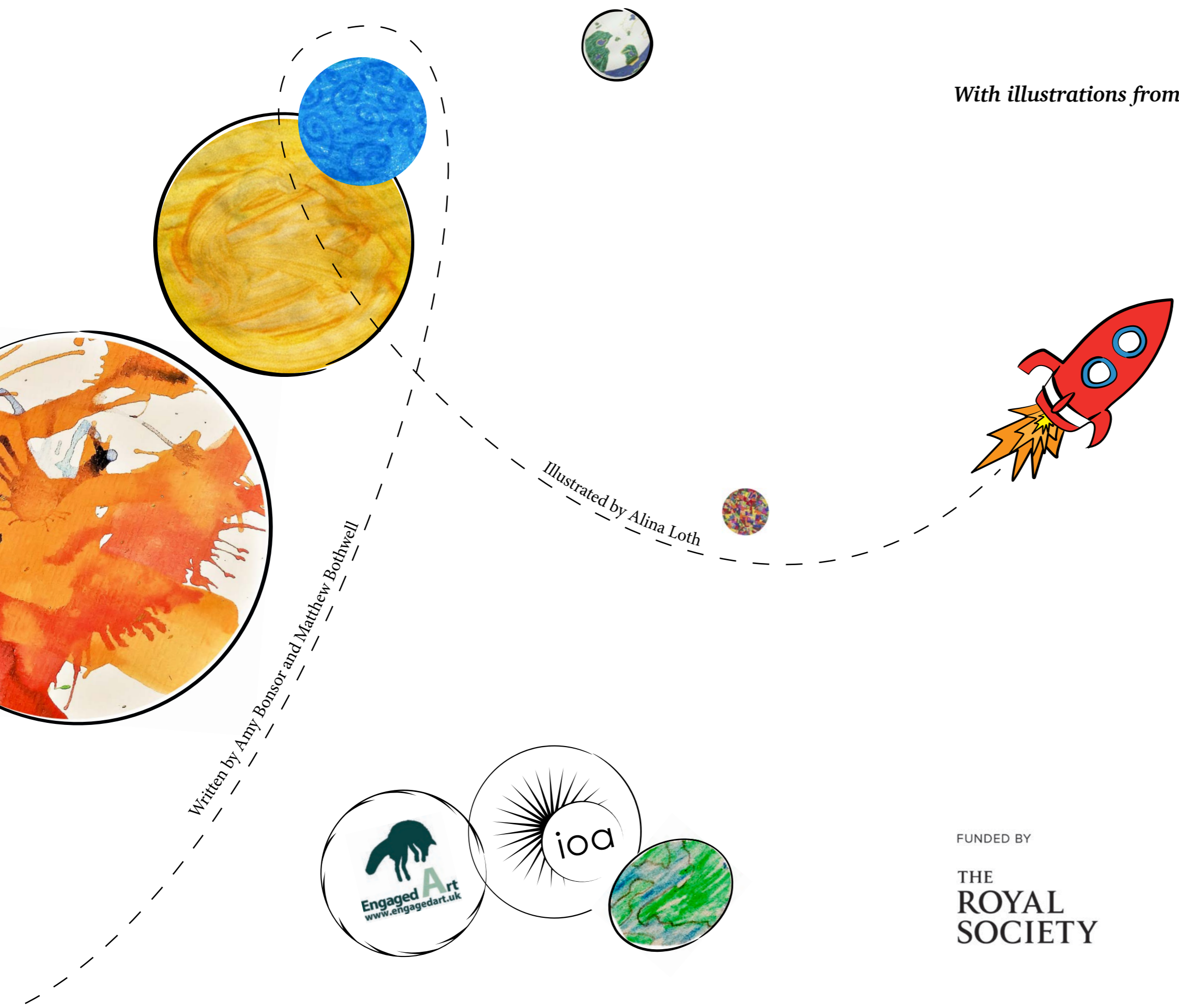




Jaspreet, *Roller Skates* and  
**PLANETS**



Written by Amy Bonsor and Matthew Bothwell

Illustrated by Alina Loth

With illustrations from...

Isla, Rose,  
Leila, Edward,  
Timothy, Zachary,  
Carla, Alma,  
Lavinia, Anne,  
Zoreslav,  
Georgia,  
Callum, Mihir,  
Baris, Amara,  
Lucas, Ted, Erika,  
Lana, Aleksandra,  
Sofia, Leo, Max,  
Zac, Ben,  
Beatriz,  
Sebastian,  
Maxine, Chloe,  
Annabel, Yannis,  
Siennar, Jackson,  
Ameenah,  
Jimmy,  
Chloe, Sophie,  
Alexandros,  
Sofia, Isobel  
Leila, Joshua,  
Jessica, Akshara,  
Jasmine,  
Anoushka,  
Lakshya,  
Bethany & Elena



FUNDED BY

THE  
ROYAL  
SOCIETY

 UNIVERSITY OF  
CAMBRIDGE



We found a "Meet a Scientist" event on the internet and we met Amy, an astronomer. Amy is lots of fun. She has never tried roller skating, but after I tell her how much fun it is, she is very keen to give it a go!

Amy tells me that astronomers are scientists who study the Universe. They try to explain how the Universe works.

I ask Amy what I need to do to become a scientist. She tells me the most important thing is to be curious and ask lots of questions. That is perfect! I love asking questions!





Amy studies planets. I am baffled, so I ask Amy, 'What's a planet?' She starts by telling me about the planets that go round the Sun, starting with our own planet, Earth, and then the other planets in our Solar System, like Mars, Venus and Jupiter. Beyond our Solar System there are more planets. These planets go around other stars and are known as *exoplanets*.

Planets around other stars - that's amazing!  
But, how do we find them?

Astronomers look at stars for a very long time  
with big telescopes and every now and then a  
planet goes between us and the star. The star  
gets fainter. We've found a planet.



In my bedroom that night I play with a torch. A moth gets in the way and casts a shadow on the wall. I imagine that the moth is a faraway planet and I am an astronomer watching how it blocks light from a star.



Exoplanets are a really long way away. So far away that it is really hard to learn about them.



If we want to learn what something is made from, normally we might feel it, we might weigh it or we might even smash it up.

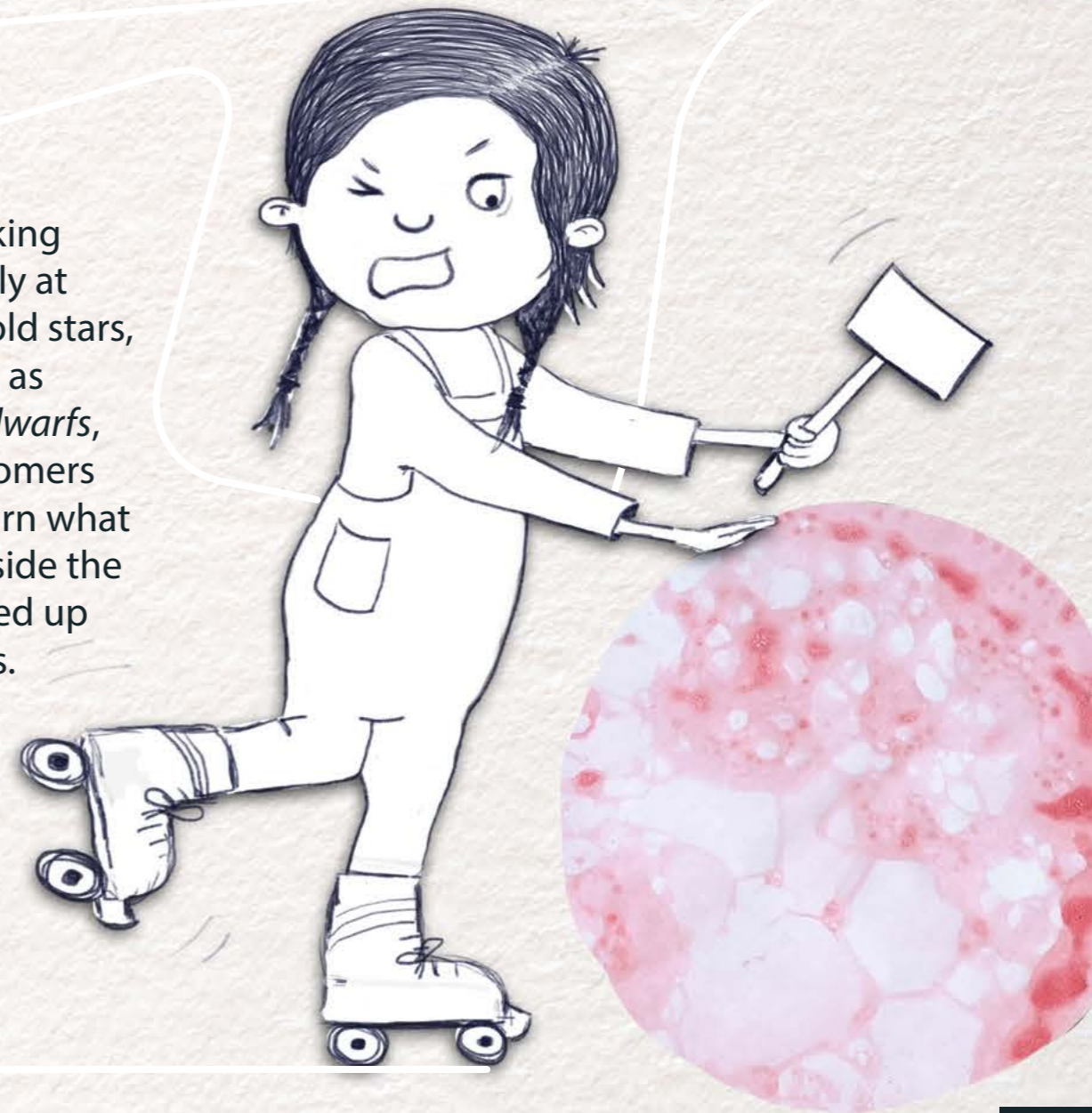
We can't touch *exoplanets*, we can't even send a robot to visit them. So, I ask Amy how we study *exoplanets*.

She tells me that astronomers weigh planets by measuring how fast they travel and by thinking about gravity.



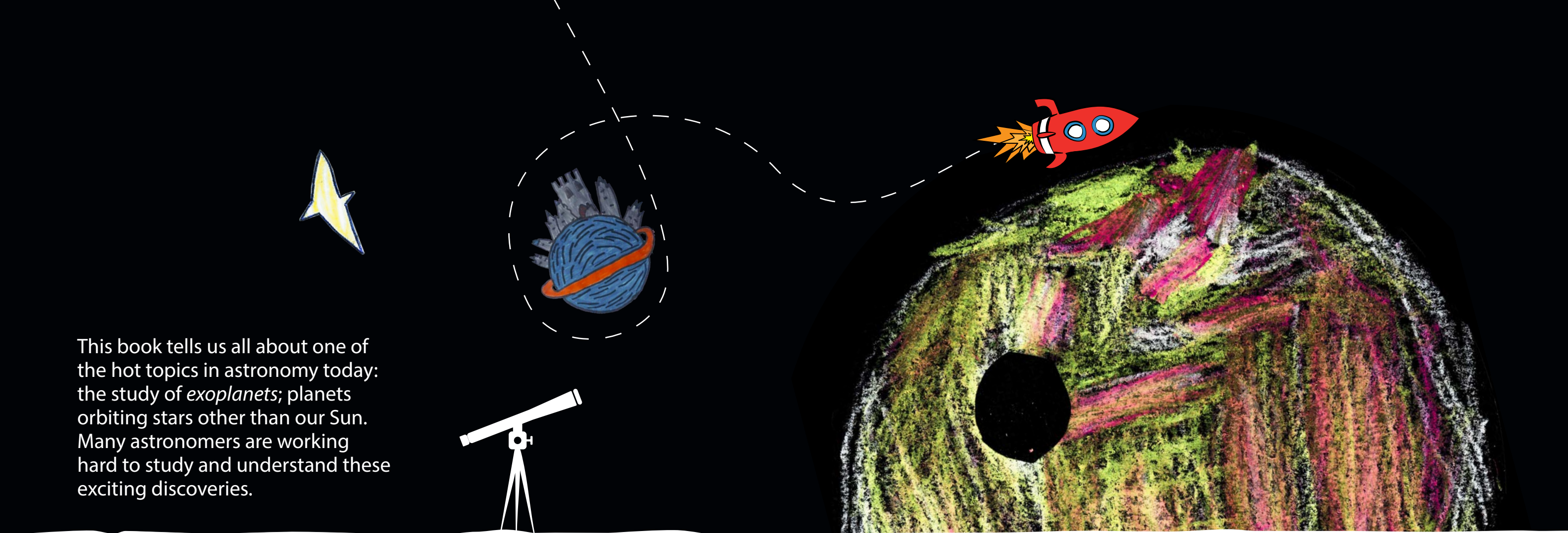
Amy and other researchers investigate what planets are made from. They look at planets that were smashed to pieces by getting too close to a very old star.

By looking carefully at these old stars, known as *white dwarfs*, astronomers can learn what was inside the smashed up planets.









This book tells us all about one of the hot topics in astronomy today: the study of *exoplanets*; planets orbiting stars other than our Sun. Many astronomers are working hard to study and understand these exciting discoveries.

Amy's research is all about answering one of the most interesting questions in astronomy - **how are planets made?**

Even learning about our own planet is quite difficult. We can't just take a peek inside Earth to learn what it is made of, so scientists have to use things like earthquakes and volcanoes to give us clues about what is inside our planet.

And if it's difficult to learn what our own planet is made of, imagine how much harder it is to learn what *exoplanets* are made of! After all, they can be many trillions of kilometres away - much too far away to journey to. Because we can't travel to them and drill down inside, all we can do is look at them from a distance (using the light from their star).

But this doesn't help us learn what they are made of - all the stuff inside the planet that we want to learn about is hidden away where we can't see it.

Amy's research uses something that sounds like it's been taken from a science fiction movie. Some *exoplanets* are orbiting a type of old, dense star called a *white dwarf*, which can be powerful enough to tear their planets to bits. Astronomers like Amy can wait for a *white dwarf* to rip an unlucky planet apart and, by carefully looking at the mess, they can learn what the planet was made of.

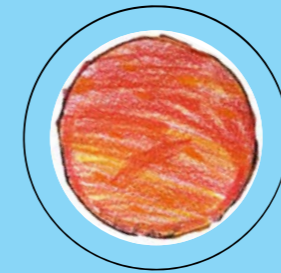
This is definitely bad news for the planet. But it's great for astronomers like Amy, who get to do the impossible and see inside an *exoplanet*!

## The Planet Story Project, funded by the Royal Society

**The Planet Story Project** was set up to inspire and enthuse the next generations of scientists. Every child has the potential to engage with science and discover something new about our world. This project aims to introduce children and their families to the science undertaken in universities and research institutions.

45 children participated in two zoom calls with astrophysicist, Amy Bonsor, in April 2020, during the Covid-19 imposed lockdown.

Illustrations from the children can be found throughout this book. The children who participated in the project hope to inspire many more children through this book. Please share this book with your friends, family, school, youth group or neighbours and help inspire them that science can be fun!



**Dr. Amy Bonsor** is an astrophysicist at the Institute of Astronomy, part of the University of Cambridge. She is currently a Royal Society Dorothy Hodgkin Research Fellow. She researches planets. She aims to understand how planets form and what they are made from. Her group is particularly interested in planetary systems around the faint remnants of our Sun, known as white dwarfs.



**Dr. Alina Loth** works as Public Engagement Manager at the University of Cambridge. She has a background in Fine Art and Science. Alina specialises in making research more engaging through illustrations, animations, and all sorts of other fun ways.

