

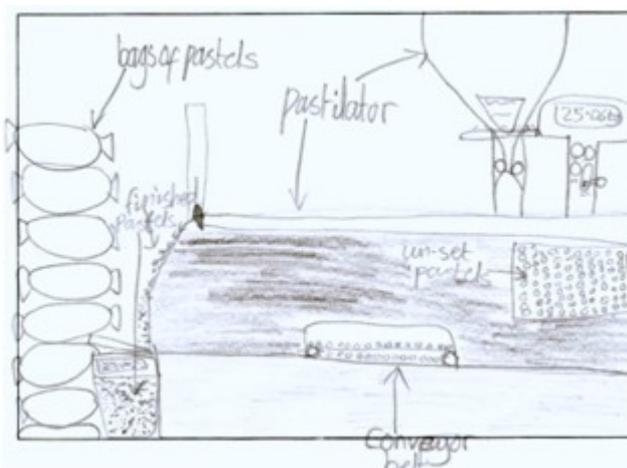
Children Challenging Industry

Analysis of children's & teachers' data from the Humber region, September 2003 to March 2005

Executive Summary

Classroom-based training, consisting of three 2½-hour sessions, was delivered to primary school teachers and their year 5 and 6 pupils. The children completed one of four topics on offer, chosen by the teacher. These were, *Water for Industry*, *A Pinch of Salt*, *Plastics Playtime* and *Exploring Colour and Industry*.

The advisory teacher demonstrated how industry could be used as a resource, by providing a real and motivating context in which to teach science. The classroom activities were set within an industrial context, and the children visited an industrial sites. The advisory teacher conducted a 1½-hour training session on science–industry links for the whole staff in each school.



The Children Challenging Industry (CCI) project aims are to:

- Provide classroom-based training for teachers in aspects of the National Curriculum for science
- Increase children's enjoyment of science
- Improve primary school children's perception of the chemical industry and its relationship with science
- Improve teachers' knowledge and confidence of teaching science
- Improve teachers' perception of the chemical industry and its relationship with science.

1 - Children's data

Upon completion of the CCI project, 132 children completed questionnaires from the academic years 2003-2005. They were asked questions regarding their awareness of industry and its relationship with science.

Two thirds of the children confirmed that they enjoyed science more, since the CCI project, with practical experiments most frequently cited as the most enjoyable aspect of the project. A tool to measure the children's positive views towards the project found that 80% of children gave the project the maximum score. The most popular reasons provided for enjoying the project were that it was fun and they learned something new.

In addition to their increased enjoyment of science, the children increased their awareness of industry, and were more able to accurately describe modern industry. They were more likely to say that an industrial site was safe and employed fewer people than expected. They were less likely to say that a site was hot, smelly, dirty and dark.

The children drew pictures of their perceptions of industry, which were scored, with a positive score indicating a more informed image of industry. The children's drawings of the internal and external views of an industrial site were more detailed and accurate as a result of the project.

The project also raised the children's awareness of the variety of jobs held in industry. The children learned about the importance of scientists and engineers and their roles on industrial sites. Virtually all the children stated that scientific testing was important. As a result of the project the proportion of children who were aware that scientists and engineers worked in industry increased dramatically with nearly half of the children spontaneously stating that scientists and/or engineers worked in industry.

When asked which job they would choose to do in industry, there was an increase in the proportion of children who chose scientist as a job they would like to do. The reasons for this choice were that it would be enjoyable or fun.

The results demonstrate the extent to which the children learned about science and its links with industry.

2 - Teachers' data

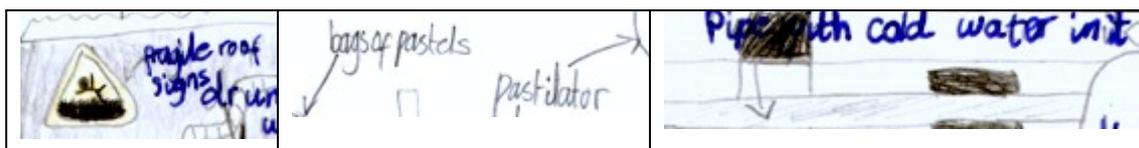
21 teachers returned questionnaires in the academic years 2003-2005, after carrying out the CCI project. A third of the teachers had not had recent science training and training related to industry was even less common.

Before they had any CCI training, many teachers had not received any information about the chemical industry either through resources developed by industry or through links with the chemical industry. The majority stated they had never seen such resources. The small group of teachers who had used resources were most likely to say that they did so because they were of good educational quality and reasonably priced. Teachers were more likely to teach about industry in the context of history or geography, than science.

The feedback from the training was overwhelmingly positive. The sessions and site visit were of an extremely high standard and were highly rated by the teachers. Aspects of the sessions most often cited as strengths were the practical science activities and the investigative planning. Teachers who rated the visit most highly were significantly more likely to say they would arrange a future visit.

The change in attitudes towards industrial links that occurred during the project was impressive. All the teachers intended to re-use the CCI materials again in the future and three-quarters said they intended to repeat the industrial visit in the future. In addition, All but one of the teachers said they had learned something about industry or teaching science or, very often, both.

This study provides evidence that the CCI training has changed the attitudes of teachers. At the beginning, the teachers were mostly neutral about involving industry to teach primary science. By the end of the training, the majority of teachers were extremely receptive to involving the manufacturing industry to teach science with a more practical approach.



*Report Authors: Charlotte Evans, Gayle Pook and Joy Parvin
January 2006*