

Appendix 1 – Books to promote STEAM learning

Here are some ideas about the different kinds of books which you can read and talk about with your child. Your local library has lots of books to borrow for free and the staff at the library are really good at helping you to work out which books your child will really enjoy!

Picture books

Picture books are not only a wonderful way of sharing special times with your child but are also a great way of supporting your child's STEAM learning. Many children's picture books contain STEAM topics. Children often like to re-read the same books a number of times and this re-reading of a topic can really help their memory and learning.

Reading picture books with children can support their learning around an interest they already have or can spark a new interest for the child.

Fact-based (or non-fiction) books are a great way of exploring all kinds of topics in more detail and can often answer the questions your child may have about their current interests. The pictures are often bright and colourful and give real-life examples of things like animals and planets. As they are fact-based books, you can also be sure that the information in them is accurate and true. Books aimed at younger children often summarise the main points of a topic, which can help your child to grasp the content more easily. Then, if the child wants to know more, they can move on to more complex books or more specific topics.

Fiction (or story) books usually contain a story that has been created by someone and often contain really creative artwork. Although it might seem an unlikely place for STEAM learning, in fact it can be a great source for a new interest or for thinking in a new way about an existing interest. Many fiction books contain elements of STEAM topics. For example, the book *We're Going on a Bear Hunt* contains lots of pictures that describe weather conditions (a science topic), lots of opportunities to talk about size, counting and location (maths topics), and the beautiful illustrations (arts), and it could easily link to technology (perhaps watch a movie version together/ torches in a dark 'cave') and engineering ('Could we make a bear's cave?').

Whether we are reading fact-based or fiction books with young children, children will learn best, and enjoy them most, when we talk about the book with them as we read it. If we want to use a book to support young children's STEAM thinking and learning, we need to look at and discuss the pictures and also ask our child questions about them. Let's take *The Very Hungry Caterpillar* by Eric Carle, for example:

On the first page, we see a **tiny** egg on a **large** leaf (language of size). The egg is **smaller than** the leaf (language of comparison). On the second page, the **small** caterpillar is walking **on** the ground **under** the big sun (language of size and spatial location). The following pages offer opportunities for **counting** and **describing** the various fruits eaten. The page with different food items lends itself to questions such as: Which is **longer**, the pickle or the piece of chocolate cake? Can you find things that are the same **shape**? What shapes can you see? How would you feel if you ate all of those things? The final question asks children to think about **actions** and **consequences**. When the caterpillar eats the 'nice green leaf', we can start conversations around **healthy** foods and **categorise** foods that are good for us and those that are not. The page with the beautiful **butterfly** can prompt questions about **pattern** and **symmetry**. Finally, we can also discuss **life cycles**, **metamorphosis**, **chrysalis**, **eggs**, etc.

So, from one picture book, we can engage children in the mathematical language of size, shape, comparison, time (days of the week) and spatial awareness as well as having conversations about healthy food, insects, life cycles, etc. (science).

Other books

Don't forget that you can also use books aimed at older children and adults to add to your own knowledge about different interests that your child has. When you have a better grasp of a subject area, you will feel more confident explaining it to your child. And you never know, it may start a new interest for you too!

Think about a picture book that you are familiar with.

- **What kinds of STEAM concepts are conveyed by the words and pictures?**
- **What questions could you ask, and discussions could you have, using this book, to promote STEAM learning?**

Look back at the science questions from Week 2 for prompts about the kinds of questions you can ask as you read books with your child.

Visits to the local library

Local libraries often have many books (both fact-based and fiction) that can help parents support their child's STEAM learning. They also have access to services like the internet and photocopying. Librarians can provide advice on suitable books for specific age groups and are often aware of relevant events in the area. Local libraries also host lots of great fun STEAM activities for children and families, such as Lego clubs and arts and crafts events.

Why not pay a visit to your local library and check out some books for free to share with your child?

Locations of libraries in Tallaght:

Library Branch Address	Opening Hours	Contact Details
Castletymon Library Castletymon Road D24 EC1X	Monday: 9.45am – 8pm Tuesday: 9.45am – 8pm Wednesday: 9.45am – 8pm Thursday: 9.45am – 8pm Friday: 9.45am – 4.30pm Saturday: 9.45am – 4.30pm Closed on Saturday and Monday of Bank Holiday Weekends	01 4149203 Email: castletymon@sdblincoco.ie Website: Castletymon – SDCC Facebook page (for details of lots of free events) (20+) Castletymon Library Facebook

Library Branch Address	Opening Hours	Contact Details
County Library, Library Square, Tallaght, Dublin D24 A3EX	Monday: 9.45am – 8pm Tuesday: 9.45am – 8pm Wednesday: 9.45am – 8pm Thursday: 9.45am – 8pm Friday: 9.45am – 4.30pm Saturday: 9.45am – 4.30pm Closed on Saturday and Monday of Bank Holiday Weekends	01 462 0073 Email: talib@sdublincoco.ie Website address: County Library, Tallaght – SDCC Facebook page (for details of lots of free events) (20+) Tallaght Library Facebook

Here is a list of both fact-based and fiction books that promote STEAM learning with your child. Many of them can be borrowed for free at your local library.

Non-fiction

- *Whatever the Weather: Learn about Sun, Wind and Rain* by Steve Parker (Author), Little Gestalten (Editor), Caroline Attia (Illustrator)
- *The Wonders of Nature* by Ben Hoare (Author)
- *The Mysteries of the Universe: Discover the Best-Kept Secrets of Space* by Will Gater (Author)
- *Up in the Garden and Down in the Dirt* by Kate Messner, Christopher Silas Neal (Illustrator) (Over and Under Series)
- *Life Cycles: Everything from Start to Finish* by D.K. Publishing, Sam Falconer (Illustrator)
- *Secrets of Animal Camouflage* by Carron Brown, Wesley Robbins (Illustrator) (Shine-a-Light Books series)
- *Ocean: A Visual Encyclopedia* by John Woodward
- *Except Antarctica* by Todd Sturgell
- *Robots (STEAM and Me)* by Dinah Williams (Author)
- *Someone Builds the Dream* by Lisa Wheeler (Author), Loren Long (Illustrator)
- *Lindsey the GIS Professional* by Tyler Danielson
- *Molly and the Mathematical Mysteries: Ten Interactive Adventures in Mathematical Wonderland* by Eugenia Cheng, Aleksandra Artymowska (Illustrator)
- *Lift the Flap Periodic Table* by Alice James (Author), Shaw Nielsen (Illustrator)
- *Science You Can Eat: Putting What We Eat Under the Microscope* by Stefan Gates
- *Change It!: Solids, Liquids, Gases and You* by Adrienne Mason
- *Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner* by Janice N. Harrington (Author), Theodore Taylor III (Illustrator)
- *The Street Beneath My Feet* by Charlotte Guillain (Author), Yuval Zommer (Illustrator)

Fiction

- *The Bridge to Sharktooth Island: A Challenge Island Steam Adventure* by Sharon Duke Estroff (Author), Joel N. Ross (Author)
- *The Race Across Anaconda Swamp: A Challenge Island Steam Adventure* by Sharon Duke Estroff (Author), Joel Ross (Author)
- Zoey and Sassafras Series by Asia Citro (Author) (*Dragons and Marshmallows; Monsters and Mold; Merhorses and Bubbles; Caterflies and Ice; The Pod and the Bog; Unicorns and Germs; Grumplets and Pests; Bips and Roses; Wishypoofs and Hiccups*)
- *Rosie Revere, Engineer* by Andrea Beaty (Author), David Roberts (Illustrator)
- *Ada Twist, Scientist* by Andrea Beaty (Author), David Roberts (Illustrator)
- *Rosie Revere and the Raucous Riveters* by Andrea Beaty (Author), David Roberts (Contributor) (Questioners Chapter Books series)
- *Creatrilogy: The Dot, Ish, Sky Color* by Peter H. Reynolds (Author)
- *Frankie Sparks and the Class Pet* by Megan Frazer Blakemore (Author), Nadja Sarell (Illustrations)
- *Dreaming Up: A Celebration of Building* by Christy Hale (Author)
- *Charlotte the Scientist Is Squished* by Camille Andros (Author), Brianne Farley (Illustrator)
- *Cece Loves Science* by Kimberly Derting (Author), Shelli R. Johannes (Author) (Cece Loves Science Series)
- *More Than a Princess* by Delanda Coleman (Author), Terrence Coleman (Author), Beatriz Mello (Illustrator)
- *The Most Magnificent Thing* by Ashley Spires (Author, Illustrator)
- *Count on Me* by Miguel Tanco (Author)
- *Jim and the Beanstalk* by Raymond Briggs
- *The Shopping Basket* by John Burningham
- *The Napping House* by Audrey Wood (patterns)
- *Beep Beep Vroom Vroom* by Demarset and Murphy (Pattern/Algebra)
- *The Secret Birthday Message* by Eric Carle (spatial language)
- *The Doorbell Rang* by Pat Hutchins (sharing/dividing)
- *Block City* by Robert Louis Stephenson (shape, space, engineering)
- *Leaf Man* by Lois Ehlert (art through nature/loose parts)
- *Me on the Map* by Joan Sweeney (geography, spatial awareness)

****Some of these books can be found on YouTube if you can't find a copy elsewhere!**