

# **The Brain and Cognition**



**Cognitive Abilities  
and  
Intervention Strategies  
(CAIS)  
Educational Series  
Session 1**

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# Brain Changes and Cognitive Abilities

- **Brain changes cause changes in cognitive abilities**
- Cognitive abilities include ability to **think, understand & remember**
- Each person has unique set of cognitive **strengths** and weaknesses (or **needs**)
- In dementia most cognitive abilities get weaker over time

# Dementia and Cognitive Abilities

- A person goes through **stages** of dementia as the brain changes increase and spread across the brain
- As each part of brain is affected by brain changes, the cognitive abilities associated with that part **get weaker**
- The abilities associated with parts already affected **continue to get weaker** and weaker

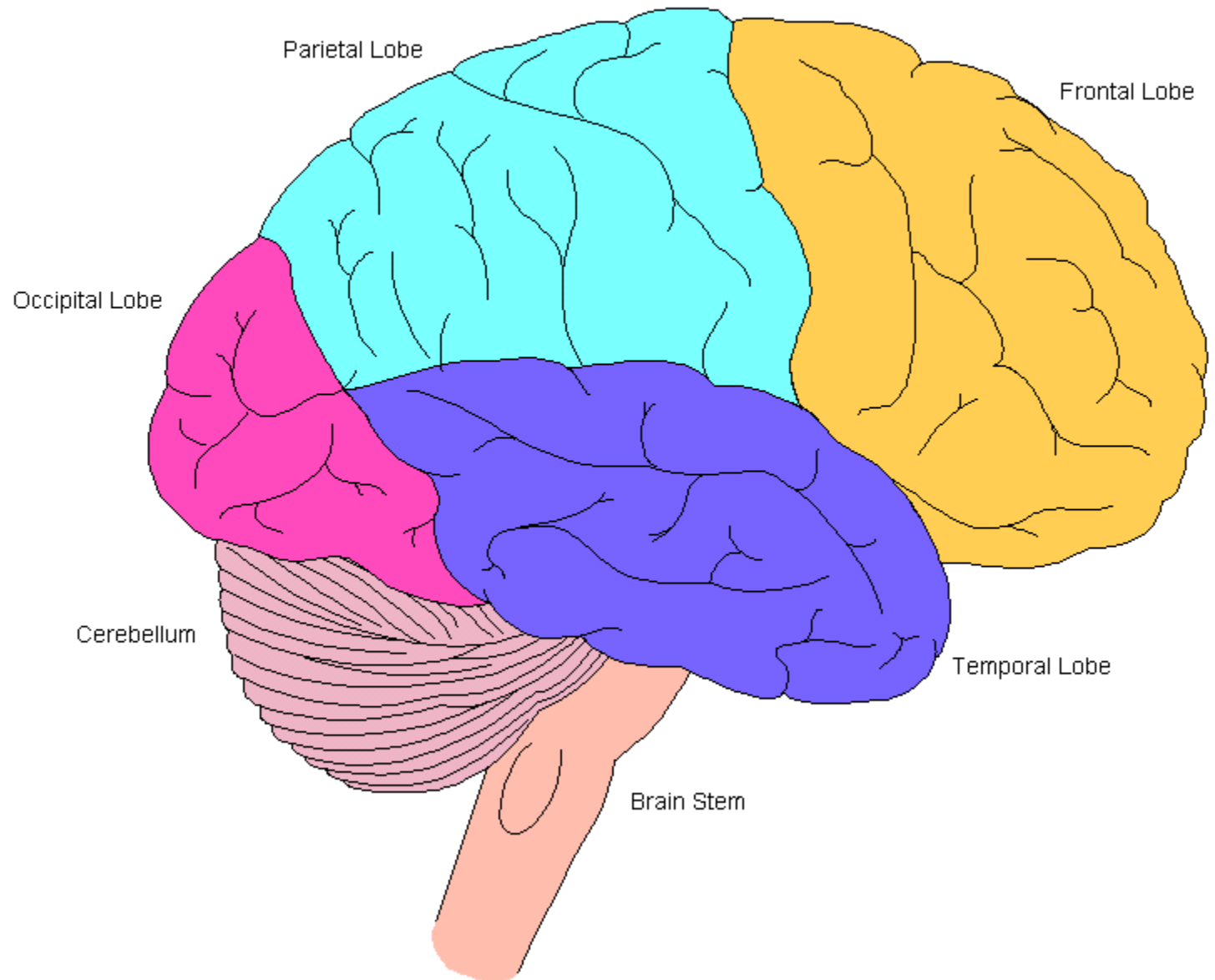
# Causes of Dementia

- The **most common** cause of dementia is **Alzheimer's Disease**
- Some other causes are:
  - **Dementia with Lewy Bodies**  
(abnormalities within the brain cells)
  - **Frontotemporal Dementia** (frontal & temporal lobes affected)
  - **Vascular dementia** (small strokes or changes in blood supply to the brain)

# Brain Changes Cause Behavior Changes

- **Brain changes cause cognitive** changes in a person's ability to think, understand, and respond
- The **cognitive** changes may **cause distress** and **behavior** that is upsetting
- **Behavior changes result from brain changes and cognitive changes, not from stubbornness, manipulation, “meanness” or “corneriness”**

## Right Hemisphere of the Brain



# Hippocampus

The hippocampus helps you **remember** recent events, such as:

- What you just said
- What you had for lunch
- That your daughter just visited

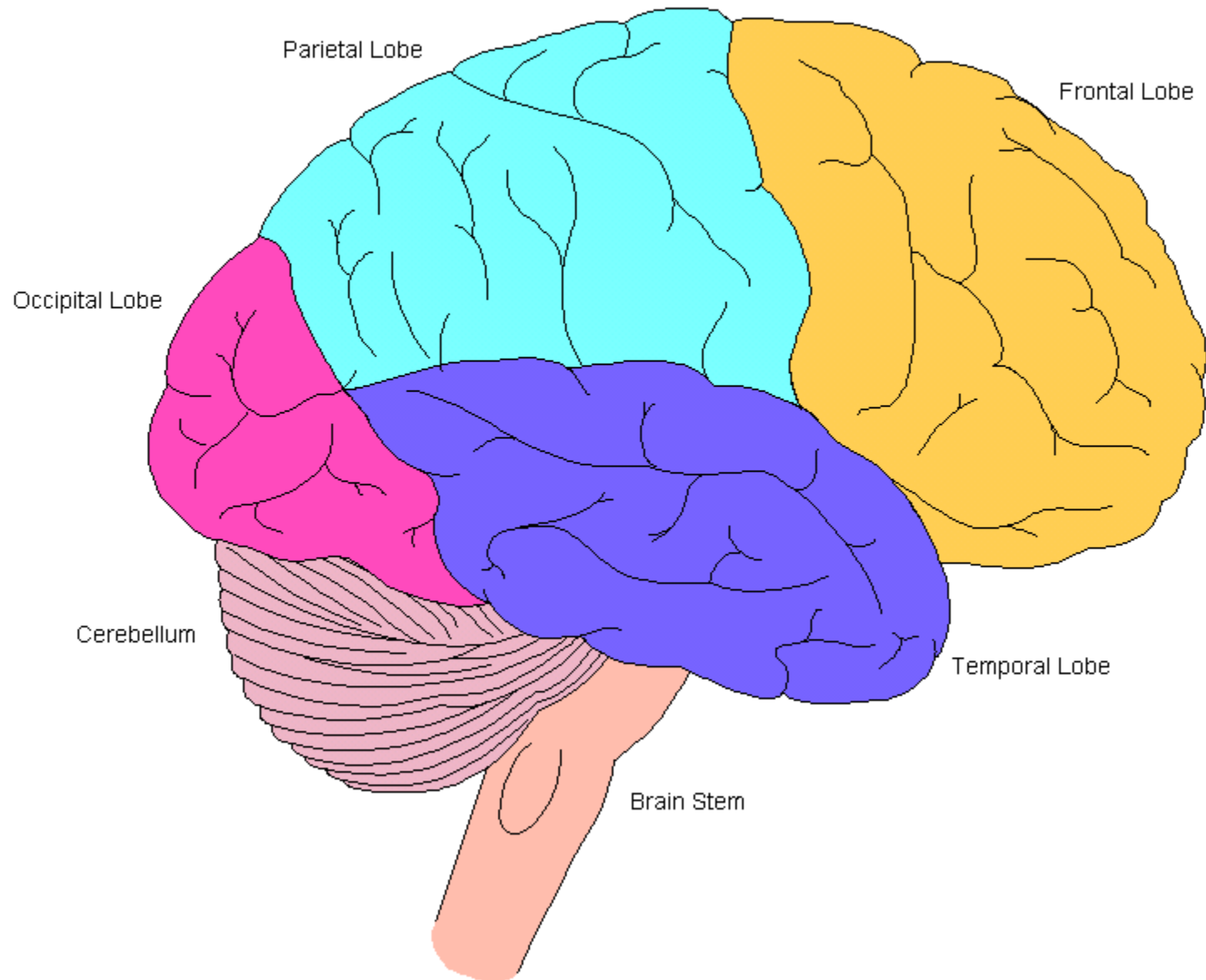


# When your Hippocampus changes you may

- **Repeat** a question or concern
- Forget something someone just said
- Forget that your daughter just visited
- Be **surprised and angry** when someone begins to take off your clothes, because you forgot you just agreed to take a shower



## Right Hemisphere of the Brain



# Left Temporal Lobe



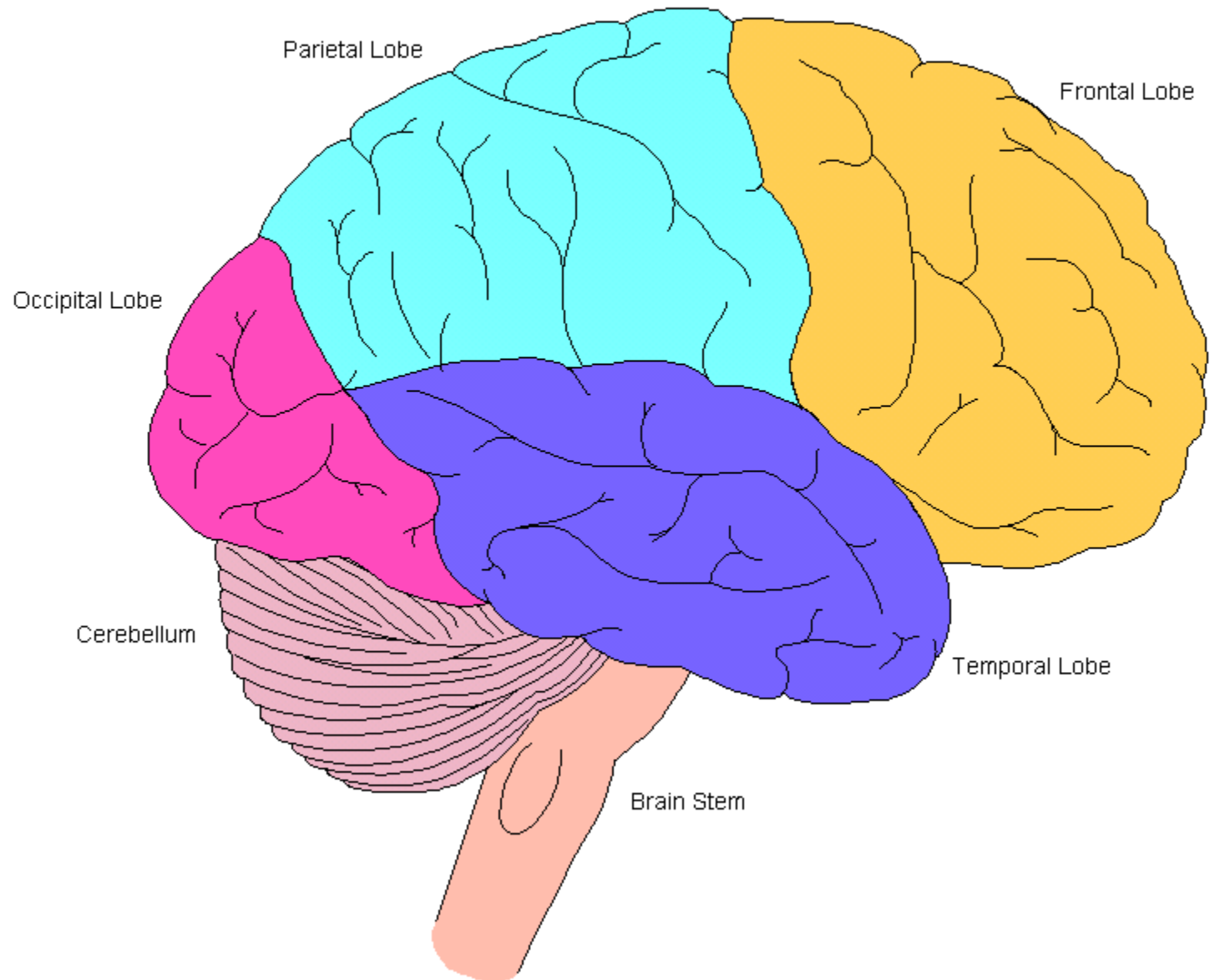
The left temporal lobe helps you:

- **Understand language**
- **Speak**

# When your Left Temporal Lobe changes you may

- Make nonsense sounds
- Use the wrong words
- Substitute a similar word/ use fewer words
- Say “yes” when you mean “no”
- Not understand what someone tells you
- Use swear words without realizing it
- Take longer to understand and respond

## Right Hemisphere of the Brain



# Right Parietal Lobe

- Helps you **locate** and arrange **objects** in space
- Tells your brain to **notice** everything in your visual field (i.e., everything in the space you see)



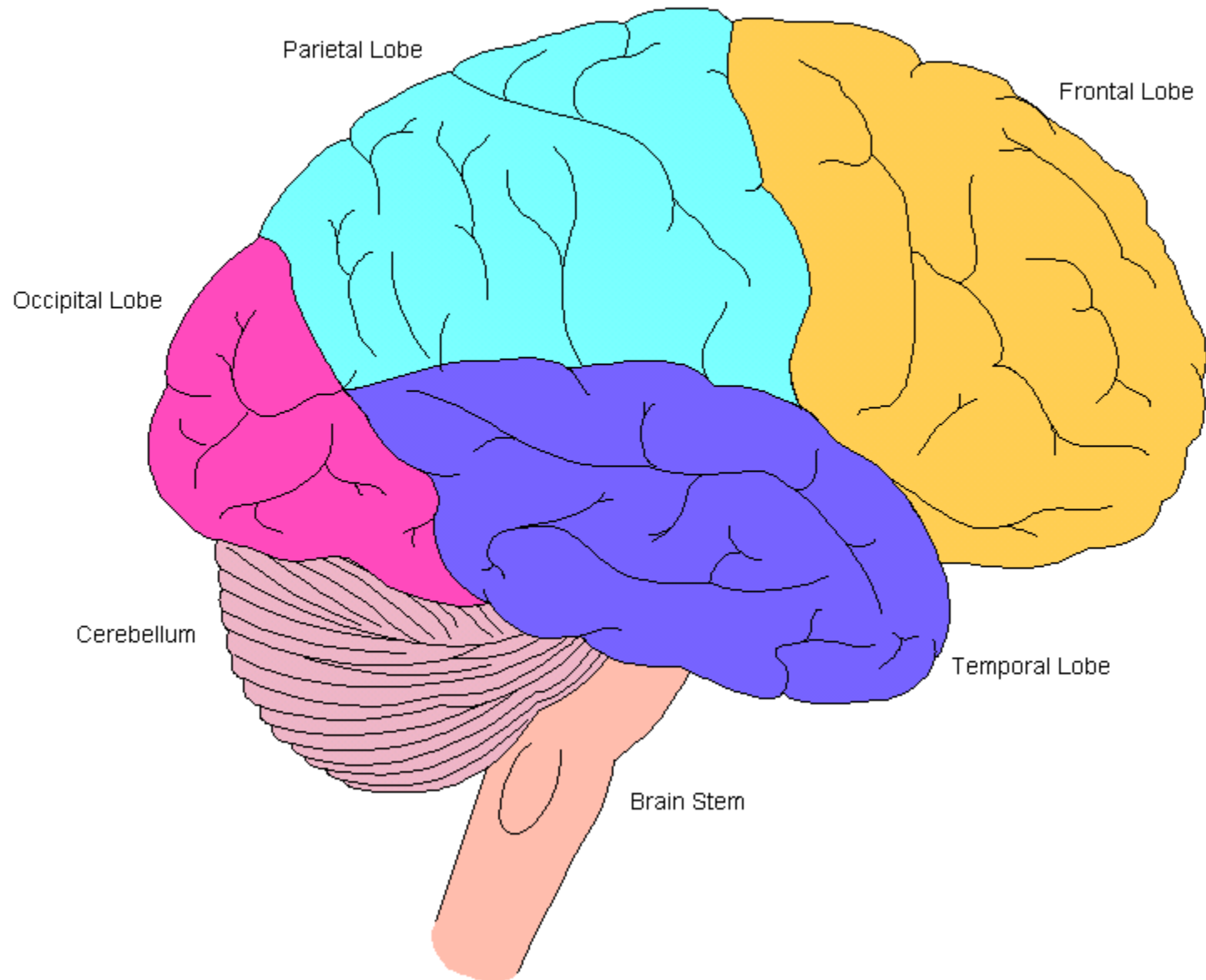
# When your Right Parietal Lobe changes you may

- Use excessive **energy** to put your arm into the armhole of a shirt
- Put a glass down on the edge of a plate, rather than beyond it
- Have difficulty responding to stimuli in the left part of your visual field
- Have difficulty tolerating **clutter**, **many objects**, and **movement** in the environment

# You May Also

- Feel angry, frustrated, or fatigued from the **confusing stimuli** in the environment
- Respond better when someone **approaches** from the **right** (or **front** if there is **dementia**)
- **Resist** stepping into a tub or shower because you don't know:
  - The height of the side of the tub or edge of the shower
  - Where your feet or hands should go
  - How deep the water is

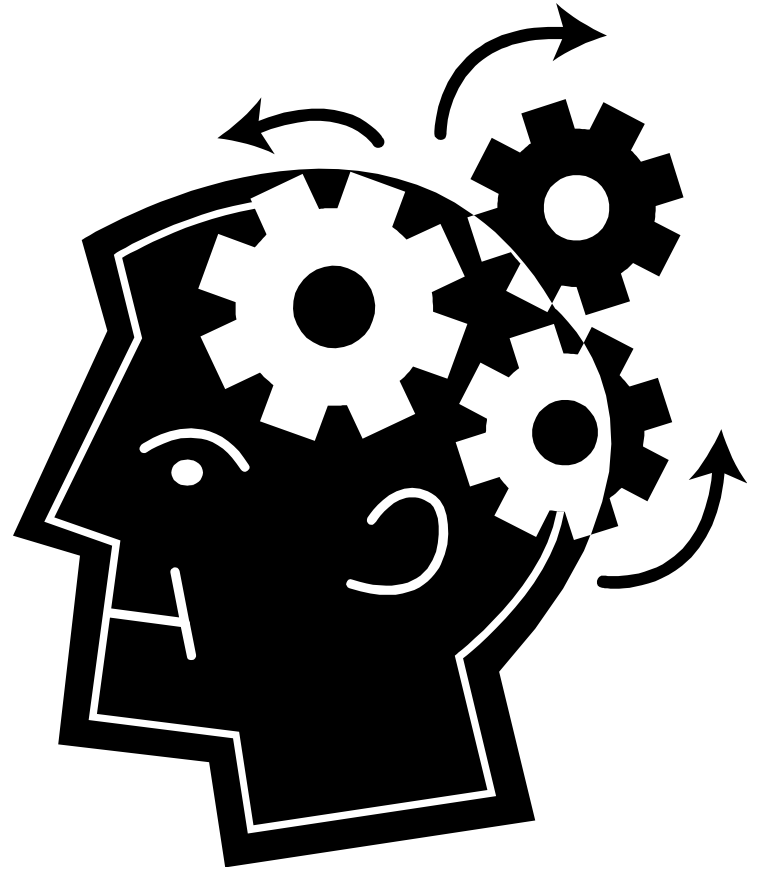
## Right Hemisphere of the Brain





# The Frontal Lobe Helps You

- Do more than one thing at once
- **Prioritize** what to focus on
- Sense how much **time** is passing



# The Frontal Lobe Also Helps You

- Switch your **attention** from one idea or task to another
- Know when a **task is done**
- Keep **focused** on a task until it's done
- **Control impulsive** responses to thoughts and desires
- Identify the **order** of steps for a task

# When your Frontal Lobe changes you may

- Have **difficulty focusing** on a task, object, event, or someone speaking
- Be **overwhelmed** when someone moves, talks, gestures at the same time
- Have difficulty following the logic of an argument
- Need the most **important words** said **first** in a sentence

# You May Also

- Need **short simple** words and sentences
- **Refuse** a bath because you can't think of how to do it
- Leave a shower before you're done because you think you've been there long enough
- Be **unable to stop** from striking or grabbing someone because you can't control impulses or switch gears quickly

# Brain Changes Cause Distress

- Changes in the brain and cognitive abilities can cause confusion and misunderstanding which can lead to distress
- Factors that can make it harder or easier for a person and so increase or reduce distress:
  - Their **cognitive**, emotional, or physical condition
  - What's happening in the **environment** around them
  - How we **communicate** with them
  - How we **organize** a particular **task**

# Four Factors to Examine

To help a person in general or during a task, examine:

- **Person**
- **Environment**
- **Communication**
- **Task**

# Help based on Understanding

- We need to understand how each of the **four factors** is making communication or a task easier or harder for this **person**
- Once we see where the strengths and needs are, we know what to change in:
  - The **environment**
  - Our **communication** strategies
  - The **task** itself

# Help Cognitive Abilities

- Because of changes in the brain and cognitive abilities, a person needs us and the environment to **address their cognitive needs and strengths**
- The more we know about this person's cognitive needs and strengths, the more we will **know how to help**