Duncan Germain, a first-year teacher at Voyager Academy, a publicly funded charter school in Durham, North Carolina, teaches Creative Productions. It's not your typical school subject (which means I like it already), so it's sometimes hard to tell what exactly is going on in this twenty-four-year-old's classroom. Computers form an L along the back and side of an alcove. By a row of windows, long wooden poles, thick as I-beams, lean into the corner, partially covered by a tarp. A box of Popsicle sticks sits on a desk with another computer, along with index cards, Post-it notes, rulers, and scissors, and plenty of glue guns, too. The room is full of books. Beneath a Smart Board is an unrecognizable object, clearly handmade, about three feet high and three feet wide, constructed from wooden planking cut into various lengths and then glued together, with something like pilings on each side and an irregular V-shaped gap down the middle. Sturdy screw-eye hooks top each of the pilings, as if waiting to be attached to something, although I'm not sure what. Mr. Germain starts to write. Between the pointer finger and thumb of his left hand, there's either a tattoo or something he's written there this morning in dark blue ink. It reads: "What would Ender do?"

Now there's a tough question. Ender is the hero of the science fiction saga beginning with *Ender's Game* (1985), by novelist Orson Scott Card. Ender is a tactician and a genius, the ultimate leader and protector of Earth. In this series set in the far future, the inhabitants of Earth must decide how to fend off invasions by hostile beings inhabiting solar systems light-years away. Ender's childhood games prepare him to be that ultimate leader, holding the destiny of entire civilizations in his powerful command. Mr. Germain believes we all need to take our education seriously and that every child, including each sixth grader at Voyager Academy, needs to view learning as the key to a future whose destiny she holds in her own hand. Like Ender. That's how Mr. Germain teaches, with the intensity of someone who believes that, individually and collectively, we are responsible for our civilization's survival. When I ask him what his standard for success is, his answer is simple: "Perfection." I'm taken aback, but as I watch the class unfold, I understand that he challenges each child to find a perfection of his or her own. No aiming for the A, B, C, or D here. The bar is set at "How high can we go?"

As his students come into the room, they all pause and read what Mr. Germain has written on the board: "What's your specific role in your group today? What's your job?"

They take turns grabbing markers and they scrawl answers across the board, initialing what they write. They are chatting quietly, a school rule for entering and leaving the room. They make their way to their seats, arranged in groups of four chairs around tables in two rows down the room.

While the kids are answering the questions on the board, Mr. Germain tells me he often begins a day like this, focusing their attention with questions that succinctly restate problems or dilemmas they expressed the day before. He condenses their concerns, but always as questions that require them to answer, focusing on solving what bothered them the day before. Yesterday, some of the kids were frustrated that others weren't collaborating as well as they might have. So today's class begins by addressing that leftover anxiety before moving on to the set of challenges to be addressed today.

Voyager Academy is a very special school. It accepts only a hundred kids a year, as determined by a lottery system, and the kids know they are lucky to be here. It's been open only two years, so everyone here has been somewhere else, and they know the difference. They are all here by choice. At the same time, there are other forms of diversity. The proportion of kids with learning disabilities is higher at Voyager than the norm, as it is with many charter schools. Because of the smaller class size and the

attention to hands-on learning, many parents who feel as if their kids have been falling behind in traditional schools try Voyager. In that it is kin to Q2L, though the two schools take different approaches to reach similar ends.

As with any charter school, this one has its own forms of accountability and must abide by those, in addition to the state-approved goals it must meet in order to continue to receive public funding. It charges no tuition, and there's a considerable waiting list of parents hoping their kids might get in. Kids at Voyager also take standard North Carolina end-of-grade (EOG) tests, but they are dealt with as an obligation, an add-on; it's as though they are not part of the educational philosophy of the school but an encumbrance imposed by regulation.

Every teacher I meet at Voyager has a story about the EOGs—what the exams fail to test; how they distract everyone from real learning; how in April everyone, from the kids to the principal, starts losing sleep over them; and how much disruption they cause to the real education happening throughout the school year. But they must be taken seriously if the school is to continue. "Failure" according to those standards isn't an option, even though the learning method designed to produce success in standardized testing is frowned upon, in practice and in principle, by everyone I meet.

So in what, then, does a class called Creative Productions offer instruction, and how does it assess? Evaluation in Mr. Germain's class is entirely test-based, but his method has almost nothing in common with the assessments of the EOG. One could almost say that the *subject* of Creative Productions is assessment. This class doesn't have a set topic. Rather, the purpose is to take what the kids learn in their other classes and find ways to apply it to some kind of real-world experience. It's a class about usefulness, taking curriculum concepts out of the abstract. The kids come up with their own ways to work toward solutions and to test the validity of those solutions in real-world and experimental situations. They analyze their own results and write essays and formal abstracts that document those results.

The project they are working on is building a bridge from Popsicle sticks. That's what that wood construction under the Smart Board is. It's the "valley" that their bridge needs to span. Mr. Germain made it himself, and the students are excited because this is the first time they've seen it, the first chance they've had to test their own creations on it.

For this project, Mr. Germain has let the kids create their own groups, and they can work in a group of any size from one to five. Some kids chose to work alone, and so long as the student is able to provide a justification for working individually, Mr. Germain approves it. Part of this lesson is to analyze advantages and disadvantages of different ways of working: independent versus group thinking, delegation of tasks, how some people step up to challenges and others let you down, and how you make the group work well together. Anxieties over collaboration were at the heart of the questions Mr. Germain wrote on the board, and when he raises the subject, ten or twelve hands shoot up, and the conversation starts in earnest over the best ways of working together.

The students offer a variety of concerns. For some, working collaboratively produces information overload. They have a hard enough time managing themselves, knowing when they are over their own capacities. One little girl is jumping up and down saying loudly, "I feel *jumpy* today, I'm too *jumpy* today." Another girl at her table looks at her sternly and says, in her best maternal voice, "Well, stop being jumpy or we won't finish our experiment today either." The speaker is the girl who wrote, in answer to the "What's your job?" question, "To get us finished." The jumpy girl wrote "Operating the glue gun" as her

answer to the question, and she turns to the maternal gal at the table and says "I'll stop jumping and get the glue gun." And amazingly, with no intervention from Mr. Germain, she stops jumping and gets the glue gun.

"Who else wants to talk about their roles today?" Mr. Germain asks.

"I want to revise our blueprint," a boy says, and Mr. Germain points to a stack of blueprints. "OK, you can go get it now and work on it for a while before we start a group project," Mr. Germain says.

Another girl has written "Leading the group" as her answer.

"That's the hardest job of all. You know that, right?" Mr. Germain asks the tall, blond girl who has taken on that leadership role for her group. She nods seriously as her eyes slide in the direction of a boy in her group who is stretched out as far as possible while still sitting on a chair, his arms raised, his legs straight, his toes pointing. He's yawning. Mr. Germain's eyes follow her gaze toward the boy and then he looks back at her. "You can do it. I'll help," he says, his voice quiet and calm.

Throughout the class, Mr. Germain keeps an eye on the boy who was stretching. He's doing well today, but I learn he's smart and energetic enough to turn the class upside down with his antics. He's been learning, lately, how to tell for himself when he's in a disruptive mood, and he has a deal going with Mr. Germain. If he feels he cannot control himself, he's allowed to just walk away and go work by himself at the computer. He doesn't have to ask permission. All he needs to do is take himself out of the situation where he'll be disruptive. It's a public pact: Everyone knows it, including the tall girl. Mr. Germain has given this boy the responsibility of controlling himself by knowing how he can be least disruptive to the group. Today it's working.

As Mr. Germain goes around the room asking each group to talk about the management challenges ahead, he gives me the project plan to look at. Each student fills out such a plan at the beginning of a new class project. On the project plans, students fill in name, class period, and date, and then answer the very first question: How will they complete their project—alone, with a partner, or with a toon? A *toon* is short for "platoon," a term for the group one depends on for strength and ingenuity, those partners who offer the vision that you cannot, on your own, even see is missing. Though it's a military term, Mr. Germain took the shortened version of it from *Ender's Game:* It's the way Ender organizes his troops.

The project plan is divided into sections: who, what, where, when, why, and how. The plan covers two full sides of a sheet of paper and asks questions about the materials needed and their source; the backup plan in case the students' project plan doesn't work; those people to whom the student will turn for feedback and help; the research sources and design of the project; and what principles require research. And then, in case I'm not impressed enough already, the sheet presents a list of three areas where the student has to provide justification for the project. I'm looking over a project plan filled out by a quiet girl with olive skin and curly brown hair. Her sheet reads:

I can *justify* this project because it connects to

1. Standard course of study: measurement, scale, structure, scientific method
2. Habits of mind: thinking flexibly, asking questions, problem solving, applying past knowledge, rejecting poor solutions, repairing, revising.
3. The outside world: understanding the principles whenever we go on a bridge, whenever we need to improvise and make a bridge.

This checklist looks like something one might find in a Harvard Business School book, the answers as good as an executive might offer up. When I ask him how he came up with his project-plan form, Mr. Germain notes that his father is a management consultant who often works with businesses adjusting to the shock waves of the new, digital global economy. Of course! I should have known. A program of learning for CEOs grappling with the twenty-first century is a great lesson plan for twelve-year-olds about to face the challenge of building a bridge from wooden sticks—and vice versa. Skills these kids learn in Creative Productions will serve them for a lifetime.

In this class, the students are testing themselves and one another all the time. For the Popsicle-stick bridge project, they began by finding the best articles they could locate on the engineering principles of bridge construction for the four main kinds of bridges. They each read some articles and then wrote abstracts for their toon and their classmates to read. Based on their reading, each toon chose a bridge type and then did further research on that one kind of bridge. They then had to ask themselves what they *didn't* learn in their research and had to come up with an empirical experiment, based on scientific principles, to find out an answer to their question. Is it better to make the bridge wider or narrower? How wide or narrow? Is it better to build with two layers or one, laying the Popsicle sticks on a diagonal or horizontally? In the classroom, there are heavy iron weights to test the tensile, yield, and breaking strengths of their structures. Each toon then writes up its experiment and their test results on index cards, with diagrams and conclusions.

Mr. Germain has distributed stacks of cards with their experiments to each table. The students read one another's experiments and findings carefully, then write out a summary of the research and an analysis of whether it seems convincing or inconclusive. They make value judgments on whether the experiment was well conceived or not. And then, after doing this for three or four experiments, they confer on whether any of the empirical evidence makes them want to modify their blueprint in any way. It's astonishing hearing them discuss the relative merits of research methods of the various studies conducted by their classmates. They act as frenetic as any sixth graders in their manner and attitudes, but the questions they raise about scientific method would make a university lab director pleased.

All of this activity leads up to the building of the bridges that will be suspended over the model canyon built by Mr. Germain. They will then subject their bridges to all kinds of tests to see if they break. Germain, who has won awards for the Lego battleships he has created, is building his own bridge, too. It is the standard of perfection to which the kids in the class must aspire. When all the bridges are done, the kids will decide which bridge is the best. And there's a prize for the best. Mr. Germain has put up a $100 prize, from his own money. If his bridge is the best, he will keep $100. If one of the groups win, they will receive this money.

But that will lead to yet another lesson. How will they divide the money? Mr. Germain tells me they've been studying monetary systems in other classes, everything from percentages, interest rates, collateral, and so forth to whole economic systems that govern different countries around the world—capitalism, socialism, communism, exchange and barter economics versus cash and credit economies. If one of the toons wins, they will have to put these economic principles to work. One for all and all for one? Or does the team leader take the biggest reward and pay wages to the others? Do you compensate your classmates in any way? You may need their help for the next project. The tests never

end in Mr. Germain's class. Each test presents its own set of complex issues, requiring its own set of skills and knowledge. It is all part of the responsibility of winning, and the class has had long discussions about borrowing, funding bridge building, financial impacts bridges have on communities, environmental consequences, and so forth.

It's at this point that the penny drops. In Creative Productions, each challenge leads not to an end point but to another challenge. It's like the game mechanics of LittleBigPlanet on the snow day in my office or like the tests Mrs. Davidson set her kids to that always led to new tests being devised by those who lost that week's challenge. Game mechanics are based on the need to know: What you need to know in order to succeed is the most important kind of knowledge, and that's not something someone else can tell you. You have to decide what you need to know and how to obtain that knowledge. The world isn't multiple-choice. Sometimes defining the question is even harder than answering the question you come up with. This is as true in life as it is in Mr. Germain's classroom.

I ask my question out loud. "You're really operating on game mechanics here, aren't you?" Duncan Germain smiles. He confides that he's one of the longest-continuing American participants in something called parkour, or freerunning, a noncompetitive physical discipline that originated in France, in which participants run along a route in man-made, typically urban, environments, negotiating every obstacle using only their well-trained bodies. Duncan doesn't look like some muscle-bound athlete, but when I watch his parkour videos on YouTube, I see him scramble up walls, jump across the gap from one rooftop to another, jump off a building and land in a roll, and pop up again to run, jump, climb, dodge, and all the rest. It's easy to see why parkour prides itself on needing brains as much as bodies to negotiate spaces that most of us would insist could not be traversed without ladders or ropes.

The philosophy of parkour is that all the world is a challenge to be respected and met. You train in groups so you can learn from one another not only techniques but your own weaknesses. Left to your own devices, you can miss your own weaknesses until it's too late. You rely on your training partners to help you improve your skills so you don't take foolhardy risks. Duncan says he's fallen seriously only once in six years, and that he didn't hurt himself badly in the fall. Parkour requires you to pay attention to all the things you normally take for granted. It tests you in situations where nothing can be taken for granted.

As in good teaching or good parenting, the challenge of Mr. Germain's hobby-sport is calibrated to the skills and understanding of the player, and the challenge only gets harder when you have succeeded at the easier challenge. The standard? Perfection.

At the end of a long day at Voyager Academy, the kids sit quietly in their homerooms, waiting for someone to pick them up and take them home. The school rules require silence during this hour of the day. Kids read or look out the window or fiddle, silently.

A boy, smaller than most of the others, with dusty blond hair and a habit of not looking at you when he speaks, asks if he can spend this homeroom time working on his bridge. It is elegant, intricate, and impeccable in its construction. Mr. Germain is going to have to work hard to beat this one. The boy takes a handful of Popsicle sticks over to the fabrication station and uses a mallet and a chisel to cut and bevel them in precise ways so he can use them to form a lattice of supports and struts.

I ask about the boy after he goes off to a far corner of the room to work on incorporating these new pieces into his beautiful bridge. Duncan says he was a bit of a lost child, someone who seemed not to have any talents, who was failing everything, every exam, every class, falling so far behind that there seemed to

be no way to rescue him. From the way he holds himself, including how he avoids eye contact with the others, I suspect he might have something like Asperger's or another attention-spectrum disorder. But this bridge assignment has his complete attention, and the result is marvelous to behold.

Is this child a failure because he cannot begin to answer A, B, C, or D in multiple-choice tests in his other classes?

Or is he a master bridge builder?

The answer may well be both, but right now we have no system in place to recognize, foster, or build upon what this child is accomplishing.

Over the PA system, a voice says a boy's name, and this one looks up. He seems sad, reluctant to leave, but a mother is waiting for him outside. He asks Mr. Germain if he can bring his bridge home so he can work on it there. This is a child who manages to lose homework assignment after homework assignment. Mr. Germain looks him squarely in the eyes, insisting on the eye contact. "Of course you can bring it home," he says, calmly, "as long as you are sure you can count on yourself to bring it back again tomorrow."

The boy hesitates. He stands up and turns in a little circle. Mr. Germain stays with him but doesn't speak; he's letting the boy work through this. I see the boy's face as he looks up at his teacher. He could not be more serious, more intent. He nods.

"Yes," he says thoughtfully and decisively. "I can count on myself."

Right now, I can only see the back of Mr. Germain's head, but I know that he must be smiling with pride. His student has passed a very important test. His score? Perfect.

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DUNCAN GERMAIN AT VOYAGER ACADEMY may or may not have studied attention blindness, but it is clear in everything he does in his class that he has mastered the idea that you need to pay attention in different ways at different times and that no one can ever see the whole picture on his own. Extended to learning, that means instead of failure being the default, adaptation is. The issue isn't whether you have learning disabilities because, in a larger sense, everyone does. No one does everything perfectly all the time. Given that inherent lack, it's just not interesting to label some disabilities and not others. Far better to diagnose what the issues are and then find the right tools, methods, and partners to compensate for those so that you are able to contribute in the unique ways that you can. Or as in the iPod experiment, better to set the challenge and leave the solution open-ended rather than prescriptive. That's the parkour credo, too: The way you overcome the obstacles in your environment is by adapting your movements to the environment. In freerunning, there are no abstractly right or wrong answers. The freerunner find solutions to the problems as they present themselves.

This is a very different way of thinking about human ability than the one we have perfected...