

# Healthy Connections: The Developing Brain Meets the Digital World

## FACT SHEET

2027 Annual Lesson Series

### Introduction

Screens. Smart Phones. Smart Watches. Social Media. Artificial Intelligence. Technology is here to stay, and it impacts everyday life. In today's fast-paced, screen-filled world, raising children looks different from what it did just a few years ago. This publication will help parents and caregivers understand the impact of technology on the developing brain, teach them how to create healthy boundaries, and provide tools to help answer the question: What is a parent to do?

### Attachment and Trust

Smartphones, tablets, and televisions are everywhere, and while technology can be useful, it often competes with something children need most: human connection. Since the global pandemic, many families have relied even more on screens, sometimes without realizing the cost to child development.

The early years of life — birth through about age 5 — are a time of remarkable brain growth. During this period, more than 1 million neural connections form every second. By age 3, roughly 80% of a child's brain is developed, and by age 5, about 90% is complete. These connections don't form on their own — they are built by biology and through relationships. Loving, responsive interactions with caregivers help children learn to trust, manage emotions, and form the social and emotional foundations they will carry throughout life.

At the heart of this process is attachment. Secure attachment develops when caregivers respond consistently, with warmth and attention, to a child's needs. Each time a baby coos and a caregiver answers with a smile, a gentle word, or a hug, the child's brain is strengthened through what researchers call "serve-and-return" interactions. As psychologist Dr. Donald Hebb famously said in 1949,



“Neurons that fire together, wire together.” These everyday moments of connection help build the brain's foundation for trust, emotional regulation, and lifelong well-being. Myelination — how the brain wires itself for faster thinking and self-control — is shaped by experience. Responsive back-and-forth interactions help children's brains develop strong, healthy connections, while too much passive screen time can crowd out the connections young children need most.

When screens begin to replace these moments where human relationships are built, problems can arise. A caregiver may be physically present but emotionally distracted by scrolling, checking messages, or watching a screen. Children, meanwhile, are constantly sending signals: a look, a sound, a question, a cry. When those signals are missed or answered inconsistently, children may begin to feel unseen or unsure. Over time, fewer shared conversations, less eye contact, and reduced play can weaken the sense of safety that secure attachment provides. This type of disruption is called technofence — when technology interferes with real-life relationships. While these interruptions may seem small, repeated experiences of divided attention can increase stress in

## Screen Time Recommendations (AAP)

*American Academy of Pediatrics*

Birth to 18 months	Avoid screens (except video chatting)
18-24 months	High quality programs Co-view with caregiver
2-5 years	Limit to 1 hour per day Watch together and discuss
6+ years	Set limits on time and content  Balance screen time with sleep, play, and school

### Tips for Healthy Use

- No screens in bedrooms
- No screens 1 hour before bedtime
- Screen-free family time
- Create a family media plan

young children and interfere with the development of emotional regulation, social skills, and trust, which are necessary for healthy adulthood.

## Language and Literacy

Language development occurs during the first years of life when children's brains are especially responsive to people speaking with them. Infants are typically born with the ability to hear and discriminate between the sounds of all languages; however, neural pathways that are not regularly stimulated by human interaction are gradually pruned as part of healthy brain development. Pruning is the brain's process of eliminating unnecessary connections. This makes early, meaningful language interaction essential. Research has examined how screen time fits into this process, showing that its impact depends largely on timing, duration, and context.

Research suggests that excessive screen time in early childhood — particularly when it is passive — can negatively affect language development. Passive screen use occurs when children view media without caregiver involvement, often replacing responsive, face-to-face interaction. Language learning relies heavily on “serve-and-return” exchanges, shared attention, and rich conversation and interaction. Screens, which cannot respond to children's vocalizations or gestures in the way caregivers do, limit opportunities for expressive language practice and vocabulary growth.



The first three years of life are especially critical for speech and language development. Children under the age of 2 have difficulty transferring information learned from screens to the real world. At that age, children are also still developing the ability to understand that a two-dimensional image symbolizes a real-world object. Because of this natural development, young children learn new words more effectively through natural, real-world interactions than through screens.

Background television exposure may further reduce language development, even when children are not actively watching. Adult speech tends to decrease, interactions become shortened, and opportunities for conversation are reduced. Excessive screen time may also interfere with play, sleep, and attention — factors that indirectly support language development.

Research shows that if children use screens, the use should be educational and co-viewed with an adult, with limits of 1 hour or less per day. Co-viewing allows adults to label objects, ask questions, and connect on-screen content to real-life experiences. This transforms screen time into an interactive learning experience. Therefore, the American Academy of Pediatrics recommend minimizing screen use, especially before age 3 and screens should be used intentionally and in moderation.

## Solutions to Create Healthy Screen Boundaries

The good news is that building attachment and early language skills does not require special tools — just presence and intentionality. Screen-free moments allow for eye contact, physical closeness, playful interaction, and responsiveness, all of which the developing brain needs. Simple daily routines can become powerful opportunities for connection.

Activities that teach patience, cooperation, and emotional awareness while strengthening bonds can benefit children of all ages. The question often asked is: Where does one start? It all begins with clear expectations, creation, imagination, and consistency. It is important to create an environment of living with purposeful interaction over scrolling, browsing, and online distraction. Informed by the Smart Families project from the University of Illinois Extension, Table 1 below contains ideas, techniques and tools to assist in creating healthy screen use and building family relationships.

## Conclusion

Because connection builds the brain, real interaction between family members matters most. Screens and technology can be helpful tools, but they should never replace relationships. Children may not remember the time-filler, mindless entertainment videos they watched, but they will remember how it felt to be seen, heard, and loved by the people who mattered most.

Sometimes, the greatest gift we can give a child is simple: put technology down, make eye contact, and choose each other, one moment at a time.

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**TABLE 1. CREATE HEALTHY SCREEN USE AND BUILD FAMILY RELATIONSHIPS**

Strategy	Explanation
Family Screen Agreement	Work together as a family to create an agreement that outlines and explains the expectations of how screens are used at home. Stick to this agreement and be consistent.
Parking Station	Find a space in the home where tablets, phones, etc. can be “parked” and shut off. Create a physical “parking station” together using recyclable materials, such as boxes or baskets.
Outside Play	Outside play is great for the body, brain, relationships, and spirit. Allow exploration, physical play, and adventures. It is important to allow children to explore and be little scientists.
Bedside Clock	Adults as well as children should leave screens out of the bedroom. Use a bedside clock for an alarm. Bedrooms should be used only for sleeping.
Games/Activity Cards	Find board games, card games, or create a new game that promotes face-to-face connection. Create an activity deck where a card can be drawn that gives ideas of something to do.
Timer	A timer can be a great parenting tool. Utilize a timer to set limits when screens are being used. Make time expectations known for smooth transitions from one activity to the next.
Avoid Isolation	Maintain connection over isolation. Make it a priority in the home that everyone is engaging in the real world, rather than getting lost in a screen.
Model Healthy Habits	Actions speak louder than words. It is important for adults to model what they say.

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### **Authors:**

**Monique Koerner**, MPS, IBCLC-RLC, Family and Community Wellness Agent, K-State Extension, Cottonwood Extension District,

**Elizabeth Brunscheen-Cartagena**, MA  
Family Life & Resource Management Extension Agent  
K-State Extension-Sedgwick County Extension

**Bonnie Brewer**, Extension Agent, K-State Extension, Harvey County Extension

### **Reviewers:**

Christina Holmes, MS, RDN, LD  
Regional Family and Consumer Sciences Specialist, SE  
Kansas, Kansas State University

Michelle Broxterman, Family and Child  
Development Extension Agent, K-State Extension  
Wildcat District, Kansas State University

Elaine Johannes, Kansas Health Foundation  
Distinguished Professor in Community and State  
Extension Specialist, Department of Applied Human  
Sciences, College of Health and Human Sciences, Kansas  
State University



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