

## Science For All Case Study

### The Use of Velcro in Special Needs Science Lessons

Patrick Organ and Barbara Watson, The Forest School, Knaresborough.

#### Background

Most teachers would agree that it is important to have high quality displays to enhance the learning environment. However, some children with moderate or severe learning difficulties find it hard to take in any information from a static display. We realised that we wanted our displays to become a useful part of the learning experience.

We also felt that it was important to make better use of some of the interesting and expensive resources that were locked away for much of the time.

Once we decided to use Velcro in our displays it became clear that it had many other important uses too. This report describes how, at Forest School, we use Velcro for the following:

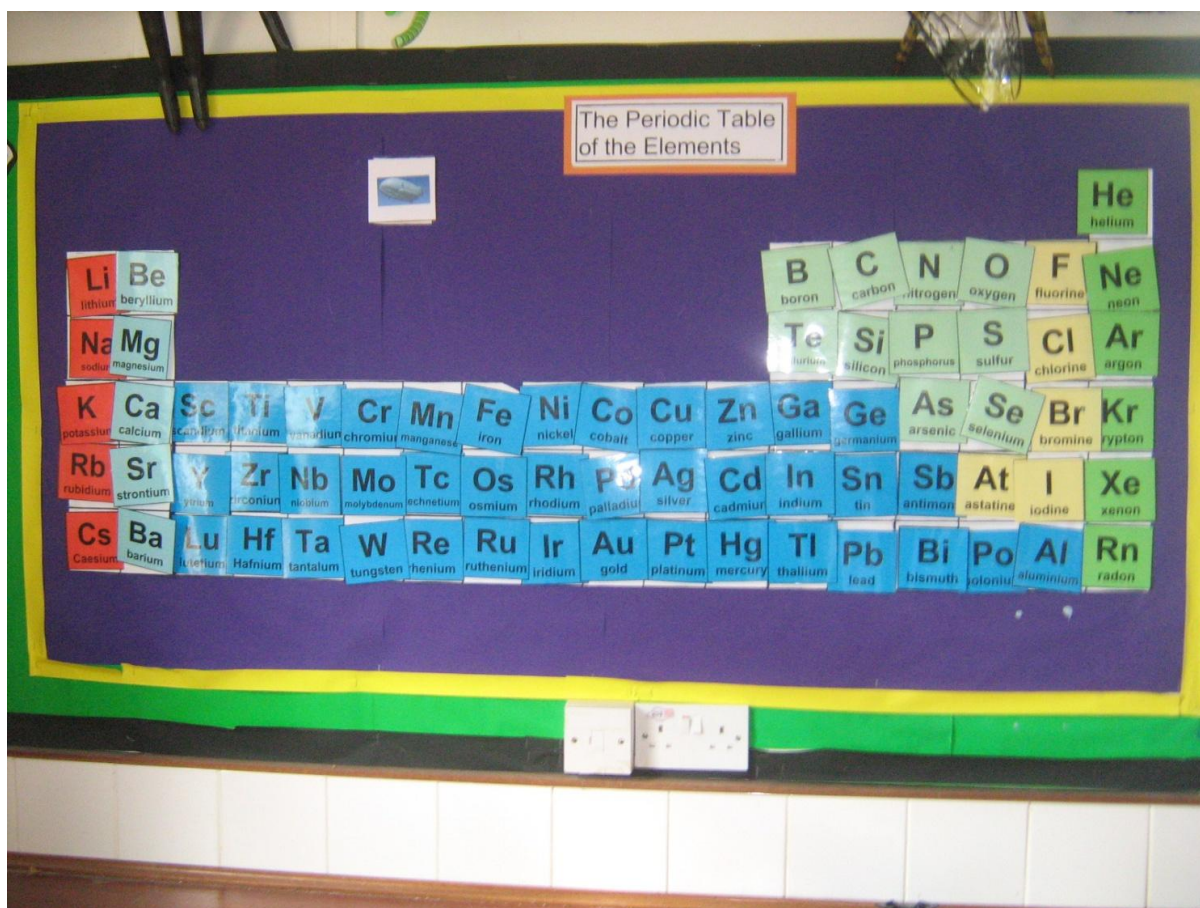
- Versatile Displays
- Lesson schedules
- Reading scales – number lines.
- Putting the resources on show

This list is not meant to be exhaustive. I am sure that many teachers and teaching assistants have ideas about how it can be used.

#### Versatile Displays

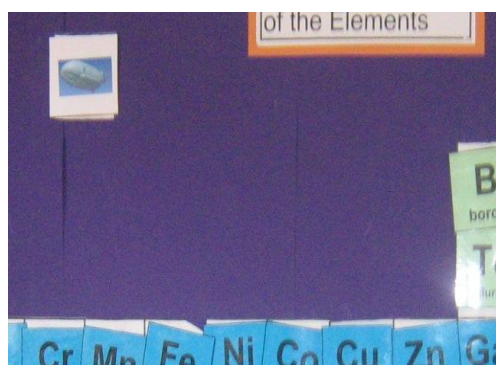
There are many different designs of periodic table for use in schools. Unfortunately if you try to put too much information into the table, it becomes confusing and overwhelming.

To make our periodic table more versatile we decided to make laminated squares for each of the elements and Velcro them onto a template of the periodic table.



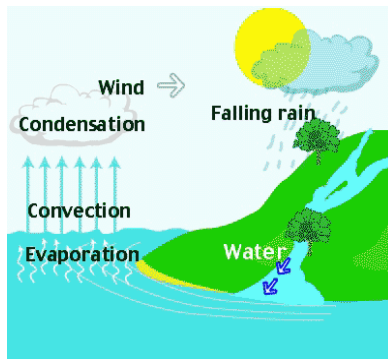
Here some of the elements have been swapped round – can the pupils spot which ones don't fit the pattern?

This also means that we can replace any of the elements by a picture of one of its uses – here we can see hydrogen replaced by the picture of an airship. This strengthens the link between the element and the use. This was very helpful in a lesson about hydrogen which included some footage of the Hindenberg disaster



There are many interactive websites to help learn about the water cycle. This one is from the BBC.

As you go through the animation a labelled picture of the water cycle is built up.



We decided to make a pupil version of this.

The labels are attached by Velcro. This means that pupils can label each part on the poster as an exercise.



When not in use, the labels are stored on a strip of Velcro to one side of the poster.

We quickly realised that we had something much more versatile. The labels can also be used in lessons to link the word with the process- so, for example, the evaporation label can be put with the dish of water, or the condensation label on the cold window.

Or the label could simply be held, to reinforce its meaning.



We have used this idea with a full size model of the digestive system (including 7m of tubing for the small intestine) and a woodland food chain.

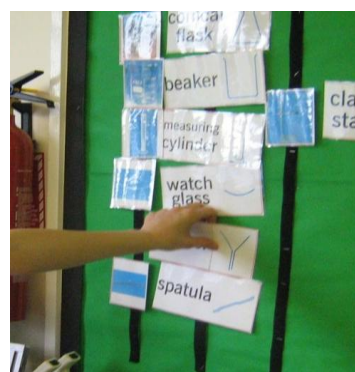


Most labs have “pupil friendly” labelling for the equipment draws, whether it is a picture, drawing or the word itself. We decided that it would also be useful to have a display which the pupils could use to help identify equipment for use in experiments.

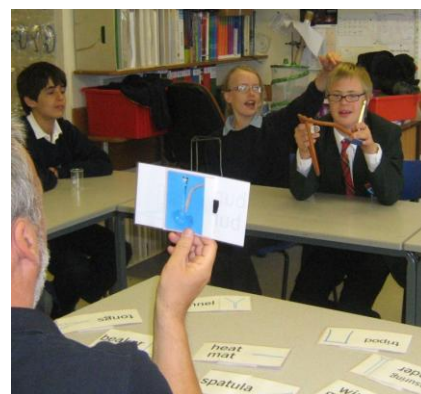


The wall was mounted with alternating strips of “fluffy” and “hooky” Velcro. The pictures and names were laminated and separated from each other. The opposite Velcro was then placed on each one, so that they could be attached back-to-back – so you end up with “hooky” on the picture and “fluffy” on the name, say.

This can then be used by pupils to help them find the correct equipment.



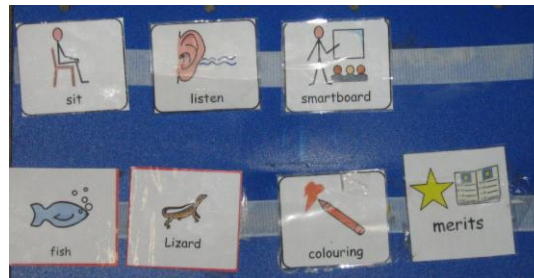
or to use in various activities to help pupils learn what the apparatus is called.



## Lesson Schedules

Most children find it easier to succeed if they understand what is expected of them and what they are meant to be doing. This can be particularly true of children on the autistic spectrum.

Schedule boards use Velcro strips and pictures to help sequence lessons. They can be made for individuals.....



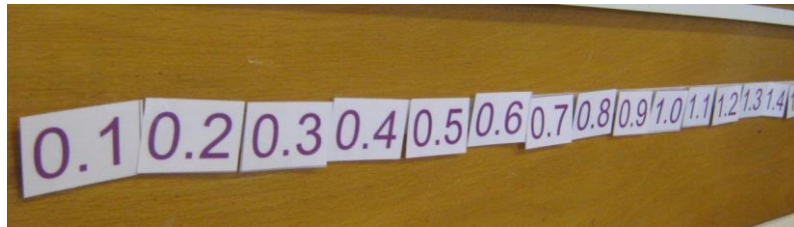
or for the whole class. Having a file of images ready makes it easier to put the lesson together.

These are used in all lessons at Forest – and in many other schools too – and have been for many years.

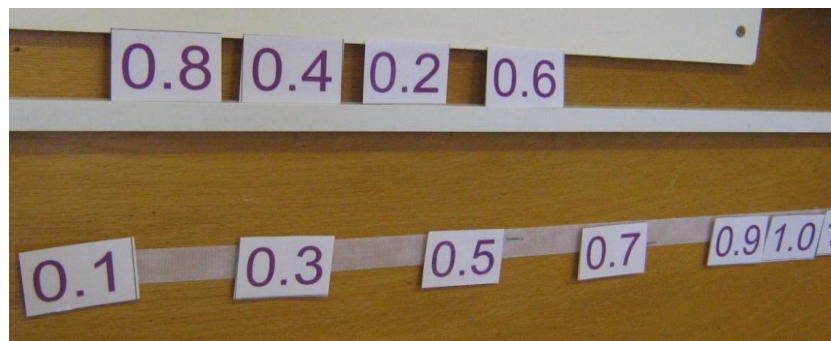


## Reading scales – number lines

Place value is very important when reading digital scales. There is little point in performing an experiment measuring the change in mass of burning paper, say, if the pupil does not know whether the values have gone up or down.



We use Velcro number lines so that the pupils can easily work out whether a value has increased or decreased.



Pupils can be given the card with their reading on it. Pupils can then see clearly how it compares with other readings.

It is a quick and easy job to make a set of cards for any of the scales the pupil uses, even negative values.



## Putting the resources on show



If you have some visually effective resources it is a shame to have them locked away – these giant insects form a frieze around one corner of the lab. They are attached by Velcro so that they can be easily removed for use in lesson.



We have a similar display of “real sound” birds, attached to a branch. Although many of these objects are designed to be hung, the use of movement sensor alarms prohibits this and Velcro is the only sensible solution.

## Conclusion

There are many other situations where we use Velcro in lessons. For example, we have found it useful when building simple circuits. There are also many commercial teaching aids that use Velcro such as body part bibs.

When using Velcro in displays, we have found the following points important:

- Anchor the Velcro well – using a staple gun to attach the Velcro pieces to the display board is probably the easiest.
- Make use of the hook and fluffy to help match things together – for example, with the apparatus display.
- Colour the Velcro to blend in – we commonly use white and black, but some felt tips can easily colour white Velcro to whatever colour it needs to be.
- The fluff can be anything fluffy, it doesn't have to be Velcro. For example, the bird display uses hooky Velcro on the branch, and the birds are attached by their fluffy tails.
- Be imaginative – most displays can be enhanced using Velcro to make them interactive.