

CHAPTER 2

Cultivate Curiosity

We agree with Eric Schmidt's claim (at left) to a point. Curiosity matters, big time! But do we really have to *teach* kids to be curious? We don't think so. Human beings are brimming with curiosity from birth. You see it in every baby, toddler, kindergartner, or quirky kid you encounter. Questions cascade right out of them. What we really have to do is fan that curiosity flame so it blazes rather than smolders.

A couple of years ago, Steph accepted the joy of babysitting her granddaughter Riley every Monday. What a special privilege! She quickly discovered how different caring for Ri was from caring for her own two children some 30-plus years earlier. No doubt her energy had diminished and she collapsed for a much-needed nap when Ri went home for the evening, but what she had every Monday that she didn't have when her kids were young was *the precious gift of time*. When Riley's mom dropped her off, Steph did nothing but interact with Riley, no doing dishes, no washing clothes, no cramming kids into car seats to get them off to day care as she headed to her classroom. It is simply Riley and Steph all day, every Monday.

See the following Practices and Lessons for this chapter:

PRACTICES

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LESSON

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*These sheets are also available at
scholastic.com/ThriveResources.*

After a month or two of getting used to the joys and challenges of having a baby back in her life, Steph couldn't resist turning at least some of the day into a project. No surprise, right, being a lifelong teacher and learner? So Steph, a very amateur (which can't be emphasized strongly enough) photographer, decided to take pictures of Ri throughout the day as she engaged in acts



Riley engaged in a curiosity episode.

of curiosity. With the best of intentions, Steph began chronicling Riley's curiosity episodes through photography. But within two weeks it was clear that if she continued down that road, Riley would never get fed, changed, put down for a nap, or cared for at all, because all Ri was doing all day long was peeking around corners to see what was there, quizzically scrutinizing latches on cupboards, pointing with eyes furrowed at the photos that filled the house, fiddling with water gushing out of the

faucet, manipulating knobs and switches, and—thank goodness—peering at images in books. In short, she was curious every waking minute!

Curiosity Drives Learning

Recent research has revealed a great deal about young children and their innate appetite for questioning and wondering. Researchers have found that at home three-year-olds ask parents about 26 questions per hour and engage in “curiosity sequences” as early as two-and-a-half years of age where their questions are linked inquiries involving follow-up questions and comments (Engel, 2011). Amazing! In fact, most young kids ask so many questions they might drive us crazy if they weren't so enduringly charming. *Why is the ocean blue? Why are the zebras and tigers the only ones with stripes? Where did the cowboys go?* Science questions, history questions, and cultural questions tumble out of kids who can't yet reach the countertops.



We've all noticed that five-year-olds burst in on the first day of school brimming with questions, but those questions diminish as the year goes on. The number of curiosity episodes at school fall to about one an hour in kindergarten and even fewer than that by fifth grade. Researchers conclude that many children spend hours a day in school without asking a single question (Engel, 2011; Chouinard, 2007).

This we know: The more we learn, the more we wonder. So, ideally, kids should be asking many more questions, rather than fewer, as they grow older. Barbara Logan, a principal investigator at the Efficacy Institute, asked the question, "How do children go from wanting to know everything under the sun to having so few questions?" (Logan, 2010). She concluded, "It's very simple, they learn it." In other words, conventional schooling drums the curiosity right out of kids. In school, we focus so intently on answers that little room remains for kids' questions. But kids will never learn much if they aren't asking questions. And striving readers are likely to learn even less. Questioning is the strategy that propels learners forward. We need to convince striving readers that we truly value their questions and that asking questions makes them more knowledgeable. If they trust that asking questions is a true asset to growing more knowledgeable and learning, they will almost certainly ask more. So we share our own questions, watch our kids closely, and listen to them. By listening and observing, we come to know them better and know what they need, and we are better positioned to help them. Barbara Logan (2010) suggests that good teachers let kids know that their questions matter and teach them to ask questions and search for answers.

When strivers accept that we believe in them and they know that we value their questions, they are far more likely to ask them. Once they start, torrents of questions often flood from them. Often naturally inquisitive, they gaze awestruck at photos of volcanoes and wonder aloud about them. They obsess over tantalizing illustrations of colorful dinosaurs, no longer merely green as most of us learned early on, but now even represented with black, orange, and yellow stripes.

We need to cultivate that innate curiosity and capture our striving readers with compelling ideas, artifacts, issues, and generally irresistible content. Many of their reading difficulties stem from their lack of interest in reading, as much as anything else. Having been relegated to phonetically decodable pabulum that spurs curiosity in few, striving readers typically find reading both

nonsensical and BOOOORING. So, immersing strivers in glorious photos, captivating ideas, and rich content drives their curiosity. It is that “puzzle drive,” as Nobel Laureate Richard Feynman called it, that can steer striving readers to investigate, learn, and yes, read more to satisfy that sense of wonder. Stephen Krashen notes that self-selected reading in pursuit of questions of personal interest to the reader drives intellectual growth and achievement (2016). So, how do we tap into that innate curiosity and foster a spirit of wonder so kids investigate their questions through reading?

THREE TO KNOW

RESEARCHERS ON CURIOSITY

1. Research by Daisy Yuhas at the University of California shows that when people’s curiosity is evoked, not only do they remember information about the topic at hand, they also remember incidental and unrelated information that surrounds the topic (2014).
2. Susan Engel studied the manifestation of curiosity both at school and at home among young children and found that children as young as three years old ask about 26 questions an hour at home. In school, however, the questioning rate dropped significantly with kindergartners asking only about one question an hour and fifth graders fewer than that.
3. Barbara Logan, principal investigator at the Efficacy Institute, asked why children’s curiosity declined so precipitously in schools. She could only conclude that their natural curiosity was somehow discouraged at school. Discourse enhances curiosity. In schools with limited discourse, we see an inquiry-reducing effect. Kids learn that their questions and comments lack merit, so they stop asking any. She notes, “Effective educators help students release their questions, teaching them that learning is about asking good questions and discovering the answers.”



TAKE ACTION

What You Can Do to Cultivate Curiosity

To cultivate curiosity in your classroom, we recommend taking these three actions:

- 1 Model your own curiosity every day. Make what you wonder visible.
- 2 Honor the questioning and the learning more than the knowing.
- 3 Build in lots of time for kids to explore, investigate, and research questions that interest them.

1. Model your own curiosity every day. Make what you wonder visible.

Passion and wonder are contagious. One morning, Steph watched Michele Timble, a fourth-grade teacher in the Chicago Public Schools, welcome her class with, “The birds are back.” Half of the heads turned instantly.

“What birds—what are you talking about?” Kyle asked. With all kids now in front of her on the rug, faster than usual, Michele explained, “Remember I told you that every spring these birds build a nest in the eaves outside my bedroom? Well, birds are building a nest there again. But I have all of these questions. *Why do these birds come back each year? Are they the same birds? Do birds really like this location for a nest? Do they know that other birds have been there?* I don’t know the answers to these questions, but I can’t stop wondering about them, and tonight when I go home, I am going to try to find out. First, I think I’ll call my neighbor who is an avid bird watcher and see what she thinks. I bet she has some books she might lend me. I’ll also check online to see what I can find.

The next day Michele reported back to the kids on what she found out. “I couldn’t find out about these birds exactly, but I did learn that birds like to come back to familiar places to raise their families.”

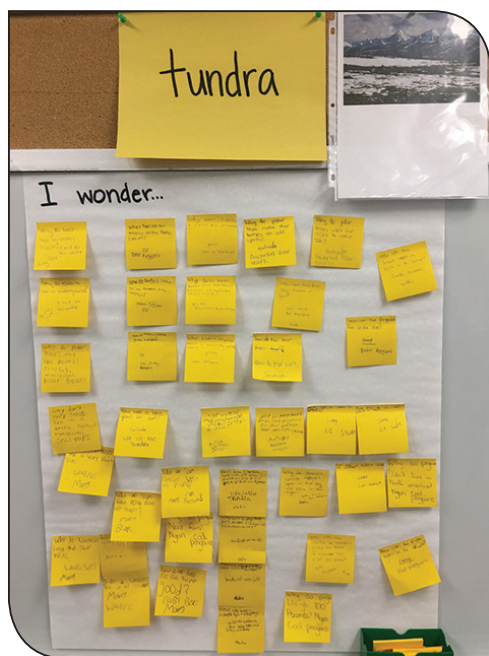
“I heard about a church in California where birds come back every year,” Callie interjected.

“Exactly, Callie. That is a place called San Juan Capistrano,” Michele responded. And so it went—a short conversation that demonstrated that above all Michele is curious and doesn’t just forget about her questions, but takes time to do some research to address them.

We need to show kids that as adults we spend much of our lives asking questions and searching for information (often in text!) to answer them. Each day, we are flooded with one question after another—*How do I find a cereal that is healthy and that Riley will eat? This traffic is insane, should I get off the highway, or will the alternative be worse? Whom should I vote for in the local*

school board election? On and on. As a matter of fact, the older we get, the more questions we have. We’re not sure our kids recognize this. Many kids, particularly our striving readers, seem to think that adults have all of the answers. And striving readers often believe that asking questions reveals some sort of personal deficit.

So, sharing our curiosity, modeling our questions every day, and showing that thoughtful grown adults have questions and care about finding the answers is essential to nurturing our kids’ curiosity and to encouraging participation from everyone. Curiosity is contagious. We can share our questions about daily life, curricular topics of interest, significant issues, and so forth. A day should not go by that we don’t let kids know that we are always wondering about something.



This chart with sticky notes positioned at the bottom invites wondering.

A Life of Wonder

We need to live a curious life, and when we say curious, we’re not talking about curious as in “odd.” Although we teachers might be considered a bit odd since we are the only folks we know who choose to spend our lives in the company of



those much younger than ourselves. And how lucky we are for it! Living a life full of wonder is central to fostering curiosity. How do we nurture passion and curiosity in our classrooms? How do we engage and encourage contributions from our striving readers in the marvelous mix of social activity and inquiry? We make our curiosity visible by:

- asking questions daily and showing we care about reading and research to find answers.
- modeling our thinking and questions so kids see that adults are continually asking questions.
- drawing from a spectrum of resources to search for answers, including talking to others, going online, reading books, doing research, etc.
- remaining alert to new information and revising our thinking in light of new evidence, demonstrating that reading and learning really do change thinking.
- collaborating with others to explore and inform our curiosities.

2. Honor the questioning and the learning more than the knowing.

Too often, we celebrate what kids know more than what they learn. Schools should be incubators for curiosity and havens for learning. We need to convince striving readers that schooling is mainly about learning, not about knowing everything already. We can celebrate learning and model the process with language such as:

I wondered about this and then I found out _____.

I used to think _____, but now I think _____.

Before I read this, I thought _____, but now I learned _____.

Wow, I never knew that before.

I'm changing my thinking in light of new evidence.

It is so great to learn something new even though I used to think the opposite.

Annotate Wonderings on Thinksheets and Sticky Notes

As kids read and research, they can organize their thinking and wondering in a variety of ways. Annotation is a powerful way to hold onto thinking. Kids can annotate by jotting directly on the page, by writing or drawing on sticky notes, and by leaving tracks of their thoughts, questions, and reactions on graphic organizers. In the *Comprehension Toolkit* series (2016), Steph and Anne Goudvis explain the notion of Thinksheets, a form of graphic organizer and an alternative to fill-in-the-blank worksheets, which require little in the way of thinking. When strivers use Thinksheets, it gives them a place to “work out their thinking.” We let them know that writing down or sketching their thinking is like going to the “reading gym.” When we designate space on Thinksheets for kids’ questions, we send the message that their curiosity truly matters. Some of our favorite Thinksheets include:



- Two-column sheets headed with “I Learned” and “I Wonder,” which conveys that whenever we learn something new, it is likely we will have some questions about it.
- Three-column sheets headed with “I Learned,” “I Wonder,” and “WOW!” on which they jot or draw their new learning, their questions, and their reactions. These sheets are particularly effective with younger children.
- Three-column forms headed with “Facts,” “Questions,” and “Responses” (FQR), on which kids record text information in the first column, any questions they have about that information in the second column, and their reactions in the third column (Harvey, 1998).

As teachers, we take care to assure that filling in graphic organizers such as these does not become perfunctory, as in, “Make sure to fill out your FQR chart before lunchtime.” These graphic organizers are tools to scaffold learning and understanding while reading and to invite readers to express their thoughts and questions voluntarily.

Create a Trusting Culture Where Kids Feel Safe to Ask Loads of Questions

Curiosity thrives when kids believe that their questions matter. Striving readers tend to refrain from asking questions out of fear of appearing inept. Therefore,

Facts	Questions	Responses
There used to be millions of Elphants in Kenya now there is half a million.	What is happening in that picture?	they are tacking the Elphant to a Saffer place.
100 African Elphants are Killed Every day.	Where do they relocate them	to a very Safe park Type place
US is the 2nd largest market		that is so Sad
		Name <u>Kate</u> Date <u>5/19/17</u>

we need to create a culture of acceptance where there is truly no such thing as a stupid question, and kids trust that we believe that.

In his book *The Curious Classroom* (2017), Smokey Daniels suggests kids track their curiosity on a two-column form that allows for two types of questions: Self-Questions (in the first column) and World Questions (in the second column). Self-questions are questions that matter a lot to us personally, and world questions are questions that are broader and more far reaching. We model coming up with and organizing both types of questions in our own notebooks and then have kids do it in theirs. We make sure to include different types of questions, some more serious and some a little silly, so that kids see the full range of authentic wonderings that we have. These questions, both self and world, fuel further research.

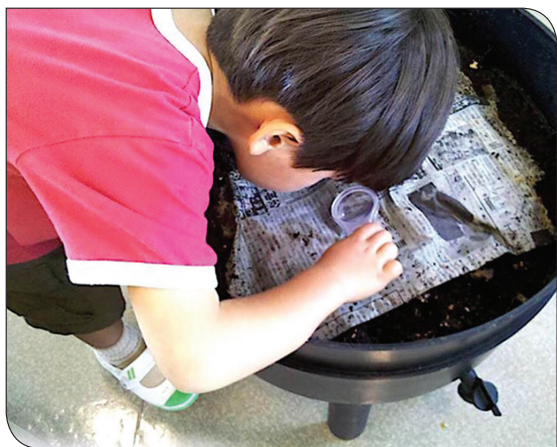
Self-Questions	World Questions
How can I get Riley to try new, healthy foods?	What will happen in France under the new president?
Why does my car make such a strange noise when I turn the key?	Does diet cola really cause dementia?
What book do I want to read next?	When will climate change cause East Coast seas to rise enough to spill onto people's property?
Why do I bruise so easily?	When and how will cancer be cured?

An example of a chart we might model and share.

As strivers create their own question lists and routinely share them with classmates, they see that wondering is contagious. They begin to believe that their thinking really does matter and their questions are important. This focus on curiosity builds students' growth mindsets and, in the process, their confidence as readers and learners.

3. Build in lots of time for kids to explore, investigate, and research questions that interest them.

American kids spend on average approximately 1,000 hours a year in elementary school (2014). Doesn't it seem reasonable that a certain amount of that time be reserved for exploring topics of interest that they choose, asking questions, and doing some research to address them? One of the best ways to encourage our striving readers to read more is to make sure they are reading and researching topics they care about. Google famously offers an option called Google 20% Time where Google employees are encouraged to spend 20 percent of their time working on projects they choose, projects that are not part of the strategic business plan. Gmail, one of their most successful products, emerged from Google 20% Time.



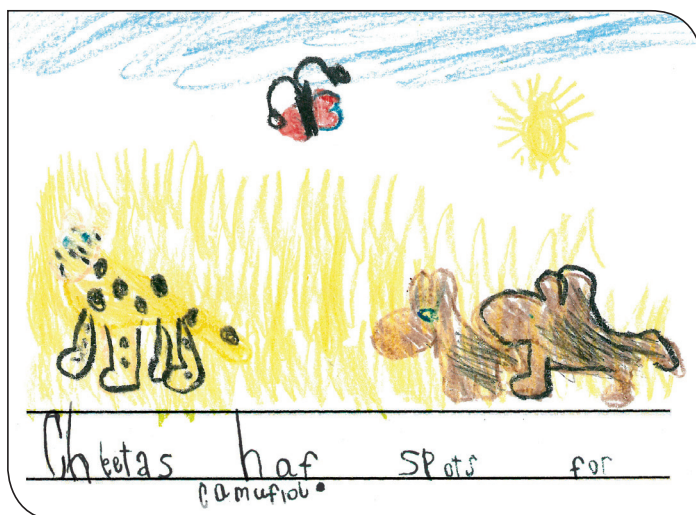
Build in lots of time for kids to explore, investigate, and research.

We can set aside time on a regular basis, as Google does, for kids to freely explore their own curiosities, whether they are related to the curriculum or not. We believe that striving readers need this time of individual exploration and choice reading even more than most learners. Sadly and ironically, it is the strivers who are often pulled away from this engaging free exploration and left stuck somewhere filling in bubbles and blanks on a worksheet or screen, which not only has no basis in research but also effectively kills reading motivation. Dr. Mary Howard

suggests that “our goal is to create a culture of curiosity—not just something we do by the clock, but the air we breathe” (2017).

Structures, rituals, and routines for building in time to wonder and investigate include:

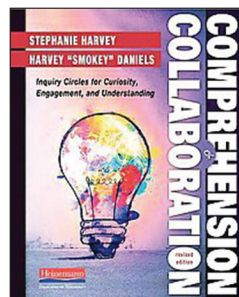
- **Capturing Wonder.** We hold onto our questions and make wonder visible in our classrooms. Wonder Walls, Wonder Books, and Wonder Boxes represent a few ways we do that. See more about these in practices on page 262.
- **“Wonder-ful” Images.** We build in time every day for kids to view, think, and wonder about images. We simply project an intriguing image on the class screen, and ask kids to turn and talk about what they are wondering about. Visual literacy, “reading, viewing, and thinking about images,” is increasingly important for all kids. Much of the information this generation obtains will be visual and auditory in nature. Graphics of all sorts scaffold striving readers since images offer a more accessible entry point into information than text on its own. We can’t exclude kids from information simply because they are below benchmark in reading, so offering an array of visual entry points allows striving readers to continue to wonder and learn regardless of their reading level.



After watching a video on African animals, Ellie draws the answer to her question, “Why do cheetas have spots?”

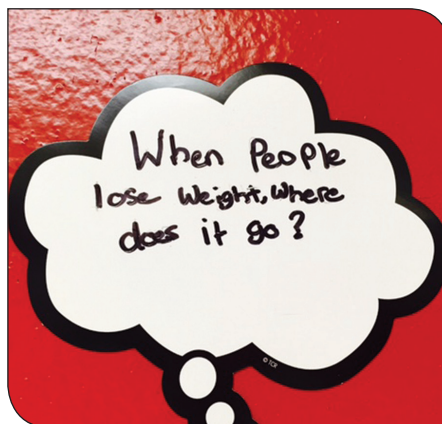
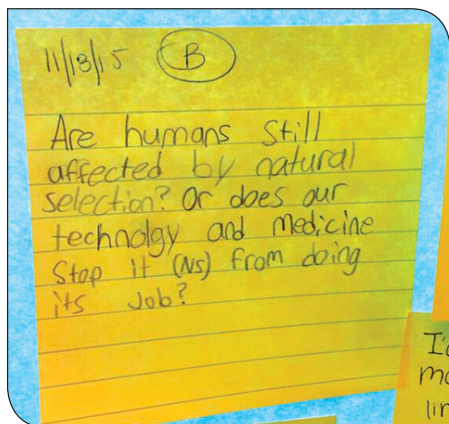
- **Videos.** Videos, too, offer a strong entry point for all kids, but are of particular support to striving readers. We teach kids to interact with videos as they view them. We often stop the video and have kids jot or draw their questions and turn and talk, offering yet another entry point for striving readers to express their thoughts, questions, and opinions. Wonderopolis (wonderopolis.com) is a terrific website that hosts a question a day and shares a video that addresses it. Kids can submit questions to Wonderopolis in hopes that theirs will be selected and shared with kids all over the world.

- **Genius Hour.** Genius Hour is an in-school structure that allows students to explore their own passions and address any questions they have about any topic they are interested in. As with Google 20% Time, kids are encouraged to work on a project of interest for 20 percent of the week or even just for an hour each week. Teachers provide a set amount of time every day or every week for students to investigate their questions and research their passion projects. It may happen the last hour of the day every day or perhaps just for an hour or two on Friday. Genius Hour brings joy to learning because it is a whole lot of fun. Randy Pausch famously said, “If you think you can’t learn and have fun at the same time, then I don’t think you have a good understanding of either.” Fun matters. The most direct route to learning is engagement, and the most direct route to engagement is fun, particularly for striving readers! Check out www.geniushour.com or #geniushour on Twitter for more information.



- **Open Inquiries.** Inquiry-based learning is about living in a way that kids’ questions matter. Open inquiries give us an opportunity to do that. We encourage kids to work together in small inquiry circles to ask questions and investigate topics of interest. While we may not be able to meet the science and social studies content standards with open inquiries, we can teach into the reading, writing, and research ELA standards. Open inquiries allow striving readers to research anything they are interested in, which leads to more fully engaged reading. For more on open inquiries and the role of curiosity in teaching and learning, see Steph and Smokey Daniels’s *Comprehension and Collaboration: Inquiry Circles for Curiosity, Engagement, and Understanding* (2015).

- **Capstone Projects.** One specific and extended form of open inquiry is the Capstone Project, in which kids research individual questions of passionate interest and share their learning with others through TED-style talks, expos, web pages, and more. Capstone Projects flourish in concert with the other strategies described in this chapter; if kids spend months poring over compelling images, reading about innovators, and filling wonder walls ... then when the time comes for Capstone Projects they will be brimming with ideas and researchable questions! In Annie’s district, the inquiry process is woven into the curriculum and culminates in Capstone Projects at grades 5 to 8.



Questions on a Wonder Board drive research for Capstone Projects.

Since kids' interests run the gamut, it's an all-hands-on-deck situation with librarians, art and music teachers, physical educators, psychologists, custodians, and community members collaborating as inquiry guides. Kids tap specialists through email and Skype, nearly all of whom are thrilled to be contacted by children and respond in depth and detail. Delightfully, the kids' questions lead adults to learn alongside them, and schools buzz with genuine fascination as learning grows. As the inquiry process unfolds, kids' initial questions evolve and their follow-up questions become deeper and more pointed. Poignantly, one fifth grader's question about the allure of Facebook eventually focused on the impact of social media on the attention parents pay to their children.

- **Real-Time Information Apps.** The tech opportunities from apps such as Google Docs, Drawing Pad, Edmodo, and Padlet are endless for inspiring curiosity, asking questions, and doing research. As we read a text aloud, kids with devices can jot their questions on a Google Doc, which can be displayed in real time on the class screen. Everyone can see all the questions of all the kids. Kids will pick up on other kids' questions and add to their own, quite helpful for those striving learners who have trouble coming up with something they are curious about. We recommend apps like Drawing Pad, which allow kids to draw rather than write their thinking, giving striving readers a boost. We can create surveys with Google Docs. Kids might work together to come up with a whole-class question such as, "What is the best class pet for us?" Individuals can make suggestions based on information

they research. The data can be gathered on the Google form, which is projected for all kids to view and see quickly which pet is in the lead. Technology like this helps all our kids to consider responses in real time.

- **Curiosity Quotes.** Many people throughout history have extolled the virtues of asking questions and having a curious mind. Einstein famously said, “I have no special talents, I am only passionately curious.” Sir Ken Robinson states, “Curiosity is the engine that drives creativity.” And E. B. White speaks directly to teachers with his words, “Always be on the lookout for the presence of wonder.”

*“Always be on
the lookout for
the presence
of wonder.”*

—E. B. WHITE



These are but a few of the powerful thoughts that permeate the minds of creative, passionate, curious individuals. We can begin the year by posting some of our favorite curiosity quotes around the room and filling kids in on the lives and contributions of the people who said these words, reading picture books about them and sharing how they innovated through their sense of wonder and their willingness to keep on trying again and again. Kids can join in and collect, collaborate, and share quotes they encounter, jotting them in their Wonder Books. They can create artistic representations of these quotes until we have flooded

the room with the dynamism of curiosity. It is particularly powerful for striving readers to hear the quotes and learn about famous, successful people who truly believed that curiosity was a key to their success and love of life.

When these structures, rituals, and routines are implemented in the classroom, kids learn that their thinking and questions matter. Striving readers learn that after years of being made to feel like less than others, they, too, can participate fully and contribute

mightily to the curious classroom. Eleanor Roosevelt said, “At a child’s birth, if a mother could ask a fairy godmother to endow it with the most useful gift, that gift should be curiosity.” We wholeheartedly concur! Curiosity matters.



ASSESSING READERS IN THE ROUND

CURIOSITY

Use these questions to drive responsive, learner-focused teaching that cultivates curiosity.

Self-Questions

- Am I modeling my own curiosity every day and keeping my own Wonder Book?
- Have I built in plenty of time for kids to ask, answer, and research questions?
- Is there a structured time each day or week to do this?
- Have I offered viewing and listening entry points, as well as text-based ones?
- Have I noticed more trust and comfort regarding kids' sharing questions?

Kidwatching Questions

- Is the student asking questions more frequently?
- Is the student jotting or sketching questions when reading, listening, or viewing?
- Is the student using a wide range of resources to answer questions?
- Have I seen evidence that the student is revising thinking in light of new evidence?
- Is the student motivated to do further research to address a question?

Conferring Questions

- What are you wondering?
- What are you interested in learning more about?
- Did you learn anything from asking your question?
- Do you need help addressing/answering your question?
- Is there any place you changed your mind? Where and why?
- Does it help to jot your thoughts and questions in your Wonder Book? If so, why? If not, why not?
- Do you think asking questions can help you? If so, why? If not, why not?
- Are you comfortable asking a question in front of the class? If so, why? If not, why not?

THE “LEAKY FAUCET” CASE STUDY

Entwistle, Alexander, and Olson (1997) have likened access to books to a “faucet” that flows freely when kids are in schools with well-stocked classroom and school libraries, and when their teachers send home books every night, every weekend, and over every vacation, including summer. Concerned that classroom libraries in Mamaroneck did not contain enough books for striving readers, Annie commissioned a systematic inventory of each one.

Site: Mamaroneck, New York, Elementary Schools

Guiding Question: Are the collections of books in our classroom libraries sufficient, varied, and appealing enough to feed the range of readers in each room?

Procedure: Reading teacher Maggie Hoddinott visited more than 125 elementary classrooms in the fall of 2015, and:

- conducted “bin-level” inventory of each library.
- conferred with teachers and students about the library.
- observed students shopping for books.
- took photographs.
- in each classroom, matched levels of books in the library with reading levels of kids in the class.
- identified trends and made recommendations.

Key Findings:

- No systemic processes are in place to support teachers in knowing the latest and greatest children’s books.
- The allocations, procedures, and timelines for teachers to order books are inconsistent and variable.
- With unreliable supply chains, teachers hoard books and avoid sending them home.
- Grade-level changes and new class sections wreak havoc on libraries.
- K–2 students run out of new books to read at each level before they are ready to move on.
- Children reading below benchmark feel self-conscious reading books that are visibly different from their peers’.
- Seeking out appealing age-appropriate books for striving readers is time-consuming.

Conclusion: Striving readers do not have reliable daily access to the high number of compelling, appropriate books they need to thrive. Read on for details.