WHERE TO GO FOR MORE...

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WEB PAGES

The Better Badger Baby Bus Tour, sponsored by the Wisconsin Council on Children and Families
www.wccf.org/bus.html (click on "brain flash")

I Am Your Child Campaign
www.iamyourchild.org

National Association for the Education of Young Children
www.naeyc.org

National Child Care Information Center
www.nccic.org

Zero to Three—National Center for Infants, Toddlers, and Families
www.zerotothree.org

FAST FACTS

- **At birth 75% of the brain can still be influenced by environmental factors.**
- **Brain density, or neural connections, (rather than brain size) contributes most to learning.**
- **During the first three years, an infant's brain will create an estimated 1,000 trillion synapses.**
- **Information relay between neurons ("firing of synapses") occurs two and one half times faster in children than in adults.**
- **By age three, children's brains are twice as active as those of adults.**
- **The first five years are the prime time for learning language, including multiple languages.**
- **Attachment to a few important people prepares a child for a lifetime of learning.**

Your Child's Brain

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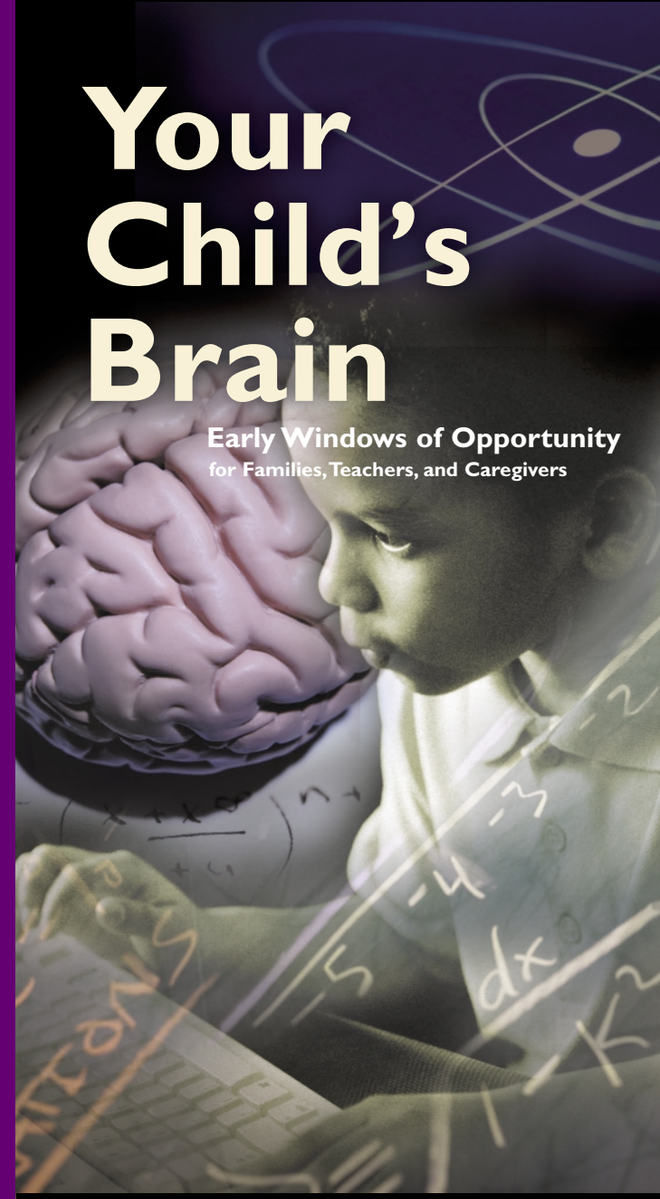
Your Child's Brain

Early Windows of Opportunity

for Families, Teachers, and Caregivers



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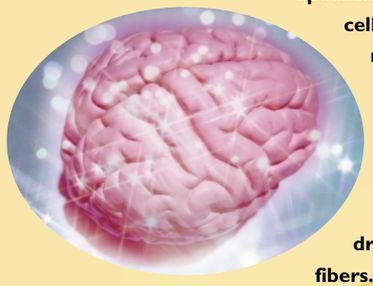
WHAT WE KNOW NOW

More has been learned in the last ten years about the human brain than in the last one hundred years! Amazing new tools exist for mapping the brain and for understanding brain chemistry, as well as for appreciating the effect of environmental factors.

The basic building blocks of the brain are specialized nerve cells called neurons. Each neuron has an axon, or output fiber, and several dendrites, or input fibers. As axons and dendrites hook up with each other, trillions of connections called synapses are formed. These connections are formed as an infant experiences the world. Connections used regularly become part of the brain's permanent circuitry. They grow rapidly, but only the strong, frequently used pathways remain into adulthood.



- **Brain development is a complex combination of the genes you are born with and the experiences you have.**
- **Early experiences have a decisive impact on brain architecture and wiring.**
- **Early attachment relationships directly impact the brain's physical development.**

The importance of early social contact has been emphasized a great deal by the current research on the brain. Social and mental development have their beginnings in the early attachment experiences.

USING WHAT WE KNOW NOW

Brain-based learning principles for young children promote hands-on, discovery-oriented, collaborative, and open-ended experiences. Above all, play is how children learn best.

There are "windows of opportunity" when a child's brain is particularly ready to take in specific information and acquire specific skills. The first two years of life are a critical time for language development.

At all ages your learning partnership with children should be active, meaningful, varied, challenging, and collaborative. Joy, pride, curiosity and self-respect are the best motivators of learning!

INFANTS AND TODDLERS

Infants and toddlers are active learners and the brain becomes more active when adults respond to an infant's cues and signals for attention.

Strong, secure attachments promote brain development. During the first year of life the infant is developing trust. Trust is the beginning and the foundation of all relationships. The more loving and responsive the adult is, the greater the foundation for later social and emotional growth for the developing child.

Experiences for this age group should be both meaningful and concrete. Repetition strengthens the brain's pathway, and it should be based on a child's interests rather than adult-led drills.

To promote infant/toddler learning:

- Talk to children about what they are seeing and doing;
- Respond to baby's conversations;
- Role model clear language;
- Encourage safe exploration and play;
- Allow hands-on discovery of cause and effect experiences.

PRESCHOOL

Preschool is a time when children develop their own interests and learn to work cooperatively. Adults should facilitate and guide learning, rather than provide the "right" answers or tell children how they must use certain materials.

To extend the learning of preschoolers:

- Use open-ended questions to stimulate problem-solving and play;
- Provide access to printed material and writing tools;
- Support dramatic play and provide "props" for different social roles;
- Help children play with and observe natural patterns (clouds in the sky, leaves on trees);
- Talk, read, and sing daily;
- Encourage choices and decision-making.

SCHOOL-AGE

School-age children are expanding their world beyond their families and growing toward independence. School-age children are eager to make choices, plan and carry out activities, and assume certain responsibilities.

Passive activities, such as watching television, do not stimulate brain growth — be selective and involved, and limit TV time.

To support the learning of school-age children:

- Allow children to choose and plan activities;
- Use guidance as an opportunity to teach;
- Encourage game-playing, including board games and physical games with rules;
- Discuss community issues of interest to children.

A WORD ABOUT STRESS

The brain is resilient in the early years and can compensate for negative experiences if they are not unduly prolonged. Frequent and intense early stress experiences cause the brain to set the "stress regulation mechanism" to a higher level to help cope, releasing hormones that reduce synapses in certain parts of the brain. Developmental delays in cognitive, physical and social behavior can result if neural connections continue to be destroyed.

Children with warm, nurturing care in the first year are less likely to produce high levels of stress hormones in times of discomfort—the attachment relationship acts as a buffer to such experiences.