

Designed for children struggling with handwriting

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Introduction

'Pegs to Paper for handwriting' is a programme designed to teach the basics of handwriting using the Nexus Giant Pegboard and Pegs. It can help all young children developing their handwriting skill but it is particularly useful for those who struggle.

What is involved?

The programme provides a series of exercises with the Giant pegboard and pegs to address *letter shape*, size and alignment, spacing and slant. It helps with the physical production of text, supporting good posture, body position, pencil control and pencil grip and in addition, secures the spatial and directional concepts required for writing letterforms.

This combination of physical and cognitive approaches to learning, using spatial and directional language, has been found to increase the child's understanding of written text as well as helping to direct vital motor activity. Because all the patterns are copied onto paper, the child experiences a direct link between actively forming the lines, shapes and patterns on the pegboard and reproducing them as marks on the page, i.e. Pegs to Paper.

Notes:

- 1. Throughout the booklet the child has been referred to as 'he'. This is for simplicity of writing and does not imply that the exercises are only for boys
- 2. When transferring the peg patterns to paper it is recommended that the child uses felt tip pens initially rather than pencil or ink pens. This is for ease and comfort of drawing

In order to gain maximum benefit from Pegs to Paper it is important that the pegboard and pegs are used in the following way:

- 1. **Posture**. The child should sit as he would to write, working at a table of the correct height (elbows at a right angle to the surface) and his feet flat on the floor (knees also at a right angle). He should sit upright with his bottom in the middle of the seat.
- 2. **Pegboard position**. The pegboard should be placed directly in front of the child. The pegs should be in an open container for easy access, e.g. a large ice cream carton, and this should be placed on the side of the non-writing hand (i.e. on the left for right-handers or vice versa).
- 3. Peg use. Pegs should be picked up with the non-writing hand and transferred to the writing hand for pushing into the board. This integrated movement between the two hands is important and should be sustained throughout the exercises. When clearing the board, however, the child can use both hands together to grasp as many pegs as his hands will hold to strengthen his grasp.
- 4. Peg grip. Each peg must be held firmly with the whole hand whilst being pushed into the board. It should sit for snuggly in the palm of the hand while the thumb and first fingers grip the neck of the peg, strengthening muscles for the tripod pencil grasp. The ridges on the pegs give sensory feedback through the hand and when the pegs are pushed into the board, muscles appropriate to a firm grip in the hand and arm are also strengthened.

Procedure

To ensure full understanding of the handwriting concepts, the child should be encouraged to use language to describe what he is doing at every stage. Begin by giving clear instructions using the correct words for each position and direction. This way the child learns the language and practises using it. For example, say:

Make a line of 10 green pegs down the left side of the peg board.

The child has to listen for information regarding number, colour, position and direction. Once the pegs have been placed into the board, ask him to tell you what he has just done (i.e. repeating the language that you supplied in the instruction). This should be the method of working at all times so that the child becomes fluent in using language to describe what he is doing.

Transference onto paper

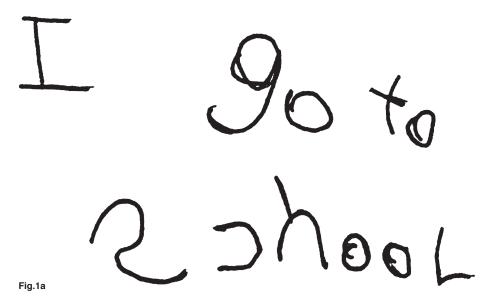
When each exercise has been completed, the child copies the pattern onto paper. Begin by using the dots' sheet supplied with these cards and the Nexus triangular whiteboard pens. Alternatively, print a sheet with a grid of 100 dots. At first, the dots should be approx.1.5 cm apart. As the child achieves greater control, this can be reduced to 1 cm. (Print several sheets in advance). The child draws circles around the dots to represent the pegs on the board. When drawing the circles make sure he always starts above the dot (or at "1 o'clock") and circles anticlockwise (reinforcing the correct direction for the start of curved letters). The circling is a vital part of 'Pegs to Paper' as, until the child can coordinate and reproduce this simple movement making every circle of the same size, he will not be able to attempt more complex letter shapes with any degree of accuracy. By copying the pegboard patterns onto the dots sheet he will get a great deal of practice of the circular anticlockwise movement essential for writing letters.

Remember: LISTEN, DO, SAY and DRAW every time!



Introducing SHAPE

For children who do not form letters correctly, such as the sample (Fig.1a):

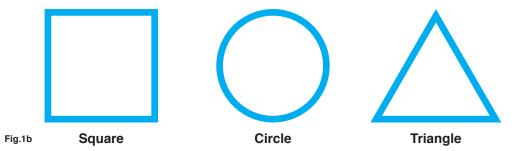


Letter shapes are complex and a child may find learning them difficult for a number of reasons:

- He may not have a clear picture in his mind of the shapes he is trying to achieve.
- He may not be able to convert the visual images into motor patterns.
- Perhaps he is unable to coordinate the movements required to produce them.
- It may be that his kinaesthetic memory is not very strong.

Whatever the reason, teaching the letter shapes by breaking them down into their component lines and practising them on the pegboard helps to secure the visual image of each letter for reading as well as teaching the correct sequence of movements for writing them.

It can help understanding if children see that letter shapes are made up of different lines, straight (i.e. vertical and horizontal), curved and diagonal. These three types of line are found in the basic shapes of *square*, *circle* and *triangle*, shapes which most children are familiar with (Fig.1b).



It may be necessary to begin by practising these lines in isolation to ensure that they can be performed accurately and smoothly before being incorporated within letters. If a child is confident and competent when drawing the component lines for letters he will experience success in writing letters and achieve legibility more quickly.

The following series of exercises show how this may be achieved.

Remember...



Exercises for Accurate Letter Formation Understanding and drawing straight lines: vertical

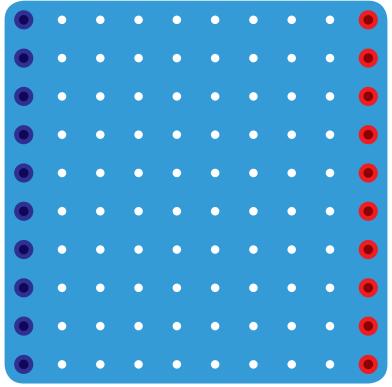


Fig.2a

Instruction from teacher to child:

- · Choose a colour and make a line down the left side of the board.
- Now make a second line down the right side of the board in a different colour (see Fig.2a).
- Tell me what you have done (number, colour, position and direction, e.g. 10 blue pegs on the left going down, etc.).
- First, draw these lines as circles round the dots.
- Now draw the lines on paper as continuous lines, using a chunky felt pen.

Checklist for the teacher:

- · Does he draw from top to bottom?
- · Does he use a continuous movement?
- Does he keep his body still when he moves his hand down the page?
- Are his lines both straight and parallel?
- · Are the lines well controlled and accurate?
- Are they drawn with the appropriate pressure (not to spidery or pressing too hard)?

If the answer to any of these questions is no, then you will need to practise these lines for longer, using the correct movements before moving on. The next card offers extension exercises to provide additional practice for children who need longer to master the drawing of these lines.

Understanding and drawing straight lines: horizontal

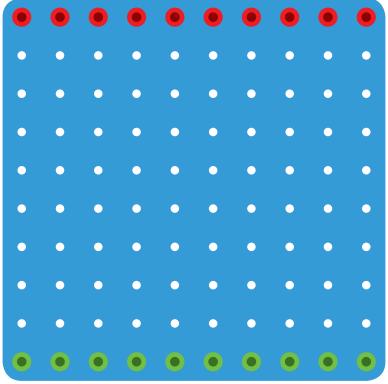


Fig.2b

Instruction from teacher to child:

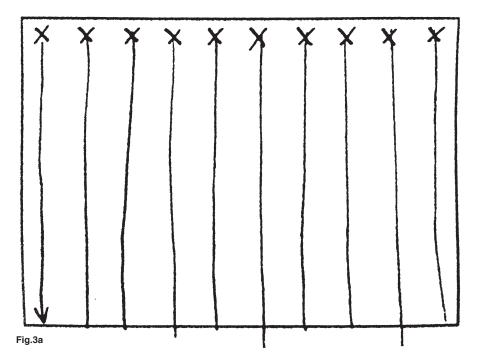
- Choose a colour and make a line across the top of the board.
- · Now make a second line across the bottom of the board in a different colour (see Fig.2b).
- Tell me what you have done (number, colour, position and direction, e.g. 10 red pegs going across the top).
- · First draw these lines as circles round the dots.
- · Now draw those lines on paper as continuous lines, using a chunky felt pen.

Checklist for the teacher:

- · Does he draw from left to right?
- · Does he use a continuous movement?
- · Does he keep his body still when he moves his hand across the page?
- · Are his lines straight and parallel?
- · Are the lines well controlled and accurate?
- · Do they fade down towards the bottom on the right half of the page?
- · Are they drawn with the appropriate pressure (not to spidery or pressing too hard)?

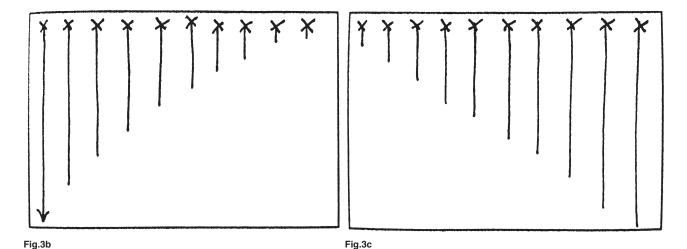
If the answer to any of these questions is no, again you will need to practise these lines for longer, using the correct movements before moving on. The next card offers extension exercises to provide additional practice for children who need longer to master the drawing of horizontal lines.

Practice in drawing lines: vertical



Instruction from teacher to child:

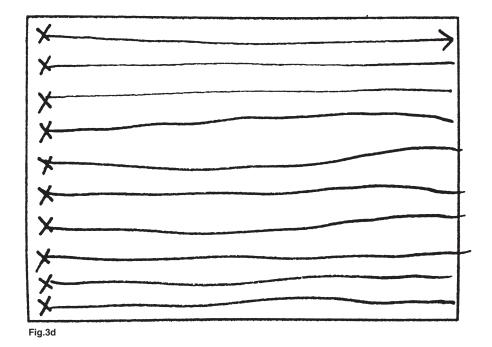
- Draw a straight line down the page from top to bottom, starting on the crosses (see Fig.3a).
- Now repeat those lines but this time make each line shorter than the one before (see Fig.3b).
- Then start with a short line and make the other lines longer (see Fig.3c).



Checklist for the teacher:

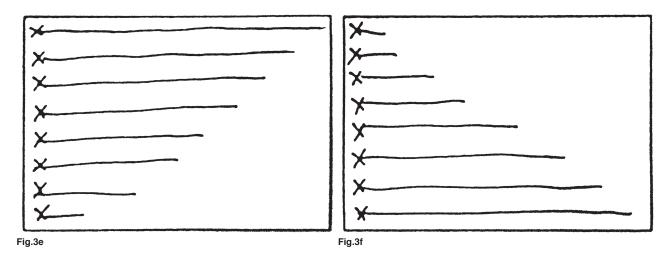
• Encourage the child to keep his body still while drawing, moving only his arm and hand.

Practice in drawing lines: horizontal



Instruction from teacher to child:

- Draw a straight line across the page from left to right, starting on the crosses (see Fig.3d).
- Now repeat those lines but this time make each line shorter than the one before (see Fig.3e).
- Then start short and make the lines longer (see Fig.3f).



Checklist for the teacher:

· Encourage the child to keep his body still while drawing, moving only his arm and hand.

Closing lines to make shapes: a square

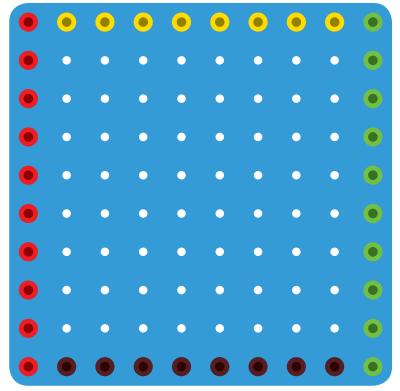
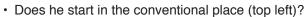


Fig.4a

Instruction from teacher to child:

- · Make a square on the pegboard.
- Start with a line down on the left of the pegboard in one colour.
- · Continue along the bottom in another colour.
- · Continue up the right in another.
- Close the square with a line along the top in a fourth colour.
- · Now draw the square on a dots' sheet using straight lines.

Checklist for the teacher:



- Does he move down the left, across the bottom, up the right and close it?
- · Are all the corners of the square distinct, sharp and at a right angle?
- · Are all the sides of the square roughly the same length?

If the answers to any of these questions is 'no', then drawing squares must be practised. See the reverse for a game to play for this.

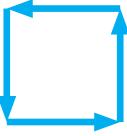
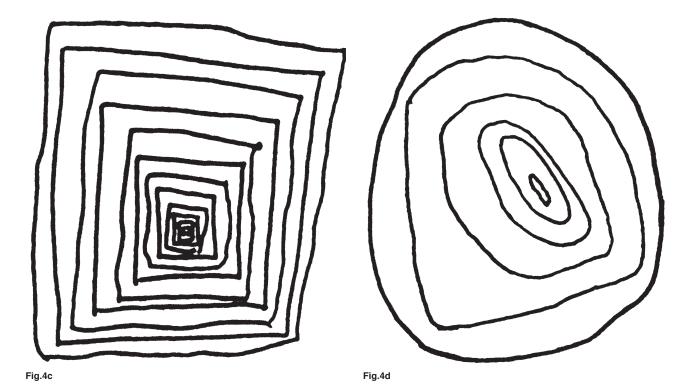


Fig.4b



Drawing squares and circles



Instruction from teacher to child:

- Let's play a game of squares. Choose a coloured pen for me and a different colour for you.
- I will start by drawing the biggest square I can on this piece of paper (A4).
- · You then draw the biggest you can inside mine without touching any of my lines.
- Remember to start in the top left hand corner, moving down the left, across the bottom, up the right and closing along the top.
- I will now draw the biggest square I can inside yours. Then it's your turn again and then mine.
- See how many squares we can draw. (Count them)
- · Next time, see if we can get more squares in.
- Let's play that game again, this time starting with a small square and getting bigger.
- We can also play this game with other shapes, such as a circle, starting with the biggest and then with the smallest.

Understanding and drawing diagonal lines

Diagonal lines are the last lines the developing child learns to draw. Sometimes children confuse them with verticals or are unable to draw them accurately. They need to be taught and practised.

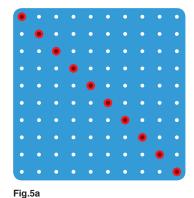


Fig.5b

Instruction from teacher to child:

- Make a diagonal line with the pegs on the board, starting at the top left corner and ending at the bottom right.
- Draw this on paper, first as circles and then as a continuous line.
- · Now do the same in the opposite direction, starting at top right and ending at bottom left.
- · Draw this one too in the two ways.

Checklist for the teacher:

• If the child either cannot make, with the pegs, or draw an accurate diagonal line you need to try the exercise below.

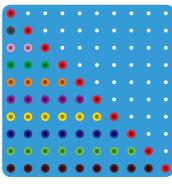


Fig.5c

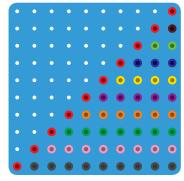


Fig.5d

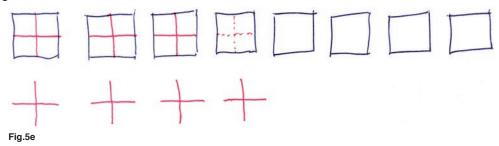
Instruction from teacher to child:

- Put a peg in the first hole in the first row.
- On the 2nd row put a different peg at no.1 and the first colour in no.2.
- On the 3rd row put in 2 coloured pegs then your same colour in no.3.
- Continue this pattern all the way down the board (see Fig. 5c). Remove all the coloured pegs except your special colour.
- · You will see that you have made a diagonal line. Can you draw it?
- Repeat this exercise, this time starting in the last peg of the 1st row and working down the board. You will see that you have made a diagonal in the opposite direction (see Fig. 5d).



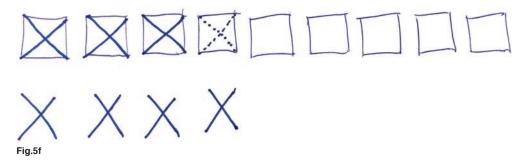
Drawing crosses: straight and diagonal

Making straight crosses:



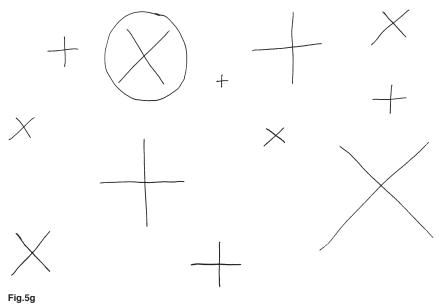
Instruction from teacher to child:

- Draw a straight cross in each box. Go from top to bottom and left to right.
- Now do the same underneath but without the box to guide you (see Fig. 5e).



Making diagonal crosses:

- This time we are drawing diagonal crosses. Go from top left to bottom right.
- Now do the same underneath but without the box to guide you (see Fig.5f).



Playing the 'Straight or Diagonal' game (for accurate line drawing):

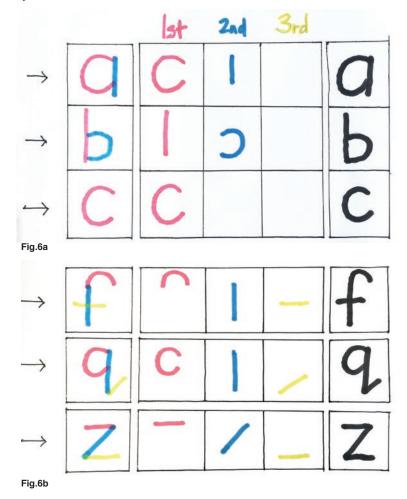
- Look at these crosses on the page. Circle only the diagonal ones (see Fig. 5g).
- · Now you draw a mix of straight and diagonal crosses for me to circle.

Analysing letterforms

Once the three types of lines have been taught and mastered it is time to show how each letter is made up of these lines.

Explain that whichever line appears on the left is the one to be drawn first.

Slowly draw each letter (in its simple manuscript form) while the child watches. Ask him which kind of line you are drawing while you do it.



The grid above allows you to draw the letter in the first box. Then draw each separate line you have used in sequence. Use a different coloured pen for each type of line. Now draw the complete letter again (see Figs.6a and 6b)

Once the child has verbalized the sequence of lines for a letter and can repeat it, he can say it whilst drawing the lines for himself. This 'patter' (e.g. "circle to the left and straight up and down") helps him to remember the sequence and to produce the lines (and thus the letters) more accurately.

You can either work sequentially through the alphabet or group the letters according to the stroke with which they start, e.g:

- Curves: c, o, a, d, g, q, s;
- Verticals (tall): I, t, h, b, k;
- Vertical (short): i, r, n, m, u, y, etc.

Mid-point check up





Posture



Pegboard position



Peg grasp



Peg pressure (pushing in)



Pen grasp

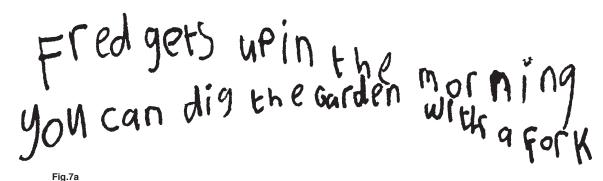


Writing position

Introducing SIZE AND ALIGNMENT of letters

When children first learn to write they are not always aware of the relative size or positional differences of each letter, factors which are important and affect legibility.

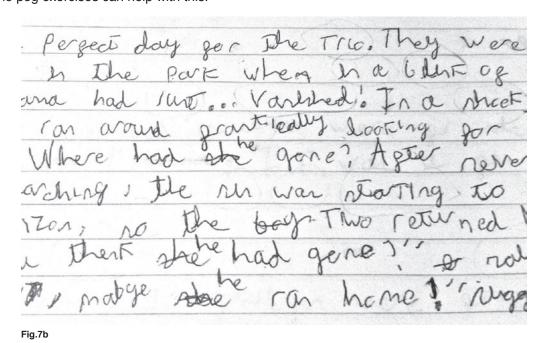
In the early stages, therefore, it is not uncommon to see letters with the ascenders and descenders written the same size as the body of the letter or tailed letters with their tails sitting on the line (see Fig.7a).



In other cases, small letters which require two movements, such as the letter 'S', may be written the same size as capitals.

These errors are typical in the young child learning about the letterforms. However, it may be necessary to demonstrate exactly which letters are tall, small or have tails and also how much taller than the small letters these other letters are, particularly if they persist beyond the early years. The pegs lend themselves very well to making these distinctions clear.

Another factor children often fail to see is how to align letters relative to the writing line (see Fig.7b). Again, the peg exercises can help with this.



Demonstrating to a child the details of the letterforms using a physical aid, such as the pegs, is very powerful in teaching them to see, understand and correct their errors.

Remember...



Exercise for sizing the letter 'bodies'

Where children seem not to have understood how to size their letters (see Fig. 8a)), they can be helped by using the pegs to represent the 'body' of each letter and is a consistent size.

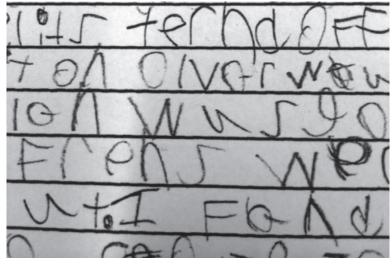


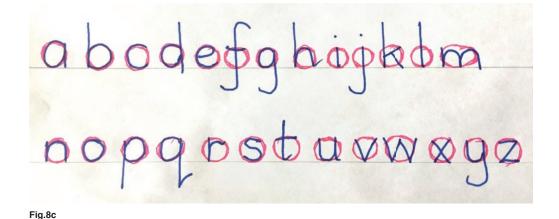
Fig.8a

Instruction from teacher to child:

- · Look at the letters on the card (see Fig.8b). Can you see the 'body' of each letter?
- · Put a peg in the pegboard for the body of each letter.
- Next, take a coloured pen and draw a circle round the body of each letter, making sure that all the circles are the same size (see Fig.8c).
- Now copy the letters on to paper, making sure that the bodies are all the same height and sit on the writing line.

abcdefghijklmnopgrstuvwxyz

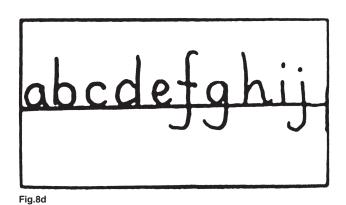
Fig.8b

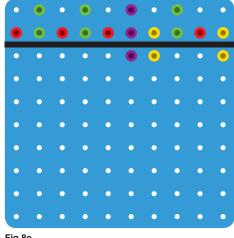


Exercise for alignment: ascenders and descenders

Place a taut loop of thin black elastic round the pegboard immediately below the second row of holes (some pegboards have this black line printed on the reverse side). This is to represent the writing line.

Next, write out the first 10 letters of the alphabet on a card and place it above the pegboard for the child to see (see Fig. 8d). It is important to write clearly and on the line.





Instruction from teacher to child:

- · Represent these letters on to the pegboard with the pegs. Starting with the 'a', place one colour on the black line as its body.
- · Now copy the 'b' in a different colour. Put one peg on the line for its body and another above it in the same colour as its 'ascender'.
- Make the 'c', using the same colour as the 'a' and the 'd' like the 'b'.
- · Continue this for every letter, making the small ones (like the 'a') in one colour, the tall ones (like the 'b') in a second colour and the tailed letters (like the 'g') in a third (see Fig.8e).
- · How will you make the 'f'?

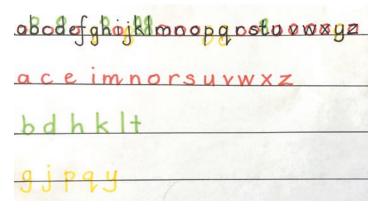


Fig.81

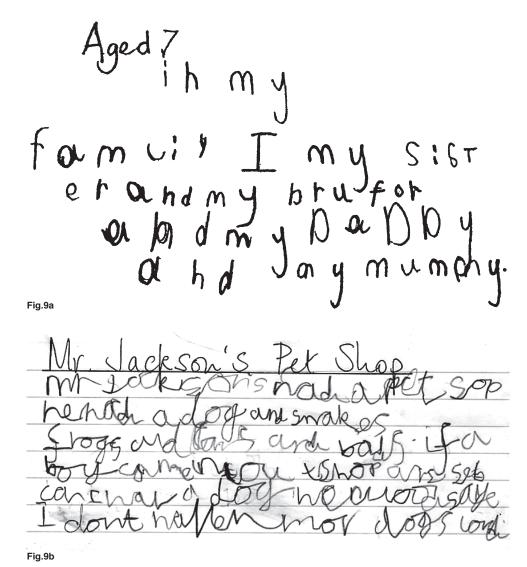
Instruction from teacher to child:

- · Now copy these circles onto the letters on the card, making sure you use the correct colours.
- On a fresh piece of paper, copy all the small letters on one line, keeping them the same height. Then write the tall letters on a fresh line and the tailed letters on a third (see Fig.8f).
- · Are all your letters the correct height?



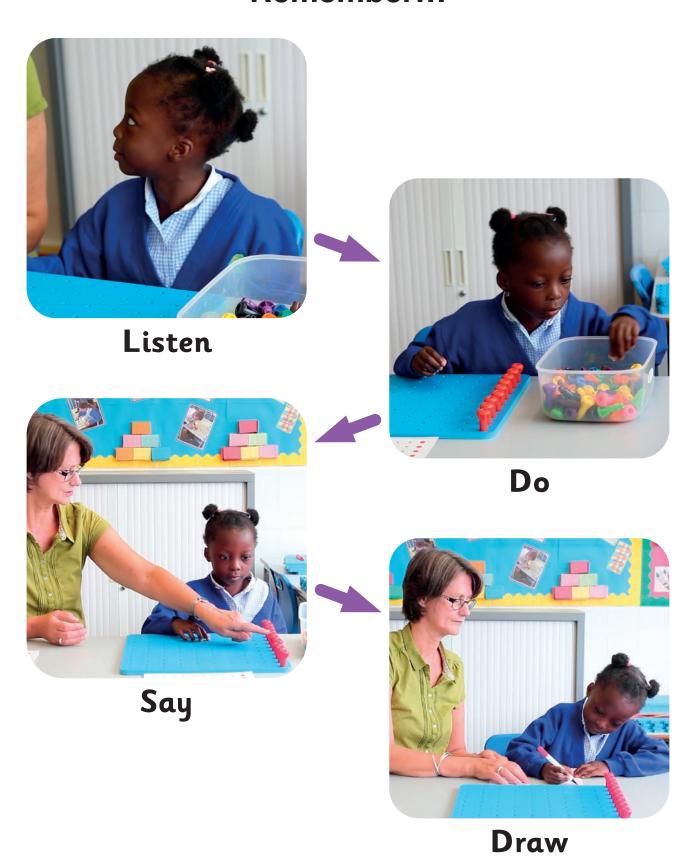
Introducing SPACING of letters and words

Correct spacing when writing is very difficult to master for all children but is a common problem for those with handwriting difficulties. In order to write accurately children need to be able to perceive what spaces are appropriate and to plan and execute letters in the right way. Some children lack awareness of the spacing conventions of our script, i.e. that spaces within words are narrow and those between words are larger. Others are unable to judge space, and for many, poor motor control prevents them from spacing their letters accurately (see Figs. 9a and 9b).



All these difficulties respond well to specific work to increase the spatial awareness and spatial organization on the page. The pegboard exercises are ideal for improving a child's ability to space letters and words accurately as well as helping with the general layout of their work. If they are helped in this way, it reduces the need for alternative supports, such as using fingers to measure spaces, etc.

Remember...



Exercises to increase general spatial awareness

Instruction from teacher to child:

- Put 10 pegs anywhere on the board. Try and space them out evenly so no peg is next to another one. Imagine it is like a snowstorm (as in figs.10b not 10a).
- Now add 10 more pegs in a different colour. Can you still keep spaces none of the pegs are touching?

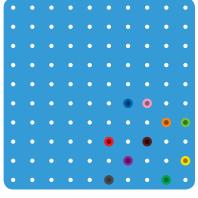


Fig.10a Poorly spaced

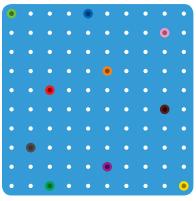


Fig.10b Well spaced

Checklist for the teacher:

- If the child has difficulty spacing the pegs evenly, let him try again, making sure no peg touches another.
- If he still struggles, talk him through spacing them out, allowing him to place his hands on the board to feel the spaces between pegs.

Instruction from teacher to child:

- In the same way as you spaced out the pegs, now draw 10 circles on a piece of A4 paper, keeping them separate from each other.
- When you have drawn 10, then add another 10 in a different colour, looking all the time for spaces to draw them in (see Fig.10c).

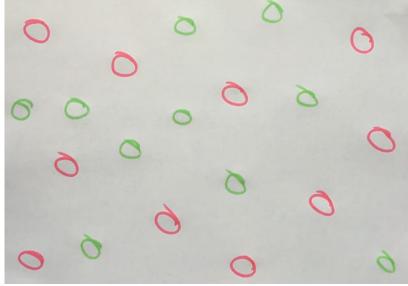
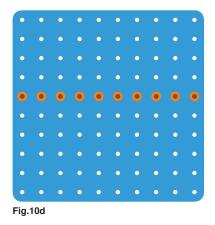


Fig.10c

Exercises for horizontal spacing

Instruction from teacher to child:

- Put 10 pegs of one colour in a line across the pegboard, starting in the middle of the left side and ending in the middle of the right (see Fig.10d).
- Now draw what you have done (on plain A4 paper in landscape), making sure that the line begins on the left and ends on the right. You can use only 10 circles (see Fig.10e).



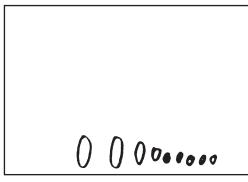


Fig.10e

Checklist for the teacher:

- · Does he use only 10 circles?
- · Are the circles a uniform size?
- · Are the spaces between them consistent?
- · Does the line really stretch from the left edge to the right?

If the answer to any of these questions is 'no', then this must be practised.

Few children are able to do this on the first attempt so you must draw attention to any particular area of difficulty. Ask what needs to be altered to fulfill the task requirement (e.g. making the circles bigger/smaller; making the spaces bigger/smaller; doing both) (see Figs. 10f and 10g).

Drawing the pegs with accurate spacing will require the child to plan in advance. You can help in a number of ways, e.g:

- · folding the paper in half, narrowing the visual span
- marking the centre of the page so he has only to draw 5 + 5
- · letting him start by circling along the bottom of the paper

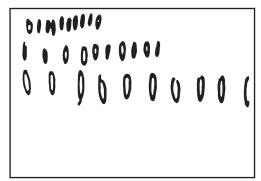
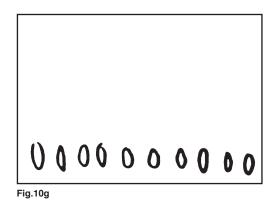


Fig.10f



Pegs to Paper®

Exercises for spacing between words

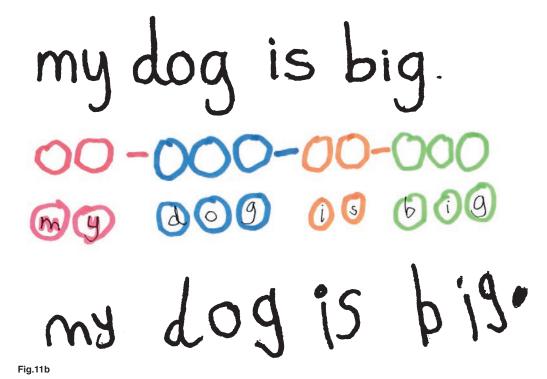
Children often find it hard to write correct spaces between words (see Fig.11a). Sometimes they use a 'finger space' to guide them but this is not very accurate. The pegs give guidance not only where to leave a space but how big a space to leave.



Take a short sentence from the child's own writing. Write it out clearly on a sheet of paper in front of the child.

Instruction from teacher to child:

- Place a peg on the board for each letter of each word, leaving a one-hole space between the words. Use the same colour for each letter within a word and a different colour for each word.
- Copy the pattern of pegs (circles) and spaces (a dash) on to paper, making sure that the circles within the words are close together and the spaces between words are one-peg-size apart.
- · Next, write the correct letter inside each circle.
- · Now copy out the sentence underneath where it is written inside the circles.
- · Make sure you leave exactly the same pattern and size of spaces as you drew.



On a separate occasion, ask the child to write this short sentence out again on blank paper, reminding him of the spacing which he practised. You can then repeat the exercise with other sentences (see Fig.11b).

Additional exercises for alignment of circles/letters

Some children find it hard to judge spacing from figures on two different planes, vertical and horizontal. The following peg exercise allows them to practice this in isolation away from letters.

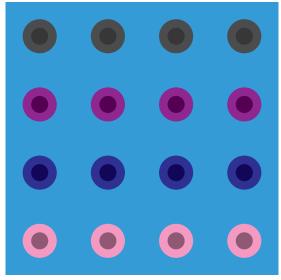


Fig.11c

Instruction from teacher to child:

- Make a row of 4 pegs on the board using one colour, starting at the top on the left.
- · On the second row make a second row of 4 pegs in a different colour
- Repeat this on two more rows so you have 4 rows of 4 pegs in 4 different colours (see Fig.11c).

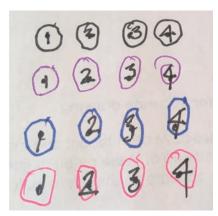


Fig.11d

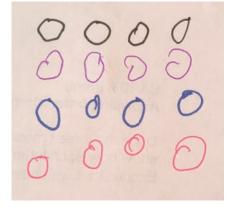


Fig.11e

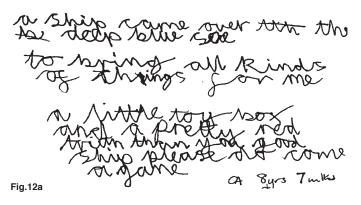
- Next, copy this pattern on to a sheet of paper, circling round the 4x4 dots, using the same colours as the pegs. Number the circles 1-4 (see Fig.11d).
- Now draw the circles without the dots. Make sure that all the 1s are underneath each other, and the 2s, 3s and 4s (see Fig.11e).

Checklist for the teacher:

- If the child is struggling with this exercise you can reduce the number in the rows to 3 until he has mastered it then return to 4x4.
- If the child manages it well, the exercise can be repeated with 5 in a row and more

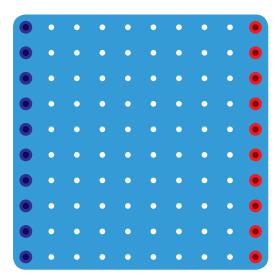
Exercises for page layout

In addition to the spacing issues already addressed, it is quite common to find that children's layout on the page is unorthodox. The most common fault is writing which drifts away from the left-hand margin or does not reach the right-hand side of the page (see Fig.12a). This peg exercise can extend children's visual span horizontally and make them more able to correct this fault.



Instruction from teacher to child:

- Put a peg in the first and last hole of each row on the pegboard, starting on the top row (Row 1) and moving down the board (see Fig.12b).
- Now draw what you have done on a sheet of paper, circling as near the left hand and right hand edges as you can.



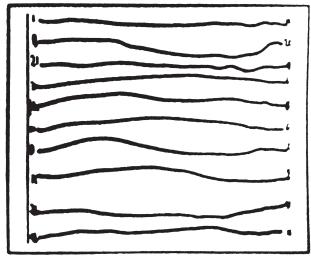


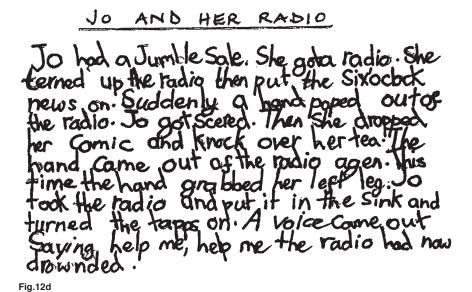
Fig.12b

Fig.12c

- Number these circles, starting with a 1 in the beginning of the 1st row and 10 in the end, 11 at the beginning of the 2nd row and 20 at the end, 21 at the beginning of the 3rd row and 30 at the end.
- Continue this sequence all the way down the board, ending with 100 on the last peg in the last row.
- Next, you are to touch each peg in turn and say its number out loud, e.g: '! -10, 11-20, 21-30, 31-40, etc.' and look at your hand each time as you touch. You can label the pegs with number stickers if it helps you.
- Now, draw these circles on to paper, starting with 1 and 10 on the 1st row and working down the rows.
- Last, number the circles as appropriate and draw lines from the 1st to last peg on each row (see Fig.12c).

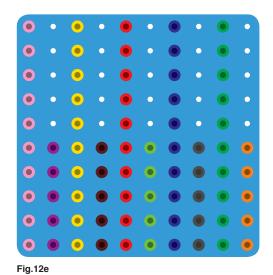
Exercises for consistent slant

The vertical strokes for handwriting should all be straight and parallel. Failure to achieve consistency in this respect makes writing harder to read (see Fig.12d). Correcting this fault can make a real difference to the look and legibility of a child's work.



Instruction from teacher to child:

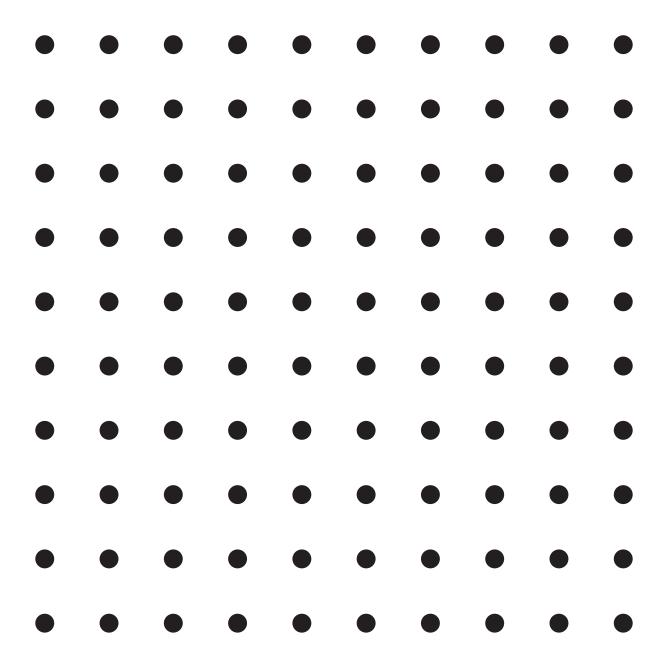
- · Make a line of 10 pegs down the left of the board in a single colour.
- Follow this with half a line in a different colour, starting on the 6th row and going to the bottom. Alternate complete lines with half lines right across the board (see Fig.12e).
- Next, copy this pattern on to a dots sheet, followed by drawing the full and half lines as continuous lines down to the bottom.
- Make sure that all your lines are straight and parallel.



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Fig.12f

Finally, try and make the vertical strokes in your handwriting as straight as your lines of pegs (see fig.12f).



	1st	2nd	3rd	
→				
→				