



**BRAIN**

**6<sup>th</sup> Grade Benainu Program:**  
**Lesson on Teenage Brain Science**

*Jog Through the Brain!*

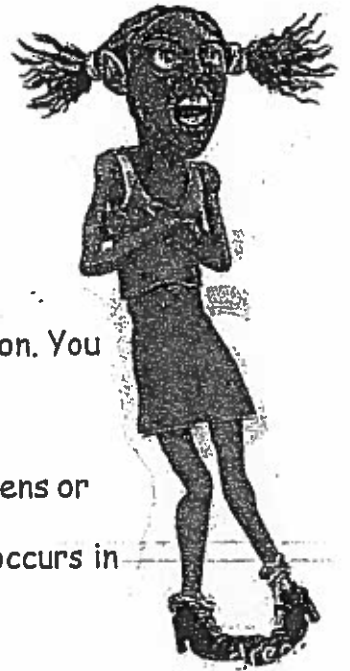
Inside Your Teen Mind .....	Page 1
Puberty: What is Happening to Me? .....	Page 2
Adolescent Brain Development: If Your Brain Could Talk It Would Say: .....	Page 3
Flooded with Emotions .....	Page 4
"The Brain" Crossword Puzzle .....	Page 5
Jog Through the Brain Poem by Mrs. Finkelstein .....	Page 6



## Inside your teen mind

- You may act dramatic, irrational and scream for seemingly no reason. You may want greater independence but also tender loving care.

There is a reason why this description could be used for either teens or toddlers: After infancy, the brain's most dramatic growth spurt occurs in adolescence.



(It could explain why teenagers never listen to their parents and always think they know best.)

- Did you know that changes to the brain make it harder to learn during puberty, scientists believe?

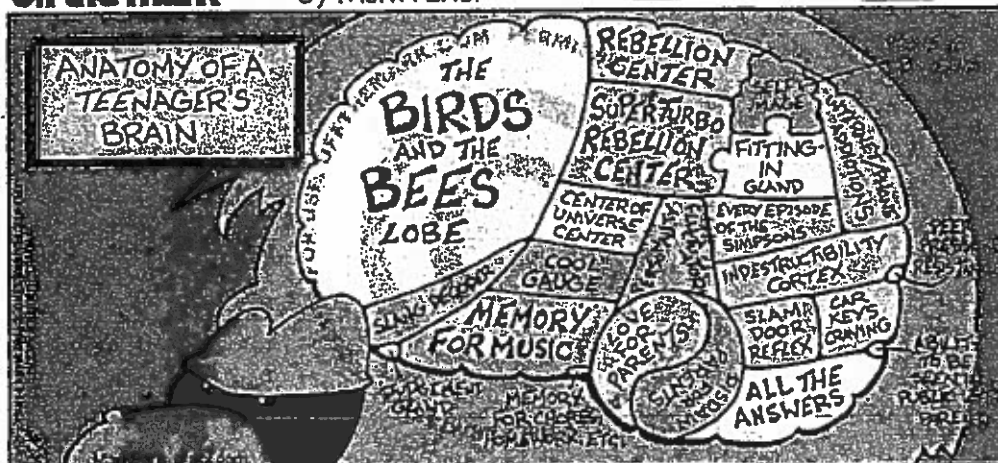
This means that on top of having to cope with raging hormones, exam stress and over-protective parents, you also have to deal with the brain becoming thicker with more gray matter!

- Basically, your teenage brain works differently than its adult counterpart.

The result is that you do not have the ability to consider how your actions will affect others - you may be criticized for being sullen, selfish and thoughtless. You might also find it harder to put yourself in someone else's shoes and imagine how you might feel in a given situation.

**off the mark**

by Mark Parisi



## Puberty    What is happening to me?

- A. Puberty hormones affect your body and your brain
- B. Puberty can be a time of changing emotions and new kinds of thoughts.
- C. These changes are completely normal, just like the physical (body) changes.
- D. If you've started puberty, you might be dealing with some of this:



1. **Feeling sensitive.** Your body is changing quickly. It is normal to feel self-conscious and worried. You might feel extra-sensitive to criticism, or teasing, or just about everything. Little things might set you off. You might think that nobody understands you.

2. **Intense emotions.** You've felt emotions before, but now you feel really **STRONG** emotions. Instead of just disliking something, you **HATE** it. Instead of liking something, you **LOVE** it. You were a little jealous before, but now you're **SUPER** jealous. There have been times when you were sad, but now you feel **TOTALLY DEPRESSED**. In other words, your emotions have gotten more intense.

3. **Mood swings.** Your emotions are stronger, and they also switch back and forth more quickly than before. One second you're singing happily, and the next you're crying your eyes out. You might be playing well with your brother, and then you're suddenly screaming at him. These are called mood swings for a reason: just like on a playground swing; one minute you're up, and the next minute you're down.

4. **Unfamiliar emotions.** Puberty usually brings a whole new set of emotions you may have never felt before. For instance, when you were little, you probably didn't have romantic feelings but now you're starting to think differently. Maybe you begin to have a crush on someone.

5. **Conflict.** As you leave childhood and make your way towards adulthood, you may feel like you need to be independent, to control more of your life and make your own decisions. If you're going through puberty, you may be questioning your family's rules and beliefs, and starting to form opinions that are yours alone. You want to be **YOU**, and this can lead to conflict with your parents, friends, or just about anyone. Of course, eventually it also leads to you becoming a unique person: your grown-up self.



## Adolescent Brain Development: If your brain could talk it would say:

1. I am growing too. You may be growing in height, weight and hormone production, but I am growing too. My gray matter is thickening in the frontal lobe. This is the control center for "executive functions" such as planning, impulse control and reasoning. So, it is understandable that you may not always make the best decisions because of me!
2. I have trouble processing rewards and pleasures. It's just the way it is. Sorry...I realize that this can lead to risky, sensation-seeking behaviors, such as rough roller coasters, driving too fast or drug experimentation. As I mature, I will be able to regulate this better...thankfully!...but maybe not until your mid- twenties!

Then I will be able to direct you in controlling impulsive behavior or resisting peer pressure.

3. I may make it difficult for you to think ahead, realize the consequences of actions, and resist pressure from others.
4. I really want you to have hands-on parents...even though it may not seem that way.. That is just the way I am wired! Please talk to me...I am a smart organ and I will eventually get it! I hope your parents will be firm. .but fair.
5. Most of all I know that change is exciting, and adolescence is certainly filled with it. I am a great processor of information. So, the more you know about brain development , the better we will all be able to get through this journey .

## BRAIN BASICS

### Frontal Lobes

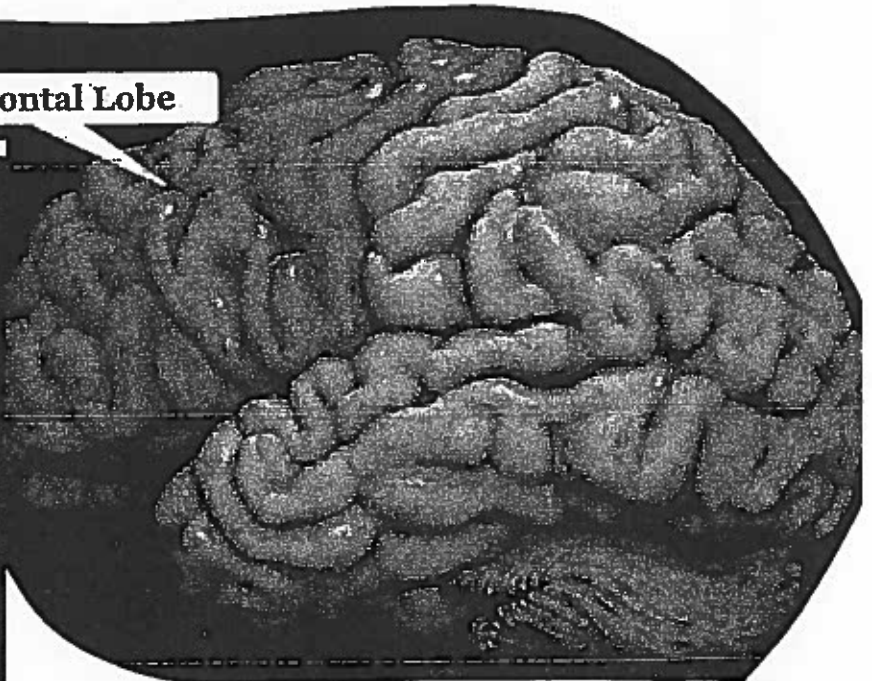
Located behind the forehead, the frontal lobes are the largest lobes of the brain. They are prone to injury because they sit just inside the front of the skull and near rough bony ridges.

These two lobes are involved in:

- planning
- organizing
- problem solving
- memory
- impulse control
- decision making
- selective attention
- controlling our behavior and emotions

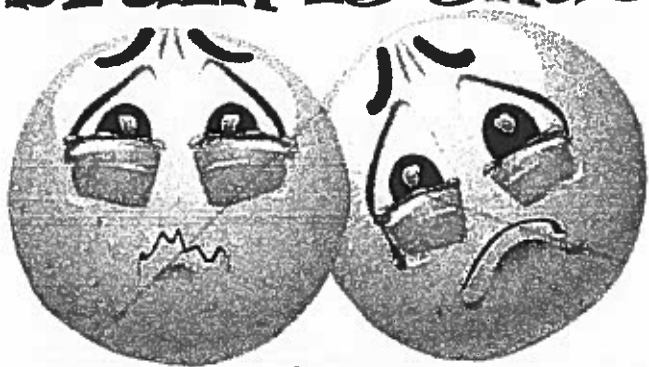
The left frontal lobe plays a large role in speech and language.

Frontal Lobe

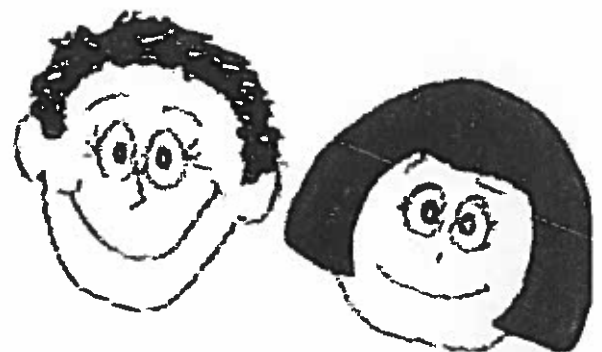


# Flooded With Emotions

When we are flooded with emotions, the thinking part of our brain is shut down!

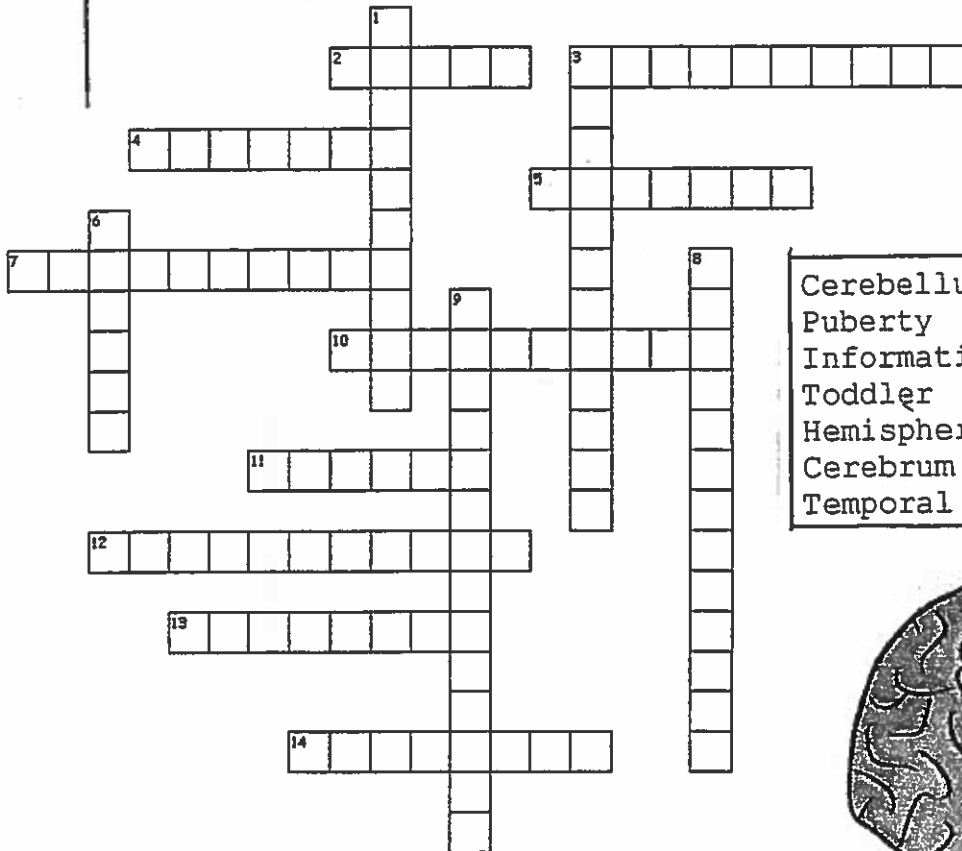
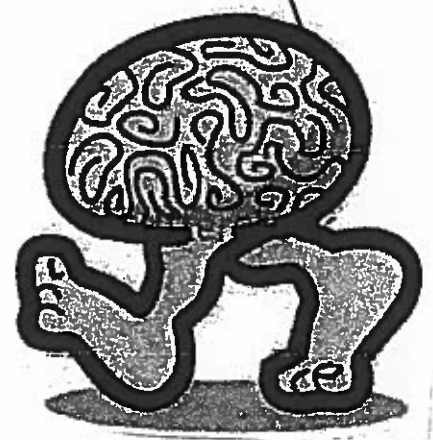


In order to get the thinking part of our brain working again, we have to calm down!

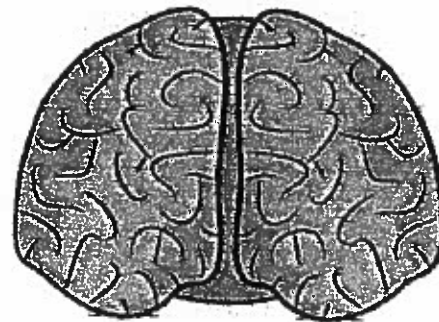


# Superior

## The Brain



Cerebellum	emotions
Puberty	gray matter
Information	hypothalamus
Toddler	decision making
Hemisphere	adolescent
Cerebrum	nerves
Temporal lobes	cortex

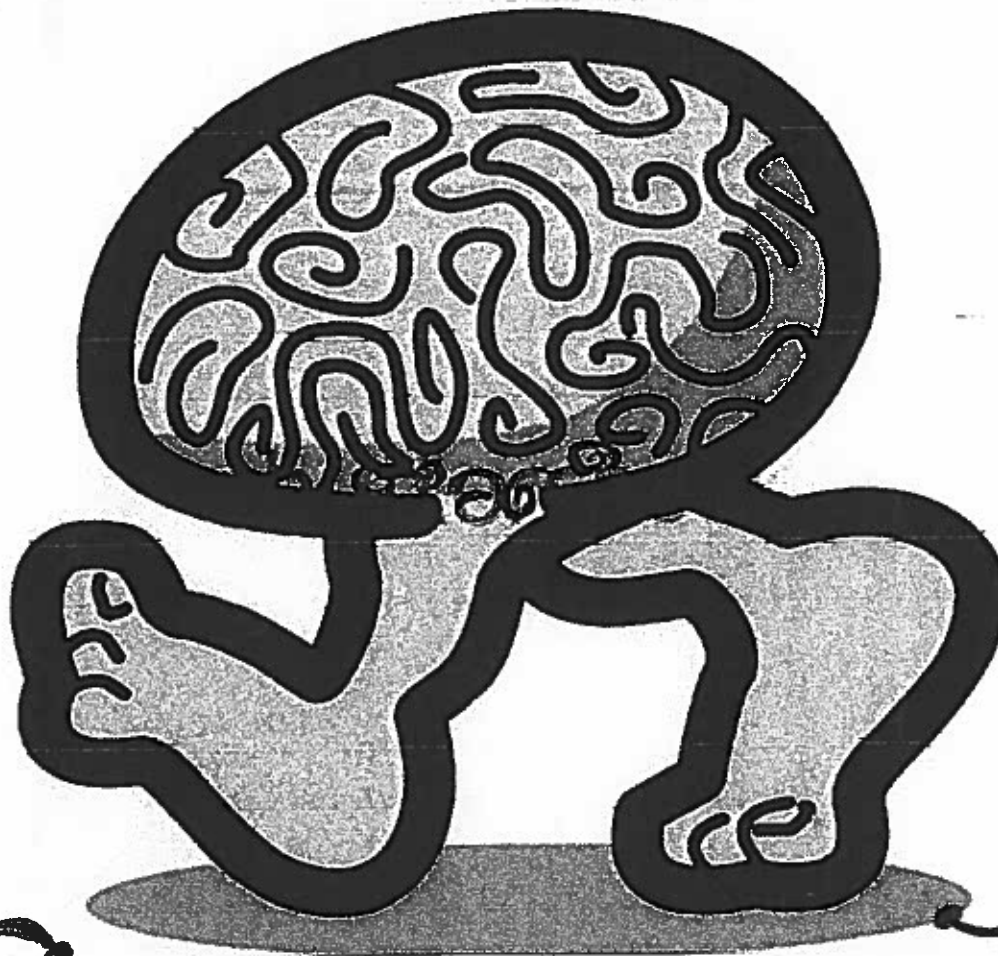


### Across

2. the organ of the body that stores information, controls the body and allows for thinking
3. one half of the brain
4. the process of changing from a child to an adult
5. a small child; clue: During puberty, your brain has not grown this fast since you were a \_\_\_\_\_.
7. another name for a pre-teen or a teenager
10. the control part of the brain; controlling breathing and heartbeat along with things you have learned
11. the pathways for information to be carried through the brain
12. this is what the brain stores
13. the front and top part of the brain which is the most developed part; allows for thinking and planning
14. intense feelings that are affected by chemicals called hormones

### Down

1. another name for the thin layer of tissue that surrounds the cortex of the brain
3. emotional center of the brain; blame this part of the brain if you are in a bad mood!
6. the outer coating of the cerebrum and the cerebellum where most of the information processing of the brain takes place
8. this part of the brain is in charge of forming memories, (especially music memories), taste and touch
9. this may be affected as your teen brain is growing and changing; things teens do like driving too fast may be an example of poor \_\_\_\_\_



### Jog though the Brain

Think tank, storage bank, leveler of mood

Connoisseur of tasting.. matchmaker of food

Ponders risky behaviors , consciously locking them on hold

Interrupts "Invincible"... minimizes "bold"

Pumps adrenaline , beats the heart, helps you pass a test

More active when you're sleeping so it hardly ever rests

Neurons firing , navigating pathways till they're set

Choices analyzed as dreams and goals are met

A powerhouse of energy, surprisingly feels no pain

"Director of Adolescence" ... your amazing BRAIN!

By Beeny Finkelstein