

Charlotte's Clock

When **Vikki Horner** was faced with the task of teaching her daughter how to tell the time she found she needed to reinvent the clock. Here she describes her journey

Learning to tell the time isn't easy. For many children and for a variety of reasons it's especially difficult for some.

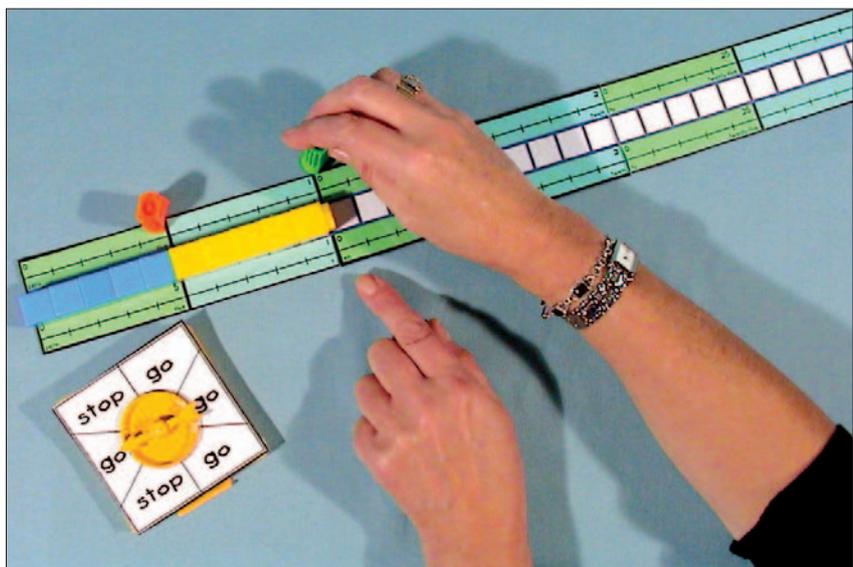
My daughter Charlotte, who has Down syndrome, was 12 when she began to show an interest in 'time' in relation to key events, for instance if a friend was coming to tea. On these occasions she would ask me the time endlessly. Given that I've devoted myself to helping her to learn basic skills, this newly emerging interest became my next big challenge.

At that time, my thoughts buzzed with the many confusing elements we all cope with when learning to use the clock. For example, the numerals around the clock indicate 60 minutes, but also denote 12 hours. Then there is the difficulties associated with telling the time when the hands of the clock are in the same position, say eleven and eleven? Finally, there are the many different ways to express the same moment in time: 2.45 in the afternoon can be 'a quarter to three', 'two forty-five' or even 'fourteen forty-five hours'. What does the literal thinker, which many children with special educational needs are, make of all this?

Then, having mastered reading the clock face it's another matter applying that knowledge to different clocks and different situations, to organise one's daily activities. This is the true test of telling the time. Prior to using the method described here, none of Charlotte's learning about time in school had filtered into life at home.

Getting started

From the outset I took a 'can do' approach – one I had often used when teaching Charlotte something new. I asked myself, "What does Charlotte already have in place for me to build upon?" Well, she could almost count in fives to 60 and so I decided this was a good place to start...



Because many children with learning difficulties are visual learners, the clock face needs to give them as many representations of number as possible. To start with I placed a set of structured number patterns next to the numerals for extra support. In an attempt to deal with the complexities of translating hour numbers into minutes, I decided to separate them by adding two sets of numbers: a black set for the hours and an outer red set for the minutes (this does come together as the teaching progresses, but it must progress systematically). To eliminate the confusion with the clock hands, I clearly labelled them. I also felt strongly that children like Charlotte should be exposed to telling the time in both formats, i.e. 7.45 and a quarter to eight, if only because they will hear both in a range of settings. My aim was to get Charlotte to the point where she could choose how she wished to tell the time, just as most individuals do.

Whilst the main body of teaching fell into a

pleasing progression of three stages, a preparation stage was included. The order I settled on was:

1. Preparation for Reading Minutes
2. Preparation for Reading Hours
3. Teaching Stage I – Hour/Minute Format
4. Teaching Stage II – Past/To Format
5. Teaching Stage III – Past/To Format

Reading minutes and hours

Many children require some form of preparation for working with minutes and hours. Firstly, their grasp of basic number skills/arithmetic will differ and, secondly, the link with what they have already learnt in school needs to be made. The difficulties encountered when learning maths concepts are well documented; much learning is compartmentalised and ends up isolated. Very little transference takes place. I have experienced this many times with my own daughter, and when working with other children. Connections, implicit in the process of generalisation, are not made. Some children will require help in making connections with, for example, the numbers 1 – 10, which are introduced with the addition of 11 and 12 in the linear format (familiar to most) and the numbers in the circular format of the clock face (unfamiliar).

Teaching Stage I

Whether you are working with one child or a group of children, they should now have sufficient skills emerging to begin this stage. ‘Teaching Stage I’ lays the foundation on which all other aspects of time are built. It provides the child/children with the ability to read the time at any point around the clock face, giving them a sense of real achievement! This boosts confidence and motivates the child to progress further. (As this is the most important stage it *must* be mastered thoroughly before moving on to Teaching Stage II).

- The clock face and its features are introduced.
- Reading time in the hour-minute format in five-minute blocks,
- then at intermediate points.
- Differences between two points, such as 8.15 and 8.30

Teaching Stage II

Moving into Stage II of the teaching, we introduce the ‘polo’ attachment, which provides the other set of time telling descriptions for ‘past’ and ‘to’.

- Simple fractions for quarters, halves are introduced
- The fractions descriptions are added to the four points – quarters, half and o’clock
- Interchanging time – 2.15 or a quarter past two.

Teaching Stage III

Stage III deals with the remaining ‘past’ and ‘to’ positions, working in segments of five minutes. Further reinforcement is given to develop connections in choosing which format to use when telling time.

Our teaching sessions were underpinned by much practice through games and activities using improvised equipment and all the imagination I could summon! Guidelines I have picked up over the years – including modelling, turn-taking and errorless learning – were incorporated to maximise learning.

Personal progress

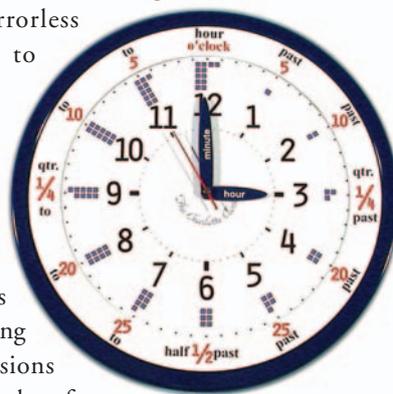
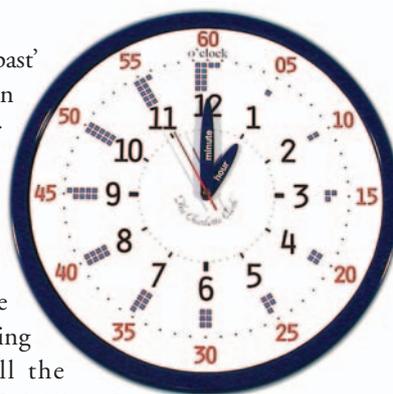
Taking the clock and practice clock into school helped enormously. As well as a teaching ‘time’ in designated lessons, schools can reinforce learning by rehearsing aspects of ‘time’ on other occasions during the course of the school day; for example by asking “What time is it?” at the start and end of lessons or working out how long a lesson took. If the working clock is positioned close to where the child is sitting, you will be surprised how many times you refer to it!

Transferring learned skills

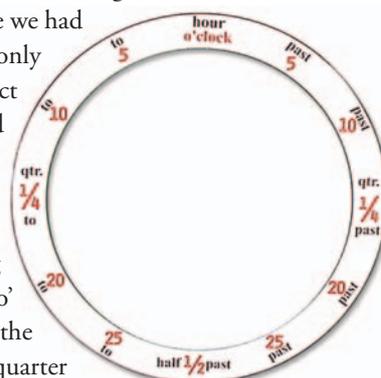
It took a little over a year for Charlotte to master time. As a result her confidence and self-esteem have grown. Elements of time have become a natural part of her conversations and as a result her organisation skills have increased both at home and at school.

There have been a number of pleasurable occasions when I have observed her new skills being transferred: reading time from a traditional wristwatch (without the outer minute band) and then from the watch I wear, which doesn’t have any numbers on its face.

The most significant observation was when, after telling my daughter that we would be leaving the office at 3.00, she suddenly told me we had to go as it was ten to three and we only had ten minutes left. The full impact of this was that the clock she had been looking at was an ordinary clock! It was right to include both methods of telling time, as choices in how to tell the time *are* being made. On occasions when the ‘polo’ attachment had been taken from the clock face, Charlotte has said it’s a quarter



The ‘polo’ attachment below changes the outer ring of the clock face



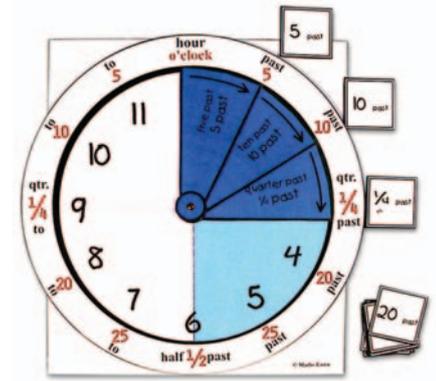
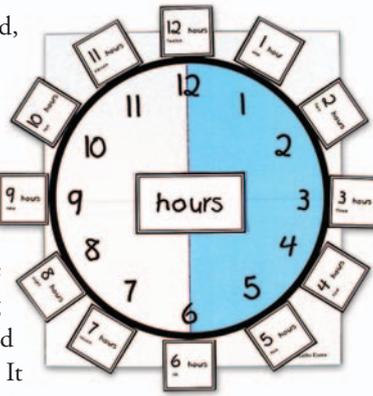
to eight. Other times when the 'polo' was attached, she has said it's 7.15.

The bridge

Sadly, last August, I moved the Charlotte Clock from the kitchen into my daughter's bedroom, and replaced it with an ordinary clock. The Charlotte Clock has achieved its aim. With it we were able to break down the complexities of telling the time into simple components, which are layered systematically and practised in an enjoyable way. It created a bridge to eventually arrive at working with the regular clock face.

The Charlotte Clock offers a fresh approach, a simple structured way to teach time effectively. The teaching handbook will guide you step-by-step through the process. The book is written mainly with parents in mind, therefore I've tried to keep the language as straightforward as possible and it assumes little or no experience of formal teaching. However, teachers will see that it can be easily adapted for the classroom. There is also a useful resource section in the book with over 35 pages of photocopiable materials to use with the teaching activities.

Vikki Horner works to support children with special needs. She acts in an



advisory capacity to parents, associations, schools and professionals who wish to use the Stern Structural Arithmetic Methodology to teach number and mathematics, and the Charlotte Clock method of teaching time. She is available for inset, workshops, seminars and demonstrations.

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The Charlotte Clock Resource Pack is published by Maths Extra Limited. For further information contact enquiries@mathsextra.com.