Learning to write and understand numbers

Children learn to recognize and write their numbers in kindergarten and should be proficient by pre primary. The ability to write and form numbers is an important step in learning to form any symbols, and there are many parallels with the ease of writing numbers and later letters. One important thing to note is that numbers frequently can be reversed when the child forms them until they become more practiced and skilled. Whilst we need to promote the correct formation it is not uncommon for some numbers to “bump the other way” and be reversed even up to the end of year 1. Left-handers often have a little more difficulty with this directionality aspect of writing numbers. Numbers 2, 3, 5 and 7 are most commonly reversed.

Before a child is ready to write numbers, numbers need to have a meaning for them. Most children learn to rote count to 10 before they actually work out the number association of how “many” these make. Knowing their age, counting small groups and then seeing the number shape and being confident that the shape is a 4 or a 6 are all vital steps of learning numbers.

Our brain perceives numbers as an image or a symbol that we then attach meaning to, just like sounds to letters. If your child can’t work out what that number shape is: then as a parent play lots of games where you recognize and point out all the 3’s one day or week or as long as it takes for them to consistently recognize the shape as a 3. Then you can introduce another number and teach that shape and number name e.g. find all the 6’s.

After the child understands the connection between the number shape and the number they develop increased comprehension of how to group clusters of objects to reflect that number amount. E.g. “show me four cars” or ‘Can you give mum 6 apples”.

Mastering writing numbers is tricky if the child does not understand the link between the numerical symbol and the number of objects, so always write numbers with some meaning/ counting/ patterning or ordering.

Numbers have a clear starting point and a direction of pencil movement the same as letters. Some numbers push to the left such as 5,6,8,9 and some push to the right as 2,3,7. Children in kindergarten and beginning of pre primary don’t have any sense of left and right and the spatial planning to use left and right as a prompt or clue with any success. It is better to start with a lot of tracing numbers and the easier ones of 1, 4, 9 and 10 when getting them to write. Use visual prompts first but the goal is to be able to write numbers quickly and efficiently from their internal motor / perceptual memory and without a visual prompt. When this occurs the learning is crystallized and cemented.

Being good at “numbers” and Math’s at school is strengthened by; patternning, lots of sequential ordering and lots of hands on exploration of objects for weight, size, dimension etc. Numbers and Math’s are learnt through play, good practical tasks such as setting the table, cooking and through body to environment games. It can be supported by technology and apps but is best learnt through object manipulation.
Skill Progression.

1. Child rote counts usually in a sing song pattern
2. Child can recognize certain symbols represent a number. At this stage it is great to go on a number hunt with car number plates in car parks or letterbox spy games when walking to the park.
3. Child can attach the correct number symbol to items. Usually starts 1 - 5 and then progresses to 1 -10 and higher.
4. A child should be able to put numbers in the correct order as number patterning is vital.
5. Child can attempt to copy a number and only through repetition and practice does the motor plan become more automatic and fluent. Children often know which numbers they can form and which ones are tricky. They may prefer to trace over numbers or use number gutters to practice the formation.
6. Children can count up to 20 but when they write they may find it difficult to get the sequential order correct and may write 01 for 10 or 51 for 15.
7. As soon as your child has mastered basic numbers try to extend to seeing a number of objects and working out how many they total. You can even make number stories so they can work out if one gets taken away how many are left. Numbers are patterns and they go up and down.
8. Being able to see that a small number is 4 without counting one by one is another skill progression. Usually children have to learn first to count by pointing one by one but they can soon see groups of two or three equals 2 or 3 without touching each one.

The writing of numbers is made more successful for children who can see shapes and copy them and for those who engage in a lot of drawing, as these also use elements of visual motor planning. Think of writing numbers as a series of motor plans of pencil direction changes. IE “starts at the top pulls down and stops for a 1”.

Try:

- If your child is finding it tricky start teaching the easier ones first till they master those and then move to the more challenging. Start with 1,4, 7 and 10.
- Always use the same verbal prompts for teaching the letters and say the words with the action or the rhyme with the action. This way we use the right brain to help the left brain.
- If they get stuck help them feel the movement by putting your hand over theirs and doing the first one together. Its better to repeat forming one number a few times when learning then writing many different plans and numbers. Try then to get them to form one with your verbal prompts.
- Use a texta or a highlighter so they can trace over your numbers to feel the plan before trying one on their own. Usually try three trace numbers before their independent go.
• If they make a "bump" or the number” Bumps the other way” try to
correct. We always use a pencil so we rub out bumps or use a whiteboard
as well. This way the child sees the correct formation.
• Immerse in number games and counting in Kindy and pre primary.
Children who can form numbers just by seeing the shape and then
copying are more likely to be able to do the same with letters. If your child
is struggling with writing numbers we need to switch on the motor
planning part of their writing brain by lots of fun, frequent and not too
boringly long practice. Don’t think boot camp think interval training.
• Apps such as Number School (Letter School) are great for teaching the
formations. Use a thick stylus as well as fingers.
• Some i pad apps have good early maths concepts and are designed for
some fine motor manipulation skills without having to use a stylus such as:
  # Bugs and Numbers
  #Bugs and Buttons
  Counting Together
  Counting Bees
  Motion Math – Hungry Fish

Verbal prompts For Numbers

1. A straight line down for number one. It’s lots of fun. (Starts at the top
   pulls down and stops)
2. Around and back on the railway track…Two Two… (Pushes back one
   bump and a stick)
3. Around a tree, around a tree, that’s how you make a number 3. (Pushes
   back one bump, two bumps)
4. Down and across and down once more, That’s how you make a number 4
   (Starts at the top pulls down and sideways. Put the wings on.)
5. Fat old five goes down and around, he puts on his hat when he goes to
town. (Down then a big fat belly. Put on his hat).
6. Down to a loop. A six rolls a hoop. (Like a circle goes down, stops and
then back into his belly button).
7. A line across and down from heaven that’s how you make a number 7.
   (Pushes back and down)
8. Make an S but do not wait go back up and make number 8. (Starts like an
   s but closes up)
9. A balloon and a line make number 9 (a circle with a big stick)
10. Write a one and a zero with a pen and you have made a number 10. (A
    one and then a circle)

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Handwriting - Learning to Write K-PP

Writing is a complex activity involving co-ordination, motor planning, fine manipulation, proprioception, attention, visual and auditory skills and language and literacy skills. Because of its complexity and the range of foundation skills necessary to perform writing, there is a wide variation in abilities as children learn.

Learning to write and form letters is a vital step in literacy and one that does require practice and repetition in order to get to a stage where the formation of the letter is automatic and fluent. When we write as a competent writer, we no longer think about how to actually form the letter we spend our entire thoughts on the language aspect: the words, spelling, context and the meaning of the sentence. Not having to worry about how to actually make the letter with the pencil frees up much of our cognition so we can make our sentence interesting, spell correctly, check for grammar and meaning and write quickly within a timeframe. Getting the basics well learnt and automatic is the first step in this complex process and one that takes time and repetition.

In kindy and pre-primary the formation of letters is the vital key step in this process. When teaching letter formations, there are a few tricks that can help confidence and competence. Firstly children have to have had the experience of holding a pencil properly, drawing shapes and the prewriting patterns, have the concept of the shape of that symbol matches a sound and of course be able to recognize the different letter shapes.

Before you start teaching all different letters make sure your child has a good understanding of the letter symbol and sound match so they can recognize a d is a d is a d here there and everywhere. In Kindy the child is expected to learn to write their name and for some children they can master this easily and with other children they take longer especially if their name is long. One part that can be a challenge is getting the correct sequential order and all the sounds and letters in the correct sequence. You need to focus on this as a task to help them with writing successfully.

In Kindy they will also learn to write their numbers and this follows the same teaching principal of recognition of the shape to the number and then learning the formations.

Some numbers and some letters are easier to form than others. Some fonts used at schools are easier to learn than others.

When the brain of a developing child needs to learn a multi faceted skill with complexity: it lays down many neuronal connections and “hard wiring” systems. This is good for the brain and the child and allowing and placing as much importance on the visual/fine motor / physical/ perceptual aspect of learning and development should be as highly regarded as reading. In other cultures their writing scripts are far more complex than ours, and this demand on the brain and the brains subsequent development bodes very well for later intellectual reasoning and higher order thinking.

Don't always be swayed that a computer is a better option. Our brains need challenges to develop.
Skill Progression
1. Child shows readiness to learn to write by being able to direct pencil control in the strokes – | / \ o +
2. Child starts to form the letters of their name
3. Child will begin to form letters by either specific teaching or by looking at the shape and imitating.
4. Children need to learn how to form these letters correctly from the correct starting point
5. Child will be able to identify and write the first letter/ sound in a word
6. Child will be able to identify the final sound in a word and write.
7. Child will be able to write a simple CVC word e.g. cat, pin, sun etc. by sounding out and choosing the correct letter and sound match. They need to hear the strong clear vowel sound to succeed with this step.
8. Rhyme patterns for written words are a very important step in this stage. Children usually hear rhyme before they can maintain writing rhyme.
9. Child learns blends such as th, sh, ch, ck br etc.
10. Child starts to write out non-phonic sight words such as was, like, etc.
11. Child starts to write the long sound in a word as a double letter ee, oo ll
12. Child is able to write and choose vowel blends such as au, ou, ow with consistency.
13. Child can think of a sentence and write it out using a combination of phonic sounding out and sight words to make a sentence.
14. The mechanics of orientation to the baseline, size spacing and correct use of punctuation develop. (Yr. 1).
15. Writing progresses with content, context, length and complexity for different genres (Yr. 1 up)

Try:
• Whenever you write with your child make sure that they start from the top!
• Make giant letters on large paper and get them to drive a toy car along the road starting at the correct spot.
• Always, always sound the letter first and use that to spell out before saying the letter name.
• Make some laminated guttered letters for them to use a whiteboard marker, texta or highlighter to practice the formations.

C C C C

• Draw letters in interesting textures such as shaving cream, paint, sand so they can easily rub out and start again if they make a mistake.
• You can write with the pencil and give them a highlighter to trace over the letters in the correct direction.
• Always use the verbal prompts as they write the letter.
• Lots of verbal praise for attempts and don’t tackle too many letters at once. We teach to the same shapes tall letters, down and under letters etc. as it has the same movement direction and motor plan.
• Use a pencil or a whiteboard marker so any "bumps' can be rubbed out. We want errorless practice but do be aware of being too challenging or critical. We just go back to an easier letter or use tracing over yours.
• If your child is having a lot of trouble use hand over hand when they write so they feel the correct arm movements and the motor plan to form the shape of the letter. Once they start trying to form the right plan take your hand away.
• If they find a letter tricky it is more effective to practice that letter 6 – 10 times to get it into their motor memory. This is the same as hitting a bucket of balls if you are trying to improve your golf teeing off skills.
• Always practice lower case letters as the capitals are learnt so easily at class time but it is the lower case ones that your child will find harder to master.
• Children usually form circles from the bottom not the top so practice the anticlockwise letters lots a, c, d, e, g, q s
• If your child is writing and the direction is the correct way start to get them to write on the line. This is also the time to try and encourage them to write a little smaller.
• Some children write backwards for a while and this happens usually when they have not developed the automatic left to right plan. Make sure if this is happening you play lots of games that go left to right as this is vital for reading fluency and writing fluency. Make a mark or a star on the left side of the page so it helps with the left right plan.
• Don’t worry early on about getting the writing on a line just focus on the letter formations going the correct way. With the formations tackle the straight letters first if your child is struggling a little. The l l t j and h can all be a little easier.
• With the anticlockwise letters teach C first and then all the others. Prompt as “starts like a c and then goes…”
• Make the writing fun or meaningful and don’t try to do too much as more is not necessarily better. Frequent and fun is better than rare and too long.
• Pull out the novel writing tools whenever the challenge is great as you need a lot of creative ways to make it engaging for your child. Use different types of highlighters, chalks and drawing options and not just a worksheet.
• Make sure that you use gross motor action with boys to practice writing, as they will learn better. For example draw letters on balloons and then hang them up and throw things at them or draw letters on ping pong balls and then play flicking finger soccer games to increase their motivation.
• The best investment you can make is to put up a whiteboard in the pantry at their height or on the inside of a kitchen cupboard door for the child to be able to practice their letters where you can see them and also to write a shopping list, draw and later practice their spelling and words.
• Let them use writing in a meaningful way. Give them post it notes and label with starting sound 5 things in the kitchen, or another day 5 things in the toy room.
• Ask them to write 3 things on a shopping list and they can get them when you do the shopping. Write first sound for milk, M and draw a carton of milk etc.
• Using a thick stylus on an i pad and a good formation app such as letter school is a great option as well. Make sure the i pad app and formations are the same as what the child is learning and expected to do at their school.
Some Good Literacy based Apps are:
  # Ready To Print
  # Shelby’s Quest
  # Letter School
  # rED Writing
  # Touch and Write Australia
  # Dexteria
  # i Write Words

If your child is really not interested in writing, is having difficulties with the pen control or a little avoidant, it is always more effective to work directly with the teacher and an OT in the kindy and pre primary years so the child develops the strong foundation skills for academic performance in the formal primary years. We want the experience of writing to be positive and sometimes a little extra support is required in order to develop the building blocks for literacy and writing.