

CUBED



Decoding. Language. Reading.

Douglas B. Petersen
Trina D. Spencer

THIRD EDITION

BENCHMARK STUDENT STIMULUS BOOK



Reading (Grades 9-12)



Decoding Inventory (DI)

Luna Reyes adjusted her camera settings in the fading twilight of her grandmother's garden, which had long been a place of solace. As her grandmother's memory slipped away like petals from withering roses, Luna had promised to capture their family's story through photography. But her latest images were chaotic, like a sketch drawn with an unsteady hand.

Luna reviewed the pictures in frustration, her vision blurring with tears. She recalled from her photography class that shooting in low light requires balancing settings like shutter speed and aperture. A slower shutter speed exposes the camera's sensor to more light but may cause motion blur if the camera or subject moves.

Aperture refers to the size of the lens opening, which can alter brightness as well as depth. Determined to improve, Luna decided to focus on adjusting her camera settings. She spent the next morning carefully making changes, but despite their technical precision, the photos felt cold and lifeless, failing to reflect her grandmother's vibrant spirit that still flickered beneath the surface.

Discouraged, Luna decided to turn to her grandmother for guidance. As Luna showed her the images, her grandmother gently folded her weathered hands over Luna's, which trembled with fatigue, and said, "Pictures speak their own truth. The most beautiful photographs capture life as it is. Even these shaky old hands, tell a story worth sharing." Inspired, Luna let go of her pursuit of perfection and followed her grandmother into the garden, capturing moments of authenticity: her trembling hands nurturing the blooms and her radiant smile matched the glow of the fleeting sunlight.

When Luna reviewed the new shots, a sense of accomplishment washed over her. The images revealed the garden's fading beauty, wild and tangled, mirroring her grandmother's cherished yet faltering memories. The evening sun bathed the overgrown garden in light, which softened the decay and transformed it into a breathtaking scene.

That evening, she showed the pictures to her grandmother, whose eyes lit up with recognition as she traced the photos with trembling fingers that paused on each image. Luna realized true beauty lay in life's unpredictability, not perfection.

Maya Davis stepped up to the starting line of the regional distance qualifier, the race that would determine whether she earned a spot at the championship, having trained all season for this moment. When her teammate Harper jogged over and told her quietly to just run her race, the words settled over her like a steadying hand.

The starting signal fired, and Maya settled into her pace, her breathing controlled as she positioned herself in the middle of the pack. But several laps in, a sharp, twisting pain seized her right calf — a sudden, searing desperation spreading through her as the muscle locked tight beneath her skin. If she couldn't shake the cramp, the championship and months of strenuous preparation would slip through her fingers like sand.

"Keep moving, keep moving," she told herself, desperately trying to stretch the cramp out mid-stride. She remembered her athletic trainer explaining that muscle cramps occur when a muscle contracts involuntarily and cannot relax, typically caused by dehydration or a deficiency of electrolytes like sodium and potassium, which muscles require to regulate contraction and recovery.

Maya tried lengthening her stride to loosen the locked muscle, but the pain only tightened its grip. She slowed to an agonizing jog as the other runners pulled ahead, and a wave of despair washed over her like cold water rising. Harper appeared at the edge of the track and thrust a bottle toward her, shouting that her muscles were depleted and needed electrolytes immediately.

Maya grabbed the bottle without stopping, forcing down several gulps as she kept her legs moving. The cramp began to loosen, slowly at first, then enough for her to lengthen her pace. She wouldn't win — but she didn't need to. With one lap remaining, she surged forward, her legs burning but holding steady, and crossed the line in fourth place, just enough to qualify.

Harper found her at the finish line, and when their eyes met, no words were necessary. A quiet, profound relief moved through Maya as she understood what the race had required — not a flawless performance, but the refusal to let the pain have the last word.

Marcus adjusted the bass levels on his mixing board as the gymnasium filled with students for the homecoming dance. It was his biggest stage yet — three hundred students packed shoulder to shoulder, the air reverberating with anticipation, and he had never felt more prepared.

Minutes into his set, the music began to sound distorted and warped, as though the speakers were struggling to contain the signal. A surge of alarm overtook Marcus as he recognized the unmistakable signs of a malfunction. If he couldn't resolve it before the crowd lost momentum, his reputation as a DJ and his shot at booking the spring formal would be finished.

He recalled from his audio engineering class that distortion occurs when speakers receive a signal of excessive amplitude. This happens when the signal exceeds the threshold the hardware is designed to accommodate, causing the sound wave to compress and flatten rather than reproduce the original accurately. Reducing the output level can sometimes restore clarity, so Marcus adjusted his gain settings methodically. Instead, the deterioration accelerated, and the speakers released a harsh screech before collapsing into a low, persistent hum.

Marcus stepped back from the board, a feeling of dread spreading through him as the silence settled over the gymnasium like a held breath, and he could feel the restlessness rippling through the crowd. Jade appeared at his side, her expression taut with concern. She said quietly, "Something smells like it's burning near the amp — I don't think it's your settings."

His focus sharpened immediately. Marcus knelt behind the amplifier and traced each cable with methodical fingers until he discovered a cord fraying where it connected to the input. He extracted the damaged cable and reached for his backup, plugging it in with deliberate precision before slowly restoring the volume. The bass surged back, clean and resonant, and the crowd erupted with a force that reverberated through the gymnasium walls.

After the dance, as Marcus coiled the cables and packed his cases, he tucked the backup cord in last. He almost laughed, elated by how the night had ended — that spare three feet of cable had saved the entire night.

Dani Kowalski paced the driveway outside her family's house, holding her phone above her head like a small, desperate torch. The scholarship application was due by midnight, and her essay, which she had spent weeks polishing, sat finished on her screen, waiting to upload. But the internet had been out for two days, and the one signal bar that flickered on her phone vanished every time she pressed submit.

Her throat tightened as the afternoon light faded, the shadows of the surrounding pines stretching long and dark across the property, and a quiet desperation settled over her like something physical. She had done everything right — the grades, the essay, the letters of recommendation — and now a dead signal was threatening to erase all of it.

She recalled what she had learned about cellular transmission: cell phones communicate by sending and receiving radio waves to nearby towers, and signal strength depends on both distance and physical obstacles. Dense vegetation, terrain, and structures can obstruct or attenuate these waves, while higher elevations improve reception because fewer obstructions interrupt the direct path between device and tower. She eyed the steep hill behind the house and started climbing.

Halfway up the slope, two bars appeared, and she jabbed the submit button — but the signal collapsed like a door slamming shut before the upload could complete. Discouragement moved through her, but she kept climbing because the tree canopy was blocking the signal's path, and she needed open sky. She broke through the tree line onto the bare ridgeline, where the air was cold and clear above her.

Three bars appeared on her screen, and she pressed submit and held herself completely still, watching the progress bar with the concentrated attention of someone who understood that any disturbance might cost her everything. It reached one hundred percent just as the last streak of daylight disappeared behind the far hills.

She sank onto a flat rock, legs trembling, and felt a slow, profound relief move through her as she looked out over the valley. The lights of distant houses blinked on, small and steady, each one a signal of its own.

Jordan stood at his locker and felt cold certainty settle over him like a weight: the poster board was still on the kitchen table at home. His science presentation began in twenty-five minutes, and without the visual display, his group's grade would fall an entire letter. Alarm moved through him with sudden, clarifying force — he had stayed up until midnight completing it and departed without it.

He pulled out his phone and called his mom, but the call went to voicemail twice in succession. His lab partner, watching him stare at the screen, informed him that if the poster wasn't coming to him, he was going to have to go retrieve it. "Then you're running," she said, "and I'll stall." Jordan decided she was right.

His house was approximately a mile away, which left him enough time if he didn't slow down. He pushed through the school doors and sprinted, his legs accelerating harder than he anticipated, the cold air cutting against his face like something unrelenting. He retrieved the poster, tucked it under his arm, and turned immediately back toward school. As he ran, he recalled from biology that when the brain perceives urgent stress, it triggers the release of adrenaline, which increases heart rate and redirects blood flow toward the limbs. Muscle response time improves and the body's energy reserves mobilize rapidly, enabling bursts of sustained physical effort that would otherwise be physiologically unsustainable.

Halfway back, his lungs were burning and his stride was shortening in a way that told him the margin was disappearing. He calculated nine minutes remaining and six blocks still ahead — a margin that felt simultaneously precarious and absolute, pressing against him like something immovable. Determined not to surrender to the arithmetic, he fixed his attention on the next block rather than the full distance, because the whole route felt impossible and the next block did not.

He walked through the classroom door with four minutes to spare, shirt damp, chest heaving. The presentation proved successful — his group fielded questions with a composure that surprised even Jordan himself. When it was over, he sat down and felt a slow wave of relief settle through him. He had remembered everything except the one thing he was supposed to bring — and somehow it had still worked out.

Marco knelt on the cold concrete floor of the family garage, his hands resting on the hood of his grandfather's truck. Dawn was still an hour away, and the air carried the pervasive smell of motor oil and weathered timber. He needed the engine running before six o'clock for his first shift at the warehouse, and the urgency of that deadline pressed against him like a hand at his back.

Determined not to surrender, he turned the key, and the truck responded with a hollow, reverberant click — a sound suggesting electrical failure rather than mechanical. Marco lifted the hood and examined the engine with methodical attention, tracing each connection until he identified the battery terminals as the most probable cause. He spent several minutes cleaning them carefully before trying again, but the truck only groaned and shuddered like something refusing to wake, with a reluctance that told him the problem ran considerably deeper.

Discouragement intensified into dread as the sky outside began to lighten perceptibly. He recalled what his grandfather had spent years teaching him: that a combustion engine depends on a precise sequence of events occurring in unison. The battery delivers an electrical current to the starter motor, which rotates the crankshaft. As the crankshaft turns, it draws a compressed mixture of fuel and air into the cylinders. Spark plugs then ignite that mixture, producing the controlled combustion that sustains the engine. If the terminals were functioning, the spark plugs were the logical next cause.

Marco retrieved each plug with deliberate precision and scrubbed them with a wire brush from the workbench, then reinstalled them and turned the key. The engine caught with a deep, rattling cough that gradually steadied into a low, resonant rumble. It sounded as familiar and grounding as a voice he had been afraid he would never hear again.

His mother appeared at the passenger window, her expression holding quiet recognition, and said softly, "He would be proud." Marco nodded, his throat too tight for words, and eased the truck into reverse. The first pale light was breaking over the ridge as he pulled out into the morning — the engine rumbling steadily beneath him, a sound that felt less like a machine and more like a life shifting into gear.

Jade Oakton pulled up her banking app in the parking lot outside the movie theater, squinting at the screen while her friends waited by the entrance. The faint smell of popcorn drifted through the cool evening air, which still carried enough bite to remind her that summer was over. It was supposed to be a carefree Friday night — one last outing before the new school year swept everyone away.

But the number staring back at her was negative, a small red minus sign that landed in her chest like something cold and unavoidable. She decided to check her savings account, hoping to transfer enough to cover the balance, while Reese called from the doorway and she told him one second without looking up. But the number there was worse than she remembered — barely eleven dollars, not enough to cover the overdraft or the fee that had already quietly posted. A quiet, sinking anxiety settled over her like sediment dropping through still water.

Her mom had warned her last night to monitor her account because an overdrawn balance — when withdrawals exceed available funds — could trigger fees that compounded faster than most people realized. Banks typically charged between twenty-five and thirty-five dollars per transaction, and if multiple charges processed on the same day, those penalties accumulated quickly. Some accounts offered overdraft protection by automatically transferring funds from a linked savings account, but Jade had never configured it. The heat of humiliation crept up her face as she stared at the screen, struggling against the mortifying awareness that she might cry in a parking lot over eleven dollars.

Then she remembered the emergency cash tucked behind her student ID and counted it quickly — a twenty and a ten, solid in her hand like an unexpected answer. Reese called again, and she told him she was good as she climbed out of the car, composing her expression into something resembling ease. “Turns out I came prepared,” she added — and meant it more than he knew.

That evening, Jade finally set the low-balance alert and resolved, with a clarity that felt long overdue, to change her financial habits. A quiet but genuine satisfaction settled over her — not from having escaped the situation, but from deciding she wouldn’t engineer one like it again.

Ren gripped the edge of the pool and stared at the pace clock, his breathing still ragged with exhaustion. Disappointment settled over him like a weight he hadn't expected to carry — he registered the result — two full seconds below the varsity qualifying standard. Unless he found a way to close that gap before the trials, his place on the team would almost certainly vanish.

He pushed off the wall and drove himself through the next lap with desperate, lunging strokes. His arms churned through the water with a ferocity that left his muscles burning like a slow fire from shoulder to fingertip. When he finally touched the tile and glanced up at the clock, his time had actually deteriorated — three seconds behind now instead of two.

Frustration coiled in his chest as he floated on his back, staring at the ceiling tiles. His older brother, Jiro, a former varsity swimmer who had been watching from the deck, crouched at the pool's edge and reminded Ren of a fundamental principle. Swimmers encounter a force called drag whenever their bodies move through water, and drag increases proportionally with surface area. Body positioning therefore carries significant consequences for velocity. Even minor errors in form create a wider profile against the water. A head tilted upward or hips that sink even fractionally compel a swimmer to expend considerably more energy for considerably less speed.

"The fastest swimmers aren't the strongest," Jiro said quietly, as Ren climbed onto the deck. "They're simply the ones the water barely notices." Contemplating that image, Ren slid back into the lane and redirected his attention entirely to positioning — tucking his chin, engaging his core, allowing his hips to rise. His body formed a streamlined configuration, cutting through the resistance with an efficiency he had not previously experienced.

When he touched the wall and looked up, Jiro was already grinning because Ren had surpassed the qualifying standard. Walking home in the fading afternoon light, Ren felt a quiet, unexpected satisfaction settle over him. It was not the frantic intensity of having pushed harder, but something steadier, like the difference between fighting water and moving with it — the particular confidence that belongs to someone who has understood a problem deeply enough to transform it.

Elijah Williams stared at the blinking cursor on his laptop screen, the bedroom quiet except for the hum of the fan. His college personal essay was due in twelve hours, and he had already discarded three drafts — each technically competent but hollow in a way he struggled to articulate. He wanted to write about the summer he learned to fly fish. Although the memory surfaced vividly whenever he reached for it, every attempt to render it in words landed flat and unconvincing, like a map drawn of a place he had never visited.

Frustrated, he tried a more systematic approach, constructing a careful description of the river's geography and the precise mechanics of casting. When he read the draft back, it sounded clinical and lifeless — accurate in every measurable detail but completely disconnected from what the experience had actually felt like, like a photograph taken of the wrong moment. Defeated, he shoved the laptop aside.

His older sister, Sophia, found him at the kitchen table, his thoughts wandering. “Stop trying to make it sound like an essay,” she said. “Just write about what you actually remember.” Determined, Elijah returned to his room and closed his eyes, letting the memory surface on its own. What emerged wasn't the river's geography or the mechanics of casting — it was the smell: dark, muddy, and cold in a way that reached the back of his throat like cold river water, involuntary and startlingly precise. His teacher in his psychology class had explained that memory is encoded through two distinct structures: the hippocampus, which stores experiences in long-term memory, and the amygdala, which attaches emotional weight to sensory details. This is why a smell or sound can bypass deliberate thought and return a person to a moment with startling completeness. His first draft had contained none of that — only sequence, no sensation.

He opened his eyes and began typing — not about technique or current, but about standing in cold water for hours before anything happened, and the light shifting almost imperceptibly across the surface.

When he finally read the new draft, a wave of relief settled over him. The essay wasn't flawless, but it felt genuinely honest — as though the river itself had found its way somewhere between the lines. The river had never managed to drive him out. A blank page, he realized, never stood a chance.

Cole Harmon glanced at the illuminated fuel light as he drove down the two-lane highway, the sun nearly disappeared. The last gas station was fifteen minutes behind him, home approximately twenty miles ahead, and the needle wavered just above empty. He had made this drive a dozen times since getting his license — every other weekend to his dad’s place and back — but he had never cut it this close, and a low, familiar dread settled in his chest like sediment.

From the passenger seat, his younger sister Izzy asked if they were okay. Cole told her they were fine, maintaining his composure, and pressed the accelerator harder, hoping speed would close the distance before the tank ran dry. The engine responded, but the needle dipped faster now, declining perceptibly with each passing mile.

Cold panic spread through him like ice water, and gripping the wheel, he recalled what he had learned about fuel systems. A fuel pump draws gasoline from the tank and delivers it to the fuel injectors, which spray a controlled mist into the engine’s cylinders. Driving at high speeds forces the injectors to work considerably harder, rapidly depleting the supply, while steady moderate speeds allow the engine to operate far more efficiently. He was doing precisely the wrong thing.

“Dad always says slow and steady wins the race,” Izzy muttered, not looking up from her phone. Cole sighed and released the accelerator, settling the speedometer at fifty and allowing the car to coast on the downhill stretches. Each mile felt like a held breath, but the needle gradually steadied itself, as though the car instinctively recognized the change and rewarded it.

When the gas station sign finally appeared on the horizon, Cole exhaled — a slow, unsteady release of everything he had been suppressing. The car rolled up to the pump on fumes, the engine sputtering reluctantly before he shifted into park.

He sat for a long moment after filling the tank, acutely aware of how close it had been. He had been running on empty for longer than just tonight — every other weekend, between two houses, pretending the drive was nothing. Maybe the drive wasn’t so different from everything else: you get farther by easing up, not pushing harder.

Nadia Solano stood in the wings of Lincoln High’s auditorium, gripping the worn script as her pulse drummed against her ribs. For three months she had quietly memorized every line and lyric as the understudy for the spring musical, never genuinely expecting to perform. When the director called to say Kiera, the star of the show, had lost her voice, a wave of apprehension moved through Nadia like cold water — she had one evening to prove she could carry the show.

Kiera appeared beside her as Nadia readied herself to go on and told her she had always known every word. Nadia nodded, unconvinced — knowing the words and inhabiting a performance were entirely different things. She decided to rehearse the opening number exactly as Kiera had always performed it, projecting with bold gestures at the full top of her range. Her voice cracked on the high note and reverberated strangely off the back wall, thin and brittle as glass under pressure.

Frustrated, Nadia retreated to the edge of the stage. She recalled what her vocal coach had taught her about diaphragmatic breathing — the technique of drawing air from deep in the core rather than the throat, which provides a more stable foundation for vocal production. Sound also resonates in the chest cavity, generating natural amplification when the throat and jaw remain relaxed rather than constricted. The more she tried to replicate Kiera’s voice, the more her own contracted against her — tightening like a fist around something fragile.

She squared her shoulders, drew a long, deliberate breath from deep in her core, and began again on her own terms. The notes emerged fuller and steadier, expanding through the auditorium like light filling a darkened room.

Kiera was still watching from the wings when Nadia finished. “That,” she said quietly, “is the version they’re going to remember.”

When the curtain rose the following evening, Nadia stepped into the light and delivered a performance that was unmistakably her own. The audience rose before the final note faded. A feeling of exhilaration moved through her — not relief that she had survived, but the particular satisfaction of having replaced someone else’s shadow with her own voice.

Malik Chen sat on the edge of the driveway as his younger sister Nia stood over her bicycle for the third time that evening, her jaw set in the particular way that meant she was about to give up. He had promised her — and their mother — that he would teach her to ride before he left for college in three months, and this was the fourth attempt of the week.

Each session ended the same way: Nia frustrated, the bike leaning against the garage, and Malik wondering why his own father's lessons had felt so simple when he was her age.

He walked over and gave her the same advice his dad had given him: keep your eyes forward, grip the handlebars firmly, push off with your dominant foot, remember to pedal, and above all don't overthink it. Nia nodded and pushed off with visible determination. Within three seconds, she had veered into the grass and dropped the bike, tears already forming.

Malik knelt beside her, his throat tightening. He had loved his father's lessons because he had been ready for them — but Nia wasn't him, and this was not that afternoon. Sitting cross-legged on the pavement, he attempted to reconstruct what his AP Psychology teacher had elucidated about working memory — that humans could sustain only three or four new elements at once before performance deteriorated, and novices under duress retained fewer. When a teacher issued five or six instructions in rapid succession, the learner wasn't failing to listen; their working memory was simply saturated, and the effort of retaining every instruction prevented the automatic movements the skill required. He had just handed Nia six instructions.

He rolled the bike back over, sat down on the pavement so their eyes were level, and told her they were going to try something different: forget balance, forget pedaling, forget everything. Just push off and coast, feet dragging if she wanted. Nothing else. She looked at him warily, then nodded and tried. She rolled six feet, her feet skimming the ground, and looked back at him with the first smile of the evening.

Walking home later, Nia coasting slowly beside him on the bike, Malik felt something unfamiliar — not pride but a quieter awareness. He had spent his whole life being taught, and now he was being asked to teach. What his father had made look easy had taken him seventeen years to understand: teaching well meant unlearning your own path and building someone else's.

Closed Syllables

min sal jom vun quim whav

fap deg gib les pag rud tus baf shil het

wan kex zick chom thuz vill cass noff

Vowel-Consonant-E

naze gude mepe sule wonkide atane

jime tebe goke fene vome rame sove

Basic Affixes

hezes pafed senest bruful temness premiv

foting unron repog miver dutless giply

Advanced Affixes

mubtion discla gobic mavible gopture gepous

bimog trizom nonplut zikable misdut transbub uniquin virupt

Vowel Teams

feep naig touv keat heag goupaiik

zay loak zoon soud wook poig shaw hieb roef zow bewk pauk

Vowel-R-Controlled

klar ner foarp mour lare lirparg

tor wir ploor rark zair kear zur theer glier searc lourt vour slore

Complex Vowels

vind	nild	zough	keigh	glaught	kighdost
------	------	-------	-------	---------	----------

vost grolld figh pight wought pough klaugh

Advanced Word Forms

wecent	smink	lomb	glistle	ohong	grombacent
--------	-------	------	---------	-------	------------

brism grunk mank ghosl futle