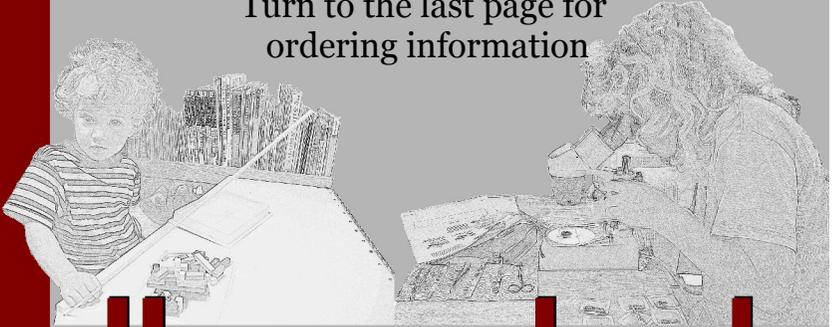


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Homeschool Teacher

a practical guide to
inspiring academic excellence

Kate Laird

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Introduction

Helen woke at six and ate breakfast while reading about neanderthals in *Scientific American*, then started algebra.

Anna appeared at eight, read a couple of chapters of *Wild Swans* on her Kindle while dripping jam on the table, then disappeared to write a page or two on her novel. She wiped up the jam after being asked twice.

This book chronicles my experiments over twelve years of homeschooling, trying to find a balanced education for my children, demanding yet interesting, academic yet practical. In the end, I found it came down to *teaching*, whether in the form of hands-on, detailed instruction, or invisibly behind the scenes, writing a good syllabus and handing out deadlines. It came down to figuring out *how I had learned* – in grade school, at home, at Phillips Exeter and Harvard – and breaking down those techniques into teachable skills. It came down to answering the question, *why should we learn this?* in the clearest possible way, because teaching is only possible when students want to learn.

In our first year traveling with the children, ages 4 and 2, a mother of school-aged children warned, “You are so lucky not to have to deal with school.” Like many parents we have met, she was giving up on her dreams because the demands of teaching her children were so great. “We must get them back to school for third grade / for sixth grade / for high school,” is a common refrain.

We meet people who have been utterly failed by the local schools, whose children aren't taught, suffer bullying or racism, or parents who are working crazy hours and never see their children

in order to afford private schools. "I'm not as patient as you are," they say. "I could never teach my children. I can't even get them to clean up their rooms."

Or perhaps school seems to be going pretty well, but the parents aren't sure. "I don't really know what's going on. The teachers seem to be good enough." Their child has a bit of trouble with math or writing or reading, but they don't want to interfere. "I'm sure the teachers know what they're doing. I wouldn't know where to begin to help them."

The successful homeschool teachers I've met are not all patient. They shout sometimes. They need vacations. I certainly can't get the children to clean their room. Successful homeschool teachers do share a commitment to education and a dedication to whatever it was that made them choose to homeschool.

There are three general types of homeschoolers – long-term, short-term, and afterschoolers. Long-term homeschoolers plan to teach through many or all years of the child's education, whereas short-term homeschoolers do it for a year or two to avoid a difficult school situation or to enable the family to travel. Another common type of homeschooling is what I refer to as *afterschooling*, when the children attend a regular school, but receive extra help or the opportunity to advance after school or on weekends and vacations, or perhaps receive extra instruction in the home language, while attending school in a second language.

My husband Hamish and I run a high latitude charter sailboat, which means we are working for six-month seasons and could fit in, at most, six months of bricks and mortar school a year for the children. My own schooling was a paragon of security: the same rural-becoming-suburban school district from kindergarten to eighth grade, but I had heard enough from my father of what it was like to move in the middle of nearly every school year to know I didn't want it for my children.

Our work has taken us from the US to Greenland, Britain, Argentina, Chile, Antarctica, New Zealand, Japan and Alaska. Over twelve years of homeschooling, our daughters Helen and Anna have had school in remote regions where we spent weeks without seeing another person, in urban areas, and small towns where they can roam freely. They've studied in countries with busy, friendly libraries, and in places with no English-language books available at all.

Your children *can* learn at home, and with work on your part and theirs, they can learn just as much as they would if you put them into a great school. I hope this book helps you plan your own homeschool, gives you someone to argue with, and helps give your children a better education.

In twelve years of homeschooling, I have made my share of mistakes, banged my head against the wall, but for the most part Helen and Anna were where I had hoped they would be at the end of middle school. They were voracious readers, with the stamina to read adult-level novels and histories as well as high-school level science texts. They had prodigious vocabularies, not from workbooks, but from reading. They wrote serviceably and fluently. They had strong backgrounds in science, and they began ninth grade math, while still in seventh and eighth grade. I wish they were further along in studying a second language, but any lack there is my fault entirely. They were interested in their studies, hard working, and self-motivated.

As I look back over what we have done, there are several crucial themes in the design of our homeschool. The most important has been my emphasis on creating assignments that are *always difficult, but never impossible*. This has helped the children develop an outlook that values challenges over easy successes, and emphasizes that hard work is the key to mastering any subject. In practice, this means that they do no fill-in-the-blank worksheets – all of their work pushes them, and the reward for doing well is more advanced work.

The second most important element is the *development of reading and writing stamina*. Stamina is more important than spending time on reading strategies and techniques. The best way to develop reading ability is through hours and hours and hours of reading. Likewise, doing hours and hours of writing (and developing skills like touch typing to make those hours more efficient) is a crucial element of a writing program. The longest chapters in this book are on reading and writing, because they drive the rest of education.

When Helen and Anna were four and three, I started thinking about school. It was obvious I'd have to teach them, but I wasn't having a lot of luck finding good examples of how to do it. A week after my college graduation in 1990, my first job was tutoring three children for a family sailing across the Pacific, so I had enjoyed a trial run of sorts, but I hadn't been satisfied with their

fixed box curriculum, nor my rookie teaching. I began looking through the homeschooling books on the market, and found I could divide most of them into two piles: the conservative *classical education* families who believed school wasn't strict enough anymore, and the liberal *unschooling* families who believed children would learn what they needed to know at their own pace, at their own time.

Neither way fit with my understanding of how I'd learned, both in school and at home. The closest I could find was David and Micki Colfax, *Homeschooling for Excellence*¹ (and one of the boys described in the book had been my classmate at Harvard). But the world of homeschooling had changed dramatically in the quarter century since the Colfaxes wrote their book. Now there were program options – a bewildering variety of whole curricula, plus individual courses in math, writing, grammar, science, reading, and so on. I had the internet, replete with forums and reviews, guaranteed successes and solutions. (I count myself lucky that I usually only had about a quarter of the year with regular internet access at that time, because my mind might have imploded with all the possibilities.)

Around this time, my father sent me an article about the Robinson Curriculum. They offer one of the many curriculum choices out there, and sell a package of materials and a philosophy. A little examination of their website showed that all the materials were off copyright and available for free download, but I loved the image of the Robinson classroom: Mr. Robinson at his big desk, doing his paperwork, while dozens of little Robinsons beavered away teaching themselves at their desks of industry.

I imagined my children would be able to teach themselves in the same way. They weren't. I started thinking back to the fine teachers I had (both in the classroom and out), and how they structured learning and taught me how to teach myself. I stopped reading homeschooling books and started reading teaching books. Over the years, I absorbed the teaching philosophies – which are generally sharply divided on political lines – and created my own middle ground, borrowing ideas and techniques from all sides of the arguments.

This book is a summary of the things I wished I'd known when I started homeschooling twelve years ago, and a report on some things that went right, and some that went wrong. It's not the definitive answer to all the questions, but rather a starting point to

the conversation. Homeschooling has been one long experiment, a pulling together of ideas and research and what actually worked with my children.

I've examined the theory of teaching from specialists and professionals. I'm neither. A homeschool teacher must be a jack of all trades, and above all, value education. I'm grateful for having had this chance to teach my children, to know them as well as I do, and also grateful for their patience with my "phases" as they call them, and my overly-enthusiastic trials of the next good idea.

A Word of Warning

I find both homeschooling and teaching books overemphasize the positive. Students are eager, happy, and brilliant, and teachers deliver perfectly executed lesson plans, targeted programs, and never waste any time. Let me make it clear right now: it is not always fun, it is not always easy, and it doesn't always work.

Thomas Newkirk, one of the few educational theorists to admit to inattentive students and bad classes, writes:

There is an emotional turbulence and frequency of failure in my own teaching that I do not see reflected in many accounts In the classes I read about, everything seems to work; student writing is impressive, often deeply moving; the teacher seems to have achieved full participation of all members of the class. And what I find most hard to believe, the teacher never shows signs of despondency, frustration, anger, impatience or disappointment.²

If you are signing on for homeschooling, you will have your share of bad days, when you despair of your children learning anything. Those days are probably going to be worse than if you were teaching in a school, because there's no Staff Room to retreat to and you have a double role – that of a teacher unsatisfied with your performance and that of a parent who feels that his or her child is falling short.

Teaching is a job – a difficult, time-consuming, frustrating, thrilling, overwhelmingly satisfying job. I'd do it again.

Considering Homeschooling

Who Homeschools?

As a 2011 Department of Education survey³ discovered,

- 1,700,000 American students are homeschooled (3.4% of school-aged children)
- Homeschoolers are split fairly evenly between urban, suburban, and rural (which means that rural homeschoolers are more common than their representation in the country as a whole)
- Homeschooled students are racially and ethnically diverse, with the percentages aligning within a few points of the nation's population as a whole (even closer if you consider the skew of rural homeschoolers)
- Parents' top four reasons for homeschooling were ranked:
 1. Concerns about the local school environment, such as safety, drugs, or negative peer pressure (25%)
 2. Other reasons, including family time, finances, travel, and distance from schools (21%)
 3. Dissatisfaction with academic instruction at other schools (19%)
 4. Desire to provide religious instruction (16%)

More recent articles have padded the total numbers – in August 2015, *Time Magazine* estimated 2 million; the same month, *Boston Magazine* 2.2 million, and so on; however the most

recent national survey data I have is this 2011 study, which is undoubtedly low.⁴

These numbers do not include families who are homeschooling for part of the year because of illness or travel, nor does it include the many afterschoolers. Of the children who attend regular bricks and mortar schools (public and private), 64% have parents who engage in some form of afterschooling, ranging from simply checking that homework is done to active tutoring. There are a lot of homeschool teachers out there.

When I read blogs and forums from homeschooling families, they back up the trends described by this survey, and in addition, a great many families have decided to homeschool because the local public schools were not meeting the needs of learning disabled, gifted, or twice-exceptional (gifted *and* learning disabled, often called 2E) children. Even in places with strong public schools, over-worked teachers may not be able to devote enough time to the outliers.

Another reason, which surprised me, was many families had withdrawn their children from public schools because there was *too much* religion embedded in the school's outlook and instruction. In the early days of American homeschooling, a majority were doing so for religious and geographic reasons, but today, homeschooling for academic and social reasons is rapidly becoming the norm.

Is Homeschooling Right for Your Family?

Do You Have the Time to Teach?

The Robinson vision of the parent working at his desk on his own projects while the children study is not the norm. Homeschooling elementary school requires a large investment of time on behalf of the teacher. I often tried to sneak in other projects during school hours, but school went better when I did not. We seemed to get away with our schedule of six months of intensive school, followed by six months of relaxed schooling, where my work demands ate

into school time (and the children exploited my lack of focus and only studied the things that interested them). In elementary school, my time commitment was four or five hours a day, seven days a week, six months a year. In middle school, Helen and Anna did more schoolwork, but much more of it was independent, so while I still needed to be at home for five or six hours a day, seven days a week for six months of the year, I had more time to work on other projects at the same time. During my work season, I spent two or three hours a day on school on my infrequent days off.

For those of you adding up – and I only did it for the first time while writing this paragraph – having school seven days a week for six months is roughly the same as nine months of US public school with weekends and vacations: 180 days. (British state schools have 195 class days a year). Helen and Anna do get a few days off in that time period, of course, but we ignore the calendar week.

Another option is to find an outside tutor to teach some or all of the schooling. I often use the word “parent” in this book, and I expect most of its readers will be parents teaching their children, but it is equally appropriate for unrelated tutors structuring a homeschool. Recent college graduates often make good tutors, and they are sometimes willing to trade their teaching for an adventure – I was very happy to work for room and board and a sailing voyage across the Pacific when I was twenty-two.

How Long Will You Homeschool?

Homeschooling for a year or two for extraordinary circumstances means you can be more minimalistic in your schooling –if the trip / job / sabbatical will take you into another culture for a relatively short period of time, your children will probably get as much out of the new environment as they would out of an extra couple of hours of schooling every day.

If you are homeschooling in order to give your children a break from school, but plan to put them back in with their peers at the end of a year, however, you may feel far more pressure than the long-term homeschoolers, because you need to keep up. Laurie Brodie, writing in *Brain, Child* magazine, describes this as the most difficult type of homeschooling, because there is little support in homeschooling groups or books.⁵

For these short-term homeschoolers, beginning with more structure can help – it is easy to relax rules as the year progresses but much harder to transition to a stricter regime. However, whether on the road, around the kitchen table, or in a hospital room, short-term homeschoolers can take comfort in the idea that they don't need to do it all; as long as they match the local school's goals for math, the children will probably re-integrate well. With only a few students, you will likely be able to do a better job than local schools on instilling reading and writing stamina, and you can then pick and choose between other subjects based on either student-led interests or parent-led focus on weaker areas.

What are Your Goals?

It can be helpful to think explicitly about your goals for homeschooling, especially if you are considering teaching your children at home for many years, or conversely, if you are afterschooling, because you will be adding on hours to an already packed day. Short-term homeschoolers can afford to be more relaxed in their overall goals, although they may have immediate goals defined for them by local school authorities.

Goals for my children:

- Knowing how to research and to value the process
- A thorough, facts-grounded background in history, math, science, and literature
- The ability to express ideas, arguments, and analysis in writing and speaking
- An appreciation for the world of arts, music, and sports
- Reasonable proficiency in at least one other language
- Understanding and appreciation of other cultures and nations
- Preparation for college/university

Your list may not look exactly the same. I used to have “knowing how to learn” on the list and changed it to “knowing how to research.” Research is something I do every day; the learning is unconscious. You may have more goals than I do, you may have

fewer. I do think that it is important for children to be doing college preparatory work regardless of their (and your) aspirations. I know many people who decided not to go to college and then went in their late twenties, and it was enormously valuable for them – maybe even more so than for all those who started at eighteen.

A well-educated person has read* and remembered a lot of books. That's the most important point. From there comes understanding of literature, history, science, applied mathematics, and the two things most directly measurable: a huge vocabulary and clutter of background knowledge that, as E.D. Hirsch points out in *Cultural Literacy*, makes understanding everything easier.⁶ (I agree completely on that point; I disagree about the best way to get there.)

A well-educated person can write clearly and concisely, whether in revised material or a quick email. Grammar, spelling, and punctuation have to be standard.

A well-educated person can do algebra and uses it in day-to-day life.

A well-educated person can speak a second language.

That's it: reading, writing, arithmetic, and language. For me, those are the important things, in order. Your list might shuffle things around, and of course there's art, music (which may really make you smarter), public speaking, health, sports, and so on. But the heart of an education is found in these four things.

But how do you get there? How do you take the child who is sitting on the floor trying to eat a Cheerio through his nose and turn him into this mythical well-educated person?

* For most people, reading text directly will be the most memorable; for others, listening to audio books is a valid and useful substitute.

How We Learn

Automatic or Thoughtful?

I divide learning into two types, based on the differences in the kind of retention we want students to have: *automatic* and *thoughtful*. Politicized educational theorists (both academic and homeschooling) often push us towards one or the other, regardless of the topic under study, but I see a critical role for both in the classroom.

I think of *automatic learning* as the subjects that require mastery and automaticity – as in the joke about “How do you get to Carnegie Hall?” there is only one answer: practice, practice, practice. When I took the PADI Scuba Diving course in college, the drill drove me crazy. We did the same moves, over and over. And then over and over again. I dove occasionally for the next 25 years, without much deliberate practice of the skills, when one afternoon my regulator failed eighty feet below the surface. I did not have a single conscious thought about it – my left hand swept out without being told, scooped up my spare regulator, shoved it in my mouth, and pushed the button to clear the water out. The emergency – and it could have killed me – was over before I had the chance to think about it, before my diving partners even noticed I was in trouble. All that drill came back to me, and my hands moved automatically, without conscious direction.

Automatic learning applies to anything you need to know that has to be perfect. Times tables, addition facts, musical instruments – any subject where repetition will help you master it. Teachers

deride “drill and kill” exercises for being boring, but practice is the only way to succeed at something like math facts or music and the only way to stay alive in scuba diving.

The problem starts when teachers use the same method of drilling facts for the *thoughtful learning* subjects. When history is dates, science is memorized diagrams, literature is descriptive terms, and writing is diagramming sentences, the students never have a chance to really understand.

I ask myself, do my children need to know this particular fact or skill in ten or twenty years? If the answer is yes (and they don't already know it), then it needs to go in the automatic learning category and needs to be practiced, which usually involves nagging.

In contrast, we can never master the *thoughtful learning* subjects of history, literature, science, advanced mathematics, or writing. What we can do is revisit those subjects over and over in different forms, until we have knowledge approaching that of an expert, until we have truly mastered the vocabulary and the ideas. You don't get those vocabulary words from flashcards, but rather from reading them, listening to them, speaking them, writing them. There is no set list of things you need to know for these subjects, despite what the purveyors of AP exam preparation courses would want you to believe.

Automatic learning subjects include early reading, math facts, musical instruments, handwriting, typing and keyboarding, and spelling. Thoughtful learning subjects include history, science, literature, writing, and advanced math. There is a slight bias towards automatic subjects in the first six years of school, and towards thoughtful subjects in the last six, but there is a place for both types of learning throughout elementary, middle, and high school. (And of course some topics have elements of both – think of the automaticity needed to operate a clutch, gas pedal and gear shift simultaneously on a manual transmission car, and the experience-driven, evaluative, thoughtful learning needed to make driving decisions.)

The automatic subjects are those where you learn the best and the fastest by doing the *same* thing over and over again; the thoughtful subjects are those where you learn the best by doing *similar* things over and over again, by reading different versions of a history, for example, or writing another paper. These are the subjects where you learn best by over-reading and retaining the

Principles of Teaching

Always Difficult, Never Impossible

Always difficult, never impossible has turned into the background philosophy for our school. If school isn't difficult, your students should be doing something else with their time, and if it is impossible, they will only become frustrated. Impossible was Anna in her early spelling days, Helen in her early math days. I hung on too long in both cases, hoping that they would suddenly have a breakthrough, but the level was simply too high. The spelling workbooks were too simple for Helen and assigning them to her was a waste of her day.

If you're writing your own curriculum, it is perhaps easier for you to tweak the levels of the assignments to suit the children; you can assign a review sheet if it's hard or just the odd-numbered problems if it seems easy. But if you are teaching from a boxed or online program, it is important to keep tabs on what your children are learning, even if they do most of their work independently. Helen and Anna have no problem in declaring, "this is too easy!" and asking to be let off the work, but they are slower to admit that something is impossible. (Of course, there are children with the reverse tendency – carefully guarding the easy work, and too quick to declare the problems impossible.)

Having this philosophy for the school also helps a bit when the children declare that something is difficult; the answer is simply, "of course it is!"

In the past, boxed curricula were fixed, and it was impossible to accelerate or decelerate individual subjects, but now several of the programs offer the opportunity to do an accelerated math program, or in the case of Calvert, there is also an add-on program aimed at children with reading, writing, and spelling difficulties. I have no direct experience of this program, nor have we met any families using it, but it looks worth investigating.

We met a family who homeschooled for a year in town before leaving on their sailboat, and while this may not be practical for most families, it could be a good idea to have a warm up for homeschooling if you know you are planning to leave civilization behind, rather than starting the big move and the homeschooling at the same time. It will give you the chance to make sure your programs and materials are pitched at the right level for your students while there is still a chance to raise or lower the grade level. On the other hand, for some children, leaving their friends behind will be so tough that to start early would just be discouraging.

Most whole curriculum and individual subject programs offer placement tests, but it is still worth having at least a month to make sure the fit is right. We didn't have this opportunity because we had already been out sailing for two years before Helen started school in earnest, but it would have saved us some false starts, particularly in math.

Unschool When You Can; Teach When You Must

There is a homeschooling philosophy called *unschooling*, where the children pursue their own interests at their own pace; some call this *child-directed learning* or *eclectic homeschooling*, although eclectic homeschoolers generally have considerably more structure than true unschoolers. The “eclectic” label covers a wide swath of homeschooling styles, ranging from nearly unschooling to a rigorously academic program like the one described in this book.

To my mind, true unschooling is very unlikely to achieve the sort of well-rounded, academic background that I want for my children. Unschooling can also diminish a student's chances of attending college. My Harvard roommate now does interviews for Harvard, and she described an amazing interview with a bright,

What and When to Teach

Curriculum design is the hot topic in education. Every generation has a slightly different approach, every wave of education graduates has a mission and publishes its set of doctrines in books and articles. As a homeschooling parent without an education degree, how are you supposed to sift through that and find a way to teach your own school?

Early elementary school teachers have to occupy twenty to thirty young children for six hours a day. They can cover a lot of material, they can use early readers to coach late readers, and they are almost universally amazing people – I can't imagine facing thirty six-year-olds every day.

As a parent, doing one-on-one coaching with your child, there is only one thing you need to teach in the first year of school: reading.

If you live in a town, your local school district may require your children to start formal schooling at a certain age. This age varies widely around the world – six in most of the US, four or five in the UK, seven or eight in Finland.⁴⁰ When is the best time? It's going to depend on your children and your circumstances. Helen was ready to start to learn to read a few months before she turned five; Anna wasn't. She started at six.

Caroline Sharp, in a paper arguing against the practice of British children starting formal school at age four or five, concludes, “The best available evidence suggests that teaching more formal skills early (in school) gives children an initial academic advantage, but that this advantage is not sustained in the longer term.” She further cautions, “there are some suggestions that an early introduction to a formal curriculum may

increase anxiety and have a negative impact on children's self esteem and motivation to learn."⁴¹

In September 2015, the UK government acknowledged that some students are not ready to begin at four, and is recommending that summer-born children be given the option of delaying a year.⁴² This will help students whose families have the luxury of pre-school or staying at home; many children in families where all the adults work will continue to have to begin at four.

In each of their first years of schooling, Helen and Anna only studied reading, later handwriting, and played with math manipulatives (the teacherspeak word for objects used to help learn math such as beans, poker chips or color-coded rods). I considered the reading- and writing-only year "kindergarten." I started some more math with Helen about halfway through, and since we were living in the UK for a large part of that school year, I had to be inspected by the local school administrator, who was satisfied that we met the "Year One" requirements.

In most government-mandated curricula, one needs to do more in these early years, but three subjects were enough, and limiting our studies meant we could work harder on reading and writing. I am convinced that early reading is crucial to enjoying reading. If a child is nine years old and can only read the *Junie B. Jones* series, he won't enjoy reading, and chances are, he never will. Nine-year-olds who can read *Harry Potter* and *The Lord of the Rings* are going to be swept up in reading and the problem you'll have is getting them to do anything else. Reading is the most important skill you can teach early on, because a love of reading will guide much of the rest of their educations.

In a 2002 *Scientific American* article, "How Should Reading Be Taught?" the authors note that

[C]hildren's facility with reading in the first grade usually provides a good indication of what their 11th-grade reading proficiency will turn out to be. Why? Because reading requires practice, and those who excel end up practicing the most. Hence, the gap between more and less able readers in the first few grades generally grows over the years.⁴³

I'm not sure I buy the causality suggested here – that they excel, and therefore practice – I suspect rather that it's more that

Reading

Jump ahead if your child already knows how to read:

Early Elementary Reading (page 70)

Dyslexia and Other Difficulties (page 73)

Advanced Reading (page 82)

Beginning Reading

School begins when children are very small – by reading to them. All the time. Hamish and I can still quote any number of children's stories by heart; Helen and Anna remember none of them. But the important thing is that children learn that stories equate to entertainment (and cuddles and affection), and they watch you read for both pleasure and education.

Once, when Hamish was leaving for a month to work on a superyacht, he recorded himself reading a dozen of the girls' favorite stories. This was a great way to occupy them and gave them reading entertainment – but it has to come after hours and hours of sitting side by side with a parent – it's a supplement to reading together, not a substitute. Later, we let Stephen Fry do most of our reading aloud for us, as the Harry Potter stories repeated endlessly on long ocean passages.

The other reason to read children's picture books aloud is they often have far more complicated vocabulary than the typical adult conversation, television, or general elementary school books. In fact, the vocabulary in books read to pre-schoolers is often on par with that of the assigned literature in high school.⁴⁹ Of course,

you'd have to read a lot more picture books to get a similar number of actual vocabulary words, but there are two important take aways from this – one, parents *must* read aloud to their children (and continue this throughout early reading instruction), and, two, children do need a different class of book for their early reading – the early reading books and chapter books are at a significantly lower vocabulary level than the read-aloud picture books, and that's a good thing. Children can polish their reading skills on phrases like, “Mat sat. Sam sat”⁵⁰ and at the same time learn vocabulary words like “soporific” from listening to Beatrix Potter.

For some children, reading aloud may be enough, or nearly enough. If your children do learn to read by your side without any apparent effort or phonics training, let them read! The only goal of reading instruction is proficient and enjoyable reading – not exposing children to drudgery. If your students read quite well, but you still have a nagging desire to work on their phonics, you can cover it as part of spelling lessons later on.

For many children, however, story time and book exposure is not enough. There are traditionally three main methods of teaching reading used in schools, although most teachers use a mix to teach their classes. The *phonics system* teaches children the sounds of letters and groups of letters, and allows them to “sound out” the words. The *sight-reading system* teaches them to recognize words that are used with high frequency in children's books and read rapidly from a collection of memorized words. The *whole language system*, which was in vogue when I taught Helen to read, emphasizes meaning-based experience, rather than sound-based, so there is no explicit instruction in how to sound out words. In some places, the debate still rages, but now many US educators are talking more about *balanced literacy*, which is melding explicit phonics instruction with whole language instruction.⁵¹

Most schools teach reading before or alongside writing, on the assumption that most children are physically capable of reading before they are capable of writing. Montessori schools teach writing first, and the children learn to read by reading their own writing. I didn't try this approach, but it's an interesting one. It does require a lot of organized work in the early years to develop the necessary dexterity.⁵²

About Writing

After early reading, writing is the most important topic you will teach your students, and as such, writing and its related skills make up the biggest portion of this book. It's not especially difficult to teach writing, but it's distressingly easy (even for a former writing teacher and professional writer!) to push aside writing for the content subjects such as math, history, and science. Your biggest task is to carve out enough time for the children to develop writing stamina; this is true whether you create your own program, follow a boxed curriculum, or help your children after school.

The writing section of this book is divided into four chapters. This chapter explains the terms I use for thinking about writing, how to structure writing instruction across the curriculum and through the years, and describes the invested writing process. “Writing Assignment Ideas” offers specific ideas on what kind of writing your students can do once they've mastered putting words down on paper. “Writing and Revision Toolbox” pulls the ideas of the first two chapters together to give you suggestions to make to your students as they work through their writing assignments. Finally, “Writing-related Skills” is a chapter on penmanship, spelling, and keyboarding. Obviously, those skills are how we eventually transmit writing, but competence in writing and mechanical skills will naturally progress at different rates, and a lag in one shouldn't hold the rest of the process back.

In my early years of homeschooling, I failed to use the words “writing class” when speaking to Helen and Anna. Every day in history class, they drew pictures and wrote summaries of the readings, and they did the same every couple of weeks in science, but I called that writing time “history” or “science.” When I

wanted to back off a bit on the summaries and have Helen and Anna work on a longer piece of writing, they both felt it was unfair of me to add on an extra school subject. It was a failure of nomenclature rather than teaching.

There is nothing particularly novel in my methods of teaching writing – my ways of helping Helen and Anna develop as writers have a long tradition behind them. What is new, I believe, is the way I describe the different types of writing, emphasizing the similarities of writing across the curriculum, rather than teaching writing as part of “English Language Arts” and merely requiring the product in other subjects as is often the case in schools or homeschooling curricula.

To teach writing in the early years, you need notebooks, pencils, drawing paper, and time. Between ages eight and twelve, you can add a computer and a printer. The program is essentially the same for all grades: high volume of writing to develop stamina and practice of the three main types of writing, which I call *service writing*, *draft and a half*, and *invested writing*.

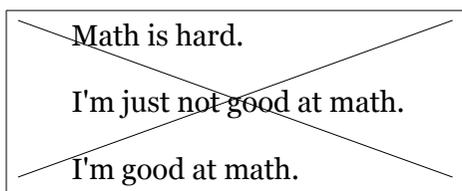
Service Writing, Draft & a Half, and Invested Writing

I introduced the idea of *service writing* in the Reading chapter, as a way of understanding and learning content. Service writing can be used for any type of incoming information – reading, lectures, book or field research – and for outgoing information, refining and developing ideas and understanding for one's own pieces of writing. Service writing is generally not meant to be read by other people and generally not revised (although parts of it may find a home in a piece of invested writing). Service writing can be coherent sentences and paragraphs, formal or informal outlines, sketches and diagrams, or jumbled, exploratory ramblings.

Draft and a half writing is exactly that – the author writes a single draft and then polishes it slightly. We used to call these “one draft wonders” or “first draft finals” in school. They are not as good as they could be, but they are efficient, develop writing skills, and hone thinking. Most adult writing falls into the draft and a half category: letters, emails, daily news journalism, blogs, online discussions, reviews, tweets, memos, work reports, and so on. These types of writing are generally composed in one go, but now

Mathematics

Talking About Math



Ban these three phrases from your conversations. All three imply that math ability is an innate talent, that students have or don't have. Remember what Salman Khan says about the tortoise and the hare in the How We Learn chapter? As Stanford mathematics education professor Jo Boaler asserts, *anyone* can learn high school math.¹³¹ Obviously there are neuroatypical children who may not be able to finish algebra 2 and trigonometry, but in the present system, far too many students simply aren't given the chance, because they have internalized the idea that they aren't "good" at math because of their gender, their race, their parents' complaints about their own schooling, or simply not being as quick at answering questions back in grade four.

Programs

Math is the one subject where almost all but the most ardent unschoolers choose a pre-made curriculum. Although I've experimented with different programs in other subjects, I've ended up making my own programs in everything but math and second languages. Some families combine two math programs to have the benefits of different approaches.

After starting with a highly-recommended math curriculum that didn't work for us, I settled on Singapore Math for my children up through the end of 7b. (This is the level that most American schools consider the end of “middle school” math.) It worked extremely well for us, but that doesn't mean it's the only option out there. In this chapter, I will discuss different styles and theories of teaching math, the pros and cons of each, and a handful of the many, many options for homeschool math curricula.

I've also made a brief foray into discussing high school math, because choices in the elementary and middle school level do affect choices later on, and some fast-moving children may be doing high school level work in middle school, so I feel these programs fall into the scope of this book. Please don't let the talk of high school worry you if you're just starting out in elementary school. You can always skip that section.

Math and the Common Core

In the US, the Common Core is a hot topic in education. Parents of children in bricks and mortar schools and homeschoolers selecting curriculum often rage against “Common Core” math, and blame the Common Core program for all of their children's math ills.

It's important to remember there is nothing in the Common Core documents that specify *how* math should be taught. Instead, it specifies what topics should be covered in what year. Even then, there is flexibility, as the document suggests that high schools offer four tracks through high school, two of which have students completing calculus by the end of twelfth grade, two of which have students completing precalculus by that time.

Table 13: Sample Math Sequences, Grades K-12

Grade	Singapore	Mammoth Light Blue	Beast/AOPS	Saxon Traditional*	Saxon Integrated
1-2	1a, 1b	1a, 1b		1	1
2-3	2a, 2b	2a, 2b	2 a-d (due 2018)	2	2
3-4	3a, 3b	3a, 3b	3 a-d	3	3
4-5	4a, 4b	4a, 4b	4 a-d	5/4	5/4
5-6	5a, 5b	5a, 5b	5 a-d (due 2017)	6/5	6/5
6-7	6a, 6b	6a, 6b	Prealgebra	7/8	7/8
7-8	7a, 7b	7a, 7b	Intro to Algebra	8/7	8/7
8-9	8a, 8b (Algebra 1)	<i>Algebra 1 or Math 1</i>	Counting & Probability Geometry	Algebra 1/2	Algebra 1 (3 rd E)
9-10	<i>Geometry or Math 2⁺</i>	<i>Geometry or Math 2</i>	Intermed. Algebra	Algebra 1 (4 th E)	Algebra 2 (3 rd E)
10-11	<i>Algebra 2 / Trig or Math 3</i>	<i>Algebra 2 / Trig or Math 3</i>	Precalculus	Geometry	Advanced Math
11-12	<i>Precalculus</i>	<i>Precalculus</i>	Calculus	Algebra 2 (4 th E)	Advanced Math
12	<i>Calculus</i>	<i>Calculus</i>	<i>Advanced Calculus</i>	Advanced Math	Calculus

* My name for the programs; not theirs. “Traditional Pathway” and “Integrated Pathway” reflect the terminology of the Common Core. Saxon's original program is “integrated;” the newer one is “traditional.”

+ Singapore ends at 8b; Mammoth at 7b. Italicized titles in later grades reflect the US Common Core sequences rather than a particular program.

Notes on this Sample Schedule

- There are many other options for homeschool math, but I've limited my list to those which are both widely recommended and are available in hard copy books, as online materials are difficult for many rural homeschoolers with limited internet, and even families with fast broadband may wish to limit screen time.
- This sequence reflects the American system; British students will find that the end of US Math 3, AOPS's Intermediate Algebra, or halfway through Saxon's Advanced Math equates roughly to GCSE level; Calculus equates to A-level. Long-term British homeschoolers may find these programs helpful despite a slight difference in topic orders because of the teacher support; short-term homeschoolers may prefer to work with their local schools.
- Using the programs in either grade listed will complete the usual high school program and complete geometry in time for American college testing such as the PSAT, except for some Saxon students. See page 191 for the best Saxon path.
- To study math, science, or engineering at a very selective college, students would need to study each level at the earlier grade listed, apart from Beast Academy/Art of Problem Solving, where either track completes calculus in high school.
- Following a schedule a year behind the grades listed will complete most state requirements for high school graduation.
- Singapore's non-Common Core offerings 1a-6b, followed by New Elementary Math 1-4 (available in the UK, Singapore, and secondhand in the US) mesh up very well with the UK GCSE exams. (This Math 4 equates to the US Integrated Math 3. Confused yet?)

History

Why Study History?

History is our story, the record of our triumphs and tragedies. Our capacity to remember, describe and transmit our story is what makes us human. In the last 20,000 years, we have evolved slightly in important ways,¹⁴⁵ but we would recognize and know those people of the past if we met them, we could learn their language, we would have similar hopes and dreams and fears. Without history, everything is new and surprising. History is context; history does not predict the future, but it narrows the possibilities.

I have heard people suggest that it is unnecessary to know history now that we have Wikipedia, but how do you know you need to look something up if you don't know it ever happened?

The best way to learn history is to immerse yourself in the study of it – through historical television dramas, movies, historical novels, and by reading history, particularly one that takes both a social and political approach. Children love learning what other children's lives were like, and it can be a great way to introduce the study of history. But even older students (and adults) like their history to read like a novel.

In teaching history, remember the twenty-year rule: do you want your students to know this fact in twenty years? Vaguely from the past, I can remember a phrase on a history test: Harley-Smoot, probably because Smoot is such a fine name (or maybe I just remember it from *Ferris Bueller's Day Off*). I can't match it

with any detail, however. It turns out to be Hawley-Smoot Tariff. Does it matter? I can always look up the name (as I did writing this paragraph). What is important is that a protectionist tariff after the 1929 crash contributed to the Depression. That information can have real value in times of future economic trouble. I'll save that for high school. In elementary school, the Depression is Dorothea Lange's haunting photograph of the "Migrant Mother." In middle school, it is *Cinderella Man* and *The Grapes of Wrath*.

The most important thing in elementary and middle school history is to encourage students to care about history, to see history as something that happened to real people whom they find interesting. That caring and that interest will fuel the hard work it takes to learn history at a more complex level, but chances are, your children won't find it hard work, because interest will turn the page for them.

Teach History as a Story

History is interesting. Remember that. I have heard countless teenagers drop out of history classes as soon as they can, moaning *history is boring!* If your students think history is boring, you're not teaching it right. In many countries, world history is often condensed to a single year of secondary school – no wonder far too many students hate it: endless memorizing of dates and key terms, thousand-page textbooks, dry, dreary accounts of dead men.

I became a student of history because:

I heard stories from one grandfather about World War II in the Pacific; I read the scrawled handwriting of my other grandfather of his days in the Irish Rebellion. My grandmother told me stories about her parents, gold and silver mining in Nevada. She showed me pictures of her mother in a long, flowing white dress amongst the dirt and dust of a mining camp.

I found gravestones in a field.

We drove past a house with a Trojan Horse in the lawn, and my father filled the next hour with a recap of the *Iliad* and the *Odyssey*.

My mother invariably made me go to bed in the middle of the Disney feel-good movies on Sunday night, but she would let me

with some of the children, and a year earlier with others. Anna did find the fourth volume (*The Modern Age*) hard going in grade three. I was still reading the books aloud; it was difficult for her to comprehend rather than a challenge of her reading skills. Bauer recommends the book for fourth graders and above only.

If you don't want to use a textbook, you could easily organize a four year cycle of world history, reading trade books, organized around roughly chronological topics, especially if you have regular access to a good library. For example, you might choose to concentrate on nine or ten topics a year such as:

Table 16: Sample History Sequence

Developing Civilizations (to 500 CE)

- Becoming Human
- Human Migrations / Hunter Gatherers
- Early Farming
- Ancient Civilizations Mesopotamia & Egypt
- Ancient Civilizations China & India
- Mediterranean 2000 – 800 BCE
- Mediterranean 800 BCE – 500 CE
- Beginnings and spread of global religions (Hinduism, Confucianism, Buddhism, Judaism, and Christianity)
- Han China
- Your ancestors

Mobile vs. Sedentary Nations (500-1600 CE)

- Ancient Civilizations Americas
- Ancient Civilizations Sub Saharan Africa
- Nomadic Tribes invade Europe
- Origins and Spread of Islam
- Christian Empires / Crusades / Protestantism
- Tang / Song China
- Nomadic Tribes invade Asia / Yuan / Ming China

- European countries invade Americas (“Columbian Exchange”)
- Renaissance Europe
- Your ancestors

Europe vs. the World (1600-1850)

- Sea Trade & Warfare: beginnings of a global world
- Qing China
- Mughal India
- European colonialism
- Africa enslaved
- US Revolution / Constitution
- French Revolution / Napoleonic Wars
- Industrial Revolution Europe
- Japanese Isolationism
- Your national history

The Global World (1850-2000)

- US Slavery / Civil War
- Social Effects of Industry
- WW I
- Economics: Capitalism and Communism (Great Depression / Ukraine Famines)
- WW II
- Cold War
- Middle East
- Latin America
- Cultural Changes: liberalism & fundamentalism
- Your national history

It was a struggle to limit this list to ten points each year. It is not a fixed list, of course; it is certainly biased, but I have tried to highlight cultures and ideas that still have influence in today's world. My own failing in history is usually to try to cover too much

Science

Many homeschool parents find science the most daunting subject. We know how to read well enough to help our children learn to read, our math is good enough for helping with basic math, and in history, we can read along and answer questions, even if the region under study is new to us. But science? Even scientists sometimes have trouble answering some of the wild and wonderful questions posed by the average three-year-old.

Science is a topic where homeschoolers, afterschoolers, and parents of preschoolers can often benefit from doing their homework. A nature walk with a four-year-old is the easiest time to introduce the concepts of evolution, time and distance of space, the history of the earth, and the nuclear fusion powering the sun. When the children were young, I immersed myself in reading about science. It wasn't a conscious "I'd better mug up for homeschooling" decision, but perhaps unconsciously I'd realized that I was answering too many of their questions with "I don't know."

Every child is a scientist. The trick is retaining that interest and enthusiasm through the school years. The fill-in-the-blank worksheets found in many elementary schools, the rote memorization without the whys in middle school often serve to deaden scientific interest.

Very few elementary school teachers have a science degree – a mere *four percent* in one 2000 study had degrees in science or science education. The report continues: "Fewer than one-third of elementary teachers reported feeling very well qualified to teach each of the science disciplines. . . . Three quarters of science teachers in grades K–5 have had 15 or fewer hours of science-related professional development in the preceding three years."¹⁶⁴

Fifteen hours. Can you devote twenty minutes a day to reading about science for the next month and a half? How much can you learn in that time? How many books can you read?

I had the answers to some of Helen and Anna's questions, but not all of them. I read Bill Bryson's *The Short History of Nearly Everything*, revisited early evolution with Carl Zimmer's *At the Water's Edge* and Neil Shubin's *Your Inner Fish*. Remembering that Carl Sagan's *Cosmos* on TV had taught me more about science than most of my elementary school science classes, I watched Neil deGrasse Tyson's remake. Richard Dawkins's *The Ancestor's Tale* is a lengthy foray through evolution. Gabrielle Walker's *An Ocean of Air* taught me about the atmosphere. While Helen and Anna were in elementary school, I watched two Great Courses programs, *How the Earth Works* and *Understanding the Universe*, filling in gaps that I hadn't studied in school. I was starting to have some answers to their questions. (I still haven't managed to get through Stephen Hawking's *A Brief History of Time*. Maybe by the time they graduate from high school?)

I bought over a dozen DK Eyewitness books, both for the children to look at the pictures, and for me to do my own reading: *Plant, Whale, Ocean, Rocks and Minerals, Dinosaurs, Prehistoric Life, Evolution, Universe, Human Body, Early Humans, Fish, Weather, Bird, and Insect*. A friend gave us an Atlas of the Night Skies. When they reached late elementary school, I started stocking high school level textbooks as reference material. (We usually didn't have internet access; it may not be necessary to have so many textbooks if you do.)

For older children, having a paper subscription to *Scientific American* or other adult-level science magazine is a great way for them to internalize the idea of the scientific method, and the way science advances in increments, with occasional overturnings of ideas, and the excitement of the advancement of knowledge. They don't even have to be avid readers of the magazine to have this effect. Read it yourself and leave the magazine lying around: just looking at the cover will help them understand how science works.

There were three strands to my teaching of science: unschooling, hands-on experimentation, and book and video learning. The three strands continued from pre-school to elementary school through middle and high school, although by high school they were doing less unschooling and more book and lecture learning; in elementary school the emphasis was reversed.

Managing the Classroom

What should your classroom look like? How should the day run? Just as there are a broad range of curricular styles, from unschooling to classical, there's a broad range of classroom styles, which partially correlates with curriculum, but not exclusively so. Of course, an unschooler who regards the whole world as the classroom isn't worried about classroom management, and a classical educator will often have a school-at-home set up with child-sized desks and chairs, and sometimes even a blackboard, but there are classical scholars reading with their feet over their heads in a beanbag chair, and there are child-led homeschoolers with a classroom and a blackboard.

Time management has been a persistent difficulty throughout our homeschool. I was continually looking for ways to shave time off the school day without sacrificing academics. I read about children who complete their elementary school work in two or three hours, but that never happened for us – for both good and bad reasons. The good reason is that our curriculum was open-ended. When was a topic finished? If your students are filling in a worksheet a day in each class, it's easy to be done in a few hours, but if you're talking, thinking, writing, and discovering, it takes longer, but I think your students are almost always learning more. But continually, I was frustrated that school would take us *so long*. Where were these three-hour school days everyone talks about?

In *Teach Like a Champion*, Doug Lemov begins his analysis of excellent teachers in urban schools with a description of a teacher who spends the first day teaching his students how to pass papers around the classroom. If the students pass papers around the

room twenty times a day, saving a minute each time can net sixty-three hours of school a year.¹⁸¹ Homeschool students don't pass papers around the room, but there are many other places where time can be saved in transitions from one subject to another and in discussing the assignments and material.

Here's an example: early on, I tried to teach my children to take responsibility for their own equipment. I gave them pencils, which they labeled with their initials, and I allowed them to go off and sharpen them in the workshop whenever necessary. Do you have any idea how much time an eight-year-old can spend sharpening pencils? Anna would sit down to do spelling with me, one on one. She knew that she was to have her materials gathered and together; I would sit beside her, take out the stack of word cards, and suddenly, she'd discover that she needed to sharpen her pencil. And while she's at it, maybe she needed a drink of water.

Lemov suggests that students not be allowed to sharpen their pencils in class for this very reason. After reading this, I tried to have a stack of pencils sharpened at the beginning of school, but I often failed to have them ready. (Day to day preparation is not my strong point.) The final iteration of the pencil quandary was this: the last item in their list of school assignments was to sharpen three pencils and put them in their boxes for the next morning. This, at last, worked for all of us. It does take time to come up with effective solutions for managing your school, and in all likelihood, after you hit on the perfect solution, it will only be a matter of months before it's obsolete. Within a year of figuring out the pencil sharpening, they both started doing all their work in pen, and it ceased to be an issue at all.

It's a delicate balance, because one of the benefits of homeschooling is students don't need to roll to the clock bell: if they're interested in a topic, why shouldn't they have the opportunity to explore it? But, particularly when they're young and don't have a sense of anticipation of rewards, when should you step in and demand they change topic? Or should you even try? I found that it suited my sanity best to step in – too many days of finishing our school after six or seven hours instead of two or three, meant that they were losing out on time outside, play, exercise, and it was not what I wanted school to look like.

I had to balance my two main goals: that Helen and Anna cover at least the same academic materials that they would in an excellent public school each year and that they played outside, rain

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About the Author

Kate Laird graduated from Harvard with a degree in history, a good set of study skills, and a 100-ton captain's license.

Her first teaching job began seven days after graduation, tutoring three children on a sailboat crossing the Pacific. That “year off” turned into twenty-five, as she worked on boats around the world, sometimes pausing to write about it.

In the middle, she taught for another two years at the University of New Hampshire, while earning an MA in English, but then didn't think much more about education until it came time to teach her two daughters. The last twelve years have been devoted to their educations, as the family worked and traveled on the edges of civilization from Greenland to Antarctica, Tierra del Fuego to New Zealand, through the South Pacific to Japan, and now to Alaska.

You can find her online at www.katelairdbooks.com.

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