

Standing on the shoulders of giants

Alex Sinclair, Amy Strachan and Alison Trew
Bristol: Primary Science Teaching Trust, 2019
85 pp. £15.00
ISBN 978 0 9954811 8 3

Teacher guide and resources for introducing historic and contemporary scientists' discoveries through practical investigation

This fantastic resource focuses on ten scientists (or in one case a pair of scientists) who are named in the National Curriculum in England. The book and the additional downloadable resources use a clear structure to support teachers in educating children about scientists, with the aim of challenging stereotypes, introducing children to contemporary scientists and starting to understand how the work of contemporary scientists builds on that of the historical giants. A key tenet of this book is the focus on teaching children about the science rather than about the scientist's life.

For each 'giant' scientist, there is an outline of what was known at the time, what the scientist noticed and the questions they might have asked, and then what the scientist did and found out. Crucially, the questions, 'What did other scientists do next?' and 'What would you do next?', are asked. These provide opportunities to introduce the children to modern-day scientists and to explore how their research builds on that of the 'giants' who have gone before.

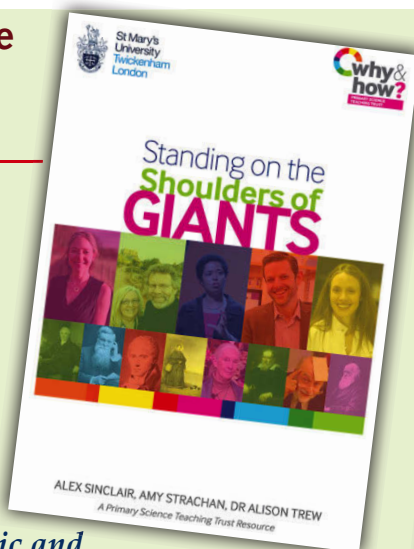
The book outlines learning objectives and lesson activities associated with each scientist's research. This includes resources lists, extension activities and vocabulary lists, as well as top tips and suggested questions to support assessment. The linked downloadable resources include a presentation to support the teaching of the activities, as well as, in some cases, resources to print or cut out and share with children.

I love the Mary Anning resource, which supports children in 'finding' small parts of a fossil, as Mary Anning might have done, and then inferring what the rest of the fossil might have looked like. Each time a new part of the fossil is 'found', children reflect on their previous ideas and refine them.

The activities and resources in this book are great for making children think and feel like 'real' scientists and helping them to see that scientists build on the work of earlier scientists. It encourages children's questioning and develops vocabulary, as well as offering opportunities to develop science capital.

Helen Spring

Primary Science and Outdoor Learning Consultant



Enquiring explorers – Space: Reach for the stars!

Leigh Hoath and Emma Vanstone, illustrated by Claire Chamberlain
Hatfield: Millgate House, 2020
44 pp. £10.00
ISBN 978 0863 57471 9

An exciting storybook aimed at children aged 5–9, with interwoven practical activities



This book gives the practical work described an inspiring context and purpose, to which children can easily relate. The characters of Charlotte and Zach are just as interested in exploring space as the target audience of this book. When the reader has finished the storyline of a particular chapter, they can follow Charlotte and Zach through the same activities.

Each chapter outlines a different activity, giving the reader the option to treat this book as a non-fiction text, picking the order of reading based on their interests. This is a big advantage of the book, along with the downloadable resources from the publisher's website. The pages are beautifully illustrated and laid out in a consistent design. This provides teachers or parents with an easy way to glance at what resources are required for all of the activities.

I provided children in my class (ages 8–10) with a copy of a few chapters of the book. Children came back with the projects they had enjoyed, saying it was fun and easy to follow at home with parents. I have a very successful parachute hanging from my classroom display because of this book!

The book could easily be used to inform extra learning through a science topic in school. It is written in such a way that the children themselves could read the book and take charge of the direction of their learning. Furthermore, there are clear cross-curricular opportunities in guided reading, as the text demonstrates clear uses of non-fiction features.

Charlotte Smailes

Science Lead, Lark Hill Primary School, Stockport

Glow-in-the-dark books

Lisa Regan
Richmond Hill, ON: Firefly Books, 2020

Nature at night
ISBN 978 0 2281 0254 0

Glow down deep: amazing creatures that light up
ISBN 978 0 2281 0252 6
48 pp. £9.95 each

As well as being visually intriguing, the content of these books will keep children (and adults!) interested (ages 8–12)

Nature at night and *Glow down deep* are eye-catching explorations of glowing living things. Both books have holographic covers that will appeal to children and make them stand out on any bookshelf, as well as having a number of glow-in-the-dark pages scattered throughout to add even more interest. Each double-page spread is dedicated to a particular living thing and includes a large, close-up photo of each animal. In *Nature at night*, these central photos are also joined on some pages by images showing other angles or viewpoints of the animal, which really helps to picture the organism in question.

As well as being visually intriguing, the content of these books will keep children (and adults!) interested. They begin with a clear explanation of the difference between bioluminescence and biofluorescence in child-friendly language. The pages for each living thing explain how it uses its glowing abilities to its advantage, with scientific terms defined in a clear glossary at the back. Helpfully, each 'tricky' word is followed with a note on how to pronounce it correctly, which will be very helpful for young scientists who want to share all their cool new facts with everyone around them!

Although there is relatively little text on each page in comparison to images, there is a lot to learn from this book, with many facts being news to this reviewer! Did you know, for example, that the anglerfish,



often depicted as a looming beast of the deep, is so small it could fit in the palm of your hand? Or that bioluminescent fungi can be used to make glow-in-the-dark face paints?

With lots of information about adaptations and characteristics of the animals described, these books would be great to use in the classroom alongside learning about animals, habitats, classification, adaptations or evolution and inheritance. They would also make good guided reading texts for key stage 2 learners. Children will pick these books up for the cool 'moving' cover and the promise of glow-in-the-dark pages, and stay for the interesting and clearly explained information and fun facts. They would be an excellent addition to any key stage 2 classroom.

Kathryn Horan

Teacher and independent consultant, Pudsey Waterloo Primary School

Rosie discovers winter

Madeleine Carroll, illustrated by Nicola Harris
Isaiah Books, 2020
36 pp. £7.99
ISBN 978 1 9163963 1 9

A lovely way to encourage young children to explore the sights, sounds and smells of winter



To Rosie, winter is a 'grey season' but her grandad disagrees and encourages Rosie to find the signs of life in winter. Together they set out to explore winter and soon find that there are signs of life everywhere if you only know where to look. In a style reminiscent of that of Shirley Hughes, we are taken on a gentle journey through the season of winter as Rosie and her grandad explore the sights, sounds and smells of winter. This book would be a lovely way to encourage young children to do the same.

Links are made with the other seasons as Rosie remembers the smells of spring, summer and autumn and thinks about the changes in the trees in winter. Children could then

be encouraged to think about the different sights, smells and sounds of the seasons where they live and to talk about how they change as the seasons change. The book ends with a 'Winter Nature Challenge' list, which could be used both in school, maybe as part of a playtime activity, and at home as part of home learning. It encourages children to get outside and experience the world first hand, to make observations and to use their senses, all of which are key to developing as scientists.

Elizabeth Chilvers

PGCE Primary Trainee (former TA and Science Subject Leader)

15 Minute STEM Book 2

Emily Hunt
Carmarthen: Crown House Publishing, 2020
67 pp. £16.99
ISBN 978 178583507 0

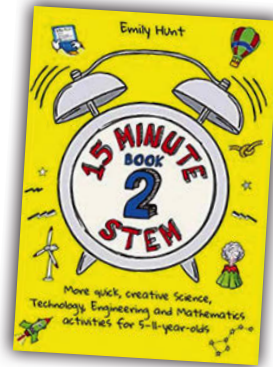
A very good-quality resource if you are looking for STEM activities for your children, either at home or in school

This is subtitled *More quick, creative science, technology, engineering and mathematics activities for 5-11-year-olds*, and, to quote a well-known brand, it does exactly what it says on the tin, though I feel older pupils, aged 12-14, could access, enjoy and learn from some of the activities as well.

There are 40, 15-minute activities outlined in the book, ranging from a rainbow leaf walk (finding leaves of varying colours) to engineering a rollercoaster (for a ping pong ball). Each activity is set out in a clear and helpful way: a question to investigate, an equipment list, the method, what is being learned from the activity, other things to investigate leading on from the activity, and which STEM scientists would be likely to consider these kinds of problems. The activities could be used at home or in school, although some do not have a direct link to the National Curriculum in England. There are activities that are more suitable on a one-to-one basis, which could limit their use within school, but they could still be suitable for an extra-curricular club or as home-learning activities.

The author states that the activities can be adapted for any child aged 5-11, which I completely agree with. However, for the children to understand some of the scientific concepts, I feel the activities may need to be chosen carefully.

The links to STEM careers provide a great way for children to meet some STEM professions that they



may not have heard of before. The book also has a description of each career towards the back of the book, enabling children to develop their science capital through sketched images that consider a range of gender, heritage and culture.

All in all, this is a very good-quality resource if you are looking for STEM activities for your children, either at home or in school.

Nicki Deane

Primary Education Consultant

Never stop wondering

Emily Morgan
Arlington, VA: NSTA Kids, 2019
32 pp. £8.50
ISBN 978 1 68140 008 2

A valuable book to remind children of one of the most important skills in science – asking questions!

Never stop wondering, never stop questioning. Never stop trying to figure things out.

Always keep searching, always keep asking. That's what science is all about.

The book is one long poem encouraging children to never stop questioning the world around them as there is still so much we don't know! Emily Morgan takes the reader through famous scientists who thought deeply and asked questions (and it was great to see some diversity in the individuals chosen) before advising children on how to 'wonder'. One of my favourite sections, which is incredibly relevant in the current climate, is about checking trusted sources to verify claims and not accepting everything you read as the gospel truth. This is an important part of science, but one we do not necessarily teach explicitly.

The illustrations show great examples to match the text and, again, show a lovely range of diversity. I particularly like the page where a young boy is flying a kite, where you turn over and find the same figure as an adult testing the aerodynamics of a cycling helmet! I

found it to be such a lovely model of the message the book is trying to convey.

The publishers suggest this is a book for American grades K to 4, approximately ages 4 to 9. Language features such as 'contraptions', 'quarks', 'perplex' and 'proportion' would encourage me to use this with children from year 2 (ages 7-8) upwards – which would be around the time some children can lose that spark of curiosity.

Beyond the poem, the final three pages hold six teaching and learning strategies to further encourage children to wonder. These are based



upon either the author's classroom experience or that of someone she has worked with, and are valuable to consider within your own practice.

My one negative about the book is the 'American-ness' of it. Spellings are Americanised, which I know from experience can cause some confusion, debate and frustration in UK primary classrooms. Similarly, most examples given are American; for example, the Wright Brothers, Dr Mae Jemison and Dr Sylvia Earle. So while there is diversity in the famous scientists chosen, the relatability for British children may be diminished in comparison with Charlotte Armah (who is researching the impact of diet on cardiovascular health and cancer) or Joanne Johnson (a geologist and Arctic scientist, researching climate change who is great to follow on Twitter @geologicalJo).

That said, overall, I feel this is a valuable book to remind children of one of the most important skills in science – asking questions!

Nicki Deane

Primary Education Consultant

The reviews published in *Primary Science* are intended to provide you with an honest opinion from an end-user's perspective. Thus, they are not ASE recommendations, but genuine reviews and comments from readers such as you. You too can become a reviewer. Contact janehanrott@ase.org.uk if you are interested.