Autumn 2 Year 3

L.E.A.D. Academy Trust
Lead • Empower • Achieve • Drive

Resources	Links to prior learning/ objectives	Vocabulary:
Base 10, place value counters, money (coins), 'shop' items, 2D and 3D shapes, clocks, stop watches, rulers,	Autumn 1 addition and subtraction Autumn 1 perimeter of 2D shapes Year 2 time place value with three-digit numbers. ~ mental strategies for addition and subtraction with multiples of 1, 10 and 100. ~ recognising coins and finding totals of given amounts of money. ~ Addition and subtraction strategies in year 2. ~ Introduction to the different units of time- reading/ telling the time. ~ Properties of 2-D and 3-D shapes and their names.	Add, plus, subtraction, minus, hundreds, tens, ones, digit, formal, column, exchange, money, total, change, pounds, pence, difference, missing number, solve, 3D, 2D, model, shape, vertices, edges, faces, sides, corners, straight, curved, orientations, horizontal, vertical, parallel, perpendicular, seconds, minutes, hours, days, weeks, months, years, leap year, duration, compare
	Mastery: (where to find some resources) • Teaching for Mastery • White Rose **New and old documents** • Mastery maths stickers • Nrich (curriculum mapping)	

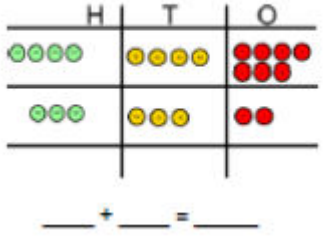
Objectives and Teaching

Week 1	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.
Barriers to ARE (misconceptions) Understanding of the place value of numbers. Practical understanding of addition of 3 digit numbers Basic addition and subtraction skills (number bonds of numbers up to 10) Reversal of digits when exchanging is necessary. Children might struggle to represent a three-digit number using manipulatives. Layout of the formal written method- place value of each digit. Understanding of why exchanging is necessary- can't have one than ten of any place value within each	• To develop the skill of adding 3 digit numbers using the column method • To understand exchanging when adding using the column method • To develop the skill of subtracting 3 digit numbers using the column method • To understand exchanging when subtracting using the column method • To know how to solve problem involving addition and subtraction

column when adding/ need to exchange when there is not enough of a place value.

Fluency

Complete the calculations.

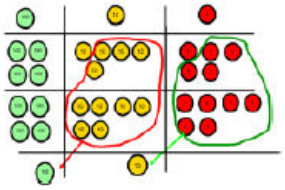


Use column addition to work out:

- Three hundred and forty two add two hundred and thirty six
- Five hundred and sixteen plus three hundred and sixty two
- The total of two hundred and forty seven and four hundred and two is...

Use column addition to work out:

352 + 237 458 + 231 306 + 283

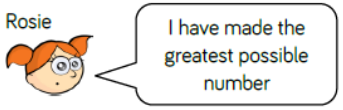


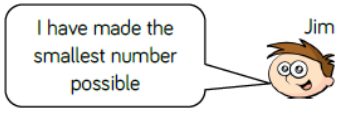
What happens when we have 10 ones/tens?
Can we exchange them for anything? Why?
Where does the ten/hundred go?
How does that help us?

Problem Solving

Here are three cards

Rosie and Jim make 3 digit numbers using each card once.





Work out the total of the two numbers.

Roll a 1-6 die.
Fill in a box each time you roll.

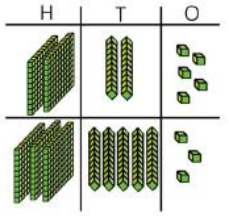
Can you make the total:

- An odd number
- An even number
- A multiple of 5
- The greatest number possible
- The smallest number possible

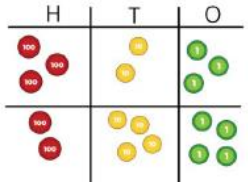
Reasoning

Which creates an answer of 567?

a)



b)



Complete the statements to make them correct

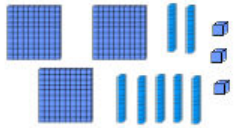
a) 487 + 368 ◯ 487 + 468

b) 326 + 258 ◯ 325 + 259

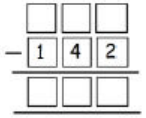
c) 391 + 600 = 401 + ☐

Explain why you did not have to work out the answers to compare them.

Start with:

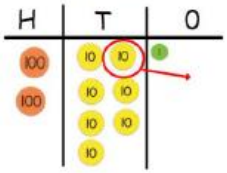


Then take away 142.
Copy and complete this column subtraction.

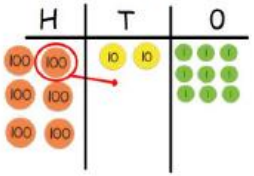


Complete these subtractions using counters.

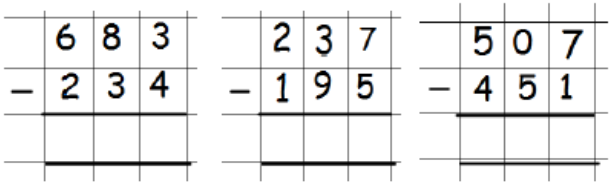
372 – 165



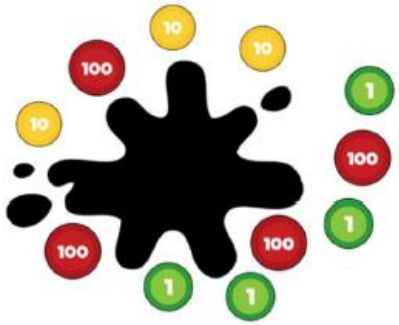
629 – 483



Complete these column subtractions showing exchanges.



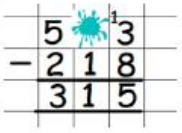
There are 566 in counters altogether but the splat is covering some.



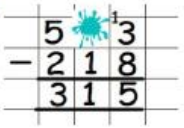
How many different ways can you make the missing amount?

Work out the missing digits

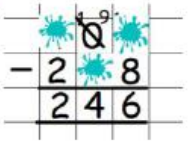
a)



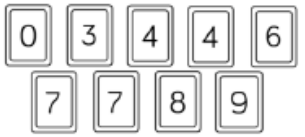
b)

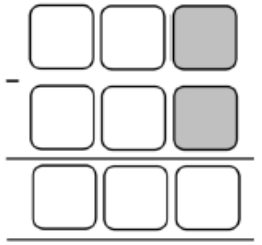


c)



Use the digit cards to complete the calculation



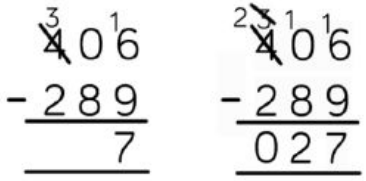


The digits in the shaded boxes are odd.

Is there more than one answer?

Kassie is working out 406 – 289 =

Here is her working out:



Explain her mistake.

Week 2

Barriers to ARE (misconceptions)

Addition and subtraction

Understanding of the key language of finding totals and change

Add and subtract amounts of money, to give change, using both £ and p in practical contexts.

- To know how to add to find totals of money
- To know how to subtract to find change
- To develop the skill of solving problems finding totals and change

Fluency

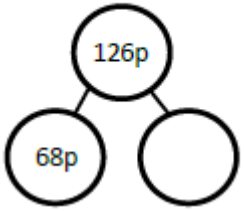
What is 2 pounds and fifty pence less than 9 pound?

Mary buys these two items.

She pays with a 50p coin and is given a 10p and 5p coin as change.

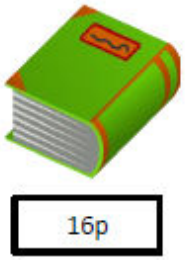
Has she been given the correct change?

Complete the part whole diagram.



Problem Solving

Mo is saving for a book.



His mum gives him a quarter of the money. How much more does he need to save?

Mike buys these items and it costs him 30 pence.

Olga buys these items and it costs her 42 pence.

How much does a ruler cost?

Reasoning

These items are sold in a shop.

Ray buys three items.
Two of them are the same item.
He spends £23
What items does Ray buy?
How do you know?

Which is worth more?
90 ten pence coins or 9 pound coins.
Explain why.

Week 3

Barriers to ARE (misconceptions)

Understanding of the inverse
Knowledge of 4 calculations made from 1
Understanding of place value
Addition and subtraction fluency

Solve problems, including missing number problems using facts, place value and more complex addition and subtraction.

- To know how to solve missing number problems involving place value
- To know how to solve missing number problems
- To know how to solve addition problems
- To know how to solve subtraction problems

Fluency	Problem Solving	Reasoning

Autumn 2 Year 3

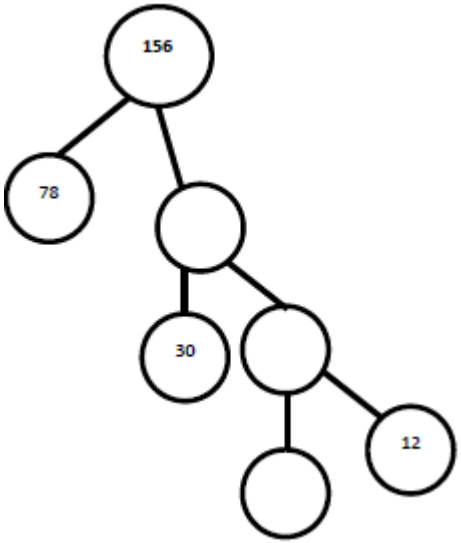
Work out the missing numbers

$127 = 67 + \square$

$\square + 100 = 450 - 75$

$299 - 101 > 50 + \square$

- Complete the part whole diagram

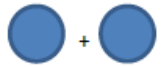


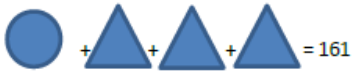
How many 2 digit subtract 2 digit calculations can you find where the answer is 14?

??

\- ??

14

-  = 70

 = 161

Work out the value of a circle and a triangle.

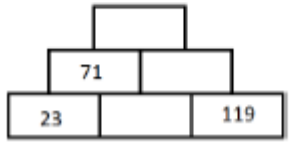
 =

 =

What order would you answer these missing number problems in? Why?

200		
29		71

$555 - 299 = 444 - \square$



- Here are 3 digit cards.

6	2	5

Ian and Roy each make a 2 digit number using them.

I have made the biggest number possible

Ian

I have made the smallest number possible

Roy

What is the difference between their numbers?

<table>
<tr><td>Week 4
Barriers to ARE (misconceptions)
Recognition of basic shapes
Ability to describe and visualize a 2D and 3D shape
Confusing parallel and perpendicular and assuming parallel lines need to be equal length
Recognising shapes in different orientations
Unfamiliarity with vocabulary – use precise names of shapes etc and positional language</td><td colspan="2">Draw 2-D shapes and make 3D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.
• To know how to draw 2D shapes accurately using given measurements.
• To understand how to use knowledge of properties of shape to create 3-D shapes.
• To understand how to recognise 3D shapes in different orientations.</td></tr>
<tr><td>Fluency
Draw a 2D shape with a pair of parallel lines. Did your friend draw the same or something different?

Use these shapes to create a repeating pattern. Leave a space where you have missed out a shape – can your partner guess what the shape should be?

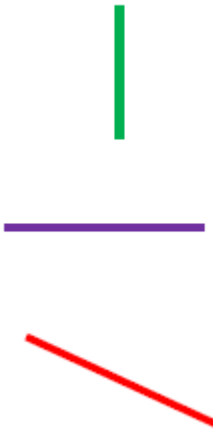
 

Label the angles in your shapes – are they greater than or less than 90°</td><td>Problem Solving
Look through a magazine/newspaper and identify the shapes you see. Organise them into different groups. Do some shapes fit into more than one group? Why?

Using Play-doh, ask children to make a 3D shape. Ask them to make a different one to their partner. Write down the similarities and differences between them. Discuss what the properties are.</td><td>Reasoning
True or false?
With an unlimited amount of straight sticks, you can make any 2D or 3D shape.

Explain why all the triangles need to be the same size for the net of pyramid.

True or false?
You can cut out lots of equal squares and make a 3D shape from them.</td></tr>
<tr><td>Week 5
Barriers to ARE (misconceptions)</td><td colspan="2">Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
• To understand the terminology horizontal and vertical.
• To know how to identify vertical and horizontal lines
• To understand the terminology perpendicular and parallel lines.
• To know how to identify perpendicular and parallel lines.</td></tr>
<tr><td>Fluency</td><td>Problem Solving</td><td>Reasoning</td></tr>
</table>

<table>
<tr>
<td>Draw a line so that it is perpendicular to the one given
 
Draw a line that is parallel to the one given
 
Circle the horizontal line
  </td>
<td>Draw your own picture using all four types of lines.
Can your partner identify and label the different lines?</td>
<td>True or false?
Perpendicular lines have to touch.

Always, sometimes, never.
When two straight lines cross, there will be 4 right angles made.

True or false?
Parallel lines never touch.

Odd one out.
Explain which is different to the others.
a)
 
b)

c)
  </td>
</tr>
<tr>
<td>Week 6
Barriers to ARE (misconceptions)</td>
<td colspan="2">Know the number of seconds in a minute and the number of days in each month, year and leap year.
• To know the number of seconds in a minute
• To know the number of day in each month
• To know the number of days in a year and a leap year</td>
</tr>
<tr>
<td>Fluency</td>
<td>Problem Solving</td>
<td>Reasoning</td>
</tr>
</table>

Cut up the cards below and play a matching game with a friend. When you get a pair you keep it. The player with the most pairs wins!

1 hour	60 minutes	60 seconds	1 minute
7 days	1 week	1 month	about 4 weeks
12 months	1 year	24 hours	1 day

- Fill in the missing numbers in the rhyme.

___ days have September, April, June and November.
All the rest have _____, except for February alone. Which has ____ each year and _____ in a leap year.

Can you use the picture below to tell me how many days are in each month?

Dan is thinking of a month. He gives two clues to help his friends guess.

1. When I add the number of days in my month and the month before it equals 62 days.
2. When I add the number of days in my month and next month it equals 60.

Which month is Dan thinking of?

Rehan says 'When I add the number of days in 2 different months up, it always makes an odd number.'

Do you agree?
Can you find a rule?
Is there a pattern?

True or False

To check if a year is a leap year, I only need to check the number of days in one month.
Explain your answer.

- The months of February to May have fallen out of my calendar. Can you work out which calendar pages below match to which month?

Week 7
Barriers to ARE (misconceptions)

Compare durations of events (e.g. calculate the time taken by particular events or tasks.)

- To know how to compare the duration of events

Fluency

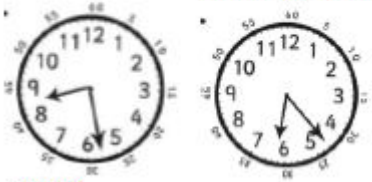
A TV programme starts at 5:20 and finishes at 6:05. How long does the programme last for?

Problem Solving

Reasoning

Kieran is learning his times tables. On Monday it takes him 1 minute and 12 seconds to complete 10 questions. By Friday he can complete 10 questions in 42 seconds. How much quicker is he by Friday?

Look at the two clocks below. How much time has passed between the first and the second clock?



I am travelling from Hope Post Office and want to watch a film, which starts at 16:50.
Use the timetables below to plan your journey.
How many journeys could you use and which is best? How long are the journeys you can take?
From the bus and train station, there is a 6-minute walk to the cinema.

Maltings	14:20	15:27	16:20
Hope Post office	14:27	15:35	16:27
West Rainton	14:33	15:41	16:33
Wheatsheaf	14:45	16:00	16:42
Bus station	14:53	16:20	16:51

Maltings	14:30	15:37	16:17
Hope Post office	14:37	15:42	16:19
West Rainton	14:43	15:51	16:24
Wheatsheaf	14:47	16:00	16:28
Train station	14:53	16:15	16:35

Three activities last 55 minutes.
I skip for the least amount of time, I run around the playground for double the amount of time I skip and I play football for the longest amount of time.
How long can I spend, doing each activity?

Henry measures the time it takes for three of his friends to do 30 star jumps.
He wants to find out who is the quickest.
Henry says:

> The person with the highest time is the winner because the highest score always wins!

Is Henry correct? Explain your reasoning.

- Ashrita Furman is famous for holding the most world records at the same time, 131!
  Below is a list of world records he has broken travelling one mile on different equipment.

1. Pool Cue balancing on finger (6min 55s)
2. On a Space Hopper (13 min)
3. Sack Race (16min 41s)
4. Pogo stick whilst juggling (23min 28s)
5. Hula hooping whilst balancing a milk bottle on head (13min 37s)
6. Pushing an orange with your nose. (22min 41s)