Building a Brain

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Let's start with some vocabulary:

- Neurons are brain cells - the raw material that helps us to think and to use our bodies
- Synapses are connections between neurons that help us process info and take action
- Myelin is a fatty substance that insulates nerve fibers and helps messages travel quickly

A newborn's brain is ¼ the size of an adult's – they have as many neurons as an adult, but not many connections. By age 6, their brain is 92% of adult size, with 500 trillion synapses.

The brain grows in stages: first, the brain stem which handles survival needs, then the sensory cortex – senses and movement, and the limbic system – emotions. From pre-school to early adolescence, the *cortex* develops, which manages concrete thinking, such as academic skills. The *pre-frontal cortex*, which handles executive functions – planning, reflecting, abstract thinking, and judgment matures by age 22 – 25. (Learn more.) Brain growth continues throughout our lifetimes, but the early years lay a vital foundation. Understanding four key ideas helps you support your child's learning.

Novelty – New Experiences

The first time we experience something, our brain creates a new connection. So, whatever you do with your child - read to them, play catch with them, go to the zoo, run through sprinklers, make cookies, sing a new song, paint, or try a new food – you're helping build their brain.

Repetition – Doing Things Again and Again Builds Mastery

Doing something for the first time *makes* a connection. Doing it again *strengthens* that connection. Doing it again in a different context makes new connections. Sometimes parents overdo the novelty. If we always move on quickly to a new thing, our child will never really get the chance to *master* anything. When children get to repeat things till they really understand them and are good at them, it builds their competence and confidence. If your child is engaged and "in the flow" of an activity, don't feel like you need to rush them on to something new. Novelty is exciting, repetition is calming.

Down Time to Process it All

Children need rest. It is during sleep that we build myelin sheaths that help the brain make connections quickly. Children also need down time – time to putter around "doing nothing." Time to play aimlessly. When they don't appear to be doing anything "important", they are busy processing all the new learning they've experienced. Don't feel like you have to entertain them all the time… it's OK to let them be "bored" now and then. Sometimes after this downtime a new burst of creativity hits.

Safety and Happiness

All development takes place within the context of relationships. Children learn best when they feel safe and happy. When we're stressed, our brain goes into fight-flight survival mode. The main thing we learn when we're anxious is how to avoid having that experience again! When we feel cared for and safe, our system floods with oxytocin (the "love hormone") and our brains have a high level of "neuroplasticity" – we're open, flexible, and primed for learning. So, one of the best ways to grow a brain is to love your child, and to enjoy playing and learning together.