



Why do they do that?!

TEEN DEVELOPMENT

Adolescent Development



PHYSICAL



SOCIAL



EMOTIONAL



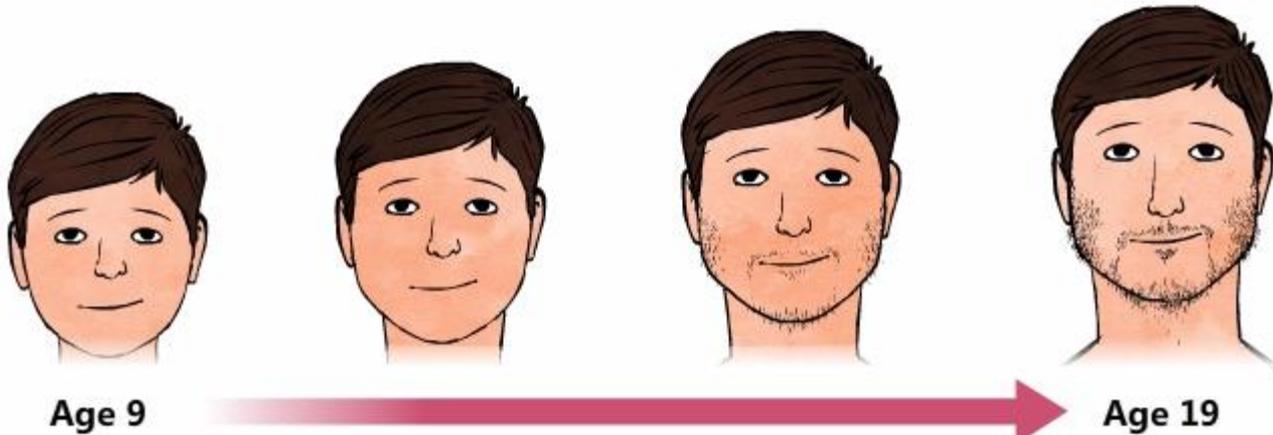
COGNITIVE



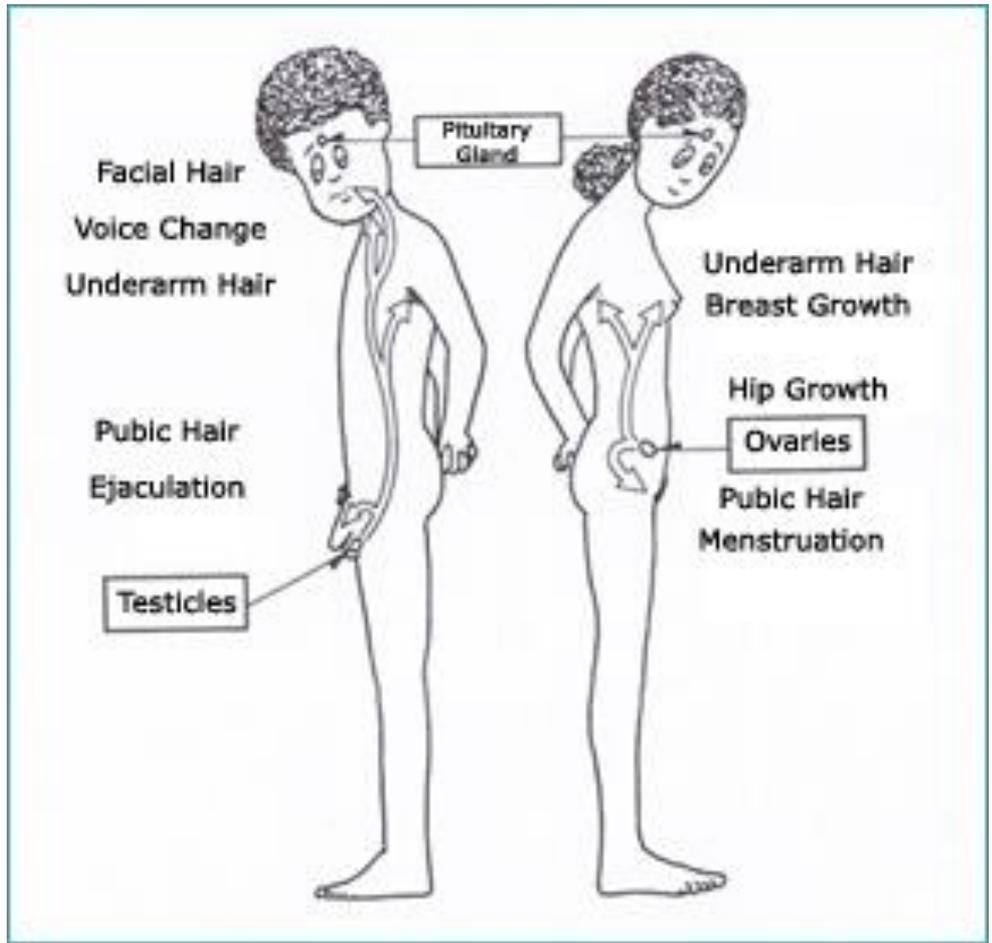
Physical Changes



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Teenager Post # 4122

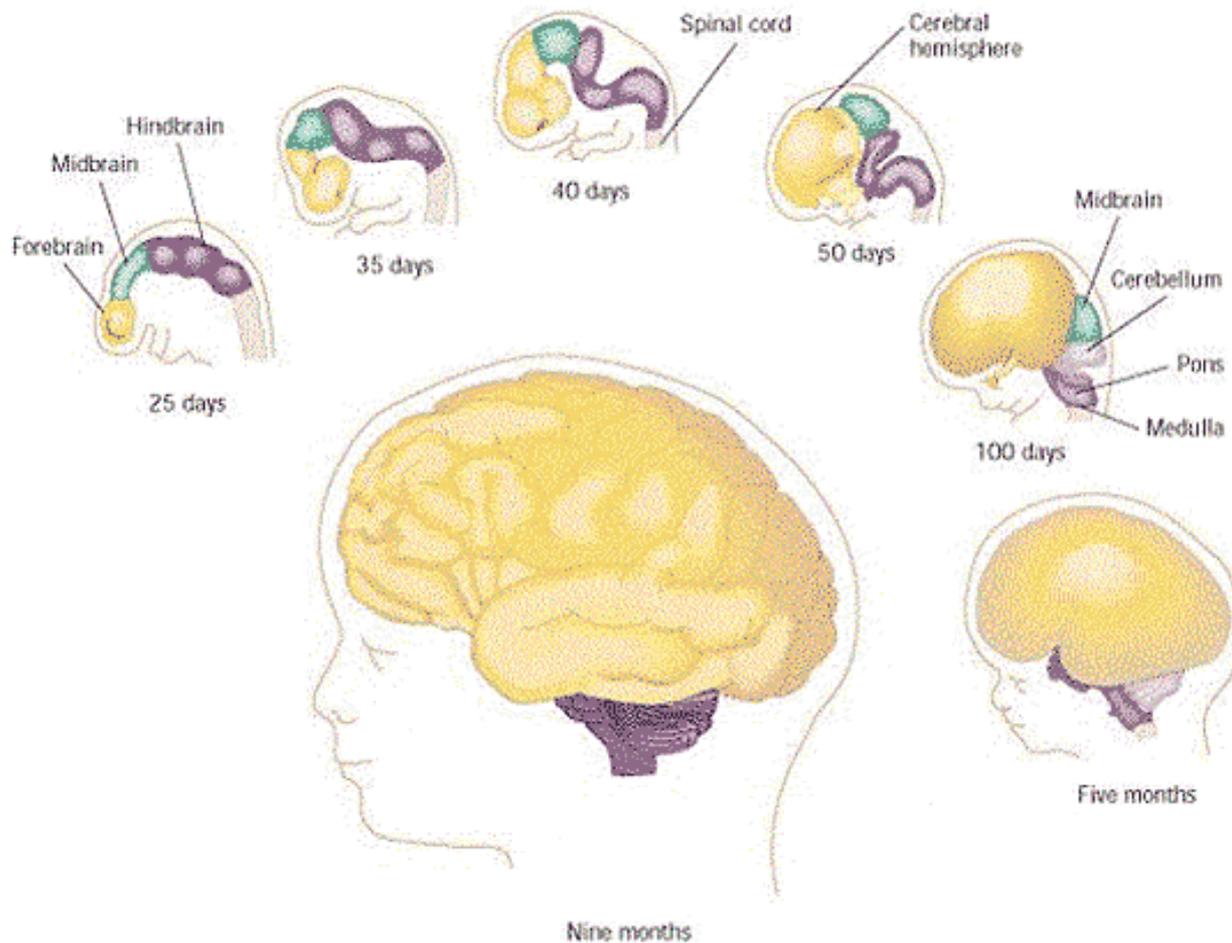
I'm not clumsy, it's just
the floor hates me, the
tables and chairs are
bullies, and the wall
gets in the way.

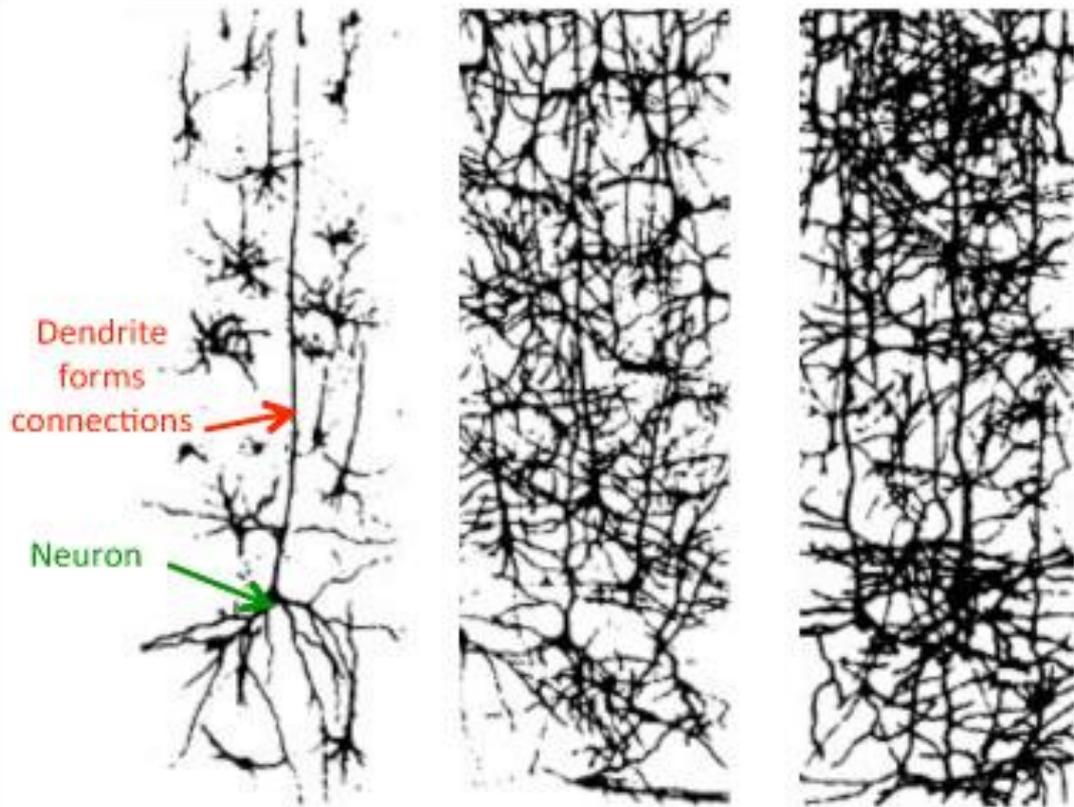
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How do physical changes
affect how children use the
library?

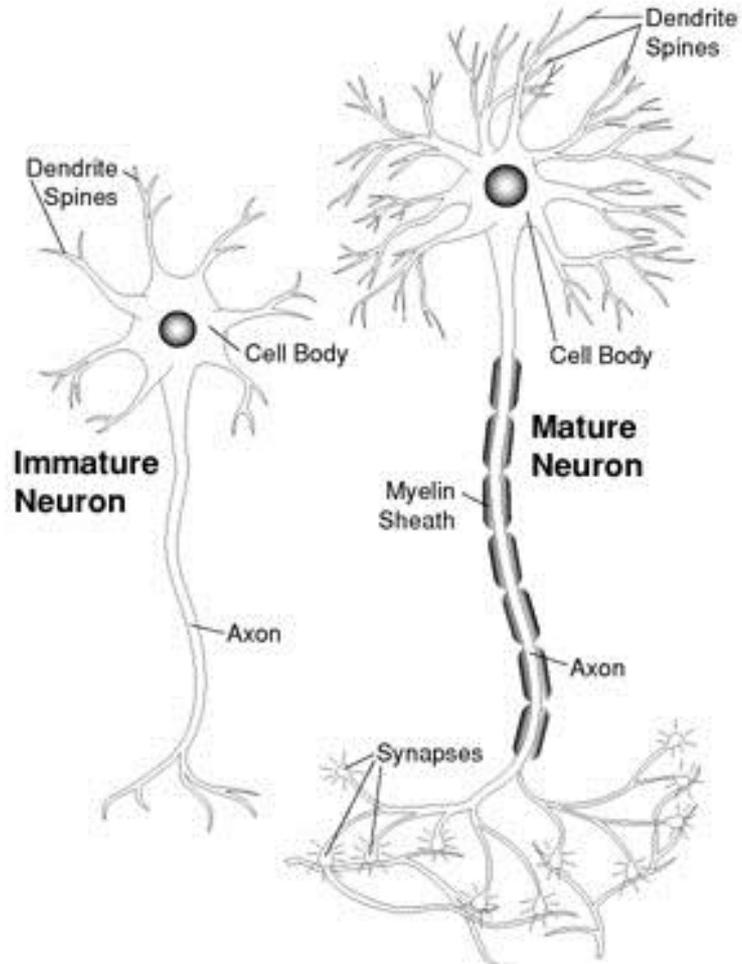
Brain Development





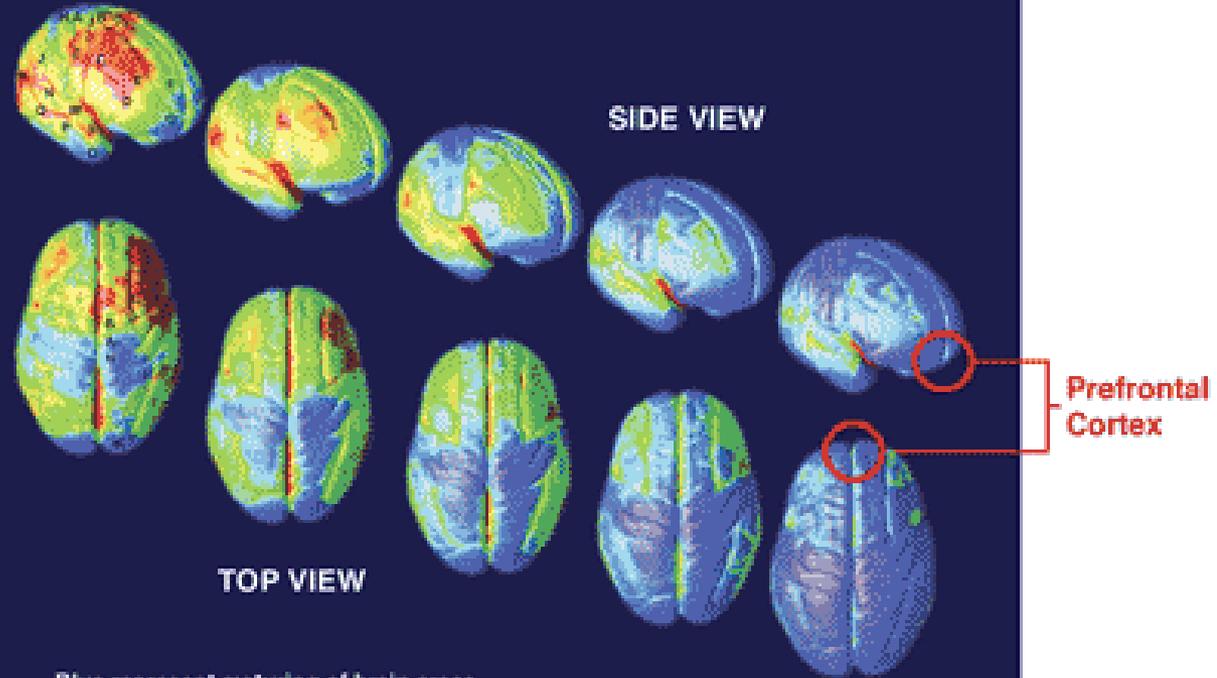
Newborn Six months Two years
Postnatal neurogenesis

Neuron development



IMAGES OF BRAIN DEVELOPMENT IN HEALTHY CHILDREN AND TEENS (AGES 5-20)

5 ← AGES → 20



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.

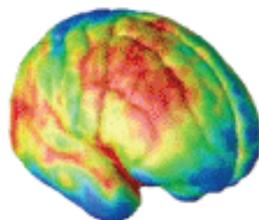
Gray matter density

Gray matter becomes less dense as the brain matures.

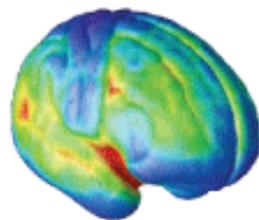
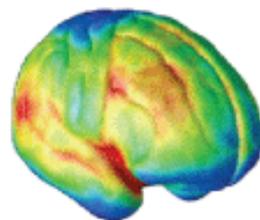


More dense

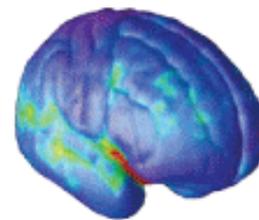
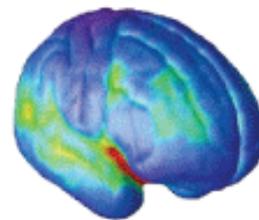
Less dense



Age: 5



Adolescence



20

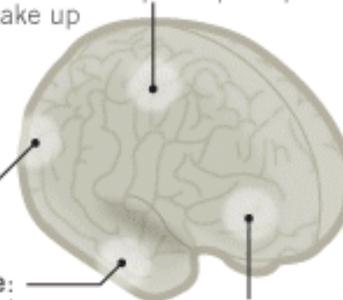
Gray matter: Nerve cell bodies and fibers that make up the bulk of the brain's computing power.

Parietal lobe: Spatial perception

Occipital lobe: Vision

Temporal lobe: Memory, hearing, language

Frontal lobe: Planning, emotional control, problem solving



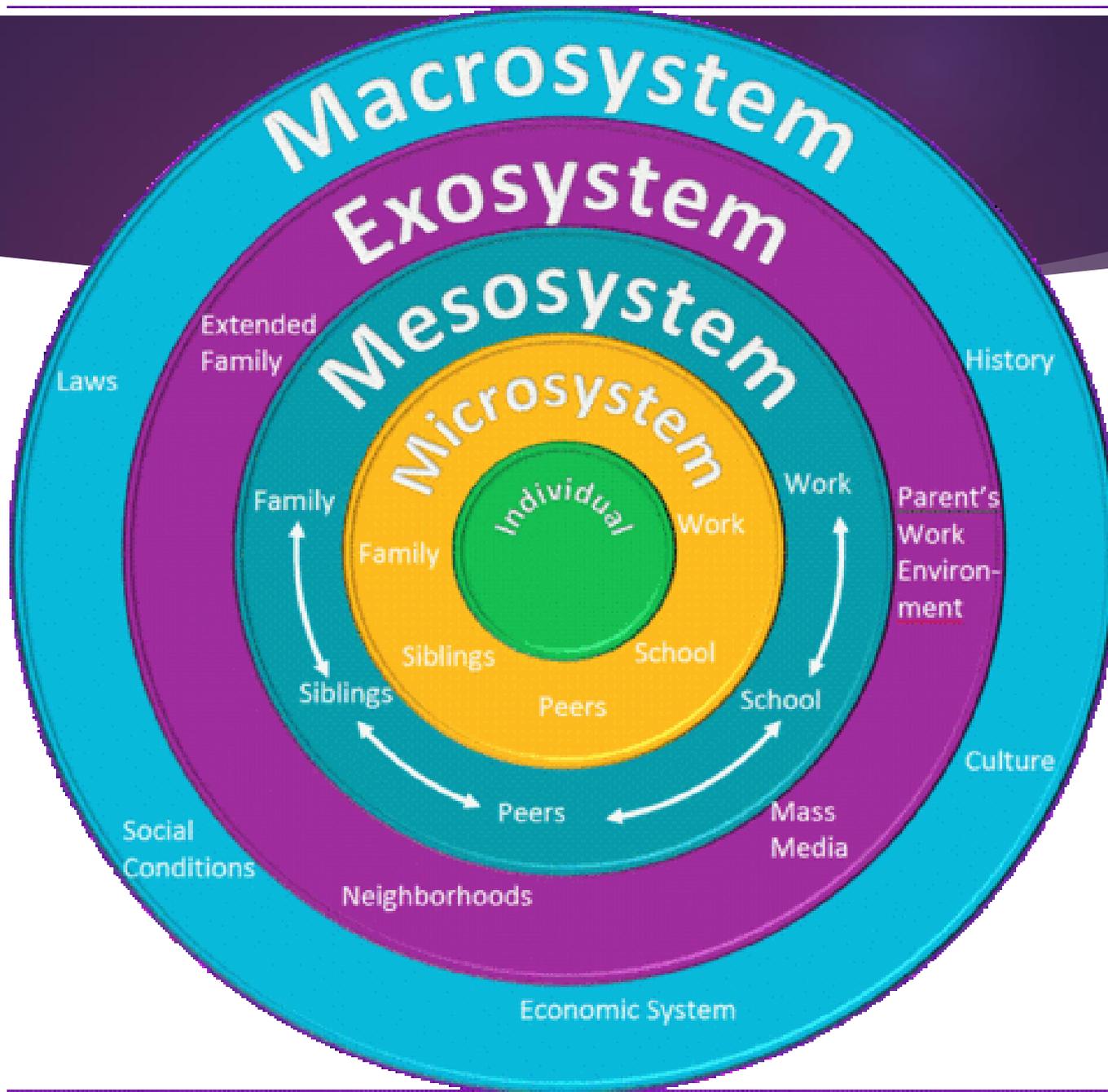


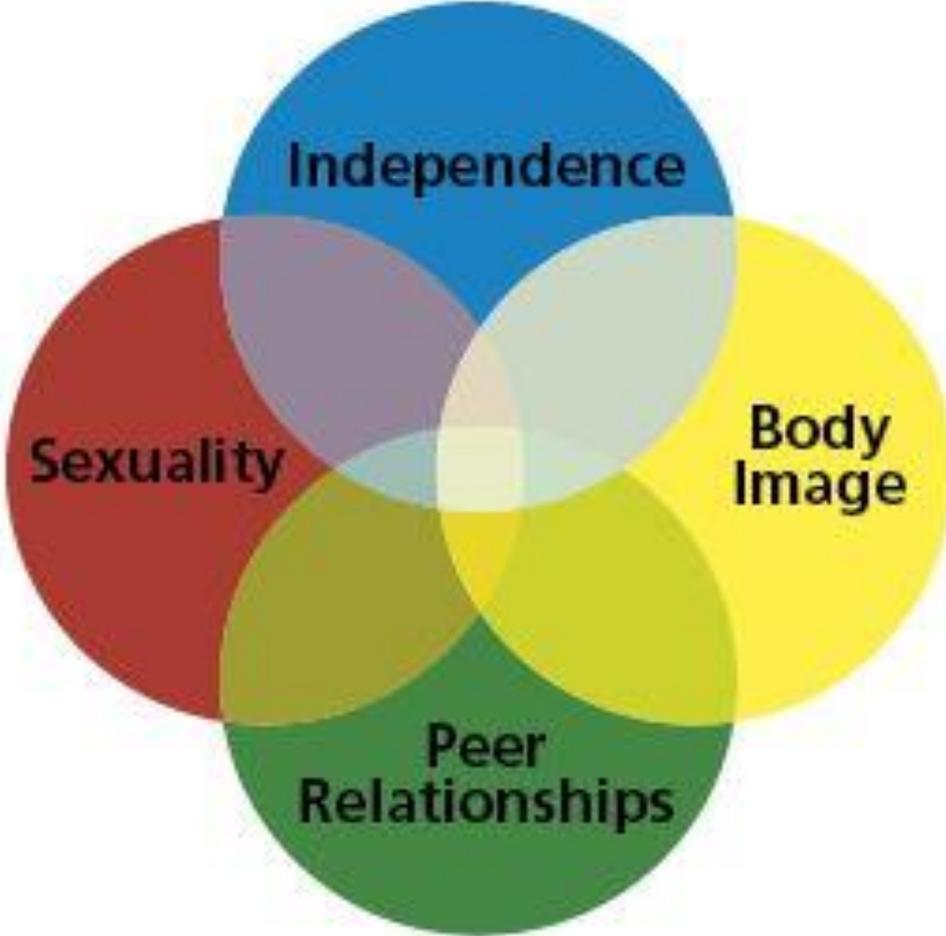
How do neurological changes affect how children use the library?

Kohlberg

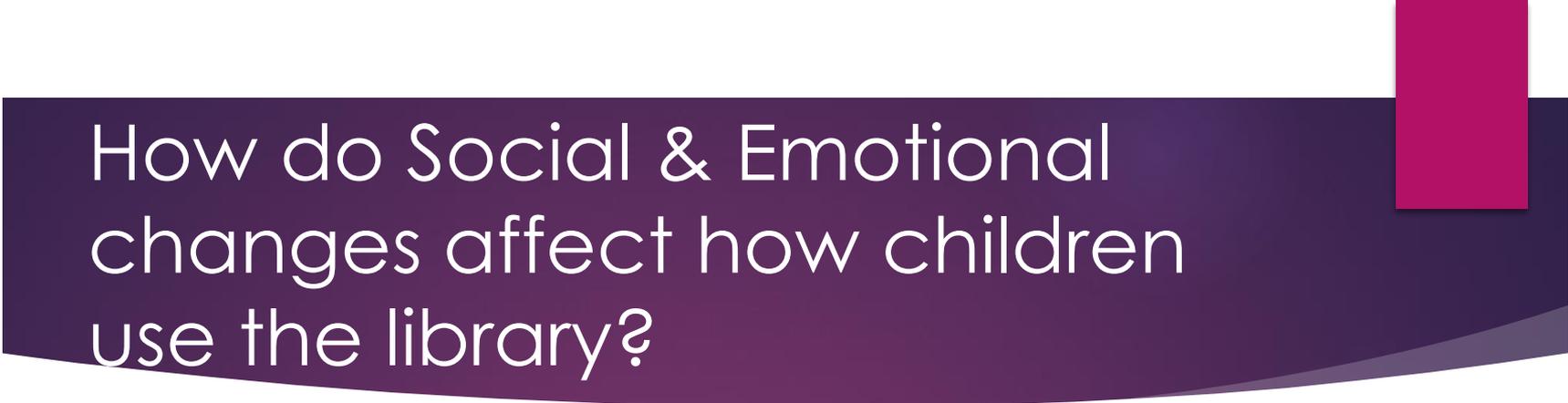
Kolberg's Theory

Level/Stage	Age Range	Description
I: Obedience/Punishment	Infancy	No difference between doing the right thing and avoiding punishment
I: Self-Interest	Pre-school	Interest shifts to rewards rather than punishment – effort is made to secure greatest benefit for oneself
II: Conformity and Interpersonal Accord	School-age	The “good boy/girl” level. Effort is made to secure approval and maintain friendly relations with others
II: Authority and Social Order	School-age	Orientation toward fixed rules. The purpose of morality is maintaining the social order. Interpersonal accord is expanded to include the entire society
III: Social Contract	Teens	Mutual benefit, reciprocity. Morally right and legally right are not always the same. Utilitarian rules that make life better for everyone
III: Universal Principles	Adulthood	Morality is based on principles that transcend mutual benefit.









How do Social & Emotional
changes affect how children
use the library?

Characteristics of Formal Operational Thought

Abstract

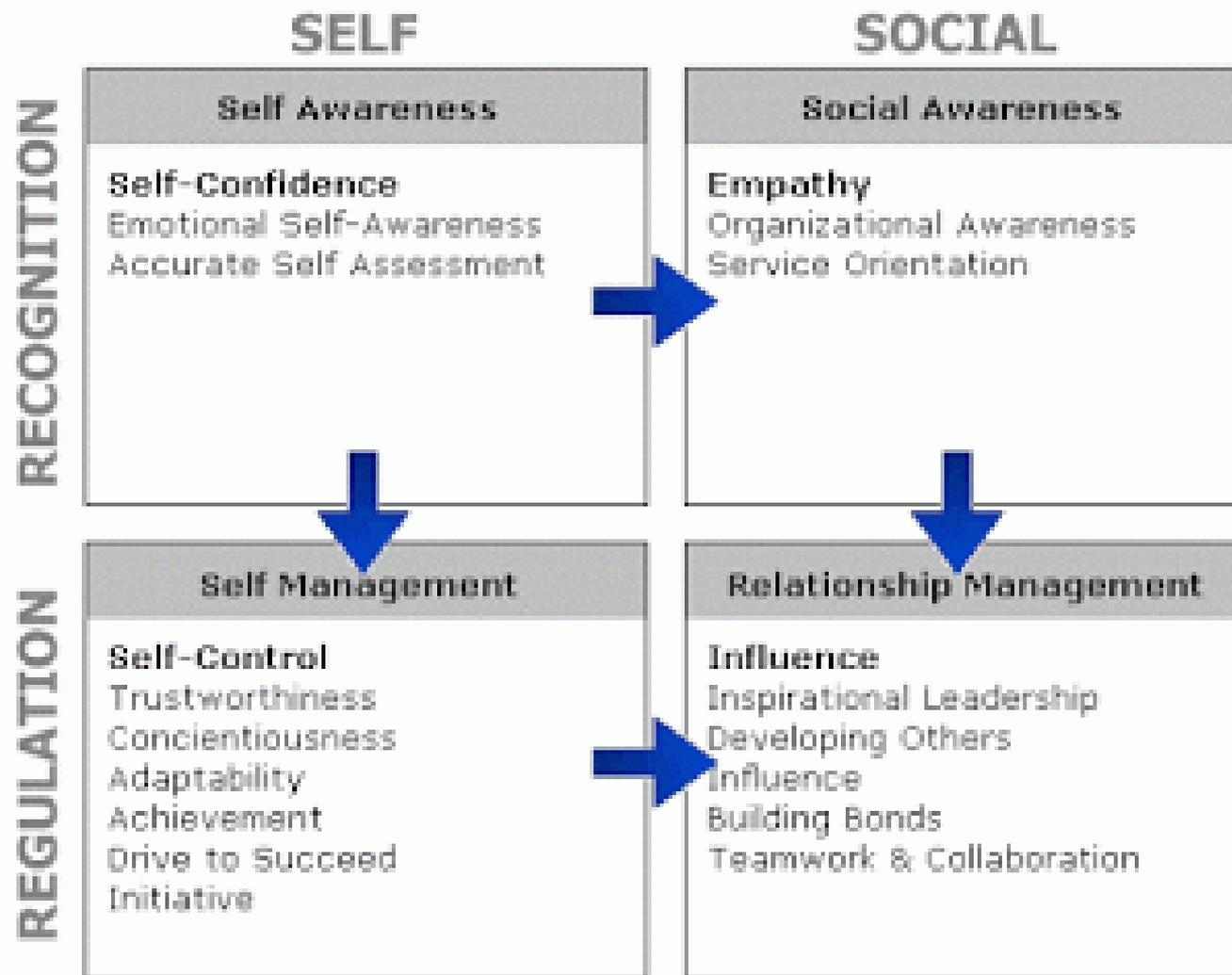
Adolescents think more abstractly than children. Formal operational thinkers can solve abstract algebraic equations, for example.

Idealistic

Adolescents often think about what is possible. They think about ideal characteristics of themselves, others, and the world.

Logical

Adolescents begin to think more like scientists, devising plans to solve problems and systematically testing solutions. Piaget called this type of logical thinking hypothetical-deductive reasoning.



The Brain's Executive Functions

ACTIVATION

- Organizing
- Prioritizing
- Getting to work

FOCUS

- Tuning in
- Sustaining focus
- Shifting attention

EFFORT

- Regulating alertness
- Sustaining effort
- Adjusting processing speed

EMOTIONS

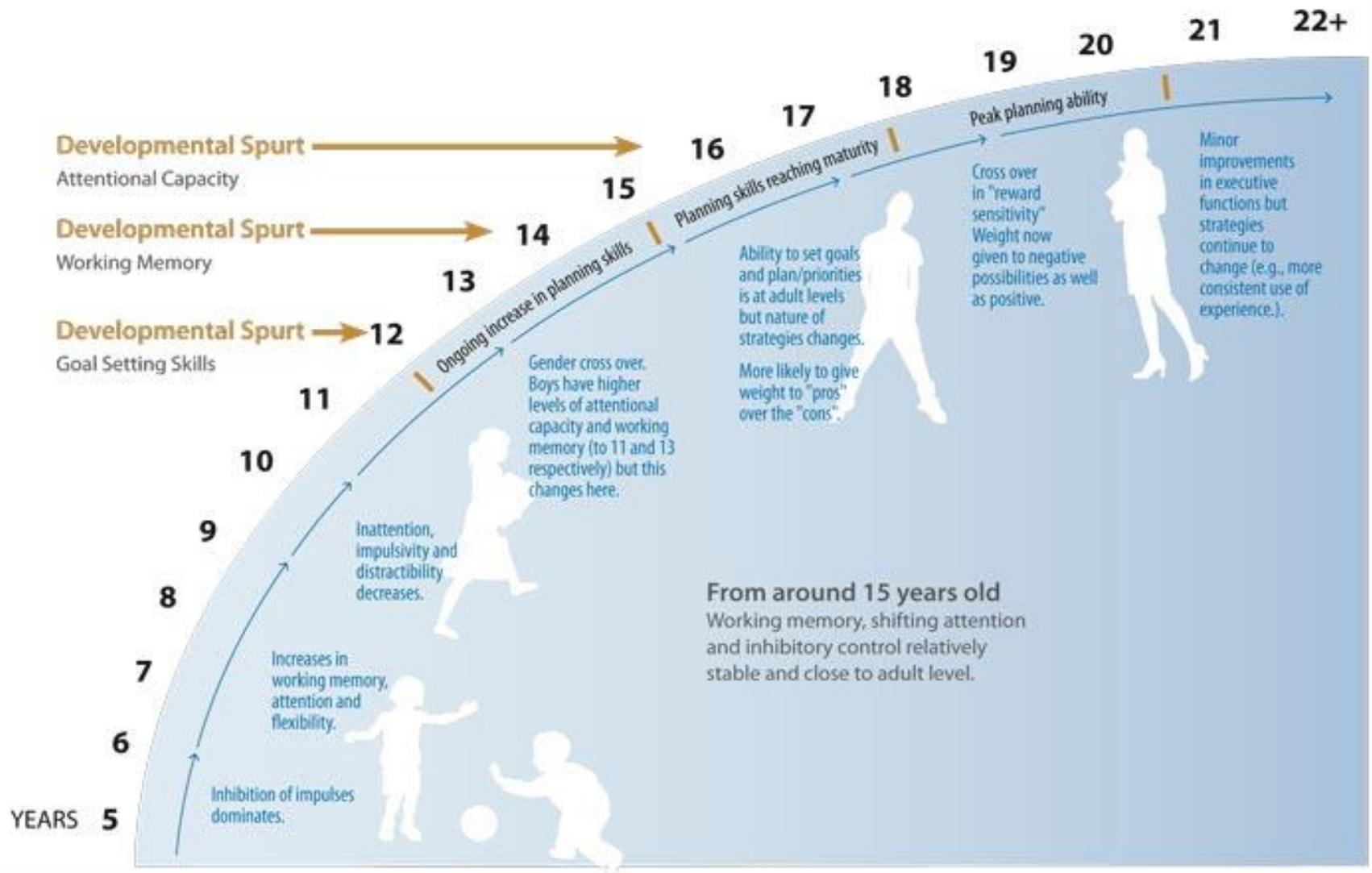
- Managing frustration
- Modulating emotions

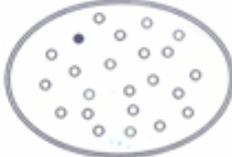
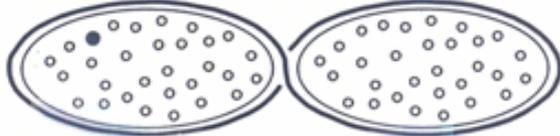
MEMORY

- Holding on and working with Information
- Retrieving memories

ACTION

- Monitoring and regulating one's actions



Developmental Stage/ Order of Mind (typical ages)	What can be seen as <i>object</i> (the content of one's knowing)	What one is <i>subject</i> to (the structure of one's knowing)	Underlying Structure of Meaning-Making
1st Order: Impulsive Mind (~2-6 years-old)	one's reflexes	one's impulses, perceptions	Single Point 
2nd Order: Instrumental Mind (~6 years-old through adolescence)	one's impulses, perceptions	one's needs, interests, desires	Categories 
3rd Order: Socialized Mind (post-adolescence)	one's needs, interests, desires	interpersonal relationships, mutuality	Across Categories 
4th Order: Self-Authoring Mind (variable, if achieved)	interpersonal relationships, mutuality	self-authorship, identity, ideology	Systemic 
5th Order: Self-Transforming Mind (typically > ~40, if achieved)	self-authorship, identity, ideology	the dialectic between ideologies	System of Systems 

Adapted from Kegan, Robert. *In Over Our Heads: the Mental Demands of Modern Life*. Cambridge: Harvard University Press, 1994. pp. 314-315.



How do cognitive changes
affect how children use the
library?

Additional Resources

- ▶ <http://www.nlm.nih.gov/medlineplus/ency/article/002017.htm>
- ▶ http://www.pbs.org/parents/talkingwithkids/agebyage_5.html
- ▶ <http://www.stanfordchildrens.org/en/topic/default?id=the-growing-child-school-age-6-to-12-years-90-P02278>
- ▶ <http://libraries.vermont.gov/node/2159>