



Children Challenging Industry

CCI 2020-2021

CHILDREN CHALLENGING INDUSTRY (CCI):

A programme that increases young people's engagement with science and their aspirations to become the scientists and engineers of tomorrow.

Since the Children Challenging Industry (CCI) programme began in 1996, it has placed school science in a real-life context across different national regions.

CCI includes practical problem-solving activities, resources and support for children and teachers, followed by site visits to local industry or occasionally an ambassador visit, plus professional development for teachers and industrial partners.


The activities were modified due to the Covid-19 pandemic, which necessitated the switch to a remote programme which incorporates new and innovative elements.



Since CCI began in 1996

1,989 
schools


58,451 
children

9,475 
teachers

2020 – 2021

55 
schools

1,568 
children

683 
teachers

The positive impact of the CCI programme on primary teachers and children

"The children were given opportunities they wouldn't normally have in school due to equipment and expertise"

"Children developing practical skills and learning through real life contexts"

"I would like to be an electrical engineer when I am older"
Boy, Year 6

"I loved learning about industry and doing the experiments"

Girl, Year 5

"It was great for our children to engage with practical experiments and start thinking about their career aspirations"

"I liked doing the most recent experiment we did with glycerine and water I found it cool we were making cough syrup"

Girl, Year 6

"It has inspired me so that I could possibly become a scientist, engineer or chemist when I am older"

Girl, Year 6

Before CCI

After CCI

Changed aspirations, improved attitudes, greater awareness

Children's changed aspirations



I could work in industry in the future

27%

34%

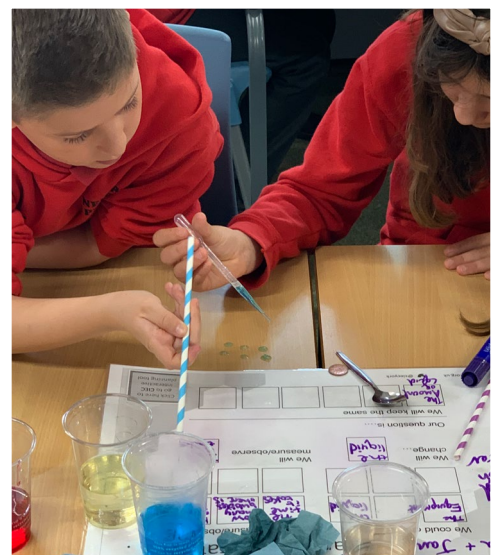
I'd like to be a scientist

18%

22%

"I really enjoy participating in science experiments and recording results"

Boy, Year 6



Industry causes as little pollution as possible

14%

39%

Our lives would be worse without industry

54%

64%

Industry makes things we need

78%

83%

More favourable attitudes to science and industry



"I liked all of it because it was very fun to experiment and see the results and what we thought was going to happen and what really happened it made me curious which was really fun"

Girl, Year 6

"The thing that I most enjoyed was seeing what would change on the experiment we did, and I enjoyed learning facts from three scientists, and we got to ask questions which I liked. I really like science"

Girl, Year 6



Greater awareness of job roles



Many scientists work in industry

58%

78%

Young people work in industry

31%

46%

Many engineers work in industry

62%

74%

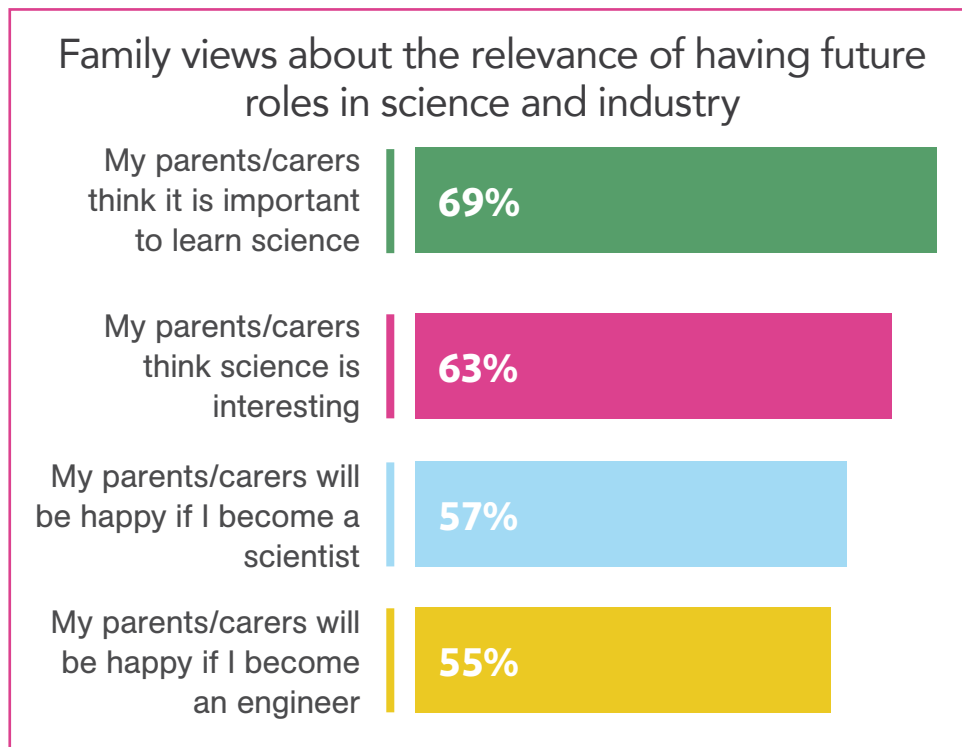
Scientists have important jobs in industry

72%

81%

Parents and Carers: Talking about science learning in school

The majority of children responded positively about their family views of having future roles in science and industry



"I told my parents all the time what I do in science how much I liked it"

Girl, Year 6

"My mam, dad and grandparents asked me some more questions about my lesson and they told me that they would love to do that when they were younger"

Boy, Year 6

The value of school-industry links – CCI ambassadors

CIEC's advisory teachers delivered remote training for industry partners who would usually offer site visits¹.

They also delivered remote CPD and support to **683 primary teachers** and activities for **1568 children** from **55 schools**.

"I enjoy speaking to the scientists and learning about catalytic converter"

Boy, Year 6

"I enjoyed learning facts from three scientists, and we got to ask questions which I liked. I really like science"

Girl, Year 6



¹ Partners: Air Products, Alpek Polyester, Croda, EDF, Fujifilm, ITS, Johnson Matthey, Micropore, National Horizons Centre, PX Limited, Sartorius Stedim, Tees Valley Combined Authority, Thomas Swan and Wood.



"I told them (family members) that there was people on the screen that told us about industry, and we did 3 experiments"

Girl, Year 6

"I liked been on a zoom call with scientists it very interesting and fun"

Girl, Year 6

Word Clouds of Science and Industry

Children increased the science and industry vocabulary used in their responses to open questions about science, the CCI activities, interactions with CCI ambassadors, and what they told family members about the programme.



CCI science activity vocabulary



Career aspiration and knowledge vocabulary

Benefits of Professional Development for Teachers

Primary teachers rated the CCI classroom activities positively and their experiences during the programme,

Teachers rated CCI classroom activities and their experiences

The classroom sessions offered an effective link with industry

100%

I would now be confident to arrange visits to or from industry

97%

My knowledge of industry has improved

90%

I will use the written resources again

83%

My confidence to teach science has improved

80%

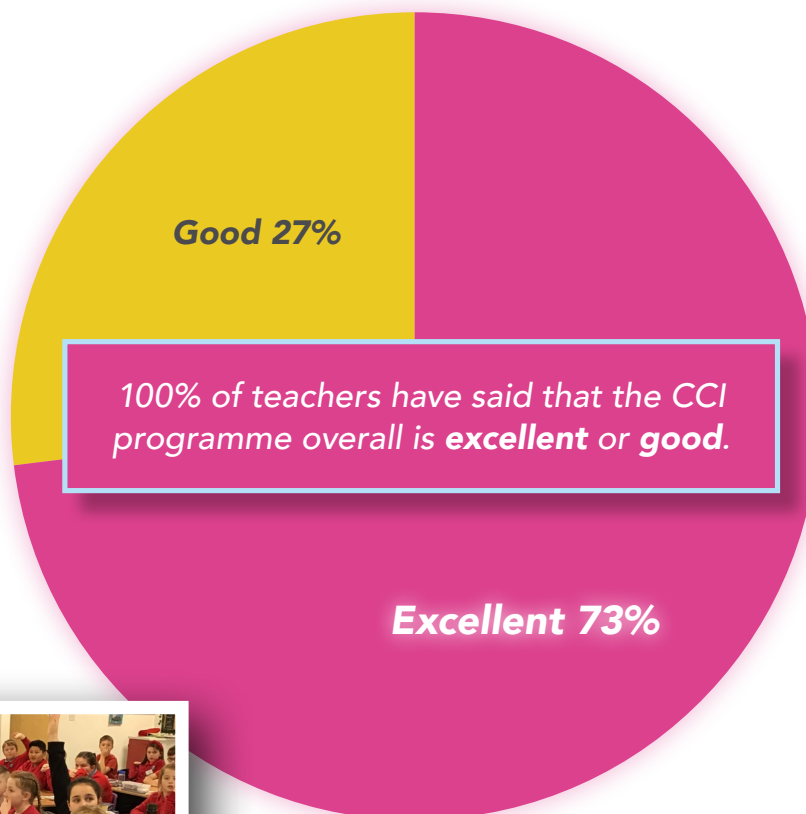


"Participation in the programme has also improved teachers' own attitudes towards industry and their understanding of possible STEM careers within it."

"I saw it being used successfully in my previous school and how it ensured a rich and broad exposure to science for the children"

"The programme has helped me with my teaching, working alongside a professional in the area"

Primary teachers rated the CCI programme and resources highly, stating that their confidence has improved, and that they feel more comfortable teaching STEM in everyday contexts.



Teachers' reflections on the CCI programme demonstrate that CCI has an impact beyond one class in each school, and the potential to be included in the curriculum for many more classes of children.

Teachers' reflections on the impact of the CCI programme in their schools

My expectations of the programme were met

100%

I have managed to enthuse at least one colleague about CCI

90%

I intend to share my CCI experiences with colleagues before the end of the school year

83%

Other classes in my school benefit from CCI, in addition to my own

77%

"I have always enjoyed science and the CCI programme has helped me show this in my teaching as well as always keeping me learning"

"It's engaged me in approaching science differently. I would also consider site visits"

"Well delivered and very exciting for the pupils. Pupils love to explore and have the time to investigate through practical work"

"As always the programme meets all expectations and allows us to carry out science investigations - linking to industry - in a way not possible in normal primary science lessons"

IN SUMMARY

Data gathered before and after the programme showed that the CCI programme contributed significantly to the science and industry-related professional development of the teachers involved. More teachers reported feeling more comfortable teaching about STEM in everyday contexts. Moreover, children's attitudes towards science and industry become more positive; they become aware of the links between the processes that industries carry out and the science that they study in school. They are also more aware of science-based industry's potential as a future employer. Thus, participation in the CCI programme has provided a valuable new perspective for children's appreciation of the relationship between their school science and the world of work; while teachers have increased knowledge of and enthusiasm for school-industry links.

To learn more or find out how you can become involved please:

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