

HIAS MOODLE+ RESOURCE

Number Facts

Years 1 – 6

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Overview

In this document

This document shows the key number facts learning required by the end of each year from Y1 to Y6 to promote fluency and a secure understanding of number connections.

Points to consider when using this resource

Teachers should expand the examples offered in this resource and make sure that they include multiple representations, models and images to support all learning preferences.

Number Facts: Year 1

Number and place value

Pupils should be taught to:

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens given a number, identify one more and one less

Addition and subtraction

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.

Fractions

Pupils should be taught to:

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Measure

Pupils should be taught to:

- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening
- recognise and use language relating to dates, including days of the week, weeks, months and years



Number Facts: Number and place value

- ✓ Know the sequence of counting in multiples of 2.
- ✓ Know the sequence of counting in multiples of 10.
- ✓ Know the sequence of counting in multiples of 5.
- ✓ Understand that:
 - $+ 1$ = 'next number' on a number line
 - $- 1$ = 'number before' on a number line

Number Facts: Fractions

- ✓ Understand that:
 $\frac{1}{2} + \frac{1}{2} = 1$ whole
 $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole

Number Facts: Addition and Subtraction

- ✓ Know the number bonds for all numbers to 5. For example:
 $4 + 0 = 4$ $4 - 0 = 4$
 $3 + 1 = 4$ $4 - 1 = 3$
 $2 + 2 = 4$ $4 - 2 = 2$
 $1 + 3 = 4$ $4 - 3 = 1$
 $0 + 4 = 4$ $4 - 4 = 0$
- ✓ Know the number bonds for all numbers to 10 and the related subtraction facts.
- ✓ Know the number bonds for all numbers to 20 and the related subtraction facts. For example:
 $10 + 2 = 12$ $12 - 2 = 10$
 $9 + 3 = 12$ $12 - 3 = 9$
 $8 + 4 = 12$ $12 - 4 = 8$
- ✓ To recognise that $10 + x =$ teen number

Always ensure that appropriate models and images are used to support children's conceptual understanding.

Number Facts: Measure

- ✓ Say the days of the week in the correct order.
- ✓ Recognise coins such as 1p, 2p, 10p, 20p.
- ✓ Apply number bond knowledge to coins (1ps, 10ps) e.g.
 $10p + 1p = 11p$
 $10p + 2p = 12p$
 $10p + 3p = 13p$

Number Facts: Year 2

Number and place value

Pupils should be taught to:

- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward

Addition and subtraction

Pupils should be taught to:

- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.

Multiplication and division

Pupils should be taught to:

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

Fractions

Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Measure

Pupils should be taught to:

- compare and sequence intervals of time
- know the number of minutes in an hour and the number of hours in a day

Fractions

- ✓ $13 + 13 + 13 = 1$ whole
- ✓ $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$
- ✓ $1 \text{ whole} - \frac{1}{4} = \frac{3}{4}$
- ✓ $24 = \frac{1}{2}$
- ✓ Able to say $\frac{1}{2}$ of all even numbers to 20
 - For example, "A half of 14 is 7."

Addition and Subtraction

- ✓ Secure all number facts in the year 1 curriculum.
- ✓ Focus on inverse operations.
 - For example: I know that $13 + 4 = 17$ therefore $17 - 4 = 13$ and $17 - 13 = 4$.
- ✓ Know number bonds to 100 using multiples of 10 using related number bond to 10 facts.
 - For example: If I know that $1 + 9 = 10$, then I also know that $10 + 90 = 100$.

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Number and Place Value

- ✓ Know the sequence of counting in multiples of 3.

Multiplication and Division

- ✓ Know the 2, 5 and 10 times table and the related division facts.
- ✓ Be able to recognise odd and even numbers.

Measure

- ✓ $100\text{p} = \text{£}1$ $\frac{1}{2}$ of $\text{£}1 = 50\text{p}$
- ✓ $100 \text{ cm} = 1\text{m}$
- ✓ Whole hour = 60 minutes
- ✓ $\frac{1}{2}$ an hour = 30 minutes
- ✓ $\frac{1}{4}$ of an hour = 15 minutes
- ✓ $\frac{3}{4}$ of an hour = 45 minutes
- ✓ There are 24 hours in a day
- ✓ Able to recite all the months in a year in the correct order.

Number Facts: Year 3

Number and place value

Pupils should be taught to:

- count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number

Addition and subtraction

Pupils should be taught to:

- add and subtract numbers mentally, including:
 - a three-digit number and ones
 - a three-digit number and tens
 - a three-digit number and hundreds

Multiplication and division

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Fractions

Pupils should be taught to:

- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$)

Measure

Pupils should be taught to:

- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
- know the number of seconds in a minute and the number of days in each month, year and leap year

Addition and Subtraction

- ✓ **Know all the complements to 100**
 $\square + \square = 100$
- ✓ Know pairs of multiples of 100 that total 1000
 $1 + 9 = 10$ (Year 1)
 $10 + 90 = 100$ (Year 2)
 $100 + 900 = 1000$ (Year 3)

Number and Place Value

- ✓ **Know the sequence of counting in multiples of 3.**

Always ensure that appropriate models and images are used to support children's conceptual understanding.

Fractions

- $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$
- $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{5}{5} = 1$ whole
- $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{6}{6} = 1$ whole
- $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{7}{7} = 1$ whole
- $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{8}{8} = 1$ whole
- $\frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} = \frac{9}{9} = 1$ whole
- $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{10}{10} = 1$ whole
- Understand fraction facts related to whole number facts
 $1 + 5 = 6$ (Year 1)
 $\frac{1}{6} + \frac{5}{6} = \frac{6}{6}$ (Year 3)

Multiplication and Division

- ✓ Know the 3, 4 and 8 times table and the related division facts
- ✓ Understand that $\square \times 2 =$ doubling
- ✓ Understand that $\square \div 2 =$ halving
- ✓ Know that...
 - $50 \times 2 = 100$
 - $25 \times 4 = 100$
 - $20 \times 5 = 100$

Measure

- ✓ **60 seconds = 1 minute**
- ✓ **How many days in each month / year / leap year.**
- ✓ **Find and recognise complements to 60.**
- ✓ $50\text{p} \times 2 = \text{£}1.00$ $\text{£}50 \times 2 = \text{£}100$
- ✓ $25\text{p} \times 4 = \text{£}1.00$ $\text{£}25 \times 4 = \text{£}100$
- ✓ $20\text{p} \times 5 = \text{£}1.00$ $\text{£}20 \times 5 = \text{£}100$
- ✓ $1000\text{g} = 1\text{kg}$ $1000\text{ml} = 1\text{l}$
- ✓ $1000\text{cm} = 1\text{km}$
- ✓ $1000 \div 2 = 500$ $1000 \div 4 = 250$
- ✓ $\frac{1}{2} \text{ l/kg/km} = 500$
- ✓ $\frac{1}{4} \text{ l/kg/km} = 250$
- ✓ $\frac{3}{4} \text{ l/kg/km} = 750$

Number Facts: Year 4

Number and place value

Pupils should be taught to:

- count in multiples of 6, 7, 9, 25 and 1000

Addition and subtraction

Pupils should be taught to:

- order and compare numbers beyond 1000
- add and subtract numbers with up to 4 digits

Multiplication and division

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12×12
- multiply two-digit and three-digit numbers by a one-digit number

Fractions

Pupils should be taught to:

- count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.
- recognise and write decimal equivalents to $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$

Measure

Pupils should be taught to:

- convert between different units of measure (e.g. kilometre to metre; hour to minute)

Addition and Subtraction

- ✓ Know all the complements to 10,000 using multiples of 1000

$$1 + 9 = 10 \text{ (Year 1)}$$

$$10 + 90 = 100 \text{ (Year 2)}$$

$$100 + 900 = 1000 \text{ (Year 3)}$$

$$1000 + 9000 = 10,000 \text{ (Year 4)}$$

Pupils should also understand the related subtraction facts.

- ✓ Reliably calculate 2 digit numbers mentally.

Number and Place Value

- ✓ Know the sequence of counting in multiples of 25.

Always ensure that appropriate models and images are used to support children's conceptual understanding.

Fractions

- $100 \div 10 = 10$ $1000 \div 10 = 100$
 $10 \div 10 = 1$ $1 \div 10 = \frac{1}{10}$
- $1 \div 10 = \frac{1}{10} = 0.1$ $2 \div 10 = \frac{2}{10} = 0.2$
 $3 \div 10 = \frac{3}{10} = 0.3$ $4 \div 10 = \frac{4}{10} = 0.4$
 $5 \div 10 = \frac{5}{10} = 0.5$ $6 \div 10 = \frac{6}{10} = 0.6$
 $7 \div 10 = \frac{7}{10} = 0.7$ $8 \div 10 = \frac{8}{10} = 0.8$
 $9 \div 10 = \frac{9}{10} = 0.9$ $10 \div 10 = \frac{10}{10} = 1.0$
- $\frac{1}{4} = 0.25$ $\frac{1}{2} = 0.5$
 $\frac{3}{4} = 0.75$

Multiplication and Division

- ✓ Know the 6, 7 and 9 times table and the related division facts
- ✓ Know all the table facts and the related division facts
- ✓ $500 \times 2 = 1000$
 $1000 \div 2 = 500$
- ✓ $250 \times 4 = 1000$
 $1000 \div 4 = 250$
- ✓ $200 \times 5 = 1000$
 $1000 \div 5 = 200$

Measure

- $\text{£}5.00 \times 2 = \text{£}10.00$
 $\text{£}500 \times 2 = \text{£}1000$
 $\text{£}2.50 \times 4 = \text{£}10.00$
 $\text{£}250 \times 4 = \text{£}1000$
 $\text{£}2.00 \times 5 = \text{£}10.00$
 $\text{£}200 \times 5 = \text{£}1000$
- $10\text{cm} = \frac{1}{10}\text{m}$ $1\text{cm} = \frac{1}{100}\text{m}$
- $100\text{g} = \frac{1}{10}\text{kg}$
 $1.1\text{kg} = 1\text{kg} + 100\text{g} = 1\text{kg} + \frac{1}{10}\text{kg}$
- $48\text{hours} = 2\text{days}$
 $120\text{minutes} = 2\text{hours}$
 $90\text{minutes} = 1\frac{1}{2}\text{hours}$

Number Facts: Year 5

Multiplication and division

Pupils should be taught to:

- recall prime numbers up to 19
- multiply and divide numbers mentally drawing upon known facts
- multiply and divide whole numbers and those involving decimals by 10, 100, 1000
- recognise and use square numbers

Geometry:

Pupils should be taught to identify:

- angles at a point and one whole turn (total 360°)
- angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)
- other multiples of 90°

Fractions

Pupils should be taught to:

- read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$)
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with denominator hundred, and as a decimal fraction

Measurement

Pupils should be taught to:

- convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- understand and use equivalences between metric units and common imperial units such as inches, pounds and pints

Geometry

- ✓ To know complements to 360.
- ✓ Know complements to 180
- ✓ Recognise multiples of 90.
- ✓ Know that the angles in a triangle total 180 degrees
- ✓ Know that the angles in a quadrilateral total 360 degrees
- ✓ Know that the angles of a straight line total 180 degrees
- ✓ $360 \div 4 = 90$ 14 of 360 = 90
- ✓ $360 \div 2 = 180$ $\frac{1}{2}$ of 360 = 180
- ✓ $\frac{3}{4}$ of 360 = 270

Always ensure that appropriate models and images are used to support children's conceptual understanding.

Fractions

- $1 \div 100 = \frac{1}{100} = 0.01$ $2 \div 100 = \frac{2}{100} = 0.02$
- $3 \div 100 = \frac{3}{100} = 0.03$ $4 \div 100 = \frac{4}{100} = 0.04$
- $5 \div 100 = \frac{5}{100} = 0.05$ $6 \div 100 = \frac{6}{100} = 0.06$
- $7 \div 100 = \frac{7}{100} = 0.07$ $8 \div 100 = \frac{8}{100} = 0.08$
- $9 \div 100 = \frac{9}{100} = 0.09$ $10 \div 100 = \frac{10}{100} = \frac{1}{10} = 0.1$
- $10\% = 0.1 = \frac{1}{10} = \frac{10}{100} = \frac{100}{1000}$
- $50\% = 0.5 = \frac{1}{2} = \frac{5}{10} = \frac{50}{100}$
- $25\% = 0.25 = \frac{1}{4} = \frac{4}{10} = \frac{40}{100}$
- $75\% = 0.75 = \frac{3}{4} = \frac{75}{100}$
- $20\% = 0.2 = \frac{1}{5} = \frac{2}{10} = \frac{20}{100}$
- $40\% = 0.4 = \frac{4}{10} = \frac{40}{100}$

Multiplication and Division

- ✓ Know the 6, 7 and 9 times table and the related division facts
- ✓ Know all the table facts and the related division facts
- ✓ $500 \times 2 = 1000$
 $1000 \div 2 = 500$
- ✓ $250 \times 4 = 1000$
 $1000 \div 4 = 250$
- ✓ $200 \times 5 = 1000$
 $1000 \div 5 = 200$

Measurement

- $1\text{mm} = \frac{1}{10}\text{cm}$ $1\text{mm} = \frac{1}{1000}\text{m}$
- $1\text{kg} = 2.20462\text{lbs}$
- $1\text{l} = 1.75975\text{pints}$
- $1\text{m} = 39.3701\text{inches}$

Number Facts: Year 6

Ratio and proportion:

Pupils should be taught to:

- solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison

Geometry:

Pupils should be taught to identify:

- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

Fractions

Pupils should be taught to:

- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Measurement

Pupils should be taught to:

- convert between miles and kilometres
- recognise when it is possible to use formulae for area and volume of shapes

Geometry

- ✓ **Diameter = 2 x radius**
- ✓ Radius = $\frac{1}{2}$ diameter

Ratio and Proportion

- ✓ To recognise related percentage facts.
 - **For example:** If I know 1% then I can find 2% by doubling. If I know 10% then I can find 5% by halving

Measurement

- ✓ **1km = 0.625 or $\frac{5}{8}$ of a mile**
- ✓ 1 mile = $\frac{8}{5}$ or 1.6 kms
- ✓ Formula for area of a quadrilateral = length x width
- ✓ Formula for area of a triangle = $\frac{1}{2}$ base x height
- ✓ Formula for finding the volume of a cube = length x width x height

Fractions

- ✓ $\frac{1}{8} = 12.5\% = 0.125$
- ✓ $\frac{1}{3} = 33.3\% = 0.333\text{.....}$
- ✓ $\frac{2}{3} = 66.6\% = 0.666\text{.....}$

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