Building Students’ Confidence, Fulfillment, and Achievement
Through the Understanding of Expandable Intelligence

THE BRAINOLOGY® CURRICULUM
GUIDE TO IMPLEMENTATION

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THE BRAINOLOGY® CURRICULUM: TEACHING A GROWTH MINDSET

What are Mindsets?

Mindsets are the beliefs that people hold about their attributes. When people believe that their attributes—such as intelligence—are unchangeable, they hold a Fixed Mindset. When they believe that these attributes can be developed through learning, they hold a Growth Mindset.

Decades of research by Dr. Carol Dweck and colleagues show that when people understand that they can develop their intelligence through learning, they are motivated to seek challenge, value learning, invest effort, and persist through difficulty—and they achieve more highly. Furthermore, the Growth Mindset can be taught.

What is Brainology®?

Brainology® is a research-based method for teaching students a Growth Mindset, along with the tools to put it into practice. The Brainology® curriculum combines online, interactive animation with classroom-based activities to teach students how the brain changes with learning, and how they can use brain-based study strategies to accelerate their progress.

How do I get started?

The Brainology® Implementation Guide will walk you through the process. It is organized in 3 sections, as follows:

- Get Ready! provides an overview of the purpose and structure of the Brainology® Curriculum.
- Get Set! provides recommendations and tools for planning, and technical instructions on how to implement the program.
- Go! provides step-by-step guidance on teaching Brainology® in the classroom. The Go! Guide is chunked into an Introductory Unit and four Units of classroom activities and reproducibles for use with students.

On the next page, you will find a summary of materials in each section.
SUMMARY OF MATERIALS

Within each of these guides, you will find the following materials:

I. GET READY! CURRICULUM OVERVIEW
   a. Why Teach Brainology?
   b. The Growth Mindset: An Overview
   c. Brainology®: Developing a Growth Mindset
   d. Brainology® Curriculum Overview

II. GET SET! PLANNING AND SETUP
   a. Plan Your Implementation
   b. Technical Setup – Using the Brainology® Website

III. GO! LESSON & MATERIAL GUIDES
    Brainology Teacher’s Curriculum Guides in Five Units:
    Each includes:
    a. Overview of Key Concepts and Goals
    b. Lesson Plans and Suggestions for Practice
    c. Reproducibles and Handouts

IV. UNIT ASSESSMENTS AND RE-TEACHING GUIDES
GET READY!

PART I. CURRICULUM OVERVIEW:
RESEARCH FOUNDATION & PLANNING GUIDE FOR TEACHERS
GET READY!

Curriculum Overview

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**Why Teach Brainology®?**

**What Do Students Need to Be Successful?**

*Mindsets and Student Agency*

What do students need to succeed? We know that they need good curriculum and instruction, including appropriate levels of challenge and support. But even before that, they need to be *ready* to learn—to have the attitudes, skills, and habits of effective learners.

The Raikes and Lumina Foundations commissioned the UChicago Consortium on Chicago Student Research (CCSR) to conduct a research literature review to determine what adolescents need to become learners. CCSR determined that there are several critical factors that together contribute to building *student agency*—the belief that they can achieve and that they have the knowledge and strategies needed to do so.

“The best ways to improve students’ perseverance and strengthen their academic behaviors is through *academic mindsets* and *learning strategies*. This is the central point emerging from our review.” CCSR Review: Farrington, Roderick, et. al, 2012.

**Highlights from the CCSR Report:**

- We can **positively change student mindsets** in a real world setting, which impacts real performance in academics and more broadly.
- Mindset interventions **reduce the achievement gap.** (REL 2012)
- Focusing on study skills **without the mindset component** is ineffective.
- Embedding mindset cultivation in a school-wide context and as a **part of school culture** is most **supportive to learners**.

“Notably, across the empirical literature, one’s **beliefs about intelligence** and **attributions for academic success** or failure are more strongly associated with school performance than is one’s actual measured ability (i.e., test scores).” - Farrington, Roderick, et. al, 2012

Among these critical academic mindsets, the Growth Mindset plays a central role in helping students to forge a sense of self-efficacy. At Mindset Works, we have developed the Brainology® program to help teachers and schools **cultivate a growth mindset** and **improve the learning strategies** of their students.
Mindset is a powerful yet simple idea discovered by Professor Carol S. Dweck of Stanford and her colleagues in decades of research on motivation, achievement, and success. **Mindsets** are beliefs individuals hold about their most basic qualities and abilities. In a **Growth Mindset**, people believe they can develop their brain, abilities, and talents. This view creates a love for learning, a drive for growth and a resilience that is essential for great accomplishments. On the contrary, people with a **Fixed Mindset** believe that basic qualities such as intelligence and abilities are fixed, and can't be developed. They also believe that talent alone creates success, and see effort as a sign of weakness rather than as an effective strategy needed to reach one's full potential. The following diagram shows how people with different views of intelligence respond in different situations:

Decades of research show that when people understand that they can develop their intelligence through learning, they are motivated to seek challenge, value learning, invest effort, and persist through difficulty—and they achieve more highly. **Moreover, the Growth Mindset can be taught.**
Brainology®: Developing a Growth Mindset

Brainology® is designed to help students to develop a Growth Mindset and, as a result, to reach a higher level of academic achievement. Students with a growth mindset think of their intelligence as something that they can develop through learning and study rather than as something fixed. Cultivating a growth mindset can help increase students’ sense of self-efficacy and their motivation to learn.

Brainology® is based on decades of research by leading experts in the area of motivation. Psychologists Carol S. Dweck, Ph.D. and Lisa Sorich Blackwell, Ph.D., discovered that developing a Growth Mindset helps students to value learning, invest effort, and improve their academic performance. (See Blackwell, Trzesniewski, & Dweck, 2007.) They developed the Brainology® program to help students cultivate a Growth Mindset by teaching them the powerful combination of the malleable brain lesson and effective study skills.

Brainology® helps students develop a growth mindset by teaching them how the brain functions, learns, and remembers, and how it changes physically when we exercise it through study and learning. In addition, the program teaches a practical set of skills for tackling academic challenges by showing students how to apply what they have learned about the brain to their schoolwork.

The Brainology® program has been implemented in hundreds of schools with great results. When students realize that they control their learning, they are motivated to apply effort and take an active role in learning. Teachers note positive changes in students' behavior (becoming engaged in class, reflecting, asking questions, doing homework), as well as in the higher student achievement that results from more motivated students with higher expectations of themselves.

Brainology® is a blended learning curriculum that includes an interactive multimedia online program and classroom activities. In an introduction plus four 30-minute units, students follow animated teenaged characters Chris and Dahlia as they tackle various problems in their most difficult subjects. They visit the lab of eccentric brain scientist Dr. Cerebrus and learn about the basic structure and function of the brain: how thinking occurs, how learning and memory work, how to develop and change the brain, and how to improve their study habits and skills in light of this knowledge. They gain experience in visualizing and applying these ideas through interactive activities and exercises. Throughout the program they reflect on their challenges and their learning through an e-Journal, and they engage in classroom activities to connect, reinforce, and practice what they learn in the context of their own experience. This curriculum helps students understand that they have great, untapped potential and that the development of their mental ability is largely within their own control, and provides them with study habits and skills that they can use to achieve highly.

Through this Curriculum Guide for Teachers, we will help you support your students by providing information and strategies that you can use to reinforce their growth mindset development.
CULTIVATE A GROWTH MINDSET THROUGH PROCESS PRAISE

Focus on leading your students' mindset shift

There's a lot you can do every day, in every interaction with your students, to reinforce the growth mindsets they are developing. For example, the type of praise a student receives profoundly influences his or her mindset. Research has shown that praising students for their intelligence after they succeed on a task can set them up to hold a fixed mindset. They seek to protect themselves by avoiding challenge; and when they do encounter failure, their motivation and performance plummet. On the other hand, when students are praised for their effort and strategy, they get excited about challenges and stay resilient in the face of failure. So it is important that you reinforce the growth mindset with process praise.

How? Here is an excerpt from an article Prof. Dweck wrote for Educational Leadership:

Praising students for their intelligence, then, hands them not motivation and resilience but a fixed mindset with all its vulnerability. In contrast, effort or “process” praise (praise for engagement, perseverance, strategies, improvement, and the like) fosters hardy motivation. It tells students what they’ve done to be successful and what they need to do to be successful again in the future. Process praise sounds like this:

- You really studied for your English test, and your improvement shows it. You read the material over several times, outlined it, and tested yourself on it. That really worked!
- I like the way you tried all kinds of strategies on that math problem until you finally got it.
- It was a long, hard assignment, but you stuck to it and got it done. You stayed at your desk, kept up your concentration, and kept working. That’s great!
- I like that you took on that challenging project for your science class. It will take a lot of work—doing the research, designing the machine, buying the parts, and building it. You’re going to learn a lot of great things.

What about a student who gets an A without trying? I would say, “All right, that was too easy for you. Let’s do something more challenging that you can learn from.” We don’t want to make something done quickly and easily the basis for our admiration.

What about a student who works hard and doesn’t do well? I would say, “I liked the effort you put in. Let’s work together some more and figure out what you don’t understand.” Process praise keeps students focused, not on something called ability that they may or may not have and that magically creates success or failure, but on processes they can all engage in to learn. —Carol Dweck, 2007

In addition, keeping a consistent and visible growth mindset orientation in your classroom can be a key component of reinforcing what your students learn in the Brainology program. Here are a few more suggestions for integrating Brainology terminology and activities into your classroom:

- Are your students losing focus on the lesson? Ask them if they are "using all their channels"!
- Are your students struggling with a difficult challenge? Remind them that their neurons are growing most when things seem most difficult.
- Do your students have projects to complete? Have them use the Brainology Study Guide and Study Plan!
**BRAINOLOGY® CURRICULUM OVERVIEW**

**Structure of the Online Curriculum:**

The Brainology® online curriculum is composed of a ~10 minute introduction and four ~30 minute units (depending on how much time the students spend on optional activities such as reading Chris’ & Dahlia’s e-journal entries and entering their own). We recommend doing no more than one of these four main units each week so that children have time to reflect, integrate takeaways into their own lives, and incorporate the offline materials.

- **The Introduction to Brainology®** presents the curriculum and its purpose, the characters that will guide the students throughout the program, and the tools available (e.g., the e-Journal, Map, Brain Book and Help). Users also create an inventory of their personal challenges so they can more easily relate the Brainology® lessons to their lives.

- **Unit 1: Brain Basics** introduces the basics of brain structure and function. This unit also explains what is required to maintain readiness to learn and how attention and concentration are supported. This unit teaches students the physical aspect of thinking and learning, which underlie a growth mindset.

- **In Unit 2: Brain Behavior**, students learn that the brain functions by sending chemical messages through a network of nerve cells, and that these cells are responsible for thought. This insight provides a foundation for understanding how learning changes the brain. They also learn how emotions can influence the brain and are taught strategies for managing their negative emotions and enhancing their positive ones.

- **In Unit 3: Brain Building**, students discover how learning changes the brain through the growth of connections in neural networks with repeated use, the key to the growth mindset. Students learn that intelligence can be developed through mental exercise, and they are introduced to activities that promote learning.

- **Unit 4: Brain Boosters** extends the concept of the malleable brain to understand the processes of memory. The unit introduces a variety of study strategies to capitalize on the way the brain works and learns to deepen and reinforce the students’ understanding of the growth mindset, and to guide the student to the study skills resources.

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**Ground yourself in Mindset theory**

While it is possible to spend a lifetime investigating the psychology of motivation and achievement, you don't have to in order to be very successful with Brainology®. Some background in the theory is needed, however. If you have the time, the inclination, and the opportunity, we recommend that you read Dr. Dweck's book, *Mindset: The New Psychology of Success*.

If this isn't the right moment for you to read the book, we suggest reading these three articles (which are all freely available on the internet):

- [Even Geniuses Work Hard](#)
- [The Power (and Peril) of Praising Your Kids](#)
- [Boosting Achievement with Messages that Motivate](#)