Using an Inventive Thinking Program with Your Child

ACTIVITIES

Dear parents,

Just like every other part of the body, the brain needs exercise.

Try inventing…Help your child to "exercise" their mind this summer! Parents of successful kid inventors tell us that inventing is a family adventure! Siblings, grandparents, aunts and uncles can all help!

Successful grown-up inventors tell us that they need other people to help them "bounce" around their ideas. Inventors appreciate a coach or mentor. Here we have collected lots of fun ways you can support your kid inventor at home.

Kids using the inventive thinking program:

- form "habits" of mind that help them succeed in other areas of their lives.
- find ways to identify problems and solve them by themselves in their own ways.
- become *confident* in their **own ability** to identify problems and solve them.

This knowledge about how they approach a challenge and thinking about their own way of thinking is called "meta-cognition".

Many inventor kids report "talking to themselves" and even giving themselves "pep talks". Can you imagine how terrific it is to have this self-awareness?

The Reluctant Academic Learner may be the best inventor!

It is NOT always the straight A student that is the successful inventor.

- Inventive thinkers are often the right brained people who have a special way to look at the world…those who see things in a different way.
- If your child is not tops in academics, is bored in school, can't sit still, loves to take things apart, maybe they excel at inventing!
- Many famous and successful inventors have learning disabilities. They tell stories of how this helped them see the solutions that other people don't see.

Sincerely,

The By Kids For Kids Team

ACTIVITIES

10 Ways to Create an Inventing-Friendly Environment

Here are tips for creating an "inventing friendly" home environment.

1. Time for "Flow"

Have you ever wondered why a child with attention deficit hyperactivity disorder can spend three hours sitting still playing video games? Why a child building a go-kart will stay out in the rain to finish hammering the last nails?

- Flow is the kind of creative "zone" your kids enter when they are engaged and interested in what they are doing.
- Watch for things that engage this "flow" in your child.
- Make sure your child has **time** to devote to "flow".

Time to muck around with stuff is critical to inventing.

2. Permission to Make a Mess

Can you encourage mess making in your home? Ok, so contain it in an area. Creativity is messy. Kids should feel they can get dirty and messy. This doesn't mean cleaning up will suppress creative urges.

It means finding ways to have acceptable times and places for creative messing around.

- Use the outdoors
- Find some space in a garage
- Get a box where all the junk ends up after an inventing session
- Define the place where is it ok to mess around
- Put a big old plastic shower curtain on the ground to make it easy to protect from and collect glue, paint, small pieces and parts

It's all about creating a place where crazy ideas can be nurtured.

3. Collecting Stuff

Children love to make collections of random objects. Encourage this and give them old egg cartons and unbreakable plastic containers to store these in. This collection may become the exact parts they need for the invention they will be inspired to create. Before you throw away some interesting device or plastic thingy, think about donating it to the "collection". (Just be careful of things that were electric or battery powered…even with the plug cut off, they may provide a shock due to capacitors inside.)

4. Reordering the Information

Kids get information from the world around them, from books, from the internet, from you. You can help them become observant. They can take digital pictures and make scrapbooks. They are most curious about how things work. Take walks to see construction sites! Visit a car wash!

Once they have information, they identify a problem and find ways to reorder and adjust the information in new and novel ways.

5. "Percolating" a Solution

"Aha" moments are often serendipity that happens when you are in the shower or just staring into space. Your child needs your support to learn to trust their brain. Many of these connections happen in the sub-conscious. Tapping into this pool of thought takes practice and patience.

Be patient! Cheer them on and support their journey. Don't offer the solution. Help them find their own path!

6. Tune into Their Frequency

When you observe your child, think about the "frequency" they are "tuned" into. Adults and kids are often on different frequencies. Kids may be on AM and you may be on FM. Your goal is to get the homework done, kids fed, to bed and then you can breathe.

Their goal may be to spend time exploring a problem that they thought about all day. The time they appear to be daydreaming may be the very "incubation time" they need to answer the problem they posed in their head that morning. Ask what they are thinking!

7. Use Your Language to Encourage

Kids are very aware of your praise and your criticism. Ask first. Find out what they are thinking about…and then offer support. Even if they do have to do homework right that moment, give them time to write the brilliant thoughts they have at that moment so they can go back to them later. Parents can encourage and support "thinking" and meta-cognition.

8. Tools for Constructing and Model Making

Screwdrivers and hammering nails is something that a four-year-old will love to do as much as a 14-year-old. Too bad it is mostly men who have these kinds of memories that inspire them to ask for a Dremel for their birthday. Girls need this experience too!

Again, safety comes first with adult supervision. Teach them the proper way to use tools. Use safety googles and ear protection whenever appropriate.

Not everyone has access to a garage or cellar workshop. Not everyone is tool handy enough to instruct their child. However, even the local dollar store will yield a basic set of tool like a screw driver, hammer and pliers.

Kids make mental models from their interactions with "stuff". Your challenge as a supportive parent is to allow them to use tools with supervision, understand the safety rules and find a storage solution that doesn't make you so crazy, you give up on "construction".

9. Create an "Inventor Workshop" at Home

This is an individual solution based on space and resources. If you designate a place as the "Inventor Workshop" you may be able to define where the mess is acceptable. Confine activities to this space.

Ideally, kids should be equipped with some of basic materials and supplies. Keep things like glue, paint and sharper tools in an *adult access only* place for younger kids. Art and scrap materials for collage, construction and model making can be as handy as toys are in their space. The use of plastic tubs and bins makes clean up easier.

Use those recycled materials you and your child have collected. Used, clean Styrofoam and plastic trays from fruit and vegetables make great materials for construction. Cut these into pieces with your kids and put them in shoe boxes for raw materials.

Hint: If you have rugs, perhaps an "Inventor Mat" cut from an old plastic shower curtain that goes on the floor or table will help save the surroundings from glue and paint.

Things to remember to keep your child safe

If you will have lots of small pieces of things floating around keep in mind the age of the other children in your home. There is always a choking risk for toddler siblings. An if you plan to "deconstruct" or take apart electrical things with your child there are two things to remember. First is cut the wire and plug and make it clear to your child that they are not to plug anything in without your supervision, especially not something that was taken apart and put back together. Second is that there are small capacitors in some items like toasters and hair dryers. These can give you a shock if you touch them.

The age of your child, their developmental maturity level and your good judgment will determine what you allow your child to do in their inventor lab with minimal adult supervision.

10. Inspire Them by Finding Stories of Success

Inspire them by showing them other kids who have invented. Look online and find some stories about kid inventors to say: "These are kids who thought of great ideas…YOU are just like them. YOU can do it too!"

Journal

Every inventor needs a journal. It is such an important life skill to acquire. Creative people use journals to chronicle the world. It gives them a way to capture thoughts to reconsider and recombine at a future time. It chronicles their thinking.

Equipping the "Inventor Lab"

It is wonderful if you have space to contain inventing to one place in the home. If you can delegate a table for projects and some shelves or baskets for supplies and tools, that will work well, if you can't, you can creatively create an "inventor lab in a box".

For younger children, use plastic tubs with the materials you don't want to see on your walls or furniture. Only provide this material with your supervision. Basic crayons, paper, glue stick and collage materials might be something available to them all the time. Around age six or seven, you can begin to leave the inventor lab materials available for them to use with minimal supervision. You know best what material you can leave out and whether baby brother or sister needs protection from things. If things get too messy with easy access, you might pull back to the early age strategy of keeping it in a plastic inventor tub and just put it out when you can watch over the activity.

These are some suggested supplies but please customize this list in your "lab" to your child's age and interest.

A Note About Paper:
Paper is for projects, for planning, for drawing, for designing, for constructing.

You don't have to buy paper especially for the inventor lab. Paper is everywhere around you in your home. Cut apart brown paper grocery bags for large sheets of sturdy paper for projects. Look to the computer paper you are throwing away. It only has writing on one side. Every time you go to a hotel, grab the memo pad for your kid's inventor lab. In the dollar store are cheap notebooks. One teacher has each kid keep a small spiral pad, 1x3" in their pocket to take notes on things during the day that they could identify as problems for an inventor to solve.

- Paper
- Fasteners including assorted paper clips and wing tip fasteners, small clothespins, etc.
- Scissors – safety scissors in various sizes
- Stapler (depending on the developmental age of your child)
- Pens, pencils, markers (washable if there is a risk of accidents)
- Paint (again, washable and perhaps use an old shower curtain to protect surfaces)
- Ruler and tape measure
- Post its and small pieces of paper
- Scraps of odd plastic, tops from jars, containers, foam trays, odd wood scraps
- Yarn, felt, string
- Glue
- Plastic coated wire, pipe cleaners
- Large sheets of cardboard to use as a platform for invention models

Add gears, motors, batteries and nuts and bolts as the level of sophistication of your child increases.