

Cassie's Harbour Quest

By Suneeta Mall

FableFlow Publishing



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Preface

Welcome to Cassie's world of wonder, where every question leads to an exciting discovery! This book celebrates the natural curiosity that lives in every child—that unstoppable desire to understand how things work, why they behave the way they do, and what secrets the world holds.

Through Cassie and Caleb's harbour adventure, young readers will explore fascinating scientific concepts including density, buoyancy, marine biology, and environmental stewardship. But more importantly, they'll discover that learning happens everywhere—in the kitchen while baking cakes, in the car during family trips, and especially outdoors while observing nature's incredible designs.

This story is designed for curious minds aged 5-10, with hands-on experiments and real-world observations that parents and educators can recreate together. Each chapter introduces scientific principles through playful exploration, memorable

poems, and engaging activities that transform abstract concepts into tangible understanding.

As you journey with Cassie through Sydney Harbour, remember: the best scientists are those who never stop asking "why?" and "how?" May this adventure inspire young readers to observe closely, question boldly, and protect the wonderful world around them.

Happy exploring!

Chapter 2: Beautiful Fishes

"When are we leaving for the harbour, Mum?"
Caleb called from the hallway.

Actually, he'd asked this question approximately fifty-seven times in the last hour. Mum had been counting with silent amusement.

"All right, explorers! Time to get ready. We're heading to Sydney Harbour!" Mum finally announced.

Cassie immediately donned her imaginary detective hat—the invisible one she wore whenever mysteries needed solving. She'd visited Sydney Harbour before, walking across the bridge while the wind whipped her hair, watching the sun melt into the water like honey at day's end. But Mum had said "surprise," which meant something *NEW*.

awaited them. Something unexpected!

But neither Mum nor Dad would provide even the tiniest clue. Tough luck for a detective!

Cassie and Caleb clambered into their car seats, buckling themselves in with practiced efficiency.

"All set? Ready for adventure?" Mum asked, turning to check on them.

"YES!" Cassie and Caleb shouted together, their voices blending into one excited yelp.

"Oui, surprise! Here we come! Oui, oui, oui!" Cassie called out, mixing the French word she'd learned at school into her excitement.

Dad appeared at the car boot, loading a cooler filled with ice and drinks. Then Mum carried something long and peculiar—a sleek stick-like object, black and red, that practically gleamed with possibility.

Caleb's curiosity erupted first. "What's that stick thing, Mum?"

"This," Mum said, sliding it carefully into the car, "is called a fishing rod."



A close-up illustration of Mum holding a sleek black and red fishing rod, showing it to excited Cassie and Caleb who are already buckled in their car seats. Cassie's eyes are wide with detective-like curiosity, and little Caleb is pointing at the rod with wonder. The car boot is open behind Mum, with a cooler visible inside. The scene captures the moment of discovery and mounting excitement.

"FISHING?" Cassie bounced in her seat. "Are we going FISHING? Is THAT the surprise?"

Dad chuckled, closing the boot with a gentle thunk. "Oops! Looks like Mum let the cat out of the bag!"

Cassie felt like Sherlock Holmes himself—the world's greatest detective! She'd solved the mystery through careful observation and brilliant questioning!

They'd barely left the driveway when Caleb piped up: "Are we there yet?"

Cassie rolled her eyes dramatically. "Not yet, Caleb. We JUST started driving."

"How do we fish, Daddy?" Cassie asked, leaning forward as far as her seatbelt allowed. "I want to be prepared for our adventure!"

"Hmm," Dad said thoughtfully, watching the road. "Fishing might be easier to show than tell, but I'll try explaining. Just be patient with me, okay?"

"We're excellent at being patient," Cassie assured him, though even she wasn't entirely convinced of this claim.

"First, the rules. Rule Number One is the most important: Slip, Slop, Slap!"

Dad began singing the classic Australian sun safety song, and soon everyone joined in:

Slip, Slop, Slap!

It sounds like a breeze

When you say it like that!

Slip, Slop, Slap!

In the sun we always say

Slip, Slop, Slap!

Slip on a shirt,

Slop on sunscreen,

And slap on a hat—

Slip, Slop, Slap!

By the time they finished singing, everyone was checking their sun hats and making sure the sunscreen was packed and ready.

"Rule Number Two," Dad continued more seriously, "is to always stay close to grown-ups near the water. No wandering off near the edge of the pier, and if we ever go on a boat, everyone wears a life jacket. Agreed?"

"Yes, sir!" Cassie and Caleb saluted like sailors.

"Rule Number Three is to be kind and gentle to the fish and our environment. We're visitors in THEIR home. We'll say hello to any fish we catch, learn about them, take photos for your nature journal, and then safely release them back to the harbour. Sound good?"

"Yes, sir!" they saluted again, even more enthusiastically.

"Here's how fishing works," Dad explained. "We have special fish food called bait—worms and such. We attach the bait to the hook at the end of the fishing rod. Then we cast the line, lowering the hook into the water. When a curious fish rushes

over to grab the food, it gets caught on the hook. We gently reel the line back in, bringing the fish up to say hello."

"So we're inviting the fish for a visit?" Cassie asked.

"Exactly! A very brief visit. We'll observe them, photograph them, and learn everything we can about them. How does that sound?"

"PERFECT!" both children agreed.

"Can we play with the fishes, Daddy?" Caleb asked hopefully.

"No!" Cassie answered before Dad could speak. "Fish can't live without water, Caleb. Everyone knows that."

"Well," Mum added gently, "if you're lucky, some curious fish might swim near you while you're by the water. They might even play a game of peek-a-boo!"

Caleb brightened at this possibility.

"But Mum," Cassie wondered aloud, "how DO fish breathe underwater? Why can't they live on land like us?"

Do you know why? Have you ever wondered about this?

"Excellent question," Mum said. "Fish have special organs called gills—you'll see them on the sides of a fish's head, looking like little slits. When water flows through the gills, tiny tissues inside them grab oxygen from the water and transfer it into the fish's bloodstream. It's like the gills are drinking oxygen right out of the water! But gills only work with water—they can't extract oxygen from air the way our lungs can."

"So fish **MUST** stay in water," Cassie concluded, "or they can't breathe."

"Exactly right."

Mum's eyes suddenly sparkled with that look that meant she'd remembered something fascinating. "Although—and this is quite extraordinary—there ARE some rare fish called air-breathing fish. They have an additional special organ that lets them breathe air for short periods."

"WHAT?" both children exclaimed.

"There's a fish called a lungfish that actually has LUNGS, just like us! Well, most lungfish have two lungs. But the Australian lungfish is unique—it has only ONE lung. These special fish can survive out of water for a short time."

"Can we see them today? Please, please, PLEASE?" Cassie and Caleb begged.

"I'm sorry, explorers," Dad said gently. "Lungfish live in Queensland, quite far from here. But perhaps we can plan a special trip to see them another time?"

Cassie felt a tiny pang of disappointment, but her mind was already bursting with new knowledge. Nature was so much more amazing than she'd ever imagined!

"I love watching fishes swim," Caleb said dreamily. "They wiggle their tails so beautifully, like underwater dancers."

"Could you tell us HOW fish swim, Daddy?" Cassie requested. "What makes them move through water so gracefully?"

"Of course!" Dad's enthusiasm was contagious. "Fish have beautiful flat, flexible, and bony structures growing from their bodies. These are called fins. And here's the remarkable part—fish have SEVERAL different types of fins! Can you believe it? Each type helps them move in different ways—up, down, left, right, forward, backward—in any direction they choose!"

"Multiple fins just for swimming?" Cassie marveled. "I'm learning to swim with just my arms and legs—the same arms and legs I use for walking!"

Mum laughed. "Don't worry, Cassie. Your swimming teacher will give you special gear called 'fins' to wear on your feet. They're artificial fins made of rubber! They'll help you glide through water more like a fish."

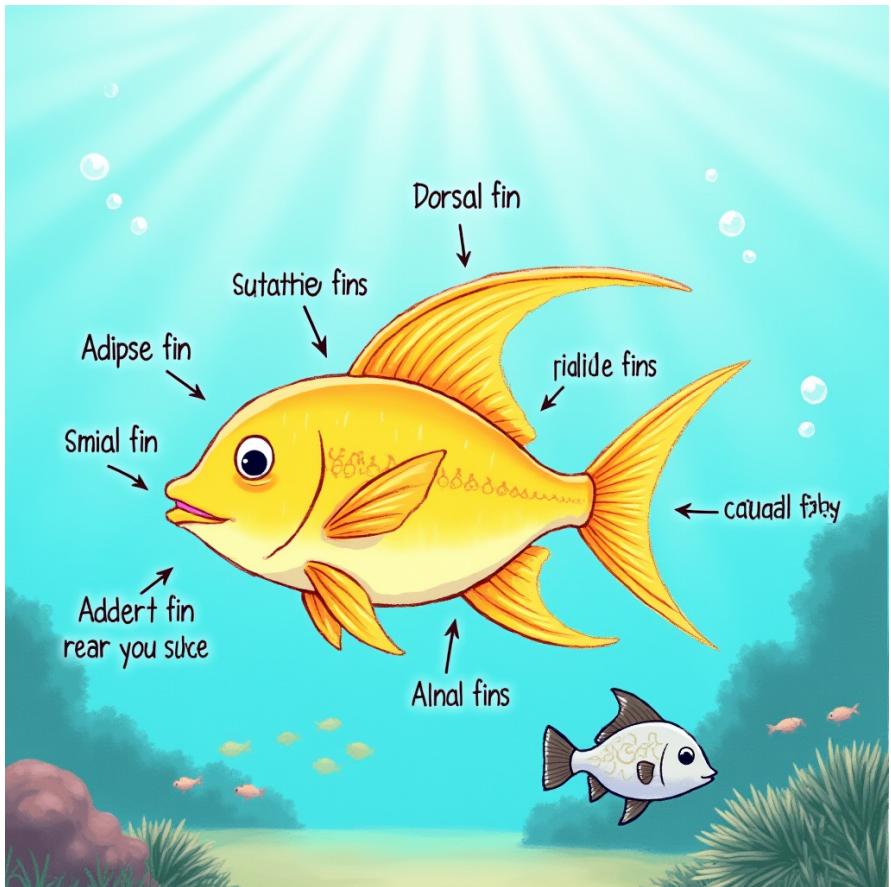
"Artificial fins? Will I get lots of fins like real fish?"

"Just one pair for your feet—they're called flippers, actually. They work like the tail fin on a fish."

"The tail fin? That's the caudal fin, right?" Cassie tested her new vocabulary.

Dad grinned. "Excellent! The names are a bit tricky. There's the dorsal fin on top, the pectoral

fins on the sides like wings, a tiny adipose fin near the tail, the caudal fin which IS the tail, the anal fin underneath near the back, and the pelvic fins underneath near the front."



An educational and colorful illustration showing a beautiful fish underwater in Sydney Harbour, clearly labeled with all its different fins. The fish is shown from a side angle with arrows or labels pointing to the dorsal fin on top, pectoral fins on the sides, adipose fin near the tail, caudal fin (tail), anal fin underneath near the back, and pelvic fins underneath near the front. The water is clear blue-green with bubbles

rising, and smaller fish swim in the background. The illustration has a friendly, educational style perfect for young readers to learn fish anatomy.

Cassie wrinkled her nose. "Those names sound like tongue twisters invented by scientists who liked making words complicated!"

Everyone laughed.

"I'm going to watch very carefully how fish use their fins," Caleb announced with determination.

"Excellent scientific observation skills!" Dad praised.

As the car hummed along the road toward the harbour, Cassie gazed out the window and began making up a song about fish. Soon she was singing softly:

Fishes in the water, fishes in the
sea,
Swimming, swirling,
turning—oh so gracefully!
Multiple fins to help them glide,
Pectoral, caudal, dorsal—what a
ride!

Pushing through the current,
dancing through the deep,
Flexing silver bodies while some
creatures sleep,
Water rushes gently through their
precious gills,
Giving them the oxygen that
every heartbeat fills!

Caleb clapped along, and even Dad hummed the melody as they drove closer to their adventure.



A vibrant illustration showing a family in a car driving toward Sydney Harbour. In the background, the iconic Harbour Bridge and Opera House are visible against a brilliant blue sky. Inside the car, six-year-old Cassie with a ponytail looks excited while pointing at something, three-year-old Caleb bounces in his car seat, and their parents smile in the front seats. Fishing rods are visible through the rear window. The

scene has a warm, adventurous feeling with sunlight streaming through the windows.

Chapter 3: The Buoyancy Quest

Dad guided the car into a parking space near the harbour, and before the engine even stopped, Caleb was already unbuckling his seatbelt.

"We're here! We're HERE!" he shouted.

Cassie pressed her face against the window, drinking in the magnificent view. The Opera House gleamed like enormous white seashells scattered by a giant on the shore. Luna Park's cheerful face grinned across the water. And everywhere—everywhere!—boats of all sizes floated peacefully on the sparkling blue harbour.



A vibrant view of Sydney Harbour as seen through a car window, with Cassie's excited face pressed against the glass in the foreground. The Sydney Opera House gleams white in the distance, Luna Park's iconic smiling face is visible across the sparkling blue water, and various boats of different sizes - sailboats, ferries, and yachts - float peacefully on the harbour. The scene is sunny and inviting,

*capturing the wonder and excitement of arriving at
this magnificent location.*

"Wait," Caleb said, his forehead wrinkling with confusion. "How are boats even swimming? They don't have any fins!"

"Ah," Mum said, helping Caleb out of the car, "boats aren't swimming, sweetheart. They're FLOATING. Part of them sits in the water, and part stays in the air. When you swim, you're mostly under the water, moving through it. But floating is different."

"How do things float?" Cassie asked, joining the conversation as her detective mind engaged with this new puzzle.

"What an excellent question!" Mum's eyes lit up with that special gleam that meant an experiment was coming. "Remember gravity—the force we learned about during our adventure at Cronulla Beach?"

"Gravity pulls everything down!" Cassie exclaimed, jumping up and down to demonstrate. "It makes jumping super fun!"

Caleb jumped too, giggling. "And it keeps us from floating away!"

If you want to learn all about Cassie's gravity discoveries, you can find that adventure in "Curious Cassie's Beach Ride Quest: A Celebration of Sir Isaac Newton's Discoveries," another book in the Curious Cassie series!

"Exactly," Mum continued. "Now, when a boat sits in water, gravity is trying very hard to pull it down to the bottom of the harbour. But—and here's the fascinating part—there's ANOTHER force working at the same time. It's called buoyancy, and it pushes UP against gravity."

"There's a force pushing UP?" Cassie's eyes went wide.

"Yes! Floating is actually like a tug-of-war competition between gravity and buoyancy. Gravity is pulling down, saying 'Sink! Sink!' But buoyancy is pushing up, saying 'Float! Float!' Whichever force is stronger wins. If the object sinks, gravity won. If it floats, buoyancy won."

"WOW," Cassie breathed. "There's an invisible battle happening right now with all these boats?"

"Precisely. And here's another important secret: the strength of the buoyancy force depends on how much water the object pushes aside. We call that displaced water."

"Huh?" Both Cassie and Caleb looked puzzled.

"Time for another experiment!" Mum declared.

She pulled out a sturdy plastic container from their picnic supplies and filled it completely to the brim with harbour water. Then she handed Cassie an empty water bottle.

"Feel this bottle. Is it heavy?"

Cassie and Caleb took turns. "No, it's super light!" they agreed.

"Watch carefully." Mum placed the bottle on the water's surface. SPLASH! Water sloshed over the sides of the container, but the bottle bobbed happily, floating!

"Look at what happened," Mum explained. "The bottle pushed some water out of the container, right? That water had to go somewhere when the bottle took its place. Right now, gravity is trying to pull the bottle down, but the bottle is so light that gravity isn't very strong. The buoyancy force—which is as strong as the weight of the water that got pushed out—is stronger than gravity. So the bottle floats!"

"Can I try?" Cassie asked eagerly.

"Absolutely. But first, let me show you something else." Mum took the bottle back and filled it completely with water. "Now feel it."

"It's MUCH heavier!" Caleb observed.

"Watch what happens now." Mum placed the water-filled bottle into the container.

Glub, glub, glub... down it went! The bottle sank straight to the bottom!



A hands-on science experiment scene at Sydney Harbour. Mum kneels beside a plastic container filled to the brim with water, with Cassie and Caleb watching intently on either side. The illustration shows a split-scene comparison: on the left, an empty bottle floating happily on the water's surface with water splashing over the container's sides and an upward arrow labeled "Buoyancy Wins!"; on the

right, a water-filled bottle sinking to the bottom with bubbles rising and a downward arrow labeled "Gravity Wins!" The harbour and boats are visible in the background, and the children's faces show amazement and curiosity.

"What?" Cassie's jaw dropped. "Why did it sink this time?"

"Try it yourself," Mum encouraged.

Cassie tried several times, filling and emptying the bottle. Every time it was empty, it floated. Every time it was full, it sank. The pattern was clear, but *WHY?*

"Think about it," Mum said gently. "When we filled the bottle with water, it became much heavier. That means gravity got much STRONGER. But the bottle pushed out about the same amount of water as before—so buoyancy stayed the same. This time, gravity was stronger than buoyancy. Gravity won the tug-of-war, so the

bottle sank."

"Ohhhhh," Cassie said slowly, the understanding blooming in her mind like a flower opening. "So whether something floats depends on TWO things: how heavy it is AND how much water it pushes out of the way?"

"Brilliant conclusion!" Mum beamed.

"I want to try this at home!" Cassie announced. "In the bathtub! With different things! Can I try it with my rubber duck? And my toy boat? And maybe some rocks?"

"Absolutely, scientist."

Caleb suddenly pointed toward the wharf.
"Look! A GIANT ship!"

A massive cargo ship was approaching, dwarfing the sailboats and ferries nearby. Sailors on deck threw a huge anchor overboard. SPLASH! Down, down, down it plunged, disappearing

beneath the dark water.

"The anchor sank!" Cassie called excitedly to Caleb. "Gravity won against buoyancy! But look—the ship is still floating. Buoyancy won against gravity for the ship!"

She turned to her mother, puzzled. "But Mum, that doesn't make sense. The ship is GIGANTIC—way bigger and heavier than the anchor. How can the anchor sink while the ship floats?"

Mum smiled at the excellent question. "Remember what I said about displaced water? The ship pushes aside MUCH, MUCH more water than the anchor does. Can you guess why?"

Cassie studied the ship carefully, trying to see past the painted sides to imagine what lay beneath.

"The bottom of a ship is called the hull," Mum explained. "It's designed to be mostly hollow—like

a giant bowl. When the ship sits in water, that bowl-shaped hull pushes away enormous amounts of water. Even though the ship is heavy, it displaces so much water that the buoyancy force becomes incredibly strong—strong enough to win against gravity!"

"It's like a floating bowl!" Cassie exclaimed.
"Genius!"

"Would you like to hear a story about the man who explained buoyancy?" Mum asked.

"Yes!" both children chorused.

"His name was Archimedes, and he was a famous Greek mathematician and scientist who lived more than two thousand years ago. The king asked him to solve a tricky problem: was the royal crown-maker stealing gold from the king's crown? Archimedes thought and thought, but he couldn't figure out how to prove whether the crown was pure gold or not."

"What did he do?" Caleb asked, completely captivated.

"One day, Archimedes went to take a bath. His bathtub was filled right to the brim with water. When he stepped in, water sloshed over the sides onto the floor. And suddenly—EUREKA! He had an idea!"

"What's eureka?" Cassie asked.

"It's a Greek word meaning 'I have found it!' Archimedes realized he could measure objects by seeing how much water they displaced! He could put the same amount of gold that was given to the crown-maker into water and measure how much spilled out. Then he could do the same with the finished crown. If the crown was pure gold, they would displace the same amount of water!"

"That's so clever!" Cassie said admiringly.

Mum's eyes twinkled. "The story says that Archimedes was so excited by his discovery that he jumped right out of the bath and ran to tell the king—and he was in such a hurry that he forgot to put his clothes on first! He supposedly ran through the streets shouting 'Eureka! Eureka! I have found it!'"

Cassie and Caleb dissolved into giggles, imagining the excited scientist.



A whimsical historical illustration showing Archimedes in ancient Greece having his famous "Eureka!" moment. The bearded mathematician is shown joyfully emerging from a marble bathtub filled to the brim, with water splashing dramatically over the sides onto the mosaic floor. He's wearing a modest white toga and has his arms raised in excitement with a golden crown visible nearby. A

speech bubble shows "EUREKA!" In the background, Greek columns and architecture are visible. The illustration is child-friendly and humorous, capturing the joy of scientific discovery. The art style is warm and inviting, helping young readers connect with this historical moment.

"Scientists get VERY excited when they discover something new!" Dad added with a chuckle. "Though these days, they usually remember to get dressed first!"

"EUREKA! EUREKA!" Caleb shouted, running in circles fully clothed.

"Eureka! Eureka!" Cassie joined in, both of them laughing so hard they could barely breathe.

"One more thing," Mum said when they'd calmed down. "Remember density from our cake experiment?"

Cassie nodded eagerly.

"The density of the liquid matters too! The denser the liquid, the stronger the buoyancy force. That's why it's easier to float in the ocean than in a swimming pool—salt water is denser than fresh water! You could do experiments at home with different liquids. Try floating things in vegetable oil, which is less dense than water, or in honey, which is more dense. You might find that some things float in honey that sink in water!"

Cassie's mind was already racing with experiment ideas.

Just then, Caleb spotted something bright red drifting across the sky. "Look! A balloon floating in the air!"

"Perfect observation!" Dad said. "That's another example of buoyancy."

Cassie's face lit up as she put the pieces together. "The balloon is filled with air—really light air like helium! Gravity is pulling it down, but the air

around it is pushing up with buoyancy. The buoyancy is stronger, so the balloon floats in the sky!"

Everyone applauded Cassie's explanation.

Mum added one more fascinating fact: "Some fish have a special organ called a swim bladder—like a balloon inside their body! It's filled with air. Fish can add or remove air from their swim bladder to adjust their buoyancy. It's like they have a built-in floating device!"

"A balloon inside their body?" Cassie's mind was officially blown. "Fish are amazing!"

She began to chant, her voice rising with wonder:

*"Gravity pulls down, water
pushes up,
In every ship and sailing cup—
A tug-of-war that never ends,
On which force wins, the floating
depends!*

*Archimedes in his bath one day
Saw water sloshing, flowing
away,
'Eureka!' he cried with joyful
shout,
'Now I know what floating's
about!'*

*Push aside the water wide,
Let the upward force decide—*

*Heavy anchor quickly sinks,
Hollow ship still floats,
methinks!"*

Chapter 4: Marine Biology Champions

"Today has been AMAZING, Caleb!" Cassie said, pulling out her nature journal and opening it to a fresh page. "I've learned about density in cakes, how fish breathe and swim, why boats float, and even about a mathematician who made an important discovery! What was your favourite part?"

Caleb jumped up and shouted, "EUREKA!
EUREKA!"

Cassie laughed and joined him, both of them running in circles yelling the ancient Greek word of discovery.



Two joyful children, Cassie (a six-year-old girl) and Caleb (a younger boy), running in circles on a harbour pier with their arms raised triumphantly, shouting "EUREKA!" Both children are smiling widely. In the background, Sydney Harbour sparkles in the sunlight with boats visible on the water. Their parents watch them with amused smiles. Nature journals and fishing equipment are visible nearby on the wooden

pier.

Dad had found the perfect fishing spot—a quiet section of the harbour where the water was clear enough to see schools of small fish darting beneath the surface. He baited two fishing rods with practiced efficiency, showing Cassie and Caleb exactly how to hold them safely.

"Now comes the hard part," Dad warned with a smile. "Patience."

Cassie positioned herself on the pier, staying well back from the edge just as Dad had reminded them, her camera ready. Caleb had his nature journal open, crayons spread out in a rainbow beside him. They were going to document every fish they met!

Five minutes passed. Then ten. Cassie's arms were starting to feel tired from holding the rod so still.

"I think patience is the hardest part of science," she whispered to Caleb.

Just then—TUG! Caleb's fishing rod bent dramatically.

"Daddy! DADDY! I've got something!" Caleb's eyes were as round as full moons.

Dad rushed over, helping Caleb hold the rod steady. Together, they gently reeled in the line. The water swirled and splashed, and then—up came a beautiful silver fish, gleaming in the sunshine!

"Well done, Caleb!" Dad exclaimed. "You've caught a Mulloway!"

The fish was about as long as Caleb's arm, with a sleek silver body and distinctive large scales. Dad carefully removed the hook while supporting the fish in the water, making sure it could still breathe through its gills.

"Look carefully," Dad instructed. "Can you count the fins?"

Cassie and Caleb leaned close, studying their visitor.

"There's one on top," Caleb observed.

"That's the dorsal fin," Dad said.

"Two on the sides, like wings!"

"Pectoral fins."

One by one, they identified all the different fins. Dad pointed out the gills—the delicate slits on either side of the fish's head that opened and closed as it breathed.



A close-up scene showing Dad kneeling by the edge of the harbour water, carefully holding a beautiful silver Mulloway fish partially in the water. Cassie and Caleb lean in close with fascinated expressions, examining the fish's fins and gills. Dad points to specific features on the fish. The Mulloway gleams in the sunshine, its large scales clearly visible. Cassie holds her camera ready while Caleb has his nature

journal nearby. The water is clear enough to show small fish swimming beneath the surface. The mood is one of gentle discovery and respect for the marine life.

"Does Mulloway have a swim bladder?" Cassie asked suddenly, remembering what Mum had taught them.

Mum pulled out her phone and searched quickly. "Yes! Mulloway fish DO have swim bladders. Excellent question, Cassie!"

Caleb gently touched the fish's smooth, cool scales with one careful finger. "You're beautiful," he told the Mulloway. "Thank you for saying hello to us."

Together, Dad and Caleb lowered the fish back into the harbour. For a moment, the Mulloway hung motionless, as if gathering its strength. Then, with a powerful flick of its tail—splash!—it disappeared into the deep green water.

"Goodbye, Malloway friend!" Caleb called after it. "Stay safe in your home!"

Not two minutes later, Cassie felt her own rod dip and pull.

"I've got one! I've got one!" she squealed.

With Dad's help, she reeled in her catch—a Mullet fish with distinctive black stripes along its silvery sides.

"Hello there," Cassie greeted the fish formally, as if meeting an important guest. "Thank you for visiting us."

They examined the Mullet carefully, Cassie taking photographs from every angle while Caleb sketched it in his journal with devoted concentration. Dad pointed out each feature—the different types of fins, the gills working steadily, the streamlined body perfect for swimming.

"Mullet are quite special," Mum told them. "They're known for jumping right out of the water—sometimes leaping several feet into the air!"

"Jumping OUT of the water?" Cassie couldn't believe it. "How? WHY?"

"They use their powerful muscles to propel themselves upward—the same way you jump on land," Mum explained. "And here's something extraordinary: Mullet can actually breathe some air directly from the atmosphere! When they jump, they're taking quick breaths of oxygen."

"So they're like the lungfish you told us about?" Cassie asked.

"Similar! They're another example of air-breathing fish."

After photographing and documenting their new friend, Cassie and Dad carefully released the

Mullet back into the harbour. It swam away with quick, darting movements, its fins creating tiny whirlpools in the water.

"Thank you for teaching us about yourself!" Cassie called after the fish. "I'll remember you forever!"

Caleb suddenly pointed at something floating near the pier. "Mum! Look—a plastic bag!"

The white plastic bag drifted on the surface like a ghost, tumbling slowly in the current. Mum's expression grew serious.

"Oh no. This is dangerous for marine life. Fish and other creatures can mistake plastic for food, or they can get tangled in it."

Using the fishing rod very carefully, Mum scooped up the plastic bag and deposited it in a nearby rubbish bin.

"Well done, Mum!" Dad praised. "Every piece of plastic we remove helps keep the harbour healthy."

"Can we look for more?" Cassie asked. "I want to help the fish!"

"Absolutely," Dad agreed. "But remember—we only pick up things from the water if a grown-up helps. Some rubbish might have sharp edges or other dangers."

Together, the family spotted three more pieces of plastic floating in the water—two bottle caps and another bag. Each time, Dad or Mum carefully retrieved them while Cassie and Caleb held the rubbish bag open.

"Even small actions matter," Mum explained. "When everyone picks up just one piece of rubbish, together we make a big difference!"

As they were packing up their fishing gear, preparing to head home, Cassie noticed a group of people near the water's edge wearing wetsuits and carrying snorkeling equipment. They had official-looking clipboards and underwater cameras.

Dad struck up a conversation with the group leader, a friendly woman with sun-bleached hair and kind eyes. When he returned, his face was glowing with excitement.

"Kids, those are marine biologists from the University of Sydney! Their job is to study and protect the creatures living in Sydney Harbour."

"Really?" Cassie's eyes grew wide. "That's an actual job? Studying fish and helping them?"

"Absolutely! In fact, I want to tell you about someone incredible—Professor Emma Johnston. She's one of Australia's most renowned marine biologists and the President of Science &

Technology Australia."

Cassie and Caleb listened with complete attention.

"Professor Johnston has dedicated her entire career to understanding marine ecology—how all the creatures in the ocean live together and depend on each other. She's worked all around the world, studying how human actions affect marine life and what we can do to protect it. She's collaborated with hundreds of other scientists, helping to keep places like Sydney Harbour healthy for all its inhabitants."

"Could that be MY job someday?" Cassie asked breathlessly.

"If you keep asking brilliant questions and caring about the natural world, absolutely," Dad assured her.

Mum added, "Marine biologists are like doctors for the ocean. They help us understand what marine creatures need to survive and thrive. They study everything from tiny plankton to enormous whales, and they work to solve problems like pollution and climate change. Every time you learn something about fish or water or buoyancy, you're preparing yourself to help protect these amazing ecosystems."

"Did you know," Dad continued, "that Aboriginal Australians have been caring for these harbours and waterways for over 60,000 years? They have deep knowledge about fish, seasons, and how to live in harmony with the ocean. Marine scientists today learn from this ancient wisdom while using modern tools to help protect our waters."

Cassie looked out at the harbour with new eyes. The water sparkled in the late afternoon sun, holding mysteries and wonders beneath its surface—fish with swim bladders and multiple fins, boats floating through ancient physics, tiny

organisms she couldn't even see all living together in a delicate balance.

"I promise," she said solemnly to the harbour, "I'll keep learning. And I'll help take care of you and all your creatures."

Caleb came to stand beside his sister, slipping his small hand into hers. "Me too," he declared. "I promise too."



A beautiful sunset scene at Sydney Harbour. In the foreground, Cassie and Caleb stand at the pier (safely back from the water), holding hands and looking out at the water. Their nature journals and a camera rest nearby. The Opera House and Harbour Bridge are silhouetted against an orange and pink sky. In the water, the shapes of fish can be seen swimming beneath the surface, and boats float

peacefully in the distance. A group of marine biologists in wetsuits work in the background. In the mid-ground, a small rubbish bag sits near the children, filled with collected plastic. The overall mood is one of wonder, learning, and environmental stewardship.

As they walked back to the car, their nature journals full of sketches and observations, their cameras full of photographs, their minds full of wonder, the family passed one more piece of plastic wedged between the wooden planks of the pier. Without needing to be asked, both Cassie and Caleb carefully pulled it free and carried it to the rubbish bin.

"Thank you, scientists," Mum said proudly.

The drive home was quieter than the journey there. Cassie gazed out the window, watching the harbour grow smaller in the distance, already planning the experiments she'd conduct at home. Caleb had fallen asleep, his head tilted against the

window, dreaming perhaps of swimming fish and underwater adventures.

"Did you have a good day?" Dad asked, glancing in the rearview mirror at his daughter.

Cassie smiled, her heart full to bursting. "The BEST day. We did experiments, caught fish, learned about buoyancy, met marine scientists, and helped clean the harbour. It was perfect."

"And what was the most important thing you learned?" Mum asked gently.

Cassie thought for a long moment before answering.

"I learned that everything is connected. The density of cakes, the buoyancy of boats, the swim bladders of fish, the work of marine biologists, and even picking up plastic—it's all part of understanding how the world works. And once you understand, you can help make things better."

Mum and Dad exchanged a glance, their eyes shining with pride.

"I think," Dad said softly, "that you might be the wisest six-year-old in all of Australia."

Cassie giggled, but inside, she felt something new and wonderful growing—a sense of purpose, a love of discovery, and a commitment to the natural world that would stay with her forever.

She whispered one final poem as the harbour disappeared from view:

*Young scientists by the water,
With questions in their eyes
bright,
Learning how the world works
proper,
Beneath both waves and
light! From kitchen cake
experiments
To fishing rods that cast,
Each discovery leads to others—
First questions, never last! The
harbour holds its secrets deep,
The fish their stories tell,
And children who ask 'why?' and
'how?'*

*Learn to care for Earth so
well! So slip and slop and slap on*

*sun,
Release each fish you meet,
Pick up the plastic in the waves—
Let wonder guide your feet!*

The End

*"The important thing is not to stop questioning.
Curiosity has its own reason for existing."*
— Albert Einstein

Dear Curious Reader,

Thank you for joining Cassie and Caleb on their harbour quest! Like them, I hope you'll never stop asking questions about the world around you.

Every great scientific discovery started with someone wondering "Why?" or "How?" Your curiosity is your superpower. Your questions

matter. Your observations count.

Here are some experiments you can try at home (with a grown-up's help):

Density Experiments:

- Compare the weights of different liquids in identical containers
- Try floating different objects in different liquids (water, oil, honey)
- Make your own layered density tower with liquids of different densities

Buoyancy Experiments:

- Test which objects float and which sink in your bathtub (always with adult supervision)
- Try the water bottle experiment that Cassie did
- Make a toy boat and see how much weight it can hold before sinking

Ocean Conservation:

- Start a nature journal documenting local wildlife
- Organize a local park or beach cleanup with your family
- Learn about marine life in your area
- Remember to always wash your hands thoroughly after handling any materials from outside

Remember: Scientists aren't just people in white lab coats working in universities. Scientists are anyone who observes carefully, asks questions, and seeks to understand the natural world. That includes YOU!

Keep wondering. Keep experimenting. Keep protecting our beautiful Earth.

With curiosity and hope,

The Author

Before Starting Any Experiment:

- ■ Read through the entire activity
- ■ Gather all materials safely
- ■ Ensure adequate adult supervision
- ■ Prepare a clean, appropriate workspace
- ■ Have cleanup materials ready

For Water Activities:

- ■ Always supervise children near water
- ■ Use stable containers that won't tip easily
- ■ Keep towels handy for spills
- ■ Ensure bathroom/kitchen floors are dry to prevent slipping

For Fishing or Harbour Visits:

- ■ Apply sun protection (Slip, Slop, Slap!)
- ■ Ensure children stay back from pier edges
- ■ Life jackets required on boats
- ■ Teach proper handling of fishing equipment
- ■ Wash hands thoroughly after handling fish or outdoor materials

For Kitchen Experiments:

- ■ Supervise all oven/stove use
- ■ Teach proper handling of hot items
- ■ Check for food allergies before cooking
- ■ Ensure proper food safety and cleanliness

Buoyancy: The upward force that liquids and gases exert on objects, making them float

Caudal Fin: The tail fin of a fish, used for propulsion and steering

Density: How heavy something is for its size; how tightly packed its molecules are

Displaced Water: The water pushed aside when an object is placed in it

Eureka: Greek word meaning "I have found it!"

Gills: Organs that allow fish to extract oxygen from water

Hull: The bottom part of a ship, designed to displace water and create buoyancy

Marine Biology: The scientific study of ocean life and ecosystems

Pectoral Fins: The side fins on a fish, like wings, used for steering and stopping

Swim Bladder: An internal air-filled organ that helps fish control their buoyancy

1. Why do you think sponge cake is lighter than mud cake? What role do the eggs play?

2. Can you think of other objects that float? What about objects that sink? Why do you think some float and others don't?

3. Why is it important to release fish back into the water after catching them?

4. What can you do to help protect marine life in your area?

5. If you could be a marine biologist like Professor Emma Johnston, what would you want to study?

6. Can you think of other examples of buoyancy in everyday life?

7. Why do you think Archimedes was so excited about his discovery? Have you ever been so excited about learning something new that you wanted to tell everyone?

8. What does it mean to be a "visitor" in the fish's home? How should visitors behave?

May your curiosity never cease, and may you always remember to Slip, Slop, Slap when exploring the wonderful world outside!

About the Author

Suneeta Mall is a passionate storyteller who believes that every child's curiosity deserves to be celebrated and nurtured. With a deep love for science and nature, Suneeta creates stories that inspire young minds to ask questions, explore the world around them, and discover the magic hidden in everyday moments.

Through characters like Curious Cassie, Suneeta brings together adventure and education, showing children that learning is the greatest adventure of all. When not writing, Suneeta enjoys visiting harbours, museums, and natural spaces, always searching for the next spark of inspiration.

This story has been enhanced and expanded using FableFlow, a collaborative storytelling platform that helps bring imaginative children's stories to life with rich illustrations and engaging narratives.

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Acknowledgments

This book is dedicated to every curious child who has ever asked "Why?" and "How?" Your questions make the world brighter, and your wonder makes science come alive.

Special thanks to Suneeta Mall, whose original vision and creativity brought Curious Cassie to life. Your commitment to inspiring young minds through storytelling is truly remarkable.

To the educators, parents, and caregivers who encourage children to explore, experiment, and discover—thank you for nurturing the next generation of scientists, engineers, artists, and dreamers. Your patience and enthusiasm make all the difference.

To the real Cassies and Calebs of the world: Keep asking questions. Keep experimenting. Keep discovering. The world needs your curiosity, your creativity, and your unique way of seeing things.

And finally, to the harbours, oceans, and waterways that inspire us daily—may we always approach you with wonder, respect, and a commitment to understanding the magnificent science that keeps our world afloat.

May your curiosity always lead you to new adventures!

Join Cassie and her little brother Caleb on an amazing adventure to Sydney Harbour! You'll bake cakes to discover why some things are heavy and others are light, learn how fish breathe underwater, and solve the mystery of why boats float. Get ready to experiment, explore, and even catch real fish while protecting our oceans!

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