

## Discussion Guide for Module 2: Why the First 2,000 Days Matter: A Look Inside the Brain

**Module run time:** 20 min

**Estimated time to complete the module with discussion guide:** 40-60 min

Below are recommended stopping points and suggested questions to use in your group's discussion. Please feel free to follow your group's lead and discuss topics and questions that are of greatest value to the group!

### Key points:

- Brains are built. An enormous amount of brain development occurs in the first five years.
- Early childhood experiences shape the physical development of the brain.
- The strength of connections formed in a child's brain depends, to a certain extent, on the frequencies of experiences they have in their lives.

### Module synopsis:

Page 1: *Introduction*

Page 2: *Acknowledgments*

Page 3: *The Amazing Transformation*

Page 4: *Brain Growth in the First Five Years*

Page 5: *Neurons are Communicators*

Page 6: *Neurons Work in Networks*

#### 🔄 Recommended stopping point

- Children's brains grow at an incredible pace. By the end of their first year of life, a child's brain is about 70% of adult size. By five years, a child's brain is about 90% of adult size. This time in a child's life is also accompanied by a tremendous amount of learning. Think about the things that you learned in the last five years of your life. Then, compare that to what a child has to learn in the first five years of their life.
- While a five-year-old's brain may be 90% of the size of an adult brain, this **does not** mean that a child's brain is 90% "finished" by age five. A five-year-old has much, much more to learn. But by five years of age, children have most of the raw materials, like the neurons that build the brain. A child's brain is uniquely primed to learn from the experiences that they have everyday. At this stage, the brain is like a rough draft, ready for the experiences of life to continue shaping it into the specialized brain of an adult. What are some ways that the brain of a child, and the brain of an adult are different? Similar?

Page 7: *A Forest of Brain Connections*

Page 8: *Building a Flexible Brain*

Page 9: *Experience Strengthens Connections*

#### 🔄 Recommended stopping point

- Regularly repeating a task or having a frequent experience strengthens the related connections between neurons in your brain. Both good and bad experiences will

- strengthen neural connections if they happen often. With this in mind, discuss the types of experiences that you want children to have, as they build connections in their brains.
- We can strengthen connections in our brain at any point in our lives - you can always learn something new! - but children are especially sensitive to experiences that help build these connections. Can you remember learning something as a child that you are still really good at (reading, riding a bicycle, playing an instrument)? Is there a similar activity that you have tried to learn as an adult? What was your experience in learning this task as an adult? How long did you have to practice the activity to feel competent?

Page 10: *The Brain Removes Unused Connections*

Page 11: *A Thriving Brain*

Page 12: *Biology + Experience Build the Brain*

**🌟 Recommended stopping point**

- At five, a child's brain has about twice as many connections between neurons as an adult's brain. Through a process called pruning, the extra, unnecessary connections are removed. Why do you think the brain "prunes"? Why do you think this is such an important and necessary process?

Page 13: *A Window into the Developing Brain*

Page 14: *A Window into the Developing Brain (video)*

Page 15: *Building a Coordinated Brain (1/3)*

Page 16: *Building a Coordinated Brain (2/3)*

Page 17: *Building a Coordinated Brain (2/3)*

**🌟 Recommended stopping point**

- Emma is about six months old in the video and as she listens to speech sounds, regions in her brain that are responsible for speech perception (hearing) are active. As she listens, what do you think might be happening in the speech production (speaking) area of her brain and the neural connections between the two regions?
- Why do you think brain regions are not completely connected or "wired" at birth?

Page 18: *Learning Happens in Relationships*

**🌟 Final discussion points**

- Experiences shape the developing and growing brain of a child. Rich experiences happen in the context of relationships. Relationships grow stronger through everyday interactions, particularly through play. What ways have you found to play and interact with children that are particularly enjoyable and engaging for the child? Or for you?
  - Now that you know a bit more about how a child's brain develops, what are you interested in learning more about?
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To learn more about brain and early childhood development, take a look at these resources:

Center on the Developing Child | Key Concepts

<http://developingchild.harvard.edu/science/key-concepts/>

Thrive Washington | Love, Talk, Play

<http://www.lovetalkplay.org>

Vroom

<http://www.joinvroom.org>

ZERO TO THREE | Brain Development

<https://www.zerotothree.org/resources/529-baby-brain-map>

<https://www.zerotothree.org/early-development/brain-development>

We are constantly working to improve our materials. Do you have suggestions about topics to add to this guide? Did your group discuss something we didn't suggest? We'd love to hear from you! Please email your thoughts to us at **ilabsout@uw.edu**.