

*One of the ways in which CIEC supports primary science education is by providing curriculum-linked resources for teachers and children to access. Resources can be searched by age group (5-7, 7-9, 9-11, or suitable for all), or by the three broad categories: science topic, types of enquiry and cross-curriculum.*

*The resources are designed to help teachers to make links between industry and teaching, providing opportunities to bring science to life for children and to enhance science capital. The range of resources varies, but most include children's activity sheets, teachers' notes and additional resources such as cartoons, PowerPoints or video clips.*

*Our team of reviewers (all Yorkshire PSQM hub leaders on this occasion!) have reviewed a selection of resources, but it is well worth spending time exploring the full range, which can all be found in the Support for Schools area of the CIEC website, [ciec.org.uk](http://ciec.org.uk).*

## Sustainable Stories and Solutions for our Planet

**Nicky Waller and Joy Parvin**  
(funding from Thomas Swan)

**CIEC**  
[www.ciec.org.uk](http://www.ciec.org.uk)  
Free to download

*A science investigation pack for 9-11 year-olds containing practical and discussion activities: two introductory activities and five case studies*



This new publication from CIEC highlights the issues and impacts of sustainability for Upper Key Stage 2 (age 9-11)

children. It contains practical activities that drive discussion, including two introductory activities to develop children's awareness and understanding of sustainability and five case study activities from companies with a strong reputation in sustainability.

The resource includes an initial survey, safety guidance throughout and links to industry regarding sustainability. It is cross-curricular and has suggested extension tasks to ensure challenge for all.

Positives: It has really clear guidance for use throughout. It is highly relevant and much needed to support learning of sustainability issues at primary level – an important subject that our children need to learn about. The hands-on activities and engaging way that the vocabulary is shared will appeal to children and encourage their curiosity.

Allowing children to build on prior knowledge, the resources are clear, with vocabulary and objectives stated as well as a glossary to develop the understanding of students. Enquiry types,

guidance on time needed, a planning template and other printable resources needed are also provided. It links well to the English National Curriculum, with a focus on Year 5 (age 9-10). Independent thought, science skills and key transferable skills including discussion and collaboration are all engaged. It introduces vital issues and positive/realistic answers to sustainability issues. Developing independence is a key positive regarding these resources. Teacher notes and hints are very useful and the PowerPoint presentation that accompanies it is concise, informative and thought-provoking.

A negative for all teachers is not always having enough time to address wider curriculum issues, although it is becoming increasingly apparent that this problem must be discussed and addressed with pupils as we move forward through the climate crisis.

A thought-provoking and engaging resource, which will really support educators to build links and knowledge

amongst pupils through hands-on activities, also developing an understanding of key vocabulary and the importance of protecting our environment for future generations, including their own.

**Kate Sutton CSciTeach**  
*Teacher and Science/STEM/ Careers Lead, Burlington Junior School, Bridlington.*  
PSQM Hub Leader – Yorkshire Coast

## Kitchen Concoctions

**CIEC/Joy Parvin and Nicky Waller**  
**CIEC, Department of Chemistry, University of York**

[www.ciec.org.uk](http://www.ciec.org.uk)  
Free to download  
ISBN: 1 85342 608 3

*Science and technology activities for 7-11 year-olds: a 79 pp resource booklet in pdf format*



*Kitchen Concoctions* is a set of nine lesson activities focusing on mixtures that can be found in most home kitchens and how their properties make them suitable for their uses. One great thing about all the

materials that are investigated is that they are ones that will be really familiar to children, such as mince pies, squirty cream and soap, which will help them to see how their science learning relates to their own lives and may even lead to conversations at home about what they have learned.

Each activity includes a brief summary that gives an overview of the activity, the learning objectives for the session and resources needed, which is then followed by a detailed explanation of how to carry out the activity. The lessons can be delivered in the sequence presented or teachers could easily pick and choose which they would like to carry out in their classrooms. Although lesson objectives are included, these could be improved by explicitly linking to the National Curriculum, but teachers who are familiar with this will be able to deduce these links themselves from the given objectives (NB: upcoming improvements to the CIEC website from September 2021 will address this issue – Ed.). One key feature of the lessons are the direct links to how the science covered in each activity links to industry, which will really help teachers to explain why the processes they are carrying out are useful in the wider world and help to develop science capital. You can really tell that these have been written by those with teaching experience, as they include useful practical tips such as where to order some of the less common materials. Also really useful are the suggestions for open-ended questions to ask at different points in the session,

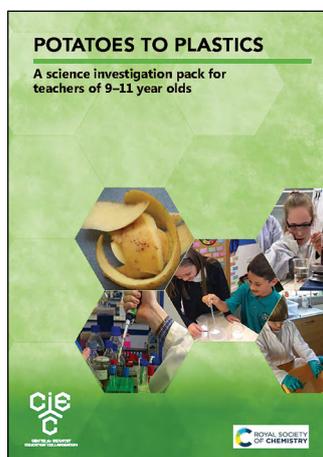
which will really inspire rich discussion.

**Kathryn Horan**  
Teacher and independent consultant, Pudsey Waterloo Primary School

## Potatoes to Plastics

**Jane Winter (Editor: Joy Parvin)**  
CIEC, Department of Chemistry, University of York  
[www.ciec.org.uk](http://www.ciec.org.uk)  
Free to download

**A 38 pp downloadable PDF activity booklet for 9-11 year-olds, incorporating all the paper resources needed to both undertake and support the activities within this investigation pack**



This is a resource aimed at children aged 9-11. One of the prevailing foci is finding solutions to environmental issues, an area that many schools are researching with children of all ages. It works through a simple investigation to allow children to create a useful product from household waste. The beauty of this investigation

is that the resources are easy to obtain and children will be familiar with them – potatoes! The investigation could be undertaken either in the classroom with groups of children or at home with parents and/or carers, as all the resources needed are readily available.

Key features in the activities:

- Promotes diversity within science: the scientists within the first activity are all people who a range of children could realistically aspire to be.
- A clear list of resources: the majority can be found easily either in the home or school; others can be easily sourced.
- There are several different types of enquiry types within the seven activities.
- Links to real-life problems and allows the learners to consider their own solutions after the step-by-step activities.
- A list of key scientific vocabulary.
- 'Questions for thinking' section at the end of each plan to aid the learners in using the aforementioned vocabulary.
- The children will have to be experienced in following instructions carefully to be able to make the plastic. If there are any problems in extracting the starch, this will have a knock-on effect on subsequent sessions.

The resources have clear links to the National Curriculum for Science for Year 5: properties and changes of materials; however, there are also some clear cross-curricular links to other STEM subjects. There are 7 activities within the booklet, the first three being English-based for 3 hours, and the latter science-based for between 4-7 hours. This would

therefore take a good amount of time, but could not be completed in a day, as Activity 4 requires a 3-day waiting time before the next activity. This is worth using in either class or at a science club. It uses a real-world problem and allows the learners to provide a solution through science, whilst encouraging them to be 'real scientists'!

**Liz Flintoft**  
Lecturer, McMillan School of Education @ Bradford College University Centre

## IndusTRY at Home

CIEC  
[www.ciec.org.uk](http://www.ciec.org.uk)  
Free to download  
**Why not IndusTRY AT HOME? A series of 13 downloadable science activities for children aged 7 years or older and their families to use at home**



This is a series of free downloadable activities and investigations, for home use by children aged 7+, linked to industry and science in



the real world. The attractive layout, with engaging contexts, includes information to support home learning and experimentation with Working Scientifically skills

embedded. Context titles include: *Investigating craters; Fun with foam; What's in a mince pie?; Pipeline shapes; and Fire extinguisher.* Children may need help from an adult to start before independent use. Children can invite their parents, additional adults, younger children or siblings to join them in additional challenges.

Key features in the activities:

- Questions and challenges such as 'How can you solve the problem?' promote thinking and problem-solving.
- A list of resources, commonly found in the home, needed to carry out the activities.
- A word list of key vocabulary.

● 'Things to talk about' to encourage children to use and apply key science vocabulary.

● Video introductions from volunteer female engineers and science students share their job roles and set challenges for investigation (e.g. *Which Plastic?*).

● 'Watch out' warning symbols highlight any potential risks and safety measures.

If the activities are scaled up for a whole class, consideration will be needed for further risk assessment for whole-class use, including where supervision is needed. Timings may take longer in a whole-class context. There is a lot of information

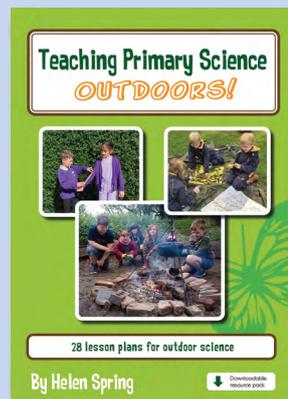
for pupils to process, which may need scaffolding for different learner needs. 'Things to talk about' would work well in 1-1 discussions with the teacher, other pupils or teaching assistants, or in whole-class reflection.

These resources are well worth investigating, for use at home, school, or science clubs! The range of activities and contexts linked to industry would be a great addition to different areas of the science curriculum, with the bonus of developing an interest in science and building science capital.

**Mandy Hodgkinson**  
**CSciTeach**

*School Improvement Officer,  
East Riding of Yorkshire Council*

## New from Millgate Publishing! Teaching Primary Science Outdoors



**Author: Helen Spring**  
**Age range: 5-11 years**  
**Format: Paperback & PDF download**  
**ISBN: 9780863574733**  
**Price: £20.00**

*Teaching Primary Science Outdoors* is a book packed full of activities for teaching science in the outdoor environment.

The lessons are designed to cover curriculum objectives

and include ideas for assessment, as well as support and challenge suggestions. The lessons are suitable for most school grounds and the majority do not require resources that schools wouldn't normally have access to.

This book will inspire you to take your class outdoors, and provides some simple ideas for activities, as well as a few more ambitious outdoor science lesson ideas!

The 28 lessons each cover the following:

- Enquiry type – Which of the 5 types of enquiry is used in this lesson?

- Conceptual knowledge – Lesson objectives which support children's acquisition of knowledge.
- Working scientifically – Lesson objectives which support the development of scientific enquiry skills.
- Assessment – A description of what children meeting the objectives will be able to do.
- Resources needed – What equipment will need to be prepared in advance of the lesson?
- What to do – Ideas for how to structure the lesson.
- Assessment for learning – Formative assessment activities that can take place as part of the lesson; these can be used to inform future teaching.
- Science Capital – Suggested ideas for developing children's Science Capital as part of the lesson, or as an addition to the lesson.
- Support – Guidance for supporting children who are working below age-related expectations.
- Extension – Guidance for challenging more able children.
- Follow up – Suggested ideas for follow-up lessons.
- Key vocabulary

The book is supported by a comprehensive Pdf pack of resources and useful links.

Available from [www.millgatehouse.co.uk](http://www.millgatehouse.co.uk)