Using manipulatives from
Early Years Foundation Stage to Year 6

• 10 minutes per day, in addition to the daily mathematics lesson
• Covers Early Years Foundation Stage to Year 6
• Builds confidence across the whole school, in every classroom
• Allows children to be ‘hands-on’ with mathematics
• Uses easily available resources, both formal and informal
MAKING MATHEMATICS COUNT
RATIONAL AND OVERVIEW

Making Mathematics Count

Developing the use of manipulatives to support understanding in mathematics, supporting a concrete–pictorial–abstract approach every day. A 6-week challenge for teachers from Early Years Foundation Stage to Year 6.

What are the aims of this project? A 6-week teaching challenge for teachers to use manipulatives every day for 6 weeks to develop children’s mastery of counting, place value and calculation.

Intended Impact The project will link concrete, through the use of manipulatives, to pictorial, using photographs and drawings, to abstract, using numbers. Teachers will commit to 10 minutes of dedicated ‘making numbers’ time each day in their classrooms. Each day there will be a 10-minute challenge aimed at building firm foundations for children to become confident and fluent with number. Each week will focus on one manipulative for each year group, with a progressive move from concrete to abstract over the week. Over the course of the 6-week project, children will encounter a range of manipulatives, including everyday and more ‘formal’ items including toy cars, toy animals, natural resources, shells, dice, playing cards, dominoes, head strings, counters, straws, lolly sticks, Cuisenaire rods, cubes and Dienes. Teachers will also develop their own range of pedagogical strategies for supporting understanding of counting, number and place value.

Denotes key questions and suggested discussion points. Starting points for questions and ideas to probe understanding.

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**MAKING MATHEMATICS COUNT**

**EYFS WEEK 1: ANIMALS**

**Monday**
- Count an irregular arrangement of up to 10 objects.

Place a selection of different animals in bowls and ask the children to count the objects accurately. Use a variety of different objects that interest the group. Ask the children to then select the correct numeral from either a 100 square or from digit cards.

- Can you count the number of animals? Can you find the number on the 100 square?

**Tuesday**
- Count an irregular arrangement of up to 10 objects. Say one more and one less than a given set of objects.

Place a selection of different animals in bowls and ask the children to count the animals accurately then choose the number from the 100 square that is one more or one less than the set.

- Which number is one more than this set of elephants? Is this number one less than the number of giraffes? (Point to a number on 100 square.)

**Wednesday**
- Count an irregular arrangement of up to 10 objects.

Place a selection of different animals in bowls and ask the children to count out an equal number of lolly sticks.

- How many animals are in this bowl? How many lolly sticks did you count out? How many animals and lolly sticks are there altogether?

Note: children could either combine the two amounts and then count or, for an extra challenge, could count on from the number of animals (e.g. either combine 4+4 and count the total of 8, or count on 4 from 4).

**Thursday**
- Find the total number of items in two groups by counting all of them. Begin to use the vocabulary of addition.

Place a selection of different animals in bowls and ask the children to count the number of animals in two bowls.

- How many animals altogether? Can you combine two bowls so the total would be more than 7? Less than 8? More than 4 but less than 9?

**Friday**
- Count an irregular arrangement of up to 10 objects. Find the total number of items in two or more groups by counting all of them. Begin to use the vocabulary of addition.

Place a selection of different numbers of animals in bowls and ask the children to combine sets of animals to find a total of 10.

- Which bowls have a total number of animals of exactly 10?
Monday
• Count an irregular arrangement of up to 10 objects.

Place a selection of 10 dominoes in a bowl, with totals from 1 to 10. Ask the children to order these from the smallest to the largest total on each domino.

How many spots on each domino? Show me the domino that has the smallest number of spots. Show me the domino that has the largest number of spots.

Tuesday
• Find the total number of items in two groups by counting all of them. Begin to use the vocabulary of addition.

Give children a set of dominoes and, working in pairs or small groups, ask them to find totals 1–10. For extra challenge you could time the groups and see if they can improve on their time to complete the challenge, or see if they can complete the task within 10 minutes using a sand timer.

Wednesday
• Use objects and numerals, find totals and match to the corresponding numeral.

Give small groups or pairs a set of dominoes and numeral cards to 12. Ask children to find a domino with an equal number of spots to the number shown on the card.

What number is shown on this card? Can you find a domino with this number of spots?

Thursday
• Solve problems involving addition.

Place the number cards out alongside a domino. Ask the children to correct the incorrect sets.

Do the number cards match the domino spot totals? What number is shown on the card? How many spots are on the domino underneath?

Friday
• Solve problems involving doubles.

Show the ‘double 1’ domino. Explain that this domino is special because it is a ‘double’. Ask children to pick out other dominoes which are ‘doubles’. Ask them what makes them different from the other dominoes.

What is a double? How many doubles are in this set of dominoes? Could we have a ‘double’ with a total greater than 12?
Monday

- Count reliably with numbers to 10. Say which number is one more or one less than a given number.

Draw a car park with 10 spaces on a large sheet of paper. Firstly, place a selection of cars in the car park and ask the children how many cars are in the car park. Move one more car into the car park and ask how many there are now. Go on to ask how many cars would be if one more car drove into the car park. What if one drove away? What if two more drove in?

How many cars are in the car park? One more car has driven in. How many are there now? Now two cars have driven away. How many are there now?

Tuesday

- Use objects to say the complement of 10.

Draw a car park with 10 spaces on a large sheet of paper. Move a number of cars into the car park and ask the children to work in pairs to place the number of cars that is equal to the number of empty spaces in the bowl.

How many cars are in the car park? How many empty spaces are there? How many cars do you have in your bowl? Is it the same as the number of empty spaces?

Wednesday

- Use objects to say the complement of 10.

Draw a car park with 10 spaces on a large sheet of paper. With no cars in the car park, ask the children to show the number of fingers that correspond to the number of empty spaces. Now move one car into the car park and ask the children to show the number of fingers that correspond to the number of empty spaces. Do this for numbers of cars from 0 to 10.

Can you spot a pattern?

Thursday

- Use objects to add single digits. Begin to represent these using numbers and symbols.

Place a number of cars in the car park. Ask the children to count the number of cars in the car park. Explain that some more cars are going to drive into the car park (demonstrate this, arriving one-by-one), and ask the children to count how many arrive altogether. Finally, count how many cars there are now in total in the car park.

Model how to write this as a number sentence using + and = symbols.

Friday

- Use objects to subtract single digits. Begin to represent these using numbers and symbols.

Place a number of cars in the car park and ask the children to count them. Explain that some of the cars are driving away, and demonstrate this, one-by-one. Ask the children to count how many drive away. Count how many cars remain in the car park. Model how to write this as a number sentence using – and = symbols. Now ask the children to represent the same, either using whiteboards or magnetic numbers.
Monday
- Compare similarities and differences between sets of objects (up to 10 objects).

Show the children a bowl full of one type of natural objects (e.g. stones). Ask them how many they predict will fit in your hand. Take a handful, place them in a sorting bowl and ask the children to count how many there are. Then show a bowl full of a different type of natural objects (e.g. shells). Ask them how many they predict will fit in your hand.

Ask the children to examine the two sets of objects and to compare and discuss. What is similar and what is different about the objects?

Tuesday
- Compare similarities and differences between sets of objects. Count reliably to 20. Begin to represent amounts using numbers.

Repeat Monday’s activity, asking the children to count the number of objects this time.

Show this number on a large number line in the classroom. Ask the children to select the number card which correctly represents the amount in each bowl.

Wednesday
- Compare similarities and differences between sets of objects. Count reliably to 20. Begin to represent amounts using numbers.

Repeat Monday’s activity. Ask the children to write the number in each bowl on their whiteboards.

Check for correct number formation. As an alternative, children could show you the number of objects using number fans, digit cards, hundred squares and counters etc.

Thursday
- Compare similarities and differences between sets of objects. Count reliably to 20. Begin to represent amounts using numbers.

Repeat Monday’s activity. Present a hundred square and ask the children to place a counter over the total that is shown in the two sets of objects.

Friday
Compare similarities and differences between sets of objects. Use quantities of objects to add and subtract.

Show two amounts of objects. Count each set. Ask children how many more there are in one set than the other. Model comparing the amounts to find the difference.
Monday
• Compare similarities and differences between sets of objects.

Show children coins in value from 1p to 20p.

What is similar and what is different about the coins?

Tuesday
• Count reliably to 10 in 1p coins and 2p coins.

Show the children bowls containing coins to the total value of 10p.

Show the 1p coin and count in 1p increments: ‘one pence, two pence, three pence…’

Show the 2p coin and count in 2p increments: ‘two pence, four pence, six pence…’

Wednesday
• Count reliably to 10 in 1p coins, 2p coins, 5p coins and 10p coins.

Give each child a bowl containing a 1p, 2p, 5p and 10p coin. Compare the different coins. Count to 10p using the different coins as counting steps, e.g. ‘two pence, four pence, six pence, eight pence, ten pence’.

What is this coin worth? This coin is a…? Is this a 5p coin? Show me the coin worth 5p. Show me the coin worth 10p.

Thursday
• Add and subtract single-digit numbers.

Show a selection of amounts in bowls. Ask children to work in pairs to calculate the value in each bowl.

Friday
• Add and subtract single-digit numbers.

Dinosaur shopping!

Tell the children that they will be shopping for different dinosaurs today, and each dinosaur will be worth different amounts. Ask the children to calculate the amounts.

To support recording the amounts, you could take a photograph of the set and then allow the children to glue the photograph onto a recording sheet and ask them to write the amount in pence.
**Monday**

- Count reliably to 10 and place objects in order.

Show the cubes and ask the children to work in pairs to make a staircase of cubes from 1–10.

Which colour cubes has been used the most? Are there more green or blue cubes? How many more brown cubes are there than blue cubes?

**Tuesday**

- Count reliably to 10.

Present each child with a bowl containing 10 cubes. Show a number card and say the number together, then ask the children to ‘show me xx cubes’.

Show me 7 cubes.

**Wednesday**

- Count reliably to 20.

Present each child with a bowl containing 20 cubes. Show a number card and say the number together, then ask the children to ‘show me xx cubes’.

Show me 13 cubes.

Show me one more than 13 cubes.

Show me more than 10 cubes, but less than 15 cubes.

**Thursday**

- Represent quantities and objects in different ways. Count reliably to 20.

Prepare a selection of different objects of interest for the children. Ask the children to count the number of objects, then represent the quantity using cubes.

How many ladybirds are there? Can you show me the same amount in cubes?

**Friday**

- Add and subtract 2-digit numbers. Find one more than and one less than a given quantity.

Prepare a selection of different objects of interest for the children, in quantities over 10. Ask the children to count the number of objects, then show one more or one less than the original quantity.

How many ladybirds are there? Can you show me one less than this number of ladybirds, using cubes?
**MAKING MATHEMATICS COUNT**

**YEAR 1 WEEK 1: PEG BOARDS**

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**Monday**
- **Represent numbers to 20, visualising the ‘teens’ numbers.**

Working in pairs, ask the children to place 10 pegs of the same colour on the peg board. Then using a different colour, ask them to add on one more to make numbers from 11–20. Showing numerals on cards will help children associate the numeral with the quantity.

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**Tuesday**
- **Represent and use related number facts to 20.**

Ask the children to work in pairs to explore number bonds to 20, again using two different colours. One partner could also write the related number sentences.

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**Wednesday**
- **Identify one more than any given number to 20.**

Give each child (or pair) a peg board and some coloured pegs. Explain that you will show a number card (or write on a whiteboard) and they need to use pegs to show one more than that number.

What number is shown on this card? What is one more than this number? Can you point to this number on a number line? Can you point to this number on a 100 square?

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**Thursday**
- **Identify one more than any given number to 20.**

Give each child (or pair) a peg board and some coloured pegs. Explain that you will show a number card (or write on a whiteboard) and they need to use pegs to show one less than that number.

What number is shown on this card? What is one less than this number? Can you point to this number on a number line? Can you point to this number on a 100 square?

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**Friday**
- **Add and subtract 1- and 2-digit numbers to 20, including zero.**

Prepare some number sentences on cards or write them on a whiteboard. Ensure a mix of empty box positions, e.g. $9 + \Box = 14$, $\Box - 6 = 9$. Ask the children to represent these calculation using their peg boards.
Monday
• Count to 100, forwards and backwards, from any given number.

Show a 100 square, and ask children to pick a start number. Count forwards then backwards 10, from that given number.

If we start at 26 and count on 10, what number do you think we will land on? If we start at 71, and count back 10, what number will we land on?

Tuesday
• Count to 100 in 5s and 10s.

Model turning over all of the multiples of 10, then multiples of 5. On individual 100 squares, colour all of the multiples of 10, then all of the multiples of 5.

What do you notice about the multiples of 10? (They always end in a zero.)

What do you notice about the multiples of 5? (They always end in five or a zero.)

Wednesday
• Count forwards in 10s, then 5s from any given number.

Ask one child to select a multiple of 10. Turn that card over. Choose a multiple of 10 to add on, and count in 10s to find the answer. Write the number sentence that you have just counted. E.g. 40 + 30 =

What number is 30 more than 40? 50 more than 20? 10 more than 80?

Thursday
• Count backwards in 10s, then 5s from any given number.

Ask one child to select a multiple of 10. Turn that card over. Choose a multiple of 10 to count back. Count back in 10s to find the answer. Write the number sentence that you have just counted. E.g. 40 – 30 =

What number is 30 less than 70? 40 less than 90? 20 less than 50?

Friday
• Read numbers to 100.
• Add two single digits.
• Solve one-step problems.

Explain that children will be adding two single-digit numbers together using numbers greater than 20 on the 100 square.

Turn over the 35 card and ask the children to add the 3 and the 5 digit together. The answer is 8, so turn the 8 card to the red side. Continue and see if children are able to turn over all the numbers from 1–20.

Which number, greater than 20 on the 100 square, has a digit total of 7? A digit total of 9? A digit total of 4?
Monday

- Count accurately and order numbers to 20.
- Double numbers to 20.

Count the number of fish in each bowl, then order the bowls from the smallest to the largest. Tell children that they need to double the number of fish in each bowl. Can they add the same number of fish into each bowl, then calculate the new total?

Tuesday

- Solve problems involving subtraction, using concrete representation. Find the difference to solve problems.

Tell children that every animal in the zoo is given fruit in the morning by the zookeepers. The zookeeper wants to check he has enough fruit for the feeds. Ask the children to find the difference between the number of animals and the number of pieces of fruit. The aquarium staff need to make sure there is one large worm to feed each fish. Ask the children to work out how many more fish there are than worms.

How many more animals are there than pieces of fruit? What is the difference between the number of worms and the number of fish? How many more pieces of fruit will we need to feed each animal?

Wednesday

- Count accurately in multiples of 2.

Give each pair a large quantity of animals (between 20 and 50). Tell the children that you want them to count the animals in 2s as they are going to go for a short stay on Noah’s Ark. The animals must go onto the ark in 2s. In pairs, one person counts the animals in 2s, then the other partner counts in 1s as a checking strategy.

How many animals are there? How many pairs of animals are there? Noah only has space for 22 more animals. How many pairs will that be?

Thursday

- Solve problems involving division, using sharing.

Give each pair of children a quantity of animals (between 15 and 40). Explain that now the zoo is shut, the zookeeper wants to put them into enclosures for the night. There are only two enclosures at Chester Zoo. How many animals will need to go in each enclosure?

When we share the animals between the two enclosures, we have to make sure that there is the same number in each enclosure or it won’t be fair. When we divide there must be the same number in each part.

Friday

- Solve problems involving division, using grouping.

Give each pair a quantity of animals and explain that in London Zoo, they have to put the animals in their enclosures differently. They must put 5 animals in each large enclosure. How many enclosures will be needed for 20 animals? Model moving 5 animals into each enclosure. Set different scenarios for children to explore.
**Monday**
- **Count to 100 in 5s.**

Show 30 objects and explain that if we group them into 5s it will make it easier to count accurately. Once the objects have been put into bowls / hoops, ask children to show 5 using their hands, then to count to 30 in 5s. Repeat for other quantities (25, 40, 55). Model using hands to show 5.

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**Tuesday**
- **Count to 100 in 10s.**

Explain that counting in 10s can be great fun, and makes larger numbers easier to handle. Give children large amounts of natural objects and ask them to group them into 10s to make counting easier. A range of different objects will make the counting more varied due to their size and shape (e.g. pine cones, twigs, shells, pebbles, leaves, feathers, stones, conkers, basically anything you can lay your hands on!).

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**Wednesday**
- **Count to 100 in 10s.**
- **Identify a quantity on a number line.**

Prepare bundles of lolly sticks (or straws or twigs) into 10s. Arrange bundles so children can see that a bundle is 10. Put a quantity of the bundles into hoops. Ask children to count the number in each hoop. Ask children to identify the place for each quantity on a 1–100 number line.

**How many bundles of 10 do we have in this hoop? How many 1s? Can we all say this number? Where is the position of this number on the number line? What is one more than this number? One less?**

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**Thursday**
- **Read, write and interpret mathematical statements using the = sign.**

Using the resources prepared on Wednesday, ask children to select a different way to represent the quantities shown in each hoop. Take photographs or ask children to draw their representations.

**What have you chosen to represent 10s? What have you chosen to represent 1s?**

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**Friday**
- **Solve problems involving concrete objects and pictorial representations.**

Explain that you were in a hurry yesterday and may not have counted the quantities accurately. Can children spot any errors in the amounts and number cards you have put out? You could represent the numbers in different ways (e.g. arrow cards, number lines, 100 squares).

**Which of the quantities have I counted incorrectly? What number should I have written down? How do you know you are correct and I am wrong?**
Monday
- Use pictorial representations to solve problems involving + and –

Model writing fact families for a domino. Model how to check your answer.

Give each child a domino and ask them to write the fact family for a given domino. Repeat for other dominoes.

Tuesday
- Use pictorial representations to solve problems involving + and –

To extend the activity from Monday, combine the totals on two dominoes to challenge children to add several small numbers. Children should view each domino as the total.

How many spots are there in total on this domino? Which domino has the greatest number of spots? Which domino has the smallest number of spots?

Wednesday
- Use pictorial representations to solve problems involving + and –

Challenge children to find the numbers from 0–20 using domino totals. Can they go all the way to 20 using just one set of dominoes? If not, what is the largest number they can get to finding spot totals?

Which dominoes would you need to complete the challenge?

Thursday
- Use pictorial representations to solve problems involving + and –

Show a number from 1–30 using either flashcards, number cards, number fans etc. Children have to race to show that total in domino spots. E.g. a flashcard showing 23 could be made of a 6-2 domino, a 6-4 domino and a 3-2 domino.

Can you find another way of making that total? How can you check your answers?

Friday
- Count in 2s.

Give each pair of children a set of dominoes. Ask the pair to take turns to find the next multiple of 2. Children will lay out the totals 0, 2, 4, 6, 8, 10, 12, 14…

What is the largest number you can make? Can you use the dominoes that show an odd number? How?
MAKING MATHEMATICS COUNT
YEAR 1 WEEK 6: COINS

Monday
- Solve problems involving addition to 10p.

Give each pair of children a small selection of coins in a bowl. Ask the children to make amounts from 1–10p using coins, e.g. 1p, 2p, 3p, 4p, 5p. This will allow them to explore the values of each coin.

Is there another way you could make this total?

Tuesday
- Solve problems involving addition to 20p.

Give each pair of children a small selection of coins in a bowl. Ask the children to make amounts from 10–20p using coins, e.g. 10p, 11p, 12p, 13p, 14p, 15p. This will allow them to explore the values of each coin.

Is there another way you could make this total?

Wednesday
- Find all possibilities for totals to 20p.

Give each pair of children a small selection of coins in a bowl. When you show a flashcard, ask the children to make that amount using the coins in their bowl. Ask the children to find a different way to make this amount.

Thursday
- Solve problems involving subtraction from 10p.

Give each pair of children a small selection of coins in a bowl. When you show a flashcard, ask the children to show you the amount that you would get in change from 10p. E.g. show a card displaying 7p, they need to give 3p change.

Is there another way you could give change for this amount?

Friday
- Solve problems involving subtraction from 20p.

Give each pair of children a small selection of coins in a bowl. When you show a flashcard, ask the children to show you the amount that you would get in change from 20p. E.g. show a card displaying 14p, they need to give 6p change.

Is there another way you could give change for this amount?
Monday
- Odd and even numbers.

Either use an interactive 100 square, a pocket chart, whiteboard versions, or give children individual 100 squares.

Ask children to come out one-by-one to turn over a card that is even that contains a 1, 2, 3, 4, 5, 6… Children may choose, for example, 16, 24, 38, 44…

How do we know that a number is even? Is 61 even?

Tuesday
- Double numbers within 100.

Ask children, in pairs, to pick a number less than 50. They should come out and turn this number over, and its double.

Continue until all of the even numbers less than 50 have been chosen, then move onto numbers 50–100.

How did you calculate the double of this number?

Wednesday
- Halve numbers within 100.

Ask children, in pairs, to pick an even number less than 50. Ask children to then turn over the number which is half their chosen number.

Continue until all of the even numbers less than 50 have been chosen, then move onto numbers 50–100.

How did you calculate half of this number?

Thursday
- Count in steps of 3 from 0.

Invite children to come out and turn over the multiples of 3 from 0 to 100.

What pattern can you see?

Friday
- Add odd numbers.

Ask children to choose two odd numbers, starting at the lowest numbers on the 100 square (1+3, then 3+5, then 5+7…). Ask children to turn over the answers. What do the children notice about the answers when you add two odd numbers?
**Monday**

- **Find 1/2 of a set of objects.**

  Give each pair a selection of animals in a bowl. Using a whiteboard / sheets of paper, ask children to find half of the quantity by sharing the amount equally between the two sections of the board.

  Reinforce the relationship between the numerator, the denominator and the number of equal groups. Write the fraction on the board.

**Tuesday**

- **Find 1/4 of a set of objects.**

  Give each pair a selection of animals in a bowl. Using a whiteboard / sheets of paper, ask children to find a quarter of the quantity by sharing the amount equally between the four sections of the board.

  Reinforce the relationship between the numerator, the denominator and the number of equal groups. Write the fraction on the board.

**Wednesday**

- **Find 2/4 of a set of objects.**

  Give each pair a selection of animals in a bowl. Using a whiteboard / sheets of paper, ask children to find a quarter of the quantity by sharing the amount equally between the four sections of the board, then adding up the total of two of the sections.

  Reinforce the relationship between the numerator, the denominator and the number of equal groups. Write the fraction on the board.

**Thursday**

- **Find 3/4 of a set of objects.**

  Give each pair a selection of animals in a bowl. Using a whiteboard / sheets of paper, ask children to find a quarter of the quantity by sharing the amount equally between the four sections of the board, then adding up the total of three of the sections.

  Reinforce the relationship between the numerator, the denominator and the number of equal groups. Write the fraction on the board.

**Friday**

- **Solve problems involving fractions.**

  Using either halves or quarters, show children one part of a fraction, then ask what one whole would be. Use the same visual support as Monday to Thursday.

  If half of the animals total 8, how many are in the full set?
  If one quarter of the animals total 4, how many are in the full set?
Monday

- **Recognise the value of each digit in a 2-digit number.**

Give each pair of children a bowl of place value counters for this activity. Either show numbers 1–100 using flashcards, turn over numbers on a 100 square, or write them on a whiteboard. Ask player 1 to put that number in the bowl using place value counters. For the next turn, player 2 selects the correct number of place value counters. Each time, the other player checks their answers.

Tuesday

- **Make 10.**

Give each pair of children some place value counters and four dice. Player 1 rolls two dice and collects the amount shown in place value counters. Player 2 rolls two dice and collects the amount shown in place value counters. Each time the total of 10 or more is reached, the player exchanges them for a 10 counter.

Continue playing, collecting 1s and exchanging when 10 has been collected. The first player to reach 50 is the winner.

Wednesday

- **Recognise the value of each digit in a 2-digit number.**

Give each child three dice (or one dice to be rolled three times). Ask children to record their three numbers. The challenge is to make six different 2-digit numbers, using place value counters.

Thursday

- **Recognise the value of each digit in a 2-digit number.**

In pairs, give children a bowl of 10s and 1s. Ask children to take turns taking nine counters from the bowl. They must arrange them in the correct place value columns and then say that number.

Challenge: How many numbers can they make and say in five minutes? Once the five minutes is up, change players. The winner will be the one who correctly reads and says the most 2-digit numbers in five minutes.

Friday

- **Recognise properties of numbers to 100.**

Guess my number! Children work in pairs. Give each pair a bowl of place value counters for a game. Player 1 chooses a number between 0 and 50. They hide the number, using place value counters, under a bowl / cup. Player 2 proceeds to ask questions to find out the secret number. Players keep a tally of the number of questions asked to correctly guess the number. To help children, you may wish to give a 100 square so they can keep track of their guesses.

Does your number have three 10s? Does your number have eight 1s? Is your number less than 20?
Monday

- Find different combinations of coins that equal the same amount of money.

Remind the children about the different coin denominations.

20p challenge! How many different ways can the children make 20p? Once one way has been explored, record this combination on a whiteboard then try another way. Can you make 20p using only one coin, two coins, three coins…?

Tuesday

- Find different combinations of coins that equal the same amount of money.

Remind the group about the different coin denominations.

50p challenge! How many different ways can the children make 50p using just silver coins? Once one way has been explored, record this combination on a whiteboard then try another way. Can you make 50p using only one coin, two coins, three coins, four coins…?

Wednesday

- Solve simple problems in a practical context including addition of money.

Have different amounts of coins available in cups or bowls. Working in pairs, ask the children to combine two amounts and record the total. Are there two totals of the same amount?

How much do you have now in total?

Thursday

- Solve simple problems in a practical context including subtraction of money.

Have different amounts of coins available in cups and bowls. Working in pairs, ask children to subtract 12p from the totals in the bowls. Encourage children to do this practically, e.g. swapping a 20p coin for 2 x 10p coins.

How much do you have left in total?

Friday

- Solve simple problems in a practical context including giving change.

Children should work in pairs.

Have different amounts of coins available in cups and bowls. Working in pairs, ask children to give change from 50p.

Model, and encourage children to count on, using the ‘shopkeeper method’. Whilst one child counts out using the shopkeeper method, one child should record the ‘jumps’ – possibly on a number line.

What change do you need to give? Which coins will you need to give change?
MAKING MATHEMATICS COUNT

YEAR 2 WEEK 5: PEG BOARDS

Monday

- Solve problems using materials to show arrays.

Give each pair a peg board and write a 2x multiplication fact to show using an array, e.g. 2 x 10.

Ask child 1 to rotate the peg board to see the related fact. Child 2 should write both facts that are shown, i.e. 2 x 10 = 20 and when the peg board is turned, 10 x 2 = 20.

Repeat with the children swapping roles.

Tuesday

- Solve problems using materials to show arrays.

Give each pair a peg board and write a 3x multiplication fact to show using an array, e.g. 3 x 5.

Ask child 1 to rotate the peg board to see the related fact. Child 2 should write both facts that are shown, i.e. 3 x 5 = 15 and 5 x 3 = 15.

Repeat with the children swapping roles.

Wednesday

- Solve problems using materials to show arrays.

Give each pair a peg board and write a 5x multiplication fact to show using an array, e.g. 6 x 5.

Ask child 1 to rotate the peg board to see the related fact. Child 2 should write both facts that are shown, i.e. 6 x 5 = 30 and 5 x 6 = 30.

Repeat with the children swapping roles.

Thursday

- Recall multiplication facts for 2x, 3x, 5x, and 10x.

Call out and write target numbers on the board for the children to make arrays for.

12, 16, 20, 24, 10, 18

Children work in pairs to find as many possibilities as they can.

Friday

- Multiples of 10 bonds to 100.

Explain that each peg is worth ‘10’. Model how to make a representation of the 10 bonds to 100. Ask the children to complete all possibilities and write them on a whiteboard.

If there is time afterwards, play ‘I say, you say’.

If I say 30, you say? (70)
If I say 60, you say? (40)
Monday
- **Compare and order numbers using \( <, = \) and \( > \) signs.**

  Each child needs a few lolly sticks.
  Show each of the symbols by writing them on the whiteboard:
  
  \[
  =
  \]
  
  \[
  <
  \]
  
  \[
  >
  \]

  Model what each symbol means using cubes or counters and the lolly sticks.

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Tuesday
- **Compare and order numbers using \( = \) signs.**

  Children will be working in pairs. Each pair will need a card with \( = \) written on it and either a place value pocket chart or blank cards / post-its to write amounts on.

  Set out bowls or cups of objects for the children. Their challenge is to collect two of the bowls / cups and find the card from a hundred square to show equality. E.g. they may collect six dinosaurs and 12 counters, so they will need the ‘18’ card from the place value chart.

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Wednesday
- **Compare and order numbers using \( < \) signs.**

  Show, using lolly sticks and cubes as shown, that \( < \) means ‘less than’.

  Children will be working in pairs. Each pair will need a card with \( < \) written on it.

  Set out bowls or cups of objects for the children. Their challenge is to collect two of the bowls / cups and place the bowls appropriately so that the \( < \) symbol is correct.

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Thursday
- **Compare and order numbers using \( > \) signs.**

  Show, using lolly sticks and cubes as shown, that \( > \) means ‘greater than’.

  Children will be working in pairs. Each pair will need a card with \( > \) written on it.

  Set out bowls or cups of objects for the children. Their challenge is to collect two of the bowls / cups and place the bowls appropriately so that the \( > \) symbol is correct.

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Friday
- **Compare and order numbers using \( <, = \) and \( > \) signs.**

  Children use number cards to 20 and have cards with \( <, = \) and \( > \) written on. This could also be played with playing cards.

  In pairs, children each turn over two cards and select the correct symbol to compare the two numbers shown.


**Monday**

- **Count in multiples of 3 from 0 to 50.**

Each pair needs a set of 1–50 digit cards and two sorting hoops. Ask the children to sort numbers using a Venn diagram. They should place all the multiples of three in one hoop and the multiples of eight in the other hoop. Any numbers which are multiples of three and even are placed in the intersection.

*This activity can be easily adapted to use large sheets of paper with Venn diagrams drawn on and post-its/cards for children to write numbers on. To extend, the numbers and/or sorting criteria can be changed/adapted.*

**Tuesday**

- **Count in multiples of 4 and 8 from 0 to 100.**

Each pair needs a set of 1–100 digit cards. Ask the children to place all the multiples of four in one hoop, and the multiples of eight in the other hoop. Any multiples of both four and eight are placed in the intersection.

*Why are no numbers placed in the ‘multiples of eight’ section?*

**Wednesday**

- **Count in multiples of 3 and 8 from 0 to 100.**

Each pair needs a set of 1–100 digit cards. Ask children to place all the multiples of three in one hoop and the multiples of eight in the other hoop. Any multiples of both three and eight are placed in the intersection.

*Can you find a rule for all of the multiples of three and eight?*

**Thursday**

- **Read and write numbers to 1000.**

Give each pair two sorting hoops. Children take turns to write a 3-digit number on a card/post-it. Continue until each child has written ten 3-digit numbers. Children then sort the numbers by adding the total of the digits, using ‘odd digits total’ or ‘even digits total’.

*How many numbers can you correctly place in one minute? Two minutes?*

**Friday**

- **Recognise tenths in 1-digit numbers.**

Ask the children to place sorting hoops (or draw circles) on a whiteboard, and give one minute to sort and write numbers within given parameters e.g. Write all the numbers from 2.3 to 4.1 and sort into odd or even numbers.

*Why are there no numbers in the intersection?*
MAKING MATHEMATICS COUNT
YEAR 3 WEEK 2: STRAWS

Monday
• Recognise the place value in each digit of a 3-digit number.
• Identify and represent numbers using different representations.

Represent 3-digit numbers using common objects, e.g. 100s are represented using shells, 10s are represented using buttons and 1s are represented using straws. Use whatever resources you have easily available.

Ask children to work in pairs to represent 3-digit numbers using these objects.

Tuesday
• 2-digit addition using straws.

Give each pair two cups / bowls (labelled 10s and 1s) and bundles of straws. Children will complete 10 addition questions that require regrouping (of the straws).

Model the first one: \[34 + 18 = \] 

Write 10 questions on the board and ask each pair to take turns to model the regrouping.

Wednesday
• 2-digit subtraction using straws.

Give each pair two cups / bowls (labelled 10s and 1s) and bundles of straws. Explain that the children are expected to complete 10 subtraction questions that require regrouping (of the straws).

Model the first one: \[63 - 27 = \] 

Write 10 questions on the board and ask each pair to take turns to model the regrouping.

Thursday
• Add and subtract numbers mentally.

Each pair will need nine bundles of straws (in bundles of 10) and 10 single straws. Player 1 lays out a 2-digit number represented by straws (e.g. 31), player 2 then lays out the number bond to 100 represented by straws.

Why does each pair only need nine bundles of 10 straws?

Friday
• Recognise that tenths arise from dividing an object into 10 equal parts.
• Identify and represent numbers using different representations.

Use a simple ones / tenths grid drawn on a whiteboard / paper. Children should work in pairs; one pupil says a decimal (with a ones / tenths value), and the other pupil represents the number using straws. Once checked, children swap roles. Continue for 10 minutes.
Monday
• Count in multiples of 4 from 0 to 100.

Place different animals (with four legs) in bowls. Children work in pairs
and take turns to write the number sentence that represents the multiples
of four shown in the bowl. E.g. a bowl with six wild animals in, each with four
legs, will be represented by the following number sentence:

\[ 6 \times 4 = 24 \]

Tuesday
• Count in multiples of 8 from 0 to 100.

Place different paired animals (bundled together using an elastic band) in
bowls. Children work in pairs and take turns to write the number
sentence that represents the multiples of eight shown in the bowl. E.g. a
bowl with five animal bundles in, each bundle with eight legs, will be represented by
the following number sentence:

\[ 5 \times 8 = 40 \]

Wednesday
• Identify and represent numbers using different representations.
• Add and subtract numbers mentally.
• Count in multiples of 4 and 8.

Prepare bowls containing several animals with four legs and several
bundles / pairs of animals (eight legs in total). Children are given a target
number and have one minute to write down and make as many different
representations for the given number, e.g. to make the total of 32,
children could combine four bundles, or two bundles plus four animals.

Target numbers: 32, 44, 48, 64, 72, 80

Thursday
• Count in multiples of 4 and 8 from 0 to 100.
• Add and subtract numbers mentally.

Place different quantities of animals in bowls. Children work in pairs and
take turns to calculate the total number of legs in each bowl and then say
the number bond pair to 100 that corresponds. Children write down the
number sentence, with the partner checking. Keep a tally of the number
of questions answered in 10 minutes. The pair with the most wins the
game!

Friday
• Count in multiples of 4 and 8 from 0 to 100.
• Add and subtract numbers mentally.

Place different quantities of animals in bowls. Children work in pairs and
take turns to calculate the total number of legs in each bowl, then
subtract that amount from 100. Children write down the number
sentence, with the partner checking. Keep a tally of the number of
questions answered in 10 minutes. The pair with the most wins the game!
Making Mathematics Count

Year 3 Week 4: 100 Square

Monday

- Count in multiples of 4 and 8 from 0 to 100.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have). Children highlight all of the multiples of four in one colour and all of the multiples of eight in another way (circle the numbers for example, or place a counter over the multiples of eight in the pocket chart).

Tuesday

- Count in multiples of 4 and 8 from 0 to 100.
- Recognise patterns in number.

Using the 100 square from Monday, children firstly say, then write down any number patterns they spot for the 4 times and 8 times tables.

Wednesday

- Add numbers mentally.
- Identify and represent numbers using different representations.
- Add and subtract numbers mentally.
- Count in multiples of 4 and 8.

Prepare bowls containing several animals with four legs and several bundles / pairs of animals (eight legs in total). Children are given a target number and have one minute to write down and make as many different representations for the given number, e.g. to make the total of 32, children could combine four bundles, or two bundles plus four animals. Target numbers: 32, 44, 48, 64, 72, 80

Thursday

- Count in multiples of 4 and 8 from 0 to 100.
- Add and subtract numbers mentally.

Place different quantities of animals in bowls. Children work in pairs and take turns to calculate the total number of legs in each bowl and then say the number bond pair to 100 that corresponds. Children write down the number sentence, with the partner checking. Keep a tally of the number of questions answered in 10 minutes. The pair with the most wins the game!

Friday

- Add numbers mentally.

Each pair needs a 100 square and some coloured counters.

Write a target ‘teens’ number on the board.

Find and highlight / cover / turn over all the numbers whose digits add up to that number.
Monday
• Identify and represent numbers using different representations.
Show children the Cuisenaire rods and tell them that they will have some time to build whatever they want. Observe what they build. Give them five minutes to play, then take a few minutes to discuss what students have noticed.

How do the colours relate? Which colours are longer and which are shorter? Can you make one colour from another? e.g. yellow can be made from red and light green. (Record these and other questions as potential ideas to explore later in the week.)

Challenge children to arrange the colours from shortest to longest. Each child should make their own ‘staircase’.

Tuesday
• Identify and represent numbers using different representations.
Put one rod into a bag (or envelope) and take turns playing grab-a-bag. To play, a child reaches into the bag and, without looking, names the colour rod they believe they are holding. They remove that rod from the bag: if they had the correct colour, they get to keep the rod. Otherwise, they put the rod back in the bag. Whoever gets the most rods after five minutes wins. This will give children a good idea of the numbers represented by length.

Which colours are easier to identify? Why do you think that is?

Wednesday
• Identify and represent numbers using different representations.
• Add and subtract numbers mentally.
Show that the difference between a blue and black rod is exactly one red Cuisenaire rod. Ask the children to find other pairs of rods whose difference is exactly one red rod. Let the children work for a few minutes, then bring them together again to share their results.

What patterns did you notice? What conjectures do you have?

Thursday
• Identify and represent numbers using different representations.
• Add numbers mentally.
Each pair needs a staircase of rods each. Player 1 makes a train of rods. Player 2 calculates the value of the train. Model first of all using blue + blue + white + red = 21. Explain that each rod can be represented using letters instead of writing the full rod colour (algebra!), so b+b+w+r = 21. Children could create their own rod letters (e.g. blue could be ‘x’). Children take turns to use four rods and write the algebraic sentence.

Friday
• Identify and represent numbers using different representations.
• Add and subtract numbers mentally.
Each pair needs a staircase for reference (or a printed copy of the staircase). Write a ‘Cuisenaire sentence’ on the board, e.g. red + black + orange (total 19).

How many different ways can you make the same total?
Monday
- Identify and represent numbers using different representations.
- Identify the place value of each digit in a 3-digit number.

Give each pair a dish of place value counters.

Play in pairs. Write ten 3-digit numbers on the board in words. Ask player 1 and player 2 to take it in turns to make the numbers using place value counters. Player 1 checks player 2's counters and vice versa.

Tuesday
- Identify and represent numbers using different representations.
- Identify the place value of each digit in a 3-digit number.
- Add 3-digit numbers mentally.

Give each child a dish of place value counters. Write +10 as the ‘target addition’ on the board. Say a 3-digit number, e.g. ‘six hundred and nineteen’. Children represent that number +10 using place value counters. After a few questions, change the ‘target addition’ (e.g. +30).

Wednesday
- Identify and represent numbers using different representations.
- Identify the place value of each digit in a 3-digit number.
- Subtract 3-digit numbers mentally.

Give each child a dish of place value counters. Write –10 as the ‘target subtraction’ on the board. Say a 3-digit number, e.g. ‘four hundred and sixty-five’. Children represent that number –10 using place value counters. After a few questions, change the ‘target subtraction’ (e.g. –30).

Thursday
- Recall and use multiplication and division facts for the 3, 4 and 8 times tables.

Each child needs a dish of place value counters.

Call out a question that uses multiplication facts for the 3, 4 and 8 times tables. Children answer using the place value counters.

Friday
- Recall and use division facts for the 3, 4 and 8 times tables.

Each child needs a dish of place value counters.

Call out a question that uses division facts for the 3, 4 and 8 times tables. Children answer using the place value counters.
**Monday**
- Add and subtract amounts of money, using both £ and p in practical contexts.
- Add and subtract mentally.

Have different amounts of money set out in bowls and ask children to count the totals. Use different coins from 1p to 50p.

**Tuesday**
- Add and subtract amounts of money to give change, using both £ and p in practical contexts.
- Give change to £1.
- Add and subtract mentally.

Have different amounts of money set out in bowls. Use different coins from 1p to 50p. Totals should be less than £1.

Children calculate the amount in the bowls and imagine that is the total for a basket of shopping. How much change would be given from £1? (Relate to number bonds to 100.)

**Wednesday**
- Add and subtract amounts of money to give change, using both £ and p in practical contexts.
- Give change to £2.
- Add and subtract mentally.

Have different amounts of money set out in bowls. Use different coins from 1p to 50p. Totals should be between £1 and £2.

Children calculate the amount in the bowls and imagine that is the total for a basket of shopping. How much change would be given from a £2 coin?

How will number bonds to 100 used on Tuesday help?

**Thursday**
- Add and subtract amounts of money in practical contexts.
- Add and subtract mentally.
- Use < = > to compare amounts of money.

Have different amounts of money set out in bowls. Use different coins from 1p to 50p. Totals should be less than £1.

Children use two lolly sticks to make < = > signs to compare the two totals.

**Friday**
- Add and subtract amounts of money in practical contexts.
- Add and subtract mentally.

Give each pair a bowl of coins. Write a target amount on the board. How many ways can children make and record that amount using coins?

Target amounts: 45p, 58p, 67p, 72p, 93p
**Monday**

- Count in multiples of 6 and 9 from 0 to 100.

Each pair needs a set of 1–100 digit cards and two sorting hoops. Ask children to sort numbers using a Venn diagram. They should place all the multiples of six in one hoop and the multiples of nine in the other hoop. Any numbers which are multiples of both are placed in the intersection.

This activity can be easily adapted to using large sheets of paper with Venn diagrams drawn on, and post-its / cards for children to write numbers on. To extend, the numbers and / or sorting criteria can be changed / adapted.

**Tuesday**

- Count in multiples of 6 and 7 from 0 to 100.

Do you predict that there will be any numbers in the intersection? Which numbers?

Each pair needs a set of 1–100 digit cards. Ask children to place all the multiples of six in one hoop and the multiples of seven in the other hoop. Any multiples of both six and seven are placed in the intersection.

Which numbers would go in the intersection if we used digit cards 1–200?

**Wednesday**

- Count in multiples of 7 and 9 from 0 to 100.

Do you predict that there will be any numbers in the intersection? Which numbers?

Each pair needs a set of 1–100 digit cards. Ask children to place all the multiples of seven in one hoop and the multiples of nine in the other hoop. Any multiples of both seven and nine are placed in the intersection.

Which numbers would go in the intersection if we used digit cards 1–200?

**Thursday**

- Recall multiplication facts up to 12 x 12.

Each pair needs a set of 1–100 digit cards and two hoops labelled ‘odd’ and ‘even’.

One child asks a multiplication fact, e.g. ‘seven times six’. The other child writes the question and answer on a post-it and places it in the odd or even hoop. Children take turns to ask and answer the questions.

**Friday**

- Recall division facts up to 12 x 12.

Each pair needs a set of 1–100 digit cards and two hoops labelled ‘odd’ and ‘even’.

One child asks a division fact, e.g. ‘seventy-two divided by nine’. The other child writes the question and answer on a post-it and places it in the odd or even hoop. Each child takes it in turns to ask and answer the questions.
Monday
- Count in multiples of 6 and 9 from 0 to 100.

Using either a 100 square pocket chart, a printed square or a whiteboard (whatever you have), children highlight all of the multiples of six in one colour and the multiples of nine in another way (circle the numbers for example).

*Save this 100 square for tomorrow.*

Tuesday
- Count in multiples of 6 and 9 from 0 to 100.
- Recognise patterns in number.

Using the 100 square from Monday, children say and then write down any number patterns they spot for the 6 times and 9 times tables.

*What do you notice about the ones digits in the 9 times tables? What pattern is formed on the 100 square when counting in 9s? What pattern do you see for multiples of both six and nine? What do you predict about the ones digit for all other multiples of six and nine?*

Wednesday
- Count in multiples of 7 from 0 to 100.
- Recognise patterns in number.

Using a 100 square, children say, then write down any number patterns they spot for the 7 times table.

*Which numbers will be multiples of seven and six? Which will be multiples of seven and nine? Which numbers do you predict will be multiples of seven for numbers between 100 and 200?*

Thursday
- Recognise factor pairs.

Using an interactive 100 square or large pocket chart, turn over or take out one number. Ask children to write down all the factors of that number.

*Numbers to turn over / take out: 32, 54, 68, 88 and 66*

Friday
- Recall multiplication and division facts up to 12 x 12.

Using an interactive 100 square or large pocket chart, turn over or take out one number. Ask children to write down all the possible multiplication or division questions that this could be the answer to.
Monday

- Count in multiples of 6 from 0 to 100.
- Find relationships with numbers.

Place different minibeasts (with six legs) in bowls. (Ladybirds that have six spots are a good alternative.) Children work in pairs and take turns to write the number sentence that represents the multiples of six shown in the bowl. E.g. a bowl containing five ladybird pairs, each pair with 12 legs, will be represented by the following number sentence: $5 \times 12 = 60$

**Tuesday**

- Count in multiples of 12 from 0 to 100.

Place different paired minibeasts in bowls. Children work in pairs and take turns to write the number sentence that represents the multiples of 12 shown in the bowl. E.g. a bowl containing five ladybird pairs, each pair with 12 legs, will be represented by the following number sentence: $5 \times 12 = 60$

Which fact in the 6 times table might be useful to help us calculate? Why?

**Wednesday**

- Count in multiples of 6 and 12 from 0 to 100.
- Add and subtract numbers mentally.

Place different quantities of single and paired minibeasts in bowls. Children work in pairs and take turns to calculate the total number of legs in each bowl. Children write down the number sentence, with the partner checking. Keep a tally of the number of questions answered in 10 minutes. The pair with the most wins the game!

**Thursday**

- Count in multiples of 6 and 12 from 0 to 100.
- Add and subtract numbers mentally.

Place different quantities of minibeasts in bowls. Children work in pairs and take turns to say the number bond pair to 100 that corresponds. Children write down the number sentence, with the partner checking. Keep a tally of the number of questions answered in 10 minutes. The pair with the most wins the game!

**Friday**

- Count in multiples of 6 and 12 from 0 to 100.
- Add and subtract numbers mentally.

Place different quantities of minibeasts in bowls. Children work in pairs and take turns to calculate the total number of legs in each bowl, then subtract that amount from 100. Children will write down the number sentence, with the partner checking. Keep a tally of the number of questions answered in 10 minutes. The pair with the most wins the game!
MAKING MATHEMATICS COUNT
YEAR 4 WEEK 6: DIENES

Monday
- Identify and represent numbers using different representations.
- Read Roman numerals to 10.

Give each pair a set of Dienes. Call out criteria and, in pairs, the children use the Dienes to make a number. The criteria could be:
- a 4-digit number where the 10s value is an even number greater than 2
- a 4-digit number where the 100s value is a multiple of 3
- a 4-digit number where the number of 10s is greater than the number of 100s.

Tuesday
- Identify and represent numbers using different representations.
- Read Roman numerals to 20.

Give each pair a set of Dienes. Write ten 4-digit numbers on the board in words. Ask the children to make the numbers using the Dienes. (Each answer will have to be cleared away before the next number can be made. Each number should be a number less than 2000.) The first pair to complete all 10 numbers is the winner. Repeat using 10 different 4-digit numbers.

Wednesday
- Identify and represent numbers using different representations.
- Read Roman numerals to 30.

Give each pair a set of Dienes. Write a 2-digit number on the board and ask the children to use Dienes to represent that number x 10. Repeat for several 2-digit numbers x 10. Demonstrate the relationship on the place value grid. Make 10 groups of 60 and find the total, then make 10 groups of 2 using the Dienes and find the total. Relate to 3-digit numbers x 10. Repeat for several 3-digit numbers ÷ 10.

Thursday
- Identify and represent numbers using different representations.
- Read Roman numerals to 30 (consolidate).

Using a quiz, ask children to make 10 different Roman numerals from 1–30. This could be done on whiteboards for speed. Which numbers are hard to remember? Can you find a way to help remember? Which numerals use just two lolly sticks? Three lolly sticks?

Friday
- Identify and represent numbers using different representations.
- Read Roman numerals to 100 in 10s.

Give each child a cup of lolly sticks to create all the Roman numerals representing multiples of ten to 100. Use some of the work from this week to create a display in the classroom.
Monday
- Identify and represent numbers using different representations.
- Identify the place value of each digit in a 4-digit number.

Give each pair a set of Dienes. Write ten 4-digit numbers on the board in words. Ask the children to make the numbers using the Dienes. (Each answer will have to be cleared away before the next number can be made. Each number should be a number less than 2000.) The first pair to complete all 10 numbers is the winner. Repeat using 10 different 4-digit numbers.

Tuesday
- Identify and represent numbers using different representations.
- Identify the place value of each digit in a 4-digit number.

Give each pair a set of Dienes. Call out criteria and, in pairs, the children use the Dienes to make a number. The criteria could be:
- a 4-digit number where the 10s value is an even number greater than 2
- a 4-digit number where the 100s value is a multiple of 3
- a 4-digit number where the number of 10s is greater than the number of 100s.

Wednesday
- Multiply and divide 3-digit numbers by 10.

Write a 2-digit number on the board and ask the children to use Dienes to represent that number x 10. Repeat for several 2-digit numbers x 10. Demonstrate the relationship on the place value grid. Make 10 groups of 60 and find the total, then make 10 groups of 2 using the Dienes and find the total.
- Relate to 3-digit numbers x 10.
- Repeat for several 3-digit numbers ÷ 10.

Thursday
- Understand the place value of each digit in a 3-digit number, and related equivalence.

Write a 3-digit number on the board and ask children to represent the number in a different way, e.g. 724 could be represented using 6 hundreds, 12 tens and 4 ones. Children are to make the number using the Dienes or a place value chart.

Friday
- Understand the place value of each digit in a 4-digit number, and related equivalence.

Write a 4-digit number on the board and ask children to represent the number in a different way, e.g. 1312, could be represented using 1 thousand, 2 hundreds, 11 tens and 2 ones. Children are to make the number using Dienes or a place value chart.
MAKING MATHEMATICS COUNT

YEAR 5 WEEK 2: COINS

Tuesday
Find fractions of amounts using money.
Have different amounts of money set out in bowls for children to count the totals. Ask children to represent the coins that could be used to show one quarter of the amount in the bowls. Encourage children to exchange coins as necessary.

Can you make one quarter of this amount using just two coins? Three coins? Four coins?

Monday
Find fractions of amounts using money.
Have different amounts of money set out in bowls for children to count the totals. Ask children to represent the coins that could be used to show half of the amount in the bowls.

Can you make half of this amount using just three coins? Four coins?

Wednesday
Find fractions of amounts using money.
Have a selection of coins set out in bowls. Explain that in each bowl there is just half of the amount that Jane has in her piggy bank. How much does Jane have in her piggy bank?

Can you make the full amount using just two coins? Three coins? Four coins?

Thursday
Find fractions of amounts using money.
Ask children ‘which is greater, one quarter or one half?’ Explain that you will now explore this. Have a selection of coins set out in bowls. Ask children if they would rather have one quarter of the red bowl or half of the blue bowl. At the end of the lesson, ask the question again. Ask for an explanation.

Friday
Find fractions of amounts using money.
Ask children ‘which is greater, one quarter or one half?’ Explain that you will now explore this. Have a selection of coins set out in bowls. Ask children ‘which is greater, one quarter or one half?’ Explain that you will now explore this. Have a selection of coins set out in bowls. Ask children ‘which is greater, one quarter or one half?’ Explain that you will now explore this. Have a selection of coins set out in bowls. Ask children ‘which is greater, one quarter or one half?’ Explain that you will now explore this. Have a selection of coins set out in bowls.
Monday
• Find fractions of amounts using money.
Have different amounts of money set out in bowls for children to count the totals. Ask children to represent the coins that could be used to show half of the amount in the bowls.

Can you make half of this amount using just three coins? Four coins?

Tuesday
• Find fractions of amounts using money.
Have different amounts of money set out in bowls for children to count the totals. Ask children to represent the coins that could be used to show one quarter of the amount in the bowls. Encourage children to exchange coins as necessary.

Can you make one quarter of this amount using just two coins? Three coins? Four coins?

Wednesday
• Find fractions of amounts using money.
Have a selection of coins set out in bowls. Explain that in each bowl there is just half of the amount that Jane has in her piggy bank. How much does Jane have in her piggy bank?

Can you make the full amount using just two coins? Three coins? Four coins?

Thursday
• Find fractions of amounts using money.
Have a selection of coins set out in bowls. Explain that in each bowl there is just one quarter of the amount that Tom has in his piggy bank. How much does Tom have in his piggy bank?

Can you make the full amount using just five coins? Six coins? Seven coins?
How many different ways can you make this total?

Friday
• Find fractions of amounts using money.
Ask children ‘which is greater, one quarter or one half?’

Explain that you will now explore this. Have a selection of coins set out in bowls. Ask children if they would rather have one quarter of the red bowl or half of the blue bowl.

At the end of the lesson, ask the question again. Ask for an explanation.
Tuesday
- Solve problems involving fraction and decimal equivalents.

In pairs, children take turns to challenge each other to create a stick of 10 cubes, giving a mix of fractions and percentages to determine the colours. Have as many turns as possible in 10 minutes.

Wednesday
- Solve problems involving fraction and decimal equivalents.

Show the children a stick of 20 cubes, laid out as two columns of 10 (see picture). Ask the children what fraction each cubes represents (one-twentieth) and what percentage each cube represents (5%). Explain that the whole amount has now been split into 20 equal parts.

Ask the children to create their own stick of 20 cubes, again laid out as two columns. Ask them to write both the fraction and the percentage of each colour.

Thursday
- Solve problems involving mixed fractions and decimal equivalents.

Teacher to build a tower of 20 cubes as yesterday.

Ask the children to work in pairs to build a mixed fraction and percentage tower. Today the teacher describes the colour fractions and percentages to be represented in the tower.

Friday
- Solve problems involving mixed fractions and decimal equivalents.

Start the session by recapping – ask children how many cubes represented 10%? How many cubes represent 5%?

Ask children to work in pairs to build a fraction and percentage tower. Both children build one at same time and compare the models afterwards. Children follow the modelling of the teacher on Thursday.
**Monday**
- Round any number to 1,000,000 to the nearest 10, 100, 1000, 10,000 or 100,000.

Give children either sorting hoops laid over a whiteboard and post-its or squares of paper, or ask them to draw a Venn diagram on a whiteboard and write the numbers in the correct place. Children should work in pairs to promote discussion.

Read 3-digit numbers out loud and ask children to place numbers in the correct place in the Venn diagram.

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**Tuesday**
- Round any number to 1,000,000 to the nearest 10, 100, 1000, 10,000 or 100,000.

Give children either sorting hoops laid over a whiteboard and post-its or squares of paper, or ask them to draw a Venn diagram on a whiteboard and write the numbers in the correct place. Children should work in pairs to promote discussion.

Read 3- or 4-digit numbers out loud and ask children to place the numbers in the correct place in the Venn diagram.

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**Wednesday**
- Know tests for divisibility.

Give children either sorting hoops laid over a whiteboard and post-its or squares of paper, or ask them to draw a Venn diagram on a whiteboard and write the numbers in the correct place. Children should work in pairs to promote discussion.

Read 4-digit numbers out loud and ask children to place numbers in the correct place in the Venn diagram.

*Will all numbers in the intersection always end in a zero? Why?*

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**Thursday**
- Know tests for divisibility.

Give children either sorting hoops laid over a whiteboard and post-its or squares of paper, or ask them to draw a Venn diagram on a whiteboard and write the numbers in the correct place. Children should work in pairs to promote discussion.

Read 3- or 4-digit numbers out loud and ask children to place numbers in the correct place in the Venn diagram. *A number is divisible by 3 if the sum of the digits is divisible by 3.*

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**Friday**
- Know tests for divisibility.

Read 3- or 4-digit numbers out loud and ask children to place numbers in the correct place in the Venn diagram. *A number is divisible by 4 if the number formed by the last two digits is divisible by 4. A number is divisible by 6 if it is divisible by 2 AND it is divisible by 3.*

*Can you write two more numbers in the intersection?*
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Monday
• Solve problems involving all four operations.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Ask children to turn over / highlight / circle all of the square numbers.

Find two consecutive numbers which add up to a square number, e.g. 12 and 13 = 25.

Are there any square numbers that cannot be made with two consecutive numbers?

Tuesday
• Solve problems involving all four operations.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Ask children to turn over / highlight / circle all of the triangular numbers.

Model what a triangular number is. Encourage children to draw the first few.

Wednesday
• Solve problems involving all four operations.
• Find patterns in number.
• Explain reasoning using mathematical vocabulary.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Ask children to calculate all of the pairs of consecutive numbers, starting with 1 + 2, then 2 + 3, then 3 + 4, then 4 + 5… Continue to 49 + 50. Circle or place a counter on each total, e.g. 1 + 2 = 3 so place a counter on 3, 2 + 3 = 5 so place a counter on 5 and so on.

What do you notice? Can you explain why this is? (An odd + even number always = odd.)

Thursday
• Solve problems involving all four operations.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

In pairs, children find three numbers which total 100. They continue until they cannot calculate any more 100 totals. The winner is the person who is the last to successfully total 100.

Friday
• Solve problems involving all four operations.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

In pairs, children find all of the prime numbers in the 100 square (all of the numbers that do not have any factors other than 1 and itself).
Monday
- Understand the place value of each digit in a 4-digit number, and related equivalence.

Write a 4-digit number on the board and ask children to represent the number in a different way, e.g. 1312 could be represented using 1 thousand, 2 hundreds, 11 tens and 2 ones. Repeat for other 4-digit numbers.

Tuesday
- 4-digit addition using place value counters.

On the board, write a selection of 4-digit numbers in one circle and another selection of 4-digit numbers in another circle. Ask children to choose one number from each circle and complete the addition using place value counters to visualise exchanges.

Wednesday
- 4-digit subtraction using place value counters.

On the board, write a selection of 4-digit numbers in one circle (start numbers / minuends) and another selection of 4-digit numbers to be subtracted from the first (subtrahends) in another circle. Ask children to choose one from each circle and to complete the subtraction using place value counters to understand the exchanges.

Thursday
- Short division using place value counters (no remainders).

On the board, write $432\div2 (=216)$
Show how to solve this using place value counters to group into 2s.

Teacher to model then children to follow.

On the board, write $532\div4 (=133)$
Show how to solve this using place value counters to group into 4s.

When finished, try $784\div4$ $665\div5$ $267\div3$

Friday
- Short division using place value counters (with remainders).

On the board, write $433\div2 (=216 \text{ r}1)$
Show how to solve this using place value counters to group into 2s.

Teacher to model then children to follow.

On the board, write $534\div4 (=133\text{ r}2)$
Show how to solve this using place value counters to group into 4s.

When finished, try $785\div4$ $666\div5$ $269\div3$
Monday

- Solve problems involving perimeter.

Give each child a selection of cubes (approx. 15–20). With each side length of the cube representing 1m, ask children to make a shape with perimeter 18m.

How many different ways can they find?

Extension: Investigate different perimeters: 36m, 24m, 30m or 35m.

Tuesday

- Solve problems involving area.

Give each child a selection of cubes (approx. 15–20). With each side length of the cube representing 1m, ask children to make a shape with an area of 16m².

How many different ways can they find?

Extension: Investigate different areas: 36m², 24m², 30m² or 35m².

Wednesday

- Solve problems involving perimeter and area.

Give each child a selection of cubes (approx. 15–20). With each side length of the cube representing 1m, ask children to make a shape with perimeter 18m and an area of 18m².

How many different ways can they find?

Would it be possible to create a shape with an area and perimeter which is a prime number (i.e. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47 etc.)? Explain your reasoning and give an example.

Thursday

- Recognise improper fractions.

Show nine cubes and explain that these should be built into towers of four cubes. Each cube represents one quarter of the whole cube tower. Ask how many quarters there are (nine). Ask children to write this on a whiteboard.

Ask children to put four cubes together to make a whole cube tower. Can they rewrite the fraction as a proper fraction (2¼)?

Repeat with 13 cubes, all representing one quarter of a cube tower.

Friday

- Recognise improper fractions.

Have bowls with different quantities of cubes. Ask children to write the following fractional amounts on their whiteboards:

- quarters, thirds, sixths, eighths, fifths and ninths.

Ask children to write out the cubes shown as both an improper fraction and a proper fraction.
**Monday**

- Understand the place value of each digit in a 4-digit number, and related equivalence.

Place a selection of different counters in bowls – enough for one per pair. Ensure there are more than 10 of some of the counters.

Ask children to calculate the value in each bowl. Record on whiteboards.

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**Tuesday**

- Understand the place value of each digit in a 4-digit number, related equivalence and decimal notation.

Place a selection of different counters in bowls – enough for one per pair. Ensure there are more than 10 of some of the counters.

Ask children to calculate the value in each bowl.

Ask children to then divide the amount by 10. Record on whiteboards.

Ask children to then divide the amount by 100. Record on whiteboards.

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**Wednesday**

- Understand the place value of each digit in a 4-digit number, related equivalence and decimal notation.

Give each pair a selection of place value counters.

Using the same systematic procedure as Monday and Tuesday, write on the board a 2-digit number including a two-place decimal, e.g. 36.91.

Tell children the number has been divided by 100 with the 10s value being more than 10.

What could the start number have been?

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**Thursday**

- Understand the place value of each digit in a 4-digit number, related equivalence and decimal notation.

Give each child a selection of place value counters and ask them to work independently moving on from Wednesday.

Ask children to make the number they think was originally in the bowl.

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**Friday**

- Understand the place value of each digit in a 4-digit number, related equivalence and decimal notation.

Give each child a selection of place value counters and ask them to work independently.

Write five numbers on the board in the format Th H T Ones.

Ask children to make the number they think was originally in the bowl. Ask children to write two possibilities for each number.
Monday
- Know tests for divisibility.
- Read 4-digit numbers out loud and ask children to place numbers in the correct place in the Venn diagram. A number is divisible by 4 if the number formed by the last two digits is divisible by 4. A number is divisible by 6 if it is divisible by 2 AND it is divisible by 3.

Tuesday
- Know tests for divisibility.
- Perform mental calculations including with 4-digit numbers.
- Ask children to work independently to place four numbers in each section of the sorting diagram (recalling the rules revised on Monday).

Wednesday
- Know tests for divisibility.
- Perform mental calculations including with 4-digit numbers.
- Ask children to place three numbers in each section of the sorting diagram. Numbers should be four digits.

Thursday
- Perform mental calculations including with 4-digit numbers.
- Ask children to place three numbers in each section of the sorting diagram. Numbers should be four digits.

Friday
- Perform mental calculations including with 4-digit numbers.
- Ask children to place three numbers in each section of the sorting diagram. Numbers should be four digits.
Monday
- Identify factors.

Give each pair one pack of cards with pictures, jokers and 10s removed. Player 1 places a card from the top of the pile in the 10s column and player 2 places a card in the 1s column.

Children write all factors on a whiteboard. The winner is the person in each pair who has the most factors.

Tuesday
- Identify multiples.
- Perform mental calculations in all 4 operations.

Give each pair one pack of cards with pictures, jokers and 10s removed. Player 1 places a card from the top of the pile in the 10s column and player 2 places a card in the 1s column.

Children write the first five multiples on a whiteboard. Continue for 10 minutes.

Wednesday
- Recognise equivalent fractions.

Give each pair one pack of cards with pictures, jokers and 10s removed. Player 1 places a card from the top of the pile as the numerator. Player 2 places a card as the denominator. Children take turns to write down an equivalent fraction to the one shown. Write on a whiteboard and swap whiteboards to mark at the end.

Thursday
- Recognise improper fractions.

Give each pair one pack of cards with pictures, jokers and 10s removed. Player 1 places a card from the top of the pile as the numerator. Player 2 places a card as the denominator. The first person to correctly say the fraction wins the two cards. If an improper fraction is shown, the first person to convert the fraction to a proper fraction wins the two cards. The player with the most cards after 10 minutes is the winner.

Friday
- Round any whole number to a degree of accuracy.

Give each pair one pack of cards with pictures, jokers and 10s removed. Player 1 places four cards on the table to create a 4-digit number. Player 2 must round the number to the nearest 10, 100 and 1000. Record on a whiteboard.
Monday
- Solve problems involving all four operations.

There are 28 dominoes in a set, which can be arranged in seven sets of four making a complete link, like the one shown.

Children work in pairs to complete three links. Once three links are complete in the time given, try to complete all seven links.

Tuesday
- Recognise improper fractions and mixed numbers.

Give one set of dominoes per pair (or one set per small group if resources are limited).

Children take turns to turn over a domino from the pack/box. If a proper fraction is shown, the player should write an equivalent fraction. If an improper fraction is shown, it must be converted to a proper fraction.

Wednesday
- Solve problems involving all four operations.
- Explore all possibilities.

Take two dominoes. Announce the total number of dots and then show the children one of the dominoes. Ask how many dots must be on the other domino.

Let the children take turns taking two dominoes, totalling them, showing one and asking which number must be on the other domino.

What possible combinations of dots are there that would make up the missing number?

Thursday
- Subtract numbers mentally.
- Use inverses to check answers.

Write 20°C on the board as a start temperature for a thermometer. Turn over three dominoes, treating each one as a one-place decimal (e.g. 6-3 becomes 6.3). Reduce the temperature on the thermometer by those three numbers.

Demonstrate how to check answers by reversing the process. Children work in pairs to complete as many temperature changes as possible in the time given.

Friday
- Use negative numbers in context.
- Subtract numbers mentally.
- Use inverses to check answers.

Write a start temperature on the board for a thermometer. Turn over three dominoes, treating each one as a one-place decimal (e.g. 6-3 becomes 6.3). Reduce the temperature on the thermometer by those values. Demonstrate how to check answers by reversing the process. Ask children if this calculation is correct. Encourage an explanation about any errors.

Children work in pairs to complete as many temperature changes as possible in the time given. Depending on confidence on Thursday, the start temperature could be 0°C to give opportunity to explore negative numbers.
Monday

• Add and subtract numbers mentally.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

In pairs, each player adds the total of three consecutive numbers. They write their totals on a whiteboard. Each player races to guess the three numbers first. Place counters over the three numbers once they have been identified.

Tuesday

• Add and subtract numbers mentally.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Tell children that you think that on a 100 square, all of the odd numbers’ digits total to make an even number. Prove it!

e.g. take an odd number (31), add together the digits (3 + 1). Total 4 = True! 59, add together 5 + 9 = 14 = True! Try with all odd numbers in the hundred square. Ask children to find a way to keep track of which ones are true / false.

Wednesday

• Add several numbers mentally.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Children work in pairs to add a numbers on the 100 square. Partner 1 adds the number directly above, to the right, below and to the left, e.g. for 57, you would add 47 + 58 + 67 + 56. Keep swapping so both partners practise their mental addition skills.

Do you think that any two numbers will have the same total? What strategies did you use for mental addition (e.g. partitioning—adding all 10s values first)?

Thursday

• Subtract numbers mentally.

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Children work in pairs to subtract two numbers on the 100 square. Partner 1 chooses two numbers, whilst partner 2 subtracts the smaller number from the larger number. Keep swapping so both partners practise their mental subtraction skills.

Friday

• Solve problems involving all four operations

Use either a 100 square pocket chart, a printed square or a whiteboard (whatever you have).

Find all of the numbers with a prime number above and below. Top tip! Identify all of the prime numbers first.