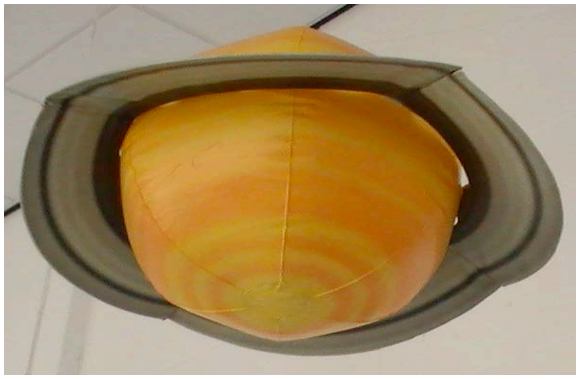
Ravenshall

all different | all equal | all important

Science For All Case Study

Evidencing progress in science

Ravenshall School, Dewsbury



Background

How do you evidence progress in Science for pupils with Special Educational Needs?

A question we find ourselves asking regularly at Ravenshall. We are a larger than average special school which caters for pupils with learning difficulties, many of whom have complex learning needs. In September 2009, Ravenshall School took on a thematic approach for teaching KS3, taken from the Global Dimension documentation.

Some of the topics next year are 'Life Processes and Plant Composition' and 'Changing Faces', in which we want to concentrate on relevant educational resources and the growth of plants. Classes this year have been looking at climate change, the earth's composition, sustainability, how things grow, what our planet needs, recycling, etc. We have a very good selection of horticulture resources within school; however, we wanted to take more of a scientific approach into the growth of plants.

Ravenshall School is a complex needs school and one that takes in pupils right through from Foundation level to Year 11. The pupils attending Ravenshall are all working at varying levels throughout the school; from P1 to Level 2 in science. Therefore science projects need to be aimed at pupils working at wide and varied levels.

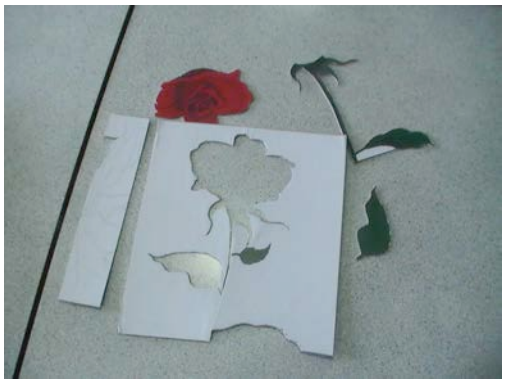
Implementation

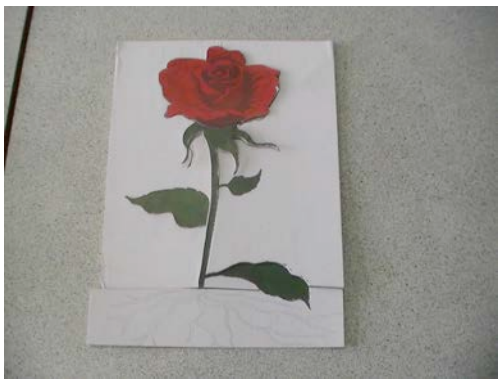
What did we do?

Our pupils also have a wide range of abilities, therefore, we needed to create resources, which are easily differentiated and evidence progress over a half term (roughly 6 weeks). We also needed to find plants that would grow quickly in order to keep the attention of our pupils.

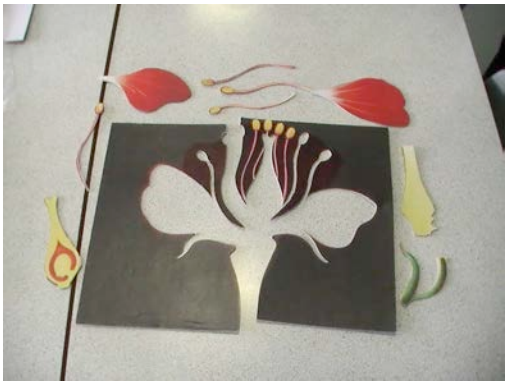
We began by examining what resources were available in the school and from there we were able to determine what resources were needed. The results showed us that there was a gap in 'hands on' resources for varying levels throughout the primary and secondary departments. We decided to design and make three resources; the first being an autumn puzzle which can be used in a number of ways. Each child in a class could be shown a picture of a leaf and then asked to go out and find that particular leaf. Pupils then return to class and place their cut out leaf into the puzzle. The correct name is also written on the back of each leaf.

The second resource consists of two jigsaw puzzles. The first jigsaw is for pupils of low ability. Initially pupils should have been shown a real flower and had a number of lessons around parts of a plant/flower. Then pupils are required to discuss the parts of a plant and place them in the correct areas of the jigsaw.





The second jigsaw is for pupils of higher ability. Pupils are to be taught about the components of a plant in much greater detail. Each piece of jigsaw has the correct label on the back. Our idea was to have a worksheet for each pupil which showed the parts of the flower with the correct names on for them to work from. Then the pupil would progress by naming each part of the flower without the worksheet, and placing them into the correct part of the jigsaw.



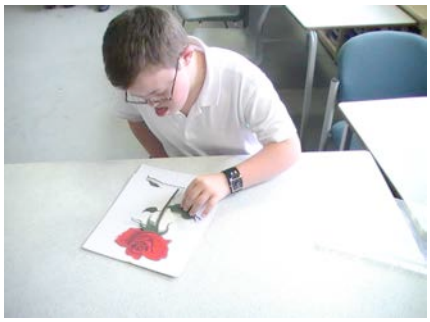
The third resource is a sequencing activity. Pupils will primarily have been taught about the growth of a plant/flower from a seed. They will use the resource to demonstrate their knowledge and understanding of the processes involved from growing a seed into a plant or flower. Each section of the resource has Velcro on the back to keep it in place when placed into the activity board.

Primary classes have been examining the growth of carrots. They placed the soil into a clear tub in order to examine the progress of how the carrot grew. They measured the roots each week and drew pictures of the carrots growth into their books. Pupils were also given a piece of black paper to decorate, which was then placed around their plant tubs to keep the roots in the dark and represent being underground.

Results

How did it go?

In the senior department two groups of pupils, differentiated by ability, studied the different components of a flower. They were taught about the flower and the importance of each segment of a flower. The two groups of pupils were then asked to carry out the two jigsaws and the leaf puzzle and see if they could complete them according to given criteria.



Both groups thoroughly enjoyed each jigsaw and the leaf puzzle and it was found that they learnt at a better rate through kinaesthetic activities. The pupils believed that they were ‘just playing’, however when tested on the parts of a flower most pupils were able to correctly name most parts.



Having been taught about the process of a seed into a flower most pupils were able to correctly sequence the activity correctly and with very little help.





All the pupils were extremely pleased that they had been able to watch and record how their carrot seeds flourished over the six weeks. The carrots were washed and eaten by the pupils at the end of the project.

What would you change?

All of our resources were made quite simply out of any materials we could find in school. When making the resources again they would need to be hard wearing and long lasting, therefore we would use wood, perspex and clear plastic.

Future Thoughts

In the future we would make more science jigsaws and puzzles for all areas of science, as this is a practical hand's on way of learning.