

Cognition and Learning

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Cognition and
Learning



Reading Strategies



Phonic Games

Here are **practical phonics tips for learning**, useful for children (and also for supporting struggling readers at any stage). The key is **daily practice, consistency, and linking sounds to real reading and writing**.


1. Keep it sound-first (not letter names)

- Always focus on **sound** → **symbol** (e.g. /sh/ not “S-H”)
- Avoid mixing letter names too early when decoding
- Say sounds clearly and consistently

2. Segment and blend every day

- **Blending:** c-a-t → *cat*
- **Segmenting:** *cat* → c-a-t

 Practice orally first, then with words in books and writing

 Make it quick and automatic (little and often is best)

3. Use “look, say, cover, write, check”

Great for tricky words:

- Look at the word
- Say it
- Cover it
- Write it
- Check it

4. Read decodable books regularly

- Use books matched to the child’s phonics level
- Avoid guessing from pictures
- Encourage “sound it out first, then re-read fluently”

5. Apply phonics in writing

- Encourage children to **sound out words when writing**
- Praise “attempted spelling” (e.g. *frend* for *friend*)
- Model correct spelling afterwards

6. Say sounds clearly (no “uh” at the end)

- Correct pronunciation matters:
 - ✓ “c” not “cuh”
 - ✓ “t” not “tuh”
- Helps blending become accurate

7. Teach tricky words explicitly

Some words cannot be fully sounded out (e.g. *said, was, one*)

- Point out the “tricky part”
- Break into known and unknown bits
- Revisit often

8. Make it multisensory

- Write in sand, chalk, or paint
- Clap sounds in words
- Use magnetic letters
- Use actions for sounds (especially in early stages)

9. Short, frequent practice works best

- 5–10 minutes daily is more effective than long sessions
- Repetition builds automaticity
- Keep it fun and fast-paced

10. Read aloud every day


- Adults read while children follow text
- Model fluency, expression, and phrasing
- Builds vocabulary and comprehension alongside phonics

Common pitfalls to avoid

- Over-relying on guessing from pictures
- Moving on too quickly before sounds are secure
- Not revisiting previously taught sounds
- Confusing letter names with sounds too early

Key idea

Phonics is most effective when children:

 **Hear it → See it → Say it → Use it in reading and writing**

Flashcard Games;

- **Snap or pairs** – find a match with face up or face down pairs, snap for a faster game
- **Tracking** – child has a sound on a card and has to track a text from left to right with finger and stop every time they find a match in the text (they do not need to read any other words)
- **Kim's game** – put 5 key words on a tray, take one away, which one has gone (either read all the others to find the missing one or, to make it easier, child has a grid with all 5 words to work out which one is missing)
- **Treasure Hunt** – Hide sound flashcards in an outside or inside area. Pupil must find either from verbal instruction (where is 'ea'?) or from visual matching card 'ea' or a word with this sound in 'leaf'. This could also be played where a word card is given to the pupil and they have to find the sounds within the word and put it together, eg, find l-ea-f to make leaf (please note that vowel digraphs should be shown as one sound 'ea')
- **Sound detectives** – pupils use sound flashcard to search for the sound in words within a text
- **Sorting** – words with the same sounds. Sort the words into piles with the same sound. This is good to separate phonemes such as; ee/ea
- **Sound lotto or bingo** (this can be verbal or from the visual sound)

Active Games;

- **Sound catch** – sounds marked on balls, catch and say the sound
- **Relay sounds** – pick up a sound, run to the next person, say the sound or a word with that sound in, either pick a new sound and repeat or keep to words with the same sound
- **Hopscotch sounds** – put the sound on the hopscotch and play as usual, saying the sound as you pick it up. Another way, say a word with that sound
- **Wheeled vehicle sounds** – draw sounds or words in large letters on the playground. Ride scooters or wheeled equipment around the sounds starting at the correct point

Tactile methods;

- **Sounds of sand** – writing sounds in the sand or shaving foam
- **Plasticine sounds** – making sounds using playdough or plasticine, pipe cleaners
- **Squeezy bottle sounds** – large movements squeezing water from bottles into sound shapes
- **Feely bag sounds** – use tactile sounds on cards or shaped letters to feel and say the sound or match to the grapheme representation

Blending sounds

- **Blending grid game -**

b	ea	t
s		d
wh		p
st	o	n
fl	a	t
ch	e	p

How many words can you blend on the chart, the bottom one is more challenging. This can be used from cvc words, ccvc, vowel digraphs and prefixes and suffixes. It aids with spelling as well.

- **Blending jigsaws** – cut words into phonemes to make jigsaw shapes, pupil puts them back together
- **Blending hats** – use head bands to show each sound. Stand all children with hats on together to blend the word
- **Hand patterns** – point to each sound (with hands together) as you say it c-a-t, then sweep your hand across from left to right (or in reverse if you are modelling and facing a child) as you blend the word
- **Treasure hunt** –
- **Blending atalanta** – pick up each sound and say it as you move along the line, put it together verbally or visually and blend the word

c
l
o
p

- **Robots** – use a robot voice to blend sounds of a word and pupil tells you the word or switch to model it yourself to a child
- **Blending walls** – put the sounds on building bricks or 2D brick shapes and build a wall of sounds to make a word

	ea	t	
sh	o	p	

- **Nonsense blending** – blending game that children are free to make any nonsense words they like. The object of this is that if they blend the correct sounds, it doesn't matter the outcome of the word

Rimes – words that rhyme and are spelt with the same ending;

How do I know if the child really knows the sound? Ask the following questions..

- Can they hear the sound?
- Can they recognize and say the sound when shown the visual representation? (say the sound)
- Can they recall the visual representation when the sound is called? (choose the correct letter)
- Can they recall the visual representation and write it down correctly? (write the sound from memory)

Sight Words

Flashcard Games; *(for explanations see above in phonic games)*

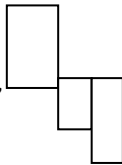
- Snap or pairs
- Tracking
- Kim's game
- Treasure Hunt
- Feely bag words
- Word detectives

Active Games;

- Word catch – balls
- Relay words
- Hopscotch words
- Wheeled vehicle words
- Sight word orienteering – hide the letters within the word for the children to collect (they should have the flashcard of the word) Winner finds all the letters and puts them in the right order

Multi-sensory methods;

- Words of sand
- Plasticine words
- Squeezy bottle words
- **Singing rhymes for sight words** – use well known nursery rhymes or tunes from well known songs to learn the sounds in words, ie, 'ch-i-p spells chip
sh-o-p spells chip
chip shop is my favourite'
- **Mnemonics** – this works better with older children. Find a way of remembering the order of letters within a word, ie, windows-or- doors spells 'w-or-d'

- **Shape matching** – matching words by their shape 'they' 
- **Letter ordering** – children find the correct letters from a pile that are in their word and order them according to the word card, ask questions – what is the first, middle, last sound? Make it harder by arranging the letters but in the wrong order (without the word card) More of a challenge? order with the sounds from memory without the card
- **Missing letters** – leave a sound out of the word for child to recall, ie, str__t, r_memb__

Sight Word Strategies

These words cannot be worked out using phonic methods. The following strategies help to teach sight words;

- Look for words within the word such as;
- Split up compound words such as; forget (for-get)
- Use syllable counts to help remember
- Mnemonics such as; because (big, elephants, can...)
- Singing and rhymes – to remember tricky sight words
- Look at and learn the shape of the word – 'they' (has 2 tall letters and one under the line)
- Visualise the word and each letter and its order (see visualisation strategy for spelling)
- Use actions in conjunction with learning words (kinaesthetic)

Sight Word Order

- In KS1 start with tricky words and complete these first
- Move onto first 100 frequency words (Literacy strategy)
- Most common 200 words (Literacy strategy)
- Common miscues in pupil's own reading

Reading Strategy Games

- **Paired reading** – this can be reading one page each or adult reading and leaving out words that the child can read (adult can model the reading strategies when they are reading text)
- **Context scanning** – scan through text to go through context with pupil before reading
- **Tricky word scanning** – find and match tricky words from the text
- **Catch up reading method** – see catch up training notes
- **Matching tricky words to text** – pick out all the words that the pupil will find difficult in the text and put them on cards. Find them and go through them first
- **Picture talk** – telling the story in sentences using the pictures, what do they notice in the pictures? (details)
- **Finding sentences** – A sentence from the book is on a flashcard and pupil has to read it, think about where in the text it might fit and find it, match it.
- **Word and sound detectives** – use tricky words or sounds on flashcards to find in the book or on the page
- **Talk card speaking sentences** – pick out a sentence to practice fluency (pointing out punctuation), pupil reads it on the speak card, does it again and tries to better their fluency
- **Pupil questioning teacher** – after reading the book or page, pupil has to ask teacher several questions about the text
- **Looking for repeated words or phrases** – how many repeated words and phrases can you find on the page or in the book
- **Character reading** – teacher is narrator and pupil is character or (for a challenge) the other way round

Top tips for reading with children;

- Children should be able to read the majority of words on the page, if they can't then consider a lower level of book
- Use the pictures as visual cues to context words
- Always model the reading strategy to show the child what to do
- Encourage the child to read the word themselves and give enough time for them to think
- Ask questions to prompt them remembering the reading strategy, sounds or discussing the text content
- Model making mistakes and self-correcting
- Relate the content of the story/subject to real life
- Ask lots of questions

Reading Strategies for decoding words

1. Go on, go back, guess – child misses out tricky word and reads to end of sentence, goes back and uses the context of the sentence to decode or uses one of below strategies.
2. Split into syllables
3. Phonic strategies
4. Words within words
5. Use context cues (pictures)

Types of Questioning to draw out information from the text;

1. Closed Questions – questions with only one answer, usually directly drawn from the text (What did Floppy do in the garden?)
2. Inference questions – questions related to feelings and empathy of characters, or description of setting, usually drawn from descriptions in the text or reading between the lines (not a direct quote)
3. High order questioning – questions that require opinion and problem solving, usually backed up by evidence in the text (eg, would you have liked to be Floppy? Why? What would happen if?)
4. Questioning about the structure and word choice – Looking for particular word choices or text types to answer a question (Which words did the author use to describe how he

Reading Comprehension

Tips for Reading comprehension activities;

- Choose small chunks of text where possible
- Use different types of texts that interest the reader
- Model your own understanding of the text (talk out loud about what you have found out).
- Encourage children to look for evidence in the text (clue – detectives) ie, words in the text, speech that indicates how a character feels
- Stop before the end of the text and ask children to predict or change the ending
- Use imaginative role-play (pretend to be the characters or recreate the setting)

Activities to understand a text;

- **Interviewing characters** – child or adult pretends to be the character and one interviews the other about the events, setting and relationships between other characters in the book
- **Hotseating** – adult or child pretends to be the character and other person or group ask questions directly to the character, they answer (ie, How did you feel when you first saw the big, bad wolf)
- **Character conversation** – use pictures of 2 characters from the book that have a relationship – either do a puppet show to show event or feelings from the story or use speech bubbles to write what they might say

- **Story maps** – draw a story map to show setting and sequence of events in the story/text. Add words or speech to show understanding
- **Matching adjectives to characters or setting** – choose the appropriate adjectives to describe the characters or setting (from a pile, put the words on the correct picture)
- **WANTED poster** – take a character from the story and write and draw all the aspects of their personality and facts related to the story, draw the character in the middle
- **Reading characters faces and expressions** – if book has pictures then look through to read each of the faces and discuss how the faces change as events happen, ie, floppy was sad at the beginning but when he got the bone he was happy again. For a Challenge – where there are no pictures, discuss how the characters feel and use this to draw own pictures of faces and expressions, maybe add adjectives to describe
- **Sequencing** – either using pictures from the story/text and verbally recalling the sequence, matching a sentence to each picture, writing a sentence for each picture
- **Sequence a story** – take photos and verbalise captions to sequence a story – plan what each character would do next and why?
- **Still Tableaux** – in a small group (adult could include themselves) make still statues reproducing parts of the story, ie Kipper’s family waving goodbye to Floppy. When there should be movement and you want to reproduce what happened next, shout ‘action’ and all the people in the still tableaux should act out or mime the next bit of the story. To extend the understanding of the text, pick out what each character should be doing and the feelings or expressions they should be showing.
- **Comic strip** – create a comic strip to show the sequence of a text
- **Find the Evidence** – children fill in the chart with statements from the text on one side and find the evidence to write down on the other

Statement	Evidence	Page Number
Floppy did not like the water.	He ran away from the bathroom.	P.10
Mum was cross.	‘Stop it, Kipper...’ she shouted.	P.2

Writing Strategies



Spelling

Syllable Count

- Words that have more than one syllable are called polysyllabic words. Breaking these longer words down into separate syllables can make them easier to spell and give children a real feeling of success.

Activities to develop syllable-count

- **Name count** – ask children to say each name in turn counting the syllables in the names on their fingers (Mar/tin, El/iz/a/beth).
- **Word count** – say a word and then ask pupils to use their fingers to count the syllables (yes/ter/day, Sun/day, Sep/tem/ber, yell/ow).
- **Syllable sort** – give each child in the group the first syllable of a three-syllable word and ensure that they can read it. Then see how quickly they can find the other two syllables to complete the word (yes/ter/day).

Rhyme

This strategy helps children to make connections between words that they can spell and new words. For example, if they can spell the word 'can,' then they can spell a range of rhyming words like *man, gran, pan, ran, van*.

Activities to develop rhyme

- **Rhyme Pelmanism** – ask children to find the pairs of rhyming words from word cards face down on the table. Pupils take turns to have a go and remember the position of the cards.
- **Rhyme families** – collect a family of four words that rhyme (played like 'Happy Families')
- **Rhyme wordsearches** – these can be produced for the children or they can make up their own for other members of the group using some target words.
- **Rhyme time** – ask children to listen to a word. If it rhymes with a word that they have in their hand then they can keep it. The winner is the first person who collects five rhyming words.
- **Blends and ends** – place several initial-blend cards face-up on the table. Give each child a set of five rhyme-ending cards. The winner is the first person who collects five correct rhyming words.

Visual memory

Many of the strategies for teaching reading are the same as for spelling although the focus is on remembering the order of the letters and sounds

KS1 and Phonics– In KS1 and with children working at very low levels (phonic blending and tricky word spelling) it may be advisable to use the games within the reading section to aid the spelling of words. The games within the Spelling section can be adapted for these children as well but lend themselves better to more complex spellings and where rules apply

Top tips for teaching Spelling;

- Always allow children to have a go phonetically, encourage phonic blending verbally
- Encourage breaking the word up in syllables to spell it
- Encourage visual representation of the word (can you remember what it looks like?)
- When children are using spellings within their writing encourage ambitious spellings and accept phonetic attempts (we don't always have to correct spelling if there are other foci)
- When marking spellings, tick each letter that is correctly orientated. This helps pupil to self-correct.
- Pick out no more than 5 key words from a text for a pupil to practise

Visual memory involves being able to 'see' the whole word in your mind. Use the 'look, cover, remember, write, check' approach to develop this strategy.

Activities to develop visual memory

- **Speed spell** – ask children to write one of their target words at the top of a strip of paper, look carefully at the word and then fold the paper over. Then ask them to write that word correctly as many times as possible in a given time.
- **One for the Pot** – children to take turns in spelling their target words. They have a counter for each word. If they make a misspelling, they must put a counter in the pot.
- **Target** – children decide how many of their target words they can spell, at one go, without looking. They set their own targets and test each other, in pairs.

Phoneme blending

To develop this strategy, children need to learn the 44 phonemes in English. A phoneme is the smallest unit of sound in a word. Children learn these phonemes gradually, and begin to blend them together to form words, as they develop their spelling skills.

Activities to develop phoneme-blending

- **End sound** – the children take turns to pick up a CV (consonant/vowel card) from a pack face-down on the table and find an appropriate consonant ending from a range of consonant cards lying face-up on the table. The completed word must be a recognisable word.
- **Vowel challenge** – give the children a list of about 15–20 CVC (consonant vowel- consonant) words, but with the vowels missing. Some of the words could have the same consonants (b-g, b-d, b-t). Challenge the children to make as many different words as they can in a certain time by replacing missing vowels.
- **Odd word out** – lay out word cards face up on the table (one for each child). Ask each child to choose a word to read, using phoneme blending. Then ask children to identify the odd word out (cat, hat, can, that, sat).
- **Sense or nonsense** – as for 'Odd Word Out' but ask children to identify the word that does not make sense (brick, quick, stick, smick, trick).

Spelling strategies and Activities

Sorting words – looking at rules or rime

- Sort words into boxes marked with the vowel digraph, beginning or ending – this can be used for all spelling rules ie, sort different ways of saying 'a' as in ai,ay,ey,eigh. This can be done with rime endings (ie, ing, est) or prefixes and suffixes (ie, ed, ess)
- Words can be sorted using simple games such as; snap, pairs, detectives, etc (see reading game list)
- Suggestion: start with just two endings, digraphs or prefixes and then add more to sort or add a red herring for a challenge

Prefix, suffix

- Jigsaws – make words by adding a prefix or suffix, sort into words that can take the prefix/suffix and those that can't. How many words can you make?
- Brick walls – build walls on cards using a word and prefix or suffix

	jump	ed	
un	help	ful	

- Prefix/suffix lotto/bingo – collect the words you need to go with your suffix or prefix. Winner can make the most words at the end.

Visualising

- Ask the child to focus on a place in the room or on the page. Ask all sorts of questions about the place (what can you see? Etc).
- Ask child to pick a word from their target list that they think they will not be able to spell (ie, would)
- Ask child to look at their spot and say the first letter in the word 'w'. They must use their nose to write the letter.
- Ask at least 5 questions about the letter...What colour is the 'w'? How big is it? Where is it in the word?
- Go through each letter of the word in the same way, asking lots of questions about the orientation of the letters in the word... ie, can you remember what colour the 'w' is? Which was the 3rd letter? Which letter came before 'l'?

- The idea of this process is that it is helping the child to visualise the word (this is not a natural skill for most children) and to have a list of questions and answers that trigger the long-term memory. Each of the words that the children learn goes through this process as they gain the visual skill. As you learn new words you may add other strategies to the visualisation (ie, Can you see any words within the word? Or Can you add a suffix or prefix to change the word)
- Challenge – With some of these words there may be other words that children can find or work out (ie, would, could, should)

Counting letters

- Count the letters in difficult words when spelling.
- Miss out letters – this can be Kim’s game (all letters from word but one) or in cloze format

w	o		l	d
---	---	--	---	---

- Re-order letters on cards to find the right spelling – allow children several attempts to self-correct if they notice it is incorrect

l	w	o	d	u
---	---	---	---	---

Support adults may intervene to mark each correctly ordered letter

✓	✓			✓
w	o	l	u	d

- Hangman – If children guess the answer through reading skills they should be asked to fill in the missing letters to consolidate spelling skills
- Word searches – using a word search to find spellings from there key words
- Cross words – as an extension of above

Counting sounds

As above but using sounds per box, ie,

s	t	ea	l
---	---	----	---

This is more likely to be used when phonics is still being taught and only when the two letters make one sound. The above method is more likely to be used with exceptional spelling words where rules are not so easy to follow.

Counting syllables

- Clap the syllables of a word to remember the parts of it. Deal with the spelling of each part of the word and then put the parts back together

fan-tas-tic

- Play the above games with parts of words – reordering, missing syllables
- Beetle- drive – Each player rolls the dice and collects a part of a word with that number on the back. If they can put some parts together to make a word then they can show on the board and get rid of those cards. The winner is the one who can get rid of their cards. (This would work as a trading game as well).
- Bingo – 2 players collect letters to make key words, first person to make one of the words wins. Or collect different parts of words (like ‘beetle drive’) and the winner is the one who can make the most words

Words within words

- Word search style exercise to find words within words such as; bread (read). Any of the above games can be played
- Letter scramble – write a long word on the paper or whiteboard. Children write down as many words as they can see in the word. Start to sort into 2,3,4,5 and 6 letter words.

Christmas - is, as, has, his, mat, cat, sit

Mnemonics

- Finding different ways to remember the order of letters in words using rhymes and sayings

Rhymes and Catch Phrases

The following rhyming phrase helps people to remember how to spell such difficult words as **receive**.

I before E, except after C.

Unfortunately this rule does not always apply. One common exception is the word **weird**, which has prompted some people to use the extended version of this mnemonic:

**I before E, except after C.
And "weird" is just weird.**

Sadly there are many, many more exceptions. Nevertheless this remains a very popular memory aid for spelling. The following adaptation is somewhat better:

**I before E, except after C.
Or when sounded "A" as in neighbor and weigh.**

Just don't rely on this one for spelling words like **weir** and **seize**!

Spelling Acronyms

The following **mnemonics** are sentences or phrases in which the initial letters of the words spell out a word which many people find rather tricky to spell.

BECAUSE
Big Elephants Can Always Understand Small Elephants

ARITHMETIC
A Rat In The House May Eat The Ice Cream

GEOGRAPHY
General Eisenhower's Oldest Girl Rode A Pony Home Yesterday

RHYTHM
Rhythm Helps Your Two Hips Move

NECESSARY
Not Every Cat Eats Sardines (Some Are Really Yummy)

ARGUMENT
A Rude Girl Undresses; My Eyes Need Taping!

OCEAN
Only Cats' Eyes Are Narrow

To prevent confusion between **DESERTS** (like the Sahara) and **DESSERTS** (like Tiramisu) by remembering that the sweet one has **two sugars**.

List Order Acronyms

This is certainly one of the most popular mnemonic techniques.

Order of colours in the rainbow, or visual spectrum:
(Red, Orange, Yellow, Green, Blue, Indigo, Violet)
Richard Of York Gave Battle In Vain.

The order of planets in average distance from the Sun:
(Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto)
My Very Easy Method: Just Set Up Nine Planets.

****Children may want to make their own mnemonic rhymes for spelling words. They are more likely to remember them.**

Books with useful information and games

Demonic Mnemonics: Eight Hundred Spelling Tricks for Eight Hundred Tricky Words by Murray Suid

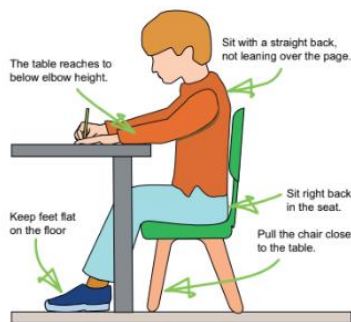
Power Spelling: Ready-to-Use Lessons, Activities, and Memory Tools to Help Your Students Master Any Word by Linda Skerbec

Hand Writing

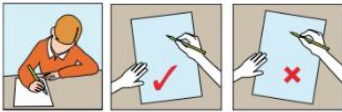
Posture and Sitting for Writing

Right handed children

How to sit correctly to be comfortable for handwriting.

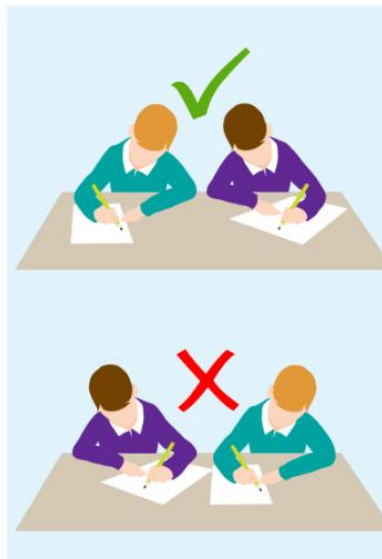


How to hold and position the paper.



Sitting position

Sit left-handed children to the left of their partner so they have plenty of room to write.



Pre-writing and Hand writing Activities

Active Learning

- **Ribbons** – use ribbons or string to make patterns for pre-writing skills or use to make cursive letters or even words (use writing hand)
- **Laser or torch patterns** – as above but with torches, laser or glow sticks
- **Dance a letter** – move in a particular way to help children remember letter shapes, ie, hop around tall letters, slide on descenders, tiptoe round circle letters (this will help pupils remember the types of formation)
- **Body shapes** – make letters with body shapes (at least 2 people) Photos could be taken of these (if they are good) and reference made to where to start, ie, start at the head, hand, etc
- **Drawing letters with different body parts** – use a foot, nose, finger or elbow to make a shape, pattern or letter in the air, on the wall, on the floor
- **Wheeled vehicles** – use scooters or other wheeled vehicles to ride around large letters or shapes on the playground. Place a large spot on

Hand writing is a physical skill that some children find difficult and can be painful to do for any length of time.

Tips for Teaching Hand writing;

- In order to aid hand writing pupils must first understand how to make patterns such as; curves, zig zags, dots and circles (as these form most of the letter shapes)
- It is best for children to use cursive writing as this will aid fluency in joined writing later on.
- When teaching hand writing we can combine phonic skills by teaching blends and digraphs as a joined unit as well as on their own, ie, m ea t so that ea in the word are always joined. As their skills progress then the move to joining the whole words can be taught.
- Multi – sensory activities are the best way to secure handwriting shapes and gain control
- Other activities that develop fine motor control will also help children to develop their hand writing skills.
- Handwriting is as much about internalising the physical movement of writing the letter shape as it is about strength so give children opportunities for internalising the shape of the letter and the pathway to form it.

the start and place arrows to get the right formation. This can also be played with small vehicles on a mat (toy cars, skateboards)

- **Squeezy bottles** – use squeeze bottles on the floor outside to make letters or shapes. You could use food colouring to make it more interesting
- **Chalk** – make large letters with jumbo chalk on a wall or on the floor. Walk round them using the correct formation. Progress to words and try to go round them increasing speed to internalise the movement
- **Crack the code** – children find tactile letters and feel round the shapes, copy them correctly to collect each letter and make a word to crack the code

Multi- sensory Learning

- **Plasticine sausages** – making sausages in plasticine and making the letter or word in the cursive formation
- **Roll 'n' write magnets** – a special magnet pen pulls the ball around the letter shape in the correct formation
- **Tactile letters** – making letters from different fabrics and tracing round with finger or nose or elbow. Use a tactile marker to show where to start
- **Writing in sand and shaving foam** – as it sounds
- **Tracing letters** – as it sounds
- **Write on my back** – In pairs, players write a letter on their partners back and they have to write on a whiteboard what they felt and say the letter or sound out loud
- **Feely bag letters** – tactile letters in a bag. Either take it in turns to feel the letter and guess or feel letter and describe to the other player for them to guess.
- **Sorting letter shapes** – sorting letters into ascenders, descenders, etc
- **Whiteboards** – as it sounds
- **Wikki-sticks** – small bendy sticks that can be manipulated to make letter shapes. They come with a board.
- **Finger painting** – as it sounds but generally using the hand they write with

Auditory Activities

- **Describe a letter** – as it sounds. What shapes can you feel? Is it long/short?
- **Rhyming letter formation** – making a rhyme for the letters you are forming and saying the rhyme as you write
Eg, up and over the hill, back down again, round and under, down and flick **a**
- **Magic Finger or Magic Wand** – 2 players. 1 forms a letter in the air (you could use a torch) and describes what they are doing. Other player must guess the letter and draw it on the whiteboard. An extension to this would be to each have a turn using letters that eventually make a word.
- **Draw on back** – Player 1 draws the letter shape or word on the player 2's back slowly. Player 2 has to guess the letter or word

Other Fine Motor Control Activities

- **Kerplunk**
- **Tweezers and counters** – This could be combined with a sorting or counting activity
- **Coins** – picking up coins from a desk, soft to hard surface
- **Finger exercises** – this could be touching each finger with your thumb, making shadow shapes, saying a rhyme and moving fingers, counting using fingers
- **Jenga** – as it sounds
- **Thera putty** – special putty of different strengths designed to strengthen grip and develop fine motor control
- **Play dough and plasticine** – as above
- **Pegs and peg boards** – use pegs to make shapes, sort, count, etc

- **Geoboards** – make shapes by pulling and manipulating elastic bands
- **Stencilling** – as it sounds
- **Colouring** – as it sounds
- **Collecting rice and cereal (variation on the ‘Chocolate’ party game)** – pick up rice with sticks or fingers. Each player times how many they can do in a minute.
- **Cutting activities** – as it sounds
- **Lacing activities** – as it sounds
- **Tearing or screwing up paper** – as it sounds
- **Threading beads or buttons** – as it sounds
- **Dough Disco** – children use this at school to manipulate and stretch and shape. This will help strengthen their finger and hand muscles leading to greater control in writing and mark making https://youtu.be/9_CaeGiL1TE
There are many more your children can use.

Sentence Structure and Extending Sentences (Grammar)

Before pupils can learn to write sentences they first need to be able to speak in sentences and understand how a sentence is made up. For older children you could start by explaining some of the rules of sentences. Teaching the punctuation as you go along

- Start by making a simple sentence (with a subject and verb)
- Understand word classes and where they fit in a sentence (verb, adjective, adverb, nouns,
- Add interesting word choices, replace words for more interesting ones
- Add connectives to extend the sentence
- Vary the starts of sentences
- Re-arrange parts of sentences (or clauses) in order to show how they can make sense
- Write complex sentences

Word classes and types

Verb	<i>be, drive, grow, sing, think</i>
Noun	<i>brother, car, David, house, London</i>
Determiner	<i>a, an, my, some, the</i>
Adjective	<i>big, foolish, happy, talented, tidy</i>
Adverb	<i>happily, recently, soon, then,</i>

	<i>there</i>
Preposition	<i>at, in, of, over, with</i>
Conjunction	<i>and, because, but, if, or</i>

Adjective + noun – seen together in sentences

“beautiful butterfly...”

Verb +adverb – seen together in sentences.

“walk silently...”

Conjunctions

- **Matching sentences** – choose a connective and two parts of sentences to make a sentence. Roll the dice and collect parts of sentences to go with your connective card. The winner is the first to make a sentence
- **Connecting sentence game** – player 1 picks up a card with the first part of a sentence and connective (ie, I wanted to go to the shop but...) the other player has to finish the sentence. This could be extended by pupils writing their sentences down.
- **Silly sentences** – Have a piece of paper with a connective at the start of each new line. Each player writes the sentence following the connective but leaves off the full stop. They fold over the paper to hide their sentence and the next player responds to the next connective and so on. When they have reached the end of the page, they can read their silly story.
- **Moving connectives** – Players write 5 simple sentences each (these can vary from simple to complex). At each turn the player may choose a connective that will work with their sentence. They get a point for every different place in the sentence they can use it (ie, beginning, middle, end). The player with the most points when there are no connectives left, wins.
- **Connective catch** – Take a plain ball and put connectives (on stickers) all over the ball. Play catch, each player must choose a connective to within a sentence. This could be verbalised, an adult could scribe or another player (on their team) could scribe.
- **Connective treasure hunt** – Hide some connectives on cards amongst the room, playground, etc. Prepare starts of sentences (ie, The bust stopped...) The players must look for one of the hidden connectives and finish the sentence. The player with the most connectives wins the game.
- **Connective detective** – Use a small tracker window (cut from card) or a magnifying glass to find and collect connectives. You could simply find them, write them in a list, look at where or how they are used in the sentence. To make it easier provide them with a connective card that lists the ones you want them to find.

Past/present tense

- **Word association game** – 2 player game where the adult starts with a word in the present tense and the child answers with the same word in the past tense (jump/jumped). This can be made easier by having picture or word cards to help.

- **Pairs or snap** – The pair should be a past and a present word that match (ie, help/helped). To make it harder use irregular tenses (ie, think/thought). To extend game further, ask the children to put each of the words of the pair into a sentence.
- **Charades** – Put verbs into past and present tense using actions. Take it in turns to pick a picture card or think of an action. Players put their hand up to answer in a sentence (you are jumping/you have jumped). Make sure they say both past and present sentences.
- **Sorting words (In a group larger than 8)** – Give each child a word (past or present) and ask them to find someone that has something in common with them (ie, the past or present equivalent). They can then work together to make a sentence with the word or look at how the spelling pattern changes.
- **Sorting words (In a group smaller than 4)** – Children sort the words into categories (either pairs of past and present/regular and irregular tenses/groups of words with similar spelling patterns).

First and third person

- **Puppet or toys** – Set up dolls in the house or puppets in a row. Act out situations to show what they are doing. Model the sentences – She is sitting on the chair, he has walked out of the house. Children write the sentence.
- **He/She/They** – children add the correct card for he/she/they to go with the picture. This could be extended by having the represented sentence where children place the card in the correct place in the sentence.
- **Action game** – A small group of children take it in turns to perform actions. Child A makes an action and says 'I am hopping.' The other say 'She is hopping' And write it down. Take turns to go round each player.
- **Sequencing** – children sequence pictures with he/she/they to show the third person. They could have photos of themselves also stating 'I'.

Simple sentences

- **Human sentences** – Each child has a word card that is part of the sentence. They must re-arrange themselves without talking to make the sentence make sense. There should always be a full stop (this could be on the last word or on a card of its own). This can be done several times and read out in the wrong order for children to see that it doesn't make sense. Ask questions to prompt them to say why.
- **Human sentences extension** – As above but keep a couple of children/words out of the sentence (adjectives, adverbs – colour if necessary). Ask the children to fit them into the sentence where they would sound the best. Can they go in more than one place? Which is best?
- **Jumbled sentences** – Time children on how fast they can un-jumble the sentence. This could be on large or small cards
- **Matching parts of sentences** -

Varying sentences

- **Human sentences** – give each child a phrase or clause, connective and ask them to make it make sense. Extend by getting children to move the clauses again to change the sentence.
- **Sentence starter** Use sentence starter mats to choose from a variety of sentence starters (SEN resource)
- **Sentence starter board game** – Make a sentence starter board (pathway with sections each containing a sentence starter and picture if necessary). Take turns to roll the dice and say a sentence with the sentence starter you land on. Extend by having a picture so that each sentence has a context.
- **Sentence starter group game (silly stories)** – in a small group (with sentence starters on cards facing down on a surface) each player picks up a sentence card and says a sentence into the Dictaphone. Listen to the sentences at the end. You could use a stimulus for this (soft toy, story book, pictures).
- **Sentence starter bingo** – sentence starter bingo boards. A sentence is read out, and child puts hand up if they have the sentence starter. This could be extended by child being the bingo caller and calling the sentences.

The above games can be played with time conjunctions as well.

- **Sentence starter sheet** – Have sentence starters written on each line. Children need to finish each sentence.

Sentences are made up of clauses. Every sentence has a main clause. For complex sentences more clauses are added. See below;

Main Clause – sentence that makes sense on its own.

Subordinate Clause – clause used after a connective that doesn't make sense on its own and follows a connective or comma

Embedded Clause – extra piece of information that can be moved around within the sentence. Needs to be surrounded by commas or brackets

Example:

The boy, who was in year 5, shivered and screamed loudly.

Main clause – The boy shivered

Subordinate clause – screamed loudly

Embedded clause - who was in year 5

Some clauses in sentences can be moved around for effect;

This could be extended or supported by having a pictorial context, ie, a book that they are reading (Floppy goes to town).

Complex Sentences

- **Parts of sentences** – Pick out some clauses from a bag and put them together to make a sentence. Can they be moved around to make a better effect?
- **Embedded clauses** – Pull a sentence apart to add an embedded clause. You could use picture of the subject to provide ideas of information to embed.
- **Highlighting** – Children highlight the different clauses in the sentences to show understanding.
- **Clause collector** – Children search for main clauses, subordinate clauses and embedded clauses in a book. This could be extended by writing them on cards and sorting them. Then silly sentences could be made by putting the clauses together.
- **Simple sentence editor** – children write a simple sentence or one is written for them. Using a picture clue they should add an embedded clause and a subordinate clause.

Description

- **Object game** – How many different words can you think of to describe an object – red, big, spotty, smooth, etc
- **Feely bag description** – Pass the feely bag around the group. Each child has a go at describing the object they can feel. The others have to guess what it is.

(Extend either of these games by writing a descriptive sentence about the object – this could be scribed by teacher or recorded on a Dictaphone or talk card)

- **Sorting adjectives** - Have a number of adjectives written on cards and objects/pictures. Ask the children to sort the adjectives that go with each picture/object. Write a descriptive sentence to go with each set.
- **Headbanz** – Either use pictures or words (objects) as the cards in the headbanz. Children take it turns to ask questions about their object, Is it red? Is it soft? (using an adjective each time). This could also be played with the other players just thinking of one adjective to tell that person about their object. Each player must guess their object.

Punctuation

Full stops and capital letters

- **Reading full stops** – paired reading sentences. Adult reads one sentence and child reads the next. They must follow the text while you are reading to the full stop. As you read point out the full stops and capital letters asking, 'Where do you see full stops/capital letters.
- **Human Sentences** – Each child has a word and they have to get themselves in the right order to make a sentence (first word has a capital letter). One child has the full stop and places themselves last. Ask children to hop along the words saying them as they go and hopping on the full stop last.
- **Counters game** – Have several sentences without full stops. Child uses counters to mark where the full stops go. For every counter they get a point or raffle ticket, etc.

Speech

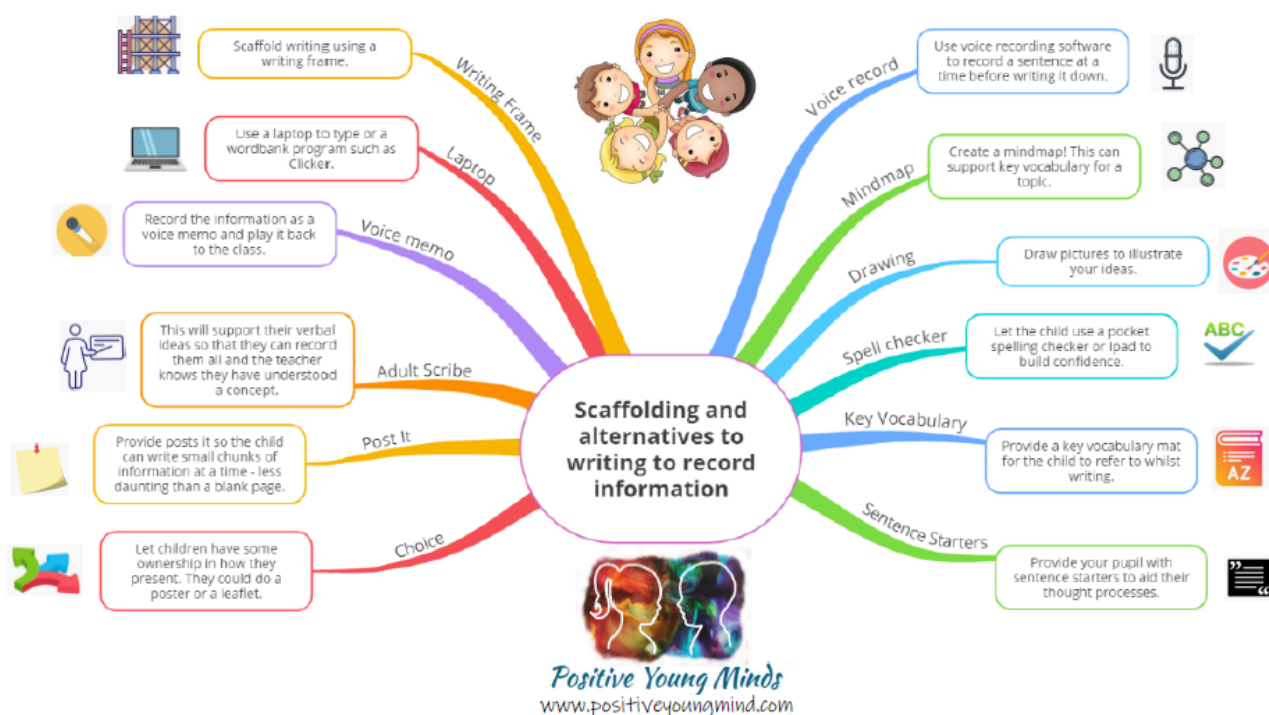
- **Balloons and bubbles** – Children hold balloon up to mouth to show they are talking into a speech bubble/or they could use a large cut out speech bubble.
- **Human speech** – Children say something into a 'talk card'. They place the large, coloured speech marks on each side of the talk card to show their place. Children can choose from many speech verbs such as; shouted, said, screamed, whispered.
- **Cartoons** – Children make a cartoon, filling in the speech bubbles or converting speech bubbles into speech using the appropriate sentence structure.

- **Talk Card** – Use this to record one sentence at a time that the child can write down. This works well for children who find it difficult to remember what they want to write and breaks up the information into small chunks.
- **Dictaphone** – This can be used to record ideas, notes or a whole text. It may be useful to have picture prompts or a plan of what they want to say. The text could then be scribed so that the child can see their efforts in print.
- **Writing Frames** – These can be used to allow a child to form the layout or context of their text. They may have picture prompts or questions to answer. *(A folder full of writing frames is available in the SEN dept)*
- **Scribing** – This allows the child to focus on the content of what they want to write. This should not always be the option but is useful to see their ideas and ability to construct a sentence. It may also allow them to use more ambitious vocabulary.
- **Multiple Choice** – Some children find this less challenging and can find answers easier than they can compose them with writing.
- **Computer** – This is often an incentive and allows for easier editing. Children will find it easier if they are conscious of spelling mistakes or punctuation.

Alternative Ways of Recording;

Many children find it hard to write or get started with their writing. Although putting pen to paper is an important part of the learning process, what a child can produce on the page with written recording is not always a reflection of their ability in any given subject. Pupils who are neurodiverse often find the writing of their thoughts, ideas or of facts and interpretations difficult or find it hard to see the point of recording in this way (this is usually because they have different communication styles). It is therefore important that we provide pupils with different ways in which they can show their intelligence and knowledge. Here are a few alternative ways of recording;

Children who have not had the opportunity to do much writing recently, as well as children who have SEND, may benefit from some of these strategies. Add them to your Quality First Teaching toolkit. They may reduce pupil anxiety and therefore improve outcomes, especially when the objective is not writing (e.g. a Science or Geography concept).



In class inclusive Resources and Strategies

- Word and sound mats – either available for all children to choose in class, as a table resource or in books/taped to table
- List of spelling rules to remind when writing
- Ace dictionaries or other phonic dictionary
- Abridged versions of class text
- Enlarged text – best font for reading is comic sans or times new roman, coloured background if necessary
- Paired reading with support assistant
- Supporting adult to mind map main points of lesson or from class book to aid with independent tasks (100 ideas for Dyslexia P.17 SEN resource)
- Record child reading and playback for independent related work (or adult record for work)
- Use talk cards to record ideas for writing or other tasks
- Use Dictaphone to record sentences or speech, or a section of a story
- Children read what they have written into Dictaphone (straight away). This could then be scribed for marking purposes
- Create self-assessment questions (or success ladders related to targets) for children to check own work
- Display key vocabulary for different tasks to aid with reading or writing fluency
- Discuss key vocabulary or main points of lessons to provide meaning before or after input
- Record texts in class on Dictaphone for pupil ease and independence
- Use visual prompts (where possible) to aid with reading and writing ideas and texts
- Use story maps and mind mapping to plan texts visually
- Use writing frames for planning ideas and texts (Sue Palmer writing frames or folder in SEN dept)
- Use mini whiteboards to practise attempts at writing

Maths Games and Calculation Policy

Please use the Calculation Policy below to understand how we teach maths at various stages at Long Lane;


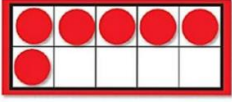





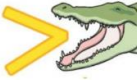
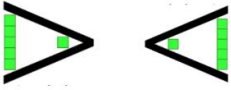
Long Lane Primary School Calculation Policy



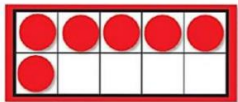
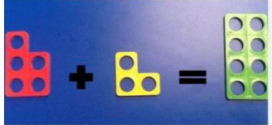
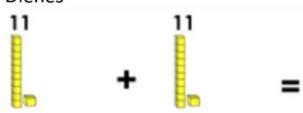



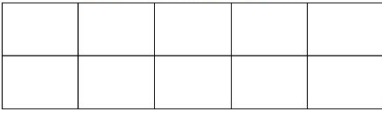
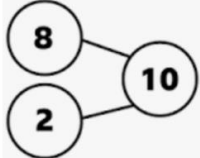
This policy lays out the expectations for both mental and written calculations for the 4 number operations and has been created to support the teaching of mathematics. This is underpinned using models and images that support conceptual understanding and this policy promotes a range of representations that can be used across the primary years. Mathematical understanding is developed through use of representations that are first concrete (e.g. Dienes apparatus and place value counters), and then pictorial (e.g. bar models, number lines and informal drawings) to then facilitate abstract working (e.g. standard written methods). This policy is a guide through an appropriate progression of representations and may not be suitable for all pupils. If at any point a pupil is struggling with the abstract, they can revert to familiar pictorial and/or concrete representations as appropriate. This also applies the other way round; pupils may move on to abstract working if teachers deem this appropriate and beneficial.


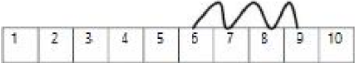
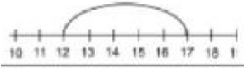

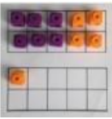

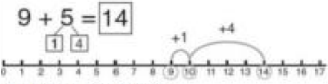
In Foundation Stage, children should develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. Frequent and varied opportunities to build and apply this understanding should be provided - using manipulatives, and tens frames for organising counting. In Key Stage 1, this will develop into basic recall and one-step questions, leading to two-step questions in Year 4 and continue onto multi-step questions in upper Key Stage 2. These questions may be presented as written one-step, two-step or multi-step questions or as missing/empty box calculations. Once children are confident at each stage of a calculation, they will be given a range of opportunities to develop fluency in tackling problem solving and reasoning questions.


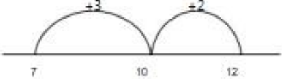
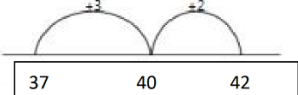
Teachers will model how concrete and abstract jottings can be used to work out answers. For example, to further understand what a question is asking, the child could use a bar model to illustrate their thinking and progress to using single or multiple methods of written calculation to give an answer. Children will also be guided and encouraged to explain each step of their thinking. This may be in the form of a 'Why?' or 'How can you prove it?' question.

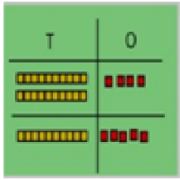
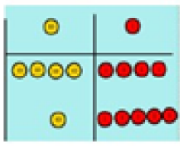
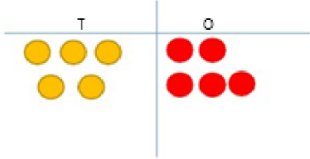
Addition

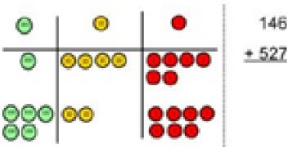
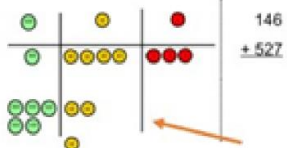
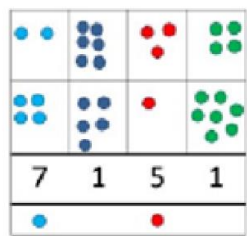
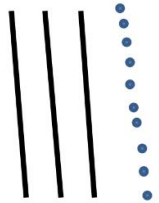

Method	Concrete	Pictorial	Abstract
<p>Stage 1 Counting a set of objects. This can include counting using fingers. Recognising a number shape</p> <p>Subitising</p> <p>1:1 correspondence</p>	 <p>Tens frames and counters</p> 	 <p>Tens frames and counters</p> 	 <p>Children relate the number of objects to the numeral.</p>
<p>Stage 2 Use the language of comparing numbers – more/less/greater/fewer</p>	 	 	<p>13 22 31</p> <p>Ordering 3 or more numbers</p> <p>$5 > 2$ $3 < 7$ $6 = 6$</p> <p>Comparing numbers using symbols</p>


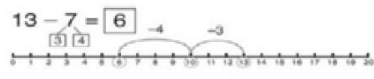
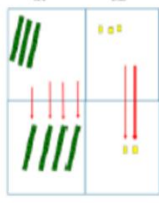

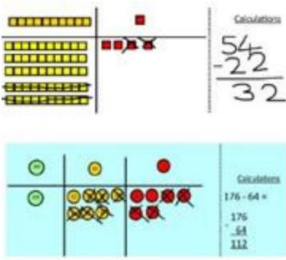
Method	Concrete	Pictorial	Abstract
<p>Stage 3 Combining 2 separate amounts to make 1 whole amount.</p>	 <p>For $4 + 3$, count out 4 cubes then 3 more and group them together to see how many altogether.</p> <p>This can also be represented in a bar. E.g. for $8 + 1$:</p>  <p>Tens frames and counters</p>  <p>Numicon</p>  <p>Dienes</p> 	  <p>Use pictures to add two numbers together as a group or in a bar.</p>  <p>Tens frames and counters</p> 	 <p>Use the part-part whole diagram as shown above to move into the abstract.</p> <p>$4 + 3 = 7$</p> <p>$10 = 6 + 4$</p> <p>Although number sentences are recorded in the concrete and pictorial methods, the abstract method sees the calculation carried out without the use of concrete or pictorial aids.</p>


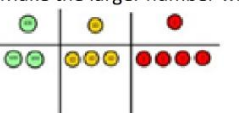
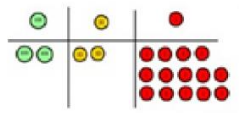
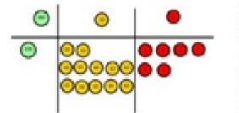
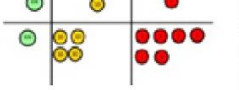
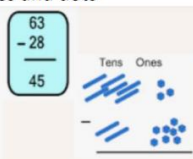


Method	Concrete	Pictorial	Abstract
Stage 4 Start at the bigger number and count on	 <p>Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.</p>	Counting on in jumps of 1 using a number line with numbers on it. For $6 + 3 = 9$:  <p>This can also be done in bigger jumps or 1 big jump to find the answer. For $12 + 5 = 17$:</p> 	$5 + 12 = 17$ <p>Place the larger number in your head and count on the smaller number to find your answer.</p>
Stage 5 Regrouping to make 10 so that the calculation is easier.	Regroup $9 + 3$ into $10 + 2$ before adding together:   <p>$6 + 5 = 11$ Start with the bigger number and use the smaller number to make 10.</p>	Use pictures or a number line. Regroup or partition the smaller number  <p>$3 + 9 =$</p>  <p>to make 10 before adding.</p>	$7 + 5 = 7 + 3 + 2 = 12$ <p>If I have seven, how many of my 5 do I need to add to make 10. How many more do I still need to add on?</p>

Method	Concrete	Pictorial	Abstract
		Children move on to using an 'empty number line'. E.g. $7 + 5$ becomes $7 + 3 + 2$  <p>Regroup $37 + 5$ into $37 + 3 + 2$</p> 	$37 + 5 = 37 + 3 + 2 = 42$ <p>If I have 35, how many of my 7, do I need to add to make the next multiple of 10. How many more do I still need to add on?</p>

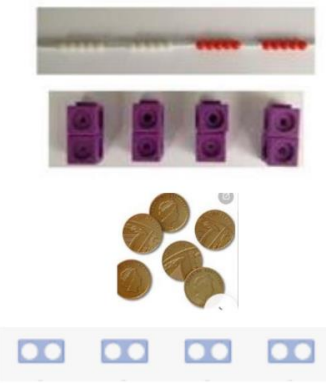
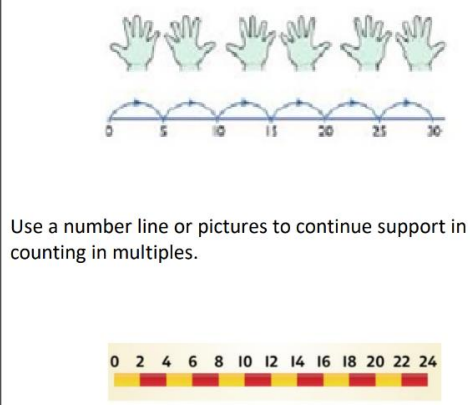
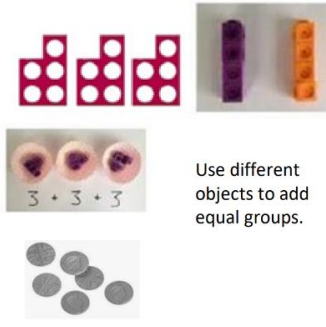
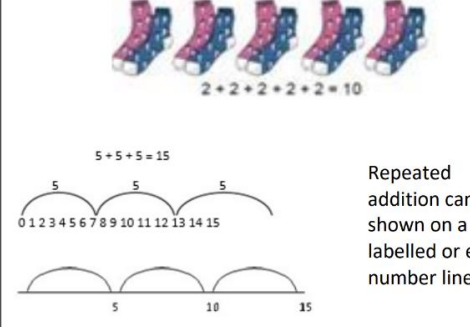
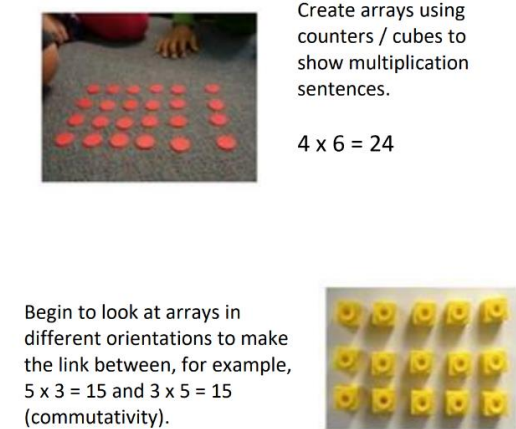
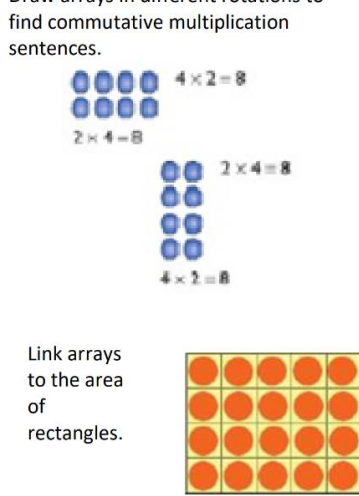

Method	Concrete	Pictorial	Abstract
Stage 6 Column addition Without regrouping	$24 + 15 = 39$ Partition the numbers into tens and ones using Dienes blocks. Add together the ones first then add the tens. Finally add the 2 totals together. Move onto using place value counters.  $44 + 15 = 59$ 	After practically using the Dienes blocks and place value counters, children can draw the counters or draw the Dienes blocks to solve the calculation. $32 + 23 = 55$ 	$21 + 42 =$ $\begin{array}{r} 21 \\ + 42 \\ \hline 63 \end{array}$ Record the calculation vertically adding the column of ones then the column of tens.

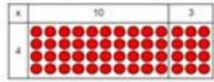
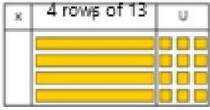
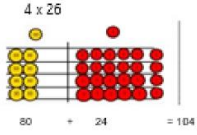
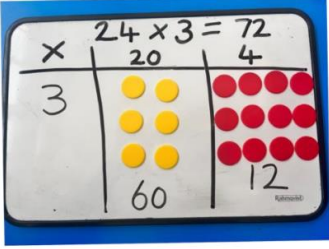
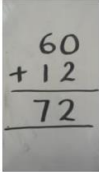
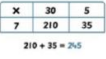
Method	Concrete	Pictorial	Abstract
Stage 7 Column addition with regrouping	Make both numbers with place value counters or Dienes.  In this case, adding the ones gives us 13 which is made up of 10 and 3.  Exchange 10 of these ones for one 10 and add it together with the other tens. Add up the rest of the columns, exchanging the 10 counters from one column for the next place value column if needed. This can also be done with Dienes equipment to help children clearly see that 10 ones equal 1 ten and 10 tens equal 100. As children move on to decimals, money and decimal place value counters can be used to support learning.	Children can draw a pictorial representation of the columns and place value counters/Dienes to further support their learning and understanding.  Children can draw dots and sticks to represent Dienes (exchanging 10 dots for a stick by joining them). 	Begin by partitioning the numbers: For $76 + 47$ $\begin{array}{r} 70 + 6 \\ + 40 + 7 \\ \hline 110 + 13 = 123 \end{array}$ Move on to clearly show the exchange below the addition: $\begin{array}{r} 70 + 6 \\ + 40 + 7 \\ \hline 120 + 3 = 123 \\ 10 \end{array}$ This then becomes the compact method where numbers aren't partitioned but exchanges still take place: $\begin{array}{r} 76 \\ + 47 \\ \hline 123 \\ 1 \end{array}$ As the children move on, introduce decimals with and without the same number of decimal places. Money can also be used here.  N.B. Exchanged digits need to be recorded below the line when adding.

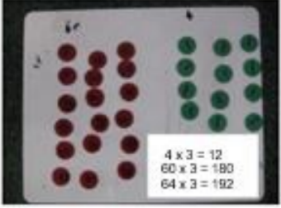
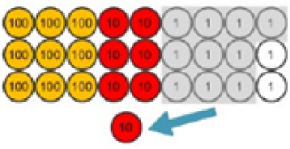
Method	Concrete	Pictorial	Abstract														
Stage 4 Make 10 Subtraction crossing tens	$14 - 5 =$  Make 14 on the ten frame. Take away the four first to make 10 and then takeaway one more so you have taken away 5. You are left with the answer of 9.	$13 - 7 = 6$  Start at 13. Count back 3 to reach 10. Then count back the remaining 4 so you have taken away 7 altogether. You have reached your answer.	$16 - 8 =$ How many do we take off to reach the previous 10? (6) How many do we have left to take off? (2)														
Stage 5 Column method without regrouping	$75 - 42$  Use Dienes to make the bigger number then take the smaller number away.  Show how you partition numbers to subtract. Again, make the larger number first.	 Draw the Dienes or place value counters alongside the written calculation to help show working.	Partitioned numbers are written vertically: For $54 - 22$ <table style="margin-left: 40px;"> <tr><td>Tens</td><td>Ones</td></tr> <tr><td>50</td><td>4</td></tr> <tr><td>- 20</td><td>2</td></tr> <tr><td colspan="2"><hr/></td></tr> <tr><td>30</td><td>+ 2 = 32</td></tr> </table> This will lead to a clear written column subtraction: <table style="margin-left: 40px;"> <tr><td>54</td></tr> <tr><td>- 22</td></tr> <tr><td><hr/></td></tr> <tr><td>32</td></tr> </table>	Tens	Ones	50	4	- 20	2	<hr/>		30	+ 2 = 32	54	- 22	<hr/>	32
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Stage 6 Column method with regrouping (decomposition)	Use Dienes first then move to place value counters. Start with one exchange before moving onto subtractions with 2 exchanges. $56 - 17 =$  Make the larger number with the place value counters  Start with the ones. I can't take away 8 ones. I need to exchange a ten for ten ones:  Now I can subtract 8 ones from 14. Next look at the tens. I can't take away 8 tens. I need to exchange a hundred for 10 tens:  Now I can take eight tens from the 12 tens and complete the subtraction.  Model how the concrete method links to the written method. Cross out the numbers when exchanging & show where we write our new amount.	Lines and dots 	 Children can start their formal written method by partitioning the number into clear place value columns.  Moving forward the children use a more compact method. This will lead to an understanding of subtracting any number including decimals. <table style="margin-left: 40px;"> <tr><td>5</td><td>12</td></tr> <tr><td>2</td><td>6</td></tr> <tr><td>-</td><td>2</td></tr> <tr><td colspan="2"><hr/></td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>.</td><td>5</td></tr> <tr><td>.</td><td>5</td></tr> </table>	5	12	2	6	-	2	<hr/>		2	3	.	5	.	5
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Multiplication

Method	Concrete	Pictorial	Abstract
Stage 1 Counting in multiples	 <p>Count in multiples supported by concrete objects in equal groups.</p>	 <p>Use a number line or pictures to continue support in counting in multiples.</p>	Count out loud in multiples of a number. Write sequences with multiples of numbers. 2, 4, 6, 8, 10 5, 10, 15, 20, 25, 30 3, 6, _, 12, 15, 18
Stage 2 Repeated addition	 <p>Use different objects to add equal groups.</p>	 <p>Repeated addition can be shown on a labelled or empty number line.</p>	Write addition sentences to describe objects and pictures. Begin to relate repeated addition to multiplication using 'lots of' e.g. 3 lots of 5 = 15 This then leads to writing related multiplication sentences e.g. $2 \times 5 = 10$
Stage 3 Arrays- showing commutative multiplication	 <p>Create arrays using counters / cubes to show multiplication sentences.</p> <p>$4 \times 6 = 24$</p> <p>Begin to look at arrays in different orientations to make the link between, for example, $5 \times 3 = 15$ and $3 \times 5 = 15$ (commutativity).</p>	 <p>Draw arrays in different rotations to find commutative multiplication sentences.</p> <p>Link arrays to the area of rectangles.</p>	Read an array to write multiplication sentences and reinforce repeated addition.  $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$

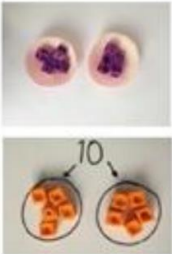
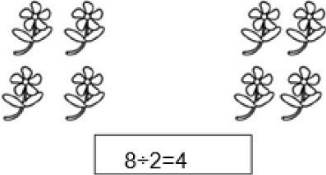

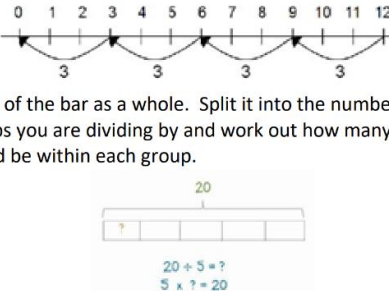
Method	Concrete	Pictorial	Abstract									
Stage 4 Grid Method (prior knowledge of multiplying by 10s for efficacy in abstract stage)	Demonstrate the link with arrays to first introduce the grid method. 4×13 4 rows of 10 4 rows of 3  Move on to using Dienes to move towards a more compact method. 4 rows of 13  Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows with each containing 26. 4×26 	Children can represent the work they have done with place value counters in a way that they understand. They can draw the counters, using colours to show different amounts or just use circles in the different columns to show their thinking as shown below.  	Start with multiplying 2-digit by 1-digit numbers showing the addition alongside the grid.  Moving forward, multiply 2, 3 and 4-digit numbers showing the different rows within the grid method. 13×28 <table border="1" data-bbox="1184 479 1465 560"> <tr> <td>X</td> <td>20</td> <td>8</td> </tr> <tr> <td>10</td> <td>200</td> <td>80</td> </tr> <tr> <td>3</td> <td>60</td> <td>24</td> </tr> </table> 280 $+84$ $\underline{364}$	X	20	8	10	200	80	3	60	24
X	20	8										
10	200	80										
3	60	24										


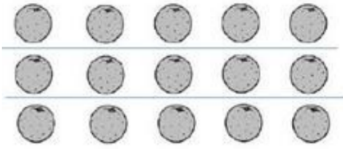
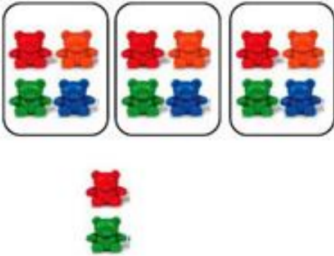



Method	Concrete	Pictorial	Abstract
Stage 5 Column multiplication	Children can continue to be supported by place value counters for carrying out column multiplication. They can partition and record each calculation vertically.  It is important to get into the habit of multiplying the ones first and note down their answer followed by the tens which they note below. The idea of exchanging will support them in moving on to a more compact method: 3×324 	As with stage 4, children can represent the work they have done with place value counters in a way that they understand. They can draw the counters, using colours to show different amounts or just use circles in the different columns to show their thinking. As with the grid method, numbers of more than one digit are partitioned but this time the calculation is recorded vertically. To support them, children need to write out what they are solving next to their answer. For 38×7 38 $\underline{\times 7}$ 56 (8×7) 210 (30×7) $\underline{266}$ Remind the children about the importance of lining up their numbers clearly in columns.	

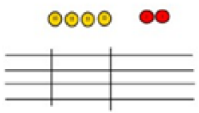
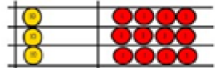
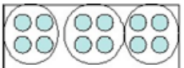
		<p>This then moves to the more compact method of short multiplication:</p> <p>For 38×7</p> $\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \\ 5 \end{array}$ <p>For 56×27</p> $\begin{array}{r} 56 \\ \times 27 \\ \hline 392 \quad (56 \times 7) \\ 1120 \quad (56 \times 20) \\ \hline 1512 \\ 1 \end{array}$ <p>Start by multiplying the ones digit, recording the last digit of the answer in the answer line but exchanging any tens and putting them under the tens column to be added on after multiplying the tens digit. Again, the last digit in the answer is recorded in the answer line and any hundreds are exchanged, this time to the hundreds column. and so on.</p>
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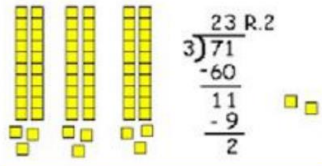
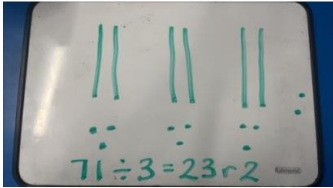
NB. Year 6 - When multiplying decimals, multiply decimals 'out', i.e. by 10 or 100 first (so you are multiplying whole numbers), complete the calculation, then divide by 10 or 100 to find the decimal answer.

Division

Method	Concrete	Pictorial	Abstract
<p>Stage 1 Sharing objects equally</p>	 <p>Here are 10 cubes. How can you share them equally in 2 groups?</p>	<p>Children should use pictures or shapes to share quantities.</p> 	<p>Share 9 buns between three people.</p> $9 \div 3 = 3$
<p>Stage 2 Division as grouping</p>	<p>Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.</p> 	<p>Use a number line to show jumps in groups. The number of jumps equals the number of groups.</p>  <p>Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group.</p>	$28 \div 7 = 4$ <p>Divide 28 into 7 groups. How many are in each group?</p>

Method	Concrete	Pictorial	Abstract
Stage 3 Division within arrays	 <p>Link division to multiplication by creating an array and thinking about the number sentences that can be created.</p> <p>E.g. $15 \div 3 = 5$ $5 \times 3 = 15$ $15 \div 5 = 3$ $3 \times 5 = 15$</p>	 <p>Draw an array and use lines to split the array into groups to make multiplication and division sentences.</p>	Find the inverse of multiplication and division sentences by creating four linking number sentences. $7 \times 4 = 28$ $4 \times 7 = 28$ $28 \div 7 = 4$ $28 \div 4 = 7$
Stage 4 Division with a remainder	<p>$14 \div 3 =$</p> <p>Divide objects into groups or share equally and see how much is left over.</p>  <p>This could also be shown using Numicon/coins. Exchange larger value to smaller value.</p>	<p>Draw dots and group them to divide an amount and clearly show a remainder.</p>  <p>Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.</p> <p>$13 \div 4 = 3 \text{ r}1$</p>  <p>As knowledge of place value improves, children can begin to jump in multiples of 10:</p> <p>$92 \div 3 = 30 \text{ r}2$</p> 	Children use knowledge of times table facts to quickly calculate divisions involving remainders. For example: $27 \div 5 = 5 \text{ r}2$ Go on to combining knowledge of times tables with place value to calculate more difficult divisions. For example: $82 \div 4 = 20 \text{ r} 2$

Method	Concrete	Pictorial	Abstract
Stage 5 Short division	<p>$42 \div 3 =$</p> <p>Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.</p>  <p>We exchange this ten for ten ones and then share the ones equally among the groups.</p>  <p>We look at how much is in 1 group so the answer is 14.</p>	<p>Children can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.</p>  <p>Encourage them to move towards counting in multiples to divide more efficiently.</p>	Begin with divisions that divide equally with no remainder. $\begin{array}{r} 18 \\ 4 \overline{) 72} \end{array}$ <p>Move onto divisions with a remainder.</p> $\begin{array}{r} 19 \text{ r}3 \\ 4 \overline{) 79} \end{array}$ <p>This can also be recorded as a fraction:</p> $19 \frac{3}{4}$ <p>Finally move into decimal places to divide the total accurately.</p> $\begin{array}{r} 19.75 \\ 4 \overline{) 79.50} \end{array}$ $\begin{array}{r} 14.6 \\ 35 \overline{) 511.10} \end{array}$

Method	Concrete	Pictorial	Abstract
Stage 6 Long division	 <p>Using Dienes or place value counters, we start with 7 tens and 1 one, to be divided into 3 groups. We can put 2 tens in each group, so we write a 2 in the tens column. In all, we've put 6 tens into the groups (3 x 2 tens), so we write 6 tens (60) below. We are left with 11 (1 ten and 1 one). We will need to exchange the ten for 10 ones so we can put 3 ones in each group (using 9 ones in all), and we will have a remainder of 2.</p>	 <p>Represent Dienes with sticks and dots.</p>	<p>432 ÷ 15 becomes</p> $\begin{array}{r} 28 \text{ r } 12 \\ 15 \overline{) 432} \\ \underline{30} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array}$ <p>Answer: 28 remainder 12</p> <p>432 ÷ 15 becomes</p> $\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{30} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array}$ <p>Answer: $28 \frac{4}{5}$</p> <p>$\frac{12}{15} = \frac{4}{5}$</p> <p>432 ÷ 15 becomes</p> $\begin{array}{r} 28 \cdot 8 \\ 15 \overline{) 4320} \\ \underline{30} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array}$ <p>Answer: 28.8</p>

Appendix

Listed below are a range of recommendations and teaching ideas aimed at informing and enhancing the teaching of primary mathematics:

1. Developing children's understanding of the = symbol

The = symbol is an assertion of equivalence. If we write $3 + 4 = 6 + 1$ then we are saying that what is on the left of the = symbol is equivalent to what is on the right of the symbol. A common misconception is for children to interpret = as always being an instruction to work out the value of a calculation. This is as a result of always seeing it used as follows:

$$3 + 4 =$$

$$5 \times 7 =$$

$$16 - 9 =$$

If children only think of = as meaning "Work out the answer to this calculation" then they are likely to get confused by empty box questions such as:

$3 + \square = 8$ and are very likely to struggle with even simple algebraic equations, such as: $3y = 18$. This can be overcome by doing the following:

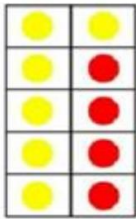
- Vary the position of the = symbol e.g. $24 = 4 \times 6$
- Include lots of empty box problems e.g. $12 - \square = 4$; $\square \times 6 = 24$
- $<$, $>$ and = symbols may be taught together at an early stage, when comparing groups of manipulatives. Continue to teach inequality alongside equality e.g. $5 + 9 \square 3 \times 5$ ($<$ or $=$?).

2. Recognising the actual value of ones, tens, hundreds etc. in a number

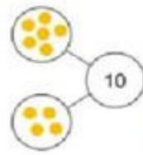
Many children are able to recognise the value of each digit in a number like 347 but find it harder to explain, for example, how many tens there are in 347. Once they are able to recognise that there are 34 tens (rather than 4 tens), it makes it much easier to be able to carry out a calculation such as $347 + 30$ as they are adding 3 tens to the 34 tens. Traditionally, children often struggle when tackling a calculation involving crossing over a hundred e.g. $293 + 10$ but using this method takes much of the difficulty away as they only need to add 1 ten to the 29 tens to give 30 tens and an answer of 303. It is equally effective when subtracting e.g. for $112 - 20$, we subtract 2 tens from the 11 tens to leave us with 9 tens and an answer of 92.

3. Reasoning about mathematical relationships

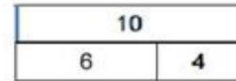
Children should be exposed to images and models that help them to make links between inverse operations from an early age.



$$\begin{aligned}6 + 4 &= 10 \\4 + 6 &= 10 \\10 - 4 &= 6 \\10 - 6 &= 4\end{aligned}$$



$$\begin{aligned}6 + 4 &= 10 \\4 + 6 &= 10 \\10 - 4 &= 6 \\10 - 6 &= 4\end{aligned}$$



$$\begin{aligned}6 + 4 &= 10 \\4 + 6 &= 10 \\10 - 4 &= 6 \\10 - 6 &= 4\end{aligned}$$

Part Whole Model

Bar Model

Opportunities should be taken wherever possible to demonstrate how children can use what they already know to work out a related fact e.g.:

- if $6 + 4 = 10$, then 6 tens + 4 tens = 10 tens i.e. $60 + 40 = 100$
- If you know $3 + 5$, you can use this to work out $23 + 5$

4. Developing children's fluency with basic number facts

Fluent computational skills are dependent on accurate and rapid recall of basic number bonds to 20 and times-tables facts. Research has shown that spending a short time every day on these basic facts quickly leads to improved fluency.

5. Developing fluency in mental calculations

Although number bonds to ten already have a place in this calculation policy, it is worth emphasising the importance of this approach. Children who learn to 'make 10'

to create an easier calculation can develop mental fluency and an ability to look for patterns. Using knowledge of number bonds that make 10, they can see that $9 + 6 = 9 + 1 + 5 = 10 + 5 = 15$

Good questions to ask about maths (Maths Mastery Questions) - The below questions will help children to be thoughtful and reflective in their response. They help notice patterns, build links between concepts and support confidence as there are no wrong answers.

Maths Mastery Prompts — Year 2

Focus: Fluency, confidence, early reasoning

Numbers

- What do you notice about this number?
- Can you show it with objects?
- What is 1 more / 1 less?
- How do you know?

+ Addition & Subtraction

- Can you use objects to help you?
- What is another way to solve it?
- How do you know your answer?
- Can you make a number story?

× Multiplication

- Can you make equal groups?
- What pattern do you see?
- Can you draw it?
- How many groups?

Shape & Measure

- What shape is this?
- How many sides?
- Can you measure it?
- Where do we see this in real life?

Year 2: Build confidence, talk about maths, use objects

🧠 Maths Mastery Prompts — Year 4

Focus: Reasoning, patterns, explaining thinking

🔢 Numbers

- What patterns do you notice?
- Can you represent it differently?
- What is the value of each digit?
- Can you explain your reasoning?

+ / - Operations

- What is the most efficient method?
- Can you solve it another way?
- How do you know you are right?
- What mistake might happen?

✖ Multiplication & Division

- What patterns can you see?
- How are they connected?
- Can you use an array or model?
- What if numbers changed?

🍌 Fractions

- What do you notice about size?
- How do you know they are equal?
- Can you show it visually?
- Where do we use this in real life?

Year 4: Explain thinking, spot patterns, justify answers

🧠 Maths Mastery Prompts — Year 6

Focus: Reasoning, proof, fluency + independence

🔢 Numbers

- What do you notice and why?
- Can you generalise your answer?
- How can you prove it?
- Is there a pattern or rule?

+ / - / × / ÷

- What strategy is most efficient and why?
- Can you solve it in multiple ways?
- How can you justify your answer?
- What misconception might occur?

🍌 Fractions / Decimals / %

- How are these connected?
- Can you convert between them?
- What real-life applications exist?
- How do you know your answer is correct?

🧩 Reasoning & Problem Solving

- What information is essential?
- What assumptions are you making?
- Can you prove or disprove it?
- Is there a more efficient method?

Year 6: Prove, justify, generalise, and reason independently

Active Games (These are games you can play when learning any concept or number facts for quick recall);

- **Maths catch** – questions or numbers marked on balls, catch and say the number/answer the question
- **Relay maths** – pick up a number/question, run to the next person, say the answer or next number in the sequence, either pick a new number/question and repeat or keep to words with the same sound
- **Hopscotch maths** – put the number on the hopscotch and play as usual, saying the sound as you pick it up. Another way, use for number sequences, what comes next in the sequence
- **Target maths** – read questions off a card and throw dart, ball, into target containing the right answer
- **Stepping stones challenge** – answers to simple maths problems – addition/tables etc. Find a pathway through answering the questions or 'you can only step on odd numbers, facts of 2 times table
- **Maths atalanta** – pick up each number or question and calculate as you move along the line, this could be a number sequence (work out the next one or missing number in the sequence)
- **Treasure Hunt** – Hide number flashcards in an outside or inside area. Pupil must find either from verbal or written problem (I am larger than 25 and smaller than 50...I am an odd number...a multiple of 10) or from visual matching card 25+10...looking for answer hidden or look for the multiples of 10...discrimination.
- **Penalty shoot-out** – use number facts/sequences or questions to play the game (goalie asks question, striker responds before being allowed to score a goal) Questions could be stuck around the goal
- **Beanbags** – Throw and catch beanbags with questions and answers

Music, Rhyme and Dance

Learning facts by rote is hard when your memory is poor and visual/kinaesthetic activities support the long-term memory.

Songs – sing number bonds, times tables, square numbers

Learning pathway dances – use these two create and repetitive action for each fact (ie, the maccarana or cancan)

Clap,tap and click - different sequences of numbers, use musical instruments to recall facts

Tactile methods;

- **Numbers sand** – writing numbers in the sand or shaving foam (gross and fine motor skills)
- **Plasticine sounds** – making numbers using playdough or plasticine, pipe cleaners
- **Squeezy bottle sounds** – large movements squeezing water from bottles into number shapes
- **Feely bag numbers** – use tactile numbers on cards or shaped letters to feel and say the sound or match to the grapheme representation
- **Addition and subtraction hats** – use head bands to show each number within a sum. Stand all children with hats on together to make the number sentence, ie, $4+6=10$ (ask the first child to hold 4 objects and the second to hold 6, they can then give the objects to the person after the = sign and then count altogether (an extension would be to move children in the sum to show the inverse operation or an array)

Board games and Group Games

- **Cowboy shootout** – One child wears the cowboy hat (or other dress) and calls for a challenger (another child). Teacher asks question and the first to answer and then explain how they worked it out gets to shoot the other down (finger gun). The winner keeps the hat and a new challenger can be chosen, questions can be differentiated for each child
- **Last man standing** – A child wears the hat at the front of the class/group and faces them. On the front of the hat is a number that the others can see but not them. Other children must give clues as to what the number might be. (it is in the 5 times table, a multiple of 10, 56-45, a square number) Questions can be tailored to the learning objective, as revision or to assess key vocabulary.
- **Connect 4** – use stickers to put questions or answers on counters. Pupils play the game but answer the questions at each go. IE, say 10 more than the number on the counter each time
- **Stacking cups** – use cups to challenge children to put a cup over each answer (using number cards) ie, put a cup over all the odd numbers. This could be a timed activity. Can you beat your time?
- **Twister maths** – use with a group, put number facts or questions on each spot. Play game as usual or adapt
- **Maths Jenga** – questions or number facts on each block. Play as usual.
- **Splat the Rat** – questions or number facts on cards. Use an inflatable or squeaky mallet to splat the right answer
- **Snap or pairs** – find a match with face up or face down pairs, snap for a faster game
- **Tracking** – child has a number or sequence on a card and must track a text from left to right with finger and stop every time they find a match. Could be used to discriminate between whole numbers and decimals, pounds and pence
- **Kim's game** – put 5 key words on a tray, take one away, which one has gone (either read all the others to find the missing one or, to make it easier, child has a grid with all 5 words to work out which one is missing)
- **Number detectives** – pupils use numbers, number facts, or equivalents on flashcards to search for a pair (ie, fraction to visual representation)
- **Sorting** – have a group of numbers or number facts. Ask children to sort them any way they want (or set categories: which times table are they in?). Discuss what you have found out or which numbers fit into more than one category.
- **Sound lotto or bingo** - (this can be verbal or from the visual sound)

Progression for all of the above games;

- **Recognition** – recognising numbers of facts
- **Matching one to one** – matching numbers with visual representations of amounts, ie, fraction with visual representation
- **Matching questions and answers** – matching a question card with the correct answer (like multiple choice/elimination)
- **Questions without answers** – children having to calculate answer mentally or use whiteboards to write 'workings out'
- **Answers without questions** – Who am I? Describing a number by what it can do, ie, I am a multiple of 10, I am in between 2 and 13, I have 5 tens and 2 units...