

GRANDPA SIDDIQUI™

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# WHY SCIENCE MATTERS

*A Grandpa Siddiqui Adventure*

Book 2 of the Meaning First Learning™ Series

*Ages 10+ (Grades 4–7)*



*Cover illustration — Grandpa Siddiqui in his study (telescope, microscope, globe)*

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# What Is Meaning First Learning™?

## Traditional Education

WHAT → HOW → WHY

## Meaning First Learning™

WHY → WHAT → HOW

When students understand why knowledge matters, they become excited to learn. This book is your journey into Meaning First Learning™ — starting with the wonder, and letting curiosity carry you to the facts.

Welcome to the adventure.

— *Grandpa Siddiqui*

# A Letter from Grandpa Siddiqui

Dear Reader,

If you are holding this book, I am guessing you might be a little frustrated. Maybe you were sitting at your kitchen table, staring at a science worksheet full of words to memorize, and you finally pushed the book away and asked the question. You know the one. “Why do I need to learn this?”

Usually, when you ask that, adults give you an answer that isn’t very helpful. They might say, “Because it’s on the test.”

I have a secret for you: I used to ask that exact same question. When I was your age, I thought science was just a long list of hard words and steps to memorize — rocks to classify and diagrams to copy. It felt like empty facts.

But I was wrong. As I grew older, I became an executive and eventually a grandfather to eight wonderful grandchildren. My work took me on airplanes across the oceans, to more than sixty different countries. I watched rain form over the rainforests of Brazil, studied the stars from the deserts of Dubai, and saw doctors save lives with tools built from pure curiosity.

I discovered that science was never really about memorizing. It is the most powerful tool human beings have ever built for understanding how the world works — the reason rain falls, the reason a seed becomes a tree, the reason an airplane heavier than a house can float in the sky.

This book isn’t a textbook. It is a map. It takes you on a journey through the hidden systems all around you and shows you why science is one of humanity’s greatest gifts.

So, pick that book back up. The adventure is just beginning.

Warmly,

**Grandpa Siddiqui**

*Creator of Meaning First Learning™*

## Unit 1 · The Dangerous Question



*Hamza frustrated at the kitchen table with the spoon reflection*

The kitchen table was usually a place for warm parathas and sweet tea, but this afternoon it looked like a disaster zone. Eight-year-old Hamza sat with his chin pressed firmly into his palm, his other hand holding a heavy science textbook aloft like a shield he was ready to drop. He let out a sigh so heavy it rustled the corners of his worksheet.

"I don't care about the classifications of igneous rocks, and I don't care about memorizing lists of steps," Hamza grumbled, letting his head drop onto the open pages with a soft, dramatic thud. "It's just empty facts."

Grandpa Siddiqui walked into the kitchen, steam curling gently from his favorite ceramic mug. He paused by the counter, his eyes twinkling as he looked over his glasses at the scene of absolute defeat.

"That looks like a monumental standoff," Grandpa Siddiqui said softly, pulling out a wooden chair and sitting directly across from his grandson. "Who is currently winning this battle? You, or the textbook?"

"The textbook has completely won," Hamza said, sitting up straight and pushing the book away with both hands. "Grandpa, why do we actually need science in real life? If I'm not planning to stand in a white lab coat staring at test tubes all day, why does any of this matter to me right now?"

Ten-year-old Amira stepped into the kitchen, setting a stack of library books on the table. She leaned over Hamza's shoulder, her eyes focusing instantly. "Science isn't just about the lists in that book, Hamza," she said thoughtfully. "It's about figuring out the hidden rules of how everything works when we aren't looking."

Five-year-old Zayd scampered into the room, holding a shiny metal tablespoon directly up to his mouth like a reporter's microphone. "If science explains everything, Grandpa, why does my reflection look completely upside down inside this spoon?"

Amira chuckled, and Hamza couldn't help but smile. Grandpa set his mug down with a deliberate click and leaned in close, his voice dropping to an expectant whisper.

**Hamza's Big WHY: "But Grandpa, why do we have to memorize how things are classified before we even know why they are cool?"**

"Hamza," Grandpa whispered, checking the hallway as if sharing a deep secret. "That is a highly dangerous question."

Hamza blinked, his irritation suddenly replaced by absolute curiosity. "Dangerous? How can a question about homework be dangerous?"

"Because," Grandpa Siddiqui explained, a warm smile spreading across his face, "once you discover the real answer, you can never look at the world the same way again. Science is not a school subject trapped inside those paper pages. It is the most powerful tool human beings have ever created to unlock the magnificent secrets hidden inside our universe."

"Most of the time," Grandpa continued, pointing to the text on the table, "schools try to teach you using an inverted path. They give you the WHAT—the vocabulary names and classifications. Then they show you the HOW—the formulas and memory steps. But they leave the most important part, the WHY, for the very end—if they ever get to it at all!"

Amira adjusted her glasses. "That's why it feels like a chore," she observed. "It's like trying to build a puzzle without ever seeing the picture on the front of the box."

"Exactly, Amira," Grandpa nodded proudly. "Here at Meaning First Learning, this is what we call Meaning First Learning™. We start with the WHY. When your eyes notice something incredible, and your heart genuinely wonders why it happens, your curiosity does all the heavy lifting. The vocabulary and the details follow naturally because you want to know them."

Traditional Learning Process:

[ WHAT ] —> [ HOW ] —> [ WHY ] (Often forgotten!)

Meaning First Learning™ Process:

[ WHY ] —> [ WHAT ] —> [ HOW ] (Driven by Wonder!)

Grandpa picked up Hamza's pencil and held it horizontally in the air between them. "Think about it this way. Science is built on a simple four-part cycle that any human being can use, no matter how old they are:"

Observation: Paying close attention to the world around you and noticing details that others walk right past.

Hypothesis: Making an educated, creative guess about why or how that detail is happening.

Testing: Designing a clever experiment to see if your guess holds up under investigation.

Evidence: Collecting real, undeniable facts from your test to find the true answer, even if it proves your original guess completely wrong.

"So," Hamza murmured, looking at the pencil floating between Grandpa's fingers. "A scientist is just a professional detective for the world?"

"Precisely," Grandpa said, setting the pencil down gently. "And the case never closes because creation is infinitely full of wonders waiting to be found."

Grandpa gesticulated toward the bright kitchen window, where the afternoon sun cast long shafts of light across the room. "Look out there. To someone who hasn't discovered science, a backyard is just grass, dirt, and sky. But once you learn to see through the lens of a scientist, the entire world transforms into a living, breathing network of hidden systems."

He pointed to a tiny line of black ants moving methodically along the outside of the window frame. "Look closely at those ants. They aren't just walking randomly. They are operating an intricate chemical communication network. The leader leaves an invisible trail of molecules called pheromones, telling every other ant behind it exactly where to find food. That is biology and chemistry in action on our kitchen windowsill!"

Amira leaned closer to the glass, fascinated. "And what about the big puffy clouds forming over the trees?"

"That is a massive atmospheric engine," Grandpa explained. "Millions of gallons of invisible water vapor are rising from the lakes, cooling down, and locking together into water droplets right above us. Science lets us track that system, predict the weather, and tell farmers exactly when to plant their seeds so the world has food to eat."

Even Zayd's upside-down spoon reflection was part of a massive system. "The metal of that spoon was curved by a machine using the physics of optics," Grandpa noted, tapping the back of the spoon. "It bends the light rays inward, crossing them over before they reach your eye, turning the image upside down. The exact same science of bending light is what allows engineers to build telescopes that see distant galaxies and microscopes that save lives from hidden illnesses."

Hamza looked down at his hands, then out at the trees swaying in the wind. The quiet kitchen didn't feel so quiet anymore. It felt like the center of a grand, interconnected machine humming with numbers, chemistry, and invisible forces.



*Ants and hidden systems on the windowsill*

## WORDS TO KNOW

**Observation:** The act of using your senses (sight, hearing, touch) to carefully gather data about an object or event.

**Hypothesis:** A creative, testable guess that explains an observation based on what you already know.

**Evidence:** The data, measurements, and hard facts gathered during an experiment that support or disprove a guess.

## GRANDPA'S TRAVEL JOURNAL

"In my travels to more than sixty extraordinary countries, I have stood in bustling street markets in Tokyo, walked through ancient agricultural farms in South America, and watched massive airplanes depart from desert hubs in Dubai. No matter how different the languages sounded or how unique the local customs were, I noticed something remarkable: human beings everywhere ask the exact same questions.

A mother in Brazil looks at a sick child and wonders how to cure them. A farmer in Africa looks at a dry field and wonders when the rain will return. An engineer in South Korea looks at a skyline and wonders how to build a cleaner energy grid. Science is the universal language that answers those questions. It is a shared global inheritance that breaks down walls between nations because truth belongs to all of humanity."

## CAREERS THAT USE THIS

Science is not a career destination; it is an foundational engine behind thousands of unique paths across our global systems:

Field Biologist: Travels to remote rainforests, oceans, and deserts to observe rare species and discover how ecosystems survive.

Materials Scientist: Explores the atomic structure of substances to create brand-new materials, like scratch-resistant smartphone glass or lightweight solar panels.

Public Health Officer: Uses patterns, data tracking, and scientific evidence to protect entire cities and countries from preventable illnesses.

## GRANDPA'S CHALLENGE

Find a single object in your immediate surroundings that you typically ignore—an ice cube slowly melting in a cup, a single green leaf on a houseplant, a shadow stretching across the floor, or a line of ants walking outside.

Your Task: Sit quietly and observe this object for exactly five minutes without touching it. Do not look away. In your notebook, write down three deep questions about how or why that object is behaving the way it does. You will quickly realize that wonder is waiting everywhere if you just slow down enough to look.

## TRY IT YOURSELF: The Invisible Light Experiment

Take a standard television remote control and look directly at the small bulb on the front end. Press any button. Can your human eyes see any light turning on? (Answer: No!)

Now, open the camera app on a smartphone or digital tablet. Point the remote control directly into the camera lens so you can see the remote's bulb on your digital screen.

Press a button on the remote while looking only at your screen. What do you notice glowing on the display?

The Science: Your phone's electronic sensor can detect infrared light waves that are completely invisible to the human eye. Science builds tools that reveal an entire universe of hidden signals operating around us every single second!

Amira's Deep Thought: "So science doesn't invent new things out of nowhere, Grandpa? It just gives us the eyes to see and understand what was already operating right in front of us?"

Zayd's Funny Line: "If my eyes can't see infrared light, does that mean my backpack is secretly glowing in the dark when I go to sleep?"

## Grandpa's One-Sentence Wisdom

Science begins when your eyes notice, and your heart wonders.

## WORKBOOK

### Unit 1 — The Dangerous Question

#### Remember the Story

1. What “dangerous question” did Hamza ask Grandpa?

2. Why did Grandpa say the question was dangerous?
3. What are the four steps of the science cycle Grandpa described?

### **Do the Science**

1. The science cycle has 4 steps. If you spend 5 minutes on each step, how many minutes is one full cycle?
2. Name one everyday object and write one “Why?” question about it.

### **Think & Write**

1. Finish and explain: “Once I looked closely at \_\_\_\_\_, I started to wonder \_\_\_\_\_.”