	Independent
PPA	Planning, Preparation and Assessment	**AL**	Adult Led
S	Supply	**GP**	Guided Practice

Aim: To use rounding to check answers.				**Date:**					
				Delivered By:			**Support:**		
Success Criteria	**Me**	**Friend**	**Teacher**	**T**	**PPA**	**S**	**I**	**AL**	**GP**
I can round up and down depending on the digit.				**Notes/Evidence**					
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.									
I can use rounding to help me decide if an answer is correct or incorrect.									

Next Steps

- _____
- _____

T	Teacher	**I**	Independent
PPA	Planning, Preparation and Assessment	**AL**	Adult Led
S	Supply	**GP**	Guided Practice

Check In

To use rounding to check answers.

Question	Correct or Incorrect? (tick if correct or cross if incorrect)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Check In

To use rounding to check answers.

Question	What is the calculation?	Rounded Approximation	Does the calculation look correct?	Correct Answer
e.g.	129 + 453 + 684 = 1658	130 + 450 + 680 = 1260	No	12 766
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Check In

To use rounding to check answers.

Question No.	Question	Working Out	Answer	Checking Using Rounding
1	The table below shows the number of passengers travelling to Dublin over 4 days. **Day** / **Number of Passengers** Monday: 98 Tuesday: 45 Wednesday: 123 Thursday: 154 What was the total number of passengers?			
2	In one week of flights to Madrid, the following meals were ordered. **Food** / **Number Ordered** Cottage Pie: 3254 Chicken Sandwich: 3636 Snack Pack: 1795 Soup: 3356 What was the total number of dishes ordered?			

<table>
<tr><th>Question No.</th><th>Question</th><th>Working Out</th><th>Answer</th><th>Checking Using Rounding</th></tr>
<tr><td>3</td><td>The airline wants to give information to its passengers on its latest destination, Iceland.
<table><tr><th>Place</th><th>Population</th></tr><tr><td>Reykjavik</td><td>858 894</td></tr><tr><td>Akureyri</td><td>575 785</td></tr><tr><td>Egilsstadir</td><td>1795</td></tr></table>What is the total population?</td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>A passenger bought 3 items during a flight: a teddy bear costing £13.38, a model aeroplane costing £9.78 and a neck pillow costing £8.57. She paid with a £50 note. How much change did she receive?</td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>The table shows the number of different films viewed during flights to America.
<table><tr><th>Destination</th><th>Films Watched</th></tr><tr><td>Los Angeles</td><td>545 495</td></tr><tr><td>New York</td><td>437 934</td></tr><tr><td>Boston</td><td>145 349</td></tr></table>How many films were viewed altogether?</td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th>Question No.</th><th>Question</th><th>Working Out</th><th>Answer</th><th>Checking Using Rounding</th></tr>
<tr><td>6</td><td>The airline mascot has been travelling around the world to promote the company. The table shows the distance travelled on each journey.
<table><tr><th>Journey</th><th>Distance Travelled (km)</th></tr><tr><td>1</td><td>9495</td></tr><tr><td>2</td><td>15 374</td></tr><tr><td>3</td><td>16 312</td></tr><tr><td>4</td><td>38 356</td></tr></table>What is the total distance travelled?</td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>The table below shows the total number of flights scheduled and the number of flights that had to be cancelled due to bad weather.
<table><tr><th>Total Number of Flights</th><th>Flights Cancelled</th></tr><tr><td>242 500</td><td>38 428</td></tr></table>How many flights managed to take off?</td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th>Question No.</th><th>Question</th><th>Working Out</th><th>Answer</th><th>Checking Using Rounding</th></tr>
<tr><td>8</td><td>The table below shows the number of passengers travelling to Edinburgh over 4 days.
<table><tr><th>Day</th><th>Number of Passengers</th></tr><tr><td>Monday</td><td>11 294</td></tr><tr><td>Tuesday</td><td>1983</td></tr><tr><td>Wednesday</td><td>11 390</td></tr><tr><td>Thursday</td><td>21 540</td></tr></table>What was the total number of passengers?</td><td></td><td></td><td></td></tr>
<tr><td>9</td><td>On a flight to Paris, the following items were ordered.
<table><tr><th>Items</th><th>Number Ordered</th></tr><tr><td>Perfume</td><td>138</td></tr><tr><td>Make-Up</td><td>192</td></tr><tr><td>Teddy Bear</td><td>356</td></tr><tr><td>Chocolate</td><td>53</td></tr></table>What was the total number of items ordered?</td><td></td><td></td><td></td></tr>
<tr><td>10</td><td>The table below shows the number of people that visited the airline's website over 3 days.
<table><tr><th>Day</th><th>Number of Website Visits</th></tr><tr><td>Monday</td><td>132 000</td></tr><tr><td>Tuesday</td><td>138 000</td></tr><tr><td>Wednesday</td><td>181 000</td></tr></table>How many people visited the website?</td><td></td><td></td><td></td></tr>
</table>

Check In Teacher **Answers**

Question	★	★★		★★★
		Is the answer correct?	Correct answer if required	
1	✓	✓		420
2	✗	✗	2041	12 041
3	✓	✓		1 436 474
4	✗	✗	£18.27	£18.27
5	✗	✗	545 000	1 128 778
6	✓	✓		79 537 km
7	✓	✓		204 072
8	✓	✓		46 207
9	✗	✗	739	739
10	✗	✗	451 000	451 000

Check In
Challenge Cards

★ 1

The table below shows the number of passengers who travelled to Dublin over 4 days.

Day	Number of Passengers
Monday	98
Tuesday	45
Wednesday	123
Thursday	154

The total number of passengers was 420.

Is this correct? Use rounding to help you check the answer.

★ 2

The plane flies between Madrid and Manchester several times in one day. The cabin crew served the following meals.

Food	Number Served
Cottage Pie	257
Chicken Sandwich	374
Snack Pack	852
Soup	346

The total amount of dishes ordered was 1629.

Is this correct? Use rounding to help you check the answer.

★ 3

The airline wants to give information to its passengers on its latest destination, Iceland.

Place	Population
Reykjavik	429 049
Akureyri	385 590
Egilsstadir	254 020

The total population of the towns is 1 068 659.

Is this correct? Use rounding to help you check the answer.

Check In ★ 4

A passenger bought 3 items during a flight: a teddy bear costing £3.50, a model aeroplane costing £2.20 and a neck pillow costing £4.32. She paid with a £20 note and received £8.98 change.

Did she receive the correct amount of change? Use rounding to help you check the answer.

Check In ★ 5

The table shows the number of different films viewed during a flight to Los Angeles. Michael, the chief steward, stated, "If I round the number of films viewed to the nearest 100, then 900 films were viewed."

Destination	Films Watched
Los Angeles	845

Is he correct?

Check In ★ 6

The airline mascot has been travelling around the world to promote the company. The table shows the distance travelled on each journey.

Journey	Distance Travelled (km)
1	1495
2	5374
3	6312
4	8356

The total distance travelled is 21 537 km.

Is this correct? Use rounding to help you.

Check In ★ 7

The table below shows the total number of flights scheduled and the number of flights that had to be cancelled due to bad weather.

Total Number of Flights	Flights Cancelled
142 500	18 428

The total number of flights that managed to take off was 124 072.

Is this correct? Use rounding to check.

Check In ★ 8

The table below shows the number of passengers travelling to Edinburgh over 4 days.

Day	Number of Passengers
Monday	1294
Tuesday	1983
Wednesday	1390
Thursday	1540

The total number of passengers was 6207.

Is this correct? Use rounding to help you check the answer.

Check In ★ 9

On a flight to Paris, the following items were ordered.

Items	Number Ordered
Perfume	37
Make-Up	87
Teddy Bear	32
Chocolate	19

The total number of items ordered was 155. Is this correct? Use rounding to help you check the answer.

Check In ★ 10

The table below shows the number of people that visited the airline's website over 3 days.

Day	Number of Website Visits
Monday	132 000
Tuesday	138 000
Wednesday	183 000

The number of people that visited the website was 150 000.

Is this correct? Use rounding to help you check the answer?

Check In ★★ 1

The table below shows the number of passengers travelling to Dublin over 4 days.

Day	Number of Passengers
Monday	384
Tuesday	483
Wednesday	254
Thursday	478

The total number of passengers was 1599.

Is this correct? Use rounding to help you check the answer.

Check In ★★ 2

The plane flies between Madrid and Manchester several times in one day. The cabin crew served the following meals.

Food	Number Served
Cottage Pie	254
Chicken Sandwich	636
Snack Pack	795
Soup	356

The total number of dishes ordered was 1741.

Is this correct? Use rounding to help you check the answer.

Check In ★★ 3

The airline wants to give information to its passengers on its latest destination, Iceland.

Place	Population
Reykjavik	858 894
Akureyri	575 785
Egilsstadir	46 948

The total population of the towns is 1 481 627.

Is this correct? Use rounding to help you check the answer.

Check In ★★ 4

A passenger bought 3 items during a flight: a teddy bear costing £13.38, a model aeroplane costing £9.78 and a neck pillow costing £8.57. She paid with a £50 note and received £12.56 in change. Did she receive the correct amount of change? Use rounding to help you check.

Check In ★★ 5

The table shows the total number of different films viewed during last month's flights to Los Angeles. Michael, the chief steward, stated, "If I round the number of films viewed to the nearest 1000, then 546 000 films were viewed." Is he correct?

Destination	Films Watched
Los Angeles	545 495

Check In ★★ 6

The airline mascot has been travelling around the world to promote the company. The table shows the distance travelled on each journey.

Journey	Distance Travelled (km)
1	9495
2	15 374
3	16 312
4	38 356

The total distance travelled is 79 537 km.

Is this correct? Use rounding to help you.

Check In ★★ 7

The table below shows the total number of flights scheduled and the number of flights that had to be cancelled due to bad weather.

Total Number of Flights	Flights Cancelled
242 500	38 428

The total number of flights that managed to take off was 204 072.

Is this correct? Use rounding to check.

Check In ★★ 8

The table below shows the number of passengers travelling to Edinburgh over 4 days.

Day	Numbers of Passengers
Monday	11 294
Tuesday	1983
Wednesday	11 390
Thursday	21 540

The total number of passengers was 46 207.

Is this correct? Use rounding to help you check the answer.

Check In ★★ 9

On a flight to Paris, the following items were ordered.

Items	Number Ordered
Perfume	138
Make-Up	192
Teddy Bear	356
Chocolate	53

The total amount of items ordered was 941.

Is this correct? Use rounding to help you check the answer.

Check In ★★ 10

The table below shows the number of people that visited the airline's website over 3 days.

Day	Number of website visits
Monday	132 000
Tuesday	138 000
Wednesday	181 000

The number of people that visited the website was 150 000.

Is this correct? Use rounding to help you check the answer.

1)

Calculation	Rounded Calculation	Estimated Answer	Actual Answer
6999 + 2100	**7000 + 2000**	**9000**	**9099**
2456 + 7787	**2000 + 8000**	**10 000**	**10 243**
6149 – 1399	**6000 – 1000**	**5000**	**4750**
7503 – 1956	**8000 – 2000**	**6000**	**5547**

2) a)

Day of the Week	 Fish	 Meat	 Fruit and Vegetables
Monday	12 000g	25 000g	11 000g
Tuesday	25 000g	20 000g	16 000g
Wednesday	16 000g	7000g	12 000g
Thursday	28 000g	14 000g	27 000g
Friday	7000g	18 000g	14 000g
Approximate Total	**88 000g**	**84 000g**	**80 000g**

b) 25 000g + 20 000g + 16 000g = 61 000g

c) Wednesday = 16 000g + 7000g + 12 000g = 35 000g

Friday = 7000g + 18 000g + 14 000g = 39 000g

39 000g – 35 000g = 4000g

d) The rounded number of vegetables prepared on Friday is 14 000g to the nearest 1000g. This means that approximately 8000g were prepared on Saturday.

1) Mikey rounded 135 697 to the nearest 1000 and correctly wrote down 136 000.

However, when rounding 3509 to the nearest 1000, Mikey rounded down to 3000 when he should have rounded up to 4000.

A more accurate approximation would have been 136 000 – 4000 = 132 000.

2) a) 116 611

b) Abdul rounded to the nearest thousand.

126 000 – 10 000 = 116 000

Barry rounded to the nearest ten thousand.

130 000 – 10 000 = 120 000

Carla rounded to the nearest hundred.

126 300 – 9700 = 116 600

Daniel rounded to the nearest ten.

126 280 – 9670 – 116 610

c) Although Daniel's calculation was most accurate, it would not be the quickest to calculate.

Barry's method would be quick to calculate, but is the least accurate.

Abdul's method was relatively close to the correct answer and would have been quick to calculate mentally.

1) a) £14 + £7 + £9 + £3 = £33

b) £33 per player x 20

£33 × 10 = £330

£330 ×2 = £660

c) 20 players in 5 squads = 100 players in total

£33 × 100 = 3300

or: £660 per squad

£660 × 5 = £3300

d) Original approximation was £3300 for the whole academy.

If the plane tickets are now half price, each player's cost is reduced by £6.90, which is a saving of approximately £700 for the whole academy.

£3300 – £700 = £2600

Or: The new cost per player is now approximately

£7 + £7 + 9 + £3 = £26

So the total cost for the academy is £26 × 100 = £2600.

2) Investigative question. Multiple possible answers.

1) Round each number to the nearest thousand to help find an estimated answer to each question. Complete the table.

	Calculation	Rounded Calculation	Estimated Answer	Actual Answer
a)	6999 + 2100			
b)	2456 + 7787			
c)	6149 – 1399			
d)	7503 – 1956			

2) **a)** Look at the table below. It shows the type and quantity of food that is used each day to prepare the meals for Twinkl Airlines. Round each number to the nearest 1000g to work out the approximate quantity of food prepared by the airline's chefs over 5 days.

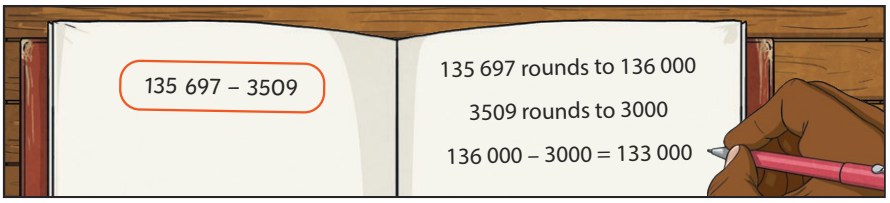
Day of the Week	 Fish	 Meat	 Fruit and Vegetables
Monday	12 459g	25 009g	11 142g
Tuesday	25 307g	19 608g	15 602g
Wednesday	15 775g	7394g	12 304g
Thursday	27 465g	13 956g	27 192g
Friday	7009g	17 905g	13 577g
Approximate Total			

b) What is the approximate quantity of food prepared by the chefs on Tuesday?

c) What is the approximate difference between the amount of food prepared on Wednesday and on Friday?

d) The approximate quantity of fruit and vegetables prepared on Friday and Saturday came to a total of 22 000g. Estimate the quantity of fruit and vegetables that was prepared on Saturday.

1) Mikey has rounded each number in the calculation to the nearest thousand in order to work out the approximate answer. Spot and explain his mistake.



2) **a)** Use the column method to work out the answer to the calculation below.

b) The children were looking at the calculation above and using rounding to work out an approximate answer. Work out the answer to each child's calculation below. What place value did each child round to?


Abdul: 126 000 – 10 000


Barry: 130 000 – 10 000


Carla: 126 300 – 9700


Daniel: 126 280 – 9670

c) Whose is the closest approximation? Whose calculation is the quickest to solve? Explain why.

1) The squads from Twinkl Football Academy will be flying to Scotland to play their pre-season friendly games.

There are 20 footballers in each squad and 5 squads will be going.

Cost of Plane Ticket	13.80
Cost of Lunch	6.92
Cost of Hotel Shuttle Bus	8.87
Bag Handling Fee	3.33

a) What is the approximate cost for one footballer to go?

b) What is the approximate cost for a squad to go?

c) What is the approximate cost for the whole academy to go?

d) Mr Adams, the Head Coach, has managed to get the plane tickets for half price.
Calculate approximately how much it will now cost to take the whole academy on the trip.

2) Roll a 9-sided dice twelve times to make two 6-digit numbers. Find the sum of your two numbers.

Then, round your two original numbers to the nearest 10, 100, 1000 and 10 000 and add them again.

Which is the quickest to calculate? Which is most accurate? What place value should you round to in order to get the best compromise between speed and accuracy?

Discuss your findings in your group to see if everyone got the same result.

1) Round each number to the nearest thousand to help find an estimated answer to each question.

a)	6999 + 2100	**c)**	6149 – 1399
b)	2456 + 7787	**d)**	7503 – 1956

2) **a)** Look at the table below. It shows the type and quantity of food that is used each day to prepare the meals for Twinkl Airlines. Round each number to the nearest 1000g to work out the approximate quantity of food prepared by the airline's chefs over 5 days.

Day of the Week	 Fish	 Meat	 Fruit and Vegetables
Monday	12 459g	25 009g	11 142g
Tuesday	25 307g	19 608g	15 602g
Wednesday	15 775g	7394g	12 304g
Thursday	27 465g	13 956g	27 192g
Friday	7009g	17 905g	13 577g

b) What is the approximate quantity of food prepared by the chefs on Tuesday?

c) What is the approximate difference between the amount of food prepared on Wednesday and on Friday?

d) The approximate quantity of fruit and vegetables prepared on Friday and Saturday came to a total of 22 000g. Estimate the quantity of fruit and vegetables that was prepared on Saturday.

1) Round each number to the nearest thousand to help find an estimated answer to each question.

a)	6999 + 2100	**c)**	6149 – 1399
b)	2456 + 7787	**d)**	7503 – 1956

2) **a)** Look at the table below. It shows the type and quantity of food that is used each day to prepare the meals for Twinkl Airlines. Round each number to the nearest 1000g to work out the approximate quantity of food prepared by the airline's chefs over 5 days.

Day of the Week	 Fish	 Meat	 Fruit and Vegetables
Monday	12 459g	25 009g	11 142g
Tuesday	25 307g	19 608g	15 602g
Wednesday	15 775g	7394g	12 304g
Thursday	27 465g	13 956g	27 192g
Friday	7009g	17 905g	13 577g

b) What is the approximate quantity of food prepared by the chefs on Tuesday?

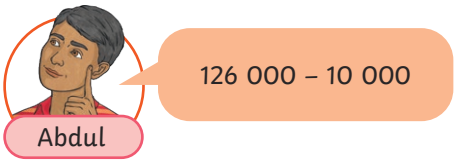
c) What is the approximate difference between the amount of food prepared on Wednesday and on Friday?

d) The approximate quantity of fruit and vegetables prepared on Friday and Saturday came to a total of 22 000g. Estimate the quantity of fruit and vegetables that was prepared on Saturday.

1) Mikey has rounded each number in the calculation to the nearest thousand in order to work out the approximate answer. Spot and explain his mistake.

a) Use the column method to work out the answer to the calculation below.

b) The children were looking at the calculation above and using rounding to work out an approximate answer. Work out the answer to each child's calculation below. What place value did each child round to?

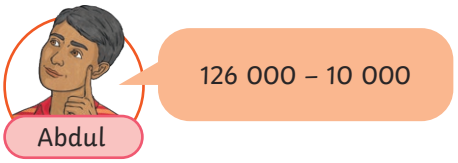


c) Whose is the closest approximation? Whose calculation is the quickest to solve?

1) Mikey has rounded each number in the calculation to the nearest thousand in order to work out the approximate answer. Spot and explain his mistake.

a) Use the column method to work out the answer to the calculation below.

b) The children were looking at the calculation above and using rounding to work out an approximate answer. Work out the answer to each child's calculation below. What place value did each child round to?



c) Whose is the closest approximation? Whose calculation is the quickest to solve?

1) The squads from Twinkl Football Academy will be flying to Scotland to play their pre-season friendly games.

There are 20 footballers in each squad and 5 squads will be going.

Cost of Plane Ticket	13.80
Cost of Lunch	6.92
Cost of Hotel Shuttle Bus	8.87
Bag Handling Fee	3.33

a) What is the approximate cost for one footballer to go?

b) What is the approximate cost for a squad to go?

c) What is the approximate cost for the whole academy to go?

d) Mr Adams, the Head Coach, has managed to get the plane tickets for half price.

Calculate approximately how much it will now cost to take the whole academy on the trip.

2) Roll a 9-sided dice twelve times to make two 6-digit numbers. Find the sum of your two numbers.

Then, round your two original numbers to the nearest 10, 100, 1000 and 10 000 and add them again.

Which is the quickest to calculate? Which is most accurate? What place value should you round to in order to get the best compromise between speed and accuracy?

Discuss your findings in your group to see if everyone got the same result.

1) The squads from Twinkl Football Academy will be flying to Scotland to play their pre-season friendly games.

There are 20 footballers in each squad and 5 squads will be going.

Cost of Plane Ticket	13.80
Cost of Lunch	6.92
Cost of Hotel Shuttle Bus	8.87
Bag Handling Fee	3.33

a) What is the approximate cost for one footballer to go?

b) What is the approximate cost for a squad to go?

c) What is the approximate cost for the whole academy to go?

d) Mr Adams, the Head Coach, has managed to get the plane tickets for half price.

Calculate approximately how much it will now cost to take the whole academy on the trip.

2) Roll a 9-sided dice twelve times to make two 6-digit numbers. Find the sum of your two numbers.

Then, round your two original numbers to the nearest 10, 100, 1000 and 10 000 and add them again.

Which is the quickest to calculate? Which is most accurate? What place value should you round to in order to get the best compromise between speed and accuracy?

Discuss your findings in your group to see if everyone got the same result.

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		

Addition and Subtraction | Rounding to Estimate and Approximate

To use rounding to check answers.		
I can round up and down depending on the digit.		
I can round to the nearest 10, 100, and 1000 and could round to the nearest 10 000 and 100 000.		
I can use rounding to help me decide if an answer is correct or incorrect.		