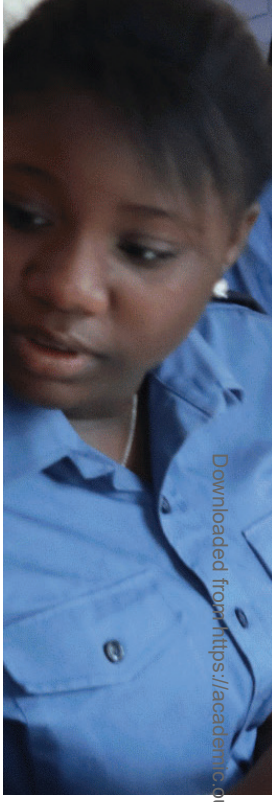

Chilled education:
Integrating food into science teaching and science into food education

***Gill Harrison**, explains how the Chilled Food Association's (CFA's) multi-award-winning Chilled Education (CEd) initiative is continuing to inspire future generations of food scientists.*

CEd was launched in September 2011 with a clear mission: to address a skills shortage in the rapidly expanding chilled food manufacturing industry. By tackling the issue at classroom level with a unique set of resources it has, over the last 13 years, been inspiring thousands of students to consider a career in chilled food production. CEd resources are developed by teachers and industry specialists and its approach was described by judges at the 2024 FDF Awards as having *'breathtakingly brilliant content'* which is *'addressing the needs of career support and utilising online platforms to extend reach'*. Receiving such accolades is always gratifying but the responses CEd gets from teachers and students are also important and continues to be equally positive. Of which more later.

The CEd Approach

To make them as relevant as possible, CEd resources have always been developed by, and with, teachers and industry professionals. In its early years, CFA worked with the Design and Technology Association to develop the free-to-download lesson plans for Key Stages 1-4. While these were useful in Food and Food Technology classrooms, CFA quickly realised that it also needed to reach science teachers.

A new mantra was added to the team's mission: 'we want more food in science teaching and more science in food teaching'!

The route to science teachers was taken via membership of the Association of Science Education. In collaboration with the Association and science teacher and author Sam Holyman, CFA developed free lesson plans for science Key Stages 2-4.

As with the food technology plans, these are comprehensive resources, complete with teacher notes, PowerPoint presentations and homework suggestions.

It's never too early to start talking about the importance of handwashing. As this pupil from Blisworth Community Primary School demonstrates.

Alongside the lesson plans, the CEd programme has a suite of practical resources for the classroom. Its unique MicroTrumps game (in which players use information about various microorganisms to 'trump' each other) has a dedicated fan base amongst teachers, students and is used by a wider audience, including Environmental Health Officers, as a reference source. They were even described by the IFST as 'Fantastic'. Also handwashing (another crucial factor in food safety and food production) is made easy and fun to teach with Glo Germ kits and posters.

The CEd website was initially created to host the resources, which are now also available on Shopify. Many of these, are free to download. Its most popular pages remain those featuring career paths and case studies. In these industry colleagues at varying stages in their careers share their experiences and advice.

With the continued support of CFA members, the CEd approach has always prioritised outreach. Over the years colleagues from member companies have taken time away from their sites to attend many science and career events such as the ASE Annual Conferences and Big Bang Fairs. Using the resources to illustrate scientific principles, their enthusiasm captured the imagination of hundreds of young minds keen to harness a love of science.

Evolution

In 2020 the outbreak of COVID-19 brought an abrupt (albeit temporary) halt to CEd's outreach. The pandemic, together with the shift to home schooling, demanded a quick re-think of the CEd approach. It was important to maintain science learning but now using everyday items and ingredients that can be found in most kitchens, whilst following simple instructions. Additionally, these had to be fun and easy to do.

These 'Store Cupboard Science' experiments were demonstrated by two enthusiastic young scientists—CEd's Charlotte Patrick's daughters—making them more relatable. The experiments have developed over the years and now number more than 100. Often following seasonal themes they cover everything from exploding cola to exploring the DNA of summer strawberries.

These ideas, and more, are

shared with teachers via a regular e-newsletter. Intended to help with lesson planning, the newsletters flag up forthcoming themes days and weeks and signpost people to CEd's resources.

CEd has now changed strategy to shift focus to smaller events, forging partnerships in areas where the majority of the chilled food manufacturers are based. This includes the University of Northampton's STEAM event for schools, with over 2,500 students attending each year, which has welcomed CEd's Charlotte Patrick and colleagues from CFA Member Greencore. And at Northampton College where Charlotte has talked about roles and careers in chilled food.

Feedback was very positive and she has returned a number of times. She's also presented to local schools and been delighted with the response. Her regular contact with teachers is revealing useful insights and helping CEd to adapt its offer. As she explains: *'We know that teachers are under pressure to give careers advice, yet they are, through no fault of their own, unaware of the breadth of roles in our sector. Changes to the curriculum and shifting priorities also add to the pressure. This is where we have a USP, we connect everything up – including from microbiology through to the production of safe food and from the physics of pressure to sustainable food packaging.'*

Students have responded very positively to the presentations. They can now see that science is not just about people wearing white coats in laboratories, and the forensic skills that fascinate them are applicable to the food industry.

Students are also interested to hear about the various entry levels into the industry. There are the traditional

***CEd's reach extends beyond schools**, top, and formal education. Groups such as these Cadets are also keen to experience fun food science experiments. Especially if they involve marshmallows! As used by Charlotte here to explore pressure.*

***CEd's partnership with the Food Teacher Centre**, above, includes sharing its innovative resources such as the MicroTrumps card game.*

CASE STUDY: Jackie Carter

Jackie is Group Technical Director for Cranswick plc. Her father inspired an interest in science and her original career aspirations were to become a vet. While this was not to be, she gained a Master's in meat science. This, together with what she describes 'a strong moral compass', has brought her to a role in technical where she is perfectly suited to 'ensuring that everyone is doing the right thing all the time.' She is now expanding her remit to include Health and Safety and Research and Development.

Jackie's experience illustrates the versatility of the industry, where being open minded and having a flexible approach reaps rewards.

postgraduate routes but also ways in such as degree apprenticeships where students are paid to learn as they work in a role. The experiences of degree apprentices Matty Desforges, Charlie Gresswell and Lauren Wright are captured on the CEd website, and Charlie sums up the benefits: *'Work experience is key. So many jobs call for work experience, what better way to gain it than working! The food industry, and specifically the technical department, is a great area to get fantastic experience and to work with incredibly skilled professionals.*

***Teacher at ASE Conference** enjoying a CEd workshop (presented by CEd and Sam Holyman), including using food to demonstrate miscibility. He described the presentations as: 'One of the best I've ever seen. Mind blowing.'*

CASE STUDY: Kelly Merry

Kelly is Product Development Controller at Greencore. Kelly always loved creating great tasting food and followed a non-degree route into the industry. She's learnt from being in the manufacturing environment and understands how factories work from the shop floor (where she started working aged 16) upwards. Her career highlights include working as Development Chef at Northern Foods developing sandwiches and sushi for Marks and Spencer. She's gone on to manage teams across multiple sites and has arrived at a level in her career that she hoped to reach and her aim now is to help others make the most of the many opportunities the industry offers.

Kelly's career path shows the variety of routes into the industry where not all of them are degree related.

Apprenticeships tick all the boxes – you get work experience, learn every day, earn a living, grow personally and professionally and have the opportunity to make a real difference.'

Using the lessons learnt during lockdown CEd continues with its online offer. In addition to free to download presentations CEd has developed interactive online sessions to enable schools and colleges to explore the exciting world of food science.

These include experiment ideas and career insights. The team also continue to engage with CFA Members, encouraging them to do their own outreach (often via becoming part of CFA's Chilled Ambassador cohort in the STEM Ambassador programme) and supplying them with the resources they need to visit schools either virtually or in person.

Keeping it fresh

Despite winning multiple awards, including a hat trick of accolades from the FDF, Chilled Education doesn't rest on its laurels. The suite of lesson plans and Store Cupboard Science experiments continues to expand and CEd has reprised its partnership with Sam Holyman to create a series of food science STEM club resources. At Aylesford School, in Warwickshire, Sam has created a STEM club to delve more deeply into science subjects. She is keen to shine a spotlight on what can be done with science and to make it exciting. Which is exactly what CEd is all about.

She says: *'I am so privileged and proud to have worked with the CFA to create lesson ideas and resources that are ready to work in a classroom. My own children have grown up with the idea that Food Science isn't just cooking and have trialled lots of our ideas to see how young learners would engage with the activities.'*

My favourite part is working out how we can use food science techniques to reduce the risk of practicals for the science classroom. CFA has developed my skills, championed me and it has been a pleasure to help encourage more people in STEM careers.'

Partnerships continue to be important to CEd as we reach out to more people. In 2023 it began to work with Countryside Classroom, an organisation that links schools with food, farming and the natural environment. It continues to work with the Food Teacher Centre (FTC) which connects with almost 10k teachers. CEd has provided them with resources for use at events and is regularly mentioned on its Facebook page.

Founder of the FTC, Louise Davies says: *'We are very proud of our partnership with CEd. We have collaborated with them over the years to create platforms for professionals to share and receive advice and guidance.*

'Food teachers and their students have enjoyed using CEd's wide range of resources. Many students enjoy using MicroTrumps card games to get to grips with essential knowledge of pathogens and useful microbes in food. Teachers and technicians also use MicroTrumps

CEd has developed Store Cupboard Science experiments to suit theme and seasons throughout the year, including making ice cream in summer, as demonstrated by young scientists Tilly and Morgan.

CEd's Glo Germ kits are always a popular resource at science events.

to extend their own knowledge and application of microbial aspects of food.

'The website used by many of our members is testament to the reliable, wide-ranging and appropriate teaching resources available for use in schools today. Lesson plans, classroom activities and food science ideas are amongst the go-to resources always available, for various Key Stages, for food teachers.'

CEd also supports the FTC's campaigns, including its current #TeachFood initiative which is aimed at encouraging more people to become food teachers. Social media is an increasingly useful communication tool for CEd and allows it to support new campaigns like those from the FTC as well as established ones such as WRAP's Love Food Hate Waste.

CFA Director General Karin Goodburn sums up: *'Chilled Education continues its mission to inform, educate and inspire children in all areas of the dynamic and diverse chilled food sector. While we are proud of our successes and eagerly follow the progress of our young graduates, our work is by no means over. Our industry's need for high quality food scientists, and other experts, shows no sign of diminishing as vacant roles continue to mount up. And our sector faces the additional challenge of relative anonymity meaning that anyone wanting to pursue a career in food may not be aware of its existence.*

'However, we are heartened by the overwhelming positive experiences reported by the new recruits and will be using those testimonials to encourage others. They go a long way to correct lack of awareness of our industry that has proved a barrier for many people.

'We will continue to adapt to give teachers, and students, the resources they need raising awareness of the diverse and exciting opportunities in chilled food production and the science behind it'.

Some of the most popular pages on the CEd website are the career paths and case studies. Interviewees share their unique experiences and offer insights into the food production industry.

Case study: Stephen Kingdon

Stephen is Sustainability Manager at PDM. Stephen grew up on a farm and always knew that he wanted to work in farming and an agricultural-based industry. After gaining his BSc in Applied Biology, and travelling and working abroad, he began working out in the fields as, amongst other roles Harvest Manager for onions and iceberg lettuces. He is now delighted to be guiding and developing PDM Foods in its sustainability work. It is a new challenge for the business but one Stephen is more than happy to meet. He's never been bored and is doing something he is passionate about and in an environment he loves – the outdoors.

Stephen's experience, like Kelly's, shows the diversity of routes into the industry. And that it's possible to find something that truly fits with an individual's career expectations.

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A calendar of themed days and weeks in free to download on the CEd Shopify site *https://bit.ly/4gFhQn6*

To stay connected with Chilled Education sign up to receive e-news at *chillededucation.org/contact-us*

To find out more about WRAP's Love Food Hate Waste *wrap.ngo/uk*

For information on becoming a STEM Ambassador visit *stem.org.uk*

For information on Countryside Classroom visit: *countrysideclassroom.org.uk*

Details of the Food Teachers Centre can be found at: *foodteacherscentre.co.uk*