

TOP

Tips on parenting



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Mary, Larry, So Very Varied, How Do Your Special Brains Grow?

by Barbara DeBoer

Children are born wired to learn and to feel. While children are still in the womb, they are developing billions of brain cells called neurons. The major development of neurons has occurred by the time children are born. Babies are born with as many neurons as there are stars in the Milky Way Galaxy.

Think, Oh Think, Oh Busy Brain

Learning occurs when pathways between neurons are formed and fortified through the child's experiences. Babies rely on loving families to help put these neurons together correctly. The brain is developed through maturation and experience. The developing neural pathways involve messages being sent to and from the neurons through wire-shaped paths called axons and dendrites. The axons and dendrites do not actually touch, but give and receive electrical impulse messages through the synapses on their ends. By the age of two, a child's brain contains twice as many synapses and consumes twice as much energy as that of the adult brain.

The Cells Go Marching One by One

Those cells and pathways that are not used as often as others may reconnect somewhere else, or disappear all together. This is what is known as sculpturing or neural pruning. The unused networks and neurons are whisked away. The networks and neurons that are used are strengthened and expanded. The brain requires early experiences and stimulation to develop to its fullest potential. This does not mean a parent must spend money in getting all the advertised learning devices. Regular and frequent interaction with a child gives plenty of rich brain developing experiences.

Jack Fell Down and Broke His Crown

Scientists have learned about the amazing capacity of the young brain to adapt should a normal pathway be blocked or inhibited in some way. This patch-up/redirection work is referred to as the plasticity of the developing brain. Do not fret if your child has had a disease or trauma to the brain. Natural mending can and often does take place.

Good Night, Sleep Tight

The brain develops new pathways, whisks away unused areas, redirects or repairs some items, and reviews or practices other items all at the same time. This day and night wiring frenzy is greatest the first 8 to 10 months before it tapers off. (Sometimes when your baby yawns, it is not because of sleepiness, it is because of over-stimulation.)

The process of learning how to learn occurs primarily during the first 10 years of life. Along with a rich learning environment, allow your child to have some processing time, some think time, some rest time.

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Hickory Dickory Dock, the Brain Contains a Clock

The first three years are years of the fastest growth and development. What happens in these first years will become so embedded in the child, that some things may have life-long consequences. Therefore, the first three years of life are a prime time to have many intellectually stimulating experiences.

Researchers have found there are best time periods or windows of opportunity for learning in specific areas. For example, depth perception develops around four months, so give your baby many and varied visual opportunities, such as mobiles and brightly colored books.

Basic large motor skills develop during the first four years. Let your toddler have room and a safe area for using those large muscles to crawl, climb, grab, sit, jump, walk, and run.

The fine motor skills develop later. Do not expect your preschooler to be able to hold a pencil correctly right at first, nor to have control to write and color as an older child will. Provide opportunities to develop these fine motor, eye-hand coordination skills. Get some child-safety-scissors and let your child help you cut out coupons (after you have already cut the ones you really want). Let your child string beads, use play dough, play in the sand and water, build with blocks and Legos, etc.

Language learning develops best from birth to around 6 years of age. Talk, talk, talk to your child. Right from birth, look into your child's eyes and talk and have a conversation with her. This back and forth conversation also helps your child develop her thinking skills. As you talk to your child, she is learning new words and new vocabulary pathways are being developed. Second language learning is easily picked up during the first six years.

A Dillar, A Dollar, A Developing Scholar

The brain is capable of learning and remembering a large number of items. In a young child there are many open avenues for new pathways to develop. Such things as practicing the piano, writing one's name, or jumping rope establish a well-worn path along the axons and dendrites. As children have experiences, and if these experiences are repeated over and over again, and children are given appropriate feed-back, their brains begin to do or think these things automatically.

Many caregivers and teachers feel this practice should be in the form of repetitive drill. Although this repetitive drill can work for a time, it can become boring to the learner, and his interest and attention may be directed somewhere else. It is best to use variety in practicing. For instance, you may talk about colors as they are introduced naturally in your child's life. This is much more meaningful than repetitive use of flash cards of colors. The same with numbers and letters. The letters of your child's name should be the first ones taught, as they are the most meaningful. Help your child find meaning, purpose, and need in his learning practice.

Your feedback is very helpful in maintaining the connections and pathways your child is developing. Interact with your child about his discoveries and accomplishments and challenges. Watch for things that really interest your child and help her develop that interest. If your child is interested in a particular thing, the interest itself will aid in the motivation to practice that particular skill.

Musical interest is often started while being able to personally explore and play with a musical instrument, and watch and listen to others playing instruments and singing. Music also helps children learn about patterns and rhythm and mathematical properties.

TOP: tips on Parenting will be getting a new editor!!!

Dr. Heidi Malloy from Metropolitan State University will take over the editorship of the newsletter beginning with Volume 5. Dr. Malloy has much experience and expertise with issues of interest to parents, and we are excited to have her on board. The Emma Eccles Jones Center for Early Childhood Education will continue to sponsor and support the newsletter, but all editorial questions and article submissions should be sent to:

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The Emma Eccles Jones Center for Early Childhood Education will continue to process subscription requests.

I have greatly enjoyed serving as editor of the newsletter and appreciate the support of its authors, reviewers, editorial staff, and you—the readers. I know you will continue to enjoy future editions of TOP: Tips on Parenting.

~ Dr. Martha Dever



The Brain of Hearts

Among the first circuits that the brain develops are those that have to do with the emotions. Beginning around 2 months of age, the child moves from the two beginning emotions of distress or comfort to experiencing such things as joy, sadness, envy, empathy, pride, and shame. Loving care can provide the child with the stimulations that can produce healthy emotional pathways. Speak gently and quietly to your child, with a smiling and calm demeanor. Use positive conversation, such as, "When I change your diaper, you'll be clean as a whistle," rather than, "What a messy diaper you have."

Emotions develop in layers, each more complex than the last. Neglecting a baby can produce brain-wave patterns that can negatively affect positive emotional development. Abuse can produce heightened anxiety and abnormal stress responses.

A child's environment largely determines his attitudes, feelings, emotions, and values. Both positive and negative experiences can make well-worn emotional pathways in the brain. When children are praised for their acts of kindness, and lovingly corrected when they are unjust, the emotional pathways are refined. Children are memorizing correct emotional avenues. However, this memorization can also happen when children are taught prejudice and other such negative social behaviors.

One to Get Ready

Your child's developing brain needs plenty of practice, love, cuddling, communication, care, stimulating experiences, feedback, and sociality. Introduce your child to new things, and review the old. Reading regularly to your child even before birth is one of the best ways to help your child learn. Have many books available for your child to look at by himself. Let him have books you are not concerned about being used and torn.

Talk to your child and ask and answer the many questions about his growing world. In early infancy, the child learns much through touch. Hold, hug, cuddle, and massage your baby and play with him. Simple finger plays such as, "Patty-Cake," and "This Little Piggy went to Market," are wonderful for learning and feeling connected to each other.

Children who don't play much or are seldom touched develop brains 20% to 30% smaller than normal for their age. Remember to allow your child time to explore, discover, socialize, and just play. Helping your child's brain develop can be an exciting and learning experience for the whole family!

~ Barbara DeBoer is a graduate student majoring in Early Childhood Studies in the Department of Elementary Education at Utah State University.

activity corner

Make Your Own Musical Instruments

(from Science Corner on pages 6-7)

By using odds and ends you have at home, have your children create their own original musical instruments.

MATERIALS

wide variety of materials:

rubber bands, soup cans, fish line, pan covers, spoons, scraps of wood, food containers, etc. (if you do this activity with your children earplugs are allowed!!)

PROCEDURE

1. Show your child several of the collected materials and ask them how they think these items could be used to make sounds.
2. Tell them they are going to use various materials to make their own unique musical instruments.
3. Give them time to create, name, explain, and play their instrument to their family. Older children could keep a journal and/or make a schematic drawing of how their instrument works and is put together. You could have them classify the type of instrument they created (i.e., string, percussion, woodwind).
4. Optional activity: Have your child compose a piece of music for their instrument or for a group of instruments.





Cooking with Toddlers and Twos

by Satomi Izumi Taylor and Arleen T. Dodd

Although we parents recognize the importance of teaching children good nutrition, many of us tend to refrain from cooking activities with toddlers and twos because we are inclined to think that children under age 3 would just make a mess. However, involving young children in planned cooking experiences is the best way to teach them good eating habits. Children as young as age two can participate in simple cooking activities such as wrapping apples in aluminum foil, spreading peanut butter on toast, washing fruit and vegetables, etc. When planning cooking activities for young children, we need to ensure them of healthy and safe experiences.

Cooking provides multisensory awareness experiences of touching, tasting, seeing, smelling, and hearing food, allowing children to learn and explore using their senses. Cooking provides the opportunity for children to learn many different skills, including math, reading, science, social studies, communication, cooperation, following directions, and sequential order. Successful cooking can boost children's self-esteem, because it provides children with first-hand experiences that involve them in the process of planning, preparing, and cleaning resulting in a sense of competence. When carefully planned, children can experience the rewards of cooking, as well as a sense of accomplishment, joy, and excitement.

Any food-related activity must include adult supervision at all times to ensure safe and enjoyable cooking experiences for children. The first step is for parents to understand the developmental tasks that children are capable of during cooking. Here are some specific tips:

1. Understand your child's food allergies before planning for cooking activities.
2. Model good eating habits.
3. Explain the rules of cooking, including washing hands with soap and water before and after cooking, wearing aprons during cooking, keeping fingers and utensils out of mouths, and using utensils correctly.
4. Start with simple cooking activities, and gradually add more complex recipes. For example, your two-year-old can start by spreading cream cheese on toast, and then he/she can cut apples and spread peanut butter on them.
5. Use unbreakable equipment whenever possible.

6. If your child or you have colds, do not help with food preparation.
 7. Teach your child correct terms for food, utensils, equipment, measurements, and processes of cooking.
 8. Give your child ample time and opportunity to be involved in cooking activities, including letting him/her see the different stages included in cooking (baking, freezing, heating, etc.). Your child can learn a lot by observing and recognizing the changes during cooking processes.
 9. Prepare wholesome, nutritious foods.
 10. Talk to your child while cooking. For example, when squeezing oranges to make orange juice, talk about color, texture, smell, seeds, etc. Also talk about why we need food and why a variety of foods need to be eaten each day. Get your child to discuss what he/she noticed during cooking.
 11. Have large pictorial recipes for your child to follow during cooking. Point to words in the recipes when cooking.
 12. Use fresh, nutritious food, and avoid processed food
 13. Be aware that your child enjoys tasting while cooking.
- However, no products or recipes containing dried or raw egg should be eaten before fully cooked, since egg can be a source of salmonella bacteria.**

Remember, the key to successful cooking experiences is to prepare things that can be eaten immediately or shortly after preparation so your child will not have a long wait.

The recipes to the right came from the book, *Can Piaget Cook?* by Christenberry and Stevens (1985) published by Humanics. We tried them out with toddlers and twos and have included some suggestions.



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~ Arleen T. Dodd is an assistant professor of early childhood education with the Department of Curriculum and Instruction at Long Island University, NY.

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Peanut Butter Balls

INGREDIENTS

- 1/2 cup peanut butter
- 1/4 cup Karo syrup
- 2 cups powdered milk

IMPLEMENTS

- measuring cups
- mixing bowl
- spoons



PROCEDURE

1. Measure the peanut butter, Karo syrup, and powdered milk.
2. Mix them together and roll into balls.
3. Place on platter and serve.

OUR SUGGESTIONS

1. Children really enjoy eating peanut butter balls, so monitor the amount your child consumes to prevent him/her from overeating.

Carrot Salad

INGREDIENTS

- carrots
- yogurt, sour cream, or mayonnaise

IMPLEMENTS

- peeler
- grater
- spoon
- bowl



PROCEDURE

1. Gather carrots, raisins, and yogurt (or mayonnaise).
2. Wash and scrape the carrots.
3. Grate the carrots.
4. Add yogurt (or mayonnaise) until it tastes good.

OUR SUGGESTIONS

1. Your child might not like the taste of yogurt with the carrots because of the tart flavor.
2. Grating was difficult for toddlers. Using a food processor (if available) is better than grating by hand.

Painted Toast

INGREDIENTS

- bread (white)
- soft cream cheese
- food coloring

IMPLEMENTS

- toaster oven
- small containers
- dull knives, spatulas, or tongue depressors
- pastry brush or new paint brushes



PROCEDURE

1. Color cream cheese with food coloring.
2. Paint the bread with cream cheese with dull knives or spatulas.
3. Put the bread in the toaster oven.
4. Take it out when it is brown and crisp, and let your child taste it.

OUR SUGGESTIONS

1. Allow your child to observe the cooking process by using a toaster oven with your careful supervision.
2. Use whole wheat or grain bread.
3. Partially toasting bread before beginning the activity makes spreading cream cheese easier for your child and shortens cooking time so there is less wait time.
4. Allow your child to pick his/her preference of the tint of food coloring. However, monitor the amount he/she uses since it easily stains hands, lips, and tongues. Liquid/gel food coloring found in the refrigerator section of the grocery store around Easter time is easier to use.

Cinnamon-Sugar Toast

INGREDIENTS

- bread
- sugar
- cinnamon
- margarine

IMPLEMENTS

- toaster oven
- plastic knives



PROCEDURE

1. Spread margarine on the bread.
2. Sprinkle bread with sugar and cinnamon.
3. Cook the toast in the toaster oven until it is brown.

OUR SUGGESTIONS

1. Use a butter knife instead of a plastic knife.
2. Mix the sugar and cinnamon and place it in a shaker to make it easier to control the amount your child uses.
3. A toaster oven used with your careful supervision allows your child to observe the cooking process.
4. Use whole wheat or grain bread.
5. Partially toast bread before beginning the activity as this shortens the cooking time so there is less wait time for children.



Grilled Cheese

INGREDIENTS

- bread
- shredded cheese

IMPLEMENTS

- toaster oven



PROCEDURE

1. Sprinkle shredded cheese on bread.
2. Cook in toaster oven until bubbly.

OUR SUGGESTIONS

1. Carefully supervise use of toaster oven and allow your child to observe the melting process.
2. Use shredded cheese to make it easier for your child to sprinkle on bread. It also melts quicker than sliced cheese.
3. Pretoast bread to shorten cooking and wait time.

science corner: THE SCIENCE OF SOUND

by Leigh Monhardt, Ph.D.

The sights and sounds of spring may be upon us. As the weather turns warmer we are able to open our windows and let in the fresh air and sounds that have been kept at bay over the cold winter months. Spring is an excellent time to let children explore their world by observing events in their environment. According to the National Science Education Standards, physical science in grades K-4 needs to include topics that give students a chance to increase their understanding of the characteristics of objects and materials that they encounter daily. When children are allowed to describe and manipulate objects, they begin to understand that phenomena can be observed, measured, and controlled in various ways. The science of sound is an engaging physical science topic that allows children to do just that type of investigation.

Background Information

We are surrounded by a world of invisible vibrations, some of which we hear as sound. We describe some sounds as noise because they have none of the regular repeated patterns we hear in the sounds of music or the human voice. Noise is perceived as disorganized sound. Music is sound that we perceive to be pleasing and has a regular pattern. People from different cultures have different ideas about what is noise and what is music. For example, in some parts of the world the sounds of nature are heard as patterned and considered to be music, where in other places they are considered to be disorganized, irritating, and just plain noise.

Sound is made by vibrations. When an object vibrates, it produces sound waves. These waves go out in every direction from the source of the sound. If you could see them, they would appear as concentric circles (like when you throw a pebble in a pond). When we sing or shout, the air rising from our lungs passes through our vocal cords and makes them vibrate. This produces sound waves. When we play a musical instrument (or make any kind of sound) we produce similar vibrations, which vary in quality depending on the materials used.

The following activities are just some ideas for stimulating your children's curiosity in the world of sounds that are all around them.

Is it Noise or is it Music?

Take your children on a sound walk in or around your neighborhood. Ask each of your children to make a list of 10 sounds that they think are noise and 10 sounds they think are musical. Have children compare their lists. Are they similar? You can also provide several examples for your children to classify. There are many possibilities, but some suggestions could include a ticking clock, an alarm, snapping your fingers, or whistling nothing in particular, then whistling a tune. Play an example of

“chance music” by John Cage, a contemporary composer (see reference). Try dropping a book or other similar object. Then give each child a number and have them drop their book or object when you call their number. Remember that the main distinction between noise and music is that sound that has a regular pattern is considered music and sound that is perceived as irregular and haphazard is considered noise.

Older children may want to know more about the human auditory system. You can read about and discuss the parts and functions of the auditory system (see reference for a good book to use). Through auditory perception, our ears and brains interpret sounds as speech, noise, and music. Have your children cup one hand over the front of one ear and speak or sing. This will give them a good idea of what they sound like to others. You can also use a tape recorder to record your children. These tapes are fun to bring out and play for them when they get older.

The Quality of Sound - Pitch/Loudness

Pitch: the highness or lowness of sound.

Amplitude: the amount of energy in a sound wave, which determines the amount of pressure it produces on the ear.

Yarn Maps - Give each child a piece of yarn (3 ft long). Give them about 30 seconds to arrange the string on the floor however they like. At a given signal they may no longer touch the string. Have them use their voices and a finger to trace the pattern they made. Yarn maps start to provide children with the concept of pitch and helps them learn to use and control their voice.

Using the same yarn maps you can have your children practice getting louder or softer as they trace their map. Your children can decide before they “sing” their map which parts of the map will be loud or soft by placing small objects on the map that would indicate this change. Play Haydn's Surprise Symphony (Symphony No. 94 in G major, H 1 No. 94 “Surprise”: 2nd movement, Andante) for an excellent example of loud and soft (see references).

If you have access to the internet, you can use an oscilloscope with older children and record their voices or other sounds they want to investigate (<http://www.macupdate.com/info.php/id/4811>, see reference). An oscilloscope is an instrument that visually represents sound waves. The use of an oscilloscope is a fun way of exploring sound waves. The relative height of a wave on an oscilloscope is a measure of its loudness; the number of waves on the screen is a measure of its frequency (pitch). See if your children can match oscilloscope readings and printed readings noticing qualities of high/low and soft/loud.



What Causes Sounds to Vary in Pitch?

This next activity will also allow your children to further explore the concept of pitch.

MATERIALS

- small box (shoe box, wooden box) open at the top
- rubber bands of varied lengths and thicknesses
- string
- wire

PROCEDURE

1. Give your children a small box with the lid removed. Using only one rubber band, place it on the box and have them pluck the rubber band.
2. Next tighten the band by pulling it out to the side but keeping the top taut and have your children pluck it again. Have them tell you what they notice.
3. Place several bands of same lengths but different widths on the box and pluck each band. Again, have them tell you what they notice.
4. Place bands of same thickness but different lengths around the box and pluck each band.
5. Place string, wire, and bands around the box and pluck each one again.
6. Results should include:
 - a) short bands will have a higher pitch than long bands,
 - b) tight bands will have a higher pitch than loose bands,
 - c) thin bands will have a higher pitch than thick bands,
 - d) light materials will have a higher pitch than heavy materials. (By observing closely, children will learn that high pitches result from many vibrations and low pitches result from few vibrations.)

Amplitude - Not So Loud

A sound can change in amplitude (how much it vibrates) by the amount of energy the sound has. Loud sounds have more energy than soft sounds. The loudness of a sound is measured in decibels. You can again use an Internet oscilloscope for this activity.

MATERIALS

- Internet oscilloscope (optional)
- straw (paper or plastic)
- scissors

PROCEDURE

1. Cut the corners off one end of the straw. This will be the mouthpiece. Place that end in your mouth and blow.

2. You can play different pitches by snipping off bits of the far end of the straw as you blow.
3. The harder your children blow the louder the sound the straw instrument will make.
4. If an oscilloscope is available, play the pitches into the recording device and view the differences as the size of the straw changes. Challenge your children to change the pitches and the amplitude of their straw instruments.

Resources

- The Franklin Institute Science Museum, Philadelphia. [What Makes Music? Teachers Guide.](#)
- Ballard, Carik. (1998). [How Do Our Ears Hear? \(How Your Body Works\)](#). Raintree/Steck Vaughn. ISBN: 0817247378
- Bureson, Joelle. *K- 6 Music Instructor*, Alexandria, Minnesota.
- Janke, Dalmar. (1982) The Sounds of Music In the Science Classroom, [Science & Children](#), May, pp. 12-14.
- Jackson, Mike (1992). [Making Music](#). Angus & Robertson. ISBN: 0207171750
- Ardley, Neil. (1989). [Eyewitness Books Music](#). Dorling Kindersley. ISBN: 0789458292
- Music:
 - A Chance Operation - The John Cage Tribute*
Composer: John Cage, Jackson Mac Low, et al. Koch International Classics - #7238 / November 9, 1993 Audio CD / DDD / Number of Discs: 2 ASIN: B000001SH6
 - The Best of Haydn*
Composer: Franz Joseph Haydn Conductor: Barry Wordsworth, Peter Breiner, et al. Naxos - #8556668 / December 24, 1997 Audio CD / DDD / Number of Discs: 1 ASIN: B0000014HJ

- Sound Recorder
- Sound Studio 2.0.7 <http://www.macupdate.com/info.php/id/4811>
Free shareware
Requirements: Mac OS 8.1 or later

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