

Mathematics (Measurement)

Number (Measurement)			
By the end of KS5 our pupils should know:	Redway Pre-Formal Pathway	Redway Semi-formal Pathway	Redway Formal Pathway
	Encounter  Foundation	Core  Development	Enrichment  Enhancement
	The pupil can:	The pupil can:	The pupil can:
Comparing and estimating			
Compare, describe, and solve practical problems for: - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] - mass/weight [for example, heavy/light, heavier than, lighter than] - capacity and volume [for example, full/empty, more than, less than, half, - half full, quarter] - time [for example, quicker, slower, earlier, later] [NC:YR1]		- Length and height - Observes and imitates measuring equipment being used e.g., rulers - Uses the term big and small in play – may not be consistent in use - Uses the term long and short in play – may not be consistent in use - Mass and weight - Uses the term heavy and light in play – may not be consistent in use - Observes and imitates measuring equipment being used e.g., scales - Tries to make objects on a scales balance - Capacity and Volume - Can pour from one to another - Fills containers with objects - Fills containers with liquids	Compare, describe, and solve practical problems involving. - lengths and heights, use the terms: <i>long,</i> <i>short,</i> <i>longer,</i> <i>shorter,</i> <i>tall,</i> <i>short</i> <i>double</i> <i>half</i> - mass/weight, use the terms: <i>heavy</i> <i>light</i> <i>heavier than</i> <i>lighter than</i> - capacity and volume, using the term: <i>full,</i> <i>empty,</i> <i>more than,</i> <i>less than,</i> <i>half,</i> <i>half full</i> <i>quarter</i> - time, using the term:

- Can count the number of objects that goes into different containers – which holds more?
- Can fill containers to the top
- Can half fill containers (rough)

- Time

- Experience speed e.g., balls travelling a different speed and to be able to anticipate an action e.g. catching it
- Can compare speeds of toys as resources (eg, cars down a ramp). Can say which is fast and which is slow.
- Can purposefully choose quick or slow when given the option e.g., singing, swing,
- Can move slowly
- Can move quickly

- Uses the terms big and small in play but maybe inconsistent
- Describes objects as big
- Describes objects as small
- Identify big and small objects from a selection of 2 [standard 2]
- Can compare using PECs symbols/ signing
- Can point to the biggest/ smallest
- Can signal which are the same
- Fills container with objects and counts out which one has more to find the bigger container

- *quicker*
- *slower*
- *earlier*
- *later*

Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] [NC:YR1]		- Shows anticipation due to known routine - know when something has finished - knows something has finished after a countdown - Understands now and next on visual timetable	- Use basic time vocabulary • before and after • first and next • today, yesterday, tomorrow • morning, afternoon, and evening - Be able to put events in time order e.g., dinner, bath, bed
Compare and order lengths, mass, volume/capacity and record the results using >, < and = [NC:YR2]			- Use the sign > to signify greater when comparing length, mass, volume/capacity - Use the sign < to signify greater when comparing length, mass, volume/capacity - Use the sign = to signify greater than when comparing length, mass, volume/capacity
Compare and sequence intervals of time [NC:YR2]			- Know that years are made up of months - Know that there are 12 months - Know that months are made up of weeks - Know that there are different numbers of days in each month - Know that weeks are made up of days - Know that days are made up of hours
Compare durations of events [for example to calculate the time taken by particular events or tasks]. [NC:YR3]			- See number and number value programme of study; pupils need to be able to sequence numbers and know their value to be able to make a comparison. Comparing durations of time needs to be covered after yr2 outcome in converting. - Use previously learnt information with regards to time to compare two time periods e.g., 10 seconds and 1 minute. - Can calculate the time that an event or task takes e.g. if play time starts at 10am and finishes at 10:30am, they should be able to work out 30 minutes of playtime

Measuring and Calculating – weights, lengths, volume and time

Measure and begin to record the following:

- lengths and heights
- mass/weight
- capacity and volume
- time (hours, minutes, seconds)

[NC:YR1]

- Length and Height

- To use non-standard units of measure (not accurately) e.g. hand spans.
- To use standard units of measure (inaccurately) e.g. rulers

- Mass and Weight

- To use non-standard units of measure (not accurately) e.g. how many....weigh the same?
- To use standard units of measure (inaccurately) e.g. digital scales, mechanical dial scales

- Capacity and Volume

- Experience filling and emptying containers
- To be able to fill containers accurately (items e.g. cups of flour)
- To use non-standard units of measure (not accurately) e.g. use talking scales
 - jugs labelled with number or colours rather than mls
 - To be able to fill containers accurately (liquids)

Non-Standards units

- To use non-standard units to measure the length of an object
- To use non-standard units to measure the height of an object
- To use non-standard units to measure the mass of an object
- To use non-standard units to measure the weight of an object
- To use non-standard units to measure the capacity of an object
- To use non-standard units to measure the volume of an object
- To use non-standard units to measure time³

Standards units

- To use standard units to measure the length of an object
- To use standard units to measure the height of an object
- To use standard units to measure the mass of an object
- To use standard units to measure the weight of an object
- To use standard units to measure the capacity of an object
- To use standard units to measure the volume of an object
- To use standard units to measure time

		- To use standard units of measure (inaccurately) e.g., jugs with mls on - Order containers by size - Time (See telling time further down) - Temperature - Responds to extreme temperature e.g. ice cube, - Describe the weather e.g., hot, cold (Although temperature is not covered in the composite, it is needed to move on) - Pick from a selection which is an appropriate unit of measurement e.g. bucket or a cup, ruler or a brick?	- Record their findings for all these measurements
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels [YR2]			- Use appropriate units of measures to estimate and measure the following with increasing accuracy using their knowledge of the number system - Rulers (length and height in cm/m) - Scales (mass in g/kg) - Thermometers (temperature in °C) - Measuring vessels (capacity in ml/l)
Measure, compare, add and subtract lengths (m/cm/mm);			<i>Measure is not new – yr. 2</i>

mass (kg/g); volume/capacity (l/ml) [NC:YR3]			- Be able to use the correct units when measuring and recording - Use the correct tools to measure, length, mass, and volume e.g., containers, scales and rulers - Work out and compare (not heavier and lighter but e.g., twice as heavy, five times as high) simple equivalents of units: • centimetres and meters e.g., 20cm and 0.5m) • grams and kilograms e.g., 200g and 1kg • millilitres and litres e.g., 100ml and 1L • Add measures and record using appropriate units e.g., 20ml+30ml= - Subtract measures and record using appropriate units e.g., 10cm-6cm=
Measure the perimeter of simple 2-D shapes [NC:YR3]			- Measure each side of a 2D shape accurately with a ruler - Record their calculation using centimetres - Add the length of each side together - To know that the total when added together equals the perimeter
Measuring and Calculating - Money			
Recognise and know the value of different denominations of coins and notes [NC:YR1]		- To be able to sort money from other objects - Matches coins - Differentiation between by colour - Differentiation between coins by size	- Recognise different denominations of coins - Recognise different denominations of notes - Name denominations of coins - Name denominations of notes

		- Differentiation of coins by shape - Know that items need to be paid for - Role play with money - Demonstrate an understanding of the concept of transaction (e.g. by exchanging a coin for an item, or one item for another during role play) [standard 1]	
Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value [NC:YR2]			- Use to £ sign accurately - Use the p sign accurately - To make values using 2 coins e.g. £1.50=£1+50p
Find different combinations of coins that equal the same amounts of money [NC:YR2]			- To show an understanding of value by making amounts e.g. 20x1p = 20p or 4x5p=20p (equivalence of value)
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change [NC:YR2]			- Solve simple addition problems that involve one unit of measure • Pence e.g. 15p+45p=60p • Pounds e.g. £2+£3=£5 - Can work out total cost in a practical situation (recognise what operation they need to use) - Solve simple subtraction problems that involve one unit of measure • Pence e.g. 45p-10p=35p • Pounds e.g. £3+£2=£1 - Can give change (recognise what operation they need to use)

Add and subtract amounts of money to give change, using both £ and p in practical contexts [NC:YR3]			- Record money using the £ and p symbol separately e.g. £2 and 35p rather than £2.35 <i>(Please note that the decimal recording of money is not introduced until yr4)</i> - Use manageable amounts when giving change e.g., 50p not fifty 1ps.
Telling the Time			
Recognise and use language relating to dates, including days of the week, weeks, months, and years [NC:YR1]	See number and number value for information around understanding cues and routines	- Anticipates a regular event by knowing the day - Understands 'now' and 'next' - Can sequence times of the day e.g., dinner, bed, bath or breakfast, dinner, tea - Use some names related to days of the week during play - Sings songs related to days of the week - Knows that they come to school on some days but not on the weekend - Know what time is before, after etc. - Knows that night is dark, day is light etc. - To understand it is cold in winter, warm in summer etc. - Know when their birthday is. - Knows that different events happen in different months i.e. Christmas in December	- To be able to name days of the week - To be able to sequence days of the week - To be able name months in a year - To be able to sequence months in a year - To know the current year

Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. [NC:YR1]			- To know the short hand is the hour hands - To know the long hand is the minute hand - To know hands, go in a clockwise direction - To use the language of time – o'clock and half past - To be able read on the hour times - To know that half past is when the long hand is on the 6 - To be able to read half past...times - To know that we measure times in years, weeks, days, hours, minutes, and seconds - Draw hands to the appropriate place - hour and half past only - Read the time on digital clocks (<i>although digital clock is not mentioned in the composite it is likely going to be easier for our pupils to access</i>) - Know what time key events happen in their daily routine i.e. wake up at 7, go to school at 9, lunch at 12 etc.
Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times [NC:YR2]			- To know that the long hand is on the 9 for quarter to - To know the long hand is on the 3 for quarter past - Draw hands to the appropriate place - quarter to and quarter past (<i>hour and half already covered</i>)
Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks [NC:YR3]			- Can tell the time using an analogue clock (with numbers) - Can read the following Roman numerals • I • II

			• III • IV • V • VI • VII • VIII • VIII • X • XI • XII - Can tell the time using an analogue clock (with Roman numerals) - Can use 24-hour clock to tell the time e.g., knowing that 17:30 is also 5:30pm
Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight [NC:YR3]			- Pupils will be able to use the following time related vocabulary • o'clock • am/pm • morning • afternoon • noon • midnight - Can tell time to the nearest minute - Can record the time - Can compare time in terms of seconds, minutes and hours e.g. which is later, 3.02pm or 8:58am
Converting			
Know the number of minutes in an hour and the number of hours in a day. [NC:YR2]			- Know that there are 60 minutes in an hour - Know that there are 24 hours in a day

Know the number of seconds in a minute and the number of days in each month, year, and leap year [NC:YR3]			- Know that there are 60 seconds in a minute - Know that there are 12 months in the year - Know that months have different number of days; can check the number of days in a month - Know that normally there are 365 days in a year, but a leap year has 366 days
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The Redway School