Your child will be revising work done in First Class on the numerals/numbers 0–99; addition and subtraction of numbers with totals to 20; fractions – halves; the 2-D shapes – square, rectangle, triangle, circle, semicircle; the 3-D shapes – cube, cuboid, cylinder, sphere; tens and units to 19; performing simple shopping activities with totals to 50c and reading the time in one hour and half-hour intervals over the coming days. Your child needs to know the mathematical language associated with the numerals 0–99 – How many?, write the numeral/number, colour, count, ring, row, and, make, plus, equals, more, less, is the same as, etc.

Numbers 0–99

Game 1: Arms up, arms down

Ask your child to stand up. Begin counting together 1–20/30/50. Your child puts his/her arms up in the air when they say one, and puts them down when they say two, arms up for three, arms down for four, etc., until they reach the target number, for example, 30.

Game 2: Listen to the beat

Blow on a whistle, beat on a biscuit tin or clap your hands a number of times up to a maximum of 50 times. Your child must decide the number of times the whistle was blown, you beat on the tin or clapped your hands. Ask your child to write the number on a piece of paper each time.

Adding/Subtracting to 19

Place 18 counters/clothes pegs/buttons/cups or anything you may have to hand on the table or floor. Ask your child questions, such as:

- *How many pegs are there in this set?*
- *How many more do we need to make 20?*
- *How many fewer do we need to make 16?, etc.*

Partitioning sets

Partitioning sets is when you divide a set into smaller sets. Place some buttons or small objects on the table. Use a pencil/chopstick/straw to divide the set of buttons into two smaller sets (subsets).

Now show that 10 + 7 = 17, 7 + 10 = 17; 8 + 9 = 17, 6 + 11 = 17, 5 + 12 = 17, 15 + 2 = 17, etc. Do the same with similar examples for 15, 16, 18 and 19.

Money

Game 1: Matching coins

Collect as many 1, 2, 5, 10 and 20 cent coins as you can. Place them in a pile in the centre of the table. Give your child five cups with 1c written on one, 2c written on another, and so on. Ask your child to sort the coins into the correct cups.

Game 2: Shop

Ask your child to help you make a play shop in a section of a room in your home. Collect a number of easily sourced items. Use Post-it notes or pieces of paper as price tags. Place the price tags on/under the items. No item should cost more than 10c. Ask your child to make up some questions, for example: *How much does the pear cost? Which item is the dearest/most expensive/cheapest/least expensive? What is the total cost of the apple, orange and pear?*

Shapes

Ask your child to find items in your home that are in the shape of a: cube (die, ice cube, Oxo cube); cuboid (cereal/shoe boxes); sphere (balls); cylinder (pipe, tubes of sweets/crisps).
Note: Emphasise the school's healthy eating policy to your child when working with items that might be considered to be unhealthy!

Extension work

Ask your child to identify 2-D shapes in the 3-D shapes that s/he has collected, for example, a square in a cube, a rectangle in a cuboid, a circle in a sphere, a circle in a cylinder and a rectangle in a cylinder if the cylinder is flattened out!

Fractions

Give your child 20 cubes and an A4 sheet of paper. Ask him/her to fold the sheet in half. Show him/her that s/he can find half of a number by sharing the cubes equally. For example, say: *Find ½ of 16*. Ask your child to count out 16 cubes. Ask him/her to share the 16 cubes equally between the two halves of the sheet and ask:

- *How many cubes are on the left half of the sheet?*
- *How many cubes are on the right half of the sheet?*
- *Did you share the cubes equally?*
- *So, what is half of 16?*

Do something similar with other even numbers up to 20.

Your child will be dealing with mental strategies to help him/her carry out operations that require addition more quickly. S/he will also be dealing with addition of two addends without regrouping.

Addition

Game 1: What comes next?

Start counting from any number, for example, 14, 15, 16. Your child must say the next number when you stop counting. In this case, s/he must say 17. Do this with a selection of numbers up to 99.

Game 2: Listen and count!

Drop a number of sweets/coins/counters/beads, etc., into a biscuit tin. Say: *I am starting from 13. I am going to drop some coins into the biscuit tin. Listen carefully for the sound of the dropping coins.* Your child can silently count forward from 13 as each coin is dropped into the biscuit tin. You may stop at 19, etc. When you stop, ask your child: *How many coins are in the tin now?*
Do this game a few times, using different numbers each time.

Game 3: Counting in 2s!

Ask your child to count the number of eyes, ears, legs and arms s/he has. You could also place a number of 1c coins on a table and ask your child to group them in twos before counting them.

Game 4: Counting both ways!

Invite your child to demonstrate the story of 5 or 10 using different colour clothes pegs on a clothes hanger. Get a clothes hanger and put one yellow clothes peg on the left side and four green pegs on the right side. Then get another hanger and put four green pegs on the left side and one yellow peg on the right side.

Your child will see that it doesn't matter whether you add 1 + 4 or add 4 + 1. Continue in this way asking him/her to show 5 as being 0 + 5, 5 + 0, 2 + 3 or 3 + 2.

This type of activity can be done using fridge magnets. It can also be done on a table using clothes pegs, coins, buttons, cups, counters, cubes, etc.

Game 5: Make 10 with playing cards

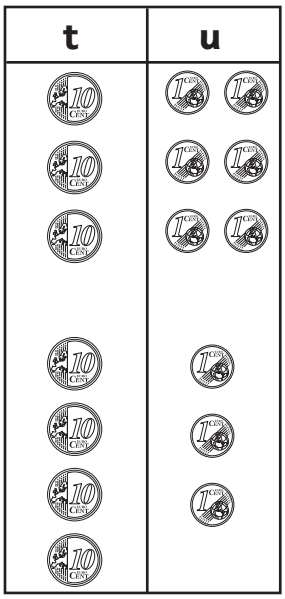
Give a deck of cards to your child. Only use the cards 1–10 (Ace = 1), remove the picture cards. Ask your child to make pairs of cards that add to 10, for example, 6 + 4, 4 + 6, 7 + 3, 3 + 7, 8 + 2, 2 + 8.

Game 6: Show the biggest number

This game can be played by two/three people, e.g. yourself, your child and another family member, if one is available. Give each player 10 cards. Each player keeps his/her cards in a pile face down on the table. Player A turns over the top two cards and adds the totals together. For example, if Player A turns over a 7 and a 9, s/he must make the number 97 rather than 79. Player B could turn over a 5 and an 8. S/he must make the number 85 rather than 58. Player C may turn over a 4 and a 3; s/he must make the number 43 rather than 34. All three players compare their numbers and whichever player is showing the biggest total wins a cube/cent. Play continues like this until all the cards are turned over. Whoever has the most cubes/cent at the end of the game is the winner.

Place value mat

Give your child a sheet of A4 paper. Ask him/her to divide it down the centre as in the picture. Put the letter **t** at the top to represent the tens and the letter **u** to represent the units.



Invite your child to represent the number 36 on the mat with the number 43 underneath it using 10c and 1c coins. Explain that a long time ago people came up with the idea that the units should be added first.
Step 1:
Add the units (1c coins)
Step 2:
Add the tens (10c coins)
Invite your child to solve 36 + 43 = ? on his/her own by physically adding the one cent coins and then adding the 10c coins. Your child should now be ready to write the sum and carry out the addition.

Rounding, Subtraction and Problem-solving

Home/School Links Sheet 3

Your child will be learning the mental strategy of rounding to the nearest ten. S/he will also be dealing with formal subtraction and solving problems requiring addition or subtraction within 99. Your child will need to know the language associated with these topics – round up/down, to the nearest ten, nearer, not as near, add, smaller, plus, equals, subtract, take away, minus.

Rounding

Game 1: Checking numbers

Ask your child to connect 10 cubes to make a line of 10 and two lines of 10 cubes to make 20. Ask him/her to think about the number 13. Make a line of 13 cubes. *How many cubes are 13 more than 10?* Ask your child to line up the 10 beside the 13. S/he should see that 13 is three cubes more than 10. *How many cubes are 13 less than 20?* Ask your child to line up the 13 cubes beside the 20 cubes. S/he should see that 13 is seven cubes less than 20. Therefore, 13 is closer to 10 so we round 13 down to 10. If you don't have cubes, place a row of 10 1c coins and another row of 20 1c coins in rows across the table and work as with the cubes above. Use this method to show that numbers like 34 round down to 30 and 28 rounds up to 30.

Addition using rounding

Display simple sums within 99. Ask your child to estimate by rounding if the answers to the sums are more than/less than a given number. For example, 24 + 17 = ? Ask: *Is the answer more or less than 40?* (We don't want the exact answer as yet, just a rough idea of it.) Take the sum 37 + 52 = ? Ask: *Is the answer more or less than 80?* Discuss different strategies your child used for getting the answer 90.

Subtraction

The hidden card (subtraction)

Give your child a pack of playing cards. Ask him/her to remove all the court (picture) cards. The ace can be used as 1 and the joker can be used as zero. Ask your child to make a playing card number sentence on the table, for example, 7 + 8 + 5 (card) = 10 + 10. Place one of the cards upside down and ask: *What number is turned upside down?* This can be done with a selection of number sentences before your child can make his/her own hidden card number sentences.

Rows of coins (subtraction)

Place a row of 18 1c coins on a table. Place a row of 15 1c coins directly under the 18 coins. Place the coins in one-to-one correspondence so that your child can clearly see the difference between the two rows. Now ask questions, such as:

- *How many coins are there in the top row?*
- *How many coins are there in the bottom row?*
- *Which row has more coins?*
- *Which row has less/fewer coins?*
- *How many more coins are there in the top row?*

Subtracting playing cards

This game can be played by 2–5 players. Each player gets 10 cards. S/he keeps his/her cards in a pile face down on the table. Player A turns over the top two cards and subtracts the smaller number from the bigger number. For example, if Player A turns over a 7 and a 10, s/he takes 7 from 10 to get 3. If the answer is correct, Player A gets a cube/counter/coin. Player B does the same. Play continues like this until all the cards are turned over. Whoever has the most cubes at the end of the game is the winner.

Problem-solving

Do I add (+) or subtract (–)?

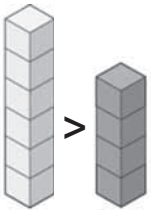
Give your child a number of simple word problems that require either addition or subtraction. It is most important that your child is able to choose the correct operation – addition or subtraction. For example:
I had 14 stamps. I bought five stamps in the Post Office. How many stamps had I then?
Ask questions, such as: *Had I more or fewer stamps then? Would it be a good idea to subtract? Why would it be a better idea to add?*
I had 18 eggs. I used five eggs to make a cake. How many eggs had I then?
Ask questions, such as: *Had I more or fewer eggs then? Would it be a good idea to add? Why would it be a better idea to subtract?*
More sample questions:
I had 15 clothes pegs. I lost seven. How many clothes pegs had I left then?
There were 18 books on a shelf. I read 10 of them. How many of the books had I not read?

Greater than, Less than or Equals

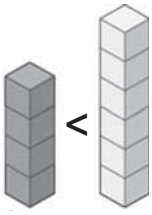
Your child will be learning to compare pairs of different numbers and will be asked to decide if one is greater than/less than or equal to another number. S/he will be introduced to the signs:
greater than (>) less than (<) equals (=)
Your child needs to know the mathematical language associated with these signs – greater than, bigger number, count, number sentence, complete, less than, smaller than, small number, equals, correct, sign, has the same amount, not as big as, nearly as big as.

Making towers

Give your child some interlocking cubes or multi-links. If these are not to hand, use counters, buttons or coins. Call out two numbers, for example, 6 and 4. Your child must make two towers, one tower six cubes tall and another four cubes tall. Alternatively, they could be six coins tall and four coins tall. S/he must compare the two towers and decide which one is bigger.
Ask your child to arrange the towers so that the > symbol can be placed between them, i.e. 6 > 4.



Ask your child to swap the towers around so that the smaller tower is on the left-hand side. S/he must now place the sign as 4 < 6.

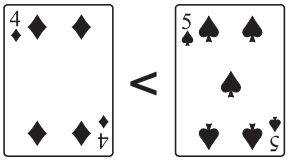


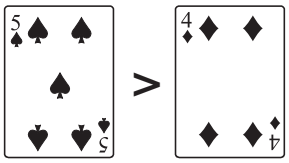
Do this activity with different pairs of numbers until you are satisfied that your child has grasped the concept using smaller numbers.

Extension work: Ask your child to do the same activity with larger numbers, arranging the cubes into tens and units, for example: 18 cubes > 15 cubes or 15 cubes < 18 cubes.

Compare the playing cards!

This game can be played by two players. Ask your child to write the three symbols (>, <, =) on Post-it notes or on pieces of paper before playing the game. S/he will also need a pack of playing cards. Only use the cards 1–10 (Ace = 1), remove the picture cards. Player A must pick any two cards at random from the pack and place them face up on the table. Player B must compare the two cards and place the correct symbol between them.

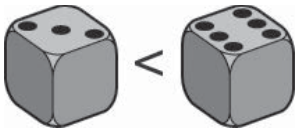


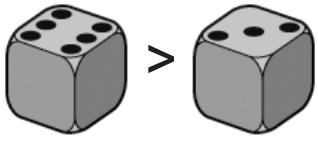


If the symbol is placed correctly, that player gets a cube/counter. After a specified number of goes, 10/15/20, the player with most cubes wins.

Roll two dice

You will need two dice. This game can be played by 2–5 players. Player A must roll the two dice at the same time. S/he must place the dice with the numbers shown as they were thrown and then put the correct sign between them.





If the symbol is placed correctly, that player gets a cube/counter. After a specified number of goes, 10/15/20, the player with most cubes wins.

Table Tips 3

Your child will be learning some Tables Tips to help him/her add more quickly and with understanding over the coming days. Much of this is revision of work done in First Class. Your child needs to know the mathematical language associated with these Tables Tips – a double (4 + 4, 5 + 5, etc.), near double (4 + 5, 5 + 6, etc.), adding 10, adding 9, bridging the 10, fact families, How many?, altogether, frame, full, empty, write, number sentence (7 + 5 = 12 is a number sentence), etc.

Table tips 3

The doubles

Give your child 10 red and 10 green cubes/buttons/markers/pencils, etc. (Any two colours will suffice.) Ask them to arrange the buttons in the order one red and one green. Ask: *What have we here? One and one make 2 or 1 + 1 = 2*. Now ask your child to arrange the buttons into two red/two green, three red/three green, four red/four green, five red/five green, etc., as at the top of page 29 of *Busy at Maths 2*. Your child should now be able to say all the doubles, which are all even numbers up to 20. These can now be learned by rote as your child has already worked out the pattern using the buttons/counters/cubes, etc.

The near doubles

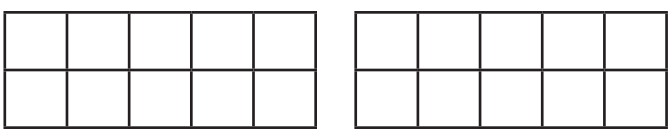
One more: Ask your child to make the double 4 + 4 using four red and four green cubes (anything to hand will do). Now ask him/her to add one more red cube. Ask: *What number sentence have you just made? Yes! 4 + 5. This is called a near double.* Now make other near doubles such as 5 + 6 = ? 6 + 7 = ? 7 + 8 = ? 8 + 9 = ?, etc.

One less: Ask your child to make 4 + 4 using the cubes as above. Now ask him/her to take away one cube. Ask: *What number sentence have you just made? Yes! 4 + 3. This is also called a near double.* By knowing that 4 + 4 = 8, we can work out two more number facts: one more is 4 + 5 = 9 and one less is 4 + 3 = 7. Ask your child to record as many near doubles as s/he can using the cubes and writing them in his/her copybook.

Table tips 4

Adding 10 on Ten Frames

Draw two Ten Frames as shown below.



Invite your child to fill one of the Ten Frames with 10 red cubes (any colour will do). Now invite him/her to start filling the other Ten Frame with one green cube (remember to start filling from the top left-hand row) and ask questions, such as: *What number sentence is this? Yes! 10 + 1 = 11.*

Continue by inviting your child to show 10 + 2, 10 + 3, etc.

Adding 9!

Ask your child to display 9 on one of the Ten Frames with nine red cubes. Ask him/her to pick up four green cubes and to place one of the green cubes on the Ten Frame to complete it. Ask your child to place the remaining three green cubes on the second Ten Frame and ask: *What do you notice?* 9 + 4 = 9 + 1 + 3 **or** 10 + 3 = 13. Invite your child to try out other 9+ tables.

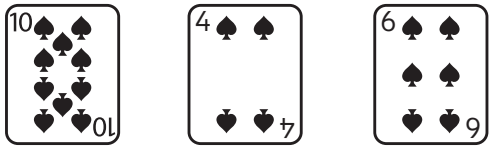
Bridging the 10!

This is a similar activity to the one above. Invite your child to display 8 on one of the Ten Frames with eight red cubes. Ask him/her to pick up four green cubes. Ask him/her to place two of the green cubes on the Ten Frame to complete it. Now ask your child to place the remaining two green cubes on the second Ten Frame and ask: *What do you notice?* 8 + 4 = 8 + 2 + 2 **or** 10 + 2 = 12. Invite your child to try out other tables in a similar fashion, for example, 7 + 5 = 7 + 3 + 2 = 10 + 2.

Table tips 5

The opposite to add is take away!

Get a pack of playing cards and place all the spades from 1–10 on a table. Ask your child to add the 4 and 6 to make 10. Now ask him/her to place the 10 of spades on the table and to take away the 4. Ask him/her to make the number sentence: 10 – 4 = 6 **or** 10 – 6 = 4.



Encourage him/her to observe that we are using the same numbers but doing a different operation. Ask him/her to try to observe the link between addition and subtraction. Do this with a number of different cards, e.g. 6 + 3 = 9/3 + 6 = 9/9 – 3 = 6/9 – 6 = 3.

Your child will be learning about extending and using patterns over the coming days. This will be done by means of games, poems, songs and practical activities. Some work will be done on revising work from First Class. Your child needs to know the mathematical language associated with pattern – pattern, odd, even, count in twos, add, total, months, seasons, sides of a cube, cent, centimetre, predict, equal, column, double digit numbers, left, right, first, second, etc., circle, square, triangle, rectangle, vertical, horizontal, etc.

Pattern – pairs of socks

Give your child 6/8/10 socks. Encourage your child to count the number of socks out loud. Invite him/her to 'make pairs' (matches) of socks. Explain that if each sock has a match, the given number is even. If a sock is left on its own, the number is odd. When all the pairs have been made, ask your child: *How many pairs of socks did you make? Did each sock have a match? Were there any socks left over? Is six an odd or even number?* Repeat this activity using odd and even numbers of socks. This activity can also be done using cups, saucers, fridge magnets or other items that may be to hand.

Odd or even?

Collect some cubes/counters/buttons/toothpicks. Place them on a table. Ask your child to scoop up an amount of items in his/her hand. Ask him/her to investigate if the scoop of items is odd or even by checking if each one has a match. If each item has a match, the number is even, if not, it is an odd number. Repeat this activity a number of times, each time picking up a different amount of items.

Dice exploration!

Ask your child to roll two dice and add the totals together. Is the answer odd or even?
Ask him/her to roll the two dice several times to investigate the following:

- Add two even numbers, the answer is always even.
- Add two odd numbers, the answer is always even.
- Add an odd and an even number, the answer is always odd.
- Add an even and an odd number the answer is always odd.

Counters

Give your child an empty box of Smarties. Fill the box with coloured counters. Ask your child to determine if the number of counters in the box is odd or even.

Making patterns

Have fun copying, extending and devising patterns, such as:

- *apple, pear, orange, apple, pear, orange …*
- *cup, cup, saucer, plate, cup, cup…*

Detective work

Ask your child to look carefully at a hundred square and to answer the following questions: *How many rows are there on the hundred square? What are the numbers in the third row? How many numbers begin with 7? Where are they? What is the 1st number in the 2nd row/the last number in the 8th row? How many columns are there? Find all the numbers ending in 6. Where are they? In which column are the numbers ending with 9? What number is in the 3rd row, 7th column? Call out all the even/odd numbers in the 2nd row, etc.*

Blank hundred square 1

Ask your child to make a blank hundred square – 10 rows of 10. Ask him/her to study the blank hundred square. Direct your child to fill in the fourth column: 4, 14, 24, 34, 44, 54, 64, 74, 84 and 94. Ask your child to call out the numbers in the 4th column. Discuss the pattern with him/her.
Variation: Point to various blank squares on the hundred square and ask your child to say what number goes there, for example, 15, 20, 24, 25. Ask your child what strategy s/he used to find the number on the hundred square.

Mystery number

Secretly choose a number on the hundred square, for example, 78. Your child has to ask questions to try to find out what the number is, for example: *Is it less than 46?; Is it more than 70?; Has the number got two digits?; Is it an odd/even number?; Would I find this number in the 8th column on the hundred square?*

Symmetry and Place Value to 99

Your child will be learning about symmetry and place value to 99 over the coming days. There are many definitions of what symmetry is. The simplest explanation is that symmetry occurs where a line divides a shape into two identical parts – one becomes the mirror image of the other. Your child needs to know some of the language of symmetry – half, fold, line of symmetry, symmetrical, exact same, identical, dotted line, down (vertical), across (horizontal) and the language of place value – tens, units, group of 10, set of 10, bundle of 10, loose, place-holder, match, rows, columns, equals, teens, plus, add one more, take away, count forwards, count backwards, swap, regroup, exchange, add, show most, show least, odd, even, digits, estimate, etc.

Symmetry

Mirror, mirror!

Ask your child to stand facing you. You will play the role of mirror and copy all the movements made by your child. After a few turns at this, swap roles and ask your child to play the role of mirror. This activity is a gentle introduction to symmetry. Your child is actually creating symmetry by copying your movements.

Symmetrical shapes

Give your child a sheet of A4 paper. Ask him/her to fold the sheet down the centre from top to bottom. Now ask him/her to draw one half of a butterfly/moth/tree/car/box or anything that comes to mind on the left-hand side of the line. Ask him/her to paint the half picture. Now ask your child to fold the sheet down the centre again and to press on it. When you open the paper, you will clearly see that the mirror image of the original drawing is on the right-hand side of the page. The fold down the centre is the line of symmetry.

Lines of symmetry

Ask your child to cut out some shapes/pictures of people/flowers/trees, etc. from newspapers or magazines. Ask him/her if the shape/picture has a line of symmetry. If it has, ask your child to draw the line of symmetry on the shape or picture. Some shapes may have only one line of symmetry. Others such as a square can have a number of lines of symmetry. Discuss these lines with your child.

Place value to 99

The biggest card number

This game can be played by 2–4 players. You will need a pack of playing cards. Ask your child to remove all the court (picture) cards. The ace can be used as 1 and the joker can be used as zero. Ask each player to pick 10 cards randomly and to place them face down on a table in front of them. The players are not allowed to look at the cards. Each player takes the top two cards from their pile and turns them face up on the table. The player arranges the two cards to make the biggest number possible in terms of tens and units, for example, if a player turns over a 6 and a 4, then the biggest number s/he can make is 64. Whichever player shows the highest number each round wins a cube or a coin. When all the cards are turned over, the player with the most cubes/coins is the winner.

The biggest dice number

This game can be played by 2–4 players. You will need two dice. Player A rolls the dice and makes the biggest number possible, for example, if a player rolls a 2 on one die and a 5 on the other die, the biggest number Player A can make is 52. Player A writes down that number. Player B takes his/her turn to make the biggest possible number with the two dice and writes down that number. Whichever player's number is the biggest wins a cube/coin. Play continues as above until one player wins 5/10/15 cubes.

Notation board

You will need two dice and some cubes/units. Using a sheet of A4 paper, ask your child to make a simple notation board as shown on page 41 of *Busy at Maths 2*. You can play the role of shopkeeper. Ask your child to roll two dice and add the totals displayed. S/he collects the corresponding number of counters/units from the shopkeeper, for example, if s/he rolls a 4 and a 2, s/he will get six cubes/units. Your child then places the six units in the units' house on the notation board. You take your turn. Play continues as above until either you or your child has more than nine units in the units' house. For example, your child already has six units in the units' house and then rolls the two dice and gets a total of seven. S/he says: *I must go to the shopkeeper, and swap my 13 units for one 10 and three units. I now have one 10 and three units altogether. This number is 13.* S/he then places the one 10 in the tens' house and the three units in the units' house. Play continues until one of you makes 30.

Data and Addition with Regrouping

Your child will be dealing with representing and interpreting data on pictograms and block graphs over the next few days. S/he will also be performing addition with regrouping. Regrouping is where your child has 14 units and s/he must regroup the 14 to make one 10 and four units. 14 = 1 ten + 4 units.
Your child needs to know the language associated with data and addition with regrouping – pictogram (where data is shown on a chart using pictures), block graph (where items are shown as a block on a graph), row, column, add, altogether, plus, together, and, total, bundles of 10, hundred square, vertically (straight up or down), horizontally (across), diagonally, counting on, tens and units, change, stay the same, empty number line, estimate, round up, round down, more, less, swap, regroup, digit, etc.

Favourite fruits

Ask your child to name five different fruits – apple, pear, orange, banana and pineapple (any fruits will do). Ask him/her to draw eight apples, six bananas, five pears, seven oranges and six pineapples. The drawing doesn't have to be perfect. Ask the children to cut out the pictures. Now use an A4 page to make a grid similar to that on page 43 of *Busy at Maths 2*. Make sure that the drawings are small enough to fit into the spaces on the grid. Now ask your child to place the apples in the row that shows apples, the pears in the row for pears, and so on. The pictures can be stuck on with glue if you have some. Now ask questions, such as: *How many more apples are there than pears? How many fewer pineapples are there than oranges?* Your child should be able to answer these questions by looking at the data on the pictogram.

Tallies

Tallies are used to count numbers quickly. They are usually done in groups of five.

1 |	2 ||	3 |||	4 ||||	5 ||||

Ask your child to observe the number of people who walk/drive/cycle past a window over a five-minute period. Ask him/her to write the numbers as tallies as shown on page 45 of *Busy at Maths 2*.

Addition with Regrouping

Making bundles of ten

Give your child a collection of items that are only partly grouped in tens, for example, two bundles of 10 lollipop sticks and 12 lollipop sticks. You may prefer to use cubes/acorns/shells/counters or anything that you have to hand. Invite your child to count the lollipop sticks. S/he may use different strategies to arrive at 32. Do this with different numbers, for example: 22 + 14, 32 + 16. Discuss the different strategies with your child and then decide on what the best/most effective strategy is.

Let's regroup 1!

Say to your child: *I have eight cubes/1c coins, etc. I am now going to add four more cubes/coins. How many cubes/coins have I now? (Yes! 12.) What can we swap the 12 units for? (Yes! One group of ten and two units.)*
Discuss the value of the two different digits in the answer. Ask: *What is the value of the 1? (Yes! 10.) What is the value of the 2? (Yes! Two units.)*
Extension: Invite your child to solve other problems involving addition of two one-digit numbers, for example, 7 + 6, 9 + 5, 8 + 7, etc.

Let's regroup 2!

Display two groups of 10 and eight units using cubes or any other materials you may have and say:
I am now going to add one 10 and eight units to the 28. How many cubes have I now? We can't have 16 units in the units' place so we must regroup 16 units for one 10 and six units.
The ten goes with its friends in the tens' place.
How many units have we now? (Yes! Six.)
How many groups of 10 have we now?(Yes! Four.)
Discuss the value of the digits. *What is the value of the 4? (Yes! 40.) What is the value of the 6? (Yes! Six units.)*
Extension: Ask your child to solve other problems involving the addition of two two-digit numbers where there is regrouping involved, as above.

Money – Coins to 50c and €1

Your child will be revising work done in First Class on 1c, 2c, 5c, 10c, 20c and 50c coins over the coming days. They will also be introduced to the €1 coin. This will be done by means of games and activities using play money or real coins. Your child needs to know the mathematical language associated with money – dear, expensive, cheap, cheaper, Which is cheaper?, How many?, count, purse, piggy bank, shop, money, brown, copper, least number, money holder, amounts, different ways, bought, cost, more, cent, etc.

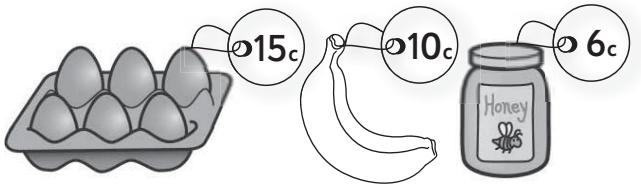
Coins – to 50c

Target money numbers

Give your child a selection of real/play/cardboard 1c, 2c, 5c, 10c, 20c and 50c coins. Pick a target number and write it on a Post-it note or piece of paper, for example, 48c. Ask your child to make this target number using the least number of coins possible. Encourage your child to start with the biggest coins and work down to the smaller coins, for example:
48c = 20c + 20c + 5c + 2c + 1c
Choose other target numbers, for example:
39c = 20c + 10c + 5c + 2c+ 2c
64c = 50c + 10c + 2c+ 2c
76c = 50c + 20c + 5c + 1c
87c = 50c + 20c + 10c + 5c + 2c
98c = 50c + 20c + 20c + 5c + 2c+ 1c

Price tags

Ask your child to make some price tags for items with prices up to 50c only. Put the price tags on a range of items you have in your home – beans, peas, potatoes, carrots, bananas, etc.



Give your child some real coins from 1c to 50c. Ask some or all of the following questions. There will be a number of answers for some questions, which should lead to discussion.

- *What item is the dearest/most expensive?*
- *What item is the cheapest/least expensive?*
- *What items are the same price?*
- *How much dearer is the book than the carrot?*
- *How much cheaper is the orange than the beans?*
- *Which two items together cost the same as the biro?*
- *Which three items together cost the same as the grapes?*

Invite your child to act as the shopkeeper and you can be the shopper. Have him/her add the totals of the purchases and give you the correct change. Reverse the roles.

Coins – to €1

Making €1

Give your child a selection of real/play/cardboard 1c, 2c, 5c, 10c, 20c and 50c coins. Explain to your child that you want him/her to use coins to make €1 in a variety of ways. When your child has made €1, ask him/her to record the coins s/he used. Encourage your child to discover as many combinations of coins that make €1 as possible.
€1 = 20c + 20c + 20c + 20c + 20c
€1 = 50c + 50c
€1 = 50c + 20c + 20c + 10c
€1 = 50c + 10c + 10c + 10c + 10c + 10c
€1 = 50c + 20c + 20c + 5c + 5c
€1 = 50c + 20c + 10c + 10c + 5c + 5c
€1 = 20c + 20c + 20c + 20c + 10c + 5c + 5c

Let's go shopping!

When you bring your child shopping with you, encourage him/her to read the prices on the various items. Try to get him/her to identify the € symbol. Your child will not understand decimals at this stage as they are not introduced until Third Class. Ask him/her to decide which item is dearer/cheaper. Use language such as: *Which of these two items is dearer/cheaper?*
Which costs more/less – the peas or the beans?
How much dearer/cheaper are the beans than the peas?
How much dearer are the pears than the bananas?
How much cheaper are the pears than the bananas?
If the bananas cost 47c, you could ask: *If I buy these bananas, what change will I get from 50c? If I buy these bananas, what change will I get from €1?*
When paying for your shopping, ask your child to help you count out the money to pay or ask him/her to count the change for you.

2-D Shapes

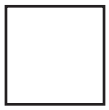
Your child will be learning about 2-D shapes (shapes with only two dimensions – length and width/breadth) over the coming days. Some of this work will be revision on the following shapes – square, rectangle, triangle, circle and semicircle. A new shape, the oval, will be introduced to your child. These shapes will be introduced by means of games and concrete materials. Your child needs to know the mathematical language associated with 2-D shapes – the names of the six shapes, straight side, curved side, flat face, corner, long, short, longer/shorter than, etc.

2-D shapes around us

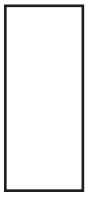
Point out to your child some objects around your home or in the local environment (area) that come in these shapes – square, rectangle, triangle, circle, semicircle or oval. Emphasise that we are only looking for the shape at the front, not the 3-D shape. For example, a rugby ball is a 3-D shape but when we look at it for this exercise we are only interested in the 2-D shape that we see, that is an oval. It is as if its outline has been drawn on to a sheet of paper.

Note for parents

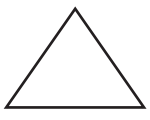
2-D shapes cannot be held. They are only pictures or symbols. Corners are formed where two straight lines meet. Therefore, a semicircle and oval do not have any corners.



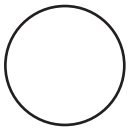
Square: sides of some boxes, dice, some floor tiles, some tabletops, some flowerbeds, some picture frames, window panes, etc. A square has one flat face with four straight sides of equal length. It has four corners.



Rectangle: most cereal packets, shoe boxes, pencil cases, books, television/ computer screens, window panes, doors/ door panels, paper (technically paper is a 3-D shape as it has depth/thickness), some tabletops, some floor tiles, some flowerbeds, picture frames, fridges, freezers, skylights, photographs, chairs, seats, etc. A rectangle has one flat face with the opposite sides of equal length and four corners.

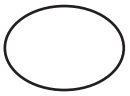


Triangle: ends of a Toblerone bar, YIELD sign, snooker ball holder. A triangle has one flat face, three straight sides and three corners.



Circle: clock faces, some window panes, shapes on buildings, five circles in the Olympic flag, STOP sign, medals, traffic signals, lollipop person's sign, some flowerbeds, some picture frames, hula hoops, cooker rings, mugs, cups, pots, pans, cones (top section), most tins such as beans and peas, Pringles tin, lollipops, etc. A circle has one flat face, one curved side and no corners.

Semicircle: It is half of a full circle. A semicircle has one flat face and no corners (for this exercise, corners can only be made by straight lines).



Oval: It is a flat, curved shape. An oval is like a circle that is squeezed out of shape – the outline of lemons, eggs, Easter eggs, mirrors, pendants, rugby balls, pots, biscuits, tables, etc. As with a circle, it has one, flat face one curved side and no corners.

Making shapes

Ask your child to draw/construct squares, rectangles, triangles, circles, semicircles and ovals, using a variety of media, for example, geoboards, paper, márla, lollipop sticks, pipe cleaners, cubes, counters, thread, twine, etc.

Which shape is it?

Show your child one 2-D shape at a time and ask questions, such as:

- *What is this shape called?*
- *Can you see a shape like this in your home?*
- *Show me a side of this shape.*
- *How many sides does this shape have?*
- *Are the sides straight or curved?*
- *Show me a corner of this shape. (If the shape has a corner!)*
- *How many corners does this shape have?*
- *Can this shape roll?*
- *Can this shape slide?*

Addition with Regrouping and Place Value to 199

Home/School Links Sheet 11

Your child will be learning about addition of three numbers with regrouping (swapping 10 single units for a 10) as well as place value involving hundreds, tens and units over the coming days. Your child needs to know the mathematical language associated with addition and place value – and, add, altogether, plus, together, total, bundles of 10/20, 100 square, numbers 0–99, row, column, vertically, horizontally, diagonally, counting on, tens' house, units' house, change, stay the same, estimate, addition house, value, more, less, swap, regroup, digit, etc.

Addition with Regrouping

Making bundles of 10 using money

Give your child a collection of coins that are only partly grouped in tens, for example, two 10c coins and 12 1c coins. (You may prefer to use cubes/chestnuts/acorns/shells/counters or anything that you have to hand.) Invite your child to count the coins. S/he may use different strategies to arrive at 32c. Do this activity with other numbers, for example, 22 + 14, 32 + 16. Discuss the various strategies with him/her and then decide on what the best/most effective strategy is.

Show me!

Give your child 34 1c coins or any materials that can be grouped in tens as above. Ask your child to make 34 using the coins in the standard way, that is, three groups of 10 and four units (single 1c coins). Then ask him/her to come up with as many other ways as possible of showing 34, for example, two groups of 10 and 14 units or one group of 10 and 24 units or 0 groups of 10 and 34 units, etc.

Let's regroup using money 1!

Say to your child: *I have seven 1c coins. I am now going to add six more 1c coins. How many cent have I now? (Yes! 14c.) What can we swap the 14c for? (Yes! One 10c coin and four 1c coins.)* Discuss the value of the two different digits in the answer. Ask: *What is the value of the 1? (Yes! 10c.) What is the value of the 4? (Yes! 4c.)* Explain that it is much easier to carry around a 10c coin than it is to have 10 separate 1c coins in your pocket. It is good to regroup!

Extension: Invite your child to solve other problems involving addition of two one-digit numbers, for example: 7 + 6, 9 + 5, 8 + 7, etc.

Let's regroup using money 2!

Display two 10c coins and nine 1c coins on a table and say: *I am now going to add one 10c and seven 1c coins to the two 10c coins and nine 1c coins (29c + 17c = ?). How many cent have we now? First we add the single cent. How many single (loose) cent have we? (Yes! We have 16c.) We don't want to have 16 loose 1c coins in our pockets, so what should we do? (Yes! We must regroup the 16 1c coins as one 10c coin and six loose 1c coins.) The 10c coin goes with its friends in the tens' place.*

How many 1c coins have we now? (Yes! Six.)

How many 10c coins have we now? (Yes! Four.)

Discuss the value of the digits. Ask: *What is the value of the 4? (Yes! 40c.) What is the value of the 6? (Yes! 6c.)*

Extension: Ask your child to solve other problems involving the addition of two and even three two-digit numbers where there is regrouping involved, as above.

Place Value to 199

100 in the environment

Ask your child to think of items that come in hundreds, for example, 100 cent in a euro, 100 pennies in a pound, 100 years in a century, etc.

Making sets of 100

Ask your child to use various items from the environment to make sets of exactly 100 items. S/he could use straws, lollipop sticks, crayons, chalk, balloons, candles, headless matches, cubes, blocks, etc. Making a stack of 10 10c pieces is probably the best way of getting across what a set of 100 looks like. (This can then be regrouped as €1. This shows that 100c = €1.)

Making numbers beyond 100

Invite your child to make various numbers from 0–199 with whatever concrete material they have to hand, for example, 127. Your child may use different strategies to make 127. S/he may make it as 127 single 1c coins. S/he may prefer to represent 127 as 12 10c coins and seven single 1c coins. S/he may prefer to represent it as 11 10c coins and 17 single 1c coins. Better still, s/he may prefer to represent 127 as €1 coin, two 10c coins and seven single 1c coins. Do this exercise with other numbers, for example, 145, 153, 187, 199.

Your child will be dealing with the passage of time, the calendar and the four seasons over the next few days. Your child needs to know the language associated with time, the calendar and the seasons – hour, half hour, past, What time is it?, It is ___ o'clock, It is half past ___, before, after, early, earlier, late, later, long/short hand, one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, clock face, afternoon, evening, morning, night, midnight, noon, night-time, first, Monday, Tuesday, Wednesday, Thursday, Friday, seasons, spring, summer, autumn, winter, etc.

Note for parents

The categorising of the first day of the week differs from country to country. Some countries have Sunday as the first day with Saturday as the last day. Other countries have Monday as the first day with Sunday as the last. In Ireland, we call Monday through to Friday weekdays with Saturday and Sunday classed as the weekend. You may want to explain this to the children. For our activities, we take Monday as the first day of the week.

Similarly, there is a difference between the way we in Ireland allocate months to the different seasons and the way they are allocated in other countries. Historically in Ireland, Hallowe'en is regarded as being the celebration of the gathering in of the harvest and the end of growth. The end of October was also seen as the end of autumn and the beginning of winter. This meant that winter began in November with the knock-on effect of spring beginning on Saint Brigid's Day, 1st February.

In the United States of America, Thanksgiving Day is on the fourth Thursday of November. This marks the celebration of the harvest at the end of November. Consequently, winter in the United States begins in December, putting their spring back to the beginning of March. Many countries have followed the American way over the years. Most Irish people still consider 1st February as the beginning of spring. For the following activities, we take 1st February as the beginning of spring.

Song 1: The Days of the Week

(*To the tune of 'Twinkle, Twinkle, Little Star'*)
Monday, Tuesday, Wednesday too,
Thursday, Friday, all for you.
Saturday, Sunday, that's them all.
All those days we will recall.
(Sing again and again.)

Song 2: Let's All Sing

(*To the tune of of 'Frère Jacques'*)
Here we ha-ve
The days of the week.
Let's all sing,
Let's all sing.
Monday, Tuesday, Wednesday,
Thursday, Friday, Saturday,
Su-n-day,
My favourite day!

Naming and ordering days of the week

Write out, or ask your child to write out, the days of the week on pieces of paper (A4 sheets with 2/3 names on each sheet). Cut out the names and place them in a pile on the table. Ask your child to place the names in order, starting with Monday, and ask questions, such as:

- *What is the first day of the week?*
- *What day comes just before Thursday?*
- *What day comes just after Friday?*
- *What are the two days of the weekend?*
- *What is the last day of the week?*

Naming and ordering months of the year

Write out, or ask your child to write out, the months of the year. Cut out the names and place them in a pile on the table. Ask your child to place the names in order, starting with January, and ask questions, such as:

- *What is the first month of the year?*
- *Which month comes just before July?*
- *Which month comes just after September?*
- *Which month is three months before April?*
- *Which month is five months after May?*

Naming and ordering season of the year

Work as with the months above. Taking February as the first month of spring, ask your child to put the months and seasons in order:

Spring: February, March, April
Summer: May, June, July
Autumn: August, September, October
Winter: November, December, January

Fractions – Halves (½) and Quarters (¼)

Your child will be learning about fractions – halves (½) and quarters (¼) – over the coming days. Your child needs to know some of the mathematical language associated with fractions – half, quarter, fraction, part, bit, piece, whole, whole amount, equal, not equal, circle, bigger, less than, greater than, the same as, divide, cut, etc.

Share the items

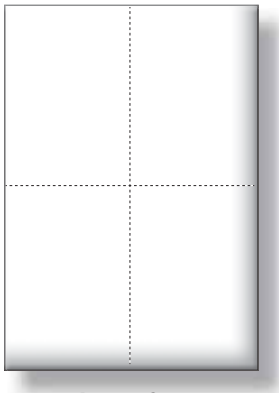
Give your child 12 small items – marbles/cubes/counters/teddies/1c coins/clothes pegs, etc. Explain that s/he must share them out between you and him/her. Ask: *Did we both get the same amount?* Do this with different numbers of items.

Folding halves

Give your child an A4 sheet of paper. Ask him/her to fold it down the centre (vertically). Explain that each part is called a half (½). Now ask him/her to fold the sheet across (horizontally). Explain that each part here is also called a half (½).

Folding quarters

Give your child an A4 sheet of paper. Ask him/her to fold it down the centre (vertically). Now ask him/her to fold the sheet across (horizontally). Ask your child how many sections are in the sheet now. Explain that there are four equal sections (parts) and that each part here is called a quarter (¼).



A4 sheet of paper

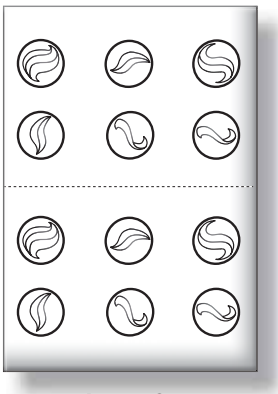
Ask your child to cut out the four quarters and to place them on top of each other to prove that they are all the same size (we won't use the phrase surface area until later in the book). Now ask him/her to make the four quarters into a complete sheet again.

Making halves and quarters (water)

Ask your child to fill a glass with water/sand so that it is roughly ½ or ¼ full.

Sharing equally – halves

Give your child a little problem to solve. For example: *You have 12 marbles. You want to share them between you and your friend. How many marbles will each of you get?* Explain to your child that you want him/her to share the marbles equally. Ask him/her to come up with some strategies (methods/ideas) to solve the problem. S/he may count out the numbers saying: *one for you, one for me, until they are all shared*. S/he may use the A4 sheet that s/he folded earlier and use it to count the marbles on to each half. S/he will see that ½ of 12 = 6 as there will be six marbles in each half of the sheet.

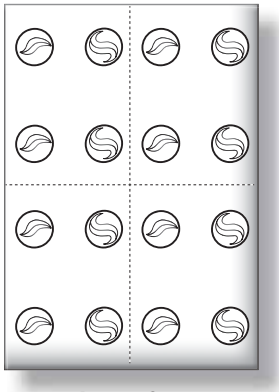


A4 sheet of paper

Now ask your child to do the same to show that: ½ of 8 = 4, ½ of 10 = 5, ½ of 16 = 8, etc.

Sharing equally – quarters

Give your child a little problem to solve. For example: *You have 16 marbles (counters/cubes/clothes pegs/coins can act as the marbles). You want to share them among yourself and your three friends. How many marbles will each of you get?* Explain to your child that you want him/her to share the marbles equally. Ask him/her to come up with some strategies to solve the problem. S/he may count out the numbers saying: *one for you, one for me, until they are all shared.* S/he may use the A4 sheet that s/he folded earlier into quarters and use it to count the marbles on to each quarter. S/he will see that ¼ of 16 = 4 as there will be four marbles in each quarter of the sheet.



A4 sheet of paper

Now ask your child to do the same to show that: ¼ of 12 = 3, ¼ of 8 = 2, ¼ of 20 = 5, etc.

Place Value to 199 – The Abacus and Notation Board Home/School Links Sheet 14

Your child will be dealing with place value to 199 over the next few days. S/he has already done a lot of work on place value to date. Your child needs to know the language of place value – hundred, tens, units, group of 10, set of 10, bundle of 10, cubes, lollipop sticks, loose, place-holder, count, match, rows, columns, equals, teens, plus, add one more, take away, count forwards, count backwards, hundreds' house, tens' house, units' house, swap, regroup, exchange, add, show most, show least, odd, even, digits, estimate, represents, decuples (10, 20, 30, 40... 90).

Shoulders, knees!

Ask your child to count in tens from 10 to 190. As s/he says each decuple, s/he must alternate from touching his/her shoulders to touching his/her knees, for example, 10 (touch shoulders), 20 (touch knees), 30 (touch shoulders), 40 (touch knees).
Variation: Your child can start at different starting decuple numbers for this activity. S/he can also count backwards from different starting decuple numbers.

Calculator fun!

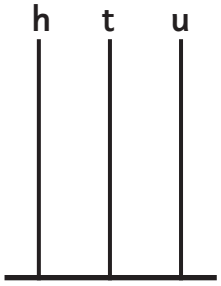
Ask your child to press 10 ++ on a calculator. If s/he keeps pressing the equals sign, the display on the calculator will count up in tens.
Variation: Ask your child to press 190 – – 10, then to keep pressing = = = and the calculator will count back in tens from 190. Ask your child to say each of these decuples (180, 170, 160, etc.) as they appear on the calculator.

Making ten using money

Give your child 16 1c coins. Ask him/her to count out the 1c coins until s/he has a set of ten coins. Encourage your child to say: *I must swap my 10 1c coins for one 10c coin*. You can act as the shopkeeper and make the swap or exchange. Then reverse the roles so that your child is the shopkeeper and s/he gives out the 10c coin for the ten 1c coins.
Ask your child: *How much money is there altogether? How much money is there in this coin (10c)? How many loose cent coins are there?*
So, 16c is made up of a 10c coin and six 1c coins or 16c = 10c + 6c.
Do this with other amounts of 1c coins from 10 to 19, ensuring that your child swaps ten 1c coins for a 10c coin each time.

The abacus

Make a simple abacus, as on page 87 of *Busy at Maths 2*.



You can take on the role of shopkeeper. You should have at least 10 green counters to act as units, 10 red counters to act as tens and one blue counter to act as a hundred. (You can also use coins/cubes or anything that is to hand that can be made into sets of ten). Your child is only expected to write/draw/name numbers to 199 at this stage. Ask your child to roll a die and collect the corresponding number of counters/units from the shopkeeper. For example, if your child rolls a 5 on the die, you will give him/her five units. S/he then places the five units in the units' house on the abacus. If your child then rolls a 6, you must give him/her six counters. S/he places the counters on the abacus. It should become obvious that there isn't enough room for all the counters on the abacus. Your child might now say: *I must go to the shopkeeper and swap my 11 units for one 10 and one unit. I now have one 10 and one unit altogether. This number is 11*. Play continues until your child makes 24, 36, 49, etc.
Variation: Call out a number between 1–199, for example, 126. Ask your child to represent this number on the abacus using counters. The colour of the counters is not important but in the textbook we use green counters to represent units, red to represent tens and blue to represent a hundred. If your child wants to show 126 on the abacus, s/he must place six counters on the units line, two counters on the tens line and one counter on the hundreds line. This activity can be done with a variety of numbers.

The notation board

h	t	u

The activities outlined above for the abacus can be replicated on the notation board, as shown on page 88 of *Busy at Maths 2*. Ask your child to make the numbers 1–9 on the notation board, next ask him/her to make 99 and finally s/he can make the numbers up to 199.

Length – The Metre

Your child will be learning about measurement (length) over the next few days. Your child needs to know the language of length – fingertip, estimate, measure, about, greater/less than, longer/shorter than, metre stick, metre string, metre strip, whole, half, quarter, centimetres, How many?, ruler, height, length, width, wide, longest, tallest, total, most likely, triangle, rectangle, taller, etc.

Making shapes

Ask your child to make body shapes that are taller/wider/narrower/shorter than shapes that you make. For example, stretch out your hands about 20cm and ask your child to make a similar shape but it must be wider/narrower than your shape. Place your hands the opposite way with them pointing upwards from top to bottom. Ask your child to make a similar shape but it must be longer/shorter than your shape.

Non-standard units of measurement

This activity encourages your child to choose appropriate units of non-standard measurement to measure familiar objects in the home. Find a number of different items that can be used for measuring the length, width or height of different items, for example, cubes, paper clips, lollipop sticks, 5c coins, pencils, markers, etc. Place a maths book on a table and ask your child to measure the length of it using the cubes. Ask: *About how many cubes will be needed to measure the length of this maths book?* When your child has given his/her estimate, ask him/her to actually measure the maths book using the cubes. Ask questions, such as:

- *Was your estimate close to the real length in cubes?*
- *How many cubes more/less was the actual measurement to your estimate?*

Now ask him/her to estimate/measure the length of the maths book using paper clips, etc. When your child has measured the maths book using a number of different units of measurement, ask him/her to decide which was the most appropriate unit. Ask your child to give reasons for his/her choice, for example:

- *I preferred paper clips to cubes as I didn't have to use as many of them.*
- *I preferred lollipop sticks to pencils as they were all the same length whereas the pencils were of different lengths.*

Variation: Give your child a selection of objects to measure and a selection of units of measurement. Ask your child to decide on the best/most appropriate unit of measurement in each case. For example, a desk, a maths book and a classroom window – a cube, a pencil, a lollipop stick.

Make a metre!

Ask your child to measure out lengths of wool or cardboard against a metre stick. A metre has 100 centimetres (cm). A conventional ruler has 30cm so if you don't have a metre stick your child can place the wool on the ruler three times and add on another 10cm. If using wool, tell your child not to pull it too tightly or else the measure will be greater than a metre! Using his/her metre measures, invite your child to find objects in or near your home that measure less than a metre, about a metre or more than a metre, for example, doors, beds, windows, television, table, kettle, suitcase, lunchbox, school bag, floor tiles, etc.

Make a ½ metre and a ¼ metre!

Ask your child to measure out lengths of wool or cardboard against a metre stick. A metre has 100 centimetres (cm). A half metre has 50cm, while a quarter metre has 25cm. Using his/her ½ or ¼ metre measures, invite your child to find objects in or near your home that measure less than a ½ or ¼ metre, about a ½ or ¼ metre or more than a ½ or ¼ metre.
Note: When measuring, explain to your child that his/her measures may not be exact, for example, if the window measures slightly more than 2 metres, tell him/her that the window is about 2 metres wide.

Using a ruler

Ask your child to measure the length, width or height of a number of different items in your home. Explain that when we want more exact measurements, we need to use centimetres. A ruler usually has 30cm. Explain to your child that many rulers have little blank pieces at each end. These do not form part of the actual measuring section of the ruler. We should always start at the zero (0) when measuring.
Ask your child to estimate how long each object will be and then get measuring with a ruler.
Objects to measure: A4 paper, newspaper, television, copybook, lunchbox, etc.

Weight – The Kilogramme

Your child will be dealing with weight (the kilogramme – kg) over the next few days. S/he will estimate and measure the weight of a variety of objects using non-standard units of measurement (cubes/counters/chestnuts/pebbles/marbles, etc.) as well as the standard unit of measurement (the kilogramme). Your child needs to know some of the language associated with weight – balance, cubes, lighter/heavier than, weigh, weighs the same, about the same, heaviest, lightest, investigate, estimate, measure, kilogramme (kg), kilo, ½kg, ¼kg.

Do they weigh the same?

You will need three identical opaque containers (you should not be able to see the contents), for example, butter tubs, cereal boxes, etc. Fill each container such that one is the lightest (e.g. cotton wool), one is heavier (e.g. cubes) and one is the heaviest (e.g. marbles).
Ask your child questions, such as the following to determine what s/he perceives about the containers:

- *What type of containers do you see?*
- *Are they all the same size or different sizes?*
- *Do you think they weigh the same?*
- *If they do not weigh the same, why might this be?*
- *Do you think each container is full or empty?*
- *What might be inside the containers?*
- *How can we find out if they weigh the same?*

Now invite your child to lift up the containers and to order them from lightest to heaviest.
Extension: Encourage your child to guess what is in each container before revealing the contents.

Making $\frac{1}{2}$ kg and $\frac{1}{4}$ kg weights

Take a 1kg pack of pasta shells/flour/sugar/flakes or anything that you have to hand. Using two identical bowls/measuring jugs/glasses, etc. share the contents evenly into the two containers. Now place the contents in separate bags. You now have two $\frac{1}{2}$ kg weights. Place one $\frac{1}{2}$ kg weight in one tray of the balance/scales. Focus your child's attention on one of the everyday objects, e.g. stapler. Ask him/her to estimate if the stapler will weigh more/less than or about the same as $\frac{1}{2}$ kg. Place the stapler in the second tray of the balance/scales. Invite your child to interpret the result i.e. the stapler weighs about $\frac{1}{2}$ kg.

Extension: Repeat the above activity using $\frac{1}{4}$ kg weights.

Balance the scales

Gather a selection of light and heavy items found in your home, for example, cup, spoon, fork, clothes peg, egg cup, tins of peas/beans, saucepan, pepper canister, book, hammer, screwdriver, ball, hurl, litre carton of milk, bowl, stapler, paper weight. Focus your child's attention on one object from the selection, for example, a tin of beans. Place the tin of beans in one tray of the balance/scales. Invite your child to balance the scales using as many different objects as are needed. For example, the tin of beans might be balanced by the spoon, the egg cup and the book or the tin of beans might be balanced by the stapler and the fork.

Let's investigate!

Using the same objects as used in the activity above, ask your child to weigh any two objects to determine which is heavier/lighter or if they weigh about the same. For example, the tins of beans and peas should weigh about the same. The stapler should be heavier than the spoon. Ask your child to estimate his/her answer first. Your child should be encouraged to give a reason for his/her answer, for example: *I think the tin of beans is heavier because …*

Kilogrammes come in different sizes

For this activity, you will need a balance/scales, a 1kg weight (a commercial weight or flour, sugar, etc.), pencil cases, bananas, butter, tins of beans, etc. Place your 1kg weight on the scales and ask: *How many bananas do you think weigh the same as the 1kg weight?* Place a banana into the opposite tray of the balance/scales. Keep adding bananas until the two trays are balanced. Ask your child to keep count.
Repeat the activity, balancing the 1kg weight with pencil cases, tins, etc.

More or less than 1kg?

Pick some items from around your home, as done above. Ask your child to estimate if an item is more than, less than or about equal to 1kg. For example, show him/her a pineapple. After your child makes an estimate, ask him/her to weigh the pineapple using a balance/scales. Do this with as many items as you can.

Subtraction – Without Renaming

Your child will be dealing with subtraction over the next few days. This will be done by means of games and using concrete materials. Your child needs to know the language of subtraction – How many?, What's the difference?, subtract, subtraction, take away, more, less, fewer, plus, minus, number sentence/story, count back/forward, estimate, etc.

Subtracting playing cards

This game can be played by 2–5 players. You will need a pack of playing cards. Ask your child to remove all the court (picture) cards. The ace can be used as 1 and the joker can be used as zero. Ask each player to pick 10 cards randomly and to place them face down on a table in front of them. The players are not allowed to look at the cards. Player A turns over the top two cards and subtracts the smaller number from the bigger number. For example, if Player A turns over an 8 and a 5, s/he takes 5 from 8 to get 3. Player B does the same. Whichever player shows the lowest number each round wins a cube or a coin. When all the cards are turned over, the player with the most cubes/coins is the winner.

Note: It cannot be emphasised enough that subtraction is a very difficult concept for many children to comprehend. When children are faced with a problem such as 26 – 4 = ?, many will simply add the two numbers. Another problem for children is trying to understand that the items that are subtracted actually come out of the main number (26) and the writing down of what has to be subtracted (4) sometimes causes confusion – some children say: 'Why is the 4 actually written down when we are supposed to take it away?' To try and eliminate this difficulty, you should focus on concrete materials until such time as your child is confident with the method. In the activities that follow, we will use a digit card to highlight what is being subtracted and get the children to physically take away what is to be subtracted.

Subtracting on the hundred square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Ask your child to make a hundred square. Call out various numbers, for example, 77. Your child must put a counter on 77 on the hundred square. Now ask your child to put a counter on the number that is 10 less than 77/20 more than 77, etc.

Subtracting a one-digit number from a two-digit number

Say to your child: *Let's subtract 3 from 69 on the hundred square.* Allow your child a little time to try this out on the hundred square. Ask him/her to talk about the strategy s/he uses to arrive at a solution. Your child may just count back 3 from 69, etc.

Subtracting a two-digit number from a two-digit number

Say to your child: *Let's subtract 24 from 76 on the hundred square.* S/he may just count back 24 from 76 or s/he might go down two tens on the hundred square and then count back 4, etc. Talk to your child about the different strategies that might be used to come up with a solution to the problem.

Let's subtract 1!

Pose a problem such as the following for your child: *I have 18c. I give 4c to my friend. How much have I left?* Make a digit card 4 by writing the numeral 4 on a piece of paper or on a Post-it note. We write the digit 4 to remind us of what we want to take away. Place 18c, or anything that you have to hand, on the table. Use one 10c coin and eight 1c coins. Ask your child: *How many cents are there? (Yes! 18.)* Now say: *I am now going to take away/subtract 4c.* Ask your child to place four 1c coins on the digit card and to physically remove the four cents from the set. Ask: *How many cents have I now? (Yes! 14.)* Ask your child to write down how many cents are left. Discuss the value of the digits. Ask: *What is the value of the 1? (Yes! 10.) What is the value of the 4? (Yes! Four units.)*

Extension work: Invite your child to solve other problems involving subtraction of a one-digit number from a two-digit number only.

Let's subtract 2!

Pose a problem such as the following for your child: *I had 37c. I bought an apple for 15c. How much had I left?* Make two digit cards out of pieces of paper or Post-it notes. Write 1 on one and 5 on the other. We write the digits 1 and 5 to remind us of what we want to take away. Complete this activity the same way as 'Let's subtract 1!' above.

3-D Shapes

Your child will be learning about 3-D shapes over the coming days. This will be done by means of games and activities using concrete materials. Your child needs to know the language of 3-D and 2-D shapes – shape, solid, cube, cuboid, cylinder, sphere, cone, square, rectangle, triangle, circle, faces, edges, corners, flat, curved, round, roll, slide, stack.

Note for parents

There is considerable international debate concerning corners, edges and faces of 3-D shapes.

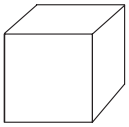
Corners: A corner is formed where two straight edges meet. This would mean that a cone does not have any corners. However, the word 'corner' is usually used when describing 2-D shapes. 'Vertex' is the more accurate term for describing a corner on a 3-D shape. The word 'vertex'/'vertices' will be used from Third Class onwards.

A cone has one vertex. With this in mind, for the purpose of this book, we set out that a cone does have one corner or vertex.

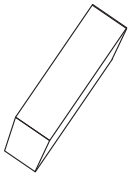
Faces and edges: Many people believe that faces and edges can only be flat, which would mean that a sphere has no face. In this book, we take it that a face/edge can be flat or curved meaning that a sphere has one curved face.

3-D shapes around us

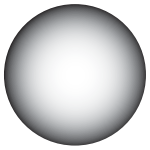
Collect or point out to your child some shapes around your home or when you are out shopping that come in the shape of a cube, cuboid, sphere, cylinder or cone. There is no need to buy any of the products. Some of the packets may be for sweets or other unhealthy goods, so this might be a good time to emphasise the value of healthy eating to your child.



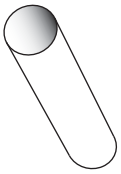
Cube: die/dice, Oxo cube, ice cubes, boxes, etc. A cube has six flat faces of equal size and eight corners.



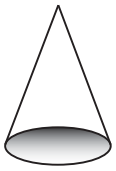
Cuboid: cereal packets, shoe boxes, pencil cases, books. A cuboid has six flat faces with the opposite faces of equal size. It has eight corners.



Sphere: footballs, tennis balls, basketballs, marbles, some lights/lamps, Moon, Sun and other planets. A sphere is round in shape. It has only one flat face and no corners.



Cylinder: tin of beans/peas/soup, Pringles/Smarties boxes, packets of mints, fire extinguishers. A cylinder has one round face and two, flat, circular ends.



Cone: ice-cream cones, traffic cones, clown's hat, funnel, Christmas tree, party hats, wrapped flowers, some salt and pepper shakers. A cone is like a funnel with a circular top. It has two faces. The bottom face is circular. It has only one edge. It has one sharp corner at the top.

Name the shape

Place the five shapes (cube, cuboid, cylinder, sphere and cone) on a table. Begin by reminding your child that 3-D shapes are solid. Unlike 2-D shapes, they can be held. Your child has learned about four of these shapes in previous classes but the cone is new to them. Ask your child questions, such as:

- *Can you name any of these shapes?*
- *Describe the shape (faces/edges/corners).*
- *Name another object that has this shape.*

Everyday shapes

Show your child familiar objects (or pictures of objects) that are shaped like cubes, cuboids, cylinders, spheres and cones. Ask him/her to sort the items by shape. Place each object against a sheet of paper. Trace around the object. When the object is removed, your child will clearly see the 2-D outline associated with the 3-D shape.

Activity 1: Will it roll?

Take a number of different objects that are to hand and ask your child if each object can/cannot roll, for example, take a ball, cup, book, tin of peas, cone shape, shoe box, cereal box, cylindrical packets. Ask some open-ended questions (questions that require more than a yes/no answer):

- *Why won't the tin of peas roll while upright?*
- *How might you make the tin of peas roll?*

Activity 2: Will it stack?

Take a number of different objects that are to hand and ask your child if each object can/cannot stack, for example, take balls, cups, books, tin of beans, Lego bricks, cubes, yogurt cartons, butter cartons, apples, books, paper, pencils. Place particular emphasis on the tins that will only stack when upright – try to elicit this information from your child.

Time – ½ and ¼ Hour

Your child will be learning about telling the time in one hour, half-hour (½), and quarter-hour (¼) intervals. This will be done by means of games, poems and activities using concrete materials. Your child needs to know the language of time – hour, half-hour, quarter-hour, past, quarter past/to, What time is it?, Always look at, It is ___ o'clock, before, after, early, earlier, late, later, long/short hand, one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, clock face, digital form, middle, earlier, later, etc.

Song: Clock Song

(*To the tune of 'The Wheels on the Bus'*)

The hands on the clock go round and round,
Round and round, round and round.
The hands on the clock go round and round
To tell us the time.
The short hand on the clock
Goes from number to number,
Number to number, number to number.
The short hand on the clock
Goes from number to number
To tell us the time.

Poem 1: The Clock Poem

I'm in the clock crew and I'm okay!
I tick all night and I tick all day.
I've got two hands, I'm having a ball,
Because I've got no arms at all!
My big hand can move sixty minutes in one hour,
I'm the one with the strength and power.
My small hand isn't quite as fast.
If they were in a race, it would come last!
It takes so long just to get around
(12 hours you know),
It's careful, small, and slow.

Poem 2: The Faces of the Clock

The Big Hand is busy
But the Small Hand has power.
The large one counts the minutes.
But the Little One names the hour.
When both Hands stand at the top together,
It's sure to be twelve o'clock. But whether
That's twelve at noon or twelve at night
Depends on if it's dark or light.

Telling the time in hours

For teaching/learning the time, it is best to use a real clock or watch. Hold up an old clock at an hourly time, for example, 8 o'clock. Explain to your child that there are two hands on the clock. When the long (big) hand points to 12, it tells the hour. So if the short (small) hand is at 8 and the big hand is pointing to 12, it is 8 o'clock.
Do this with all the numbers 1–12. Your child can mirror your actions on their own clocks or on handmade clock faces.

Telling the time in half-hours

Hold up a clock at a half-hourly time, for example, half past 5. Explain to your child that there are two hands on the clock. When the long (big) hand points to 6, it tells the half-hour. So if the short (small) hand is halfway between 5 and 6 and the big hand is pointing to 6, it is half past 5.
Do this with all the numbers 1–12. Your child can mirror your actions on their own clocks or on handmade clock faces.
Note: It is very important to emphasise that the hour hand must be shown half way between the 5 and the 6 to show half past 5.

Telling the time – quarter past/quarter to

Hold up a clock at a quarter-hourly time, for example, quarter past 9. Explain to your child that there are two hands on the clock. When the long (big) hand points to 3, it tells quarter past the hour. So if the short (small) hand is quarter way (a little way) between 9 and 10 and the big hand is pointing to 3, it is quarter past 9.
Do this with all the numbers 1–12, as above. You can deal with a quarter to the hour in the same way.

One hour earlier and later

Hold up a clock at an hourly time, for example, 8 o'clock. Your child can mirror your actions on their own clocks. Ask questions, such as:

- *What time is shown on this clock face?*
- *How many turns must the long hand make to get to the next hour? (Yes! One full turn.)*
- *What time will it be on the clock face in one hour from 8 o'clock? (Yes! 9 o'clock.)*
- *What time will it be on the clock face one hour before 8 o'clock? (Yes! 7 o'clock.)*

Do this with a number of times, using a different starting time in each instance.

Over the next few days and weeks your child will be learning about rotations and angles as well as counting in 2s, 3s, 4s, 5s, 6s and 10s. Your child needs to know the language associated with rotations and angles – turn, rotate, full/whole, half, quarter, straight lines, angle, corner, as well as that associated with counting in patterns – count, twos, threes, fours, fives, sixes, tens, skip, hop, pairs, add, plus, 2c, 4c, 5c, 10c, more, less, zero, rows of 10, 10s, units, take, odd, even, etc.

Rotations and Angles

Things that turn!

Ask your child to think of as many objects as s/he can that turn and to compile a list of these objects, for example, bottle lid, tap, door knob, Ferris wheel, wheel on a car, merry-go-round, spinning top.

Role-play: Army turns!

Ask your child to stand up and to face towards you. Tell him/her that you are going to play the role of an army drill sergeant and that s/he will be the soldier. The soldier must follow the instructions called out by the drill sergeant (you):

- *Make a quarter turn (always to the right/clockwise).*
- *Make a half turn.*
- *Make a full turn.*

Check that your child is facing in the correct direction after each instruction. Always return your child to the forward facing position before giving the next instruction!

Variation: Ask your child to be the drill sergeant.

Making angles

Explain to your child that an angle is made when two straight lines meet. Give your child a scissors or two lollipop sticks (or something similar). Ask him/her to make big and small angles with the two lollipop sticks or by opening the scissors. Ask your child to make an angle that is 'bigger/smaller than' a particular angle.

Right angles

Explain to your child that a ¼ turn is a right angle. Invite your child to explore how s/he can make right angles with his/her body, for example:

- *Bending his/her arm at the elbow*
- *Bending his/her leg at the knee*
- *Sitting on the floor with his/her legs out straight (legs and back at right angles)*

Count in 2s, 3s, 4s, 5s, 6s and 10s

Listen and count

Drop some 2c coins into a tin. Ask your child to count silently in 2s in his/her head. For example, drop six 2c coins into a tin. Ask your child to listen and to count in 2s as each coin is dropped into the tin. Invite your child to say what number s/he is at. In this example, your child should be at the number 12 in his/her head.

Variation 1: Try similar activities counting in 3s/4s/5s/6s and 10s.

Variation 2: To practise counting in 4s, ask your child to count the number of legs on the chairs/tables/dog/cat, etc.

Variation 3: To practise counting in 3s, ask your child to count the number of wheels on pictures of tricycles. You could also put sets of three coins on plates and ask him/her to count them.

Variation 4: To practise counting in 6s, collect some egg boxes and ask your child to count the number of eggs needed to fill them.

Money! Money!

Collect a number of 2c, 5c and 10c coins. Remember that children learn more quickly when using real coins. Start with the 2c coins. Ask your child to place the coins on a table and to count them. Your child could also count them while handing the coins to you or while placing them in a bag.

Taking turns

Ask your child to take turns with you when counting in 2s, 3s, 4s, 5s, 6s and 10s from 0 to 50. You can start by saying 0 (zero). Your child says 2, you say 4, and so on up to 20/30/40/50. Tell your child that you will repeat the activity but that this time you will start at 20/50 and count back to zero.

Detective work!

Ask your child to find things that come in 3s, 4s, etc. S/he can research this on the internet or draw/photograph some items from the environment, for example, tricycles, triangles, triplets, Three Blind Mice, Three Billy Goats Gruff, wheels on vehicles, legs on dogs, seasons, sides on squares/rectangles, etc.

Money – Coins to €2

Your child will be dealing with coins up to and including the €2 coin over the coming days. This will be done by means of games and activities using play money or real coins. Your child needs to know the mathematical language associated with money – dear, expensive, cheap, cheaper, Which is cheaper?, How many?, count, purse, piggy bank, shop, money, euro, €1, €2, coins, equal, the same amount as, blank, least number, amounts, different ways, bought, cost, more, cent, How much change?, I had, spent, left, between, items, etc.

Target money numbers

Give your child a selection of real/play/cardboard 1c, 2c, 5c, 10c, 20c, 50c, €1 and €2 coins. Pick a target number and write it on a Post-it note or a piece of paper, for example, €1.48. Ask your child to make this target amount using the least number of coins possible. Encourage your child to make the target number by starting with the biggest possible coins and working down to the smaller coins, for example:

€1.48 = €1 + 20c + 20c + 5c + 2c + 1c
€1.36 = €1 + 20c + 10c + 5c + 1c
€1.39 = €1 + 20c + 10c + 5c + 2c + 2c
€1.64 = €1 + 50c + 10c + 2c+ 2c
€1.76 = €1 + 50c + 20c + 5c + 1c
€1.87 = €1+ 50c + 20c + 10c + 5c + 2c
€1.95 = €1 + 50c + 20c + 20c + 5c
€1.99 = €1 + 50c + 20c + 20c + 5c + 2c + 2c

Price tags

Ask your child to make some price tags for items with prices up to €1.50 only. Put the price tags on a range of items you have in your home – cereals, lunchbox, schoolbag, oranges, peas, carrots, bananas, etc. Give your child some real coins from 1c to €1. Ask some or all of the questions below. There will be a number of answers for some questions, which should lead to discussion.

- *Which item is the dearest/most expensive?*
- *Which item is the cheapest/least expensive?*
- *Which items are the same price?*
- *How much dearer is the orange than the peas?*
- *How much cheaper is the cereal than the carrots?*
- *Which three items together cost the same as the pencil?*
- *Which two items together cost the same as the schoolbag?*

Invite your child to act as the shopkeeper and you can be the shopper. Have him/her add the totals of the purchases and give you the correct change. Reverse the roles.

Making €2

Explain to your child that you want him/her to use coins to make €2 in a variety of ways. When your child has made €2, ask him/her to record the coins s/he used. Now ask him/her to make €2 using a different combination of coins. Encourage your child to discover as many combinations of coins that make €2 as possible.

€2 = €1 + 20c + 20c + 20c + 20c + 20c
€2 = €1 + 50c + 50c
€2 = €1 + 50c + 20c + 20c + 10c
€2 = €1 + 50c + 10c + 10c + 10c + 10c + 10c
€2 = €1 + 50c + 20c + 20c + 5c + 5c
€2 = €1 + 50c + 20c + 10c + 10c + 5c + 5c
€2 = €1 + 20c + 20c + 20c + 20c + 10c + 5c + 5c

Let's go shopping!

When you bring your child shopping with you, encourage him/her to read the prices on the various items. Try to get him/her to identify the € symbol and the decimal point. Your child will not understand decimals at this stage as they will be introduced in Third Class. However, you can explain that the dot (decimal point) separates the euro from the cent.

Show your child two different price tags in the shop, for example, €1.72 and €1.36 (don't go beyond €1.99 at this stage). Ask him/her to decide which item is dearer/cheaper. Use language such as: *Which of these two items is dearer/cheaper? Which costs more/less – the tomatoes or the turnips? How much dearer/cheaper is brown bread than the white bread? How much dearer are the pears than the bananas?*

If the bananas cost €0.54, you could ask: *If I buy these bananas, what change will I get from €1. If I buy these bananas, what change will I get from €2?*

When paying for your shopping, ask your child to help you count out the money to pay or ask him/her to count the change for you.

Subtraction – With Renaming

Over the next few days and weeks your child will be learning about subtraction where a 10 will need to be exchanged/swapped for 10 single units before subtraction can take place. Your child needs to know the language of subtraction – How many?, What's the difference?, tens, units, rename, break, subtract, subtraction, take away, more, less, fewer, count, minus, number sentence/story, count back/forward, subtraction house, short way, estimate, exchange, swap, etc.

Subtracting playing cards

This game can be played by 2–5 players. You will need a pack of playing cards. Ask your child to remove all the court (picture) cards. The ace can be used as 1 and the joker can be used as zero. Ask each player to pick 10 cards randomly and to place them face down on a table in front of them. The players are not allowed to look at the cards. Player A turns over the top two cards and subtracts the smaller number from the bigger number. For example, if Player A turns over a 9 and a 4, s/he takes 4 from 9 to get 5. Player B does the same. Whichever player shows the lowest number each round wins a cube or a coin. When all the cards are turned over, the player with the most cubes/coins is the winner.

Subtracting on the hundred square

Ask your child to make a hundred square. Call out various numbers, for example, 59. Your child must put a counter on 59 on the hundred square. Now ask your child to put a counter on the number that is 20 more than 59/ the number that is between 87 and 89/ the number that is 20 less than 75/the number that is 30 less than 73, etc.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Let's subtract 1!

Pose a problem such as the following for your child: *I had 24c. I spent 9c. How much have I left?* Make a digit card 9 by writing the numeral 9 on a piece of paper or on a Post-it note. We write the digit 9 to remind us of what we want to take away. Place 24c, or anything that you have to hand, on the table. Use two 10c coins and four 1c coins. Ask your child: *How many cents are there? (Yes! 24.)* Now say: *I am now going to take away/subtract 9c from the 24c.* Ask your child to place the 9c on the digit card. It will become obvious to your child that s/he can't remove 9c. Ask your child: *What should I do?* S/he might say: *You must exchange/swap a 10c coin for 10 single 1c coins.* Now ask: *How many 1c coins have I now?* (There are fourteen 1c coins.) Ask: *Can I now take the 9c away?* Ask your child to physically remove the 9c from the set and ask: *How many single cents have I now? (Yes! Five.) How many cents have I now left altogether? (Yes! 15.)* Ask your child to write down how many cents are left. Do similar type problems with your child where s/he must swap a 10c coin for 10 single 1c coins.

Let's subtract 2!

Pose a problem such as the following for your child: *I had 32c. I bought a pencil for 18c. How much had I left?* Make two digit cards out of pieces of paper or Post-it notes. Write 1 on one and 8 on the other. We write the digits 1 and 8 to remind us of what we want to take away. Place 32c (three 10c coins and two 1c coins) on a table. Ask your child: *How many cents are there? (Yes! 32.)* Say: *I am now going to take away/subtract 18 cents.* Ask your child to place 8c on the digit card 8. It will become obvious to your child that s/he can't remove 8c. Ask your child: *What should I do?* S/he might say: *You must exchange/swap a 10c coin for 10 single 1c coins.* Now ask: *How many 1c coins have I now?* (There are 10c + 2c = 12c.) Ask: *Can I now take the 8c away?* Ask your child to physically remove the 8c from the set and ask: *How many single cents have I now? (Yes! Four.) Can I take a 10c coin away? (Yes! I can.)* Ask your child to physically remove the 10c coin from the set and ask: *How many cents have I now left altogether? (Yes! 14.)*
Discuss the value of the digits in the coins that are left. Ask: *What is the value of the 1? (Yes! 10.) What is the value of the 4? (Yes! Four units.)* Do similar type problems with your child where s/he must swap a 10c coin for 10 single 1c coins.

Capacity – Measuring

Your child will be learning about capacity (the measure of the amount of liquid/sand/rice, etc. that different containers can hold) over the coming days. Your child needs to know the language of capacity – container, most, least, more/less than, about, full, estimate, measure, litre, same amount, holds, half/quarter-litre, jug, glass, carton, bowl, pot, lunchbox, vegetable soup, olive oil, teapot, cup, egg cup, cartons, smoothie, ladle, tomato sauce, shampoo, apple juice, etc.

Selection of containers

Gather a selection of containers that are commonly used in the home, for example, spoon, egg cup, glass, cup, bowl, mug, milk/juice carton, bottle, yoghurt carton, saucepan, pot, jug, bucket, lunchbox, etc.
Ask your child to name other containers that hold water/liquid, for example, sink, paddling pool, bath, swimming pool, barrel, plastic cup, etc. Ask your child to arrange the containers from that which s/he think holds the least to that which s/he thinks holds the most. Only use five/six containers at any one time. Encourage lots of discussion with your child.
Once your child's estimate is complete, get him/her to check it. Begin with the container that your child thinks holds the least. Fill it with water/liquid/sand/marbles/rice/pasta shells, etc. Pour its contents into the container that comes next in the row. If there is space left in the second container, s/he has proved that it holds more than the first container. Continue testing each of the containers in the same manner. If there is any disagreement/debate with your child as to which container holds more/less, put it to the test! Fill the two containers in question with water/sand/pasta shells and empty each into a larger container. See which filling takes up more space in the new container.

Get measuring!

You will need two containers of considerably different capacities, for example, a spoon and a cup, as well as a basin of water/sand/pasta shells/rice, etc. Ask your child to estimate how many spoonfuls of water will fill the cup. Measure how many spoonfuls of water fill the cup. Encourage your child to compare his/her estimate with the result. Invite your child to find the difference between the answer and the estimate by subtraction. Repeat this activity with different pairs of containers, for example, an egg cup and bowl/a bowl and saucepan/a cup and teapot/a teapot and bucket/a glass and basin/a cup and milk carton.

1-litre containers

Gather a selection of 1-litre containers to show your child that litre units come in a variety of shapes, for example, milk cartons, milk bottles, ice-cream tubs, bottles of soft drinks, water bottles, juice cartons, paint tubs, bottles of cooking oil. Ask your child to make a list of items that can be bought in 1-litre containers.

Greater than, less than or equal to a litre

You will need a 1-litre measure (e.g. a jug) and a selection of containers of different shapes and sizes (e.g. soup carton, juice carton, mug, cup, egg cup, ladle, saucepan, vase, jug, teapot, glass, lunchbox). You will also need water (sand, rice or pasta shells will also do) for measuring. Focus on one container at a time. Ask your child to estimate whether the container holds more than a litre, about a litre or less than a litre.
The best way for your child to learn about capacity is to allow him/her to physically carry out these experiments, so allow your child to fill the container with water. Pour the water from the container into the 1-litre jug to prove if his/her estimate is correct.

½ litre or ¼ litre?

For this activity, you will need two 1-litre jugs and a selection of containers that hold less than 1 litre (e.g. glass, bowl, cup, ladle, plate, spoon, egg cup, yoghurt carton, tubs). On the first 1-litre jug, clearly mark the ½-litre and 1-litre marks. Show your child the ½-litre mark. (You can mention that s/he will often see 500ml here.) Encourage your child to name containers that might hold about ½ litre. Focus his/her attention on the array of containers. Ask your child to estimate whether the containers hold more than, less than or about
½ litre.
Check the estimates. Fill each container with water and then pour the water into the 1-litre jug that has the ½ -litre marking clearly visible on it.

Repeat the above activity to examine the ¼ litre in a similar way.

Over the next few days and weeks your child will be learning about surface area. S/he needs to know the language associated with surface area – area, surface, squares, shapes, estimate, measure, maths book, table, stamps, playing cards, tiler, carpet tiles, room, kennel, patio, shed, lawn, flowerbed, etc.

Measuring a playing card

Give your child some coins and a playing card. Ask your child to estimate and then measure how many coins will be needed to cover the surface area of the card. It doesn't matter that the coins will leave slight gaps in the measurement.

Note: Your child may not need an exact amount of coins. Encourage him/her to always round up if part of a coin is required in the measurement.

Extension 1: Try measuring the card with different denominations of coins. Ask your child to discuss how many more/fewer 20c coins were needed to cover the playing card than 10c coins. Ask your child to give reasons to explain his/her answer.

Extension 2: Now give your child some stamps/cubes/counters, etc. and ask him/her to carry out the exercise again.

Measuring a book

Give your child a pack of playing cards. Ask him/her to measure how many cards are needed to cover the surface area of a maths book/English book/an A4 sheet. Encourage your child to round up if part of a card is required in the measurement.

Measuring a table

Give your child some birthday or Christmas cards. Ask him/her to estimate and measure the surface area of the kitchen table using the birthday or Christmas cards. Ask your child to record his/her estimate and measure on a sheet of paper.

Now ask your child to estimate and measure how many playing cards will be needed to cover the surface of the same table.

Extension: Ask your child to talk about how many more/fewer playing cards or birthday and Christmas cards were needed to cover the table. Ask your child which of the three types of card were best to cover the table and to explain why. For example: *The Christmas cards were best because I had more of them. The birthday cards were best because they were bigger and so I needed to use fewer of them. The playing cards were much better because they were all the same size and so I got a more accurate measurement.*

Measuring at home

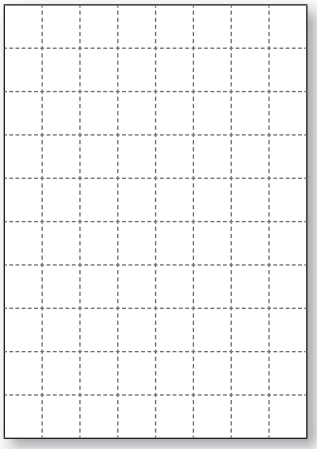
Give your child some A4 sheets of paper. Ask him/her to measure the surface area of a mat in the house using the sheets of paper.

Extension 1: Ask your child to measure the surface area of his/her bed using the A4 sheets of paper.

Extension 2: Ask your child to measure the surface area of the kitchen/bedroom/garage/bathroom/shower floor using the A4 sheets of paper.

Measuring with small squares

Ask your child to divide an A4 sheet of paper (any paper will do) into small squares of equal area – 30cm x 21cm would be about right. Your child does not need to know about square centimetres at this stage. S/he only needs to deal in small squares to help him/her grasp the concept of surface area. Ask your child to cut up the A4 sheet into the small squares. This will also help his/her hand/eye coordination. Advise your child to be careful when using a scissors. It would be beneficial if you did some of the cutting at the beginning as an example.



A4 sheet of paper

When all the squares are cut out, ask your child to estimate and measure the surface area of a playing card.

Extension: Do a similar activity to find the surface area of a birthday card/Christmas card/small kitchen tile/carpet tile/bathroom tile, etc. This is good preparatory work for finding surface area in square centimetres, which your child will do in Third and Fourth class.

Two-step Problem-solving

Over the next few days and weeks your child will be learning about two-step problem-solving. Your child needs to know the language associated with two-step problem-solving – How many?, What's the difference?, tens, units, break, subtract, subtraction, take away, more, less, fewer, minus, number sentence/story, count back/forward, short way, another method/way, complete, estimate, Do I add or do I subtract?, Do I need to rename or regroup?, etc.

Note: Two-step problem-solving usually involves the use of brackets, for example, (7 + 8) – 5 = 10. The brackets tell us to do the operation that is inside them first. That means we add the 7 and 8 to get 15 and then we take away the 5.

Two-step problems on the hundred square

Ask your child to make a hundred square, as done in earlier exercises on addition and subtraction. Give him/her a counter, cube or coin. Call out any number that is on the hundred square. Start with simple numbers that are within ten, for example say: *Place your counter on the number 6. Now add 3 to that number/count on 3. Where will you land? (Yes! 9.) Now take away 4 from that number/count back 4 on the hundred square. Where will you land? (Yes! 5.)* Now ask your child to make a number story for that activity, for example: *I had six eggs. I got three more from the fridge. I used four eggs to make a cake. How many eggs had I left? (Yes! Five.)*

Extension: Ask your child to make a number sentence for the number story, i.e. (6 + 3) – 4 = 5. This should help your child to understand the value of brackets.

Bigger numbers

You can now build up to more difficult problems.

For example, ask your child to place the counter on 30 on the hundred square. Say: *Move forward 20 and come back 10. Where are you now?*

Now ask your child to make a number story for that activity, for example, *I had 30 marbles. I won 20 more in a game. I then lost 10 in the field. How many marbles had I left? (Yes! 40.)* or *I had 30c. My friend gave me 20c. I gave 10c to my little sister. How much had I then? (Yes! 40.)*

Ask your child to make a number sentence for the number story, i.e. (30 + 20) – 10 = 40.

You should only advance to the more difficult problems when your child is comfortable doing two-step problems within 10/20/30, etc.

For example, say: *Place your counter on the number 26. Now add 13 to that number/count on 13. Where will you land? (Yes! 39.) Now take away 24 from that number/count back 24 on the hundred square. Where will you land? (Yes! 15.)*

Now ask your child to make a number story for that activity, for example, *I had 26c. I got 13c more from my dad. I bought a pencil for 24c in the shop. How much money had I left? (Yes! 15c.)* Ask your child to make a number sentence for the number story, i.e. (26 + 13) – 24 = 15.

The ladder

Give your child a counter and ask him/her to draw a ladder as in the picture below.

Call out a number, for example, 5. Your child should place his/her counter on rung 5 on the ladder. Now ask your child to go up 8 rungs and to then come down 5 rungs. Now ask your child: *Where are you on the ladder now?* Do this with a number of two-step problems within 25.

Here are samples:

- *Place your counter on rung 6.*
  Go up 7 rungs and then come down 3 rungs.
- *Place your counter on rung 2.*
  Go up 8 rungs and then come down 5 rungs.
- *Place your counter on rung 9.*
  Go up 5 rungs and then come down 6 rungs.
- *Place your counter on rung 7.*
  Go up 9 rungs and then come down 4 rungs.
- *Place your counter on rung 8.*
  Go up 10 rungs and then come down 2 rungs.

The tin box

Get a tin box/cup/mug, or anything that is to hand. Give your child some counters/cubes/coins, etc. Give him/her a simple word problem, for example: *I placed eight coins in the box. I then took out five. Later, I put in nine. How many coins are in the box now?* Ask your child to make up the number sentence for the number story: (8 – 5) + 9 = ?

Ask him/her to place eight coins in the box. Now ask him/her to take out five. Ask: *How many coins are in the box now?* Proceed by asking your child to put nine coins in the box and ask: *How many coins are in the box now? How did you get the answer? (Yes! 3 + 9 = 12.)*

Practice this exercise with other simple word problems.