Victoria Primary School

Second Level Numeracy

Home Learning Information

"Numeracy is about being able to understand and use numbers in a range of situations, for example when solving problems or making decisions in situations involving numbers."

Education Scotland

This booklet has been created by representatives of Victoria Primary Parent Council and class teachers to help you to support your child in learning vital numerical skills. If you have any questions please contact the school.

We have listed many of the skills your child should be able to do in Second Level **by the end** of Primary 7. The skills in this booklet are a progression of skills taught from the start of Second Level (usually P5) to the end of Second Level (usually P7.) A target may be harder than it seems, e.g. a child who can count up to 100000 may still have trouble saying which number comes after 47950 or which number comes before 25002. In order to be secure at Second Level **regular** practise in mental maths is required. Please see suggested websites at the end of this booklet.

Counting

Count Forwards and Backwards

Complete the pattern

0   3   6   9   12   ☐

What comes next?

- Count forwards and backwards by 7s from 7
- Count forwards and backwards by 8s from 8
- Count forwards and backwards by 9s from 9
- Count forwards and backwards in multiples off the times table (e.g. count in 3's from 4)
- Count forwards and backwards in decimal tenths (e.g. 2.3, 2.4, 2.5, 2.6, …)
- Count forwards and backwards in multiple tenths (e.g. 0.2, 0.4, 0.6 …)
- Count forwards and backwards in simple fractional steps
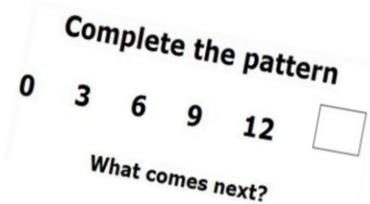
Number before/after

- Say the number before/after in the times table (e.g. what is 6 more than 42?)
- Say the number a tenth more/less than (e.g. what is a tenth more than 6.2?)

Numbers

Recognising and identifying numbers

Recognise and identify numbers
- In the range 1 to 1000000 (e.g. "What number is this?")
- With a decimal part (e.g. 75.25)
- With a fractional part (e.g. 75 $\frac{1}{4}$)
- Whole numbers (e.g. 50689)

Number lines

Place a number on a number line
- in the range 1 to 1000 and beyond
- with decimal parts (e.g. place 7.62 on a number line from 7.6 to 7.8)
- with positive and negative numbers

Estimate where a number goes on an empty number line
- in the range 1 to 1000 and beyond
- with decimals (e.g. estimate where 2.65 goes on an empty number line starting at 2 and ending at 3)
- with simple fractions (e.g. estimate where $\frac{1}{3}$ goes on an empty number line starting at 0 and ending at 1)

Sequencing and ordering

- Sequence numbers
  - In the range 1 to 1000000
  - Including whole numbers

- Order numbers:
  - In the range 1 to 100000
  - With a decimal part (e.g. 2.4, 2.71, 2.9)
  - Including simple fractions (using pictorial representations to help if necessary)
Including whole numbers

Left Overs

Take turns to choose a two-digit number less than 80. Write it down. Now count up to it in eights. What number is left over? The number left is the number of points you score, e.g. Choose 46. Count: 8, 16, 24, 32, 40. 6 left over to get to 46. So you score 6 points. The first person to get 15 or more points wins. Now try the same game counting in sevens, or in nines. Can you spot which numbers will score you points?

46 WIN

Number Structures

Place Value

- Demonstrate how the value of a digit (*number*) depends on where it is placed (numbers up to 1 million)
- Split a number into its place value parts (millions, hundreds of thousands, tens of thousands, thousands, hundreds, tens and units.)
  - In the range 1 to 1000000
  - For decimals up to 2 decimal places (e.g. 2.53 = 2 units, 5 tenths, 3 hundredths)
- Split a decimal up in a non-standard way (e.g. 3.2 can be 2 and 12 tenths)

Combining and Partitioning

Partition (split) 100 (e.g. 23 + ? = 100) to help with percentage calculations

Addition and subtraction:

- Add and subtract 2-digit numbers using a variety of strategies
- Add and subtract multiples of ten and hundred (e.g. 300 + 520)
- Use a variety of strategies to find a pair of numbers that add to make 100 (e.g. "What goes with 63 to make 100?")
- Add and subtract 3-digit numbers using a variety of mental/written strategies
  e.g. 477+8, 534+40, 624-200 (mental)
       751-36, 621+185 (written)
- Identify the number partner to go with a decimal tenth to make one (e.g. "What goes with 0.3 to make 1?")
- Identify the number partner to go with a decimal hundredth to make one (e.g. "What goes with 0.37 to make 1?")
- Add and subtract decimal numbers using a variety of (written) strategies
Add and subtract simple fractions e.g. $\frac{1}{2} + \frac{1}{4}$

Fractions, Decimal Fractions and Percentages

Finding quantities

Find a simple fraction of a number e.g. ⅔ of 24. Carry out simple percentage calculations e.g. 25% of 60

Equal sharing of a whole

Use a strategy to share a whole into equal parts (e.g. to share into sixths, half and then split each half into thirds)

Ratio and proportion

In practical examples, write ratios to compare 2 or more amounts e.g. how many red peppers are there compared to yellow peppers?

In practical examples, simplify ratios

Equivalences

- Convert between frequently used fractions, decimal fractions, and percentages
- Make equivalent fractions for a common fraction
- Simplify common fractions
- Compare common fractions, saying which is larger or smaller

Know and use common equivalences e.g. 50% = ½ = 0.5

Multiplication and Division

Card game

Use a pack of playing cards. Take out the jacks, queens and kings. Take turns. Take a card and roll a dice. Multiply the two numbers. Write down the answer. Keep a running total.
The first to go over 301 wins!

Grouping and Sharing

- Use a strategy to share a whole into equal parts (e.g. to share into sixths, half and then split each half into thirds)
- Share a group with a remainder e.g. share 31 between 4 (7 r 3)
- Count forwards and backwards in tenths/hundredths

Counting in Multiples

- Count forwards and backwards by 7s from 7
- Count forwards and backwards by 8s from 8
- Count forwards and backwards by 9s from 9
- Know the multiplication and division family facts e.g. 3x6=18, 6x3=18, 18÷3=6, 18÷6=3
- Count forwards and backwards in multiples beyond the times tables (in preparation for multiples and factors)

Calculations

- Know and use the 7 times table to solve multiplication and division problems. Then the 8 and the 9.
- Know all times table facts and use them to solve appropriate problems.
- Use prior knowledge to solve problems (e.g. 7 x 5 is the same as 5 x 7 – easier to count in 5's)
- Multiply and divide 2 and 3 digit numbers by a single digit e.g. 63÷9
- Use the relationship between multiplication and division to solve problems e.g. "If 7 x 13 = 91, what is 91 ÷ 13?"
- Carry out division calculations with remainders e.g. 10 ÷ 3 = 3 r 1
- Explore division with a decimal/fraction answer e.g. 7 ÷2 = 3.5 or 3 ½
- Multiply and divide by 10, 100, 1000:
  - Whole numbers (e.g. 73 x 100)
  - Decimals (e.g. 3.2 x 10)
- Know and use square number facts e.g. 2 squared (multiplied by itself) is 4
- Use order of operation (knowing that multiplication and division take priority over addition and subtraction) to do calculations.

Applying knowledge: A packet of biscuits costs £1.12, how much is one biscuit?

More games to help to develop confidence in using mental agility skills…

58	91	36	45	3	15
81	100	12	8	46	52
33	29	67	25	31	48
76	42	73	22	50	63
86	28	17	13	10	56
78	90	26	17	19	51

Remainders

Draw a 6 x 6 grid like this.
Choose the 7, 8 or 9 times table.
Take turns.
Roll a dice.
Choose a number on the board, e.g. 59.
Divide it by the tables' number, e.g. 7.
If the remainder for 59 ÷ 7 is the same as the dice number, you
Can cover the board number with a counter or coin.
The first to get four of their counters in a straight line wins!

Doubles and trebles

Roll two dice.
Multiply the two numbers to get your score.
Roll one of the dice again. If it is an even number, double your score. If it is an odd number, treble your score.
Keep a running total of your score.
The first to get over 301 wins.

Fours

Use exactly four 4s each time.
You can add, subtract, multiply or divide them.
Can you make each number from 1 to 100?
Here are some ways of making the first two numbers.
1 = (4 + 4)/(4 + 4)
2 = 4/4 + 4/4

Four in a line

Draw a 6 x 7 grid. Fill it with numbers under 100. Take turns. Roll three dice, or roll one dice three times. Use all three numbers to make a number on the grid. You can add, subtract, multiply or divide the numbers, e.g. if you roll 3, 4 and 5, you could make 3 x 4 – 5 = 7, 54 ÷ 3 = 18, (4 + 5) x 3 = 27, and so on. Cover the number you make with a coin or counter. The first to get four of their counters in a straight line wins.

Recommended Websites

Parent support and information:

www.educationscotland.gov.uk/parentzone

All areas of maths and numeracy- games:

http://www.sumdog.com/

http://www.brainormous.com/online/loader_multiflyer.html

http://www.topmarks.co.uk/maths-games/7-11-years/mental-maths

http://www.coolmath-games.com/

http://www.mathplayground.com/

http://www.mathsisfun.com/numbers/math-trainer-multiply.html

http://www.bbc.co.uk/bitesize/firstlevel/mathematics/

http://resources.woodlands-junior.kent.sch.uk/maths/

Other supports…

Library Service: those registered with the library can access a free ipad resource called 'mathletics.'