question that makes them search and think, such as: What types of laws did Hammurabi write and how are they like our laws? That way you focus their research and indicate the starting point for your next discussion.

So great inquiry teachers ask open-ended questions to launch a discussion and probe student thinking. Building on that discussion, they *teach,* using stories, anecdotes, documents, charts, graphs, photographs, paintings, diaries, and so forth. In this interval, students get more in-depth information that primes them for more questions and thinking.

Another skill of the inquiry teacher is helping students keep track of *what we know so far.* I like to sketch on the board as students talk. These scribbles aren't masterpieces or even intelligible to an outsider, but I've found that even cartoonish images surrounded by words help visual learners stay focused and track the discussion. You can also use lists, phrases, diagrams, or graphs to illustrate the points students make. Then pause periodically to summarize what's been said and identify the parts of the question that are still unresolved. Using this process, you model how good thinkers tackle a question and stick with it until they're satisfied. Your students learn to combine their ideas with remarks from other students, add in the information you provided and their own research "discoveries" to construct a solid body of knowledge and create new ideas. All the while, they're honing their thinking skills.

The Impact of Inquiry on Learning

You may be thinking that inquiry was a great idea in ancient Athens where people like Socrates had time on their hands and servants to tidy up after them. Whereas you're alone on the front lines of the education battle with jumbo-sized helpings of responsibility and little support. Probing questions and long answers require time that you don't have. They take patience, which may also be in short supply. Plus, teachers using the inquiry method must attend to every word students utter, and evaluate both the articulation and the thinking behind it. That's a hell of a lot more work than asking "Who was the fourth president of the United States?"

So why do great teachers use the inquiry method?

The Brain Gym

Did you know that the average teacher speaks 140 words per minute? But the average kid can hear 1,000 words per minute, and youthful brains can process up to 4,000 words per minute! Four thousand! So when you're standing in front of your class in a declarative mode, you're a slow-motion phenomenon in a high-speed world. Even if you're broadcasting at a tongue-twisting rate, a kid's

brain has lots of time on its hands. And if you've chosen a topic that holds exactly no interest for your students, you're a silent movie playing for a captive audience. The urge to yell "fire" must be overwhelming.

What's going on behind kids' foreheads during didactic bouts? If you say to your students, "What's the capital of Minnesota?" some of them will acknowledge your intrusion long enough to think "St. Paul," and then stop thinking about you. Their brains return to a topic of their choice, not remotely related to Minnesota. A bunch of other students will hear "What's the capital of Minnesota?" and decide after a nanosecond, "I don't know." But their brains keep on thinking and most of their thoughts are negative: What if he calls on me? I'll look stupid. I should have studied more. Why can't I ever remember anything? Who cares about Minnesota, anyway? I wonder if I can get a hall pass? Either way, it's not a great use of the real estate between their ears.

Inquiry questions catapult kids out of their La-Z-Boys. Faced with a single substantive question that seems to have lots of answers, their brains kick in like the search engine on a computer. All of a sudden they think, "What do I know about this?" Signals go out in every direction. Synapses crackle. The hunt is on, and it looks different in every head. One student is searching for facts while another thinks in pictures. Some dredge up personal experiences, others work from logic, or extrapolate from parallel situations. The point is, they're all on task. One good question can produce 200 cranial hits. Inquiry questions create focus, put the brain in gear and keep it there.

The Owner's Manual

When it comes right down to it, a brain is a pretty good thing to have. It's helpful in school and invaluable in most real-life situations, except maybe on a blind date or talk-radio. But like any really handy appliance, you have to know how to use it. Inquiry takes kids through the owner's manual for their brains. It helps them identify and begin to consciously examine the elements of thought: concepts, evidence, assumptions, implications, consequences, interpretations, conclusions, and points of view. Once they've studied the owner's manual, kids begin to notice the structure of their own thoughts. With a little encouragement, they'll be critiquing the utterances of people around them—their peers, school administrators, coaches, movie stars, and news commentators. And yes, you're likely to take a few friendly barbs, but it's worth it to see your kids running through all their cognitive gears. I like to tape sound bites of politicians or their spinmeisters, and let my kids dissect their utterances for batting practice. With a lot of hard work on your part, you can raise a crop of students who consciously use their brains to find and evaluate information, solve problems, and create new ideas. Ultimately you want them to be firmly in the driver's seat of

the learning machine you've built, so that when confronted with a dilemma or a meaty question, they confidently declare "Slide over. I can handle this."

The Thinking Person

So how does it actually work? How do your kids go from dependent muddleheads to autonomous thinkers? Pause, if you must, to decide if your really want a room full of autonomous thinkers, but then think how much fun it would be to spend every day with several dozen smart people. You'd be the envy of most adults in the business world, universities, or government—need I say more?

When you approach teaching through inquiry, it's like you've put a well-trained mind on speakerphone. You ask a question. That's the inciting incident for the brain. Then your kids make lots of remarks and observations. Their initial responses represent the thoughts that are triggered in the mind in response to your initial question. But here's the skill development: When you ask questions back to probe your students' thinking, you play the role of the inner voice that really good critical thinkers hear when they're working their way through a problem. In other words, you make external and visible the inner process of critical thinking. Eventually your kids internalize the process. Hence, autonomous thinkers.

Training in the inquiry method conditions the brain to raise basic issues, probe beneath the surface of things, and pursue problematic areas of thought. It also helps students:

- Develop sensitivity to clarity, accuracy, and relevance in the thoughts, arguments, and writing of other people.
- Arrive at judgments through their own reasoning.
- Adopt a penetrating and rigorous approach to topics from literature to political science.

Continuous exposure to inquiry questions teaches kids how to think in situations outside of school, to greet life with curiosity and healthy skepticism. It's possible that using the inquiry method may be one of the greatest contributions you can make to individual students and society. Why? Because real life is not a true/false or multiple-choice test. It's a series of critical judgments, from How fast can I drive on rain-slickened streets? to How will I choose between six candidates running for the same office? It's not what your kids read, but what they learn to read into a text and between the lines that makes them thinkers. Inquiry equips kids for life. Can you think of a better way to spend your time?

Wait Time in a Hurried World

By now it should be clear that inquiry teaching is an intensely cerebral activity for teachers and students. You'll need to be well-versed in the subject matter you're exploring with your students—but what great teacher isn't? Your kids need to think. But there's the rub. Thinking takes time. Suppose you ask: What do you think was the hardest thing about being a sailor on a voyage with Christopher Columbus? Suddenly there's a flurry of intracranial activity. Kids are digging, sorting, and evaluating. They're hitting the recall button, then applying the test of historic empathy: What would I hate the most about all those hardships? But that takes time. Different amounts of time for different kids, since even the smartest people process information at varying speeds.

Meanwhile, the room is as quiet as a tomb. Don't panic. And whatever you do, *don't talk*. This will be a real test of your strength, since most teachers suffer from *horror vaccui*. Typically, when teachers ask a question and get nothing in return but several dozen blank stares, they assume that something has gone terribly wrong, and switch to damage control. You know the drill. Talk louder, as if checking the acoustics. Rephrase the question to, "What made the Columbus voyages so difficult?" Now you have two slightly different questions in play, and your students must decide whether they should keep working on the first or shift to the second. Overanxious teachers may blurt out as many as four reiterations of the same question in a continuous string. Confusion abounds. To increase their odds of getting an answer, any answer, they restate the question in an either/or format with answers conveniently embedded within. "Was it the food or the uncertainty that made it so bad?" At this point, sharp students may pick up the scent. "Now we're getting somewhere. That's what she's fishing for." More silence. In a final act of desperation, teachers pounce on a spectacularly inattentive student, or simply answer the question in disgust and shift back to a more restful monologue.

What's going on here? It turns out that teachers, like kids, have been conditioned to the ping-pong approach to classroom dialogues. Researchers studying wait time discovered that when teachers ask a question, they get nervous if they don't hear an answer within three seconds. One. Two. Three. Three seconds? How much thinking can a kid do in three seconds? Or even five? Not much. Nonetheless, once the clock starts ticking, there's precious little time before teachers hijack the thinking process. *They simply can't wait.*

If you want inquiry to work, you must quell the urge to fill the void, because silence is your friend.

How do you develop your wait-muscle? Smoke. That's right. Lean against the chalkboard, assume the most nonchalant pose you can muster, and *visualize* smoking. Not the guilty little nips of people who swear they're trying to quit.

I mean those long, pensive, lung-inflating drags that dyed-in-the-wool tobacco lovers take, after which they squint at a far-off point and exhale in slow motion, loving every moment. Smoke like that while you're waiting, and it will send a message to your students that you have all the time in the world. You're just going to hang out contentedly until they're ready to talk because your only interest is hearing what they *think*.

Smoking is so many light-years from Right-Answerland, your kids may go into shock. And that's the second benefit of smoking. While you're learning to relax, your kids are getting nervous. Silence is a great medium for thinking, but if it goes on too long, they'll begin to feel the pressure. No one's talking. Someone should be talking by now, and it's clear you're not going to crack. Eventually and with great hesitation, a hand goes up. Time to stub out your cigarette and play ball! Haltingly, the first brave soul takes a crack at the Columbus question—"the water got sour after a while and they couldn't drink sea water, so they were pretty thirsty." "Absolutely," you reply, and jot *sour water* on the board.

At this point all the other students relax because you got what you wanted. Except, what's this? You turn, fix them with a look of intense interest, and say, "What else?" A ripple goes through the group. There's another answer? They go back to thinking. And you may need to smoke a little more, until another hand comes up. "They got lost a lot because their maps were bad, so they didn't know if they'd ever get home." Repeat the process, lavishing recognition on this bold thinker, adding *bad maps/lost* to the list. Then ask, "What else?" At this point kids may conclude that you're completely indiscriminate. You accept every answer and dole out commendations. Courage spreads like measles. Eventually you'll convince your kids that you're truly interested in their ideas, not just prospecting for the "right" answer. Then hands will fly up and you'll be too busy to smoke.

Keeping the Brain in Motion

Once you've built up your wait-muscle and grown immune to the occasional bouts of silence, you'll be able to focus on the skills you'll need to master in order to orchestrate inquiry discussions. Think of yourself as a giant synapse in the class's brain. It's your job to connect and redirect all the ideas your kids are spewing out. Another image that works for this is air-traffic controller. In effect, you track the progress of the hunt for answers and send up a flare when kids hit paydirt. But what else?

As the orchestrator of this cerebral jamboree, you need to:

- Encourage your students to slow their thinking down and elaborate on their ideas.

- Stimulate further discussion with probing questions.
- Use the word *wonder* a lot, as in "I *wonder* what you mean by; I *wonder* what that means to you; I *wonder* how that relates to what we already know about; I *wonder* how you could test that idea; I *wonder* if that makes sense to other students."
- State aloud your own personal wonderings about the discussion, sending the clear message that students are expected to listen and think seriously about the whole conversation, not just sit and wait for their turn to speak.
- Translate your students' curiosity into probing questions.
- Model analytic strategies.
- Help students clarify errors in reasoning by formulating questions that they cannot answer except by correcting the faulty reasoning.
- Convey your utmost respect for your students as thinkers.

Planning Inquiry-Based Instruction

Inquiry is not bound to any one subject because it's not about content. It's a way to think about content. Open-ended questions tease kids to wonder, whether you're examining mummification or multiplication. Any part of your curriculum that requires thinking is ripe for inquiry. Any part that doesn't require thinking—well, I'll leave that up to you. Whether you're planning a single lesson or a six-month unit driven by open-ended questions, you'll want to start with some basic considerations.

- What's the big question about this topic?
- What other questions will guide the conversation to its goal?
- What levels of questions should be included—factual, inference, interpretation, transfer, valuing?
- How should questions be sequenced?

The Big Question

The big question captures the goal of your lesson or unit. It unifies all the work that will follow. To identify the big question, ask yourself, What's the point of this lesson? What do I want kids to learn? Then turn that into a question. For example, if I want kids to explore local history from the point when nonnative settlers first arrived, my big question might be: Why do you think people settled in our town in the late 1800s? Through the inquiry process, students should be able to answer the big question knowledgeably, listing or discussing all the factors that prompted people to take up residence in the area.