1)

Calculation	Rounded Calculation	Estimated Answer	Actual Answer
5671 + 5671	6000 + 6000	12 000	11 342
2483 + 4382	2000 + 4000	6000	6865
6189 - 3407	6000 – 3000	3000	2782
6719 - 1588	7000 – 2000	5000	5131

2) a)

Day of the Week	Fish	Meat	Fruit and Vegetables
Monday	12 056g	25 789g	10 001g
Tuesday	22 307g	17 663g	15 774g
Wednesday	9946g	8093g	12 025g
Thursday	28 570g	12 551g	27 350g
Friday	7009g	18 904g	10 888g
Approximate Total	80 000g	84 000g	76 000g

b) 48 000g

c) 19 000g

d) 6000g

1) Freddy has rounded the number 3002 incorrectly. He rounded up to 4000, when he should have rounded down to 3000. 3002 is much closer to 3000 than 4000 on the number line.

The calculation should be 35 000 + 3000 = 38 000 to give an approximate answer.

2) a) 71 382 – 20 939 = 50 443

		0		7	
	7	~~1~~	13	~~8~~	12
–	2	0	9	3	9
	5	0	4	4	3

b) Cassie: 50 000

Paulo: 49 500

Azma: 50 000

Tommy: 50 440

c) Tommy's is the closest approximation because he has rounded each number to the nearest ten. However, Cassie and Azma's calculations are the quickest to solve because they are rounded to one of the highest place values. This does mean that their approximated answers are not as close to the actual answer as Tommy's.

1) a) £30

b) £600

c) £3000

d) £2400

Also accept £2300 as children may have either found half of the actual price of a ticket first before rounding (£6.475 ≈ 6) or half of the rounded price (£6.50 ≈ 7).

2) Look for children using a systematic approach. Multiple answers are possible. Example answers:

1985 + 5501

1986 + 5502

1987 + 5503

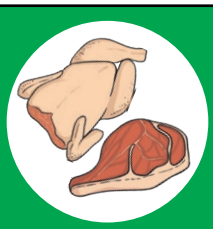
1988 + 5504

1989 + 5505

1) Complete the table below.

Calculation	Rounded Calculation	Estimated Answer	Actual Answer
5671 + 5671			
2483 + 4382			
6189 - 3407			
6719 - 1588			

2) **a)** Look at the table below. It shows the type and quantity of food that is used each day to feed the animals at Twinkl Zoo. Use rounding to work out the approximate quantity of each food fed to the animals over 5 days.

Day of the Week	Fish	 Meat	Fruit and Vegetables
Monday	12 056g	25 789g	10 001g
Tuesday	22 307g	17 663g	15 774g
Wednesday	9946g	8093g	12 025g
Thursday	28 570g	12 551g	27 350g
Friday	7009g	18 904g	10 888g
Approximate Total			

b) What is the approximate quantity of food fed to the animals on Monday?

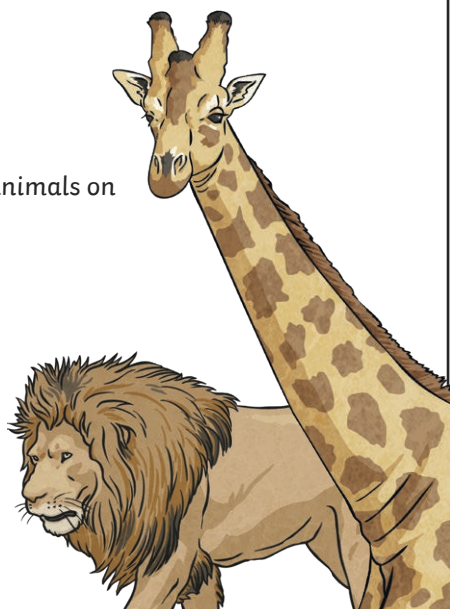
_____

c) What is the approximate difference between the amount of food fed to the animals on Tuesday and the amount of food fed to the animals on Friday?

_____

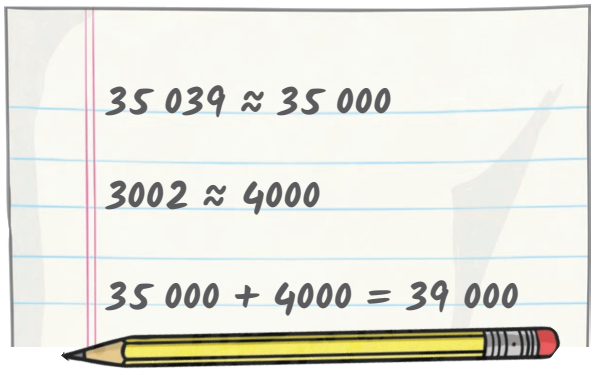
d) The approximate quantity of fruit and vegetables fed to the animals on Friday and Saturday came to a total of 17 000g. Estimate the quantity of fruit and vegetables that was fed to the animals on Saturday.

_____



1) Freddy has rounded this calculation in order to work out the approximate answer. Spot and explain his mistake.

35 039 + 3002



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

71 382 – 20 939 =

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.

Cassie

71 000 – 21 000 =

_____

70 000 – 20 000 =

_____

Azma

Paulo

71 400 – 21 900 =

_____

71 380 – 20 940 =

_____

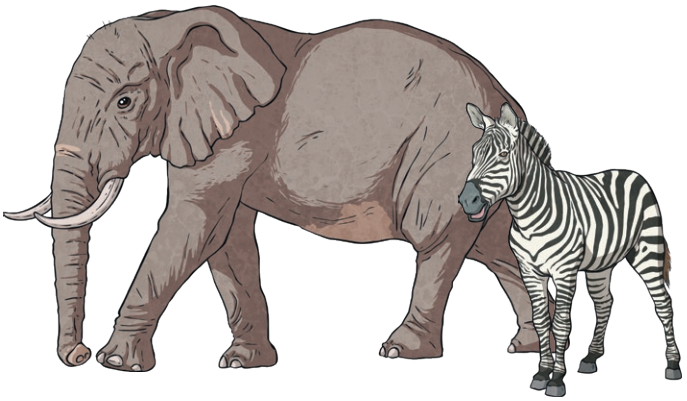
Tommy

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

1) The children from Twinkl Academy will be going on a school trip to the zoo. There are 20 children in each class and 5 classes will be going.

For each question, do the working out in your book and write the answer on this sheet.

Cost of Entrance Ticket	**£12.95**
Cost of Lunch	**£5.32**
Cost of Bus	**£9.58**
Cost of Souvenir	**£1.99**



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

_____

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

_____

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

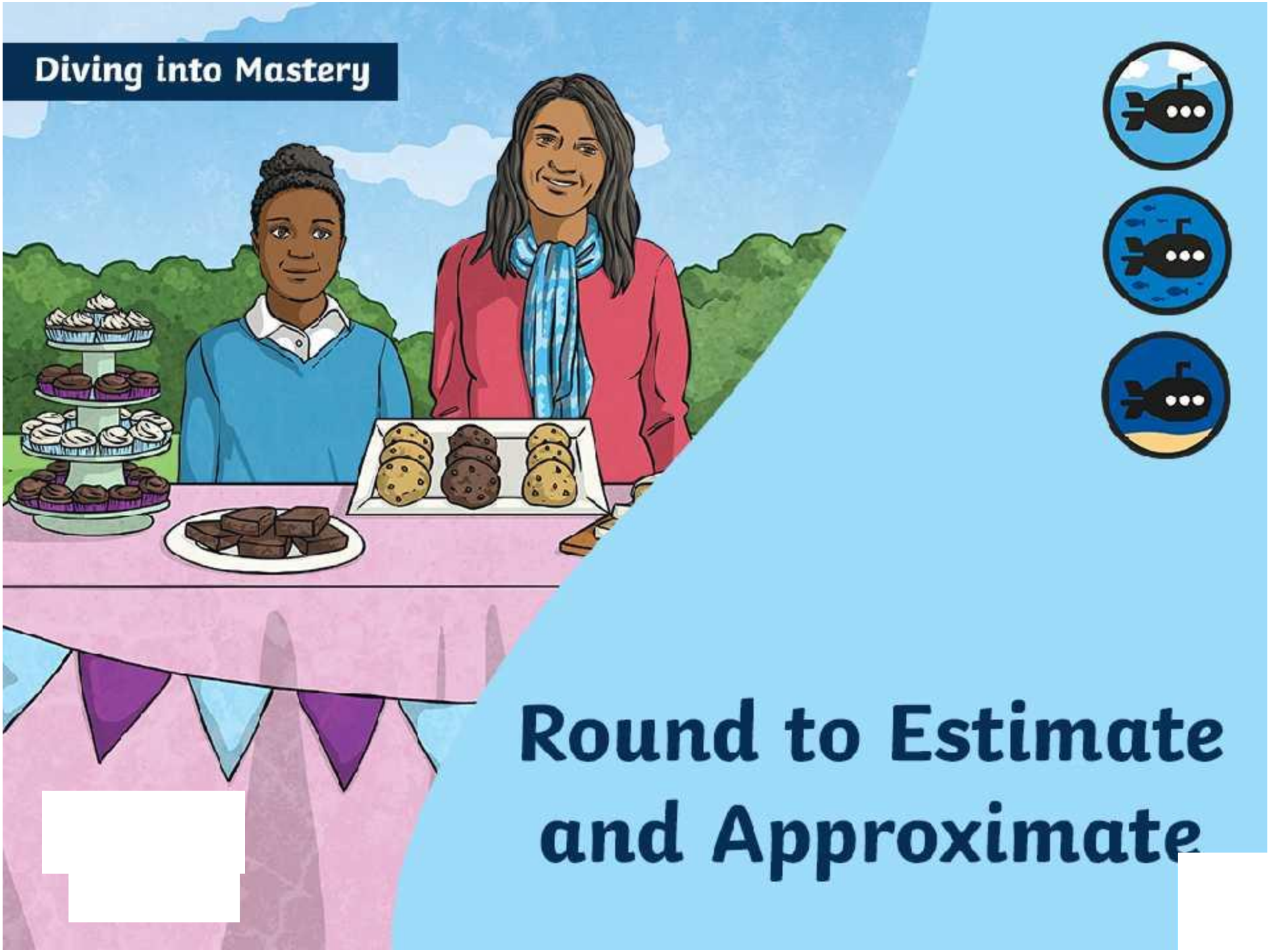
_____

d) Mrs Leech, the headteacher, has managed to get the entrance tickets to the zoo for half price. Calculate approximately how much it will now cost to take the whole school to the zoo.

_____

2) Anne added two 4-digit numbers together. Neither number ended in a 0. She rounded the numbers to help estimate the answer. Her estimated answer was 7500. What could her two starting numbers have been? Find 5 possibilities.

Diving into Mastery



Round to Estimate and Approximate

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

Diving

Deeper

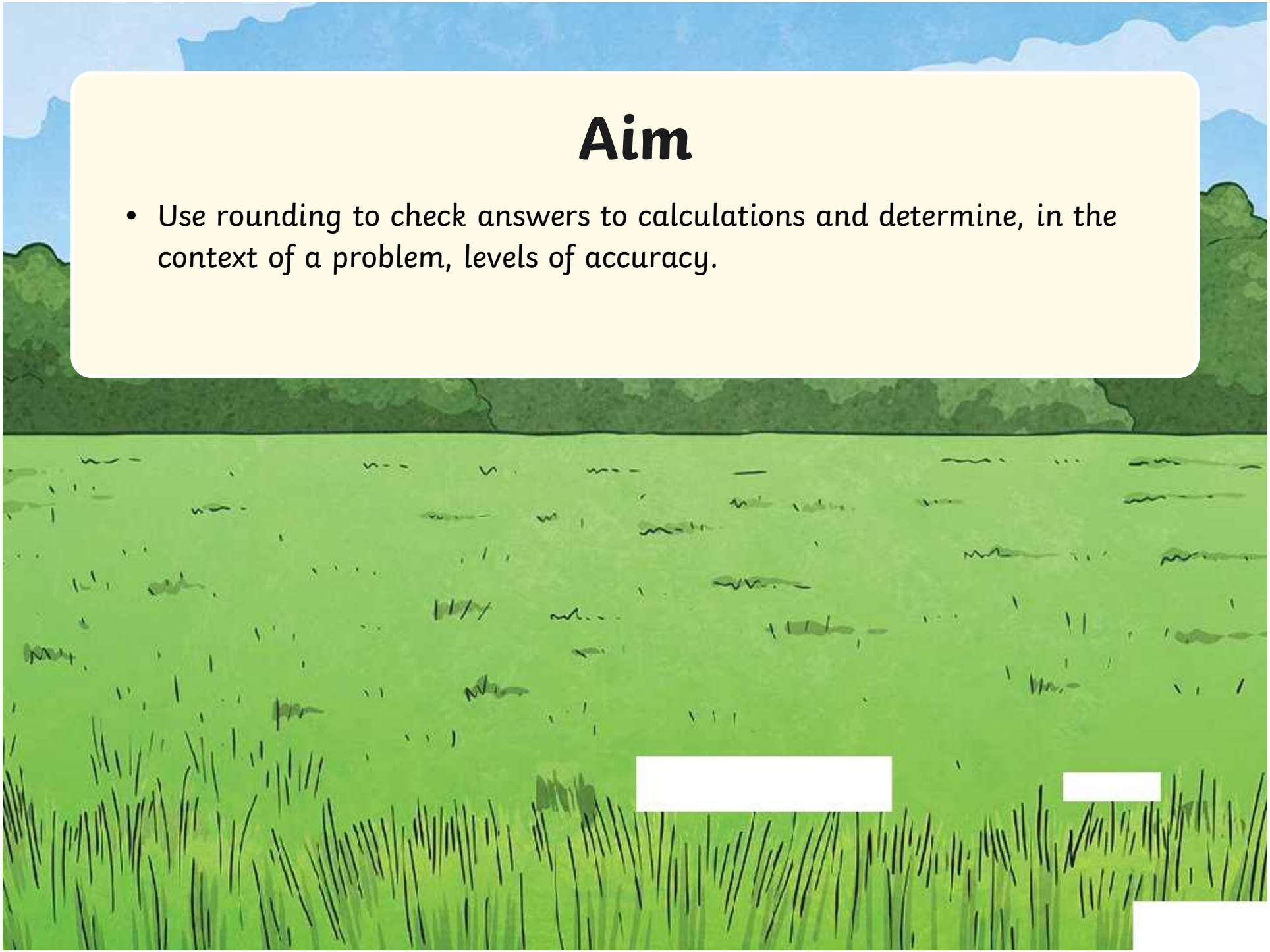
Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

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.

Aim

- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.



Round to Estimate and Approximate | **Diving**

Complete the table below.

Calculation	Rounded Calculation	Estimated Answer	Actual Answer
3867 + 4003	4000 + 4000	8000	7870
12 056 + 1802	12 000 + 2000	14 000	13 858

Did you choose any different place values to round to? Did this change the estimated answers that you found?

Round to Estimate and Approximate | Diving

Complete the table below.

Days of the Week	Men	Women	Children
Monday	18 352	21 708	4593
Tuesday	10 895	11 950	5432
Wednesday	25 671	9093	8111

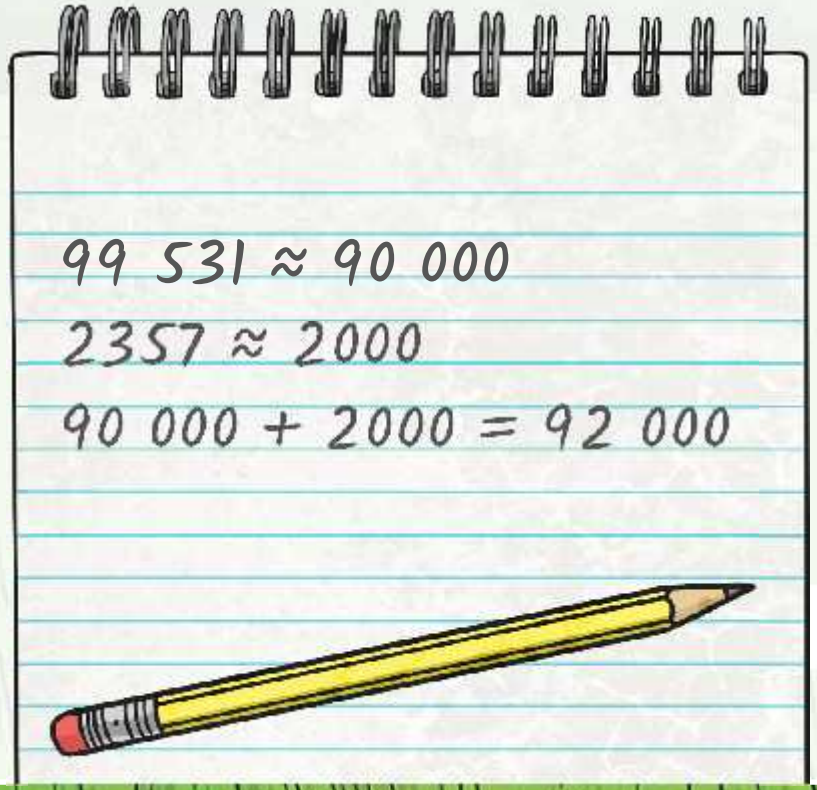
What is the approximate number of people who travelled into London on the train on Monday? **45 000**

What is the approximate difference between the number of children who travelled into London on Monday and the number on Wednesday? **3000**

Round to Estimate and Approximate | **Deeper**

Arnold has rounded this calculation in order to work out the approximate answer. Spot and explain his mistake.

99 531 + 2357 =



Arnold has rounded the number 99 531 incorrectly. He rounded down to 90 000 when he should have rounded up to 100 000. 99 531 is much closer to 100 000 than 99 000 on the number line.

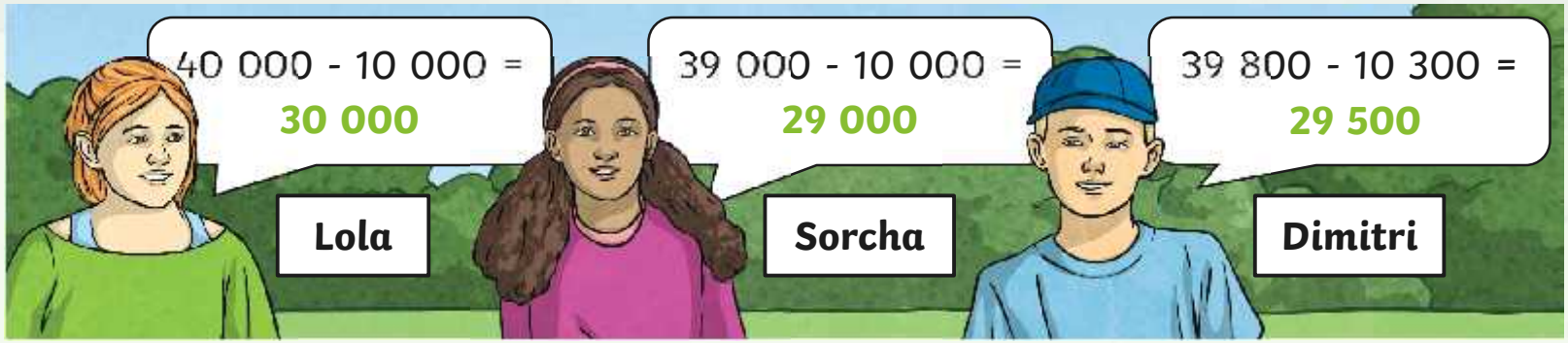
The correct calculation to give an approximate answer should be 100 000 + 2000 = 102 000.

Round to Estimate and Approximate | Deeper

The children were looking at the calculation below and using rounding to work out an approximate answer.

Work out the answer to each child's calculation below.

39 835 - 10 321 =



Whose calculation is the most accurate approximation?

Dimitri is the most accurate because he rounded the numbers to a smaller place value (the hundreds) than Lola and Sorcha, making his answer closer to the actual answer, which is 29 514.

Round to Estimate and Approximate — Deepest

The children at Twinkl Academy are baking for the summer fete. They are making enough cupcakes so that every child in the school will be able to buy a cupcake. There are 4 classes with 30 children in each class.

What is the approximate cost of baking one cupcake? **£3.00**

What is the approximate cost of baking enough cupcakes for one class? **£90**

What is the approximate cost of baking enough cupcakes for the whole school? **£360**

Ingredients	87p
Decorations	£1.08
Packaging	73p

Round to Estimate and Approximate | **Deepest**

Enzo added two 4-digit numbers together. Neither number ended in a 0. He rounded the numbers to help estimate the answer. Enzo's estimated answer was 3000.

What could his two starting numbers have been? Find 5 possibilities.

How could you work systematically to solve this problem?

Example answers:

1001 + 2001

1002 + 2002

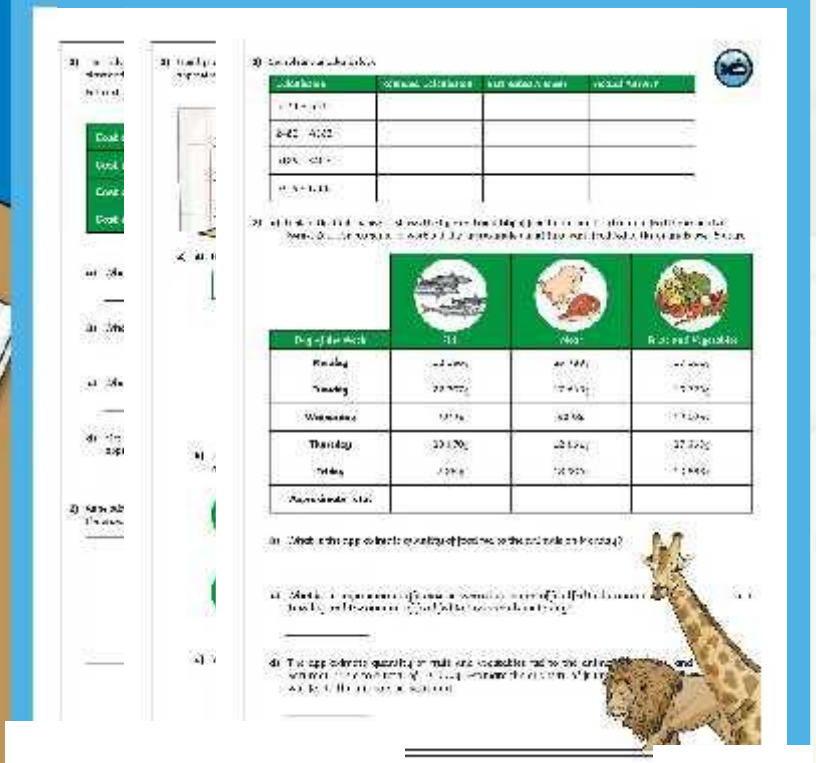
1003 + 2003

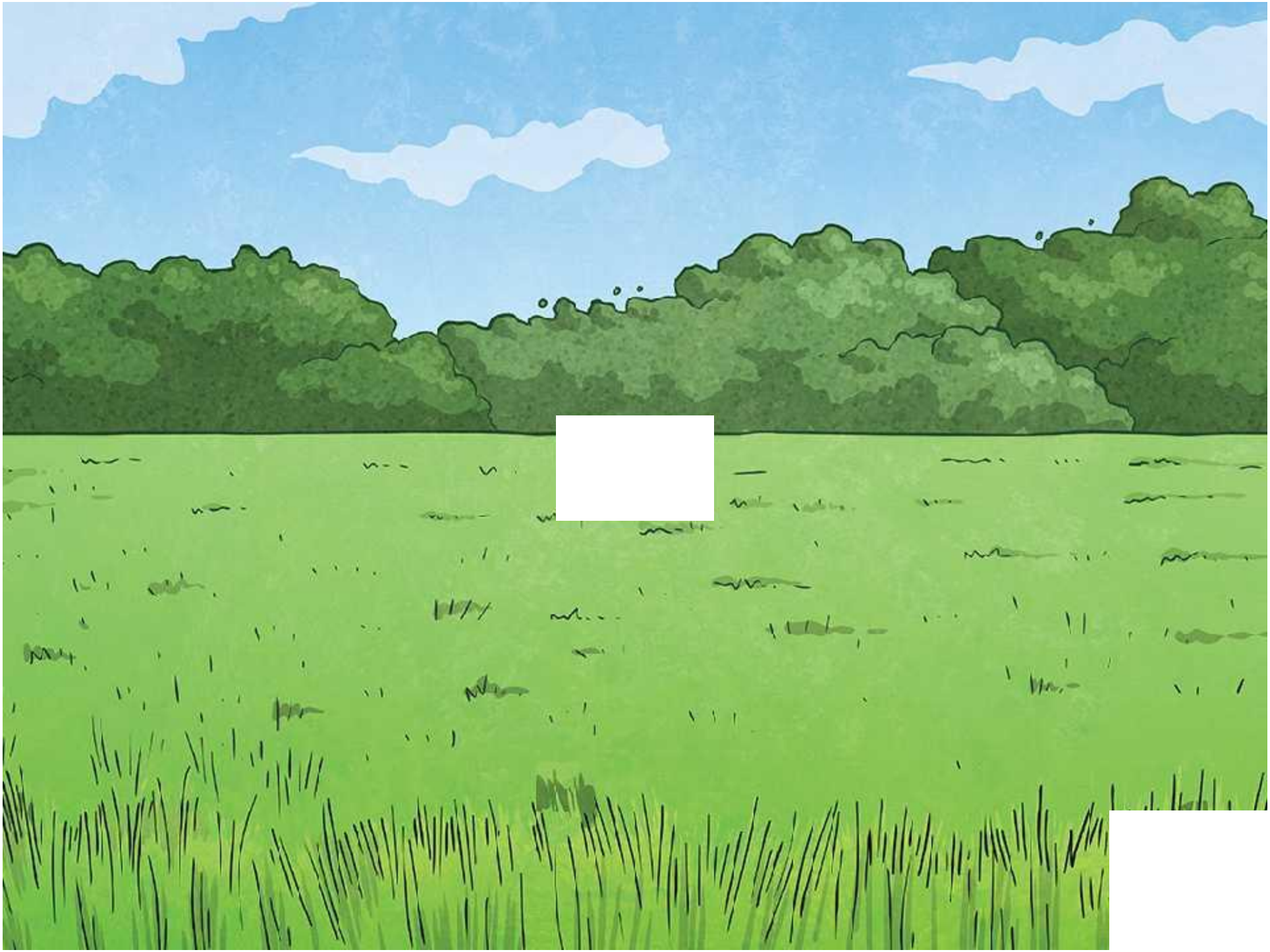
1004 + 2004

1005 + 2005

Round to Estimate and Approximate

Dive in by completing your own activity!





1) Complete the table below.

Calculation	Rounded Calculation	Estimated Answer	Actual Answer
5671 + 5671			
2483 + 4382			
6189 - 3407			
6719 - 1588			

2) **a)** Look at the table below. It shows the type and quantity of food that is used each day to feed the animals at Twinkl Zoo. Use rounding to work out the approximate quantity of each food fed to the animals over 5 days.

Day of the Week	Fish	Meat	Fruit and Vegetables
Monday	12 056g	25 789g	10 001g
Tuesday	22 307g	17 663g	15 774g
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Approximate Total			

b) What is the approximate quantity of food fed to the animals on Monday?

c) What is the approximate difference between the amount of food fed to the animals on Tuesday and the amount of food fed to the animals on Friday?

d) The approximate quantity of fruit and vegetables fed to the animals on Friday and Saturday came to a total of 17 000g. Estimate the quantity of fruit and vegetables that was fed to the animals on Saturday.

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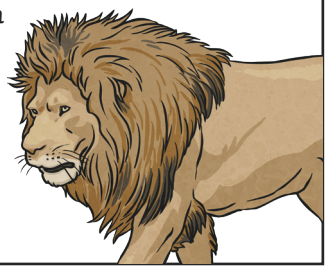

1) Freddy has rounded this calculation in order to work out the approximate answer. Spot and explain his mistake.

35 039 + 3002

35 039 ≈ 35 000

3002 ≈ 4000

35 000 + 4000 = 39 000

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

71 382 – 20 939 =

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.

Cassie

71 000 – 21 000 =

Paulo

71 400 – 21 900 =

70 000 – 20 000 =

Azma

71 380 – 20 940 =

Tommy

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

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1) The children from Twinkl Academy will be going on a school trip to the zoo. There are 20 children in each class and 5 classes will be going.

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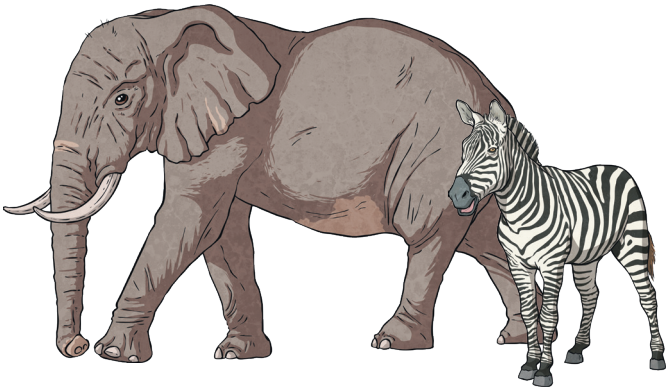

a) What is the approximate cost for one child to go?

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

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

d) Mrs Leech, the headteacher, has managed to get the entrance tickets to the zoo for half price. Calculate approximately how much it will now cost to take the whole school to the zoo.

2) Anne added two 4-digit numbers together. Neither number ended in a 0. She rounded the numbers to help estimate the answer. Her estimated answer was 7500. What could her two starting numbers have been? Find 5 possibilities.

1) The children from Twinkl Academy will be going on a school trip to the zoo. There are 20 children in each class and 5 classes will be going.

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Cost of Lunch	**£5.32**
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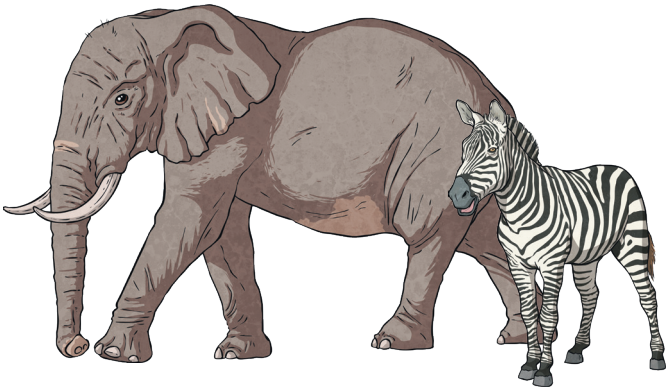

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