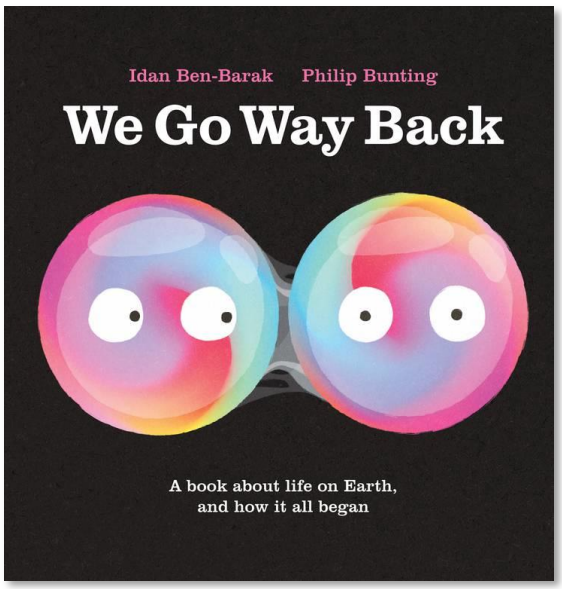
TEACHERS' TIPS



We Go Way Back

Idan Ben-Barak Philip Bunting

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Format: Hardback
Recommended for 6 to 10 year olds

Summary

What is life?

How did it start?

Long, long ago, no one knows exactly where or when, a tiny bubble formed that was a Little Bit Different. It was the first living cell. Everyone's ancestor.

And so the story of life begins ...

In this visually stunning and brilliantly devised picture book, Idan Ben-Barak and Philip Bunting lead us through the origin of life on our planet, and how an odd little bubble gave rise to the incredible web of life on Earth.

Themes

Origin of life, web of life, evolution, physics, philosophy, science and education.

Suggestions for Classroom Discussion and Application

Before reading

Show your class the book's cover and read the title and subtitle: *We Go Way Back: A book about life on Earth, and how it all began*. Encourage discussion about what students think the book might be about and the clues in the cover that make them think that.

Ask questions such as:

- What does the book and subtitle mean to you?
- What do you think the two round objects might be?
- Why might they be connected?
- Look at the 'eyes' – what expression is each object displaying?
- Why might one of the objects be feeling this?
- How might a very black background relate to the very beginning of life on Earth?
- Who are the 'We' in the title? [According to the author, this could be 'We' as in 'all of life on Earth derives from a common origin' or 'We' as in 'the reader/s and narrator/s of the book – let us go back and see what happened a long time ago...']

Text reflection

- How is the double page spread featuring the child, parents, grandparents, great-grandparents, etc (p8–9), linked to the page with the words:

  > *Life is…um…Life is The Way That Some Things Make More Things That Are a Lot Like Themselves But Sometimes a Little Bit Different?* (p7) [This line of text is essentially the author's rewording of the NASA working definition of life. Read more here: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3005285/]

- Return to the image of the child, parents and ancestors. Note that the further back you go in that family the more ancestors there are. This is called an exponential increase: 2, 4, 8, 16, 32, 64, 128, 256… How many generations would you need to go back to count 16,384 ancestors?

- Does this mean that if you go back to the beginning of life we might all be related? How does the image of the Tree of Life at the end of the book show this same idea?

- The author of the book says that science doesn't have all the answers to how life began on Earth. Define the term **theory**, and make a list of some of the theories that the book proposes for where and how life began (note, there are many more theories to the question of where and how life began than those presented in this book. The list is extensive and interesting, and has been changing throughout the generations in which it has been asked).

- What is the scientific theory called **Natural Selection?** [Evolution consists of two independent phenomena: Mutation is the phenomenon of minute changes occurring within organisms, and natural selection is what happens to these organisms over time. The term 'natural selection' does not include mutation]. Does the Tree of Life image on the last page of the book support this theory?

- How long do you think the process outlined in the book took? One year, 100 years or billions of years? [Hint: the answer is on the page featuring the many different kinds of things wriggling about in the water.]

  If the answer is billions of years, do you think humans can expect to see big changes occur over the next generation? Imagine you could use a time machine that could propel you into the future. What sort of changes do you think you might discover?

- Why do you think the theory of Natural Selection might be hard to support? How might things like fossils provide support for this theory? Can you think of anything else that might support theories for the early development of life on Earth of life?

Visuals

- Look closely at the images of the molecules and bubbles. Can you see anything interesting in the illustrator's choice of colours? [Hint: they are made up of the colours of the spectrum.] Why do you think the illustrator might have wanted to show these building blocks of life like this?

- Why do you think the illustrator has used so many rounded images in the book, including putting some key sentences in spirals?

- Look closely at the Tree of Life image. Why do you think the illustrator decided not to put the human at the top of the tree?

- Why do you think he chose to show the image of a tiny Earth in a vast universe on the back endpapers?

Further Study

'Science isn't about knowing things. It's about finding things out.'

Idan Ben-Barak

- Students interested in exploring this subject further might like to research the relationship between atoms, elements and molecules.

- Find out who the Homo sapiens are and Neanderthals were. Which are we related to if you go way back? [The answer, surprisingly, is both]

- Could life exist anywhere else in the universe?

About the author

Idan Ben-Barak writes science books, usually for children. They've been translated into over a dozen languages and won several awards. He lives in Melbourne with his family. Sometimes, after they go to bed, he plays his guitar a bit. Idan has degrees in microbiology and in the history and philosophy of science, a diploma in library studies, and a day job that has very little to do with any of the above.

In the author's own words

'I spent years researching the history and philosophy of the origin of life for my PhD. Sometime later, when I was talking to A&U about ideas for a new book, this came up. Having Philip come on board was a real joy – we share storytelling sensibilities and a silly sense of humour so if one of us had an idea, the other would often run with it quite naturally.

'*We Go Way Back* is intended for any reasonably curious child; we tried to make it so that a reader would leave with some answers and some further questions to think about; we hope it will help facilitate discussion between children and their parents and educators. Obviously about the origin of life and the definition of life, but you can also use the book to ask questions like "what do atoms really look like?" or discuss evolution. We also tried to put in a bunch of stuff that might not jump out at you at first reading, so you can read this book again and find our little "Easter eggs".

'I wrote this book trying very, very hard to find the absolutely simplest way of explaining a complicated subject. The main challenge is that these questions are still open – we don't know what actually happened for life to have arisen, we don't have an agreed-upon definition of life. We tried to find a way to tell our readers what we know – and, importantly, what we don't – because science isn't about knowing things, it's about finding things out. It did help that I was able to use visual imagery – the visual aspect of this book is absolutely integral.'

Idan Ben-Barak

About the illustrator

Philip Bunting is an author and illustrator, with a soft spot for creating picture books for sleep-deprived, time-poor, raisin-encrusted parents (and their children). He believes that the more fun the child has during their early reading experiences, the more likely they will be to return to books, improve their emergent literacy skills, and later find joy in reading and learning. Philip's books have been translated into multiple languages, and published in over 30 countries around the world. Since his first book was published in 2017, he has received multiple accolades, including Honours from the CBCA, and making the list for the Kate Greenaway Medal in 2018. Philip lives with his young family in the hills behind Noosa, Queensland.

In the illustrator's own words

'In all of my work, my goal is to translate complex ideas as simply as possible, in an effort to encourage or stimulate young minds to ask questions. For example, in this book, the concept of "life" boiled down to a rainbow-spectrum colour palette, deployed in various guises.

'Illustrating elements and molecules, and RNA was also interesting. Elements and molecules don't look like anything (rather, they are conceptual models) – but for the purposes of a picture book, they have to look like something! So these relatively simple pages became disproportionately difficult to chip into shape, resulting in the Pick 'n' Mix style of elemental characterisation we ended up with.

'And illustrating the "tree of life" almost killed me!'

Philip Bunting