

Brain Nugget



When it comes to brain function, use it or lose it is the rule. Neural circuits and networks in the brain grow stronger with use and weaker when inactive.

1. Use it or lose it



- When information within the brain circuits is continuously used, all parts of the network will be activated.
- When information is not being used for extended periods of time, the connections become weaker and can ultimately be lost.



Brain Nugget



- The earlier a system wires up, the more resistant it is to change. It is not impossible to change some brain structures later in life, but the early developing systems are difficult to change.
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2. Pay attention to the sequence and timing of how a new brain wires up

- A child's vision develops early. Be sure that normal vision input is available to babies in the first six months while their visual system is wiring.
- Babies and toddlers need freedom to move and explore. Avoid resisting them in order to allow for body movements of strength and flexibility.

Brain Nugget



- Learning physically alters the brain. Brain areas change; networks of neurons change. In fact, physical growth occurs at the individual neuron level as a child learns from new or repeated experiences.

3. Don't expect to see brain structures change, but know that they do continuously!

- Realize the power you have to shape the brain development of every child in your care.
- Know that the brain actually grows new wiring in response to what happens to a child, providing you a sense of purpose.

Brain Nugget



- Although mild stress is
- experienced by all people,
- excessive stressors that occur
- early in life can have
- damaging outcomes that are
- difficult to repair. With too
- much stress or fear, the
- receptors for learning shut
- down.

4. Realize that varying levels of stress cause different reactions in the brain

- Positive stress is triggered by mildly stressful events and when faced will trigger a short-term stress response.
- Tolerable stress can be strong and significant like experiencing a divorce and can be eased by caring adults.
- Toxic stress results from long-term, strong, and reoccurring circumstances leading to significant differences in brain size and function.

A cartoon illustration of a pink brain with a face, wearing black-rimmed glasses and holding a blue book with white text. The brain has a happy expression with a wide smile and is set against a light blue background.

Nugget



- Learning depends on prior knowledge. In fact, the best predictor of what a person will be able to learn is what he already knows.

Brain Nugget



The brain is a pattern-seeking organ.
Knowing this can make learning easier.

6. Be aware of how many skills depend on pattern recognition

- Practice pulling out items from around the house to line up and pattern.
- Before eating snack, form a pattern on the plate with color variations.
- With older children, point out number systems using digits 1-9.

Brain Nugget



- While a baby is awake and alert, encourage deliberate activities that require tummy time because most babies are not spending sufficient time on their stomachs.

7. Know why tummy time is recommended by pediatricians

- Start by laying the infant across your lap to become familiar with the feeling of being on their tummy.
- Plan fun activities while the baby is on tummy to ensure valuable practice occurs.

Brain Nugget



- Crawling is an excellent activity for young children
- because the coordination of the movements to crawl
- activates both hemispheres of the brain and strengthens the
- connective structure in the brain known as the corpus callosum.



8. Encourage activities that cross the midline of the body ✨

- When working with babies, encourage tummy time.
- When working with young toddlers, provide them opportunities to keep them on the floor through crawling, rolling, and moving.
- For preschoolers, add cross-lateral-movement sequences in games such as crossing hands over chest or touching your knees.



Brain Nugget



A person's genetic material is not static. Experiences can influence gene expression.

9. Remain hopeful that every child can benefit permanently by living in positive environments ✨

- Create positive environments that enhance the probability of children bonding with others.
- Remain hopeful that every child, with a combination of love and supportive environments, can develop in healthy ways.

Brain Nugget



- Before you purchase
- child-development
- products that promise to
- make children
- supersmart, carefully
- examine them. Buyer
- beware.

10. Resist the natural temptation to look for a quick fix 

- Avoid the temptation to jump on board when an idea or program goes against your prior experiences with young children, especially if it sounds too easy.
- Before investing emotionally or financially in a new product, approach, or program, look to see if there is reliable research to support it.

Brain Nugget



- Every dollar invested in
- high-quality care of
- children from birth to
- age five in the United
- States can yield a return
- on investment of up to
- 16 percent.



11. Be able to explain the early childhood return on investment 

- Spread this information to others who may not understand the value of early care and education for young children.
- Continue to provide learning environments that foster motivation and persistence as they are lifelong skills



Brain Nugget



Choose both variety and familiarity when playing with or reading to a child. The brain is turned on by both the familiar and the new.

12. See the brain as a novelty-seeking organ

- Introduce new things and new people by allowing the child to get to know them. Newness can be both exhilarating and overwhelming.
- Circulate new toys and books in and out of sight so the child can feel comfort when seeing a familiar item.

Brain Nugget



Why is play so important to children's learning? Play activates the pleasure centers of the brain. When something is fun and feels good, the brain wants to repeat it! And repetition actually strengthens the learning.

13. Understand how play is linked directly to learning

- Encourage play. Keep activities open ended as possible. Provide experiences that young children will to to repeat.
- Provide assistance that is just enough in order to encourage learning in the *Zone of Proximal Development*.

Brain Nugget



In the brain, emotion drives attention, and attention drives memory.

14. Use emotion to help children pay better attention[!]

- Use your voice in intonation, facial expressions, and hand gestures to emphasize important words or ideas.
- Let the children see interest in a topic and, most importantly, your interest in them.
- Plan special events that bring excitement to the day.

Brain Nugget



Activities that involve visually tracking an object and experiences that cross the midline of the body help wire the brain effectively, connecting the two hemispheres of the brain.

15. Play fun tracking exercises with infants

- Experiment with moving the object from the baby's left to right.
- Try moving objects in playful ways such as in a big circle to help develop their attention span.

Brain Nugget



Taking a child out of the car seat when you are not traveling in a vehicle will promote her sensory learning. Freedom of movement promotes sensory integration and can encourage the normal development of the initial components of the brain's attention system.

16. Get young children out of convenient safety buckets when the buckets are not necessary ✨

- If you are transporting children, they need to be strapped into safety seats. When they are not in transport, get them out and in your arms or on the floor where they are free to experience a full range of motion.

Brain Nugget



Being able to predict what is coming next is a critical need of every brain, regardless of age. Because brains are pattern-seeking organs, people gain satisfaction and control when they can envision what is coming.

17. Give children opportunities to make predictions

- When caring for babies and young toddlers, take time to read lift-the-flap books with to them multiple times and see how they begin to remember what happens next.
- With older toddlers and preschoolers, let the children guess what might happen next to the character in a book.

Brain Nugget



The American Academy of Pediatrics provides guidance encouraging parents to manage interactive screen time for their young children while continuing to limit passive television viewing for children under two years of age.

18. Understand why television viewing is not OK for infants and toddlers

- Families should avoid having their own children, especially infants, sitting in front of TVs.

Brain Nugget



Face time (up close and personal) allows children to learn language. They need to be able to watch your teeth, your tongue, and your lips to see how language is produced.

19. Understand the importance of face time

- Stay up close when talking to a child at any age.
- Encourage young children to watch themselves in the mirror, as they are fascinated by their own movements.

Brain Nugget



Talking or reading to a child with great interest and enthusiasm about the story's pictures or ideas can increase the attention span.

20. Be intentional about increasing the child's attention span

- Gain attention through eye contact. A child needs to know you are connecting with them deliberately.
- Adjusting pace of reading or talking can help maintain attention.
- Involve the child in the story by asking questions.

Brain Nugget



Visually calming environments can diffuse overstimulation and encourage children to have more focused attention.

21. Simplify the classroom or care environments to be visually soothing ✨

- Look for ways to remove clutter. Develop places and spaces for children to find materials then put them away.
- Create environments that promote touching, observing, listening, and moving.

Brain Nugget



Impulse control begins slowly and is not easy to achieve. It is nevertheless a goal that teachers and parents work toward for years with every child.

22. Provide lots of practice for children to begin to learn impulse control!

- Play games like Red Light, Green Light and Simon Says where a child must listen closely to a leaders demand.
- Practice having your child express emotions in a natural way that does not require acting out in poor ways.

Brain Nugget



Executive functions include important thinking and planning skills that develop throughout childhood, adolescence, and early adulthood, and allow mature adults to perform at their highest levels of competence.

23. Provide stable, consistent, and challenging environments that encourage children to develop the foundation of executive functions in the brain!

- When providing care for infants, the basic attention, bonding, and communication routines you already use is encouraging in healthy brain development.
- When providing care for toddlers, organize the day based on routines so they are able to practice what comes first, next and last.
- When caring for preschoolers, add in more complex tasks like making food from a recipe.

Brain Nugget



A strong bond to at least one loving, predictable, responsive caregiver is the most important factor in creating a healthy brain.

24. Realize the power of having at least one consistent person who loves you

- In the school setting, it is best for a child to be with the same teacher for as long as possible.

Brain Nugget



You cannot spoil an infant by attending to him quickly when he needs something.

25. Respond rapidly to the needs of infants

- Pay close attention to the earliest signs of communication from an infant and respond verbally to ease their distress.
- Learn the differences in an infant's cries to find meaning in their messages.

Brain Nugget



Giving a child a gentle massage daily can boost the immune system, help relax and calm the child, and reinforce a strong adult-child bond.

26. Touch to calm; touch for better health ✨

- When with your own child, infant and toddlers massages are appropriate at bedtime or bath time
- In a childcare center, comfort should be provided through gentle touch and holding which can help reduce a child's stress.

Brain Nugget



Hold young children close as often as you can. This physical closeness allows a child to feel and enjoy the warmth of your breath on his head. Close physical contact also contributes to a child's sense of safety, which is critical to healthy cognitive development as well as social-emotional health.

27. Hold children close so they know they are secure ✨

- Rock a child to comfort him and you. Gentle motion is known to relax us all. Hum or sing softly to the child as you hold him close.
- Comforting a child is essential in healthy brain development and a feeling of safety within the child.

Brain Nugget



During your daily routine,
tell a young child often
that you love her.

28. Express your genuine love and
respect daily to those in your care

- Create environments that allow children to feel safe and know they are loved and cared for.
- Be sure to verbally tell your child “I love you” on a regular basis.

Brain Nugget



Children love to hear your voice. Reading to children early, beginning in infancy, stimulates the pleasure centers in their brains and strengthens the caregiver-child bond.

29. Enjoy the practice of reading to children ✨

- Set up your day to have short but frequent times that you slow down, sit down and read to your children.
- Change out selection of books regularly while still recycling favorites to maintain familiarity.

Brain Nugget



As you go through daily routines picking up toys, folding laundry, or clearing dishes, allow young children to touch contrasting surfaces such as bumpy or smooth, rough or soft, or sticky or slippery. Label each experience with words. Children will learn to make associations between the word label and the feeling or sensation. These associations, or links, mark the beginning of important concept development.

30. Promote touch through guided exploration of common experiences

- Allow children to reach out and explore objects and environments as they begin to learn how things work.
- Extend children's hands-on experiences and begin talking about new ideas that can be seen in children's books that add visual contrasts.

Brain Nugget



Make small books of family or classmate photos to share with each child frequently. This helps a child feel connected to the key people in his world, strengthening a sense of security and confidence.

31. Show photos of key people to a child to build a sense of security

- Make a small photo album of loved ones, sit and review the photos often.
- Talk about each person as you show the photos while reminding the child how much they are loved.

Brain Nugget



- Encourage the use and development of more than one language in which you would say “I love you” to child.
- Meaningful exposure to a second language from an early age can greatly benefit a child’s cognitive development and social-emotional well-being.
- Bilingual children can learn and maintain two languages easily without loss in either language.

32. Teach first in the language of the heart when encouraging dual-language development. ✨

- For children ages 4-5, encourage watching and listening to television shows in both english and spanish.
- Play children’s songs and rhymes in a variety of languages to grow appreciation for other languages.

Brain Nugget



Research shows that frequent music involvement, such as listening to music, singing rhymes and songs, and playing musical instruments and keyboards, can be important to later emotional and intellectual development.

33. Use music to help bond with young children

- Sing together. Sing and listen to a variety of music, including classical music.
- Dance together. Help children learn to coordinate moving different parts of their bodies.
- Use music in daily routines to help signal transitions between activities.

Brain Nugget



Positive feedback helps children in many, many ways. However, research shows that it is best to praise children for their effort rather than to praise them for how intelligent they are.

34. Comment on a child's effort rather than on how smart a child is ✨

- With little ones, encourage them with comments such as "You got this!"
- With preschoolers, try statements like "You have done that very nicely. Is there anything else you want to do differently?"

Brain Nugget



Caregivers and parents need to beware of how their own use of technology sends harmful messages to young children by stealing attention from them in favor of the next incoming text.

35. Consider carefully your own use of smart technology!

- Turn your devices off when caring for a child.
- Limit what notifications you have throughout the day and leave the rest for later.
- Inform others about the importance of focusing solely on your child.

Brain Nugget



Many children are born into families with multiple, difficult problems, and yet no child is destined to fail simply because of circumstances. Risk is not destiny, but it is a caution to provide support, guidance, and assistance so that each child can reach her true potential.

36. Know that risk is not destiny[!]

- Model the kind of respect that children need from adults in their life.
- While children are in your care, make sure to meet their basic needs for safety, nutrition, and health. When children's needs aren't met, they cannot learn effectively.

Brain Nugget



Learning how to become more mindful in your daily interactions with children can result in their improved social-emotional and intellectual growth.

37. Learn about and practice mindfulness 

- Notice how you feel
 - Notice changes happening around you
 - Stay calm, focused, and optimistic
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Brain Nugget



The brain shows a preference for upright faces. Being able to understand the meaning or intention of facial expressions is one key to survival.

38. Realize the power of face

- Try to maintain a smile throughout the day
- When feeling down, reflect and attempt to perk up your behavior and facial expressions when around children

Brain Nugget



The sheer number of words spoken to a child from birth to age three has a direct impact on his later testable IQ.

Research shows that talking and being read to often can actually increase a child's IQ.

39. Talk,talk,talk!

- Talk and engage with children often through stories and song rich in language.
 - Incorporate new vocabulary when engaging with children.
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Brain Nugget



Parentese is a natural and universal way of talking to a baby that slows down and exaggerates the vowel sounds in words while using a high-pitched speaking voice. It is interesting that this way of speaking matches perfectly with the speed and frequency that an infant's brain can clearly hear and most easily process! Use real words, but exaggerate the sounds.

40. Use the voice that comes naturally when you talk to a baby

- Pay attention to your pace when speaking to an infant.
- Babble back and forth with your infant to encourage a pattern of conversation.
- Initiate some new sounds and see if your infant tries to match and imitate your sounds.

Brain Nugget



Children who can hear the differences in sounds-distinguishing one sounds from another-will later have an easier time learning to talk.

41. Articulate speech sounds accurately because a child's ability to hear these sounds can affect the child's success in learning how to talk

- Enunciate and pronounce your speech sounds clearly.
- Make sure the child can see your mouth and lips when you are speaking.
- Pay attention to any delays or changes in how your child attempts to speak.

Brain Nugget



The use of sign language can alleviate some of the distress that young toddlers feel when they cannot yet verbally communicate their wants and needs before their expressive language skills can catch up.

42. Try using sign language with preverbal children

- Start by incorporating survival signs such as *eat*, *more*, *done*, and *sleep*.
- When a baby can properly use those signs, start using signs for *help*, *water*, *hot*, and *cold*.
- Finally use signs for activities of interest like *play*, *book*, *ball*, and *car*.

Brain Nugget



Classical music is known to relax adults and children when they listen to it, but it probably doesn't change brain structure.

43. Learn that actually playing a musical instrument is better than just listening for children's brain development

- Play Mozart to see if it produces any relaxation response.
- Play classical music in addition to other types of music and incorporate instruments for your children to use.

Brain Nugget



During infancy, stimulation of a baby's visual perception is enhanced by exposure to bold colors and patterns, and moving objects. Rapidly, however, the brain's visual centers wire up to see all colors and more complex patterns.

44. Use bold colors with young infants, but don't get carried away for long

- Remember that young infants can only see around 8 to 10 inches from their face.
- With older infants, practice having them track objects using bright colors.

Brain Nugget



In recent decades, scientists have discovered new kinds of neurons called mirror neurons. These neurons have a unique characteristic in that they fire, or activate, both when a person simply observes someone else carrying out an action and when the person actually carries out an action himself. This discovery that there are brain regions that activate during both observed and performed actions is the beginning of understanding how and why imitation is one of the main ways that humans learn from each other. These findings extend beyond just observing and performing physical actions and apply to expressing and experiencing emotions as well.

45. Watch what is done-to know what to do

- Model what you want your child to do by demonstrating.
- Maintain courteous, respectful behaviors among adults as children are learning about emotional conflict and support.

Brain Nugget



Puppets have enduring appeal. While infants are developing their visual systems, older babies and toddlers are developing their language centers, and toddlers and preschoolers are developing emotional regulation, their brains are tuned to learn important skills from a caregiver's knowledgeable use of puppets.

46. Learn why so many children seem to love puppets!

- Puppets can be an excellent language starter as you engage children in conversations with the puppets.
- Have puppets engage in silly and fun physical contact such as tickles and hugs to encourage interest and delight.

Brain Nugget



Many children love to have you read the same book over and over. The human brain learns best through repetition. So go ahead. Know that each reading is a chance to strengthen learning.

47. Repeat the same book; it's OK[💡]

- Rereading a familiar story provides the perfect opportunity to expand on information the children already know.
- Repeated readings can also encourage greater book knowledge like turning pages, reading left to right, and so on.

Brain Nugget



As you read to a child, point to the pictures in the book. Does the child look at what you are pointing to? Pointing is a developmental milestone and is a uniquely human capability.

48. Be sure to point to objects when teaching new words

- Point to new objects and say their name when reading to your child.
- Check to make sure you and your child are looking at the same thing.
- Ask your child to repeat the word after you if they are old enough to verbalize.

Brain Nugget



Learning to read effectively and efficiently is dependent on a child's ability to hear the small differences in speech sounds, called phonemic awareness. Therefore, practice with rhyming is critical to the later development of reading.

49. Read books and sing songs that have rhyme, rhythm, and repetition ✨

- Read stories with lot's of rhyming like Dr. Seuss books.
- Listening to and singing songs can be fun and easy for children to remember.
- Practice clapping sequences to learn pacing and rhythm.

Brain Nugget



Reading to young children introduces new vocabulary and reinforces familiar concepts. Sharing a book with a child gives the child a lot to think and talk about.

50. Read books aloud to build a child's conceptual development

- Read daily to your children starting in smaller sessions and slowly reading for longer period of time.
- Share your thoughts and feelings about what you are reading.
- Ask your child questions about the story to practice expressive language.

Brain Nugget



Because the brain wires naturally to be able to hear differences in speech sounds, be proactive and provide lots of practice with rhyming words and sounds. You may be able to avoid future reading problems such as dyslexia

51. Try proactive approaches in early reading strategies

- Read simple books to infants to expose them to new words.
- Read rhyming books with toddlers and emphasize the repeated phrases.
- Play games with words with preschoolers to see if they can spy words that rhyme.

Brain Nugget



First learnings are powerful and often visual.

52. Use a visual when you first introduce a new idea ✨

- Provide pictures or real objects for new things you want a child to learn.
- Use pictures or real objects to gain the child's initial interest in a topic or idea.
- Have a child draw pictures of the story they are telling.