

LUCY &
STEPHEN HAWKING



GEORGES'

SECRET KEY TO THE
UNIVERSE

'Like a Doctor Who adventure'

SUNDAY TIMES

Contents

Cover

About the Book

Title Page

Dedication

Chapter One

Chapter Two

Chapter Three

Chapter Four

Chapter Five

Chapter Six

Chapter Seven

Chapter Eight

Chapter Nine

Chapter Ten

Chapter Eleven

Chapter Twelve

Chapter Thirteen

Chapter Fourteen

Chapter Fifteen

Chapter Sixteen

Chapter Seventeen

Chapter Eighteen

Chapter Nineteen
Chapter Twenty
Chapter Twenty-One
Chapter Twenty-Two
Chapter Twenty-Three
Chapter Twenty-Four
Chapter Twenty-Five
Chapter Twenty-Six
Chapter Twenty-Seven
Chapter Twenty-Eight
Chapter Twenty-Nine
Chapter Thirty
Chapter Thirty-One
Chapter Thirty-Two

Picture Section

Acknowledgements

About the Authors

Also by Lucy and Stephen Hawking

Praise for *George's Secret Key to the Universe*

Copyright

About the Book

Ever wanted to travel into space?

Meet George - he's just an ordinary boy, but all that's about to change with the arrival of his new next-door neighbours.

That's because they own Cosmos - a top-secret, talking super-computer who can whisk George away on a rollercoaster ride into outer space!

But Cosmos is in danger, and if he falls into the wrong hands George is headed for sure-fire deep space danger . . .



Lucy & Stephen
HAWKING *

with Christophe Galfard

Illustrated by Garry Parsons

RHCP DIGITAL

For William and George, with love

Note:

Some words and phrases in this book are underlined. These are links you can click to read more information. You can always find your way back to where you were in the story by clicking the link at the end of the section.



PIGS DON'T JUST vanish, thought George to himself as he stood staring into the depths of the very obviously empty pigsty. He tried closing his eyes and then opening them again, to see if it was all some kind of horrible optical illusion. But when he looked again, the pig was still gone, his vast muddy pink bulk nowhere to be seen. In fact, when George examined the situation for a second time, it had got worse, not better. The side door of the pigsty, he noticed, was hanging open, which meant someone hadn't shut it properly. And that someone was probably him.

'Georgie!' he heard his mother call from the kitchen. 'I'm going to start supper in a minute so you've only got about an hour. Have you done your homework?'

'Yes, Mum,' he called back in a fake cheery voice.

'How's your pig?'

'He's fine! Fine!' said George squeakily. He threw in a few experimental oinks, just to make it sound as though everything was business as usual, here in the small back garden that was full of many, many vegetables and one enormous - but now mysteriously absent - pig. He grunted a few more times for effect - it was very important his mother did not come out into the garden before George had time to think up a plan. Quite how he was going to find the pig, put it back in the sty, close the door and get back in time for supper, he had no idea. But he was working on it,

and the last thing he needed was for one of his parents to appear before he had all the answers.



George knew the pig was not exactly popular with his parents. His mother and father had never wanted a pig in the back garden, and his dad in particular tended to grind his teeth quite hard when he remembered who lived beyond the vegetable patch. The pig had been a present: one cold Christmas Eve a few years back, a cardboard box full of squeaks and snuffles had been delivered to their front door. When George opened it up, he found a very indignant pink piglet inside. George lifted him carefully out of the box and watched with delight as his new friend skidded around the Christmas tree on his tiny hooflets. There had been a note taped to the box. *Dear All! it read. Happy Christmas! This little chap needs a home - can you give him one? Love Grandma xxx.*



George's dad hadn't been delighted by the new addition to his family. Just because he was a vegetarian, it didn't mean he liked animals. Actually, he preferred plants. They were much easier to deal with: they didn't make a mess or leave muddy trotter prints on the kitchen floor or break in and eat all the biscuits left out on the table. But George was thrilled to have his very own pig. The presents he'd received from his mum and dad that year were, as usual, pretty dreadful. The home-knitted purple and orange striped jumper from his mum had sleeves which stretched right down to the floor; he had never wanted a set of panpipes and he had a hard time looking enthusiastic when he unwrapped a build-your-own-wormery kit.

What George really wanted - above all things in the Universe - was a computer. But he knew his parents were very unlikely to buy him one. They didn't like modern inventions and tried to do without as many standard household items as they could. Wanting to live a purer, simpler life, they washed all their clothes by hand and didn't own a car and lit the house with candles in order to avoid using any electricity.

It was all designed to give George a natural and improving upbringing, free from toxins, additives, radiation and other such evil phenomena. The only problem was that in getting rid of everything that could possibly harm George, his parents had managed to do away with lots of

things that would also be fun for him. George's parents might enjoy dancing around maypoles, going on eco protest marches or grinding flour to make their own bread, but George didn't. He wanted to go to a theme park and ride on the roller coasters or play computer games or take an aeroplane somewhere far far away. Instead, for now, all he had was his pig.



And a very fine pig he was too. George named him Freddy and spent many happy hours dangling over the edge of the pigsty his father had built in the back garden, watching Freddy rootle around in the straw or snuffle in the dirt. As the seasons changed and the years turned, George's piglet got bigger ... and bigger ... and bigger ... until he was so large that in dim lighting he looked like a baby elephant. The bigger Freddy grew, the more he seemed to feel cooped up in his pigsty. Whenever he got the chance, he liked to escape and rampage across the vegetable patch, trampling on the carrot tops, munching the baby cabbages and chewing up George's mum's flowers. Even though she often told George how important

it was to love all living creatures, George suspected that on days when Freddy wrecked her garden, she didn't feel much love for his pig. Like George's dad, his mum was a vegetarian, but George was sure he had heard her angrily mutter 'sausages' under her breath when she was clearing up after one of Freddy's more destructive outings.

On this particular day, however, it wasn't the vegetables that Freddy had destroyed. Instead of charging madly about, the pig had done something much worse. In the fence that separated George's garden from the one next door, George suddenly noticed a suspiciously pig-sized hole. Yesterday it definitely hadn't been there, but then yesterday Freddy had been safely shut in his sty. And now he was nowhere to be seen. It meant only one thing - that Freddy, in his search for adventure, had burst out of the safety of the back garden and gone somewhere he absolutely should not have done.

Next Door was a mysterious place. It had been empty for as long as George could remember. While all the other terraced houses in the row had neatly kept back gardens, windows which twinkled with light in the evenings and doors that slammed as people ran in and out, this house just sat there - sad, quiet and dark. No small children squeaked with joy early in the morning. No mother called out of the back door to bring people in for supper. At the weekends, there was no noise of hammering nor smell of fresh paint because no one ever came to mend the broken window frames or clear the sagging gutters. Years of neglect meant the garden had rioted out of control until it looked like the Amazon jungle had grown up on the other side of the fence.

On George's side, the back plot was neat, orderly and very boring. There were rows of runner beans strictly tied to stakes, lines of floppy lettuces, frothy dark green carrot tops and well-behaved potato plants. George couldn't even

kick a ball without it landing *splat* in the middle of a carefully tended raspberry bush and squashing it.



George's parents had marked out a little area for George to grow his own vegetables, hoping he would become interested in gardening and perhaps grow up to be an organic farmer. But George preferred looking up at the sky to looking down at the earth. So his little patch of the planet stayed bare and scratchy, showing nothing but stones, scrubby weeds and bare ground, while he tried to count all the stars in the sky to find out how many there were.

Next Door, however, was completely different. George often stood on top of the pigsty roof and gazed over the fence into the glorious tangled forest beyond. The sweeping bushes made cosy little hidey-holes while the trees had curved, gnarled branches, perfect for a boy to climb. Brambles grew in great clumps, their spiky arms bending

into strange, wavy loops, crisscrossing each other like train tracks at a station. In summer, twisty bindweed grasped onto every other plant in the garden like a green cobweb; yellow dandelions sprouted everywhere; prickly poisonous giant hogweed loomed like a species from another planet, while little blue forget-me-not flowers winked prettily in the crazy bright green jumble of Next Door's back garden.

But Next Door was also forbidden territory. George's parents had very firmly said 'No' to the idea of George using it as an extra playground. And it hadn't been their normal sort of 'No', which was a wishy-washy, kindly, we're-asking-you-not-to-for-your-own-sake sort of 'No'. This had been a real 'No', the kind you didn't argue with. It was the same 'No' that George had encountered when he tried suggesting that, as everyone else at school had a television set - some kids even had one in their bedrooms! - maybe his parents could think about buying one. On the subject of television, George had to listen to a long explanation from his father about how watching mindless rubbish would pollute his brain. But when it came to Next Door, he didn't even get a lecture from his dad. Just a flat, conversation-ending 'No'.

George, however, always liked to know *why*. Guessing he wasn't going to get any more answers from his dad, he asked his mother instead.

'Oh, George,' she had sighed as she chopped up Brussels sprouts and turnips and threw them into the cake mix. She tended to cook with whatever came to hand rather than with ingredients that would actually combine to make something tasty. 'You ask too many questions.'

'I just want to know *why* I can't go next door,' George persisted. 'And if you tell me, I won't ask any more questions for the whole of the rest of the day. I promise.'

His mum wiped her hands on her flowery apron and took a sip of nettle tea. 'All right, George,' she said. 'I'll tell you a story if you stir the muffins.' Passing over the big brown

mixing bowl and the wooden spoon, she settled herself down as George started to beat the stiff yellow dough with the green and white vegetable speckles together.



‘When we first moved here,’ his mum began, ‘when you were very small, an old man lived in that house. We hardly ever saw him but I remember him well. He had the longest beard I’ve ever seen – it went right down to his knees. No one knew how old he really was but the neighbours said he’d lived there for ever.’

‘What happened to him?’ asked George, who’d already forgotten that he’d promised not to ask any more questions.

‘Nobody knows,’ said his mum mysteriously.

‘What do you mean?’ asked George, who had stopped stirring.

‘Just that,’ said his mum. ‘One day he was there. The next day he wasn’t.’

‘Perhaps he went on holiday,’ said George.

‘If he did, he never came back,’ said his mum. ‘Eventually they searched the house but there was no sign of him. The house has been empty ever since and no one has ever seen him again.’

'Gosh,' said George.

'A little while back,' his mum continued, blowing on her hot tea, 'we heard noises next door - banging sounds in the middle of the night. There were flashing lights and voices as well. Some squatters had broken in and were living there - the police had to throw them out. Just last week we thought we heard the noises again. We don't know who might be in that house. That's why your dad doesn't want you going round there, Georgie.'

As George looked at the big black hole in the fence, he remembered the conversation he'd had with his mum. The story she'd told him hadn't stopped him from wanting to go Next Door - it still looked mysterious and enticing. But wanting to go Next Door when he knew he couldn't was one thing; finding out he actually *had* to was quite another. Suddenly Next Door seemed dark, spooky and very scary.

George felt torn. Part of him just wanted to go home to the flickery candlelight and funny familiar smells of his mother's cooking; to close the back door and be safe and snug inside his own house once more. But that would mean leaving Freddy alone and possibly in danger. He couldn't ask his parents for any help in case they decided that this was the final black mark against Freddy's name and packed him off to be made into bacon rashers. Taking a deep breath, George decided he had to do it. He had to go Next Door.

Closing his eyes, he plunged through the hole in the fence.

When he came out on the other side and opened his eyes, he was right in the middle of the jungle garden. Above his head, the tree cover was so dense he could hardly see the sky. It was getting dark now and the thick forest made it even darker. George could just see where a path had been trampled through the enormous weeds. He followed it, hoping it would lead him to Freddy.



He waded through great banks of brambles, which grabbed at his clothes and scratched his bare skin. They seemed to reach out in the semidarkness to scrape their prickly spines along his arms and legs. Muddy old leaves squidged under his feet and nettles attacked him with their sharp, stinging fingers. All the while the wind in the trees above him made a singing, sighing noise as though the leaves were saying, *Be careful, Georgie ... be careful, Georgie.*

The trail brought George into a sort of clearing, right behind the house itself. So far he had not seen or heard any sign of his naughty pig. But there, on the broken paving stones outside the back door, he saw only too clearly a set of muddy trotter prints. From the marks, George could tell exactly which way Freddy had gone. His pig had marched straight into the abandoned house through the back door, which had been pushed open just wide enough for a fat pig

to squeeze through. Worse, from the house where no one had lived for years and years shone a beam of light.

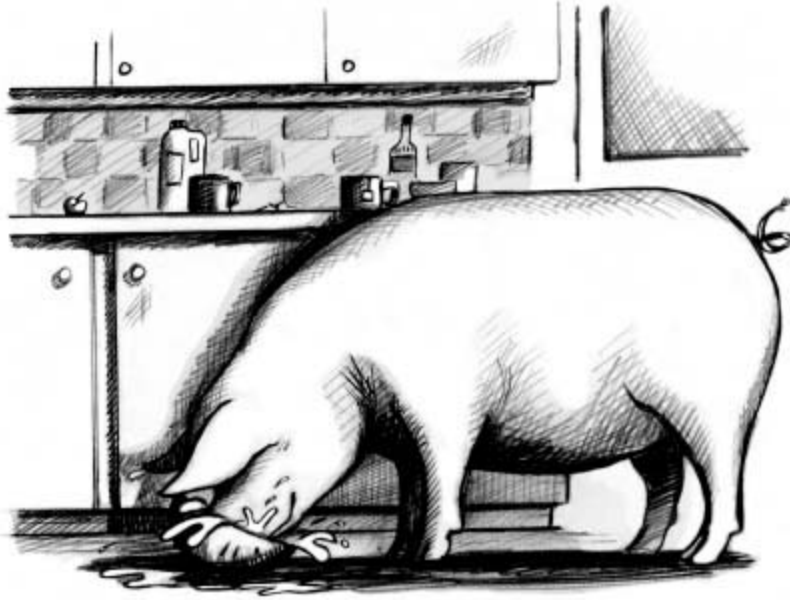
Somebody was home.



GEORGE LOOKED BACK down the garden, at the path along which he'd come. He knew he should go back and get his parents. Even if he had to admit to his dad that he'd climbed through the fence into Next Door's garden, it would still be better than standing there all alone. He would just peek through the window to see if he could catch a glimpse of Freddy and then he would go and fetch his dad.

He edged closer to the beam of bright light coming from the empty house. It was a golden colour, quite unlike the weak candlelight in his own house or the cold blue neon strips at school. Even though he was so scared his teeth had started to chatter, the light seemed to draw him forward until he was standing right by the window. He peered closer. Through the narrow space between the window frame and the blind he could just see into the house. He could make out a kitchen, littered with mugs and old tea bags.

A sudden movement caught his eye and he squinted down at the kitchen floor, where he saw Freddy, his pig! He had his snout in a bowl and was slurping away, drinking his fill of some mysteriously bright purple liquid.



George's blood ran cold - it was a terrible trick, he just *knew* it. 'Yikes!' he shouted. 'It's poison.' He rapped sharply on the pane of glass. '*Don't drink it, Freddy!*' he yelled.

But Freddy, who was a greedy pig, ignored his master's voice and carried on happily hoovering up the contents of the bowl. Without stopping to think, George flew through the door and into the kitchen, where he grabbed the bowl from under Freddy's snout and threw its contents down the sink. As the violet-coloured liquid gurgled down the plughole, he heard a voice behind him.

'Who,' it said, in distinct but childish tones, 'are *you*?'

George whirled round. Standing behind him was a girl. She was wearing the most extraordinary costume, made of so many different colours and flimsy layers of fabric that it looked as though she had rolled herself in butterfly wings.

George spluttered. She might look strange, this girl with her long tangled blonde hair and her blue and green feathery headdress, but she definitely wasn't scary. 'Who,' he replied indignantly, 'do you think *you* are?'

'I asked first,' said the girl. 'And anyway, this is *my* house. So I get to know who you are but I don't have to say

anything if I don't want to.'

'I'm George.' He stuck out his chin as he always did when he felt cross. 'And that' - he pointed to Freddy - 'is my pig. And you've kidnapped him.'

'I haven't kidnapped your pig,' said the girl hotly. 'How stupid. What would I want a pig for? I'm a ballerina and there aren't any pigs in the ballet.'

'Huh, ballet,' muttered George darkly. His parents had made him take dance classes when he was younger and he'd never forgotten the horror. 'Anyway,' he retorted, 'you're not old enough to be a ballerina. You're just a kid.'

'Actually, I'm in the corps de ballet,' said the girl snootily. 'Which shows how much *you* know.'

'Well, if you're so grown up, why were you trying to poison my pig?' demanded George.



'That's not poison,' said the girl scornfully. 'That's Ribena. It's a juice made from blackcurrants - I thought *everyone* knew that.'

George, whose parents only ever gave him cloudy, pale, home-pressed fruit juices, suddenly felt very silly for not realizing what the purple stuff was.

‘Well, this isn’t really your house, is it?’ he continued, determined to get the better of her somehow. ‘It belongs to an old man with a long beard who disappeared years ago.’

‘This *is* my house,’ said the girl, her blue eyes flashing. ‘And I live here except when I’m dancing on stage.’

‘Then where are your mum and dad?’ demanded George.

‘I don’t have any parents.’ The girl’s pink lips stuck out in a pout. ‘I’m an orphan. I was found backstage wrapped up in a tutu. I’ve been adopted by the ballet. That’s why I’m such a talented dancer.’ She sniffed loudly.

‘Annie!’ A man’s voice rang through the house. The girl stood very still.

‘Annie!’ They heard the voice again, coming closer. ‘Where are you, Annie?’

‘Who’s that?’ asked George suspiciously.

‘That’s ... er ... that’s ...’ She suddenly became very interested in her ballet shoes.

‘Annie, there you are!’ A tall man with messy dark hair and thick, heavy-framed spectacles, set at a crooked angle on his nose, walked into the kitchen. ‘What have you been up to?’

‘Oh!’ The girl flashed him a brilliant smile. ‘I’ve just been giving the pig a drink of Ribena.’

A look of annoyance crossed the man’s face. ‘Annie,’ he said patiently, ‘we’ve talked about this. There are times to make up stories. And there are times ...’ He trailed off as he caught sight of George standing in the corner and, next to him, a pig with blackcurrant stains around his snout and mouth that made him look as though he were smiling.

‘Ah, a pig ... In the kitchen ... I see ...’ he said slowly, taking in the scene. ‘Sorry, Annie, I thought you were making things up again. Well, hello.’ The man crossed the room to shake hands with George. Then he sort of patted the pig rather gingerly between the ears. ‘Hello ... Hi ...’ He seemed unsure what to say next.

'I'm George,' said George helpfully. 'And this is my pig. Freddy.'

'Your pig,' the man echoed. He turned back to Annie, who shrugged and gave him an I-told-you-so look.

'I live next door,' George went on by way of explanation. 'But my pig escaped through a hole in the fence so I had to come and get him.'

'Of course!' The man smiled. 'I was wondering how you got into the kitchen. My name is Eric - I'm Annie's dad.' He pointed to the blonde girl.

'Annie's dad?' said George slyly, smiling at the girl. She stuck her nose up in the air and refused to meet his eye.

'We're your new neighbours,' said Eric, gesturing around the kitchen, with its peeling wallpaper, mouldy old tea bags, dripping taps and torn floor covering. 'It's a bit of a mess. We haven't been here long. That's why we haven't met before.' Eric ruffled his dark hair and frowned. 'Would you like something to drink? I gather Annie's already given your pig something.'

'I'd love some Ribena,' said George quickly.

'None left,' said Annie, shaking her head. George's face fell. It seemed very hard luck that even Freddy the pig should get to have nice drinks when he didn't.

Eric opened a few cupboards in the kitchen but they were all empty. He shrugged apologetically. 'Glass of water?' he offered, pointing to the tap.

George nodded. He wasn't in a hurry to get home for his supper. Usually when he went to play with other kids, he went back to his own mum and dad feeling depressed by how peculiar they were. But this house seemed so odd that George felt quite cheerful. Finally he had found some people who were even odder than his own family. But just as he was thinking these happy thoughts, Eric went and spoiled it for him.



'It's rather dark,' he said, peering out of the window. 'Do your parents know you're here, George?' He picked up a telephone handset from the kitchen counter. 'Let's give them a call so they don't worry about you.'

'Erm ...' said George awkwardly.

'What's the number?' asked Eric, looking at him over the top of his glasses. 'Or are they easier to reach on a mobile?'

'They, er ...' George could see no way out. 'They don't have any kind of phone,' he said in a rush.

'Why not?' said Annie, her blue eyes very round at the thought of not owning even a mobile.

George squirmed a bit; both Annie and Eric were looking at him curiously so he felt he had to explain. 'They think technology is taking over the world,' he said very quickly. 'And that we should try and live without it. They think that people - because of science and its discoveries - are polluting the planet with modern inventions.'

'Really?' Eric's eyes sparkled behind his heavy glasses. 'How very interesting.' At that moment the phone in his hand burst into tinkling song.

'Can I get it can I get it? Pleasepleaseplease?' said Annie, grabbing the phone from him. 'Mum!' And with a shriek of joy and a flounce of brightly coloured costume, she shot out of the kitchen, phone clasped to her ear. 'Guess what, Mum!' Her shrill voice rang out as she pattered along the hall corridor. 'A strange boy's come round ...'

George went bright red with embarrassment.

'And he has a pig!' Annie's voice carried perfectly back to the kitchen.

Eric peered at George and gently eased the kitchen door closed with his foot.

'And he's never had Ribena!' Her fluting tones could still be heard through the shut door.

Eric turned on the tap to get George a glass of water.

'And his parents don't even have a phone!' Annie was fainter now but they could still make out each painful word.

Eric flicked on the radio and music started playing. 'So, George,' he said loudly, 'where were we?'

'I don't know,' whispered George, who could barely be heard in the din Eric had created in the kitchen to block out Annie's telephone conversation.

Eric threw him a sympathetic glance. 'Let me show you something fun,' he shouted, producing a plastic ruler from his pocket. He brandished it in front of George's nose. 'Do you know what this is?' he asked at top volume.

'A ruler?' said George. The answer seemed a bit too obvious.

'That's right,' cried Eric, who was now rubbing the ruler against his hair. 'Watch!' He held the ruler near the thin stream of water running from the tap. As he did so, the stream of water bent in the air and flowed at an angle rather than straight down. Eric took the ruler away from the water and it ran down normally again. He gave the ruler to George, who rubbed it in his hair and put it close to the stream of water. The same thing happened.

'Is that magic?' yelled George with sudden excitement, completely distracted from Annie's rudeness. 'Are you a wizard?'



'Nope,' said Eric, putting the ruler back in his pocket as the water ran down in a long straight line once more. He turned off the tap and switched off the radio. It was quiet now in the kitchen and Annie could no longer be heard in the distance.

'That's science, George,' said Eric, his whole face shining. 'Science. The ruler steals electric charges from your hair when you rub the ruler through it. We can't see

the electric charges, but the stream of water can feel them.'

'Gosh, that's amazing,' breathed George.

'It is,' agreed Eric. 'Science is a wonderful and fascinating subject which helps us understand the world around us and all its marvels.'

'Are you a scientist?' asked George. He suddenly felt very confused.

'I am, yes,' replied Eric.

'Then how can that' - George pointed at the tap - 'be science when science is also killing the planet and everything on it? I don't understand.'

'Ah, clever boy,' said Eric with a flourish. 'You've got right to the heart of the matter. I shall answer your question, but to do so, first I need to tell you a bit about science itself. Science is a big word. It means explaining the world around us using our senses, our intelligence and our powers of observation.'

'Are you sure?' asked George doubtfully.



'Very sure,' said Eric. 'There are many different types of natural science and they have many different uses. The one I work with is all about the How and the Why. How did it all begin - the Universe, the Solar System, our planet, life on Earth? What was there before it began? Where did it all come from? And how does it all work? And why? This is physics, George, exciting, brilliant and fascinating physics.'

'But that's really interesting!' exclaimed George. Eric was talking about all the questions he pestered his parents with - the ones they could never answer. He tried asking these big questions at school but the answer he got most often was that he'd find out in his classes the following year. That wasn't really the reply he was after.

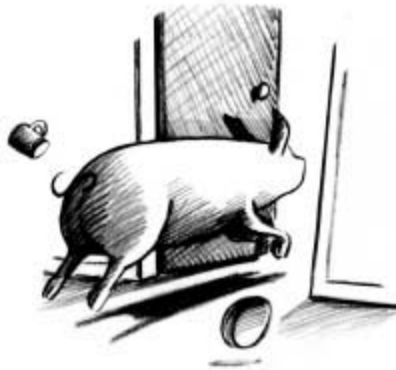
'Shall I carry on?' Eric asked him, his eyebrows raised.

George was just about to say 'Oh, yes please,' when Freddy, who had been quiet and docile up till then, seemed to pick up on his excitement. He lumbered to his trotters and, with a surprising spurt of speed, he dashed forward, ears flattened, hooves flying, towards the door.

'*No-o-o-o-o!*' cried Eric, throwing himself after the pig, who had barged through the kitchen door.

'*Sto-o-o-op!*' shouted George, rushing into the next room behind them.

'Oink oink oink oink oink oink!' squealed Freddy, who was obviously enjoying his day out enormously.



Chapter Three

IF GEORGE HAD thought the kitchen was untidy, then this next room was in a whole different dimension of messiness. It was filled with piles and piles of books, stacked up so high that some of the wobbly towers reached almost to the ceiling. As Freddy charged right through the middle of the room, notebooks, paperbacks, leather-bound tomes and bits of paper flew up in a tornado around him.



‘Catch him!’ shouted Eric, who was trying to drive the pig back towards the kitchen.

‘I’m trying!’ George shouted back as he was batted in the face by a shiny jacketed book.

‘Hurry!’ said Eric. ‘We must get him out of here.’

With a great leap, Annie’s dad hurled himself right onto Freddy’s back and grabbed his ears. Using them as a sort of steering wheel, he turned the pig - who was still moving

at quite some speed - and rode him like a bucking bronco through the door and back into the kitchen.

Left alone, George looked around in wonder. He had never been in a room like this before. Not only was it beautifully, gloriously messy as all the papers flying about in the air came gently down to the ground, but it was also full of exciting objects.

On the wall, a huge blackboard covered in symbols and squiggles in coloured chalk caught his eye. It also had lots of writing on it but George didn't stop to read it. There were too many other things to look at. In the corner, a grandfather clock ticked slowly, the noise of the swinging pendulum clicking in time with a row of silvery balls suspended on very fine wire which seemed to be in perpetual motion. On a wooden stand was a long brass tube which pointed up towards the window. It looked old and beautiful and George couldn't resist touching the metal, which felt cool and soft at the same time.

Eric walked back into the room, his shirt untucked, his hair standing on end, his glasses at a strange angle and a huge smile on his face. In his hand he held a book, which he had caught while riding Freddy out of the room.