

# THE PHYSIOLOGICAL BASIS FOR LEARNING

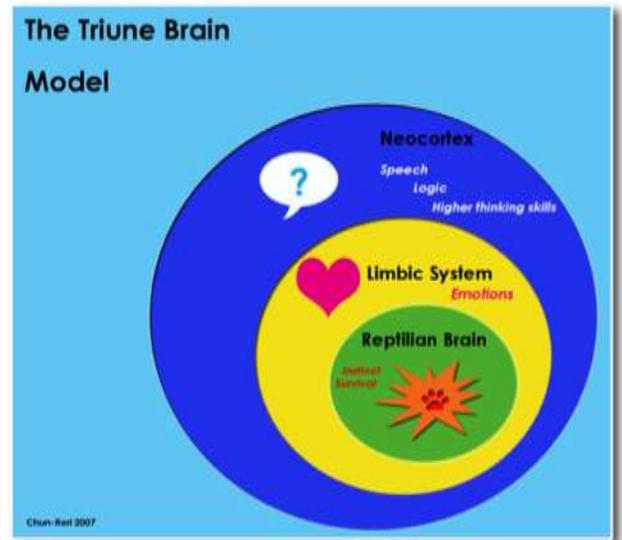
## INTRODUCTION TO THE BRAIN

### WHAT DETERMINES HOW WE BEHAVE?

Tips for Teachers and Parents

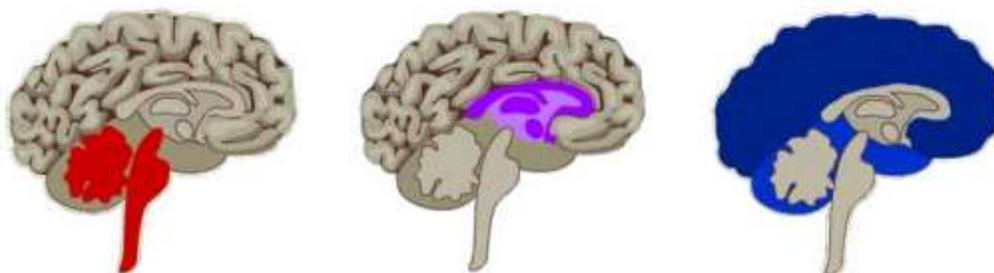
Why do we behave the way we do? How can we best help our children and ourselves behave more kindly and with more compassion, for example? According to the widely accepted model established by Professor Paul D. MacLean, the human brain, which is command central for our thoughts, behaviors, and choices, consists of three sections that represent increasingly more complex evolutionary purposes:

- **The Brainstem** – The Lizard (Reptilian) Brain regulates all basic bodily functions and instinctual actions: flight, fight, or freeze.
- **The Limbic System** – Called the Mammalian Brain, this is our emotional processing center, also known as the home of our memories and our ability to organize thought and emotion.
- **The Neocortex** - The human brain handles all higher level thinking, plans, actions, ideas, rational thinking, and self-analysis.



## Triune Brain Theory

Lizard Brain	Mammal Brain	Human Brain
Brain stem & cerebelum	Limbic System	Neocortex
Fight or flight	Emotions, memories, habits	Language, abstract thought, imagination, consciousness
Autopilot	Decisions	Reasons, rationalizes



# FLOOR MAP

## FOR

### *MARCH OF THE PENGUINS – A BUS TOUR OF THE BRAIN*

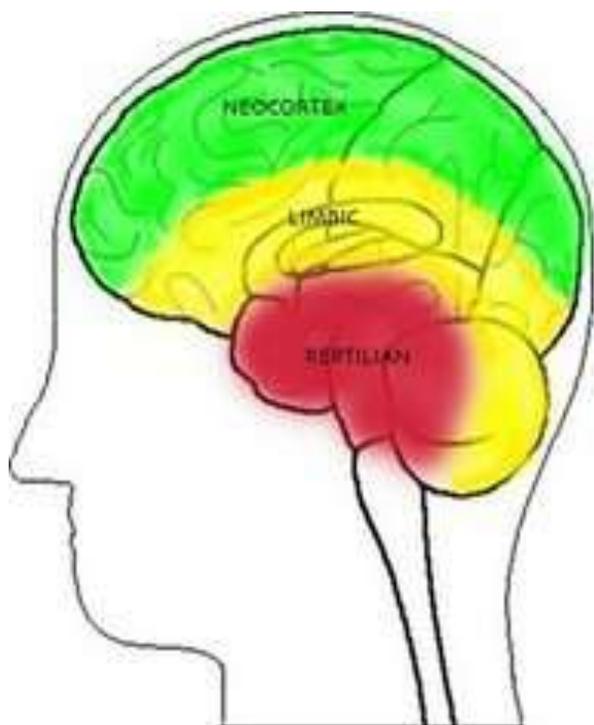
**March of the Penguins (MoP) - Bus Tour of the Brain** (Section 13: Stories in Motion (SiM) p. 5, and **State of Mind Game** (Section 9: Take it Outside (TiO) p. 23) are fun and effective ways to help build self-awareness, cultivate emotional intelligence skills, and teach tools for recognizing the different physiological responses of the body related to the three primary levels of cognition.

Prepare for these activities the week before you start the Unit 1: Body Lesson Plans using one or both of the options below to create a floor map of the brain. This map must be large enough for small groups of children to physically step into each distinct area of the brain during the narration of the story or to play the game. Both activities kinesthetically engage children in the three different “**States of Mind**,” which represent different levels of brain function. Understanding these three different levels, and how they affect our actions and our ability to communicate, are the primary goals of the curriculum.

After preparing the floor map, invite your students to explore y reading aloud **MoP** located in the Section 13: Story in Motion page 5, or by using the music and narration on the Feelin’ Free CD Trk #15.

**Procedure:** A permanent floor map that can be used multiple times is ideal. If time and space are challenged an outdoor temporary floor mural can be easily created.

- **Permanent Floor Mural** - Draw the image below on a reusable white table cloth, shower curtain, or sheet, using three different colored Sharpie Pens.
- **Temporary Quick Floor Mural** – Sketch a depiction of the Triune Brain below using three different colored pieces of sidewalk chalk



**Brain Stem** –Reptilian - reflexive, automatic center

**Mid-Brain** - Limbic - emotional center

**Neo-Cortex** – Thinking - rational, executive center

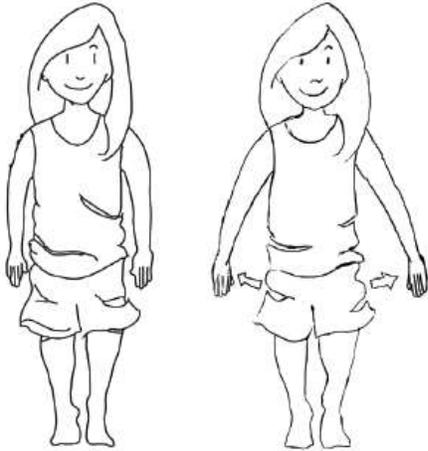
# MARCH OF THE PENGUINS

## A BUS TOUR OF THE BRAIN

### Narrative/Conductor

All aboard our Circle Time Bus! Line up, line up, don't crowd! Give everyone space. Our bus is leaving for the southern most tip of the Land of the Brain, a place called the Brain Stem. It's dark in the Brain Stem so make sure you've packed your flashlights. Take yours out. Turn it on and off. Let's go. It's a bumpy ride!

### Wooh Wooh!! First Stop - The Brain Stem...



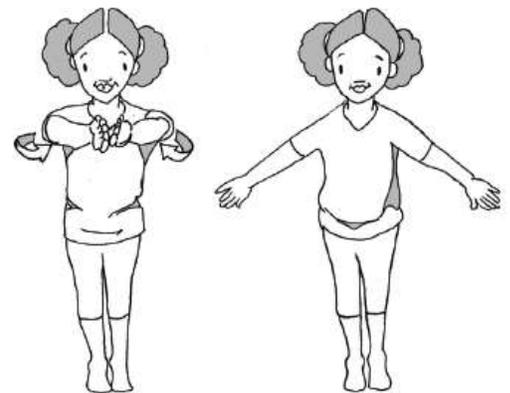
Everybody off the bus quietly, please. Quiet. We don't want to scare the penguins. Hey, let's be penguins! Arms tight to your body - turn your palms out - those are our wings! Our legs are short, so we need to waddle. These little baby steps keep us moving kind of slow.

Because it is so dark down here, we just have to sense where everyone else is. Where are you? Where are you? Keep your radar out for the other penguins! Penguins are curious! Let's lean forward and rock back. Look at all those stars up in the sky! Now lean forward, look at all the snow on the ground! Back, look at the stars! Forward, look at the ground. Back and forth, back and forth, slower and slower until you stop right in the middle.

Time to find our bus again. Does anyone have a light? Let's look around at each other. We're all here, all safe and connected! Here's our bus - all aboard!

### Wooh Wooh!! Second Stop - The Mid-Brain

All penguins jump out into the Ocean of Emotion, and take a swim! Shall we join them? Let's do the breast stroke! Arms straight out in front, backs of your wrists together, palms out, stroke, stroke... swim and swim, swim and swim. Let's swim in circles. Let's swim around in lazy 8's. Let's swim slowly.... swim in circles....swim fast!! This feels great.

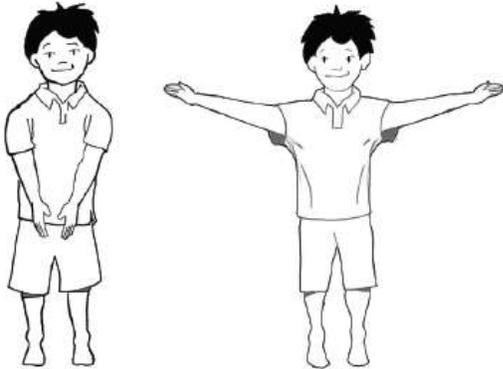


Uh oh - the penguins got too close together! They bumped! Oh, excuse me! Squawk with your beaks, penguins! Flap with your flippers, penguins!

Take a deep breath, reach your flippers to the sky, penguins! Now, sink, sink down, blow out the air! Another deep breath, flippers reach, reach, reach. Ahh, sink, sink, sink, and blow out the air! Come up to center for a gentle breath.... Nice and easy. Let's make sure we have room all around us to swim... and play!

Let's swim back on to the bus! We're going someplace new!

## MARCH OF THE PENGUINS: A BUS TOUR OF THE BRAIN



### **Wooh Wooh!! Third Stop – The Cortex**

Welcome, welcome to northern part of the land of the Brain, the Cortex! Up here in the cortex there are amazing robots who love to follow directions. They move in a special way. Arms out in front! Palms face in! Arms move down towards your tummy and touch! Arms move up and away! Down, touch, up and away! Down, touch, up and away!

Robots, walk forward! Robots, walk backwards!  
Robots, rock side to side, rock and rock . . . slowing down, find the middle and STOP.

We're back on the bus, riding back to the ocean of emotion. Those penguins are still swimming the breaststroke! Let's swim and swim and swim and swim!

Swimmers reach up, up, up, and sink down, down, down, reach up, up, and down, down, slowing down, find the middle and STOP.

Let's waddle out of the water, arms tight to our sides. Small steps on to the bus.  
Wooh Wooh! Let's ride!

Back to our very own seats. It's been a marvelous journey on the Circle Time Bus! See you next time!