**STARTERS BANK**

Oral and mental starters are an extremely valuable addition to any maths lesson. They can:

* Provide a lively opening activity.
* Set a purpose to the lesson.
* Be used to gather valuable formative assessment information as you establish what the children already know about a specific topic.
* Focus on skills that are relevant to that day’s work or rehearse and consolidate number facts, skills, terminology, etc. from previous strand units.
* Promote the development of children’s mental calculation strategies, including estimating and problem-solving, mental visualisation skills and the ability to communicate and express ideas depending on the specific activity.
* Include a competitive element, e.g. a game between groups (such as Four Rolls to Ten Thousand).

### Hints and tips:

* Ideally games should last no longer than five or 10 minutes (set a timer so as not to go over 10 minutes).
* Starters should be simple to organise and set up, with minimal equipment and therefore minimal tidying up.
* They should incorporate the active involvement of the whole class, e.g. MWBs for *write, hide, show.*

# Four Rolls to Ten Thousand

Divide the class into four, five or six groups. Each group rolls one dice once, in turn, to get a number. They decide whether to assign the value of units, tens, hundreds or thousands to the digit rolled. This is done for four rounds. The winning group is the one that is closest to 10,000.

For example, in Round 1, group one rolls a 6 and calls it 6,000, group two rolls a 1 and call it 1,000 etc. In Round 2, group one rolls a 6 again and decides to call it 600, as if they called it 6,000 they would go over 10,000 with two more rolls yet to do.

Suitable questions/instructions:

* ‘Who was closest/furthest away?’
* ‘How far away was your group from ten thousand?’
* ‘Let’s order the groups’ final totals from smallest to largest.’

## Variation

* 1. **Four Rolls to Ten/One:** Play as above, but this time each group decides whether to assign the value of units, tenths, hundredths or thousandths to each roll. The winning group is the one that is closest to 10 or 1.

# Blank 100 Square

You can use the 100 Square e-Manipulative for the first activity here (accessed through the teacher login site, edcodigital.ie). Change the counter option to ‘Numbers only’ and click the ‘empty grid’ button. This will result in a blank 100 square that you can fill with numbers by clicking on each empty cell. See how quickly you can fill it in as a class.

Call up individual children to fill in the following (the questions develop in difficulty, so you can assign them in such a way as to facilitate differentiation):

* A column going down
* A column going up
* A row going left to right
* A row going right to left

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* A diagonal going left to right
* A diagonal going right to left
* A group of remaining five/six squares Continue until the 100 square is complete.

## Variations

1. Instead of filling in the numbers 1 to 100, you could fill in 1,001 to 1,100, 6,201 to 6,300, etc. Please note that the 100 Square e-Manipulative can only show numbers from 1 to 100.
2. **Blank Hundredths Square:** The numbers start at 0.01 and go up.

# Choral Counting

Using a number line, 100 square or a counting stick, count on and back in units, tens, hundreds, thousands or any multiple (e.g. 2, 3, 4, 25, 50); quarters, thirds, fifths, etc.; or tenths and hundredths in fraction, decimal or percentage form, etc., from zero initially and then from different start and finish points. Please note that the Counting Stick e-Manipulative can only show numbers up to 999.99. As the children get more comfortable, remove the visual support of the number line, 100 square or counting stick.

## Variations

* 1. **Clap and Change:** The children start counting and every time you clap they change direction, i.e. count back/count forward.
	2. **Move and Count:** This suits kinaesthetic learners. While counting the children stand, sit, stand, sit, etc. as they say each number. They could also clap hands, slap hands on knees, clap, slap, clap, slap, etc.

# Counting Stick

You can use the Counting Stick e-Manipulative for many of these activities (accessed through the teacher login site, edcodigital.ie). Type numbers into the ‘Start at’ and ‘Steps of’ fields to change the range of numbers shown.

## Number Bonds of 100 (Multiples of 10 and 5)

Using the counting stick, teach the number bonds of 100. Establish that the beginning of the stick is 0 and end is 100. Ask:

* (Point at 90s position.) ‘What number goes here? How do you know? How many is it away from 100?’
* (Point at a location halfway between 70 and 80, i.e. 75.) ‘What number goes here? How do you know? How many is it away from 100?’
* ‘Where would the number 95 go? How do you know? How many is it away from 100?’ Repeat for other multiples of 10 and 5.

## Variations

1. **Number Bonds of 1,000 (Multiples of 100 and 50):** As above, but establish that the beginning of the stick is 0 and the end is 1,000. Please note that this variation cannot be achieved using the Counting Stick e-Manipulative.
2. **Number Bonds of 10,000 (Multiples of 1,000 and 500):** As above, but establish that the beginning of the stick is 0 and the end is 10,000. Please note that this variation cannot be achieved using the Counting Stick e-Manipulative.

### Starters Bank

1. **Decimals:** As above, but establish that the beginning of the stick is 0 and the end is 1. Ask: ‘Where is 0.4? Where would 0.25 go?’ Please note that this variation cannot be achieved using the Counting Stick e-Manipulative.
2. **Counting Stick Multiples:** Using a counting stick, count on and back in in twos, threes, fours, etc. Select points at random along the length of the counting stick and ask the children, ‘What number goes here?’ The children can call out their responses or write the answers on their MWBs. Prompt the children if necessary to work out what multiples go in certain places, e.g. zero is at the beginning when counting up in twos, then 20 is at the end and 10 is in the middle because it’s halfway between 0 and 20, etc.
3. **Counting Stick Rounding:** Depending on the number you are rounding, decide what is to be the number at the end of the stick. For example, if using a four-digit number, the end of the stick should be 10,000, with each interval representing 1,000. Using the counting stick, ask a child to identify approximately where they’d place the number 1,236, then ask them to identify the thousand before and after this number (use the interval markings on the stick). Finally, they should say which thousand the original number was closer to, i.e. the rounded number. Please note that this variation cannot be achieved using the Counting Stick

e-Manipulative.

# Facts Ball

Using a large ball (e.g. beach ball, plastic ball, foam ball), throw it to a child and call out a number fact.

The child who receives the ball must answer it. You (or an able child) can stand in the centre throwing all around you, or the ball can just be thrown around the group, with the thrower each time making up the next number fact for the catcher.

## Variations

* 1. **Skip Count Ball:** Throw the ball around the group saying the next multiple in turn, e.g. 25, 50, 75, etc.
	2. **Fractions, Decimals and Percentages:** The thrower calls out a fraction, e.g. \_1 , and the receiver has to call

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out the equivalent decimal or percentage, e.g. 0.25 or 25%.

# Number Facts Ping-Pong

Everybody plays an imaginary game of tennis or ping-pong!

You mime the first serve and call out a number fact, e.g. 4 + 10, 2 × 6, 80 ÷ 10, etc. The children mime its return and call out the answer. You then ‘bat back’ with another question that the children respond to. You can adjust the difficulty by changing the questions you call out. Initially it might be better to stick to one group of facts at a time and one operation. Then, as the children get more confident, a mixture of facts and operations could be used.

## Variations

1. **Skip Count Ping-Pong/Tennis:** As above, but the children need to know beforehand what number they are skip counting in, e.g. twos, fives, tens, twenty-fives. You mime the first serve and call out a number,

e.g. 2. The children mime its return and call out the next digit in the skip-count, e.g. 4. You then ‘bat back’ with the next number, e.g. 6. The children respond with the next number, e.g. 8. As the children get more confident, you can begin from various starting points, e.g. skip counting in twos but start at 84.

1. **Fractions, Decimals and Percentages:** You call out a fraction, e.g. \_1 , and the children call out the

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equivalent decimal or percentage, e.g. 0.25 or 25%.

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# Find and Fix

This involves the children finding mistakes and then fixing them by redoing the calculation correctly and suggesting how the same mistake might be prevented in the future. More formally known as error analysis, it is an extremely important strategy for making the children aware of their own mistakes.

Write on the board anonymous examples of possible mistakes that the class can then find and fix (working in pairs on their MWBs, perhaps). These mistakes can be ones that you have made up or have noted in the children’s own work.

## Variation

* 1. **My Favourite Mistake:** The children write down on post-it notes their choice of one of their incorrect calculations and post this into a ‘My Favourite Mistake’ box. You can then select ones from this as examples to show and discuss with the class.

# Missing Numbers (Fractions/Decimals)

Draw a quick number line on the board from 0–3, labelled 0, 1, 2, 3. Ask individual children to mark intervals to represent a specific fraction, e.g. halves, quarters, eighths, etc., on the number line. Then label each interval, e.g. \_1 , 2\_ , \_3 , 1, 1 \_1 , etc. Count forwards or backwards from various starting points, with all the labels

4 4 4 4

in place, to build the children’s confidence. Then rub out or cover one fraction label and count out loud

again. Remove another label one at a time until the children can say all the fractions with no labels.

## Variations

1. **Equivalent Fractions:** For equivalent fractions, use as above but include relevant equivalent fractions. When choral counting, call out the fraction expressed in its simplest form, e.g. \_1 instead of 2\_ . To count on in

2 4

fractions to larger numbers, e.g. 5, start further along, e.g. 4, 4 \_1 , 4 \_1 , 4 \_3 , etc.

4 2 4

1. **Decimals:** Use decimal numbers, i.e. intervals for tenths, hundredths, thousandths or percentages (it would be beneficial if the numbers also bridged a whole number).

# Number of the Day

Write a random two-, three- or four-digit number in standard form. Ask each pair of children to write or do one of the following in relation to the number on their MWBs or using PCM 17 on p. 238. Please note that this variation cannot be achieved using the Counting Stick e-Manipulative.

* Write it in word form.
* Write it in expanded form.
* Build it (using concrete materials).
* Draw it (pictorial representations of concrete forms).
* Round it to the nearest 10, 100 and/or 1,000.
* Put it in the middle of a blank number line and write in the two numbers that come before and after it.

● Double it, +1, +10, +100, +1,000,–1, –10, –100,–1,000.

The range of seven *Operation Maths* e-Manipulatives may also be used to illustrate different ideas for ‘Number of the Day’.

As the children get more familiar with this task, you can ask them to fill in the information individually/in pairs on p. 106 of their Discovery Book.

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**Variation**

* 1. **Decimal Number of the Day:** As before, but using p. 107 of the Discovery Book or PCM 18 on p. 239 and using whole numbers, tenths and hundredths, e.g. 1.4, 36.75, 23.68, etc. As the children get more familiar with this task, you can ask them to fill in the information individually/in pairs on p. 107 of their Discovery Book.

# Place Value Choir

Divide the children into four groups: units, tens, hundreds and thousands. Using the Place Value

e-Manipulative and/or a numeral flip with units, tens, hundreds and thousands, make a series of numbers by adding/subtracting the units or tens or hundreds or thousands. When you change the units, the units group calls out the number, when you change the tens, the tens group calls out the number, and so on.

## Variations

1. Switch groups or count backwards.
2. Pretend to turn the numeral chart and ask the children to call out the numbers as usual (but without seeing you flip the numbers), thus encouraging their visualisation of numbers.
3. **Decimal Place Value Choir:** Start with three groups in the choir: units, tenths and hundredths. As the children get more confident you could increase to four groups (tens, units, tenths and hundredths) or even five (hundreds, tens, units, tenths and hundredths).

# Sound of a Number

Using an empty tin box, drop in a number of cubes, coins or washers, each one representing a set amount,

e.g. 25, 50, 30, etc. Ask the children to count up in their heads the value of the coins as they’re being dropped in, e.g. 30, 60, 90, 120. The children can call out the answer or write it in on their MWBs to do *write, hide, show*. You can also ask them to say how many cubes/coins/washers are in the box, reinforcing that, for example, six cubes/coins/washers equal 180, so that the children don’t become over-reliant on skip counting.

## Variations

1. **Coins:** Drop in some coins. Ask the children to pause and hold the number in their head and then continue dropping in some more. Can they tell you the total value of coins?
2. **Sound of a Number (Tenths/Hundredths in Decimal or Percentage Form):** Drop in 10c coins as tenths or 10% of a euro or 1c coins as hundredths or 1% of a euro. Inform the children which coin is being used and if you change to a different denomination. The children should count up and then write the final number in both fraction, decimal and/or percentage form on their MWBs.

# Target Boards

The target boards can be shown on the IWB or use PCMs 1–9 on pp. 221–229. The children could then come up to the board to show the answer or they could write the answers on their MWBs. Point at a number/ numbers/digit/row/column and ask the children any of the points that accompany each board.

## Target Board 1: Place Value

* ‘Show me a three-/four-/five-digit number.’
* ‘Show me an odd/even number.’
* ‘Show me a number with a 6 (or any other digit) in the units/tens/hundreds/thousands/ten thousands place.’

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* ‘Say/write this number in word form.’
* ‘Build this number for me (using base ten concrete materials).’
* ‘Draw me a picture of this number.’
* ‘Can you show me a different picture for this number (i.e. non-canonical arrangement, e.g. for 861 draw 8H 5T 11U or 7H 16T 1U)?’
* ‘Write this number in expanded form.’
* ‘Can you show me this number another way in expanded form (i.e. non-canonical arrangement, e.g. for 861 write 800 + 50 + 11 or 700 + 160 + 1)?’
* ‘What is the value of this digit?’
* ‘Show me the largest number in this row/column/on the entire board.’
* ‘Show me the smallest number in this row/column/on the entire board.’
* ‘Put the numbers in this row/column in order from the largest to the smallest (and vice versa).’
* ‘Show me a multiple of 10.’
* ‘Round this number to the nearest 10/100/1,000.’

## Target Board 1: Addition and Subtraction

(All answers should be within 9,999.)

* ‘Double this number. Double this number plus/less one or plus/less two.’

● ‘Add 1/10/100/1,000 to this number. Add 3/30/300/3,000 to this number. Add 8/80/800/8,000 to this number.’

* ‘Subtract 1/10/100/1,000 from this number. Subtract 3/30/300/3,000 from this number.’
* ‘Pick out two numbers that you think are easier to add together. Explain why you picked these.’
* ‘Pick out two numbers that you think are easier to subtract from each other. Explain why you picked these.’
* ‘Estimate the sum of/difference between these two numbers.’
* ‘What would you need to subtract from this number to bring it to the previous 10/100/1,000?’
* ‘What would you need to add to this number to bring it to the next 10/100/1,000?’
* ‘Add these two/three numbers together.’
* ‘Subtract this number from this number/find the difference between these two numbers.’

## Target Board 2: Decimals (one, two and three places)

* ‘How do we say this decimal number in fraction and/or decimal form?’
* ‘Express this decimal in expanded form using tenths, hundredths and thousandths or all tenths/ hundredths/thousandths.’
* ‘Find a number that has three tenths/six hundredths/seven thousandths.’
* ‘Which of these decimal numbers represents one-tenth/two-tenths/eight-hundredths?’
* ‘Which of these decimal numbers represents one whole/one half/one-quarter/three-quarters?’
* ‘Which of these decimal numbers is almost one half?’
* ‘Which of these decimal numbers is worth less/more than a half?’
* ‘Which of these decimal numbers is more than three-tenths but less than six-tenths?’
* ‘What is the larger/smaller decimal number? What sign could we put between them?’
* ‘What is the largest/smallest decimal number in this row/column?’
* ‘Put the decimal numbers in this row/column in order, starting with the largest/smallest*.’*
* ‘Round this number to the nearest unit/tenth/hundredth.’

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**Target Board 2: Addition and Subtraction (decimal numbers)**

* ‘Double this number.’

● ‘Add 10/1/0.1/0.01/0.001 to this number. Add 8/0.8/0.08/0.008 to this number.’

* ‘Subtract 10/1/0.1/0.01/0.001 from this number. Subtract 8/0.8/0.08/0.008 from this number.’
* ‘Pick out two numbers that you think are easier to add together. Explain why you picked these.’
* ‘Pick out two numbers that you think are easier to subtract from each other. Explain why you picked these.’
* ‘Estimate the sum of/difference between these two numbers.’
* ‘What would you need to subtract from this number to bring it to the previous unit/tenth/hundredth?’
* ‘What would you need to add to this number to bring it to the next unit/tenth/hundredth?’
* ‘Add these two/three numbers together.’
* ‘Subtract this number from this number/find the difference between these two numbers.’

## Target Board 3: Time

* ‘Say this time in analogue form.’
* ‘Write a time that says quarter past/quarter to/o’clock/25 to/16 minutes past/24 minutes to.’
* ‘Show me the earliest time in this row/column/on the entire board.’
* ‘Show me the latest time in this row/column/on the entire board.’
* ‘Put the times in this row/column in order from the earliest to the latest (and vice versa).’
* ‘Write the time that would be one hour (two hours, three hours, etc.) earlier/later than this time.’
* ‘Write the time that would be 10 minutes (30 minutes, 20 minutes, 3 minutes, 12 minutes, etc.) earlier/ later than this time.’
* (Point at two times.) ‘How long from this time to this time?’
* ‘Rewrite these times using a.m. or p.m.’

## Target Board 4: Money

* ‘Show me the largest amount in this row/column/on the entire board.’
* ‘Show me the smallest amount in this row/column/on the entire board.’
* ‘Put the amounts in this row/column in order from the largest to the smallest (and vice versa).’
* ‘Find me two amounts that together make 35c/€1.21/€699/€3,804.’
* ‘Add the least amount to the greatest amount in this row/column.’
* ‘Subtract the least amount from the greatest amount in this row.’
* ‘If you went to the shop with €1/€20/€100/€1,000 and spent this amount, what change would you get?’
* ‘Write the amount that would be €1/€2/50c/€20/€50/€250 more/less than this amount.’
* ‘Double this amount.’
* ‘Rewrite this amount as cent.’
* ‘Rewrite this amount using the € sign.’

## Target Board 5 (halves, quarters, eighths or tenths)

**Target Board 6 (halves, thirds, quarters, sixths, ninths, twelfths) Target Board 7 (fractions and mixed numbers)**

* ‘What does this fraction say?’
* ‘Which of these fractions means divided into two/three/four equal parts?’
* ‘Which of these fractions represents one equal part of a whole (is a unit fraction), i.e. \_1 , \_1 , \_1 , etc.?’

2 3 4

* ‘Which of these fractions represents more than one equal part of a whole (is a multiple fraction), i.e. 2\_ ,

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\_3

4, etc.?’

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* ‘Which of these fractions are the same as/more than one whole?’ (Target Board 5 only.)
* ‘What is the numerator?’
* ‘What is the denominator?’
* ‘Can you see any equivalent fractions?’
* ‘Can you see any fractions that are already in their simplest form?’
* ‘What is this fraction in its simplest form?’
* ‘Which is the largest/smallest fraction in this row/column?’
* ‘Put the fractions in this row/column in order, starting with the largest/smallest.’
* ‘Convert this mixed number to an improper fraction.’
* ‘Find the total of/difference between these fractions.’
* ‘Multiply this fraction by 2/3/4, etc.’

## Target Board 8: Percentages

* ‘Which of these percentages is or almost is one half?’
* ‘Which of these percentages is worth less/more than a half?’
* ‘What is the larger/smaller percentage? What sign could we put between them?’
* ‘What is the largest/smallest percentage in this row/column?’
* ‘Put the percentages in this row/column in order, starting with the largest/smallest.’
* ‘Which two of these percentages can be combined to make 100% or one whole?’
* ‘Which three of these percentages can be combined to make 100% or one whole?’
* ‘How do we say this percentage in fraction and/or decimal form?’
* ‘Which of these decimal numbers represents one-tenth/two-fifths/one-twentieth?’
* ‘Which of these percentages is more than three-tenths but less than six-tenths?*’*

## Target Board 2: Converting Decimals to Percentages (one and two places)

(Can also be used for percentages.)

* ‘How do we say this decimal number as a percentage?’

## Target Board 9: Directed Numbers

* ‘What does this say?’
* Which of these directed numbers is above/below zero?’
* ‘How far from zero is this number?’
* ‘What is the opposite of this number?’
* ‘Which is the larger/smaller directed number? What sign could we put between them?’
* ‘Which is the largest/smallest directed number in this row/column?’
* ‘Put the directed numbers in this row/column in order, starting with the largest/smallest.’
* ‘How many steps from this number to this number?’
* ‘What is the difference between this number and this number?’

# Number Facts Champion

All the children stand up behind their chairs. Ask two of the children number facts based on addition, subtraction, multiplication and division. The child that answers correctly remains standing while the other child, who is now out of the game, must sit down. Continue asking the children, in pairs, their number facts until there is only one child standing. The last child standing is the winner.

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### Starters Bank

1. **Fizz Buzz**

The children sit in a circle. The child to go first says the number ‘1’ and each player from then on counts one number in turn. However, the children should replace any number divisible by 3 with the word *fizz* and any number divisible by 5 with the word *buzz*; numbers divisible by both become *fizz buzz*. A player who hesitates or makes a mistake is eliminated from the game. For example, a typical round of Fizz Buzz would start as follows: 1, 2, *fizz*, 4, *buzz*, *fizz*, 7, 8, *fizz*, *buzz*, 11, *fizz*, 13, 14, *fizz buzz*, 16, 17, *fizz*, 19, etc.

Repeat for different numbers, e.g. numbers divisible by 4 (fizz) and numbers divisible by 8 (buzz).

# Digital Resources

*Ready to go* activities, *Write – Hide – Show* videos and *Maths Around Us* videos may also be shown to the whole class on the IWB and children could answer questions in pairs. They could share a MWB and use them to record their suggested answers. Ask: ‘What do you think is the correct answer? Write it on your MWBs: *write, hide, show.*’ The class can then discuss their answers and justify their reasoning before the answer is revealed by the activity or you input the answer suggested by the majority of the class. *Follow-on* weblinks can also be used in this way.

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