Lovereading.co.uk
Helping you choose your next book

You loved your last book...but what are you going to read next?

Using our unique guidance tools, Love**reading** will help you find new books to keep you inspired and entertained.

Opening Extract from...

Does My Goldfish Know Who I Am?

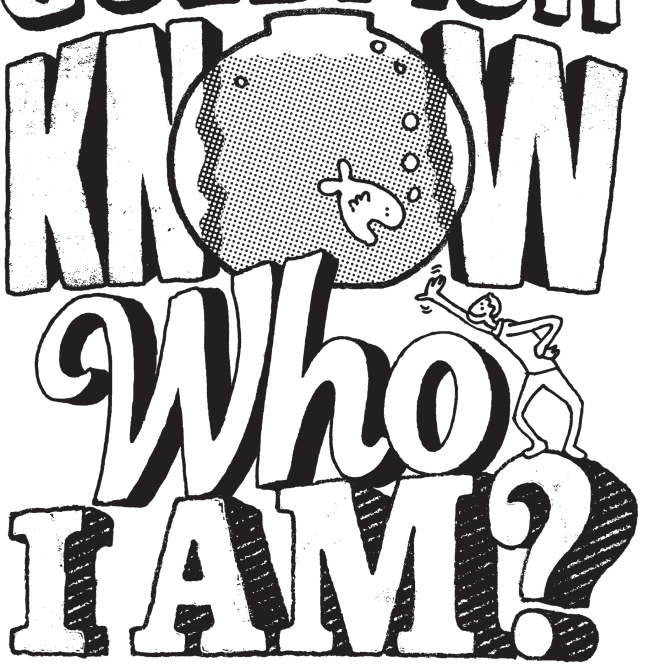
Compiled by
Gemma Elwin Harris

Published by Faber and Faber

All text is copyright © of the author

This Opening Extract is exclusive to Love**reading**.
Please print off and read at your leisure.

Does my GOLDFISH KNOW Who I AM?



COMPILED BY
Gemma Elwin Harris

WITH AN INTRODUCTION BY
Alexander Armstrong

faber and faber

First published in 2013
by Faber and Faber Limited
Bloomsbury House
74–77 Great Russell Street
London WC1B 3DA

Typeset by Faber and Faber Limited
Printed in the UK by CPI Group (UK) Ltd, Croydon, CR0 4YY

All rights reserved
Selection © Gemma Elwin Harris, 2013
Introduction © Alexander Armstrong, 2013
Illustrations © Andy Smith, 2013
Answers © individual contributors, 2013

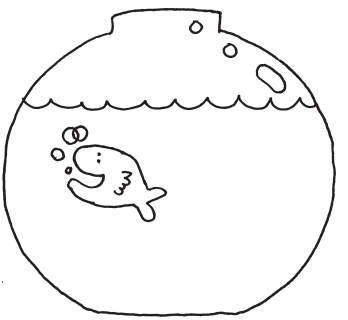
The right of the individual contributors to be identified
as author of this work has been asserted in accordance with
Section 77 of the Copyright, Designs and Patents Act 1988

A CIP record for this book
is available from the British Library

ISBN 978–0–571–30193–5

10 9 8 7 6 5 4 3 2 1

For Flo Po and Eliza



CONTENTS

Thank you from the editor ix
Introduction by Alexander Armstrong xiii

QUESTIONS & ANSWERS 1
QUIZZES 231

Contributors 287
Index 307



THANK YOU FROM THE EDITOR

From asteroids to zebras, farts to football, via the human condition . . . this book tackles some very tricky questions from children on (just about!) every subject in the solar system. So a very warm thank you to all the brilliant and much-loved experts who made time to answer one for this project that benefits leading children's charity, the NSPCC (National Society for the Prevention of Cruelty to Children).

Many have now generously contributed to both this book and its predecessor *Big Questions from Little People*, for which we're extremely grateful. Particular thanks to Jim Al-Khalili, Sir David Attenborough, Heston Blumenthal, Derren Brown, Noam Chomsky, Marcus Chown, Heather Couper, David Crystal, Marcus du Sautoy, Alys Fowler, Joy Gaylinn Reidenberg, A. C. Grayling, John Gribbin, Bear Grylls, Celia Haddon, Claudia Hammond, Miranda Hart, Adam Hart-Davis, Bettany Hughes,

Kate Humble, Karen James, Annabel Karmel, Steve Leonard, Gary Marcus, George McGavin, Neil Oliver, Justin Pollard, Christopher Riley, Mary Roach, Alice Roberts, Simon Singh, Dan Snow, Gabrielle Walker and Yan Wong.

As for the curious minds behind the questions . . . children from all over the UK sent them in by their thousands. A special hello to participating schools: Corstorphine Primary, Portobello High, James Gillespie's, and Mary Erskine and Stewart's Melville Junior School in Edinburgh; Cleobury Mortimer Primary School, Shropshire; Landscove Primary, Devon; Woodland Grange Primary, Leicester; Furzedown Primary, Tooting; Raysfield Infants' School, Chipping Sodbury; Shottermill Junior, Haslemere; Boxgrove Primary School, Guildford; Grange Primary, Newham; Malvern St James Prep; The Mulberry Primary School, Tottenham; Notting Hill Prep; Lowther Primary, Richmond; and George Tomlinson Primary, Leytonstone.

Thanks, too, to the agents who made it all happen. Notably Jo Wander, Sophie Kingston-Smith, Celia Hayley, Verity O'Brien, Jonny Geller, Stephen Vishnick, Caroline Dawnay, Jo Sarsby, Anthony Arnove and Juliette Meinrath. For generous words, Jamie Byng; endless favours, Bex and Adam Balon;

and help with knotty science problems, Sophie Elwin Harris and Lucinda Middleton.

I'm indebted to Gordon Wise for sound advice and creativity over both books, and my editor Hannah Griffiths, who's brimful of energy and great ideas as ever – along with the rest of the talented folk at Faber: Donna Payne, Anna Pallai, John Grindrod, Matt Haslum and Kate Ward. Also Eleanor Rees for fine-tuning, Andy Smith for our eye-popping covers, and Stephanie Pollard of Visual Artefact, who fathomed the quiz answers in tandem with Justin Pollard.

Above all, a resounding cheer for staff at the NSPCC and the inspiring work you do protecting vulnerable youngsters. Charly Meehan, I'll miss working with you! Thank you also to Helen Carpenter, Lucie Sitch and team; Sarah Dade, Dan Brett-Schneider and the Fundraising Communications team; Julian Beynon; and Carol Thay. Here's to more than £100,000 raised by the Big Questions project at time of press in support of that work and, we all hope, much more to come.

Gemma Elwin Harris, 2013

INTRODUCTION

I am frequently guilty of doling out facetious – or worse, lazy – answers to my children's questions. To be fair this is sometimes because they are questions that don't really have answers; all parents get used to the cycle of 'but why?' questions with which our young explore the limits of our knowledge and our patience at one and the same time. But sometimes the questions are incisive, thoughtful and generally deserving of a better answer than that which my patchy understanding of aeronautics/professional wrestling/alchemy can supply. That is why this book is invaluable, and not just as an arsenal against future questions from the back of the car. This tome provides solid and reliable plugs to fit snugly into the myriad gaps in our knowledge that perhaps we'd prefer not to own up to – even to our children.

Alexander Armstrong, 2013

DOES MY GOLDFISH KNOW WHO I AM?

DOES THE UNIVERSE HAVE AN EDGE?

ASKED BY Josh, age 10

Professor Brian Cox, *particle physicist, says:*

That's a great question. The answer is that we don't even know how big the Universe is! We can only see a small part of our Universe – the part that light has had the time to travel across to reach us during the 13.8 billion years since the Big Bang. Anything further away can't be seen, simply because the light from these distant places hasn't reached us yet.

The part we can see is pretty large, however. It contains around 350 billion large galaxies, each containing anything up to a trillion suns. This part, which is known as the observable Universe, is just over 90 billion light years across. But we are sure that the Universe extends far beyond this. It may even be infinitely big, which is impossible to imagine!

WILL MONKEYS EVER TURN INTO MEN?

ASKED BY Evie, age 6

Sir David Attenborough, *naturalist, says:*

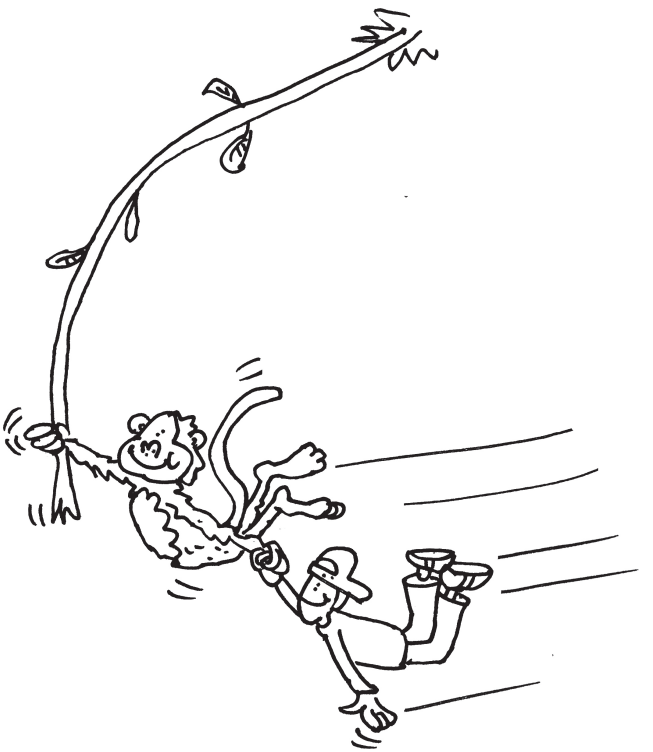
Monkeys are very good at living in trees. They have hands and feet with which they can clamber about and pick the leaves and fruit they eat. No other animals, including human beings, can do it better than they do. So there is no need for them to change.

But things could alter. The forests could slowly get smaller so that there is less room for monkeys. Or a particularly good food might appear on the grassy plains beyond the forest edge. Then some monkeys might find it worthwhile to leave the forest and live out on the plain. If they did, then over millions of years they would slowly change. They would no longer need to grip branches. Instead they'd run about on the ground.

So their feet would become flatter, their legs longer, and they would stand upright. That is what may have happened to some apes a very long time ago. As millions of years passed, their bodies

altered. They became more and more like us. They were our ancestors.

But as long as monkeys have plenty of food in the forests and the forests themselves are big enough to provide them with homes, they will remain monkeys.



WHY DO I GET DIZZY WHEN I SPIN AROUND?

ASKED BY Jumaina, age 7

Dr Ellie Cannon, *GP and telly doctor, says:*

You may not know it but your balance and steadiness is actually controlled by your ears. They do the listening and they do the balance. Pretty clever really.

Right inside your ear, just next to your brain, there are three tiny tubes in an arch shape, full of liquid.

The tubes are lined with even tinier hairs that waft around in the liquid, a bit like plants under the sea. Those hairs are actually sending signals to your brain to say 'We're moving a lot today,' or 'We're not moving very much.'

If you're not moving, then the liquid is calm like a quiet pond and the hairs tell your brain that you're steady on your feet or sitting still. When you start spinning, that fluid gets really churned up like a stormy sea, and the hairs move wildly and tell your brain that you're spinning around. Trouble is,

even when you stop spinning, that liquid carries on sloshing around for a while.

It takes a while to stop the sloshing – so the hairs keep sending those messages to say you're moving. Your body has stopped, but your brain still thinks you're moving. The difference between what your brain thinks and what your body is doing makes you feel dizzy.

I used to love doing this when I was a kid, though I always ended up crashing into my mum's coffee table.

HOW DO I KNOW MY LIFE ISN'T JUST A DREAM?

ASKED BY Esther, age 5

Derren Brown, *illusionist, says:*

Often we have dreams and they feel so real that we might wonder whether we're dreaming right now too. It feels like you're wide awake now, but doesn't it feel like you're wide awake in dreams too? How on Earth can you tell the difference? Maybe you'll wake up in a moment and realise you weren't reading this book – because it never existed!

Well, at least you know you're probably real. Because even if you were having a dream right now, there would have to be a you somewhere who was having that dream about yourself. But before your head starts spinning too fast, here's the important thought. We only ever really know about the stuff we see and hear and feel, and that's only a tiny part of what's around us. (For example, you can't see what's happening in the next room, or in someone else's head.) We can only guess at what's real from the little bit we know about – and often we get it very wrong.

So next time you have an argument or think someone's being stupid, remember: the other person is just as certain they're right, and really you only have half the story! So even though you're probably not dreaming, it's worth remembering that you're only aware of a small part of what's real, too.

WHAT WAS THE FIRST MUSICAL INSTRUMENT?

ASKED BY Caitlin, age 9

Tony Robinson, *actor, writer and broadcaster, says:*

When you're asked a question, it's rude not to answer, isn't it? Well, maybe. But sometimes if it's a difficult question like this one, the sensible thing is just to ask another question back, like 'What's a musical instrument?' or 'How do archaeologists know when they've found one?'

When we clap our hands, are they musical instruments? If so, the oldest instrument ever found has got to be the hands from an ancient skeleton. And how about stones? If you whack one, it'll make a noise. If you whack a smaller one, it'll make a different noise. Put three together and you've got a xylophone. But you're not going to put them in a case and take them to your music lessons, are you? You'll just chuck them away when you've finished playing them. They're a kind of temporary musical instrument.

Maybe what we mean by a musical instrument is something specially made and kept just for making music, and there are certainly 45,000-year-old bits of hollow bone with holes in that look suspiciously like early flutes. But maybe they're not. Perhaps the holes were drilled for a completely different reason. Maybe they were tools or jewellery or children's toys.

The most we can say for certain is that by around 35,000 years ago people were bashing drums, knocking out tunes on their xylophones, and blowing flutes and pipes made from vultures' wing bones and mammoths' tusks. Life must have been extremely noisy back then.



HOW CAN I BECOME A FOOTBALLER?

ASKED BY Azaan, age 7

Lee Dixon, *former Arsenal and England international, now TV football analyst, says:*

When I was a young boy of about seven or eight, growing up in Manchester, all I ever did was play football. I played at school. I played in the park. I played in the street. It was safe to do so back then as the streets were quieter and Mum could keep an eye on me. We even played in the house when it was raining with a balloon instead of a ball.

I wanted to be a footballer from my earliest memory. My dad was a professional for my favourite team, Manchester City, back in the 1950s. Also when I was young the best film that has ever been made was released: *Willy Wonka and the Chocolate Factory*. I watched it every time it was on and was fascinated by the Golden Tickets in the chocolate bars. So much so that I dreamed there was another golden ticket. This one didn't get you access to Willy's factory, however. This one got you a professional contract to play for Man City! How good is that?

It wasn't true, of course. There was no Golden Ticket. But nonetheless I used that dream to inspire me and I worked very, very hard at my football and eventually got a lucky break and signed a professional contract with Burnley FC in July 1983.

Throughout my career playing football, whenever I had a setback I thought about my dream. I knew if I worked hard and concentrated, there would be another chance. Another Golden Ticket. It has served me well.