



Invention Dimension Parent Guide

Welcome to BKFK Family Fun Inventing!

Inventing isn't just for adults; it isn't just for a small group of kids; and it isn't just for school. Kids can invent amazing things. Kids have invented many of the products you'll find in your own home.

*What's the weather like where you live? Still warm out? Go check your freezer for **Popsicles**[®] invented by an 11-year-old! Maybe your kids will spend some time outside, jumping on the kid invented trampoline too!*

Maybe it's getting chilly and you're spending more time playing indoor games. ***Did you know that one of the most famous and best selling games of all time was invented by a kid?*** It's called **JENGA**[®] and it was invented by a 17-year-old.

If you live in a cold part of the world, you might have another kid invented product in your house, too, especially as days grow shorter and nights get colder. Ear muffs were invented by a kid, too.

And if it has already snowed, you might want to take a snowmobile for a spin. You can thank a kid for that one too!

So what did all of these inventors have in common? They had support, encouragement, and guidance. For kid inventors, that support system starts at home. Parents of successful kid inventors tell us that inventing is a family adventure. Siblings, grandparents, aunts and uncles can all help identify and encourage the inventive spirit in a child.

Your interest in helping your child develop these skills is a great start! We are excited to help you and your family get inventing. Inventors appreciate a coach or mentor, and you could be your child's mentor! In this parent's guide, we have collected inventive thinking activities you can use to support your kid inventor at home.



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INTRODUCTION TO THE GUIDE

For many of the activities in this guide, we are using our current competition, the **Invention Dimension Challenge**, as a theme to motivate inventing. A collaboration between *JAKKS Pacific* toy company and *Toys“R”Us*, along with the *Edison Venture Fund* and the *UIA*, the **Invention Dimension Challenge** challenges kids aged 6 – 19 to come up with ground-breaking ideas for toys, games or sporting equipment.

Activities included in this guide will encourage kids to tinker with old toys and games, and come up with creative and unique ideas for new toys, games or sporting goods.

The ***Invention Dimension Challenge*** offers an incredible opportunity to harness your child’s interest in interactive games and toys to stimulate innovation, creativity and high order thinking. You can also encourage your child to submit his/her innovative ideas at bkfk.com.

The entry period is from October 1, 2009, Noon ET through January 29, 2010, Noon ET.

Though prototypes are encouraged, please note that kids DO NOT have to come up with a working version of the product. These inventions are entirely conceptual. They are expected to submit details of their idea by answering questions on how they plan to develop their invention at bkfk.com. You can go to “**Submit Ideas to Invention Dimension Challenge**” at the end of this guide for more information.

ABOUT INVENTORS AND INVENTING

Contrary to common belief, it is NOT always the straight A student that is the most successful inventor. Every child has the potential to be an inventor, with the right encouragement.

Many famous inventors have struggled in traditional learning environments or have learning disabilities.

Inventive thinkers are often the right brained people who have an uncommon or unique way of looking at the world – people who see things in a different way.

Many famous and successful inventors have learning disabilities. They tell stories of how this helped them see the solutions that other people didn't see. In fact, Thomas Edison would probably have been diagnosed as ADD/ADHD today.

If your child is not tops in academics, is bored in school, can't sit still, loves to take things apart, maybe s/he excels at inventing!

Benefits of Inventing

Kids using our inventive thinking activities have:

- Formed habits of mind that help them succeed in other areas of their lives.
- Found 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.
- Being able to solve problems independently fosters genuine self-esteem.

Many kid inventors report talking to themselves and even giving themselves pep talks. This level of self-awareness is a great gift to your child and develops self-confidence.

The experiences and family activities in this section are meant to be fun...but don't be fooled. There is hard work and real thinking involved. So, get ready for a fun and challenging adventure!

TOY/ GAME/ SPORTING GOOD INVENTOR STORIES

Before you start working on the activities and lesson plans with your child, here are some inspiring invention stories of successful kid inventors to share.



Zach, Board Game Inventor

"Repeat or You're Obsolete"

Invented at age 13

Repeat or You're Obsolete is a hilarious, fast-paced game of memory madness. It contains everything needed to play an uproarious game and exercise your memory, improve your concentration, and develop your imagination at the same time. Players put their skills to the ultimate test as they make noises, act things out, create stories, make lists, and play with words. Already a hit with parents and educators, *Repeat or You're Obsolete™* was named one of the Best Products of 2008 by iParenting Media, and won the 2008 Best Children's Product Award by the National Parents Publications Awards (NAPPA), in association with Parenting.com.

Austin, Sporting Good Inventor

"Battie Caddy"

Invented at age 9

Austin was traveling to the ball field on his bike for a baseball game when he nearly had an accident. He was trying to carry his baseball glove, bat and ball and steer his bike all at the same time! Lots of kids ride their bikes to the park to play baseball. It is difficult to carry their equipment and still have their hands free to steer their bike safely. He created a device that would fasten to the handle bars to carry a baseball glove, ball and bat. This would allow the rider to maintain proper control of the bike by eliminating the need to hang on to their equipment. In his family garage he designed and built his idea. Austin attached a plastic bar to the handlebars of his bike with tubing and used clamps to hold his bat. He put a hook for the glove and a pouch for the ball. He built his first *Battie Caddy*.



Alyssa, Kaycee, Amy and Nick, Sporting Good Inventors

"Boogie to Boogie"

Invented at age 10-12



Alyssa, Amy, Nick & Kaycee had a great idea and have won all kinds of awards for their innovative product. Kids enjoy body boarding and using body surfing boards to ride the breakers, the "white water," near the shore. Kids needed a body board that is made specifically for riding that kind of wave, focusing on riding in the breakers near the shore—where kids like to ride! *Boogie 2 Boogie* has a signature boomerang shape making it hydrodynamic and fun. It was also more comfortable to lay on the board with this open shape. They enjoyed "surfing" together and came up with a connector to attach to each board to the other so they could ride in tandem. Also, for parents who wanted a way of getting children's attention when it was time to come in, the kids came up with a remote signaling device so that parents could signal them from shore.

Jerrilee, Game Inventor

"Swipe It"

Invented at age 9



Jerrilee wanted to create a personal, custom-made birthday gift for her older sister who loves words. *Speed Spell* (now *Swipe-it*) was conceived as an exciting, fast-paced word game; *UNO*® meets *Scrabble*® and reminiscent of games played while the family is on a roadtrip. One to five teams or players complete words from multiple letter groups building from inside out. The more words you complete, announce, SWIPE and/or steal, the more points you earn. The winner runs out of cards first. There are 120 cards total in a deck

In addition to the above inventions, you can also share winning ideas from the past winners of BKFK challenges. Explain to your kids that they have a chance at winning too by entering this year's challenge. You can find more invention stories at www.bkfk.com/InnovatorsDB

Jacob

"EZ Transitional Training Wheels"

Invented at age 6

Jacob invented a new way to learn how to ride a bike. The training wheels adjust in and out on a scale of 1-10. Day 1 the wheels are all the way out which makes the bike very stable (like standard training wheels). Each day you progress to a higher number (the wheels move in closer to the bike) which makes the bike less stable and the rider better balanced.



Ana

"Hands on Hand Clap Games"

Invented at age 12

Ana invented an electronic game that lets you play hand clap games with only one person. She invented it because she liked hand clap games and did not always have someone to play with. All you need to do is choose your rhyme, your level and press start!



Russell

"Water Tag Game"

Invented at age 12

Russell invented a fun way to play tag, especially for the summer. Each player wears a vest that has four plugs with long ribbons of fabric. When any plug is pulled, water is released from the vest, getting the player soaked!



Moira

"Pop N Catch Lacrosse Stick"

Invented at age 9



Moira wanted a way to practice lacrosse when she was by herself or with out the use of a large wall. Moira took the traditional lacrosse stick one step further and made it into a learning tool. The *Pop N Catch Lacrosse Stick* has a lacrosse ball connected to one end of a stretchy rope and the other end to the lacrosse stick. By doing this she made it possible to practice lacrosse all by yourself.

Frank

"Awesome Soccer Juggler"

Invented at age 10

Frank wanted to figure out a better way to count how many times he can juggle a soccer ball. He got tired of losing count or having someone else have to count for him. So, Frank invented *The Awesome Soccer Juggler*, his idea is a soccer ball with a built in counter. Now when frank juggles a soccer ball he won't have to worry about losing count. The ball will do it for him. He wants to use *The Awesome Soccer Juggler* and challenge his friends to see who can get to juggle the ball the most times.



Douglas

"Roller Boggin"

Invented at age 15

Douglas enjoyed skateboarding but like many other kids, it took him a long time before he could stand up on the board. He decided to create something that was as much fun as skateboard but a whole lot easier, safer and cool. He combined his snow sled and skateboard to create a sitting or kneeling version of a skateboard. The *Roller Boggin* is propelled by hand, arm and upper body thrusting movements. Speed and height come from thrusting against a rolled outer edge. There are inside bungee-type cords inside the 'boggin for additional thrusting power, steering and snap.



10 Ways To Create An Inventing Friendly Environment

Here are tips for creating an inventing friendly home environment.

1. Time for Flow

If you've ever tried to call a 5 year old Lego builder to dinner (*I didn't hear you calling me!*), you've witnessed flow. If you've seen a child with attention deficit hyperactivity disorder spend three hours sitting still playing video games, that's flow at work too. *Have you ever seen a child building a go-kart insisting on staying out in the rain to finish hammering the last nails?* That's flow.

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? If it is hard for you to do, contain it in an area. Creativity is messy. Kids have to feel they can get dirty and messy. This doesn't mean cleaning up will suppress creative urges. Let them get messy and explore.

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 it is 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 are worth considering.

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.)

Equipping the "Inventor Lab"

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.

Paper :

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 is for projects, for planning, for drawing, for designing, for constructing.

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 sheet 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

Pipe cleaners

Plastic coated wire

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.

4. Help Your Child to Be More Observant

Kids get information from the world around them, from books, from the internet, from you. You can help them become observant. Encourage them to 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. 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.

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, 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

Boys and girls alike can benefit from learning how things are built, how they are taken apart, and how to build things safely. Safety comes first with adult supervision. Teach them the proper way to use tools. Use safety goggles 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 tools 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 mess is acceptable and confine activities to this space.

Ideally, kids should be equipped with some 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.



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. And if you plan to deconstruct or take apart an electrical thing, there are two things to remember: First, 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, 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. You can tell stories about kid inventors mentioned above and on the BKFK website (www.bkfk.com) 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.

WHEN TO STOP?

Some specific tips on adult interaction

Don't Do It For Them

You may not be aware of the level of your involvement in the project or activity. You may be having so much fun and flow that you don't realize you are doing the project and your child is watching as a bystander. Heavy parental or adult involvement will suffocate spontaneous kid creativity and inventiveness. You are generally better at doing something than they are because you are the grown person. But if you do it for them and they watch how good you are, your child may feel: "why should I bother to do this?" They feel inadequate and embarrassed. They may shut down and stop trying since they can't compete with your competence.

Pressure To Perform

Hopefully, inventing and creativity are fun things your child does without the pressure to perform. They have pressure trying to pitch at Little League, jockey for social position at school lunch, and get A's on spelling tests. Creativity should not be graded. It will stifle risk taking. Some of the silliest ideas turn into the greatest inventions. Resist the urge to judge. Instead of saying: "I like this painting. What is it?", say something like: "The way you used the color combinations is very interesting. Can you tell me about it?" In this way you are not setting yourself up to be a judge. They are working for their own intrinsic reward, not for your praise. You will not always be there to give praise. You can praise their effort, time on the job, persistence. But don't assign a grade to the project or creative work. It will make it like school, sports and all the other places where people learn feelings of deep inadequacy that stay with them for a lifetime. Just think of the lifetime of self-satisfaction if a child learns to be their own critic.

Nurturing Persistence

Don't finish their project. Don't do it for them. Resist the urge to come in and take over when they are frustrated. You can help them get technical assistance and find out how to do something. You can make suggestions – notice the plural – you can offer several suggestions and the child can mull them over with you to make their decision. Even if they are going in the wrong direction, the failure will be a learning experience. You can help them make a decision chart. You can go on the web for answers. You can find an "expert" to ask. Most importantly, watch your language: "What can you do now? I will help you think it over so you can make a good decision." Seize the opportunity to keep them in the lead role of their project with you coming in as a "consultant" to offer some short term specialized support.

One of the most important things about inventing or a creative project is the ongoing, long term nature of the experience. Currently, kids have instant gratification. A sit-com is solved in a half hour. Many things around them are solved quickly. The ongoing project that must be done over a period of time is a very important life lesson. Patience and persistence are important life skills that must be learned through experience. Help your child learn these skills by supporting the long term project. Find a space for this to live so that it can exist deconstructed during the different phases and not have to be disassembled so the family can have dinner. Big under the bed boxes are perfect solutions to this problem. The project can be pulled out, worked on and put back with minimum effort and mess.

Encourage the Zany... Encourage Curiosity ... Encourage a Love of Interacting with the World Around Them!

Home is not school – and even home schoolers need to separate school time from home recreation and hobby time. These days, the pressure of school can make it anything but fun for many kids and their teachers. The emphasis on testing and evaluating suppresses some of the fun and crazy experiences kids used to have at school. Now almost every activity teachers do has to be justified with a connection to a standard and objective that will eventually be measured. Although this site brings you specific activities that exercise certain cognitive skills, we suggest that they not be taught like school. They are suggested starting points.

There is value to putting on music and just jumping around and dancing and being silly. It's what childhood should be. A walk in rain puddles, a magnifying glass examination of a new ant hill, exploring how the toilet works, are all great opportunities to have fun and learn about the world.

Researchers are studying curiosity and its impact on imagination and motivation. *Can curiosity be learned?* It is the root of all intellectual pursuit. If your child is curious, wants to know answers, wants to find out about how things work, how will this impact their future life success? Common sense says that if you meet a child's curious questions with stern reproach, they will stop asking. If they think you feel their questions are stupid, they won't ask. But more importantly, when they ask, if you show them how to find the answer, through research and investigation, you send a special message. You are saying:

"Wow that is really an interesting question. I know something about this but tell you what, let's find out together. We could..." go on line, ask an expert, visit a museum, do an experiment, whatever process makes sense to jointly find the answer.

ACTIVITIES

Go right to inventing using our Family Fun Inventive Thinking Activities. Once you do a few activities, you will begin to find teachable moments in everyday life. This is when you can point out how something works or how two objects relate to each other. But the key is to design and engineer a creative environment not a series of activities- live it; don't program it!

To get started with some fun games you can play to build your inventing environment, activities in this guide are listed in the following groups:

On the Road Again

This holiday season, add some pizzazz to your long car rides! Use our fun and easy activities to turn your family travel into a creative thinking experience.

After School In Home Extracurricular

These activities are perfect to help your kids to begin thinking about inventing after they leave school.

Feel free to customize these suggested brain stretching experiences to your resources and your child's interests.

On The Road Again Activities

Activity 1: Snack Center

Design a snack center for your car [src: ed sobey]

Activity 2: Back Seat Fun

Design a game to play in the backseat [src: ed sobey]

Activity 3: Car Smart

Invent a Seat Organizer for backseat drivers [src: ed sobey]

Activity 4: Found in a bag

Challenge kids to come up with new inventions from a bag of old toys and game components

Week Before the road trip: Start collecting old toys and games, the ones you'd probably give away or throw. You can also gather objects from the junk drawer like bottle caps, small magnets, paper clips, odd pens, key chains, and similar junk and place four or five objects in a brown bag. (Do not include anything with sharp or pointed edges or anything electronic.).

Just before you start your trip, give your child your bag of found objects. If you have more than one child traveling with you, give each one a separate bag.

After School In Home Extracurricular Activities

Activity 1: Design a board game

Come up with ideas for a fun new family board game

Activity 2: SCAMPER

Use existing games and toys; scamper them to invent a new one.

You can use the SCAMPERR (Substitute, Combine, Adapt, Minify, Magnify, Put to other uses, Eliminate, Reverse, Rearrange) technique to help kids change and improve their idea. Each category in SCAMPER tells them to perform a different action and lets kids explore various options to enhance their product. A group of teachers, who have used our Inventive Thinking Toolkit in their classrooms, came up with the idea of using cookies to illustrate the SCAMPERR technique. You can find the sample SCAMPERR chart (attached) they used with chocolate chip cookies to illustrate the process. Taking the cookie idea, we have provided some prompts here for you to use when you put this chart on the board and review SCAMPER. You can share this with your child to describe the process and then use the activity to help them through their creative thinking process.

Activity 3: Reverse Engineering

Take an old toy or gadget apart and put it back together

Activity 4: Make simple better

Put two simple things together to invent something new

SUBMIT INTO THE INVENTION DIMENSION CHALLENGE

Kids can submit their ideas for their own unique invention into the ***Invention Dimension Challenge*** and win prizes! They will need to open an Idea Locker account at bkfk.com, if they haven't done so already. Once the idea is submitted, no more changes may be made. Please note that at the time of submission, kids under the age of 18 will need parental permission.

Here's What Your Child Will Need to Do:

Go to bkfk.com and fill in their answers through a quick form for Invention Dimension.

We will ask them to log in, if they are not logged in yet. If they are not registered with the site, they can click on the registration button, which is completely free. Once they register, they can access their very own online Idea Locker and enter the challenge.

They can then continue through the BKFK wizard to answer all 7 questions to explain their idea and upload their design images before they submit their idea into "Invention Dimension". If they are under 18, we need your permission before we can consider their entry. The parental permission form can be accessed online as well.

Prizing:

One Grand Prize winner will receive

\$1,000 JAKKS Pacific prize pack

\$1,000 Toys"R"Us gift card

A 3 day/ 2 night trip for winner plus one parent/guardian to JAKKS headquarters in Southern CA to pitch idea to executives.

A celebratory event at Toys"R"Us in NYC

4 Finalists will receive

\$250 JAKKS Pacific Prize Packs each

5 State winners

One each in Maryland, New Jersey, New York, Virginia and Pennsylvania will receive a \$500 JAKKS Pacific Prize Packs each

Mentor Awards:

National and State Winners (MD, PA, NJ, NY, VA) will nominate a Teacher or mentor for recognition at a celebratory event.

The Grand Prize teacher or mentor winner will receive JAKKS Pacific School/Classroom supplies worth \$500

Teacher nominated by state winners will receive JAKKS Pacific School/Classroom supplies worth \$200 each

Good Luck and Happy Innovating!