Your child will be revising work done in 2nd Class.

Adding/subtracting to 100

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

hundred square

Make a hundred square with your child as shown here. Ask your child to put counters/cubes/coins or anything that you have to hand on any number from 1–99 on the hundred square, e.g. 85, 42, 69, etc.
Now, ask him/her to put counters on the number that is 10 more/10 less/20 more/20 less than the number.

Extension 1: Ask your child to put a counter on a specific number, incorporating place value and extended numbers, e.g. *Place your counter on the number that has 5 tens and 3 units. Place your counter on the number that has 7 tens and 0 units.*

Extension 2: Do some addition sums using the hundred square as an aid, e.g. *Let's add 34 + 25 on the hundred square*. Allow your child a little time to try using different strategies to arrive at a solution. S/He may just count on 25 from 34. S/He may see 25 as 2 tens and 5 units and therefore jump 2 tens and then move on 5 units on the hundred square.
The hundred square can also be used for doing subtraction sums in a similar way.

3-D shapes

Ask your child to find something in the shape of a cone (funnel, ice cream/traffic cone), sphere (ball), cylinder (tin of beans), cube (Oxo/ice cube, dice) or cuboid (shoebox, cereal box) around the house/local environment. Talk to him/her about the number of faces, vertices (corners) or edges that are on each shape.

2-D shapes

It must be emphasised that 2-D shapes cannot be held. They are only pictures/symbols because they do not have any depth. Encourage your child to make 2-D shapes by drawing around a 3-D shape. For example, place a cube on an A4 sheet of paper and ask your child to draw around the shape to make a square.
Ask your child to find something in the shape of a square, rectangle, triangle, circle, semi-circle or oval around the house or local environment.

Money

Game 1: Shop

Ask your child to help you to make a play shop in a section of a room. Collect a number of easily-sourced items. Use sticky notes or pieces of paper as price tags. Place the price tags on/under the items. No item should cost more than €1. Ask your child to make up some questions.

Examples:

- *How much do the beans cost?*
- *Which is dearer/more expensive: the apple or the tin of peas?*
- *I have €1. Do I have enough money to buy the packet of cereal?*
- *What is the total cost of the beans, ball and cereal?*
- *What is the total cost of the lunchbox, apple and peas?*

Game 2: Coins up to €2

Ask your child to empty his/her piggy bank (if s/he has one) of coins. Ask him/her to count the value of the coins and to arrange the money into euro and cent.

Fractions

Give your child an A4 sheet of paper and cubes. Ask him/her to fold the sheet in half. Show him/her that we can find half of a number by sharing the cubes equally, e.g. Find ½ of 16.
First, ask your child to count out 16 cubes. Next, 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?*

You can do the same activity with quarters by folding the sheet twice.

Extension: Ask your child to count out the value of coins of any even number up to 20c. Then, ask him/her to find half or quarter of these amounts, e.g.
Find ½ of 12, ¼ of 20,½ of 18, ¼ of 8, ½ of 14, ¼ of 12, etc.

Regrouping units as tens

Your child will be learning about place value involving hundreds, tens and units to 999 over the coming days. S/He needs to become familiar with the mathematical language associated with place value, such as: together, total, bundles of 10/20, hundred square, abacus, notation board, numbers 0–999, row, column, vertically, horizontally, diagonally, counting on, hundreds, tens and units house, change, stay the same, estimate, value, more, less, swap, regroup, digit.

Warm-up activity: Shoulders and knees

Ask your child to count with you in hundreds from different starting points between 0 and 999.
Examples: Start counting in hundreds from 0, 240, 300, 367, etc. As you both say each count, alternate from touching your shoulders to touching your knees.
For example: *130* (touch shoulders), *230* (touch knees), *330* (touch shoulders), *430* (touch knees), etc.

Making bundles/groups of 10 using money

Give your child a collection of coins that are only partly grouped in tens, e.g. four 10c coins and sixteen 1c coins. Invite your child to count the coins. S/He may use different strategies to arrive at 56c. Do this with other values, e.g. 22 + 14, 32 + 16, etc. Discuss the various strategies with him/her and then decide on the best one.

Use of the environment

Ask your child to find items that are sold in hundreds. Allow them to discover that there are 100 cent in a euro and 100 years in a century.
Invite your child to look at his/her schoolbooks or library books to see what is on the 100th page. Invite your child to order books from least number of pages to greatest number of pages and vice versa.

Making numbers 0–999

Invite your child to make the number 248 using coins. It is possible that your child may represent 248 as 24 x 10c coins (tens) and 8 x 1c coins (units), or s/he may represent it as 23 tens and 18 units, etc. Do this with a variety of numbers.

Dice lotto

For this game, you will need three dice, a pen and paper. It would be ideal if they were nine-sided dice, but the conventional six-sided type will suffice.

- Write each player's name on the paper that will be used as the score sheet.
- Roll the dice and make the largest number possible. For example, if you roll a 2, 6 and 5, the largest number you can make is 652.
- Next, invite your child to take a turn.
- The player who makes the largest number wins a point, which is recorded next to his/her name on the score sheet.
- Continue playing until one of you wins 5/10/15 points.

Extension: Instead of making the largest number possible, you should both try to make the smallest number possible and hence win a point for making the smallest number.

Playing cards lottery

This game can be played in pairs or groups of three. You will need a deck of cards, pen and paper as a score sheet. Remove the court (picture) cards from the deck and explain to your child that an ace card equals 1. Give each player 12 cards. The players are not allowed look at the cards. Each player should take the top three cards from his/her pile and turn them face-up on the table. S/He should arrange the three cards to make the biggest number possible. For example, if Player A turns over a 3, 8 and 1 (ace), the biggest number that s/he can make is 831. The player showing the largest number in each round wins a point. Play continues until all of the cards have been turned over and compared. The player with the highest number of points at the end of the game is the winner.

Finger numbers

Write a three-digit number on a sheet of paper, e.g. 234. Ask your child to hold up the correct number of fingers to show the hundreds, tens and units.
Call out: *Hundreds*. Your child should hold up two fingers. Call out: *Tens*. Your child should hold up three fingers. Call out: *Units*. Your child should hold up four fingers. Do this with a few different numbers, including numbers that have zero tens or units.

Rounding and problem-solving

Your child will be exploring big numbers to 999, while also learning the mental strategy of rounding to the nearest ten or hundred. Your child will need to know the language associated with these topics, such as: round up/down, to the nearest ten, nearest hundred, nearer, not as near, closer, farther away, bigger, add, smaller.

Game: Clap, tap

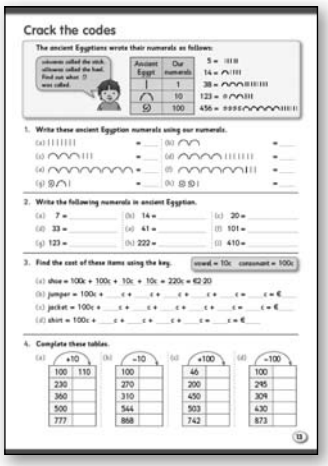
Ask your child to count in hundreds from different starting points between 0 and 999. Example: *Start counting in hundreds from 0/300/240/367*, etc. As your child says each count, s/he should alternate from clapping his/her hands to tapping his/her feet. For example: *130* (clap hands), *230* (tap feet), *330* (clap hands), *430* (tap feet), etc.
Variation: Ask your child to count backwards from different starting numbers as done above.

Calculator fun

Ask your child to enter 10 + into a calculator. If s/he keeps pressing the equals sign, the display on the calculator will count up in tens.
Variation 1: Enter any number, e.g. 76. Ask your child to enter +10 into the calculator. If s/he keeps pressing the equals sign, the display on the calculator will count up in tens, e.g. 86, 96, 106, etc. Next, ask your child to enter 100 + into the calculator. If s/he keeps pressing the equals sign, the display on the calculator will count up in hundreds.
Variation 2: Ask your child to press 990 – 10 on the calculator. If s/he continues pressing = = =, the calculator will display counting back in tens from 990 down to zero.
Variation 3: Ask your child to press 990 – 100 on the calculator. If s/he continues pressing = = =, the calculator will display counting back in hundreds from 990.

Ancient Egyptian numerals

Introduce your child to the symbols that the Ancient Egyptians used as numbers on **page 13** of *Busy at Maths 3*.


Crack the codes

page 13

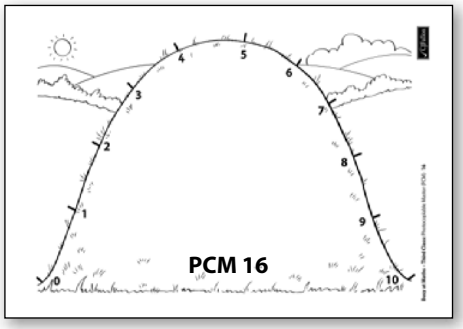
Teach your child the names: 1 – stick or stroke, 10 – heel (as in a heel bone), 100 – coil (as in a coil of rope).
Display various numbers from 1–999 (e.g. 347) in the Ancient Egyptian style and invite your child to work out what number from our system they represent.
Next, display a number from our number system and invite your child to write it in the Ancient Egyptian style.

Rounding definition

To round numbers means to change the numbers to the nearest ten or hundred so as to make them easier to work with mentally.

Rounding rhyme:
1 to 4 – stay on the floor!
5 to 9 – climb the vine!

Roll up, roll down



PCM 16

Draw a picture of a hill and insert numbers as it is done on **PCM 16**. Place a toy car at number 3 on the hill. Ask questions, such as: *If the car stopped working now, would it roll up or down the hill? It would roll down to 0.* (Hence, we round number 3 down to 0.)
If the car were to stop at number 8, what would it happen? It would roll down to 10. (Hence, we round 8 up to 10 and so on.)

Rounding on a number line

Make a number line showing 0–30. Put a counter on number 24 and ask your child to decide if we should round up to 30 or down to 20.
Make a rough number line showing 100–200. Place a counter on different numbers, e.g. 246, 250, 287. Ask your child to round each number to the nearest hundred. It is important that your child knows that 150 is halfway between 100 and 200 and that it rounds up to 200.
Your child could also round these numbers to the nearest ten.

Adding hundreds, tens and units

Your child will be learning to add hundreds, tens and units over the coming days. Your child will need to know the language of addition, such as: add, altogether, plus, total, bundles of 10/20, numbers 0–999, row, column, vertically, horizontally, and, counting on, hundreds, tens and units, hundreds house, tens house, units house, change, stay the same, estimate, round up, round down, addition house, base 10 materials (e.g. cubes, straws, lollipop sticks), money, value, more, less, swap, regroup, digit, total cost, total amount, spend.

Adding dice game

This game can be played by two to four players. You will need three dice, a pencil, a sheet of paper with two to four columns – one to record the totals for each player. Player A rolls the three dice and adds the total. For example, if Player A throws a 4, 6 and 5, the total of 15 should be written under Player A's name. The players take turns and play continues until a player reaches a target number of 60/70/80/100/200 to win.

Variation: This game can also be played using a deck of playing cards. Remove all of the court (picture) cards, leaving only the cards from 1 (ace) to 10.

Mental strategy

An example of a mental strategy is outlined on page 20 of *Busy at Maths 3*. Ask the following question: *Sam collected 135 chestnuts, Tina collected 241 and Ciara collected 313. How many chestnuts did they collect altogether?* Ask your child how s/he might go about solving the problem.

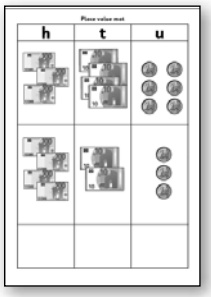
135 + 241 + 313 = ☆

The following is one way to solve it:
(**Note:** You may wish to invite your child to colour in the hundreds in blue, tens in red and units in green at the outset.)

- **Step 1:** Add the units. 5 + 1 + 3 = 9
- **Step 2:** Add the tens. 30 + 40 + 10 = 80
- **Step 3:** Add the hundreds. 100 + 200 + 300 = 600
- **Step 4:** Add the answers. 9 + 80 + 600 = 689

Place value mat

Give your child an A4 sheet of paper. Ask him/her to divide this into three columns and to write the letters 'h' (representing hundreds), 't' (representing tens) and 'u' (representing units) as shown. You can use Monopoly money or make your own notes and coins using Post-it notes for this activity.



Place value mat

Invite your child to represent the number 346 on the mat, followed by the number 423 (underneath). Explain that a long time ago, people came up with the idea that one should start by adding the units first.

- **Step 1:** Add the units (€1 coins).
- **Step 2:** Add the tens (€10 notes).
- **Step 3:** Add the hundreds (€100 notes).

Invite your child to solve 346 + 423 = ? on his/her own by physically adding the €1 coins, then the €10 notes, and, finally, the €100 notes. Your child should now be ready to write the sum and carry out the addition as shown below:

	h	t	u
	3	4	6
+	4	2	3
	7	6	9

Let's regroup!

Display 3 hundreds, 2 tens and 9 units using money (as above). Ask questions, such as the following:

- *How much is there? (€329)*
- *I am now going to add 3 hundreds, 2 tens and 5 units. How many have I now? First, we add the units (€1) together. 9 + 5 = 14 units*
- *We know that we can't have more than 9 units in the units place, so we must regroup. What can we swap 14 units for? 1 ten and 4 units. The ten goes with its friends in the tens place.*
- *How many units have we now? (4)*
- *How many tens have we now? (2 + 2 + 1 = 5)*
- *How many hundreds have we now? (3 + 3 = 6)*

Discuss the value of the digits:

- *What is the value of the 4? (4 units or 4)*
- *What is the value of the 5? (5 tens or 50)*
- *What is the value of the 6? (6 hundreds or 60)*

Extension: You can now show your child how to regroup tens as hundreds by asking a question such as: *I have €274. I won €183 in a raffle. How much have I now?* Ask your child to regroup the 15 tens as 1 hundred and 5 tens and complete as you did with the other questions.

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, but a new shape – the hexagon – will be introduced to your child. Your child will also deal with the difference between regular and irregular shapes. Your child needs to know the mathematical language associated with 2-D shapes, such as: shape, regular, irregular, straight, sides, angles, same, symmetry, lines of symmetry, hexagon, greater, less, pairs, parallel, length, square, rectangle, circle, semi-circle, oval, triangle, hexagon, four-sided shape, half, pattern, tessellation, tessellates, gaps, spaces.

2-D shapes around us

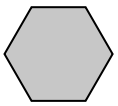
Collect or point out to your child some shapes around the house or in the local environment that come in the following shapes: square, rectangle, triangle, circle, semi–circle, oval. Emphasise that we are only looking for the shape 'at the front' – not the 3-D shape. A rugby ball is a 3-D shape, but for this exercise, we are only interested in the 2-D shape – oval (as though its outline has been drawn on a sheet of paper).

Notes for parents

- 2-D shapes cannot be held. They are only pictures/ symbols. Once you cut out a picture of a 2-D shape, essentially it becomes a 3-D shape.
- Corners are formed where two straight lines meet. Therefore, a semi-circle and an oval do not have corners.
- Regular shapes…
    - Have straight sides.
    - Have sides that are all of equal length.
    - Have angles that are all of equal size.
    - Are symmetrical.

There is considerable international debate as to what constitutes a **regular** or **irregular** shape. It is generally accepted that the criteria mentioned above is correct. This means that circles and rectangles are classified as irregular shapes. A rectangle is classified as irregular because its sides are not all of equal length. A circle is classified as an irregular shape because it doesn't have straight sides.

The hexagon



Ask your child to cut out a regular hexagon and then measure the length of each side. (They are all the same length.) Ask your child to measure each angle with a paper right-angle measure. (Each angle is greater than a right angle). Ask your child to fold the hexagon to determine if it is symmetrical.

Extension: Ask your child to find as many lines of symmetry as possible in the hexagon. (There are six lines of symmetry.) Fold the hexagon to determine if it has parallel lines. (There are three pairs of parallel lines.)

Hexagons in the environment

Ask your child to find items in the environment that are in the shape of a hexagon, e.g. floor tiles, garden tiles/ slabs, cells in a beehive, some wrenches and tops of screws, pencils, some table tops, swimming pools, goal nets.

Exploring and sorting shapes

Show your child various familiar objects around the house/locality that have 2-D outlines and 3-D shapes e.g. circle – an orange, a football, a clock, a paper plate, etc. Place each object against a sheet of paper. Trace around the object. When the object is removed, your child should clearly see the 2-D outline from the 3-D shape. Discuss the different shapes.
Ask questions such as:

- *What shape is this? How many sides/corners/angles does this shape have?*
- *Are the sides straight or curved?*
- *Show me a shape that has a right angle.*
- *Show me a shape that has parallel lines.*
- *Show me a shape that has no angles.*
- *Can this shape slide?*

Making shapes

Give your child some materials such as headless matchsticks, lollipop sticks, straws or pipe cleaners. Ask him/her to make different 2-D shapes using these materials. Encourage your child to make both regular and irregular shapes, e.g. *Let's try making a square/an irregular four-sided shape/a regular six-sided shape*.
It might be a good idea to focus on a specific shape at a time, so that your child can compare his/her results.

Over the next few days/weeks, your child will be learning about subtraction where one ten needs to be renamed as 10 units and a hundred needs to be renamed as 10 tens before subtraction can take place. Your child needs to know the language of subtraction, such as: How many?, What's the difference?, biggest, smaller, compare, take, number sentence, vertically, horizontally, hundreds, tens, units, subtract, subtraction, take away, estimate, round up, round down, nearest hundred, column, value of the digits, renaming, rename/swap/exchange, opposite, subtraction house.

Show the bigger answer!

For this game you will need a deck of cards with court (picture) cards removed. Leave in the aces, ace = 1. You will also need a pen and paper as the score sheet. Write each player's name on the score sheet – an A4 sheet will do.
Give each player 10 cards. Players must keep their cards in a pile, face-down, on the table. Player A turns over his/her top two cards and takes the smaller numbered card from the bigger numbered card. For example, if Player A turns over a 7 and a 9, s/he must subtract 7 from 9. Therefore 9 – 7 = 2. Player B turns over two cards and does the same. Player A and Player B compare their answers, and whichever player has the larger answer wins a point. Play continues like this until all of the cards are turned over. Whoever has the most points at the end of the game wins.

Calculator subtraction challenge!

Ask your child to enter 50 on his/her calculator. S/he should then choose a number between 0 and 9, for example, 4. Ask your child to take 4 from 50 on the calculator by keying in 50 – 4, but before s/he presses =, s/he should try to work out the answer. Continue in this manner taking 4 from each previous answer and working out what the next answer will be before pressing = on the calculator. The challenge is to see how far your child can get without making an error. This can be made more difficult by asking your child to enter a target number between 100 and 999, e.g. 256. Ask him/her to take away 8 by keying in – 8 and working in the same way as above.

Note

It is vital that children are presented with a subtraction problem and allowed to tackle it. This approach leads to a much deeper understanding of the subtraction process.

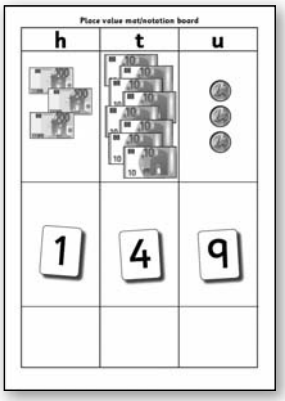
Count up like a shopkeeper!

An example of a mental strategy is outlined on page 33 of *Busy at Maths 3*. Pose a problem, such as: *There were 63 bicycles in a bicycle shop. 18 of them were sold. How many were not sold?* 63 –18 = ?

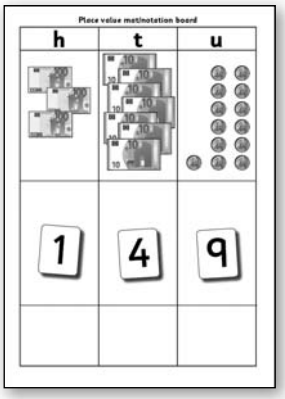
Your child can practice giving change like shopkeepers did before the advent of electronic cash registers.
Ask your child to count on from 18c until s/he reaches 63c.
From 18c to 20c → 2c
From 20c to 60c → 40c
From 60c to 63c → 3c
Answer: 2c + 40c + 3c = 45c

Continue with similar type questions.

Renaming one ten as units



Place value mat



Place value mat

Pose the following question to your child: *If I had €383 and spent €149 of it buying a TV, how much do I have left?*
Display €383 (3 hundreds, 8 tens and 3 units) on a place value mat (see mat below).
Say to your child: *I am now going to take 1 hundred, 4 tens and 9 units from 383.*
Write the numbers 1, 4 and 9 underneath 383 in their respective houses. Explain to your child: *First I take away/subtract the units. 3 units take away 9 units, I cannot do! Therefore, I must rename 1 ten as units. I will exchange/swap 1 ten for 10 units. I now have 3 hundreds, 7 tens and 13 units. I can now subtract!*
Take away the units: 13 take away 9 = 4. Take the tens: 7 take away 4 = 3. Take the hundreds: 3 take away 1 = 2.
What am I left with?
2 hundreds, 3 tens and 4 units = €234

Your child will be learning to represent and interpret data on pictograms, block graphs and bar charts over the coming days. Your child will need to know the language associated with data, such as: data, information, represent, survey, pictogram (data is shown in pictures), favourite, prefer, most, least, more, fewer, fraction, altogether, block graph (data is shown in blocks), popular, twice, half, bar chart (data is shown in bars), scale, small, big, most/least popular, tally/ tallies. Tallies are used to count numbers quickly. They are usually done in groups of five, for example:

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

Pictogram

Make a simple pictogram chart using an A4 sheet of paper or cardboard as shown in the example below or on page 37 of *Busy at Maths 3*. Insert the names of the four most popular fruits in the first column. Invite your child to ask family members and friends to name their favourite fruit. They can only give one answer. Now, ask your child to display this information on the pictogram. S/He should draw a fruit in each section to represent the favourite fruit of each person surveyed.

Favourite fruits

apple				
orange				
pear				
banana				

Ask questions to help your child interpret the data that s/he has compiled, such as:

- *Which fruit did you draw most of?*
- *Which fruit did you draw least/fewest of?*
- *How many people liked apples/pears?*
- *How many more apples are there than pears?*
- *How many more people preferred apples to pears?*
- *How many fewer people preferred bananas to oranges?*

Your child should be able to answer these questions by looking at the data shown on the pictogram.
You could also place eight cups, five saucers, six spoons and three plates on the table. Ask your child to make a pictogram using the real objects. Write the names on the left of the piece of paper and the numbers underneath as in the example below. (Use numbers or post-it notes.)

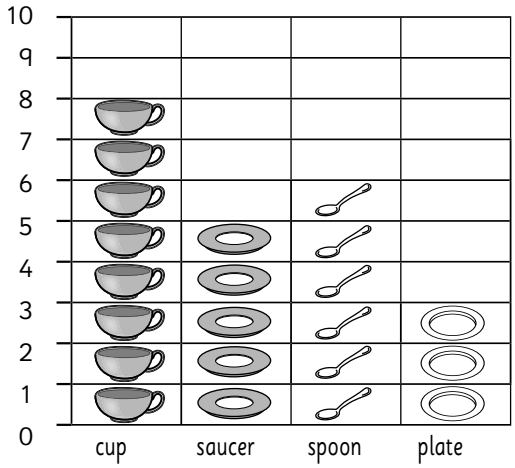
Kitchenware

cups							
saucers							
spoons							
plates							
	1	**2**	**3**	**4**	**5**	**6**	**7**

Your child can now make a smaller pictogram by replacing the kitchenware with drawings of the cups, saucers, etc.

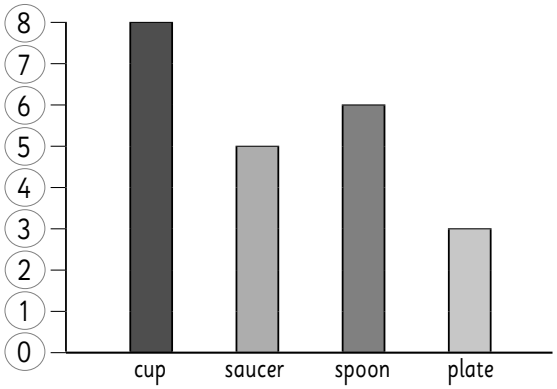
Block graph

The information gathered above can also be shown on a block graph as follows:



Bar chart

This information can also be shown on a bar chart, as shown below. The main difference between a block graph and a bar chart is that there are no gaps between the bars on a block graph but there are clear gaps between them on the bar chart.



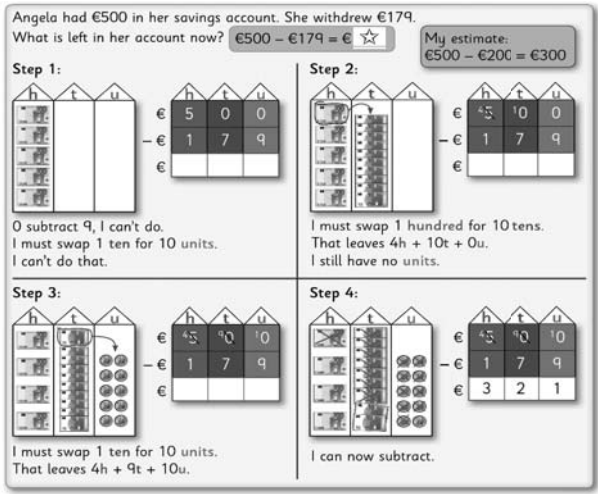
Renaming units as tens

Your child will be learning about the subtraction of two numbers with renaming (swapping one ten for 10 units and swapping one hundred for 10 tens), as well as doing two-step problems over the coming days. Your child will be learning the most difficult form of subtraction, which involves taking a three-digit number away from a number that has two zeros, e.g. €400 – €176 = ? Your child needs to know the mathematical language associated with addition and subtraction, such as: add, altogether, plus, and, together, total, numbers 0–999, row, column, vertically, horizontally, diagonally, counting on, hundreds/tens and units house, change, stay the same, estimate, round up, round down, addition house, money, more, less, swap, regroup, rename, digit, total cost, total amount, spend, difference, biggest, smaller, compare, take, number sentence, subtract, sold, spent, subtraction, take away, metres, nearest hundred, columns, value of the digits, opposite, fewer, brackets, two-step problem, most, fewest, combined.

Let's rename money!

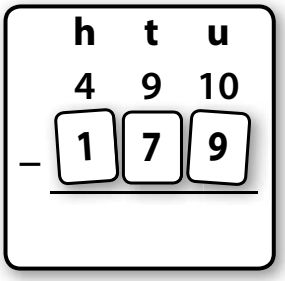
Display five €100 notes on the place value mat, which we used on Sheet 4 earlier in the year. You can use Monopoly money or make your own notes with Post-it notes for this activity. Pose a problem for your child, e.g. *I have €500. I spend €179. How much have I left?* Ask questions, such as:

- *How much had I at first?*
- *How much did I spend?*
- *Will I add or subtract? Yes! I am now going to subtract/take away €179 – 1 hundred, 7 tens and 9 units. I will place the digit cards 1, 7 and 9 underneath the 500 in their respective houses.*



In **Step 1**, we show the sum €500 – €179.
We cannot take away the 9 units (€9).
In **Step 2**, we rename €500 as €400 + 10 €10s.
We still cannot take the 9 units (€9).
In **Step 3**, we rename €500 as €400 + nine €10s + 10 units.

Explain to your child: *We have now made €500 into 4 hundreds, 9 tens and 10 units. We can now subtract!*

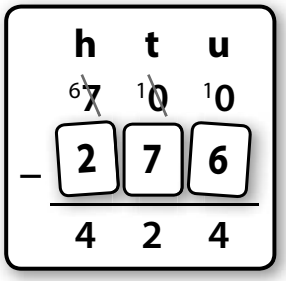


Take away the units: 10 take away 9 – place 9 units on the digit card and physically take them away.
Take away the tens: 9 take away 7 – place 7 tens on the digit card and take them away.
Take away the hundreds: 4 take away 1 – place 1 hundred on the digit card and take it away.
What am I left with? 3 hundreds, 2 tens and 1 unit.

Discuss the value of the digits:

- *What is the value of the 1?* (1 unit or 1)
- *What is the value of the 2?* (2 tens or 20)
- *What is the value of the 3?* (3 hundreds or 300)

Write the following subtraction problem on a sheet of paper: Angela has €700 in her savings account. She withdrew €276. What is left in her account now?
€700 – €276 = ?
Note: Only introduce the written problem alongside the concrete representation when your child is confident with manipulating the materials.
Invite your child to estimate the answer first by rounding to the nearest hundred:
€700 – €300 = €400.



Multiplication 1 – By 2, 4 and 8

Your child will be learning about multiplication by 2, 4 and 8 over the coming days. Your child needs to know some of the mathematical language associated with multiplication, such as: multiply, multiplication symbol (x), multiple/multiples, double, near double, two for the price of one, buy one, get one free, bigger/greater than, repeated addition, addition/multiplication sentence.

Listen and count

Ask your child to count silently in 2s in his/her head as you drop a number of coins into a tin/box. **Example:** Drop in eight 2c coins into a tin, one at a time. Your child should listen and count in 2s. Then invite your child to say what number s/he is at. S/He should be at the number 16.

Extension: Drop 2c coins in a tin, two/four at a time, while your child counts in 4s/8s.

Counting in 2s, 4s or 8s

Invite your child to count with you from 1–24. Next, ask your child to take turns with you when counting 1–20. You say 1, your child says 2, you say 3, your child says 4, and so on up to 24.

Tell your child that you will repeat this activity, but that this time, you will say the numbers silently or else make a signal while your child says the numbers out loud.

Variation: Do the same for counting in 4s and 8s.

Calculator fun!

Ask your child to press 2 + = = = = = on a calculator to show counting in 2s. Your child can go up as far as s/he can within 100.

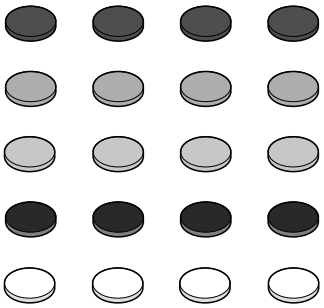
Ask your child to press 4/8 + = = = = = on a calculator to show counting in 4s/8s. Children can go up as far as s/he can within 100, even though the standard tables only go to 40 in 4 times tables and up to 80 in 8 times tables.

Multiplication is repeated addition

Place five 2c coins in a row and ask your child to add them, e.g. 2 + 2 + 2 + 2 + 2 = 10. This is called repeated addition or an addition sentence. Explain to your child that it is easier to find out how many groups of 2c there are and multiply. In the example above, there are five groups/sets of 2. The multiplication sentence is: 5 x 2 = 10. Addition and multiplication sentences should also be made using 4s and 8s.

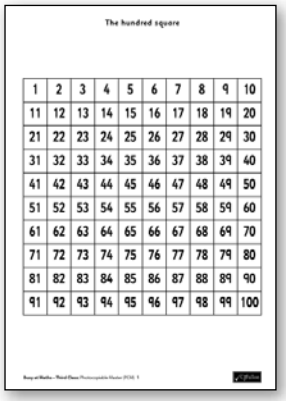
Making sets/groups of 2, 4 and 8

Give your child some counters/cubes, etc.



Ask your child to arrange the counters in sets/groups of 2, 4 or 8 according to colour. The sets should be arranged one under the other. Your child can count the sets using repeated addition.

Multiplication on the hundred square



PCM 1

Make a hundred square as shown in the picture or ask your child to make one. Ask your child to place a counter on the number 2 and on all the multiples of 2 up to 24 (4, 6, 8, 10, etc.). Your child may continue as far as s/he can up to 100.

Variation: Ask your child to do this activity for multiples of 4 and 8.

Two for the price of one!

Give your child 12 counters/cubes/1c coins and ask him/her to come up with as many ways of arranging the 12 items into as many different sets as possible, e.g. 6 sets of 2, 2 sets of 6, 3 sets of 4, 4 sets of 3.

Variation: Ask your child to do this activity with 16/20/24 counters.

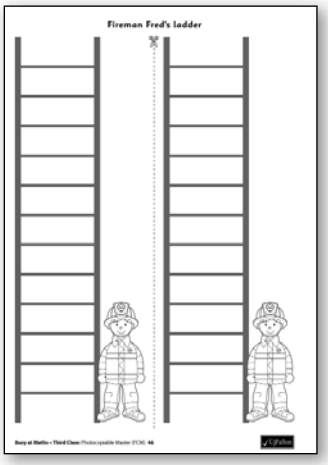
Memory – Multiplication by 2, 4 and 8

This card game can be played by two or three players. Remove all of the court (picture) cards from a deck of cards, leaving only the aces – tens. The ace will count as 1. You or your child can keep score. Place the cards randomly face-down on the table. Player A picks two cards. If s/he can show a multiplication number sentence for 2, 4 or 8 with the two cards, then s/he gets to keep these cards, e.g. 2 x 4 = 8, 1 x 8 = 8, 3 x 4 = 12, 10 x 4 = 40, 5 x 4 = 20, 2 x 6 = 12, etc. The player with the most cards at the end of the game wins.

Your child will be learning about division by 2, 4 and 8/sharing between 2, 4 and 8 over the coming days. Your child needs to know some of the mathematical language associated with division, such as: division, division symbol (÷), multiply, multiplication symbol (x), repeated subtraction, division sentence, smaller than, less than, multiple/multiples, double, near double, bigger/greater than, repeated addition, addition/multiplication sentence, pattern, list, grid.

Fireman Fred's ladder

Draw a copy of Fireman Fred's ladder on an A4 sheet of paper. It needs only 12 rungs as shown below. Draw a stick figure and cut it out to represent Fireman Fred.



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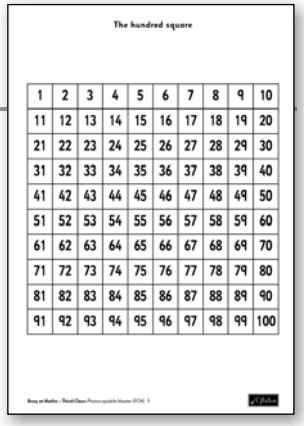
Your child can use the ladder to help him/her with multiples in the following activity. This activity shows the connection between multiplication and division. One is the inverse (opposite) of the other. The aim of this activity is to gain confidence and speed in working with multiples of tables 2, 4 and 8.

Fireman Fred will ascend each rung of the ladder as your child provides the next multiple from a particular table by counting on. He will descend the ladder as your child provides the next multiple from a particular table by counting back. Call out a number that is a multiple of 2, 4 or 8, e.g. call out 24 from the 2 times table. Your child should start at 2 and then call out 4, 6 and so on up to 24. Ask your child to 'climb' down the ladder by calling out in turn the multiples for 2 in descending order, e.g. 22, 20, 18 and so on down to zero.

Division by 2, 4 and 8 on the hundred square

Make a hundred square as shown here or ask your child to make one. You can use the same hundred square as used for multiplication earlier.



PCM 1

Ask your child to place a counter on 24/36/48 and place counters on all other multiples of 2 down to zero.

Variation: Ask your child to do a similar activity for sets/groups of 4 and 8. When dealing with 4s, use 40 as the first target number. When dealing with 8s, use 80 as the first target number. When your child is comfortable with the exercise, you can go to 100 in 4s. When you have done this activity a number of times, ask your child to count up and down in 2s, 4s and 8s without any aids.

Get down quickly – Calculator counting!

Start by giving relatively easy target numbers, e.g. 48. Ask your child to enter the number 48 on a calculator. Now, get him/her to enter – 8 = =, etc. Ask your child to continue pressing the equals sign. This will show division as repeated subtraction down to zero. (Do not go beyond zero at this stage.)

Variation: Do a similar activity for repeated subtraction in 2s and 4s.

Note: Be sure to give your child a number of options that are high multiples of each table, e.g. for 2s, choose any high even number; for 4s, choose a number in which the last two digits are divisible by 4 such as 156, 232, 172, 328, etc.; for 8s, choose from 352, 296, 248 and 192.

Division is repeated subtraction

Place five 2c coins in a row and ask your child to add them, e.g. 2c + 2c + 2c + 2c + 2c = 10c.
This is called repeated addition or an addition sentence. Now, explain to your child that if s/he removes the 2c coins one by one we will get: 10c – 2c – 2c – 2c – 2c – 2c = 0. We took 2c away five times before getting to zero. This is a subtraction sentence. Explain to your child that it is easier to use a division sentence to find this information. The 10c divided into groups or sets of 2 makes 5 sets of 2. The division sentence is: 10 ÷ 2 = 5.

Variation: Subtraction and division sentences can also be made using groups/sets of 4 and 8.

Symmetry

Your child will be learning about symmetry over the coming days. S/He has already been introduced to symmetry in earlier classes. There are many definitions of symmetry. The simplest explanation is probably that symmetry occurs when a shape can be divided into two identical parts – one becomes the mirror image of the other. Your child needs to be aware of some of the language of symmetry, such as: half, fold, line of symmetry, symmetrical, exact same, identical, dotted line, down (vertical), across (horizontal), patterns, squares and other shapes, etc.

Mirror, mirror!

Ask your child to stand facing you or any other member of the family. Play the role of mirror and copy all of the movements made by your child. After a few turns, swap roles and your child will play the role of mirror.

Symmetrical fingers!

Ask your child to place both index fingers on his/her nose. S/He must open his/her arms (in opposite directions) as wide as possible from this position while making interesting patterns in the air with his/her fingers. Both fingers should mirror each other, creating symmetry. Now encourage your child to make unusual patterns in the air with his/her fingers, e.g. up high, down low, squiggles, zig-zags, etc.

Symmetrical shapes

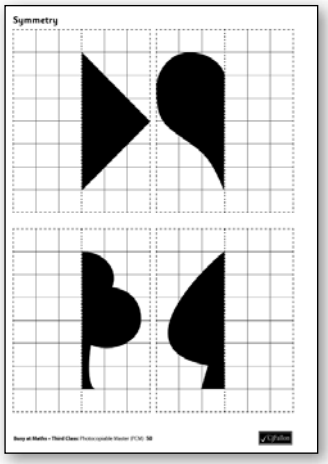
Give your child an A4 sheet of paper. Ask him/her to fold the sheet down the centre from top to bottom. Next, ask him/her to draw one half of a butterfly/moth/tree/box or anything that comes to mind on the left-hand side of the fold. Ask your child to paint the half picture. Next, ask him/her to fold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

Diamonds, hearts, clubs, spades

Give your child some squared paper – a page from a regular sum copy will do. Ask him/her to draw one half of a diamond shape to the left of the line of symmetry. Your child can look at the diamond shape used in a regular deck of cards as s/he draws.
Next, ask him/her to fold along the line of symmetry. Then ask him/her to complete the diamond.



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Extension: Ask your child to cut out the diamond shape and fold it to prove that the two sections are identical. Encourage him/her to draw symmetrical patterns on the symmetrical sides.
Your child can now do the same activity with the club, heart and spade shapes from a deck of cards.
Other shapes that could be drawn using the line of symmetry are: a house, a phone, a pair of glasses, a pot, a building, a face, a clown, a butterfly, a car, a candle, an alien, a monster, a snowman, a heart, a vase, an envelope, a tower, a book, certain letters of the alphabet, etc.

House symmetry trail

Ask your child to identify symmetrical objects that are visible around the interior/exterior of the home. Together you might simply discuss the findings.

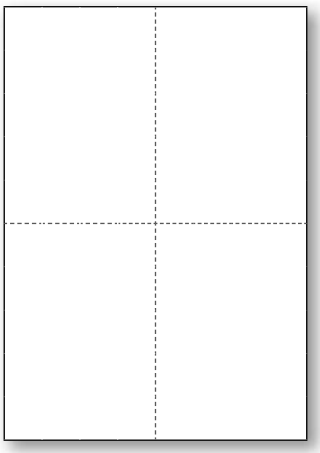
Extension: Give your child an A4 sheet of paper. Ask him/her to record their 'symmetry trail' findings either pictorially or using words (or a mixture of both). Alternatively, your child could take photos of symmetrical objects around the house and make a display in his/her bedroom or a suitable place in the house.

Fractions 1 – ½, ¼ and ⅛

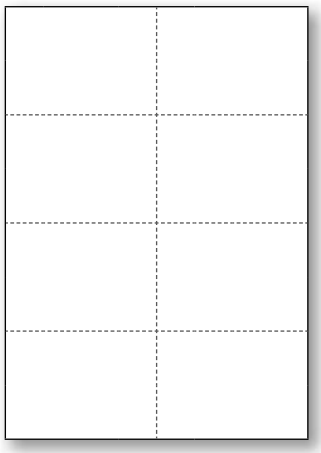
Your child will be learning about fractions – half (½), quarter (¼) and eighth (⅛) – over the coming days. Your child needs to know some of the mathematical language associated with fractions, such as: half, quarter, eighth, fraction, fraction wall, part, bit, piece, whole, whole amount, set, equal amounts, not equal, circle, bigger, less than, greater than, the same as, divide, cut, match, pair, colour, shapes, draw, altogether, biggest, smallest.

Folding regular shapes – Rectangles

Give your child an A4 sheet of paper. Ask him/her to fold the sheet into halves and quarters as done in Second Class. Fold again to make eighths.



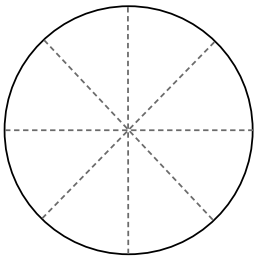
A4 sheet of paper



A4 sheet of paper

Folding circles

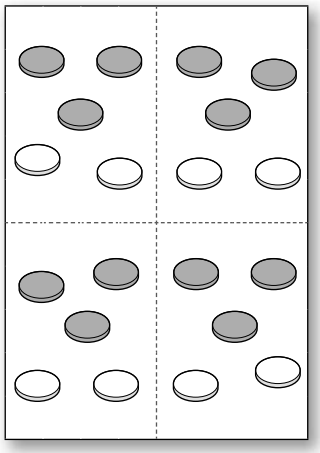
Give your child an A4 sheet of paper. Ask him/her to place a plate on the sheet and draw around it to make a circle. Next, ask your child to fold the circle down the centre to make halves. Then, ask him/her to fold it again to make quarters and then eighths. Explain that there are 8 equal sections (parts) and that each part is called one eighth (⅛).



Circle to fold

Ask your child to cut out the eighths and to place them on top of each other to prove that they are all the same size. Next, ask him/her to make the eighths into a complete circle again.

Sharing equally



A4 sheet of paper

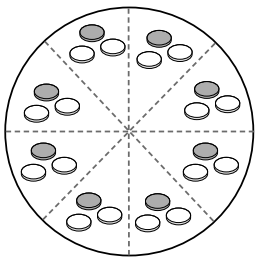
You will need concrete items for sharing, e.g. cubes/counters/marbles. Explain that you have 20 cubes in your hand and you want to put one quarter of them on each of the four sections of a rectangle that you have folded in quarters. Share the cubes out among the four sections of the rectangle/circle, one by one, until they are all gone.

Ask your child questions, such as:

- *How many cubes are there in the first section?*
- *How many cubes are there in the second section?*
- *How many cubes are there in the third section?*
- *How many cubes are there in the fourth section?*
- *Did each section get the same amount?*
- *Did we share out the cubes evenly?*
- *So, what is ¼ of 20? Yes, 5.*

Extension: Ask your child to share out different amounts of cubes/counters, e.g. share 56 counters/coins evenly among the eight sections of the folded rectangle or circle to find ⅛ of 56.

Finding the whole amount



Circle to fold

Pose a problem such as the following to your child: *⅛ of my counters is 3. How many counters have I altogether?* Now, place three counters in one section of the circle or ask your child to place three counters in another section.

Ask questions, such as:

- *How many counters have we in this section of the circle? Yes, 3.*
- *Now, lets place the same amount of counters in each section. Can you remember what each section is called? Yes, ⅛.*
- *How many counters are there in ²⁄₈, ³⁄₈, etc?*
- *How can we find out how many counters we have altogether? ⅛= 3 counters so ⁸⁄₈ = 24 counters.*

You can do this activity with a number of other questions involving halves, quarters and eighths using a rectangle, circle or any other method of your choice.

Your child will be dealing with all coins up to and including the €2 coin, as well as the €5 note 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, such as: counting money, euro, €1, €2, coins, €5 euro note, equal, the same amount as, blank, least number, amounts, different ways, bought, cost, more, cent, spent, left, between, items, customers, shop, money boxes, needs to save, how much change?

Target money numbers

Give your child a selection of real/play/cardboard 1c, 2c, 5c, 10c, 20c, 50c, €1 and €2 coins, as well as a €5 note. Pick a target amount and write it on a sticky note or piece of paper, e.g. €4·68. Ask your child to make this target amount using the least number of coins possible. Encourage your child to make the target amount by starting with the biggest possible coins.

Examples:

€2·49 = €2 + 20c + 20c + 5c + 2c + 2c
€3·37 = €2 + €1 + 20c + 10c + 5c + 2c
€3·68 = €2 + €1 + 50c + 10c + 5c +2c+ 1c
€4·76 = €2 + €2 + 50c + 20c + 5c + 1c
€3·77 = €2 + €1 + 50c + 20c + 5c + 2c
€2·95 = €2 + 50c + 20c + 20c + 5c

Let's go shopping!

When you bring your child shopping with you, encourage him/her to read the prices of various items. Try to get him/her to identify the € symbol and the decimal point. Explain that the dot (decimal point) separates the euro from the cent. Show your child two different price tags in the shop, e.g. €4·72 and €3·36. 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 beans or the potatoes?*
- *How much dearer/cheaper are the corn flakes than the washing powder?*
- *How much dearer are the pears than the bananas?*
- *How much cheaper are the pears than the grapes?*

Price tags

Ask your child to make some price tags for items with prices up to €4·99. Put the price tags on a range of items in the home, e.g. beans, pasta, cereals, lunchbox, school bag, oranges, peas, carrots, bananas, etc. Give your child some real coins from 1c to €2 as well as a €5 note. Ask some or all of the following questions. There may be more than one answer for some questions, which should lead to discussion.

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

Have your child act as the shopkeeper and you as the shopper. Have him/her add the totals of the purchases and give the correct change. Then reverse the roles, with your child as the shopper.

Making €5

Explain to your child that you want him/her to use coins to make €5 in a variety of ways. When your child has made €5, ask him/her to record the coins that s/he used. Now, ask your child to make €5 using different combinations of coins.

Examples:

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

Giving change from €5

Give your child a selection of coins as well as a €5 note. Explain to your child that s/he will play the role of shopkeeper and that you will play the role of shopper. You will have a €5 note and will purchase only one of the items with the price tags used earlier. Addition/subtraction of these amounts will come later, so there is no need to ask your child to add two or more items at this stage. The shopper should hand in a price tag, e.g. for the cereal, which could cost €2·92, as well as a €5 note. The shopkeeper has to give change to the shopper. Encourage your child to count on when giving change, e.g. €2·92 + 3c → €2·95 + 5c → €3·00 + €2·00 → €5. Change = 3c + 5c + €2 = €2·08. After a number of transactions have taken place, you can change roles.

Multiplication 2 – By 3, 6 and 9

Your child will be learning about multiplication by 3, 6 and 9 over the coming days. S/He needs to know some of the language associated with multiplication: multiply, product, multiplication symbol (x), multiple/multiples, double, near double, bigger/greater than, repeated addition, addition/multiplication sentence, pattern, set, group, list, grid.

Listen and count

Ask your child to count silently in 3s in his/her head as you drop a number of 1c coins in groups of three into a tin/box. **Example:** Drop eight sets of three 1c coins into the tin. Your child should listen and count in 3s as each set of coins is dropped in. Then, invite your child to say what number s/he is at. S/He should be at the number 24 in this example. This activity can also be done for sets of six and nine 1c coins.

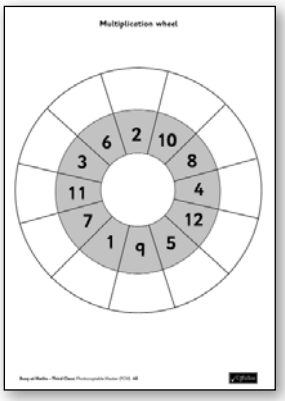
Calculator fun!

Ask your child to press 3 + = = = = = on a calculator to show counting in 3s. Your child can go up as far as s/he can within 100.
Ask your child to press 6/9 + = = = = = on a calculator to show counting in 6s and 9s.

Multiplication is repeated addition

Place five sets of 3c (2c + 1c) in a row and ask your child to add them, e.g. 3c + 3c + 3c + 3c + 3c = 15c. This is called repeated addition or an addition sentence. Explain to your child that it is easier to find out how many sets/groups of 3c there are and multiply. There are 5 sets/groups of 3c, so the multiplication sentence is: 5 x 3 = 15. Addition and multiplication sentences can also be made using 6s and 9s.

The multiplication wheel



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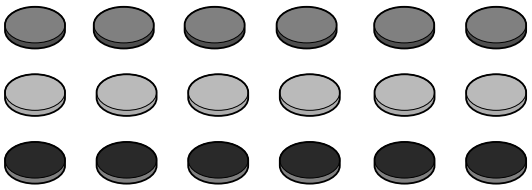
Make a simple multiplication wheel as shown below. Write the digits 3, 6 and 9 on sticky notes. Ask your child to write the multiplication symbol in front of the digits 3, 6 and 9. Now, ask your child to place the x3 in the centre of the multiplication wheel. Next, ask him/her to complete the outer ring by writing in the answer to the multiplication questions.

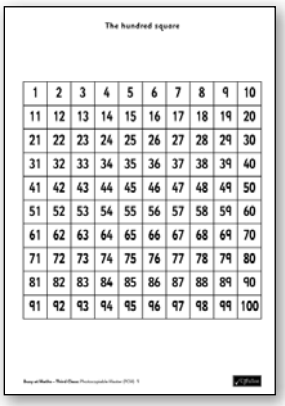
Making sets/groups of 3, 6 and 9

Give your child 18 counters or cubes of three different colours.



Ask your child to arrange the counters in sets/groups of 3, 6 or 9, in rows according to colour. Your child can count them using repeated addition.

Multiplication on the hundred square



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Make a hundred square or ask your child to make one. Ask your child to place a counter on the number 6 and on all the multiples of 6 up to 72 (12, 18, etc.). Your child may like to continue as far as s/he can up to 100.
Variation: Ask your children to do this activity for sets/groups of 3 and 9.

Two for the price of one!

Give your child 12 counters/cubes/1c coins and ask him/her to come up with as many ways of arranging the 12 items into different sets as possible, e.g. 6 sets of 2, 2 sets of 6, 3 sets of 4, 4 sets of 3.
Variation: Ask your child to do a similar activity for 16/20/24 counters.

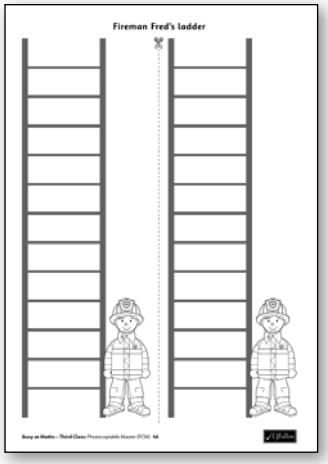
Memory – Multiplication by 3, 6 and 9

This card game may be played by two or three players. Remove all of the court (picture) cards from the deck of cards. The ace will count as 1. You or your child can keep score. Place the cards randomly face-down on the table. Player A picks two cards. If s/he can show a multiplication number sentence for 3, 6 or 9 with the two cards, then s/he gets to keep them, e.g. 2 x 3 = 6, 1 x 9 = 9, 3 x 6 =18, 10 x 6 = 60, 5 x 9 = 45, 2 x 6 = 12, etc. The player with the most cards at the end of the game wins.

Your child will be learning about division/sharing by 3, 6 and 9 over the coming days. Some of these activities were done on Sheet 10 earlier in the year, when dealing with division/sharing by 2, 4 and 8. Your child needs to know some of the mathematical language associated with division, such as: division, division symbol (÷), multiply, multiplication symbol (x), repeated subtraction, division sentence, smaller than, less than, multiple/multiples, double, near double, bigger/greater than, repeated addition, addition/multiplication sentence, pattern, list, grid, etc.

Fireman Fred's ladder

Draw a copy of Fireman Fred's ladder on an A4 sheet of paper. It needs only 12 rungs as shown here. Draw a stick figure and cut it out to represent Fireman Fred.



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Fireman Fred will ascend each rung of the ladder as your child provides the next multiple from a particular table by counting on. He will descend the ladder as your child provides the next multiple from a particular table by counting back. Call out a number that is a multiple of 3, 6 or 9, e.g. call out *48* from the 6 times table. Your child should start at 6 and then call out 12, 18, and so on up to 48. Ask your child to 'climb' up and down the ladder by calling out in turn the multiples for 6 in descending order, e.g. 42, 36, 30, and so on down to zero.

Can be divided by…

Call out a random series of multiples drawn from the 3, 6 and 9 times tables. Your child should answer by offering the divisors for that number, e.g. call out *24*. Your child can offer 3 or 8 as the answer. S/He could also offer 4 or 6 (scoring a point for each divisor), but 2 or 12 would not be acceptable as these refer to the 2 times table. Call out 36. Your child can offer 3 or 12, 6 or 6, as well as 4 or 9 as answers (six points available in total).

Extension: Invite your child to offer a complete division sentence for the numbers that you call out, e.g. call out 48. Your child must answer with 48 ÷ 6 = 8.

Countdown challenge!

This game is played by counting down from a given number from the 3, 6 and 9 times tables. Provide the start number – say 66 for the 6 times table, and your child must count down in 6s from that number. A wrong call will lose a point for your child while a correct call will gain a point for him/her.

Extension: Ask your child to count down from a number outside the standard table, e.g. count down from 144 in 9s.

Variation: Award bonus points if your child can provide another divisor for this number. In the example above, you could award a bonus point if s/he provides 6 or 3 as a possible solution, provided that s/he completes a correct division sentence.

Calculator countdown race!

Give your child a target number and then a start number for each table. The race to the target number then begins. **Example:** Give 54 as a target and 234 as the start number for the 9 times table. Your child should press 234 – 9 followed by the = sign, and keep pressing the = sign until reaching the target of 54 by repeated subtraction in 9s.

Extension: Make this activity a little harder by declaring that your child wins the race only if s/he can give the division sentence for the target number. In the example above, s/he must give 54 ÷ 9 = 6 to win.

CAN BE divided by 3, 6 or 9

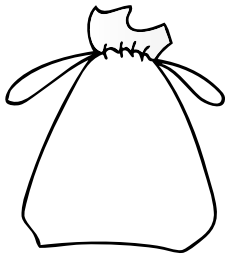
Call out a set of random numbers, one at a time. Ask your child to call out 'CAN BE' when s/he recognises a number that is divisible by 3, 6 or 9. A correct answer earns a point. After calling out 'CAN BE', your child must back up his/her claim by proving that the number in question can be divided evenly be the chosen number. For instance, tell your child that we are searching for numbers that can be divided evenly by 9. Call out numbers randomly, e.g. 34, 41, 54. Your child is required to interrupt on 54 and call out 'CAN BE'. Ask your child to prove his/her claim by stating that 54 can be divided evenly by 9, giving the division sentence 54 ÷ 9 = 6. Only then is your child awarded a point. Continue with another set of numbers. When your child has received a certain number of points, i.e. 10/20/30 points, s/he wins the game.

Your child will be dealing with chance (probability) over the coming days. This will be new to most children. Probability or chance is a measure of the likelihood of a particular event taking place. Your child will need to know the language associated with chance: certain, possible, impossible, might, not sure, likely, unlikely, very likely, most, least, hearts, diamonds, clubs, spades.

Memory – Goldfish in the pond!

This game is best played by two players. From a deck of cards, pick out five pairs, e.g. two 5s, two aces, two 9s, two 10s and two queens. Shuffle the 10 cards and place them face-down in neat rows on a table (5 x 2 or 2 x 5). Explain to your child that the aim is to make a match (matching pair) by turning over any two cards at a time. If a match is made, the player gets to keep them. If a match is not made, the cards are turned back over for the next player's turn. Throughout the game, ask your child questions about the chance of him/her making a match, e.g. *Is it certain that you will make a match? Is it possible/impossible that you will make a match? Is getting a match on your first go likely or unlikely?* Encourage your child to use the language of chance throughout the game.

Beads in a bag



bag

For this game, you will need some beads/counters/cubes/bricks. Encourage your child to use the language of chance as outlined above during this game. Get a bag/box. It is important that your child cannot see inside the bag/box. Place three coloured beads/cubes into the bag/box – two blue and one red. Explain that you are going to pick one bead out of the bag/box at random. Discuss the possible outcomes by asking questions, such as:

- *Am I certain to pick out a blue bead?* (No.)
- *Is it possible that I will pick out a red bead?* (Yes.)
- *Is it likely or unlikely that I will pick a red bead?* (It is possible, but it is more unlikely than likely as there are two blue beads and only one red bead.)
- *Is it possible that I might pick out a yellow bead? Why?* (No, it is impossible.)

Extension: Play the game using different combinations of beads, e.g. three green, two red; two yellow, three red and one green.

Higher or lower

This game is best played by two players. Remove one full suit from a deck of cards, e.g. all of the hearts. Explain to your child that the ace = 1, and that each jack, queen and king = 10. Ask your child to shuffle the 13 cards and place them face-down in rows/columns on the table. The first player turns over a card. The next player must turn over another card. However, before doing so, s/he must predict whether the card will be higher or lower than the previous card. If the prediction is correct, s/he gets a point (you could keep a record sheet or perhaps keep score with something concrete i.e. matchsticks/pegs/grains of rice). The next player now takes his/her turn, and so on until all of the cards are turned over. The player with the most points wins.

Extension: You can make the game more difficult by playing the game with a full deck of cards. Instead of placing the cards on the table, a dealer holds all of the cards and turns them over, one at a time. The players take turns predicting whether the next card will be higher/lower, keeping any cards that they win. The player with the most points at the end of the game wins. Encourage your child to use the language of chance, as outlined above, while playing the game.

Tossing a coin

The aim of this game is to encourage your child to use and understand the language of chance. It is certainly not to turn him/her into a gambler! This game is best played with two or three players. You will need a €1 coin (real or play). Discuss the possible results of a coin toss by asking questions, such as:

- *What possible results can you have? (Heads or tails.)*
- *Can you be certain that the coin will land on heads?*
- *Is it possible/impossible that the coin will land on something other than heads or tails?*
- *Is it likely/unlikely that the coin will land on tails?*

Now, allow time for each player to throw the coin 10 times and record his/her results on a grid. You can make this using an A4 sheet of paper. Compare the results. Upon seeing different results, help your child to focus on the fact that there is no certainty when playing a game of chance!

Your child will be learning to read the time in five-minute intervals on the analogue/digital clock over the coming days. Your child will need to know the language of time, such as: 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.

Reading the time on the analogue clock

Activity 1

Hold up a clock showing half past four. 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 4 and 5, and the big hand is pointing to 6, it is half past 4. Do this with all of the numbers 1–12.

Activity 2

Hold up a clock showing quarter past seven. Explain to your child that when the long (big) hand points to 3, it tells a quarter past the hour. So, if the short (small) hand is a little past 7, and the big hand is pointing to 3, it is a quarter past 7. Do this with all of the numbers 1–12.

Activity 3

Hold up a clock showing quarter to five. Explain to your child that when the long (big) hand points to 9, it tells a quarter to the hour. So, if the short (small) hand is a little before 5, and the big hand is pointing to 9, it is a quarter to 5. Do this with all of the numbers 1–12.

Reading the time on the digital clock

Hold up an analogue clock showing a quarter past 8. Ask your child to write this time (8:15) on a digital clock.

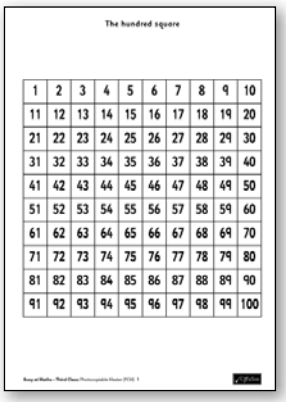
Do this exercise with a number of different times but do not use any five-minute intervals yet.

Note: Children are only required to read the 12-hour digital times in Third Class, i.e. 8:15 rather than 08:15.

The hundred square

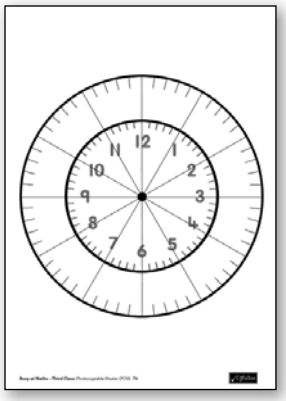
Make a hundred square as shown in the picture or ask your child to make one. Ask your child to place a counter on the number 5 and on all the multiples of 5 (10, 15, 20, etc.). Children are only required to go as far as 60 when dealing with time, but they may as well go to 100. This activity encourages your child to count in 5s and prepares him/her for terms such as 5 past or 20 to the hour.

Extension: Ask your child to colour the number 5 and all the multiples of 5 on the hundred square. Encourage him/her to discuss the pattern.



PCM 1

Five-minute intervals



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Give your child an ordinary clock/watch that is graded in five-minute intervals.

Learning to read the time in five-minute intervals can be very confusing for some children. They are expected to know that 1 represents 5 minutes, 2 represents 10 minutes and 3 represents a quarter of an hour – how confusing!

To try and make sense of this, ask your child to study a clock face. Ask him/her to count the individual minutes on the clock face. Ask him/her to draw a clock face and to write the number of minutes counted in each sector (one sector has five minutes). 5 goes between 12 and 1; 10 goes between 1 and 2, etc.

Ask questions, such as:

- *If you move the long hand from 12 to 1, how many minutes have passed?*
- *If you move the long hand from 12 to 2, how many minutes have passed?*
- *If you move the long hand from 12 to 7, how many minutes have passed?*

Extension 1: Ask your child to colour in each sector/five-minute section and to count in 5s.

Extension 2: Ask your child to colour in each 15-minute section. Encourage him/her to deduce that 15 minutes takes up one-quarter of the clock face/circle. It should become obvious that a quarter past the hour means 15 minutes after that hour and a quarter to the hour means 15 minutes before the hour.

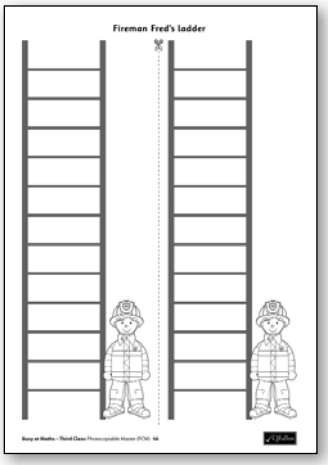
Your child will be learning about multiplication and division by 5 and 10 over the coming days. Your child needs to know some of the language associated with multiplication and division, such as: multiply, multiplication symbol (x), multiple/multiples, double, near double, two for the price of one, buy one, get one free, bigger/greater than, repeated addition, addition/multiplication sentence, division, division symbol (÷), multiply, multiplication symbol (x), product, inverse, repeated subtraction, division sentence, smaller than, less than, pattern, list, grid. Much of this language was used in earlier sheets.

Yo-yo counting

Ask your child to swing a yo-yo slowly. If you do not have a yo-yo, tie a beanbag to a length of string and swing it gently like a pendulum. Ask your child to count forwards in 5s in time with the yo-yo swings, beginning at 5. When s/he is confident with this activity, you can ask him/her to count forwards or backwards in 5s beginning at different numbers (e.g. 4, 12, 43).
Variation: Do the same activity and have your child count in 10s.

Fireman Fred's ladder

Draw a copy of Fireman Fred's ladder on an A4 sheet of paper. It needs only 12 rungs as shown below. Draw a stick figure and cut it out to represent Fireman Fred.



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Your child can use the ladder to help him/her with multiples in the following activity. This activity shows the connection between multiplication and division. One is the inverse (opposite) of the other. The aim of this activity is to gain confidence and speed in working with multiples of tables 5 and 10. Fireman Fred will ascend each rung of the ladder as your child provides the next multiple from a particular table by counting on. He will descend the ladder as your child provides the next multiple from a particular table by counting back. Call out a number that is a multiple of 5 or 10, e.g. call out 45 from the 5 times table.

Your child should start at 5 and then call out 10, 15, and so on up to 45. Ask your child to 'climb' down the ladder by calling out in turn the multiples for 5 in descending order, e.g. 40, 35, 30, and so on down to zero.

Calculator fun!

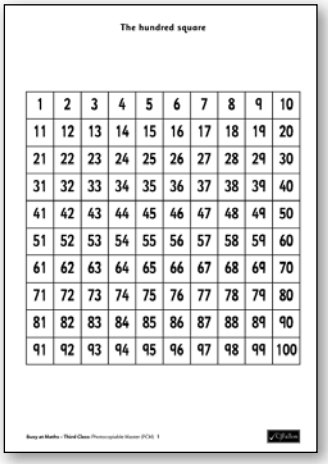
Ask your child to enter 10 + = = = = = = on a calculator to show counting in 10s (repeated addition). Alternatively, press 100 – 10 = = = = = to show counting back in 10s (repeated subtraction). The same activity can be carried out for counting in 5s.
Variation 1: Ask your child to enter higher numbers on a calculator and count up or back in 5s or 10s, e.g. 120 + 5 = = = = = = or 250 – 10 = = = = =.
Variation 2: Ask your child to enter numbers on a calculator that do not end in 5 or zero and to count up or back in 5s or 10s,
e.g. 8 + 5 = = = = = = or 99 – 10 = = = = =.

Memory – Multiplication by 5 and 10

For this game you will need a deck of cards. Remove all of the court (picture) cards from the pack. The ace = 1. This game is best played by two players. Place the cards randomly face-down on the table. Player A picks two cards. If s/he can show a multiplication number sentence for 5 or 10 with the two cards, s/he gets to keep them, e.g. 5 and 8 = 40 (i.e. 5 x 8), 3 and 5 = 15, 10 and 4 = 40, 9 and 5 = 45, 8 and 10 = 80, etc. Player B takes a turn and so on. The player with most cards at the end of the game wins.

5 and 10 on the hundred square

Ask your child to place a counter on the number 5 and on all of the multiples of 5 up to 100. Ask your child to say each multiple as s/he places a counter. Next, ask your child to remove the counters, starting at 100 and to say each multiple as s/he removes a counter. You can now do the same activity for multiples of 10.

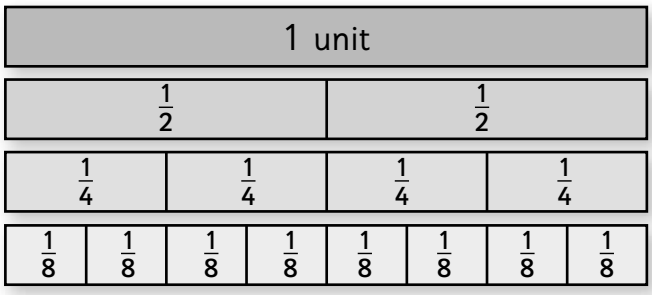


PCM 1

Your child will be learning about fractions – halves (½), quarters (¼), eighths ($^1/_8$) and tenths ($^1/_{10}$) – over the coming days. Your child needs to know some of the mathematical language associated with fractions, such as: half, quarter, eighths, tenths, fraction, fraction wall, part, bit, piece, whole, whole amount, set, equal amounts, not equal, circle, bigger, less than, greater than, the same as, divide, cut, match, pair, colour, shapes, draw, altogether, biggest, smallest, mixed number, etc.

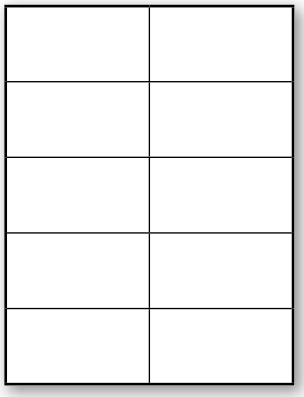
The fraction wall

Revise the work done earlier in the year using halves, quarters and eighths. Ask your child to make a copy of the fraction wall from page 73 of *Busy at Maths 3*, using an A4 sheet of paper.



Ask your child to cut out the unit, halves, quarters and eighths on the fraction wall. Ask him/her to manipulate the fractions to show equivalence (fractions that are equal) by placing them on top of each other, e.g. place two quarters over one half to show that they are equivalent/equal/the same. Place six eighths over three quarters in the same way.

Tenths of regular shapes

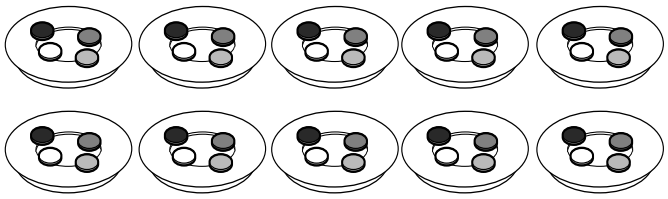


For this activity, you will need an A4 sheet of paper. Fold the sheet down the middle. Draw a line on this fold. Use a ruler to mark off five equal parts on each side of the A4 sheet. You now have 10 equal rectangles (see diagram).

Ask your child to cut out the rectangles and place them on top of each other. Ask him/her questions, such as: *What do we call each part? Yes, one tenth.* Next, ask him/her to colour half of the small rectangles and prove that they make up a half.

Sharing equally

For this activity, you will need 40 concrete items for sharing, e.g. counters/coins, and 10 saucers/bowls. Explain to your child that you have 40 counters and you want to share them equally among 10 saucers. You want to place one tenth of the counters on each saucer.



Place the 40 counters on the table. Ask your child to share out the counters one at a time among the saucers. Ask questions, such as:

- *How many counters are there on the first/second/fifth/tenth saucer?*
- *Did we share the counters equally?*
- *How many counters are there altogether?*
- *How many counters did each saucer get?*
- *So, what is $^1/_{10}$ of 40? Yes, 4.*

Finding the whole amount

For this activity, you will need an A4 sheet of paper marked with 10 small rectangles, as used in an activity before. Pose a problem, such as: *One tenth of my money is 4c. How much money do I have altogether?* Ask your child to place four 1c coins on one small rectangle. Ask him/her to come up with a strategy to find out how many cent you have altogether.

- *How many counters have we in this rectangle/tenth? Yes, 4.*
- *Now, lets place the same amount of counters in each rectangle. How many counters are there in the first/second/fourth/eighth/tenth rectangle?*
- *How many coins are there in total in the first three rectangles?*
- *How many coins are there in total in the first five rectangles?*
- *How many coins are there in total in the 10 rectangles?*

$^1/_{10}$ = 4 cubes so $^{10}/_{10}$ or the full amount = 40 cubes.

Decimals

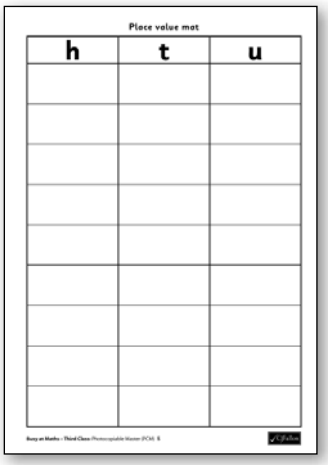
Your child will be introduced to decimals over the coming days. S/He needs to know the language associated with decimals, such as: equals sign, calculator, tenth, decimals, decimal number, decimal fraction, bigger, smaller, unit, ten, hundred, equal part, odd one out, whole numbers, decimal point, point, value of digits, placeholder, rectangle, swap, after, before, between, less than, more than, group of, sets/bundles of, loose, count, match, count forwards/ backwards, hundreds/tens/units house, tenths house, regroup, exchange.

Definitions

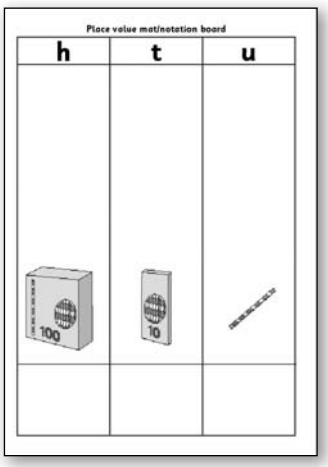
- A **decimal number** is a number that has a decimal part. The number 9 is a whole number, but 9·3 is a decimal number.
- A **decimal fraction** is the decimal part of a decimal number. The number 9·3 is a decimal number, but the ·3 is the decimal fraction, as it is less than 1.

Discussion

Draw a notation board on an A4 sheet of paper, as shown below.



PCM 5



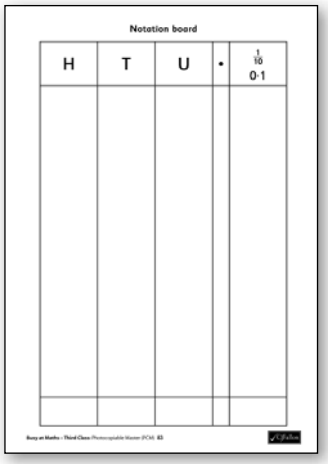
PCM 5

Hold up one straw. Ask your child: *What is 10 times bigger than one unit/ straw. Yes, 10 or one ten.* Hold up 10 straws held together by an elastic band. Ask your child: *What is 10 times bigger than 10. Yes, 100.* Place the 1 unit (one straw), 1 ten (bundle of 10 straws) and 1 hundred (bundle of 100 straws) on the notation board in their respective houses.

Ask your child:

- *What is happening as we move to the left?* (Everything is getting 10 times bigger.)
- *What is happening as we move to the right?* (Everything is getting 10 times smaller.)
- *What is 10 times smaller than 1or 1 unit?*
- *How can we make the 1 unit 10 times smaller?*

Cut a straw into 10 equal parts. Explain to your child: *Each part is called one tenth. We write this as $^1/_{10}$, representing 1 whole thing divided into 10 equal parts.* Draw a notation board on an A4 sheet of paper, as shown below.



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Now, pose the question: *Which one is the odd one out? Yes, $^1/_{10}$, as it is only a fraction or a piece of a thing, whereas the numbers in the other houses are whole numbers.* Explain to your child that to separate the units from the fractions, we use a **decimal point**. Anything to the left of the decimal point is made up of whole numbers. Anything to the right of the decimal point is made up of fractions or pieces of numbers. The decimal point is always placed between the units and the tenths.

Making tenths/decimal numbers

Give your child straws or any other suitable concrete material that can easily be grouped into bundles of 100, 10, 1 and tenths. Invite your child to make various decimal numbers from 0·1 to 9·9. For example, invite him/her to make 0·4. S/He may cut a straw into 10 equal parts and assemble four parts to represent 0·4. Later, this can be extended to tens and hundreds.

Calculator fun!

Ask your child to enter 0·1 + into a calculator. If s/he keeps pressing the equals sign, the display on the calculator will count up in tenths (0·1, 0·2, 0·3, etc.). Tell your child to stop at 0·9 and ask what s/he thinks the next decimal number displayed on the calculator will be. Allow him/her a little time to explain his/her reasoning. The next number is 1 or 1·0.

Decimals in the environment

Ask your child to look for decimal numbers in the environment. They may be found on price tags in shops, newspapers, magazines, etc.

3-D shapes

Your child will be learning about the pyramid (square pyramid) and the triangular prism over the coming days. Look up examples of these 3-D shapes on the internet. Your child will need to know the language of 3-D and 2-D shapes: shape, flat, solid, cube, cuboid, cylinder, sphere, cone, pyramid, triangular prism, square, rectangle, net, circle, semi-circle, triangle, oval, trace, draw, faces, edges, vertices (corners), vertex, curved, roll, slide, straight.

Notes for parents

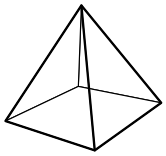
- From Junior Infants to Second Class, we have used the term 'corner' instead of 'vertex'. Vertex is the correct term when dealing with 3-D shapes. Corners are more commonly used when referring to 2-D shapes.
- Corners occur where two or more straight edges meet. This means that a cone does not have a corner. However, a cone does have a point/tip, so it does have a vertex!
- There is considerable international debate concerning edges and faces of 3-D shapes. Some educationalists believe that faces and edges can only be flat (which would mean that a sphere has no face). In *Busy at Maths*, we assert that a face/edge can be flat or curved. Using this logic, a sphere has one curved face.

Is it a 2-D or a 3-D shape?

Show your child pictures of a square and a cube. A solid cube and a paper square could also be on display. (**Note:** The paper is technically not a square, as it still has some depth (thickness)!) Ask your child to describe the square and cube, and to identify as many differences and similarities as s/he can. The following should be highlighted:

- 2-D shapes are only images/pictures.
- 2-D shapes have no depth, therefore they cannot be held in your hand.
- Many objects in our environment contain 2-D shapes, but an object itself is 3-D!
- 3-D shapes have depth, therefore they can be held in your hand.
- 3-D shapes can be seen all around us.
- When we trace around a 3-D shape, we can draw a 2-D shape. For example, a square can be drawn from a cube.

Everyday shapes



pyramid

Explain to your child that a regular pyramid has a square base. It has four triangular faces that come together at a point called a vertex. Examples of pyramids are the Great Pyramid of Giza, the glass structure at the Louvre in Paris, some tents, the food pyramid, some cheese graters.

triangular prism

Explain to your child that a triangular prism is like a Toblerone box. It has two triangular faces, one at each end, and three rectangular faces.
Now, show your child various familiar objects (or pictures of objects) that are shaped as cubes, cuboids, cylinders, spheres, cones, pyramids and triangular prisms. Ask your child to sort the items by shape. Place each object against an A4 sheet of paper. Ask your child to trace around the object. When the object is removed, your child will clearly see the 2-D outline.

Shapes and their properties!

The children need to understand the terms face, edge and vertices/vertex. Explore the properties of each of the 3-D shapes by asking children questions, e.g. *How many faces does this 3-D shape have?; How many edges does this shape have?; Are the edges straight or curved?; How many vertices does this shape have?*

Answer grid

Shape	Number of faces	Number of edges	Number of vertices
cube	6	12	8
cuboid	6	12	8
cylinder	3	2	0
sphere	1	0	0
cone	2	1	1
pyramid	5	8	5
triangular prism	5	9	6

Metres and centimetres

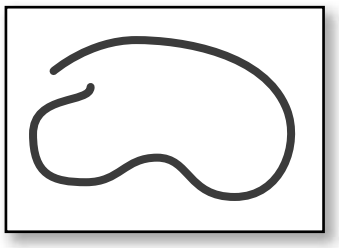
Your child will be learning about metres and centimetres over the coming days. Your child needs to know some of the mathematical language associated with the metric system, such as: length, centimetres (cm), metres (m), measure, ruler, long, longer, longest, short, shorter, shortest, metre stick, more, less, fraction, quarter (¼), half (½), three-quarters (¾), width, height, altogether, add, addition, subtract, subtraction, take away, rename, far, farther, close, closer, route, 2-D shape, etc.

Get measuring!

Using a ruler and pencil, draw some straight lines on an A4 sheet of paper. The lines may be vertical, horizontal or diagonal. They can vary in length from 3cm to 20cm. Ask your child to estimate the length of the lines, using his/her fingertip (approximately 1cm) as a helpful estimation tool. Your child must then measure the lines in centimetres using a ruler. S/He should then compare his/her answers with the original estimates to see how good the estimates were.

Measuring curved lines

Draw a curved line on a piece of paper.



Discuss the difficulty of measuring a curved object. Allow time for your child to test possible ways of solving the problem. Hopefully, s/he will come up with the idea of using flexible material such as a length of string to measure the curved line. The length of string can then be stretched out against a ruler and the measure can be read. Provide your child with flexible material to enable him/her to solve the problem.
Extension: Encourage your child to measure other objects around the home that have curved lines, e.g. paper clips, hair bobbins, bangles.

Long jump

Set up a long jump area on the grass in the garden or play area of the home. Mark out a start position with a piece of paper. Make sure that your child will not be in any danger from traffic, stones or sharp objects.

This activity can also be done using a marked line and a mat, on which your child can land safely. Your child and other children from the neighbourhood (if they are around) should take three jumps each. It would be best to have a maximum of five participants and a minimum of two. Upon finishing each jump, s/he must freeze on the spot, while you or a designated scorekeeper measures the length of the jump with a measuring tape. The scores can be all be written on an A4 sheet of paper. The child who takes jumps the furthest wins.

Measuring familiar objects

Encourage your child to measure familiar objects around the home, using a ruler, for example:

- the length of a slipper
- the width of a bowl
- the height of a mug
- the length of a spoon
- the height of the television
- the width of the television
- the height of his/her bed
- the length and width of the kitchen table
- the height and width of the kitchen door

Extension: Set your child simple challenges around the home, such as:

- *Find an object that is about 5cm tall.*
- *Find an object that is shorter than 2cm.*
- *Find an object that is about 8cm long.*
- *Find an object that is about 10cm tall.*
- *Find an object that is shorter than 20cm.*
- *Find an object that is about 15cm long.*

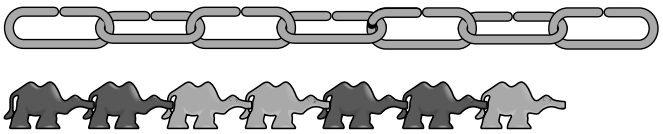
Using a metre stick!

Give your child a metre stick. If you don't have a metre stick, you and your child can make a metre string by using a conventional ruler or tape measure to mark off 100cm on a piece of string. First, ask your child to identify objects around the house that look shorter/less than one metre. S/He should record these objects on a page. S/He should then estimate the actual length of these objects before accurately measuring them with the metre stick/string. Discuss how accurate the estimates actually were.
Extension: This exercise can be done by asking your child to find objects around the house that are about ½ or ¼ of a metre in length.

Multiplication and division by 7

Your child will be dealing with multiplication and division by 7 over the coming days. Your child needs to know the language of multiplication and division, such as: multiply, multiplication symbol (x), multiple/multiples, double, near double, two for the price of one, buy one, get one free, bigger/greater than, smaller/less than, repeated addition, addition/multiplication sentence, division, division symbol (÷), product, inverse, repeated pattern, subtraction, division sentence, list, grid.

Make patterns of 7



For this activity, you will need counters/multi-links or anything that you have to hand. Ask your child to make a pattern using counters by joining 7 counters of the same colour together, followed by 7 counters of a different colour. Your child should repeat this pattern until s/he has 84 counters in a row.

Detective work!

Ask your child to find items that come in sevens. S/He can research this on the internet (under supervision) if you wish, or draw/photograph items from the environment. **Examples:** the seven seas, the seven continents, seven days in a week, seven wonders of the ancient/modern world, Snow White and the Seven Dwarfs, seven reindeer until Rudolf came along!

Calculator fun!

Ask your child to enter 7 + = = = = = = on a calculator to show counting in 7s (repeated addition). Alternatively, enter 84 – 7 = = = = = to show counting back in 7s (repeated subtraction).

7 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

hundred square

Make a hundred square as shown in the picture or ask your child to make one. You can use the same hundred square as used for multiplication and division by 2, 4 and 8 earlier. Ask your child to place a counter on the number 7 and all the multiples of 7 up to 84 (you may like to go all the way to 98). Next, ask your child to say all the multiples from 7 to 84 (skip-counting), and from 84 back down to zero.

Variation: When your child has done this a number of times, ask him/her to skip-count up and down in 7s without the aid of the counters.

Skipping fun!

Ask your child to skip seven times with a skipping rope. Ask your child: *How many times did you skip?* Do this 2/3/4/5/10 times. Ask your child: *How many times did you skip altogether?*

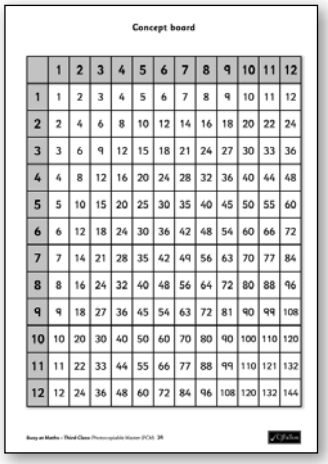
Two for the price of one!

The commutative law can be described as buying two multiplication tables for the price of one, or buying one table and getting one free, e.g. 7 x 3 = 21 and 7 x 3 = 21. Give your child 21 counters/cubes. Ask him/her to come up with as many ways of arranging the 21 counters into different sets as possible (3 sets of 7 and 7 sets of 3).

Variation: Ask your child to do this activity with 35/42/63/72 counters.

Groups of 7 on the concept board

Make a concept board as shown below for your child. Ask your child to place different-coloured counters in sets/groups of 7 on the concept board.



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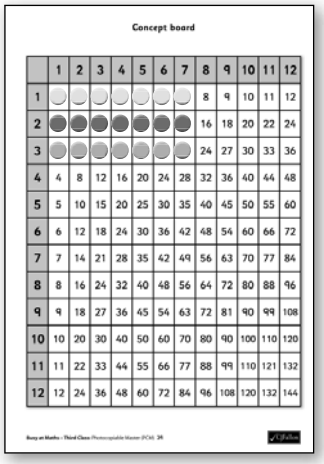

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Ask your child to count the sets using repeated addition.

Rotations and angles

Your child will be learning about lines and angles over the coming days/weeks. Your child needs to know the language associated with lines and angles, such as: line, vertical, horizontal, diagonal, same length, direction, position, parallel lines, never meet, angle, straight line, right angle, greater than, less then, etc.

Line types

Explain the terms vertical, horizontal and diagonal lines by referring to the lines below.

vertical horizontal diagonal

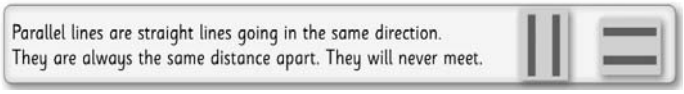
Pupil's Book page 128

Extension: Ask your child to position different objects to make specific lines. Examples:

- *Make a vertical line with your pencil.*
- *Place your ruler so that it makes a diagonal line.*
- *Place your marker in a horizontal position on the table.*

Parallel lines

Note: Explain to your child that parallel lines are straight lines that point in the same direction. These lines will never meet.



Pupil's Book page 129

Ask your child to demonstrate how different parts of his/her body are or can be parallel, e.g. arms, fingers, legs, etc.

Parallel lines in shapes

Ask your child to identify pairs of parallel lines within shapes around the home/garden, e.g. door panels, sides of a window pane/frame, radiator, floor, bed, television, computer screen, walls in the garden, etc.

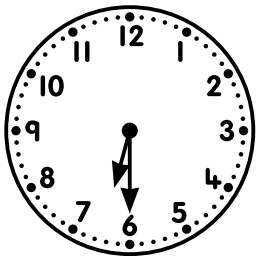
Items that turn/rotate

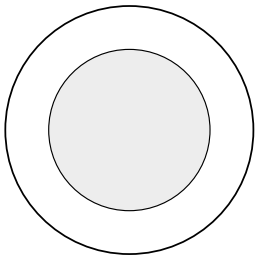
Talk to your child about items around the home that rotate (turn). Give your child a sheet of paper on which s/he can record a list of items that turn/rotate, e.g. a bottle lid, a tap handle, a shower head, wheels on a vehicle, a steering wheel, etc.

Extension: Encourage your child to demonstrate how different parts of his/her body can rotate, e.g. neck, wrist, arm, waist, arms, legs, tongue, etc.

Right angles on a clock face!

Give your child a large clock face (a real one or one that your child has made using a paper plate).





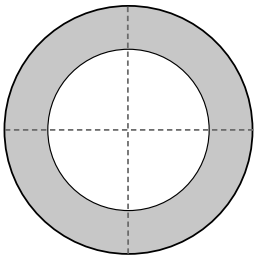
Paper plate

Ask your child to arrange the two hands of the clock to show 12 o'clock. Now, ask him/her to turn the hands a quarter turn, half turn, three-quarter turn and full turn. At each turn, allow time for your child to say what numbers the hands are pointing at. Explain that a quarter turn makes a right angle. A right angle looks like the corner of a square.

Extension: Encourage your child to use the two hands of the clock to make right angles between: 12 and 3, 1 and 4, 2 and 5, 6 and 9; 7 and 10; 9 and 12, etc.

Making a right angle!

Cut out the corner of a sheet of paper or card, showing a right angle. Ask your child to walk around the kitchen/home and identify right angles. Alternatively, give your child a paper plate. Fold the plate into quarters. When folded over, a hard right angle is formed.



Paper plate to fold

Extension: Ask your child to use his/her body (arms, legs, fingers, etc.) to make right angles and angles that are greater than and less than a right angle.

Your child will be dealing with all coins up to and including the €2 coin as well as the €5 and €10 notes over the coming days. This will be done using play money or real coins. Your child needs to know the language associated with money, such as: euro, €1, €2, coins, €5, €10, notes, equal, the same amount as, blank, least number, amounts, different ways, bought, cost, more, cent, change, I had, spent, left, between, items, add, subtract, subtraction, minus, take away.

Target money numbers

Give your child a selection of real/play/cardboard 1c, 2c, 5c, 10c, 20c, 50c, €1and €2 coins, as well as a €5 and a €10 note. Pick a target number and write it on a sticky note or piece of paper, e.g. €7·66. Ask your child to make this target amount, using the least number of coins possible. Encourage your child to start with the biggest possible coins, for example:
€8·59 = €5 + €2 + €1 + 50c + 5c + 2c + 2c
€5·98 = €5 + 50c + 20c + 20c + 5c + 2c + 1c
€9·76 = €5 + €2 + €2 + 50c + 20c + 5c + 1c
€8·73 = €5 + €2 + €1 + 50c + 20c + 2c + 1c
€9·92 = €5 + €2 + €2 + 50c + 20c + 20c + 2c
€4·95 = €2 + €2 + 50c + 20c + 20c + 5c

Let's go shopping!

When you bring your child shopping with you, encourage him/her to read the prices of various items. Try to get your child to identify the € symbol and the decimal point. Explain that the dot (decimal point) separates the euro from the cent. Show your child two different price tags in a shop, e.g. €8·76 and €5·27. 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 beans or the potatoes? How much dearer/cheaper are the cornflakes than the washing powder? How much dearer are the pears than the bananas?*

Making €10

Explain to your child that you want him/her to use coins to make €10 in a variety of ways. When your child has made €10, ask him/her to record the coins and notes that s/he used. Now, ask your child to make €10 using a different combination of coins and notes. Encourage your child to make up to eight different combinations of coins that make €10.
Examples:
€10 = €5 + €5
€10 = €5 + €1 + €2 + €2
€10 = €5 + €2 + €2 + 50c + 50c
€10 = €5 + €2 + €2 + 50c + 20c + 20c + 10c
€10 = €5 + €2 + €1 + 50c + 50c + 50c + 50c
€10 = €5 + €2 + €2 + 50c + 20c + 20c + 5c + 5c
€10 = €5 + €2 + €2 + 50c + 20c + 20c + 10c

Giving change from €10

Ask your child to help you to make a play shop in a section of a room. Collect a number of easily-sourced items. Use sticky notes or pieces of paper as price tags. Place the price tags on/under the items. No item should cost more than €9·99.
Give your child a selection of coins as well as a €10 note. Explain to your child that s/he will play the role of shopkeeper and that you will play the role of shopper. You will have a €10 note and will purchase one of the items with price tags. Addition/subtraction of these amounts will come later, so there is no need to ask your child to add two or more items at this stage. Hand in a price tag, e.g. for the jumper, which could cost €6·72, as well as the €10 note. The shopkeeper has to give you change. Encourage your child to count on when giving change, e.g. €6·72 + 3c → €6·75 + 5c → €6·80 + 20c → €7·00 + €2 → €9 + €1 gets us to €10. Change = 3c + 5c + 20c + €2 + €1 = €3·28. You could ask your child to come up with an alternative method for giving change, e.g.
€6·72 + €3·00 → €9·72 + 3c → €9·75 + 5c → €9·80 + 20c gets us to €10. Change = €3·00 + 3c + 5c + 20c = €3·28.
After a number of transactions have taken place, you can swap roles.

Lines of money

For this activity, you will need a €5 note and some €2, €1, 50c, 20c, 10c, 5c, 2c and 1c coins. Place a number of the coins and a note out of sequence in a row on the kitchen table. Ask your child to total the amount of money that is on view. Do not go beyond €10.
Examples:
€1 + €2 + 50c + 20c = ?
€2 + €5 + 10c + 50c = ?
10c + 50c + 1c + €5 = ?
€1 + €2 + 50c + 20c = ?
1c + 2c + €2 + €5 + €1 = ?

This activity will help your child count quickly. Although the amounts are jumbled up, encourage your child to start with the biggest amount.

Pattern all around us

Your child will be exploring pattern 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 patterns, such as: copy, extend, devise, predict, pattern, repeated pattern, vertical, horizontal, lifecycle, rough, smooth, 10th/15th element of the pattern, before, after, What is the rule?, sequence, hundred square, odd, even, calculator, language of ordinal number, row, column, number bond, digit, palindrome, forwards, backwards, multiples, strategy, number sentence, equal to, has the same value as, balance, tilt, scales, word problem, number sentence.

Clap and stamp

Ask your child to skip-count forwards in 2s, 3s, 4s, etc. up to 10s, clapping hands as s/he says each number. Then you can say, *backwards*, and your child must count backwards from the number s/he said last, stamping his/her feet or clapping hands as s/he counts each number. You can then say, *forwards*, and your child must count forward from the number that s/he said last, stamping his/her feet or clapping hands as s/he counts each number. This is good revision of work done on multiplication and division tables to date.

What is missing?

Place a simple pattern of fridge magnets on the fridge door, e.g. camel, elephant, cow, lion, camel, elephant, cow, lion, camel, elephant, cow, lion. Ask your child to close his/her eyes. Remove one animal and ask your child to say which animal is missing from the pattern. This can also be done using alphabet letter fridge magnets.

Pattern detective!

Ask your child if s/he can see/find patterns around the house, e.g. wallpaper, gift-wrapping paper, clothes with defined patterns, wall/floor tiles, curtains, Ask your child to examine these patterns. Talk to him/her about the way each pattern is repeated.

Make patterns and count

Ask your child to make a pattern using any suitable material, e.g. socks, coins, etc. For example, by joining three of the same colour together followed by three of a different colour. Your child should repeat this pattern until s/he has approximately 15–20 items in the pattern.

Integrate patterns

Pattern is associated with nearly all subjects in the curriculum. Have fun copying, extending and devising the following patterns. Always invite your child to say what comes next and to explain his/her reasoning for the answer.

- **P.E.:** Take a long/short/long step… etc.
- Clap hands/touch knees/touch toes/clap hands… etc.
- **Visual Arts:** You can have great fun with your child on a wet day making matchbox or cut-potato patterns. Dip one side of a matchbox in paint and use it to create a vertical/horizontal/vertical pattern. These patterns can be as long or short as you wish.
- Design a necklace with three to four different-coloured beads. If you don't have beads, your child can just draw the pattern.
- **Science:** Use rough and smooth materials to make rough/smooth/rough… patterns.

Money patterns

Give your child some 5c, 10c, 20c, 50c and €1 coins. Ask your child to copy, extend and devise patterns with the coins, as in the example below.

Extension: Ask your child to predict what the 10th/15th etc. coin in the pattern will be.

Time patterns

Discuss the days of the week pattern with your child. Ask your child: *What day comes before/after Wednesday? What day comes before Tuesday?* Do a similar activity with the months of the year and the seasons.

Extension: Ask your child to predict what the sixth/eighth etc. element of the pattern will be.

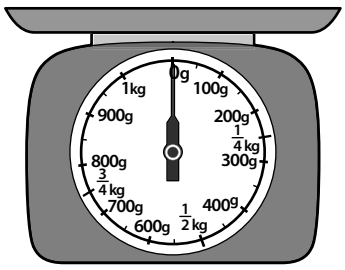
Your child will be dealing with weight – kilogrammes (kg) and grammes (g) – over the coming days. Your child needs to know some of the language associated with weight, such as: kilogramme, gramme, more than, less than, about, balance, estimate, weight, measure, weighing scales, digital, ½, ¼, ¾, heaviest, lightest, total, heavier, lighter, addition, subtraction, add, subtract, weighs, cent, euro, etc.

The kilogramme

Find some 1kg packages in the kitchen, e.g. sugar, rice, fruit, potatoes, flour, butter, pasta, etc. Show them to your child. Discuss the size of the different packages and explain that while each of them weighs 1kg, the size may differ greatly depending on the material. 1kg of cotton wool would take up a lot more space than 1kg of pebbles/stones.

Extension: Encourage your child to use his/her hands as a weighing scale. Invite him/her to estimate whether an apple is lighter or heavier than 1kg. Your child must pick up a 1kg weight (e.g. bag of sugar/ flour/pasta shells, etc). In turn, s/he must pick up the apple and compare the two weights. This activity could be carried out using countless familiar objects from around the home (e.g. pineapple, bowl, plant, teapot, pot, cushion, loaf of bread, etc.)

Using a traditional weighing scales



traditional weighing scales

For this activity, you will need a regular kitchen weighing scales and a selection of objects to weigh, e.g. apple, orange, pear, banana, lunchbox, pencil, marker, book, cup, tin of peas, etc. Encourage your child to weigh out a specific weight of each object e.g. weigh out 300g of cereal, 150g of apples, 200g of oranges, etc. Now, focus your child's attention on a specific object, e.g. an apple. Ask your child to estimate how many grammes it might weigh. Next, ask your child to weigh the apple on the scales. Repeat this activity with a selection of objects.

Extension 1: Ask your child to determine if his/her estimate was accurate.

Extension 2: Ask your child to determine the difference in grammes between the estimate and the actual weight.

Using a digital weighing scales

digital weighing scales

If you have a digital scales, it will be a great tool to help your child to develop a good understanding of the gramme. Encourage your child to find something in the house that weighs 1g. Through trial and error, your child should eventually realise how light 1g actually is. Continue the activity by changing the focus of the search, e.g. find something that weighs 5g, 10g, 50g, 100g, 250g, 500g, 800g, etc.

Follow a recipe

You and your child could have great fun baking (e.g. bread, muffins, cupcakes, scones). Following a simple recipe, encourage your child to weigh out the different ingredients. Make sure that you are on hand when your child is dealing with a hot oven. Explain to your child that s/he must handle any hot or sharp utensils with great care.

Make a kilogramme weight

For this activity, you will need a traditional weighing scales or a digital scales, some pasta shells/sand/ marbles or whatever you have to hand and a strong bag. Place the bag on the scales and ask your child to place the pasta shells into the bag. S/He must look carefully at the scales as s/he does this and stop when the scales show 1kg. Tie the bag. S/He now has a 1kg weight that can be used to find items around the house that are around 1kg, more than (>) 1kg or less than (<) 1kg.

Surface area

Over the next few days/weeks, your child will be learning about surface area. S/He needs to know the language associated with surface area, such as: area, surface, squares, shapes, estimate, measure, maths book, table, stamps, playing cards, tiler, carpet tiles, room, kennel, patio, shed, lawn, flower bed.

Measuring a birthday card

Give your child some stamps of similar size. Ask your child to estimate and then measure how many stamps are needed to cover the surface area of a birthday card.

Note: There may not be an exact amount of stamps needed. Encourage your child to round up if part of a stamp is required in the measurement.

Measuring a book

Give your child some cubes/football cards. Ask your child to estimate how many cubes/football cards will be needed to cover the surface of his/her English reader. Your child should record his/her estimate on a sheet of paper. Next, ask your child to measure how many cubes/football cards are needed to cover the surface of his/her English reader. Encourage your child to round up if part of a cube/football card is required in the measurement.

Measuring a table

Give your child a deck of playing cards and some greeting cards. Ask your child to measure the surface area of a table using greeting cards. Next, ask your child to estimate how many playing cards will be needed to cover the surface of the table. Your child should record his/her estimate on a sheet of paper. Next, ask your child to measure how many playing cards are needed to cover the surface of the table.

Extension: Invite your child to discuss how many playing cards/greeting cards were needed to cover the table. Ask him/her to give reasons as to why. Ask your child which type of card was best to cover the table and why. (**Possible responses:** The Christmas cards were best, because I had more of them./The birthday cards were best, because they were bigger, so I needed to use fewer of them./The playing cards were much better, because they were all the same size, so I got a more accurate measurement.)

Measuring the floor

Give your child some A4 sheets of paper. Ask him/her to measure the surface area of a small rug using the A4 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/bathroom floor using the A4 sheets of paper.

Measuring an A4 sheet of paper

Give your child about 50 interlocking cubes and an A4 sheet of paper. Ask your child to estimate and then measure how many cubes are needed to cover the surface area of the A4 sheet of paper. Next, give him/her some stamps of similar sizes and ask him/her to carry out the same exercise.

Variation: Ask your child to measure the surface area of the A4 sheet of paper using playing cards.

Extension: Invite your child to discuss how many more/fewer cubes, stamps and playing cards were needed to cover the A4 sheet of paper. Ask him/her to give reasons as to why.

Measuring with small squares

Ask your child to mark an A4 sheet of paper with small squares of equal area (30cm x 30cm 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 out the small squares. This will also help his/her hand/eye coordination. Advise your child to be careful when using a pair of scissors. Ask your child to estimate/measure the surface area of a playing card using the small squares. This will be good practice for the activities on pages 161–164 of *Busy at Maths 3*.

Puzzles

Ask your child to count the number of small squares found in sudoku, word and crossword puzzles, or on a chess/draughts board. You may like to introduce your child to some simple sudoku puzzles.

Measuring capacity

Your child will be learning about capacity (the measure of the amount of liquid that a container can hold) over the coming days. Your child needs to know the language of capacity, such as: capacity, litres, containers, more than, about, less than, liquid, estimate, measure, ½, ¼, ¾, total, millilitres, least, most, unit, addition, add, subtract, subtraction, take away, left, rename, bottles.

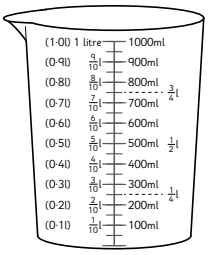
The litre

Find as many 1-litre containers as you can around the home, e.g. milk carton, juice carton, bottle of water, ice cream tub, lunch box, Thermos flask, moisturiser bottle, mouthwash bottle, washing-up liquid, fabric softener, shower gel, cooking oil, etc. Display a selection of these containers. Discuss the shapes. While the shapes may vary greatly, the capacity (the amount of liquid held) is always the same – 1 litre!

Extension: Encourage your child to test the above containers by filling one of them with a material such as water, sand, pasta shells, etc. S/He must then pour the material from this container into another empty 1-litre container. The material should fill the container exactly (allowing for the small empty section that is left at the top of most commercial containers).

> 1 litre, about 1 litre, < 1 litre

For this activity, your child will need a 1-litre measuring jug (one that is graduated in millilitres and used for measuring liquids in the kitchen), water and a selection of empty containers of different shapes and sizes.



1-litre measuring jug

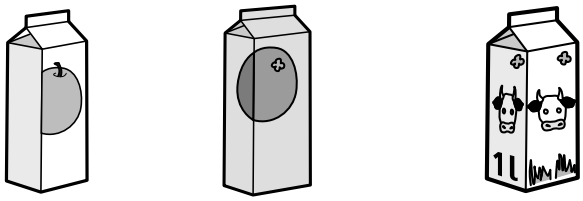
Invite your child to estimate which containers hold more than, less than or about 1 litre. Next, ask him/her to measure the capacity of each container by filling it with water. Your child should pour the water from the container into the 1-litre jug. If there is space left in the jug, the container holds less than 1 litre. If there is water left over (allowing for the empty section that is left at the top of most commercial containers) it is more than 1 litre.

Using a measuring jug

For this activity, your child will need a measuring jug, water, containers of different shapes and sizes. Ask your child to measure out different amounts of water, e.g. pour 100ml/200ml/500ml/850ml, etc. into the jug. Ask your child to write down an estimate for each measure on a sheet of paper. Then ask him/her to check if the measurements are correct.

Extension: After measuring out a specific amount of water (e.g. 500ml), invite your child to pour the water into a selection of containers of different shapes and sizes. This will demonstrate to him/her that 500ml can look very different in a large, wide container as opposed to a tall, narrow container.

Make a delicious drink!



juice

Note: Any healthy juices will do for this activity. You may prefer to do this activity early in the morning, so that your child can have the drink as part of his/her breakfast.

Give your child an A4 sheet of paper and a selection of liquids, e.g. orange juice, apple juice, sparkling water, pineapple juice, lemon, lime, etc. Your child must aim to create a recipe for the most delicious drink possible! S/He can experiment by measuring out different amounts of the liquids of his/her choice and combining them in a glass or plastic bottle, e.g. 50ml of orange juice, 25ml of sparkling water, 75ml of pineapple juice. Ask your child to write down the exact measurement of each ingredient that makes up the drink. S/He may experiment with up to four different recipes. Ask your child to taste each drink and decide on a favourite!

Coins and notes

Your child will be dealing with all coins and notes up to and including the €20 note over the coming days. Your child needs to know the mathematical language associated with money, such as: money, euro, €1, €2, coins, €5, €10 and €20 notes, equal, the same amount as, blank, least number, amounts, different ways, bought, cost, more, cent, How much change?, I had, spent, left, between, items, add subtract, subtraction, minus, take away, customers, shop, moneyboxes, needs to save.

Target money numbers

Give your child a selection of real/toy/paper 1c, 2c, 5c, 10c, 20c, 50c, €1 and €2 coins as well as €5, €10 and €20 notes. Pick a target number and write it on a sticky note or piece of paper, e.g. €13·48. Ask your child to make this target amount, using the least number of coins and notes possible. Encourage your child to make the target number by starting with the biggest possible coins/notes.

Examples:

€13·47 = €10 + €2 + €1 + 20c + 20c + 5c + 2c
€16·35 = €10 + €5 + €1 + 20c + 10c + 5c
€17·37 = €10 + €5 + €2 + 20c + 10c + 5c + 2c
€18·62 = €10 + €5 + €2 + €1 + 50c + 10c + 2c
€11·76 = €10 + €1 + 50c + 20c + 5c + 1c
€19·72 = €10 + €5 + €2 + €2 + 50c + 20c + 2c
€19·75 = €10 + €5 + €2 + €2 + 50c + 20c + 5c
€1·99 = €1 + 50c + 20c + 20c + 5c + 2c + 2c

Price tags

Ask your child to make price tags for items around the home with prices up to €19·99. Put the price tags with the items. Give your child some real coins from 1c to €2 and some real/play/Monopoly notes up to €20. Ask some or all of the type of questions listed below. There will be more than one answer for some of the 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 toaster than the kettle?*
- *How much cheaper is the chair than the table?*
- *Which two items together cost the same as the microwave oven?*
- *Which two items together cost the same as the mixing bowl?*
- *Which three items together cost the same as the TV?*

Have your child act as the shopkeeper and you as the shopper. Have him/her add the totals of the purchases and give the correct change. Then, reverse the roles with your child as the shopkeeper.

Making €20

Give your child a selection of real/toy/paper 1c, 2c, 5c, 10c, 20c, 50c, €1 and €2 coins as well as €5 and €10 notes. Explain to your child that you want him/her to use different coins and notes to make €20 in a variety of ways. When your child has made €20, ask him/her to record the coins and notes that s/he used. **Examples:**

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

Let's go shopping!

When you bring your child shopping with you, encourage him/her to read the prices of various items. Try to get your child to identify the € symbol and the decimal point. S/He should now begin to understand the decimal point at this stage. Explain that the dot (decimal point) separates the euro from the cent. Show your child two different price tags in the shop, e.g. €12·72 and €14·36 (do not go beyond €19·99 at this stage if you can avoid it). Ask your child to decide which item is dearer/cheaper. Use language such as:

- *Which of these two items is dearer/cheaper?*
- *Which costs more/less: the six pack of juice or the 5kg of potatoes?*
- *How much dearer/cheaper is the shampoo than the mince?*
- *The steak costs €8·54. If I buy the steak, what change will I get from €10/€20?*
- *If I buy the 5kg of potatoes, what change will I get from €10/€20?*

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

The house shop

Set up a small shop, using items from your kitchen, e.g. a tin of beans, a carton of milk, etc. Assign a price to each item (up to €19·99) as done in the earlier exercise with the price tags. Have fun 'buying and selling' items with your child. Use real coins/notes if possible.