

# Site-seeing to inspire primary children

**Mackayla Millar explores the benefits of industry site visits to enrich the primary curriculum**

**Figure 1** Children enjoying a site visit



**E**ducational visits are always a highlight of any school year, with museums, historical experiences and outdoor activity centres often winning in the popularity stakes, but have you ever considered a visit to a local manufacturing plant or science laboratory? You might feel that this would be a health and safety headache best avoided, or perhaps that a class full of excitable children may not be welcome in such an environment, but you might be pleasantly surprised on both counts. With guidance from the CIEC team, scientists, engineers, and technicians working at local industrial sites are often very keen to share their workplaces and passion for STEM careers with the next generation.

## **Safety first!**

Risk assessments are a necessary part of any educational visit. They can be time-consuming and a real source of worry, especially when planning a visit to an industrial plant where there can be many perceived dangers. However, companies inviting children onto site

will have undertaken rigorous risk assessments; your job is simply to assess the journey to and from the site as you would with any other visit. You may even be greeted in a classroom-style environment, which your class can use as a base, and find that protective equipment is provided for those all-important real-world experiences (see Figure 2).

A company with which CIEC work in the North East, Johnson Matthey, runs a great child-friendly activity that involves the children themselves in the risk management process. Children are supported to analyse potential hazards and the likelihood of them happening, drawing on examples that they can easily visualise, such as falling over in the playground compared to a piano falling from the sky! Wherever you visit, you can rest assured that companies will

only take you to locations that are safe to visit, and you will be briefed on any rules to follow.

## **What will we see?**

There are lots of different environments that you may encounter on a site visit. Production areas and factory floor tours are often included, where children can observe the busy working environment and see products at various stages of manufacture. You might see heavy machinery or robots in action, receive a demonstration of



**Figure 2** Children wearing PPE during a visit to an industrial site

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**Figure 3** Children getting hands-on with specialist equipment

specialist scientific equipment, or even be given a chance to operate tools, programme using Computer Aided Design (CAD), or carry out experiments under careful supervision. These types of hands-on experiences (see Figure 3) enable children to undertake a safe and simplified version of the work carried out by scientists, engineers and technical staff.

Control rooms are another possible element of a visit to industry (see Figure 4), presenting an opportunity to see the beating heart of a site with an impressive array of sensor technology under continuous monitoring, and communication devices relaying messages around the site or sometimes around the country. Companies may mock up a control scenario on computers for children to explore and find out what happens if, for example, a valve does not fully close, and an alarm sounds to signal

that action must be taken. Science laboratories are also fascinating spaces to explore (see Figure 5) and present opportunities for children to use key investigative skills such as controlling variables, repeat testing and recording precise measurements.

### Enriching the curriculum

Site visits can be an exciting addition to a broad and balanced curriculum and require some careful consideration to ensure that they build on your classroom learning experiences in a meaningful way. By doing a small amount of research to find out what a company does and what products they make, you can establish tangible links to the National Curriculum topics and 'working scientifically' objectives. The CIEC website has an extensive range of free resources, which pose real-world challenges set within an industrial context for children to solve, all of

which sit within the scope of the National Curriculum (see Jane Winter's article on page 30 to find out more about CIEC's resources).

For schools in the North East, Humber and the East of England, these resources form the basis of our flagship Children Challenging Industry programme, which links classes of 9-11 year-olds to companies and STEM ambassadors in their local area. This exciting

programme provides unique STEM learning experiences that make the world of local industry real and relevant to pupils' everyday lives.

### Virtual site visits

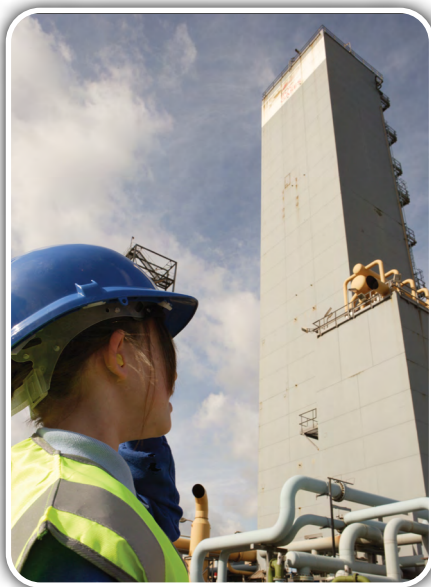
So far, I have very much focused on the benefits of in-person visits to industrial sites and the excellent ways in which they support pupil engagement and provide insights into STEM careers. Children get to see first-hand the scale of industrial operations, which can range from the microscopic to the colossal and might otherwise prove to be incomprehensible (see Figure 6). However, in-person visits may not always be possible; coaches can be expensive, some sites are just not child-friendly, and some children may be unable to access an industrial site due to specialist physical or sensory needs. So what are your options?



**Figure 4** Children visiting a control room



**Figure 5** Children visiting a lab



**Figure 6** Pupil taking in the incredible size and scale of an industrial site

In 2020, and for the first time in its 25-year history, the CCI programme went virtual, bringing the scientists and engineers direct to the classroom via online video conferencing platforms (see Figure 7). The coronavirus pandemic presented some very challenging hurdles to the usual format (classroom lessons followed by a visit to site), and so, with a great deal of creativity and co-operation from our wonderful industry partners, we have been able to provide virtual site visits to participating schools. Whilst there have been some drawbacks, there have also been many unexpected positives.

No physical visit meant that companies have been able to take an 'access all areas' approach and show children parts of their site that would not be suitable to visit in person. For companies who operate across multiple sites, it has been possible to introduce

classes to lots of different people from across the business whom they otherwise would not have met. Less time spent walking around sites has meant more time for discussions around career pathways and the skills that someone might need to be successful in a STEM industry. And children have been finding out more about the different routes into employment and how hobbies such as baking and computer gaming could lead them into jobs as scientists and engineers (see Kate Sutton's article on page 6 for more about *careers education*). As well as live Q&A-style discussions, companies have been able to provide photographs and videos that show children the huge scale of their sites and the variety of jobs that their employees do day-to-day.

Although these examples are taken from my experiences delivering the virtual CCI programme this year, I hope that some of them inspire you to start conversations with the CIEC team or the industry ambassadors living and working in your local area. And, if the cost of coach travel was something that may have put you off an in-person visit of this nature in the past, this might be the solution for you!

### Engaging with industry ambassadors on site

Whether visiting sites in person or remotely, you can interact with an array of personnel including scientists, engineers, technicians, and people who have risen through the ranks to managerial positions, all of whom can share details of their career pathways. However you choose to visit a site, give some thought in advance to areas that

you would like your conversation with their ambassadors to go. Children's questions can lead down many avenues, so be prepared to step in with your own questions to steer the conversation in directions that are relevant to your class. Topics that I like to ensure are discussed include those relating to the diversity of employees, the role played by teamwork, and how important it is to be resilient and open to learning from your mistakes.

### How can CIEC help?

If you have identified a local company with which you would like to collaborate, but they do not feel confident engaging with children, put them in touch with the team at CIEC, who have the knowledge and expertise to help them get started. To ensure that your interactions with industry ambassadors are meaningful and have the required impact, we can provide training to help companies to frame their practices, processes and products within the framework of the National Curriculum, and to support them to adapt their communication style to engage effectively with your class.

Have you had any great experiences of site visits? Why not share them in this journal to inspire others to embark on their own 'site-seeing' journey?



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**Figure 7** Children speaking with a scientist during a CCI virtual site visit



**Figure 8** CIEC advisory teacher training industry ambassadors