

## How does your child learn best?

How does your child learn best, and how can you help him or her draw on his or her strengths? These are two important questions to ponder as we teach our children. Over the last twenty years learning styles have garnered a great deal of attention. There are different lenses through which we can look at learning styles. One focus offers three broad categories of learning types: visual, auditory, and tactile/kinesthetic.

**Visual learners** learn through seeing. Reading, watching a demonstration, or taking notes that can be read later are examples of visual learning.

**Auditory learners** learn through listening. They thrive on listening to audio books, being read to, or recording a lecture that will be listened to later.

Children who learn best through **tactile/kinesthetic activities** enjoy learning through moving, doing, or touching. Putting together a model, using toe-tapping/hand-clapping rhythm to lock in information, and acting out a story help these children learn best.

As parents, we know that our children aren't one dimensional; each child has a unique blend of learning styles. Our role as parent teachers is to help children draw on their strengths.

So how can you encourage your child to use his or her learning styles? Try creating learning opportunities that use all three styles. Let's look at one of my favorite areas of study: science.

### Ask a question; find the answer

I used to feel intimidated about teaching science. Science was hard! But that changed after spending the summer working with a really great teacher, Suzie, the educational director at our local zoo. She believes that good science starts with questions. Why do leaves turn colors in the fall? What causes a tsunami? How can something the size of an aircraft carrier float? As my children's teacher, I needed to help them create answers to their questions. I didn't have to be a science expert. What a relief! I also learned that summer that I could create learning opportunities that actively engaged children with any learning style—auditory, visual, tactile/kinesthetic, and everything in between.

Here's an example. My husband and I build submarines—personal submarines. Yes, you read that right. I'm the educational director of the *Argonaut Jr.* 2010 Project, which revolves around building a modern version of a small wooden submarine called the *Argonaut Jr.*, built in 1894 by Simon Lake. The little sub started Lake on the road of creating many of the innovations that are found today in our modern subs such as the periscope, double hulls, and a diver's lock-out chamber, all before 1900. My role,

then, is to design lessons and activities that encourage children to ask questions and work out the answers using their hands and their brains.

For example, Boyle's Law is a basic principle in underwater science. As depth increases, so does pressure. Scuba divers know that for every thirty-three feet they descend, pressure increases about fifteen pounds per square inch. Water doesn't compress, but air does. At a depth of thirty-three feet, air takes up half the space it does at the surface. In a sense air can be squeezed. This idea can be calculated mathematically, shown in illustrations, or demonstrated by a hands-on activity. A visual learner might grasp the concept by viewing a chart showing the relationship between depth and pressure. An auditory learner could benefit from a video with a narrator explaining illustrations. And a tactile/kinesthetic learner might grasp the implications of Boyle's Law with a hands-on experiment such as placing a tube upside down in a plastic soda bottle, weighing down the tube until it sinks slightly, and then squeezing the bottle. The water pressure increases, the air in the tube compresses, and the tube sinks.

Another question that might be asked about submarines is *How do they "hear" underwater?* Subs and ships use hydrophones, a tool that picks up sound underwater. Hydrophones can be simple and inexpensive to make and fun to test. Things sound very

# Start With a Question

by Kay Jackson

## Resources

different underwater. Constructing a simple hydrophone engages both auditory and tactile/kinesthetic learning.

Another question is *How do submariners know where to go?* Navigators use sonar, a way of bouncing sound off objects. A common form of sonar is a fish finder, used by fishermen to show the depth and location of fish. Fish finders take the sound waves bounced off a lake or ocean bottom and convert them into graphics on a screen. Some fish finders now have side-scanning sonar and send back complex pictures that are almost like a puzzle to decipher. Using a fish finder to explore a lake's bottom and interpreting its images encourages visual learning.

### There's no place like home.

I've taught in public schools, private schools, hospital schools, and at home.

And once I decided teaching science was easy if I let my students and children lead the way with their questions, I found out how much science is all around us. And then I started seeing opportunities to spark my children's curiosity and generate those good science questions. Here are some ideas:

■ **The kitchen** is a natural chemistry lab! What happens when you mix A with B? How does yeast work? What's the green stuff growing on the leftovers in the fridge? Why do bananas turn brown? Why do we need to eat bananas? What's baking soda? Why are sodas fizzy? What happens to the fizz when sodas go flat?

■ **Your backyard** is another great lab—a wonderful place to conduct field studies. What science principles do you see growing there? Why do plants die when you put too much fertilizer on them? How do plants move water from their roots to their leaves? What insects live in our backyard? What do earthworms do?

**Fish finder:** Available at Bass Pro Shop or a sporting goods store for under \$100.

Or they can often be found on [craigslist.com](http://craigslist.com) or at garage sales for much cheaper.

#### Web sites:

- Yahoo Kids— <http://kids.yahoo.com/science>: Content and websites are screened to be kid appropriate.
- Funology.com: Great for ages 6 - 12.
- Explorations for Kids—<http://homeschooling.gomilpitas.com/explore/Explore.htm>: Lots and lots of info.
- The Exploratorium, The museum of science, art and human perception at the Palace of Fine Arts in San Francisco, • Hands-on Activities page—[www.exploratorium.edu/explore/hands-on.html](http://www.exploratorium.edu/explore/hands-on.html): Appropriate for ages 7 and up.
- HowStuffWorks.com: Presented in a clear linear format without unnecessary linking to outside sites.
- About.com: Consumer-driven site covering pop culture topics, but it often supplies good resources for more academic searches.

#### Books:

- Get ideas on Amazon.com suitable for your child's age and reading level. Then check your local library and talk with the librarians and volunteers.
- Use book reviews such as National Science Teachers Association's *Outstanding Trade Books for Students K-12* at [www.nsta.org/publications/ostb/](http://www.nsta.org/publications/ostb/) or the National Council of Teachers of English Orbis Pictus Award for Outstanding Nonfiction for Children at <http://www.ncte.org/awards/orbispictus>.
- Author's nonfiction books for children on science topics—visit [www.submarineboat.com/school\\_visits.htm](http://www.submarineboat.com/school_visits.htm).

#### ■ Take advantage of local resources.

Watch out for a local air show. Most pilots love to talk to kids, especially kids who come with their questions already written down on note cards. Then have your children make their own airplanes out of paper. Which designs fly longer or faster? Why?

■ **Got a pond?** Then you've got all kinds of creatures to study while learning more about the freshwater aquatic ecosystem as well as the shoreline niches. What's that green stuff floating on the surface (sort of related to what's that green stuff growing in the fridge)? What do fish eat? How do they breathe? Why can mosquitoes land on water and not sink?

#### Home-taught & Self-taught

The great thing about home-schooling, to me, is that you have the freedom to step away from the boundaries of curricular timelines. I've written for textbook companies as well as reviewed them, and I've often seen concepts and skills that adhere to an unnatural timeline that has little to do with how children's brains develop. By observing your children, you can determine their learning styles as well as what they are ready to learn. And

by discussing with them, you can find what they are naturally interested in. Encourage your children to ask those good science questions, and then be ready to discover answers by exploring the world around them.

As parents we can help our children discover their interests and then use their hands, their brains, and whatever is lying around the house to learn more about their world. So they become *self-taught* as well as *home-taught*. And this is from the lady who, with her husband, is building two submarines, two ROVs, and a really, really big sailboat—all in her front yard.



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