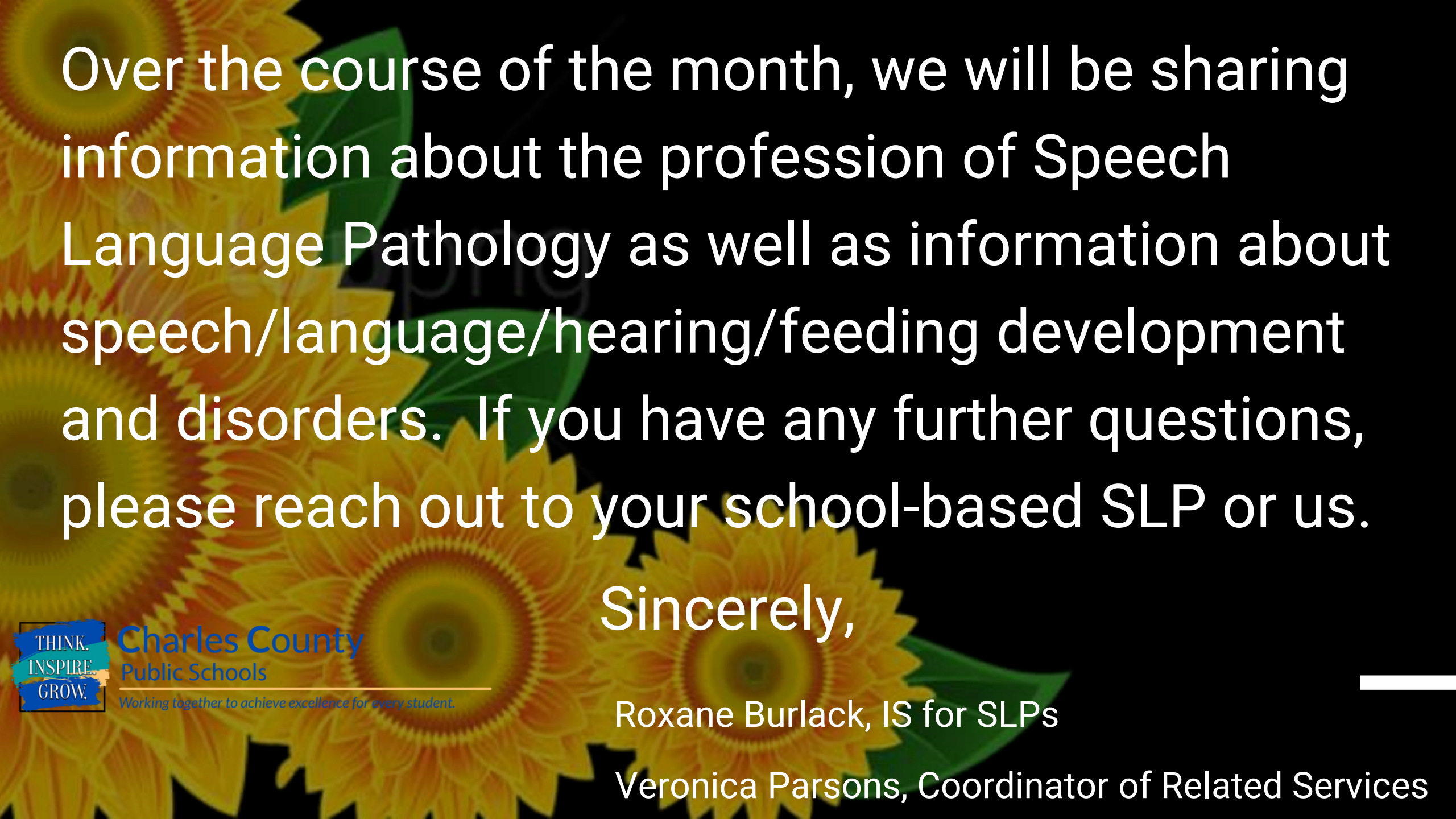


BETTER HEARING AND SPEECH MONTH



Charles County
Public Schools

Working together to achieve excellence for every student.



Over the course of the month, we will be sharing information about the profession of Speech Language Pathology as well as information about speech/language/hearing/feeding development and disorders. If you have any further questions, please reach out to your school-based SLP or us.

Sincerely,

Roxane Burlack, IS for SLPs

Veronica Parsons, Coordinator of Related Services



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The Brain of a Speech Language Pathologist

Expert Multitaskers:

Listening to one student's /r/ while recording data, giving another child the "sit on your bottom" look, and restarting the app on the Ipad for another all at the same time.

Planning Savant:

Can plan therapy for 60 kids who can't miss anything during the school day, IEP meetings around at least four individual's varying schedules, and therapy groups where five different kids have at least twenty different goals between them.

Word Nerd

Diadochokinesis anyone? How about reading and writing words using *fənétkiks*? Apples to Apples or BuzzWord, anyone?

Nurturing Specialists:

Every child is told "Good job!" and "I like the way you did that!" with a hug or high-five added in to make sure they know how special they are.

Creative Genius:

Glue, pics from the Super Duper Jumbo Artic Book, and anything that can be cut, colored, or covered in glitter becomes a therapy activity AND homework for carryover.

"Our Gears Are Always Turning!"

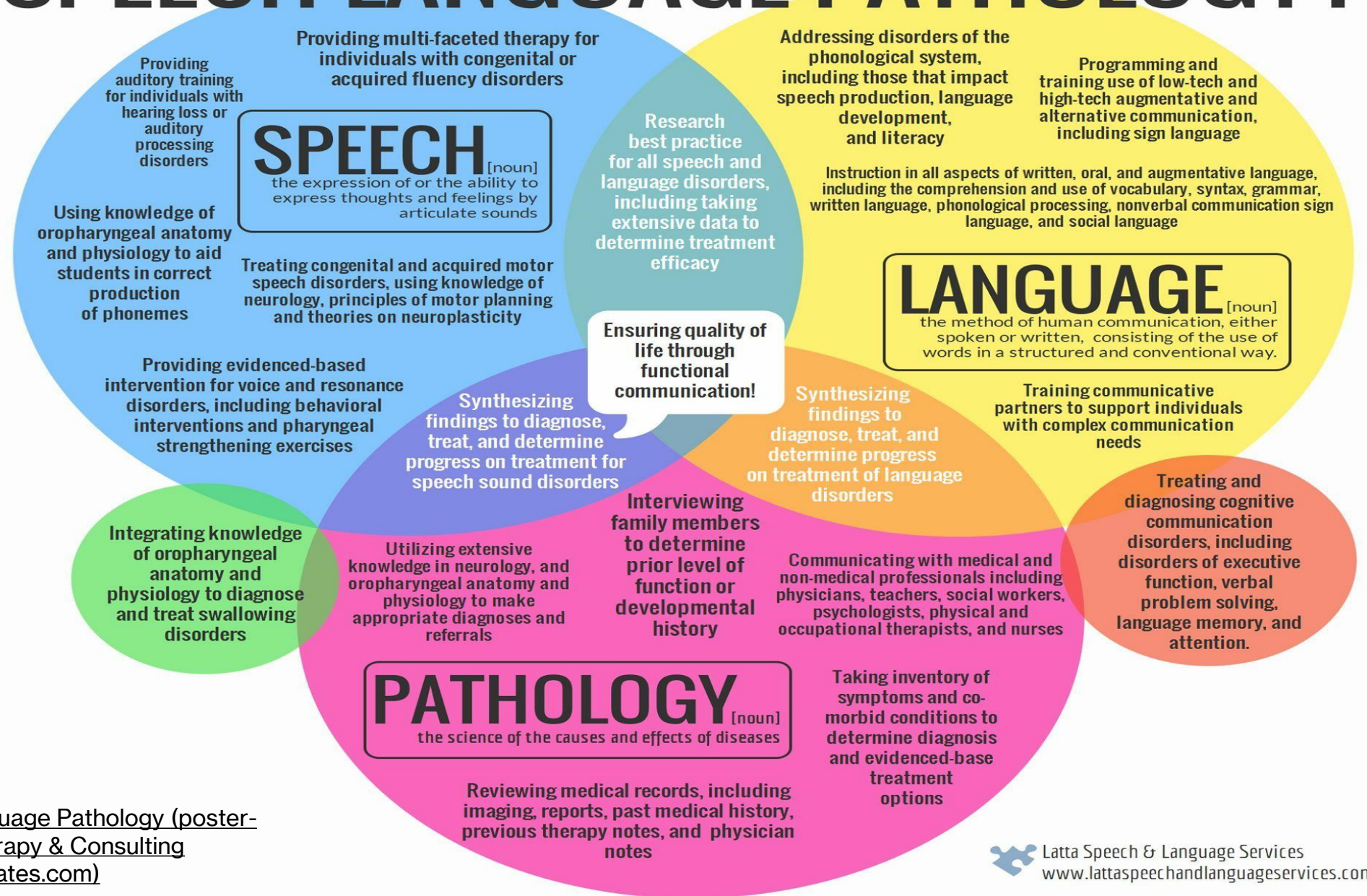
**Telepractice:
Providing
Speech-
Language
Pathology
Services at a
Distance**



DID YOU KNOW...

- ❖ Expressive vocabulary delays at 24 months of age increase children's risk for later speech/language services. (Morgan et al., 2016)
- ❖ Between 40% and 50% of children receiving services through the Individuals with Disabilities Education Act's Early Intervention or Early Childhood Special Education (EI/ECSE) programs do so because of speech and/or language impairments (Hebbeler et al., 2007; Scarborough, Hebbeler, & Spiker, 2006).
- ❖ Children with speech and/or language impairments typically display lower reading, mathematics, and behavioral functioning at both the start of kindergarten and throughout elementary school (Harrison, McLeod, Berthelsen, & Walker, 2009; McCormack, Harrison, McLeod, & McAllister, 2011; Morgan, Farkas, Hillemeier, & Maczuga, 2012).

What is SPEECH LANGUAGE PATHOLOGY?



What is Speech-Language Pathology (poster-sized) – Bi-Sky Therapy & Consulting
(biskytherrapieservices.com)

DID YOU KNOW...

- ❖ Speech and/or language impairments increase children's risk of later being diagnosed as having reading (Catts, Fey, Tomlin, & Zhang, 2002) and behavioral disabilities (Yew & O'Kearney, 2013).
- ❖ Early intervention enhances the development of children at biological risk for developmental delay (Resnick et al. 1987).
- ❖ The prevalence of speech sound disorders in young children is 8 to 9 %. By the first grade, roughly 5 percent of children have noticeable speech disorders; the majority of these speech disorders have no known cause. (NIDCD, 2015)
- ❖ Research suggests that the first 6 months of life are the most crucial to a child's development of language skills. For a person to become fully competent in any language, exposure must begin as early as possible, preferably before school age. (NIDCD, 2015)

Language in brain

What happens in brain when you

- read?
- listen to speech?
- speak?

Which brain regions are activated?
In which order and how quickly?
Which areas are connected?

Reading text

'SNOW'
↓
feature analysis
↓
individual letters
↓
whole word
↓
meaning
↓
sound form

Understanding speech

'S-N-O-W'
↓
acoustic analysis of sound waves
↓
recognition of speech sounds
↓
recognition of word form
↓
meaning

Simplified model of language processing in brain

When you read, listen to speech, or speak, a network of thousands of neurons is activated in your brain. This figure gives an overview of brain regions that have been suggested to participate in various stages of language processing.

Feature analysis
(visual cortex)

Analysis of
letter strings

Meaning

Selection of
sound form

Articulation of speech
sounds (motor cortex)

Time after seeing/
hearing a word
0,1 s

0,15 s

0,4 s

0,7 s

1 s

left

right



Analysis of speech sounds
(auditory cortex)

Here is a combination of regions that different brain imaging methods have suggested to participate in analysis of meaning of words.

More info:

in Finnish

Hämäläinen, Laine,
Aaltanen ja Revonsuo
(toim.), 2006:
Mieli ja aivot

in English

Indefrey ja Levelt,
Cognition, 2004
Salmelin, Clinical
Neurophysiology, 2007

DID YOU KNOW...

- ❖ In typically developing fetuses, the auditory system is fully functional at 25 weeks' gestation. In other words, your developing baby can hear you in utero at 25 weeks. This means that your unborn baby has 20 weeks of auditory stimulation to mother's voice prior to being born (if born full term). (Flexer, 2016)
- ❖ 92% of children with permanent hearing loss are born to two hearing parents. (Mitchell & Karchmer, 2004)
- ❖ If a child wears hearing aids for only 4 hours/day for one year, it will take him/her SIX years to catch up to equal the amount of time a child with normal hearing hears in one year. (Flexer, 2016)
- ❖ The 6-year-old child typically has a 2,600 word expressive vocabulary (words he or she says), and a receptive vocabulary (words he or she understands) of 20,000–24,000 words. (asha.org)
- ❖ It is estimated that more than 3 million Americans stutter. Stuttering affects individuals of all ages but occurs most frequently in young children between the ages of 2 and 6 who are developing language. Boys are 3 times more likely to stutter than girls. Most children, however, outgrow their stuttering, and it is estimated that fewer than 1 percent of adults stutter.(NIDCD, 2016)

Communication Difficulties can arise from problems with...

Cognition

Attention
Orientation
Memory
Organization
Reasoning
Judgment
Executive Functions

Communication

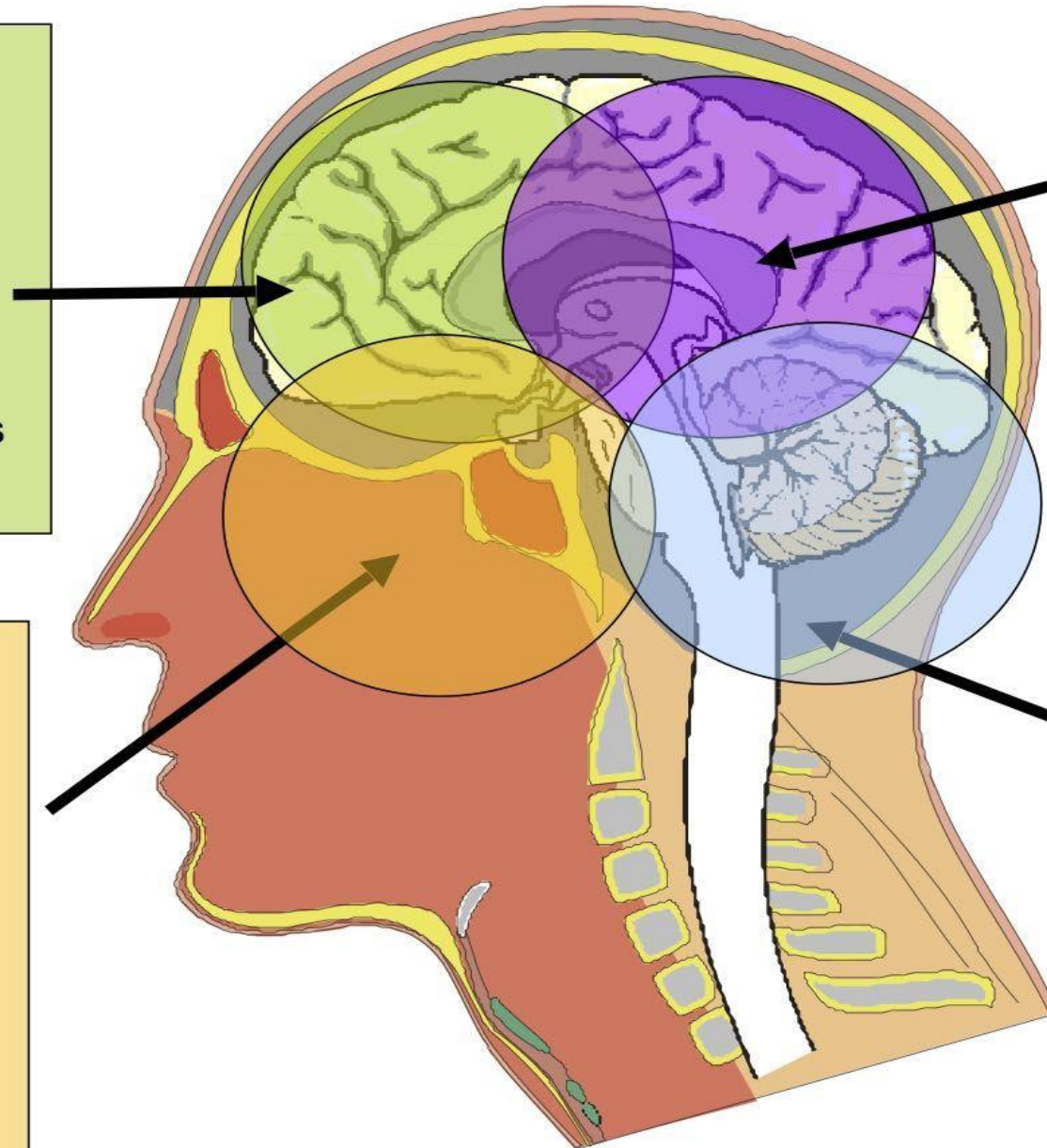
Understanding
Speaking
Reading
Writing
Conversation
Social Interaction

Emotional Control & Self Regulation

Initiation (starting)
Inhibition (stopping)
Anger control
Stress
Anxiety
Confidence

Physical

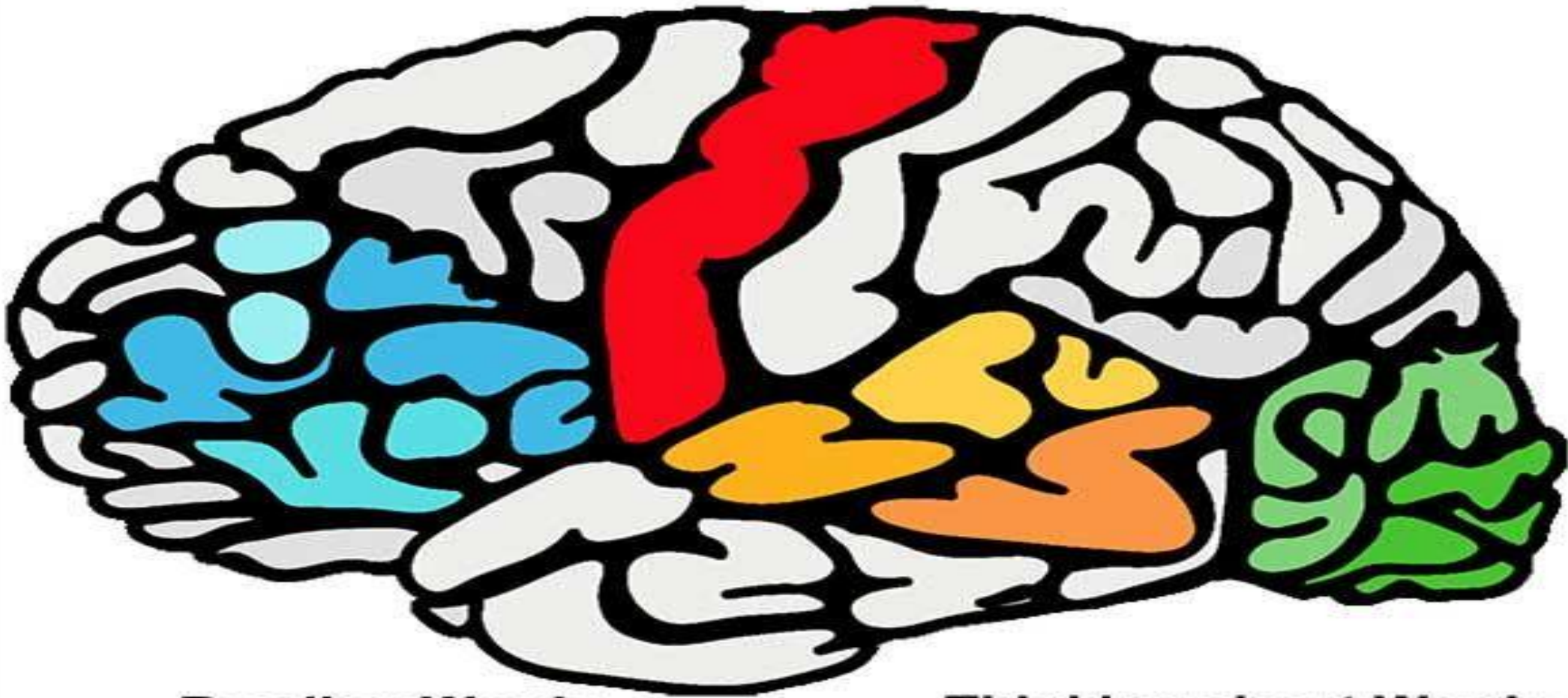
Muscle Control
Speech
Voice
Stuttering



DID YOU KNOW...

- ❖ Speech and language impairments are considered a high-incidence disability. Approximately 20% of children receiving special education services are receiving services for speech and language disorders. This estimate does not include children who receive services for speech and language disorders that are secondary to other conditions such as deafness. More than one-half (55.2%) of all 3-, 4-, and 5-year olds with a disability receive speech and language services. (Projectidealonline.org)
- ❖ Children in whom speech and language impairments persist past five and a half years of age have an increased incidence of attention and social difficulties. Children with specific speech and language impairments at seven and a half to 13 years of age have been shown to have impaired writing skills, with marked deficits in spelling and punctuation compared with children without speech and language impairments. (Snowling MJ, Bishop DV, Stothard SE, Chipchase B, Kaplan C., 2006).
- ❖ There are critical developmental transitions that must be negotiated in order for eating to advance properly: gross motor skills, fine motor skills, oral-motor skills, sensory inputs, emotional/cognitive/self-regulatory skills (Erhardt, 2010 & Ross, 2011).
- ❖ There are feeding difficulties identified in 40.6% of all infants born 34-36 weeks: 61% of infants at 34, weeks, 42% of infants at 35 weeks, 35% of infants at 36 weeks, Latching and poor effort predominant concerns.(Feeding FUNdamentals; Medoff-Cooper, et al., 2012)

WORDS AND THE BRAIN



Reading Words
(Occipital Lobe -
Vision)



Thinking about Words
(Broca's Area -
Language production)



Hearing Words
(Wernicke's Area -
Language
Comprehension)



Saying Words
(Motor cortex)



Speech Pathology Career Profile



DID YOU KNOW...

- ❖ Did you know the title Speech-language pathologist does not encompass all that we do? Some therapists also work with children with feeding and swallowing difficulties.
- ❖ The smallest bones in the body are the auditory ossicles, located in the middle ear: the incus, the malleus, and the stapes (also called the anvil, hammer, and stirrup). (innerbody.com)
- ❖ The inner ear (cochlea) is no larger than a pencil eraser or a pea in circumference. If you were to unroll an average cochlea, it would end up being a tube about 31.5mm long. (medel.com)
- ❖ You do not need to clean wax out of your ears unless you have an abnormal condition. Ears push excess wax out as needed. (healthyhearing.org)
- ❖ The majority of individuals who have hearing loss are under the age of 65. (hearingaids.com)
- ❖ There are over 20,000 nerve/hair cells in the average cochlea; damage to these nerve/hair cells cause hearing loss. (ncbi.nlm.nih.gov/books)

SLP

