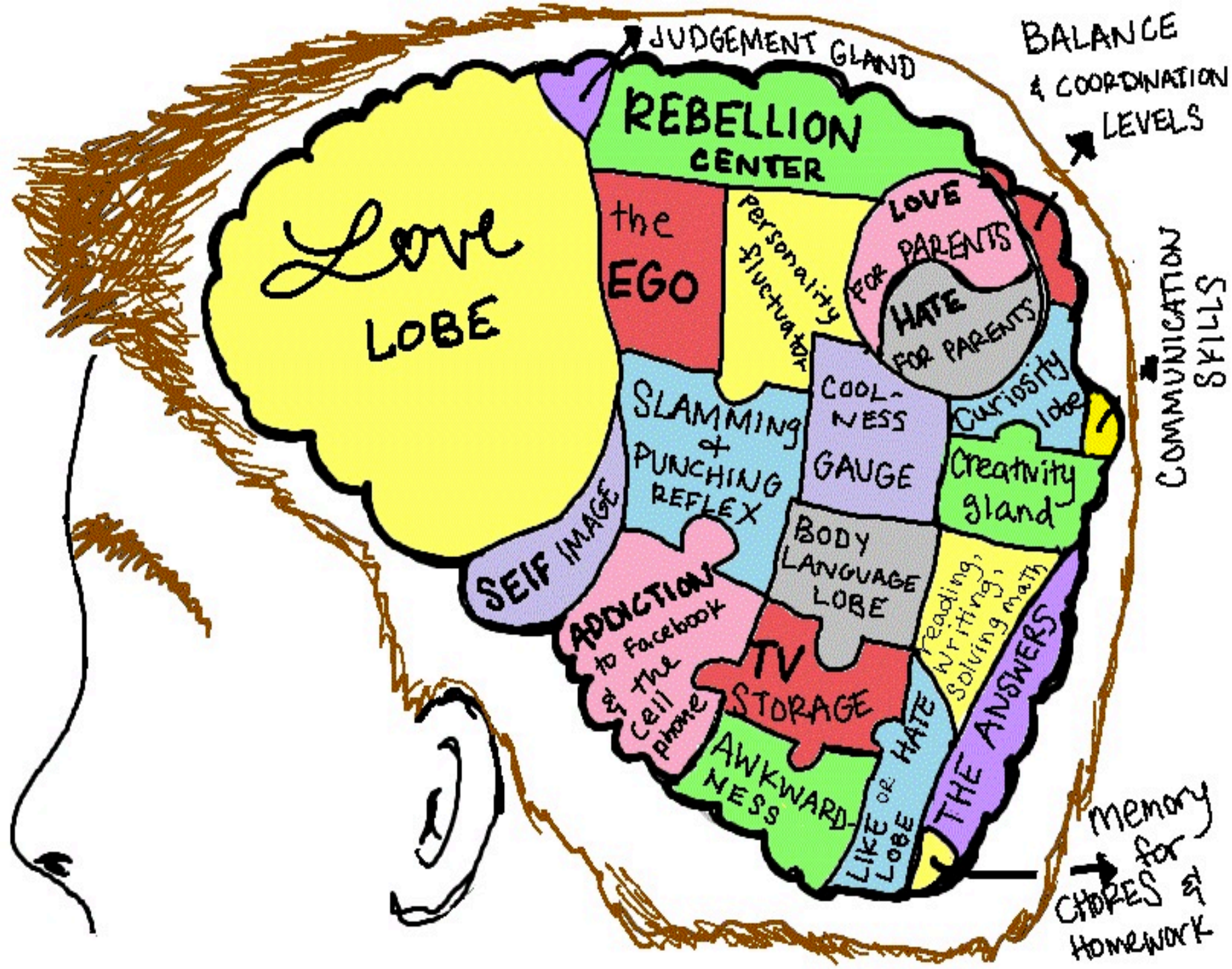


# Blame it on the Brain



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# What's Really Going On?



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# What's Really Going on?

Frontal Cortex

Striatum

Hippocampus



# Growing a Grown-up Brain

Scientists have long thought that the human brain was formed in early childhood. But by scanning children's brains with an MRI year after year, they discovered that the brain undergoes radical changes in adolescence. Excess gray matter is pruned out, making brain connections more specialized and efficient. The parts of the brain that control physical movement, vision, and the senses mature first, while the regions in the front that control higher thinking don't finish the pruning process until the early 20s.

**Gray matter density**

Gray matter becomes less dense as the brain matures.



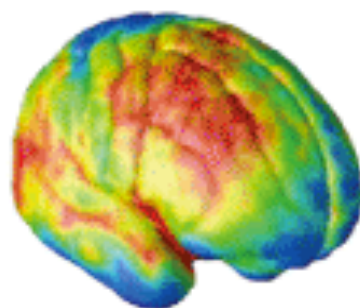
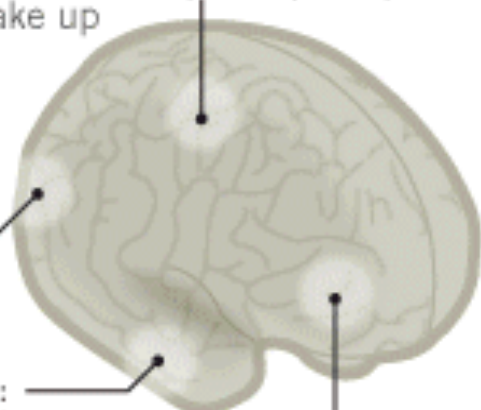
**Gray matter:** Nerve cell bodies and fibers that make up the bulk of the brain's computing power.

**Parietal lobe:** Spatial perception

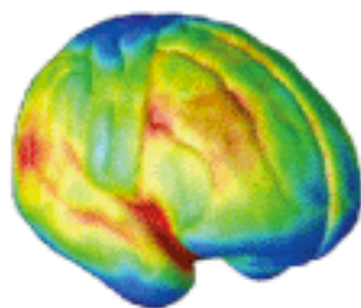
**Occipital lobe:** Vision

**Temporal lobe:** Memory, hearing, language

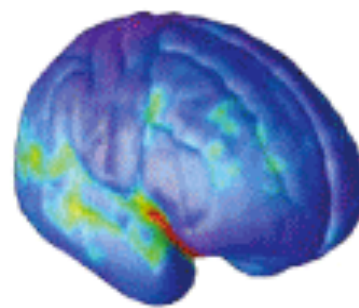
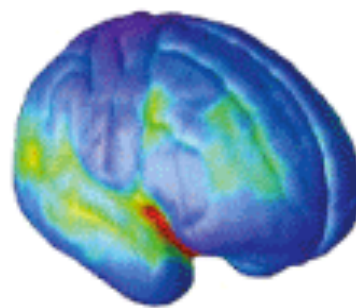
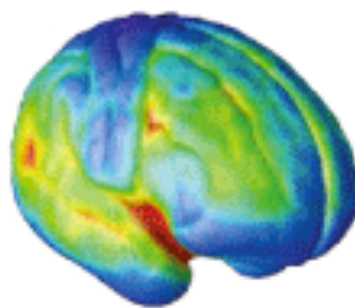
**Frontal lobe:** Planning, emotional control, problem solving



Age: 5



Adolescence



20

Source: "Dynamic mapping of human cortical development during childhood through early adulthood," Nitin Gogtay et al., *Proceedings of the National Academy of Sciences*, May 25, 2004; California Institute of Technology



# How Do We Use This Knowledge?



## Speak their language

(Connect to Their Emotions)

Aim for understanding

How Do We Use  
This Knowledge?



Hold Your Judgment



# How Do We Use This Knowledge?



## Intentionally Make Time

(For Talking & Being Together)

Car Rides 👍

# How Do We Use This Knowledge?



## Ask Open Ended Questions

(Refrain from Interrogating)

Reflecting is ☺



# How Do We Use This Knowledge?



## Ask Their Opinion

(And Actually Consider It)

# How Do We Use This Knowledge?



## Admit Your Mistakes

(The Hardest = The Most Valuable)



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