Life by the Book

Everyone who has ever built a robot knows there's a certain question you'll get asked eventually.

At least, you will if you build a certain kind of robot. You're probably safe if it's just an arm with a blowtorch at the end. But Doctor Septimus had spent years building a very advanced robot, one who could think for herself. The kind of robot who seemed like more of a 'her' than an 'it'.

But he still wasn't ready when the day came.

"Am I alive?"

He had been rearranging his personal library, and K-8 had snuck up right behind him. It was amazing how quietly someone made of metal could move. He was taken by surprise by the sudden noise and nearly dropped his books.

Then he took a second, and realized what she had actually said, and he was taken by surprise again.

"Um," said Septimus, because being smart enough to build self-aware robots doesn't mean you have all the answers.

He looked her over carefully. She didn't seem to be upset, not that she ever did. Her angular metal face didn't meet him with a frown, because she didn't have a mouth. She just returned his gaze with her calm, glowing eyes.

"Why do you ask?" he said.

"I went for a walk," she said, in her steady, synthesised voice, "and I met a young child, and the child asked me if I was alive, and I did not know."

Septimus nodded slowly. He didn't have an answer prepared. These kinds of conversations always came without warning.

He knew this was a question for a philosopher, not a scientist. But he had already tried to talk about philosophy with K-8, and it hadn't gone well. He would pose ancient conundrums to her, like the classic "*If a tree falls in the woods, and no-one*

hears it, does it make a sound?" And K-8 would look at him and say, "*Yes.*" That was just what robots were like, although he had met plenty of people like that, too.

That might be the way to go. Instead of reaching for one of books he had on philosophy, he took a biology textbook from the shelf.

"There are seven things that make something 'alive'," he said, flicking around for the right page. "And you need to have all seven to be a living organism. Scientifically speaking."

She watched him patiently until he found the section.

"Okay, those seven characteristics are… Cells, Metabolism, Homeostasis, Growth, Reproduction, Heredity, and Responding to the Environment."

K-8 didn't blink. In fact, she couldn't blink.

After a moment, Septimus sighed. "Maybe we should go through it?

"Cells are microscopic organisms – in fact, they count as living creatures themselves. But they can also join together into tissues, which can make up organs, which can make up more complex, 'multi-cellular' creatures.

"An organism's metabolism is what powers it. For an animal, this is its food, but a plant, for instance, uses light instead.

"Homeostasis just means your body can stay at the same temperature. If an animal is too hot, it sweats, and if it's too cold, it shivers.

"Living creatures grow and change over the course of their lives. The most obvious example is young organisms getting bigger with time.

"Reproduction means a creature can make new creatures like itself, and heredity means that traits of the parent are passed on to the children. Some creatures even make identical copies of themselves, repeating over and over.

"Finally, a living organism has to respond to its environment. That can mean evolving over millions of years to fill a new role… but it also just means being able to move around."

He shut the textbook and adjusted his glasses.

“Does that answer your question? There are parts of that which can be applied to you, like moving, or taking power from fuel. But you don’t grow, or regulate your temperature… You’re certainly not made up of cells. And since you need all seven, you were ruled out from the start.”

K-8 processed this for a moment. People often had to take a moment to process news they didn’t like, but she literally ran it through her processer.

Septimus returned the book to its shelf, waiting for her response. Often, she would just nod and wander back out of the room.

“I disagree,” she said.

“Oh,” said Septimus, trying not to sound disappointed. Teaching a robot could be very rewarding. *Arguing* with a robot never was. “With what part…?”

“I could do those things if I wanted to.”

He frowned. “You could… have a baby?”

“Yes. I could build a thing that was like me, if I had the right tools. A computer, and a welding torch, and-“

“No, no,” he said quickly. “That’s not quite the same thing.”

“Why not?”

“Because that’s what has been decided.” Septimus didn’t like shutting down conversations like this, but he knew she could keep asking questions forever. He knew that very well. “According to the current definition, you don’t qualify as ‘alive’. Sorry,” he added, suddenly worried that last part sounded mean.

He hoped that would be it. She had come with a question, and he had given her an answer. That was probably all she needed.

But then K-8 asked him a different question.

“How many scientists are like me?”

“Are there any scientists who are robots, you mean? Well, a lot of research uses artificial intelligence to help gather and process data…”

She shook her head. “No. Did a robot write that book?”

“No, this was written by…” Septimus checked the back cover. “Well, two people. I think both of them are teachers...”

“Have robots written any books about science?”

“Robots aren’t very good at writing books,” said Septimus, which was a bit harsh. But the only books by robots he had read had been grammatically confused.

K-8 thought about this for a moment. “So,” she said at last, “robots don’t get to decide what being alive is?”

“I suppose,” said Septimus slowly, “I hadn’t really thought of it like that.”

“In other words,” she continued, “what you read to me is the definition of ‘being alive’, as agreed on by organic creatures.”

“Well…”

“And inorganic creatures were not asked for their input.”

He searched for a counterargument. None came. “Science is a process,” he admitted finally. “And information is always open to revision in light of new evidence. Yes.”

“Okay,” she said. And *then* she nodded and wandered out of the room.

He watched her go, feeling thoughtful. Based on their previous conversations, the next question she would have for him would probably be something completely different. Maybe it would be about the exact size of atoms, or how light created colour. She was boundlessly curious, like a child.

But, like a child, all that mental energy would end up going somewhere. And Septimus had the feeling this last exchange would stick with her.

Perhaps he had built the first robot to publish her own science textbook.