



# RAISING A SCIENTIFICALLY LITERATE CHILD

## How Science Sets the Stage for Lifelong Success

### Scientific Literacy: What It Is and Why It Matters

Regardless of what career path your child chooses to pursue, the critical thinking skills needed for science will help them succeed at school, work and life.

Science requires us to observe, question, test and evaluate—then question again and revise our opinions as needed. Science is about continually acquiring new knowledge and holding ourselves and others accountable. Most importantly, it's about keeping an open and curious mind. In a world with an overwhelming amount of information, the scientific method of learning is more important than ever.

Developing scientific literacy should be a priority at every stage of your child's education—both inside and outside of the classroom. You play an important role. Encourage your child to explore and question the world around them, as well as continue with their science education.



### Science in Today's Classroom

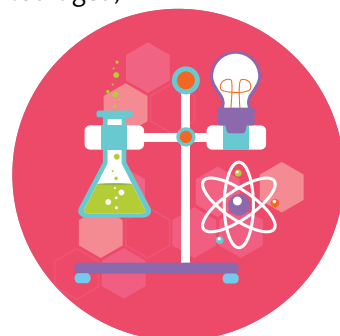
Science is not just a subject. It is a way of understanding the world, a pattern of thinking that begins in the very earliest years. That's why teachers often integrate science or scientific methods into other subjects.

In fact, taking an integrated approach to teaching science, technology, engineering and mathematics (STEM) and even art is a top priority in today's classrooms. Educators want to prepare students for a more complex, interconnected world, with jobs that require critical thinking, teamwork and problem-solving skills—in essence, scientific literacy.

That's why it's so important to discourage children from saying or believing they're not good at science. Science is something we continue to practice throughout our lives.

### Here are few things you should look for to make sure your child is getting a good science education from elementary through high school:

- ✓ Less memorization, more hands-on experimentation and real-world problem solving
- ✓ More discussion and group activities
- ✓ An environment where:
  - Questions are highly encouraged, even rewarded
  - There is more than one right answer to problems
  - Showing your reasoning is just as important as showing the answer



## What You Can Do Outside the Classroom

Parents don't need degrees in chemistry or physics to help their children learn science. They just need to make time to explore and learn alongside them. This can be as simple as conducting an experiment to see whether items float or sink in the bathtub or as adventurous as hiking into the forest in search of different bird and plant species.

One helpful tool you have that your parents did not is a vast array of free, online resources to complement and extend your child's classroom education. We've provided examples of interactive content throughout this brochure, and you can ask your teachers or librarians to suggest science websites, apps, videos and online activities as well.

Whether it's online, around the house, outdoors or in the community, there are many methods for developing your child's scientific literacy. Here are some examples:

### ■ Take Walks

This can be a 10-minute walk around the backyard or a longer hike in a nearby park. As you walk, encourage your child to point out things they find interesting and to ask questions. Answer the questions you can. For those you can't, offer to find the answers together online or at the library. The Nature Conservancy has an entire site dedicated to helping connect kids and families with nature, visit: [NatureWorksEverywhere.org](http://NatureWorksEverywhere.org)

### ■ Go to a Zoo

If you visit a zoo together, keep a diary of the animals you see and their species. When you get home, ask your child to name their favorites, and learn more about them before your next trip. You can also take advantage of the many live animal cams on zoo web sites around the country, such as: [Kids.SanDiegoZoo.org/Animal-Cams-Videos](http://Kids.SanDiegoZoo.org/Animal-Cams-Videos).

### ■ Conduct Experiments

Doing small science experiments at home not only helps your child learn, but also reinforces the idea that science is everywhere. Google "science experiments for kids," or ask a librarian for help, and you'll find a wealth of easy ideas using household objects. (Always make sure the experiment is safe for both you and your child before starting.) A great source of ideas is someone you may remember from your own childhood, Bill Nye the Science Guy. At [BillNye.com](http://BillNye.com), you'll find videos and printer-friendly instructions for all kinds of home experiments that answer practical questions, such as how light bends or why we sweat.

### ■ Read Books

Check out science-related library books and read them together. The National Science Teachers Association



publishes an annual list of outstanding children's science books for K-12 students, visit: [NSTA.org/Publications/OSTB](http://NSTA.org/Publications/OSTB).

### ■ Visit Museums

Visit your local museums often and seek out other opportunities when you travel. Many cities have museums, technology exhibits and nature centers with exhibits designed specifically for kids.

### ■ Discover a world of museums online

Not everyone lives near the greatest museum on Earth! Check out the "Wish They Had This When I Was a Kid" textbox for a list of great virtual museums and activities.



## Wish They Had This When I Was a Kid



Following is just a short sampling of the many museums and other sites that provide online science activities,

videos, games, and information. If you Google “online science museums,” you’ll find a rich array of interactive content for children of all ages.

### Smithsonian for Kids

Experience what some of the world’s top museums have to offer. Read an interactive book on insects, explore coral reefs, predict natural disasters and meet famous women in air and space history.

[SI.edu/Kids](http://SI.edu/Kids)

### American Museum of Natural History’s “Ology” Science Web Site for Kids

If your child dreams of being an “ologist”—whether a biologist, archaeologist or paleontologist—this site will help them learn about each field of study, meet actual scientists and test their knowledge.

[Ology.AMNH.org](http://Ology.AMNH.org)

### London’s Science Museum

Explore an array of science games and apps that let kids do everything from building an energy efficient home to designing and testing their own space rover.

[ScienceMuseum.org.uk/Online\\_Science](http://ScienceMuseum.org.uk/Online_Science)

### National Geographic Kids

A great site for younger kids with puzzles, photos, interactive maps, fun facts and achievement badges.

[Kids.NationalGeographic.com](http://Kids.NationalGeographic.com)

### Exploratorium

This website is an invitation to Explore, Play and Discover. Try learning about skateboard science or how to grow your own mold.

[Exploratorium.edu/Explore](http://Exploratorium.edu/Explore)

### Woods Hole Oceanographic Institution’s Dive and Discover: Expeditions to the Sea Floor

This website features rich content for older kids, including coverage of deep sea expeditions around the world.

[DiveDiscover.WHOI.edu](http://DiveDiscover.WHOI.edu)



## Highlight Careers in Science

Experts project significant growth in jobs for scientists—and those with a strong science education—over the next few decades. Helping your child understand the breadth of opportunities will make what they’re learning more relevant and motivate them to take challenging science courses.

Use online resources such as video interviews and TED Talks to introduce your child to scientists from various disciplines—whether marine biologist, nature conservationist or brain doctor. Here are a few sites to help you put a face with a job title:



- ✓ **PBSKids:** [PBSKids.org/DragonflyTV/Scientists](http://PBSKids.org/DragonflyTV/Scientists)
- ✓ **Smithsonian:** [Insider.SI.edu/Category/Meet-Our-Scientists](http://Insider.SI.edu/Category/Meet-Our-Scientists)
- ✓ **U.S. Federal Government:** [Kids.USA.gov/Jobs](http://Kids.USA.gov/Jobs)
- ✓ **NASA:** [NASA.gov/Audience/ForStudents](http://NASA.gov/Audience/ForStudents)
- ✓ **TED Talks:** [TED.com](http://TED.com)

## Support Teachers

The hands-on approach to science is great for kids, but it takes a lot of organizing and materials. Offer to collect any household items your child's teacher might need for science experiments, such as cotton balls, straws or paper plates. If you can find time, volunteer to help during class or on field trips, or offer to arrange for scientists in your community to speak or supervise new activities.



## Keep Your Own Scientific Spirit

Lastly, it's important to maintain your own sense of curiosity, your desire to explore and your commitment to finding accurate and truthful answers to life's many questions. Your child will follow your lead.

## Resources

**PTA Math Information for Parents:** [pta.org/parents](https://pta.org/parents)

## Other Resources

There is a range of other Parents' Guides to help you ensure your child thrives at school from K-12. Here are just a few examples:

- ✓ Preparing Your Child for School
- ✓ Raising Ready Readers—Helping Your Child Learn to Read
- ✓ Helping Your Child with Today's Math

For these and other guides, visit [NEA.org/Parents/NEAResources-Parents.html](https://NEA.org/Parents/NEAResources-Parents.html) or [pta.org/familyguides](https://pta.org/familyguides)



For more information about PTA or to join, visit [pta.org/join](https://pta.org/join)

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