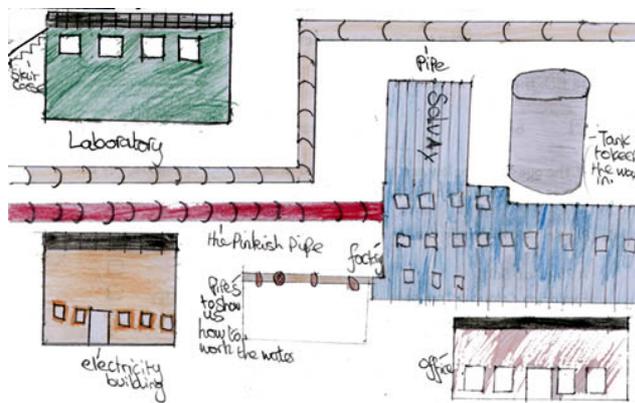


# Children Challenging Industry Bradford Region Report, 2002-2003

## 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 a third of 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
- Improve primary school children's perception of the chemical industry and its relationship with science
- Increase children's enjoyment of science
- Improve teachers' knowledge and confidence of teaching science
- Improve teachers' perception of the chemical industry and its relationship with science.

### Children's data

83 children completed questionnaires from the year 2002 to 2003, before and after the CCI project.

The children were asked about the environment of industrial sites. Before the project, the predominant view of industry was that it was noisy, smelly, dirty, hot and dark with many people working on dangerous production lines.

After the CCI project the children, whether they had been on a site visit or not, portrayed a significantly more accurate view of industry. They were more likely to say that an industrial site was safe and employed fewer people than expected as well as being less likely to say it was noisy, smelly, dirty, hot or dark.

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

The children were asked to draw someone in industry and give this person a job title. After the project, the children were twice as likely to draw a scientist, while the number of children drawing a 'materials handler', e.g. a job involving handling materials directly, such as pouring or stirring, decreased sharply. When asked to list other jobs carried out on industrial sites, children were nearly twice as likely to list scientist or engineer as jobs carried out in industry. After the

project, the children were less likely to choose to be a 'materials handler'. The number of children who said they wanted to be a scientist doubled.

Many of the children learned new things about science, as shown by the number of children who said that the ingredients or the processes of making materials were not as they expected. Virtually all the children learned about the importance of science in industry shown by the fact that nearly all the children said scientific testing was important.

These results demonstrate how much the children learned about industry and the types of jobs in industry during the CCI project. By the end of the project, the image of scientists was more positive. A third of all the children were able to state that scientists and engineers worked in industry.

### Teachers' data

23 teachers returned questionnaires from the year 2002 to 2003, before and after the CCI project. A third of the teachers had not had recent training in delivering the science curriculum and many had no science qualifications. Training related to industry was even less common.

Less than half of the teachers had links with industry or had used any resources developed by industry. Teachers were more likely to teach about industry in the context of geography, than science.

The feedback from the training was overwhelmingly positive. The sessions were of an extremely high standard and were highly rated by all the teachers. The weakness most likely to be mentioned was that there was too much to cover.



Prior to involvement in CCI, when prompted, nearly all teachers thought there were positive and negative things about the chemical industry. Many teachers had not seen or received any information about the chemical industry either through resources developed by industry or through links with the chemical industry. By the end of the project, 80% of teachers said they had learned something about science or industry.

Those that had used resources, prior to involvement in CCI, were most likely to say they did so because they were free.

The change in attitudes towards industrial resources that occurred during the project was impressive. All the teachers thought that industrial visits would be useful in future and 93% of teachers wanted to use resources developed by the industry after the training. This was a vast improvement when compared with the approximately half of teachers who wanted links with industry, or who had used industrial resources, before the training.

### Conclusions

The CCI project clearly achieved its main goals. The children and teachers were more knowledgeable about industry and the role of scientists after the project. Children were able to depict industrial sites more accurately and the processes involved inside industrial sites. Teachers felt they had learned about teaching science and were more likely to use industrial resources. Teachers' and children's perceptions of industry, including safety, improved. More children were aware of scientists and engineers and their roles in industry. Teachers and children had become much more aware of the link between what happens in science lessons in the classroom and what happens on industrial sites. Finally, teachers and children had enjoyed the project immensely.

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