

# Sensory Regulation Strategies



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Recognizing sensory dysregulation  
and strategies to help

# PRESENTERS:

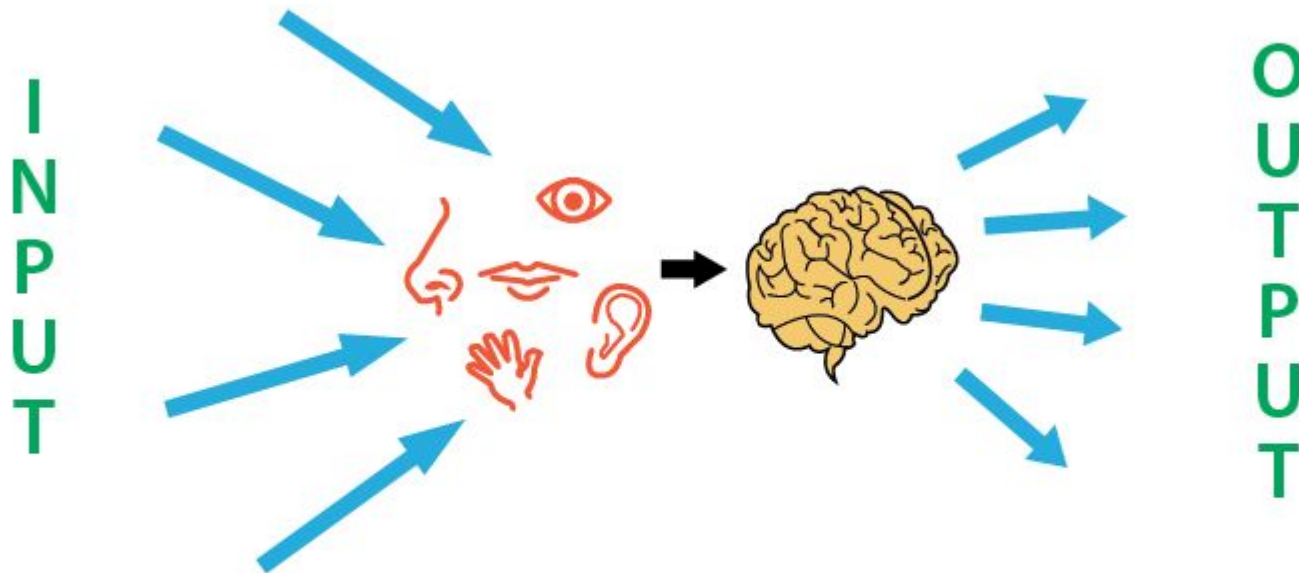
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- Renee Gorth, OTR/L
- Dovichilyn Santiago, OTR/L
- Jenna Bender, OTR/L

# WHAT IS SENSORY PROCESSING?

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**Sensory Processing is the ability to take information from the environment through various sensory systems (touch, movement, sound, taste, smell, vision, and joints) then filter the information and use the information effectively to interact with one's environment.**



# AN OVERVIEW OF THE SENSES

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- Tactile
- Auditory
- Olfactory
- Gustatory
- Visual
- Proprioceptive
- Vestibular



# Symptoms of Processing Difficulties: Definitions

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## **Hyposensitivity:**

This is sensory under-responsiveness, meaning **decreased sensitivity** to sensory input.

Students who are hyposensitive may **seek** sensory input since they have a harder time stimulating their senses.

## **Hypersensitivity:**

This is sensory over-responsiveness, meaning **increased sensitivity** to sensory input.

Students who are hypersensitive may **avoid** certain types of input because it can feel overwhelming.

# Cup Analogy

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# TACTILE (touch)

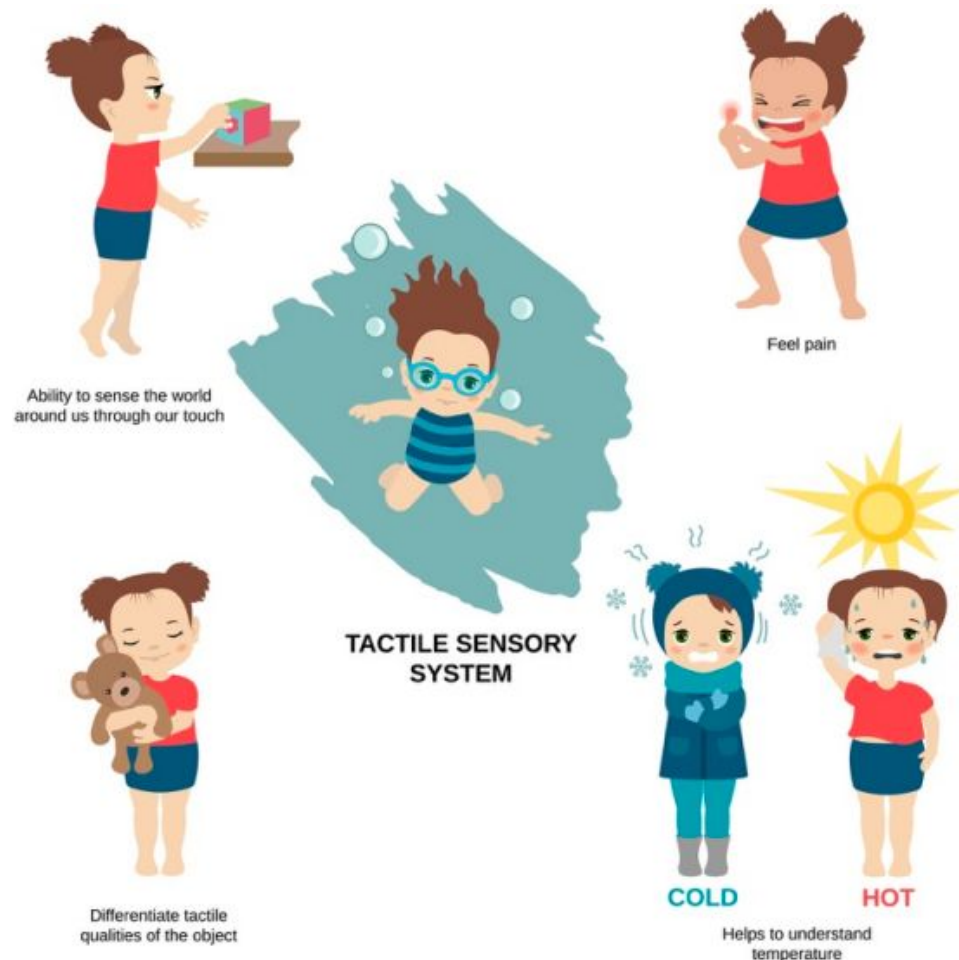
## Location

**Skin-** the density of the cell distribution varies throughout our body. The areas that have the greatest density include the mouth and hands.

## Function

Provides information about our environment and qualities of objects (touch, pressure, texture, hard, soft, sharp, dull, heat, cold, pain).

-deep pressure touch (calming) vs light touch (alerting)

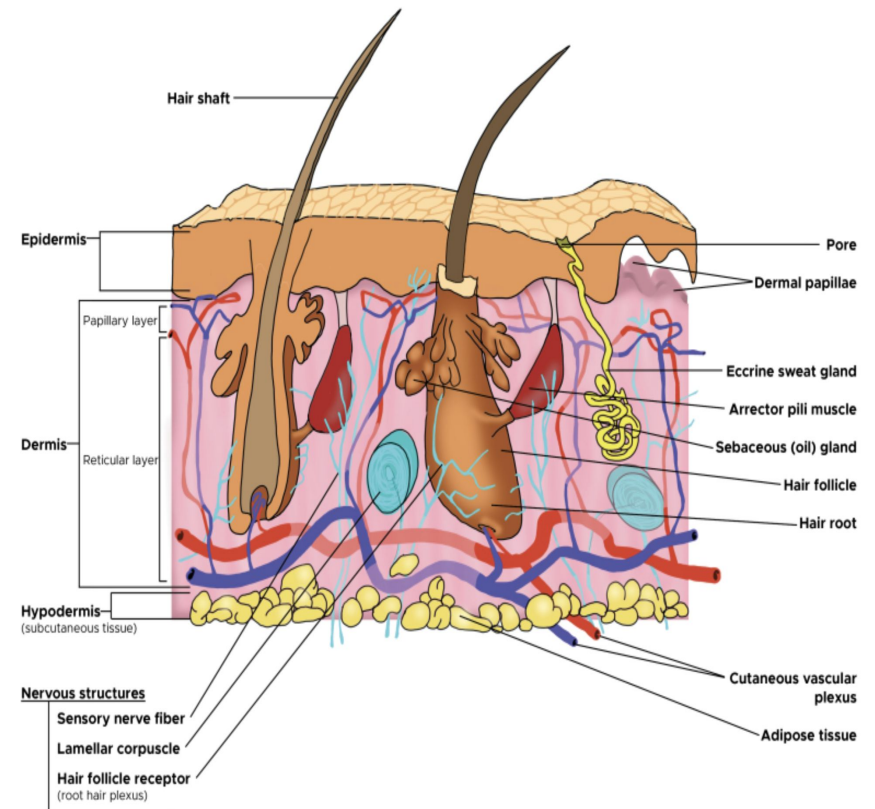
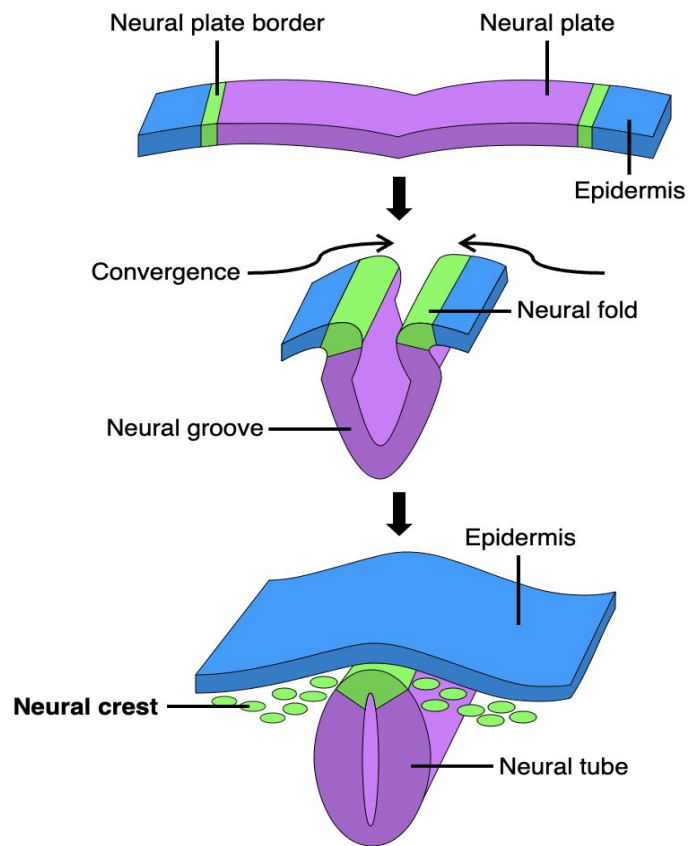


# Fun Facts about the Skin (Yousef, 2022)

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- The skin is the largest organ in the body
- Made up of 3 layers, epidermis, dermis, hypodermis which vary SIGNIFICANTLY in their anatomy and function
- It regulates temperature and the amount of water that is released into the environment
- The body's initial barrier to UV light, pathogens, chemicals, and mechanical injury

# Development of the skin is closely related to the nervous system (Larson, 2011)



# Symptoms of Processing Difficulties: Tactile System

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## **Hyposensitivity:**

Children who are hyposensitive may:

- appear to not notice things that touch them
- not notice things such as food on their faces
- have a high pain tolerance
- excessively touch objects in the environment.
- “seek” out tactile input.
- typically enjoy messy play

## **Hypersensitivity:**

Children who are hypersensitive may:

- withdraw from touch
- avoid getting their hands messy
- be bothered by the feel of certain textures, such as clothing.
- refuse to wear certain types of clothing.
- irritated by tags or seams on their clothing

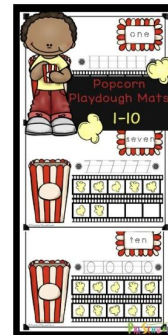
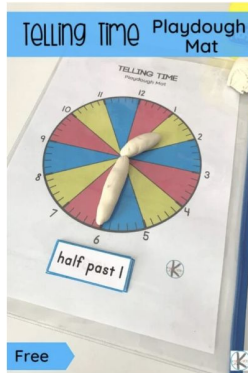
# Interventions for Tactile System

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- Fidgets
- Explore different textures
  - Wet - shaving cream, lotion, glue, paint
  - Dry - beans, rice, sand, pasta, marbles, cottonballs
  - Squishy, sticky, bumpy, fuzzy items
  - Playdoh or putty
  - Sand paper
  - Use of massager
- Clothing textures
  - Smooth, soft, stretchy, loose, snug
  - Tagless or seamless

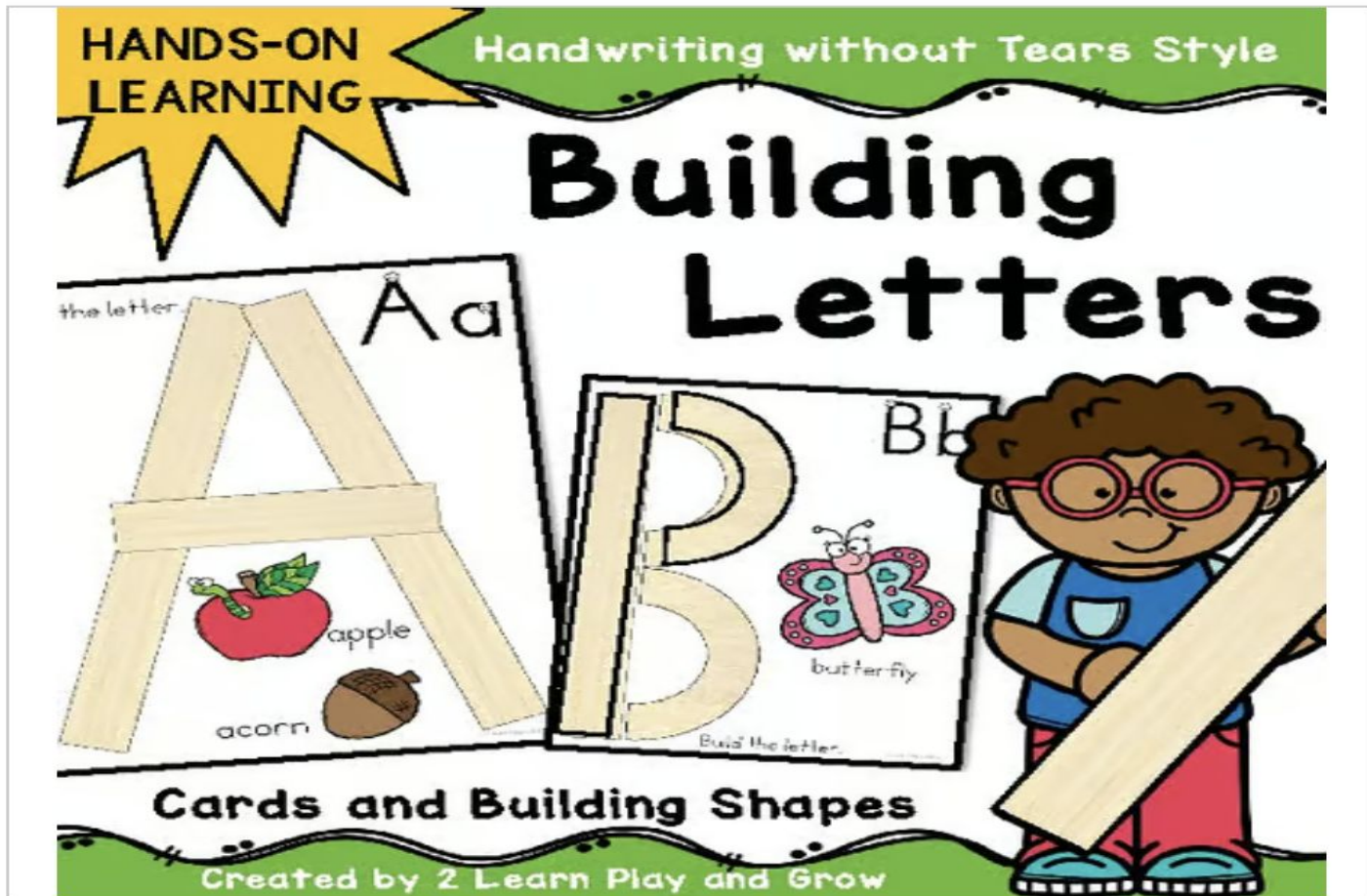


# Mats for Playdoh and Tactile Materials



# Sand Paper and Textured Material Cut Out Templates

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# AUDITORY (sound)

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## Location

Inner Ear- stimulated by air/sound waves.

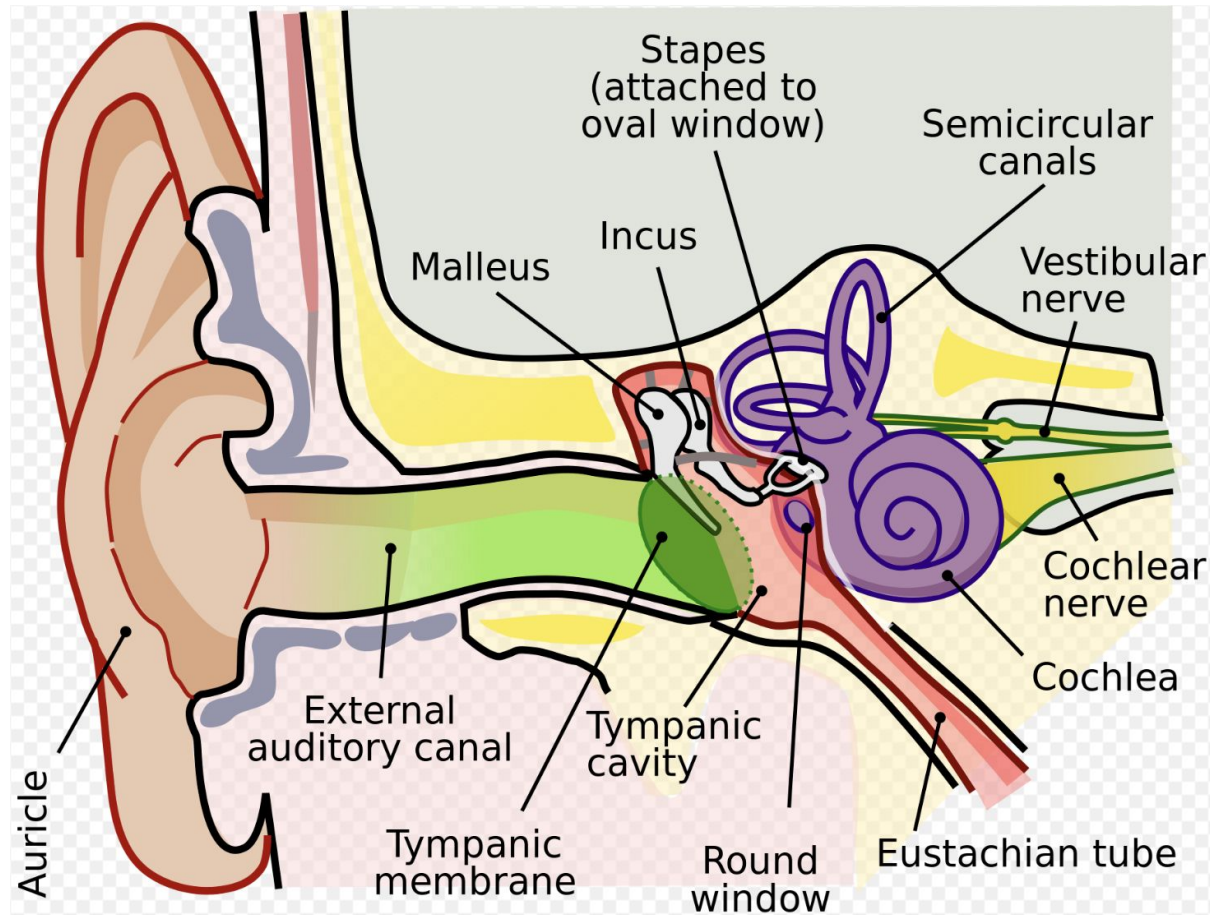
## Function

This system provides information about sounds in the environment (loud, soft, high, low, near, far).



# Anatomy of the Auditory System

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# Symptoms of Processing Difficulties: Auditory System

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## **Hyposensitivity:**

Children who are hyposensitive may:

- seek out noises.
- make noises themselves or enjoy loud music
- appear to be hard-of-hearing
- appear to be ignoring the person who is speaking

## **Hypersensitivity:**

Children who are hypersensitive may:

- have difficulty filtering out the sounds in the environment
- hear environmental noises that others are able to ignore
- be easily overwhelmed and “shut down” in an effort to filter out the noise
- also appear to be hard-of-hearing or to be ignoring the person who is speaking
- very easily distracted and have difficulty paying attention to appropriate sounds

# Interventions for Auditory System

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- Quiet Corner to relax
- Simplify language
  - One-step directions
  - Talk slowly
  - Short phrases
- Give a warning for bells, announcements, or transitions.
- Headphones/earplugs to muffle the sound
- Music or countdown transitions



# OLFACTORY (smell)

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## Location

Chemical receptors in the nasal structure- closely associated with the gustatory (taste) system.

## Function

This system provides information about different types of smell (musty, acrid, putrid, flowery, pungent).



OLFACTORY  
SENSORY SYSTEM



Ability to smell  
pleasant and unpleasant odors

# Symptoms of Processing Difficulties: Olfactory

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## **Hyposensitivity:**

Children who are hyposensitive to may:

- demonstrate sensory smell seeking behaviors
- smell many or all of the objects in their environment
- not notice strong smells

## **Hypersensitivity:**

Children who are hypersensitive may:

- become ill with certain smells
- refuse food because of the smell
- smell things that others do not notice
- have difficulty habituating to the smells in the environment
- may try to avoid places that have noxious odors.

# Interventions for Olfactory System

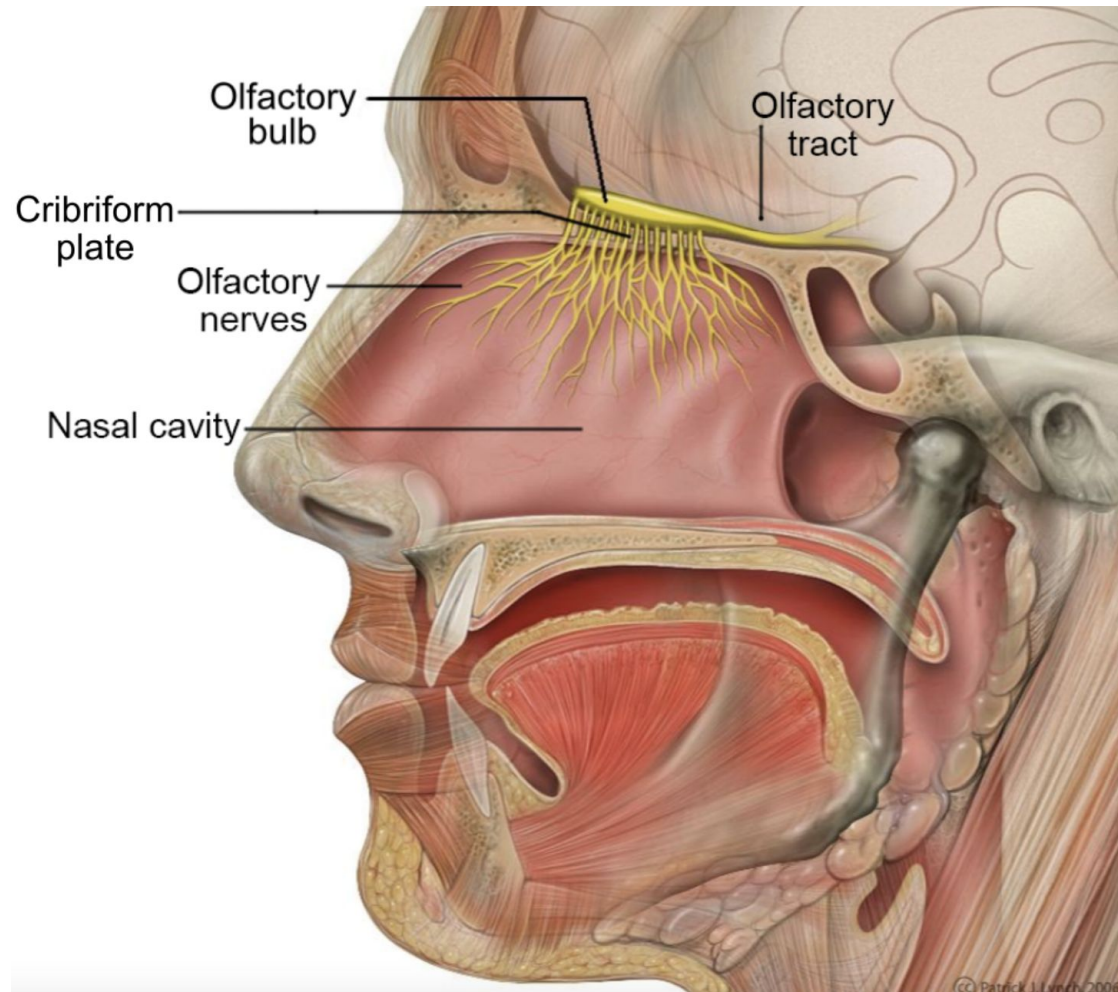
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- Be aware of strong scents in the environment
  - Perfumes, certain food smells, etc.
  - Can be uncomfortable and feel painful
- Scents can affect mood
  - Vanilla, lavender, chamomile, and jasmine scents are calming.
  - Peppermint, menthol, and citrus are alerting.
- Scents can cause strong emotion
  - Be careful experimenting!



# Anatomy of Olfactory System

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# More about Aromatherapy

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The mechanism of their action involves integration of essential oils into a biological signal of the receptor cells in the nose when inhaled. The signal is transmitted to limbic and hypothalamus parts of the brain via olfactory bulb. These signals cause brain to release neuro messengers like serotonin, endorphin *etc.*, to link our nervous and other body systems assuring a desired change and to provide a feeling of relief. Serotonin, endorphin and noradrenalin are released from calming oil, euphoric, and stimulating oil respectively to give expected effect on mind and body

# GUSTATORY (taste)

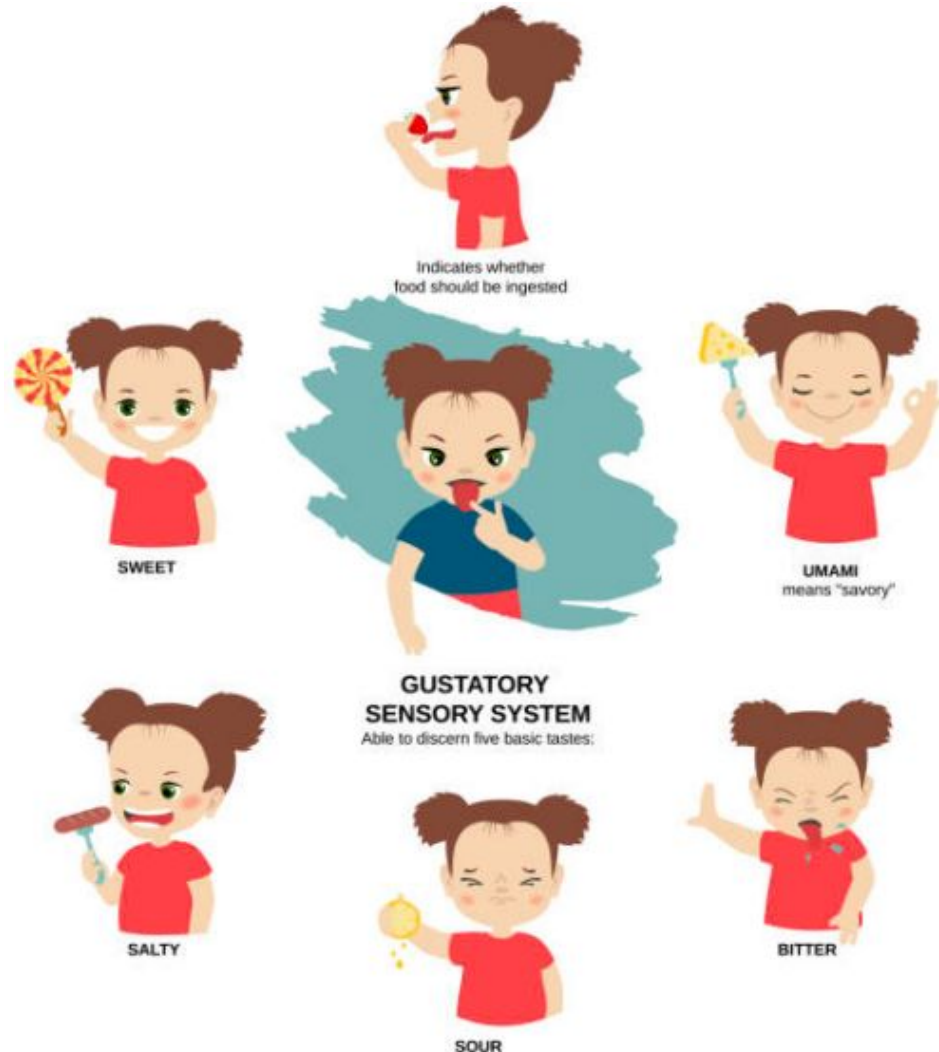
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## Location

Chemical receptors in the tongue- closely associated with the olfactory (smell) system.

## Function

This system provides information about different types of taste (sweet, sour, bitter, salty, spicy).



# Symptoms of Processing Difficulties: Gustatory

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## **Hyposensitivity:**

Children who are hyposensitive may:

- seek sensory input to the mouth
- lick and chew non-food objects
- mouth their hands or objects
- prefer spicy food or other strong flavors

## **Hypersensitivity:**

Children who are hypersensitive may:



- have very restricted food choices and many food aversions.
- prefer bland foods
- avoid certain food textures
- avoid whole food groups
- easily gag when eating

# Interventions for Gustatory System

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- Crunchy or Chewy foods
  - Crackers, pretzels, carrot sticks, apples, etc.
  - Fruit gummies, bubble gum, etc.
- Bold flavors
  - Spicy, sour, etc.
- Suck on sugar free hard candies
- Drink through a straw
  - Thick liquids
  - Crazy straw
- Chewy tubes or necklaces
- Vibrating teething toys/ toothbrushes (home)



Behavior	Sensory Explanation	Sensory Diet Activity
<p>Excessive mouthing and chewing on non-food objects</p>	<p>Decreased proprioceptive processing, especially to the mouth; Decreased tactile discrimination, especially in the mouth</p> 	<p>Use resistive chewy toys that the person can chew on; Use a mini-massager to the mouth area; Use vibrating toothbrush; Provide chewy and crunchy foods; Try using strong flavors such as lemon, peppermint, and cinnamon</p> 

# Look at Home Environment: Oral Sensory

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## Sensory snacks:

Providing chewy snacks such as dried fruit or jerky or fruit leather or crunchy foods such as apple slices, carrot sticks and pretzel sticks for example, are good snack alternatives to provide nutrition and oral motor sensory input.



## Keep your body and brain hydrated:

Keep a water bottle on the desk, cold ice water has an alerting effect whereas warm drinks tend to have a calming effect. Using straw also gives the proprioceptive input to the mouth. Plus, staying hydrated is a must for energy levels and optimal brain and body function.

# Look at Home Environment: Oral Sensory

## Taking deep breaths

supports mental alertness, reduces stress, and promotes calmness: Take deep breaths to oxygenate the brain and promote a calm body. Inhale through the nose for a count of 3 seconds, hold, exhale for 3 seconds. Pretend to smell a flower then blow out an imaginary birthday candle.



# VISUAL (vision)

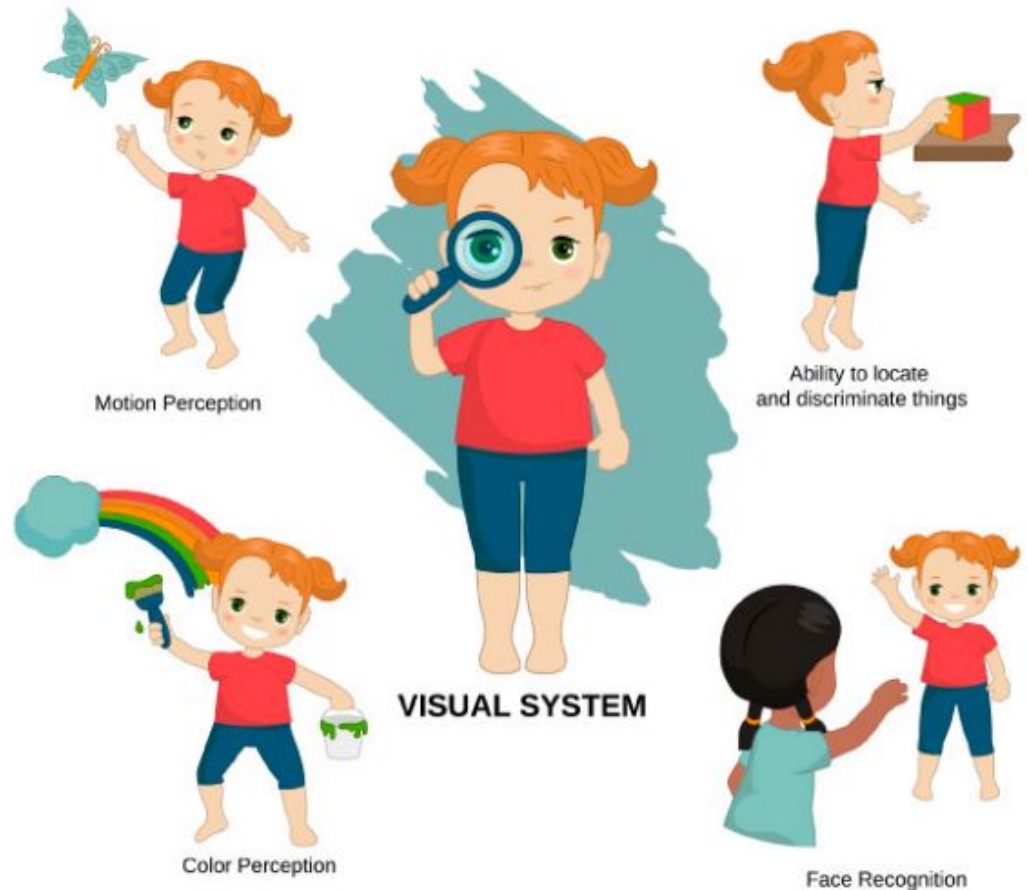
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## Location

Retina of the eye-stimulated by light.

## Function

This system provides information on how we see objects and persons around our environment. It helps us define boundaries as we move through time and space.



# Symptoms of Processing Difficulties: Visual System

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## **Hyposensitivity:**

Children who are hyposensitive may:

- constantly look around the room
- visually inspect objects for an abnormal length of time
- be unusually attracted to bright lights, shiny objects, and things that spin
- appear to have poor attention

## **Hypersensitivity:**

Children who are hypersensitive may:

- have difficulty maintaining visual attention to objects for more than a few seconds.
- be sensitive to light
- appear to have poor attention and poor eye contact
- avoid visual input
- tend to not like bright colors and visually busy pictures or environments

## Why is Visual Perception Important:

- Visual Perceptual Skills are important for many everyday skills such as reading, writing, completing puzzles, cutting, drawing, completing math problems, dressing, finding your sock on the bedroom floor as well as many other skills.
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## Building Blocks necessary to Develop Visual Perception:

- Sensory Processing
- Visual Attention
- Visual Discrimination
- Visual Memory
- Visual Spatial Relations
- Visual Sequential-Memory
- Visual Figure ground
- Visual Form Constancy
- Visual Closure

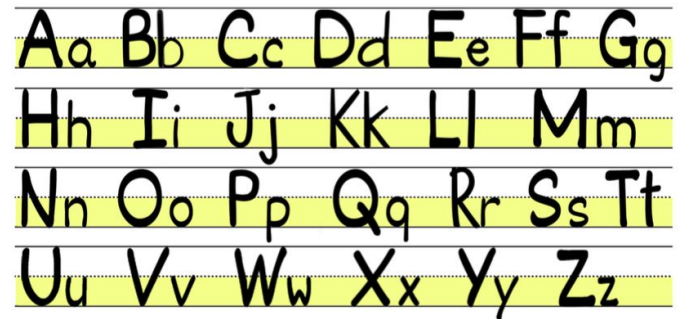
## Activities that can help improve Visual Perception:

- Hidden Pictures
- Picture Drawing
- Dot to dot
- Review own work
- Memory Games (Board games)
- Sensory activities
- Construction type activities
- Flash Cards
- Word Search Puzzles
- Copy 3-D Block Designs



# Interventions for Visual System

- Visually organized and uncluttered space
- Lighting
  - Dim lights are calming
  - Bright lights are alerting
- Slanted surface
  - Better visual angle
- Adapt worksheets
  - Paper with visual cues (highlighted paper)
  - Thicken cutting lines
  - Create tactile border for coloring
- Use sunglasses outside if too bright
- Sensory bottle or other visual toys



# Look at Home Environment: Visual Strategies

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## Limit distractions in the environment:

Position the desk or table facing a blank wall or away from the action.

Reduce clutter to help kids focus by clearing everything off the desk except the essentials needed for classroom work.

## The right lighting for learning:

Experiment with the level of lighting in the room and adjust the brightness level on your child's computer screen to prevent eye strain.



# Look at Home Environment: Visual Strategies

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## **Prevent visual overwhelm:**

Some children become “visually overwhelmed” and may even refuse to start a worksheet if they perceive there’s too much visual information or text presented. Cover up parts of the worksheet not currently being worked on with a sticky note or a blank piece of paper.



# PROPRIOCEPTIVE (body awareness)

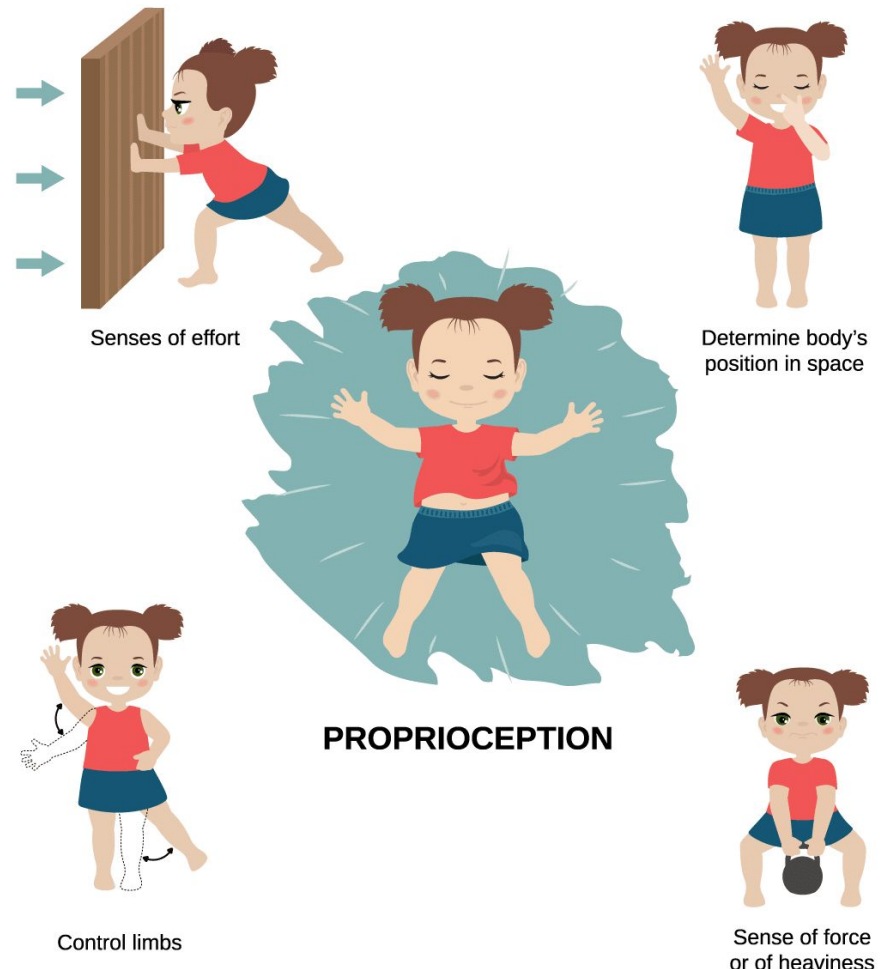
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## Location

Muscles and joints- activated by muscle contractions and movement.

## Function

This system provides information about where a certain body part is and how it is moving.



# Symptoms of Processing Difficulties: Proprioceptive System

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## **Hyposensitivity:**

Children who are hyposensitive may:

- demonstrate seeking behaviors such as hand flapping and hand wringing
- engage in excessive “crashing” and jumping
- seek hugs and squeezes
- have difficulty with motor planning and awareness of body position
- may appear clumsy and have difficulty regulating the amount of force to use in a situation

## **Hypersensitivity:**

Children who are hypersensitive may:

- avoid activities that require physical effort/pressure to the joints
- hold their body in odd positions or use tired, slow, or stiff movements
- proprioceptive input is typically helpful for the nervous system, so it is rare for a child to be hypersensitive to this type of input

# Interventions for Proprioceptive System

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- **Heavy Work**

- Carrying, lifting, passing, pushing, pulling heavy objects

- **Deep Pressure**

- Body squeezes/hugs
- Massage
- Wrap up tight in a blanket
- Weighted blanket
- Pillow squishes
- Compression clothing

- **Gross Motor Activities**

- Climbing on playground structures
- Crawling or animal walks
- Wall or chair push ups
- Jumping on a trampoline or into a big bean bag/pillows
- Riding bike

- **Chores**

- Carry laundry basket/groceries
- Wipe tables/mop floors
- Open doors for others

- **Play**

- Push/Pull tubes (rapper snappers/pop tubes)
- Putty or playdoh
- Small squeeze toys
- Vibrating toys

- **Oral sensory strategies**



# VESTIBULAR (balance)

## Location

Inner ear- stimulated by head movements and input from other senses, especially with the visual input.

## Function

This system provides information about body movement through space, and whether or not our surroundings or we are moving. It also tells us about the speed and direction of our movement.



# Symptoms of Processing Difficulties: Vestibular System

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## **Hyposensitivity:**

Children who are hyposensitive may:

- demonstrate excessive movement
- have difficulty remaining still for long periods of time
- be able to tolerate a lot of movement without difficulty
- need this type of input often to regulate their sensory systems.

## **Hypersensitivity:**

Children who are hypersensitive may:

- avoid movement activities
- get sick easily with only a little movement
- be fearful of heights
- have difficulty with balance activities

# Interventions for Vestibular System

- **Movement!**
  - Running, rocking, swinging, dancing, spinning, rolling...
  - Slow linear movement = calming
  - Fast rotary movement = excitatory
- **Linear:**
  - Rolling fwd/back on therapy ball
  - Slides on the playground
  - Scooter boards
  - Seesaw
  - Move n' sit cushions
  - Rocking chair
  - Swing (can be rotary too)
- **Rotary:**
  - Sit n' spin
  - Rolling like a log
  - Spinning around



# Movement During Homework

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## Positioning ideas:

- Turn the chair around and let your child stand on one leg while putting the other foot up.
- Lying on your stomach and propping up on elbows - great alternate study position while looking at books or reading!



## Movement breaks:

Search for “brain breaks for kids” on YouTube

- Go Noodle, Go with YOYO, and Cosmic Kids Yoga.



# Setting Kids up for Success

Each child has unique sensory needs.

## Morning Routine for **SENSORY AVOIDERS**

1. Dimly lit light turned on to wake up slowly



2. Rock in a rocking chair with weighted lap pad



3. Pack book bag, carry out garbage, unload dishwasher for calming heavy work input



4. Get headphones, sunglasses, and other tools ready for the day



## Example Of A Morning Routine For **SENSORY SEEKERS**

1. Use a vibrating toothbrush



2. Hop or skip to the table for breakfast



3. Eat a crunchy granola bar or drink a thick smoothie



4. Ride a bike or scooter to the bus stop



Develop a morning routine that meets your child's needs!

## Qualities That Make Sensation Calming or Alerting:

Some children may need more alerting activities, some children may need more calming activities.

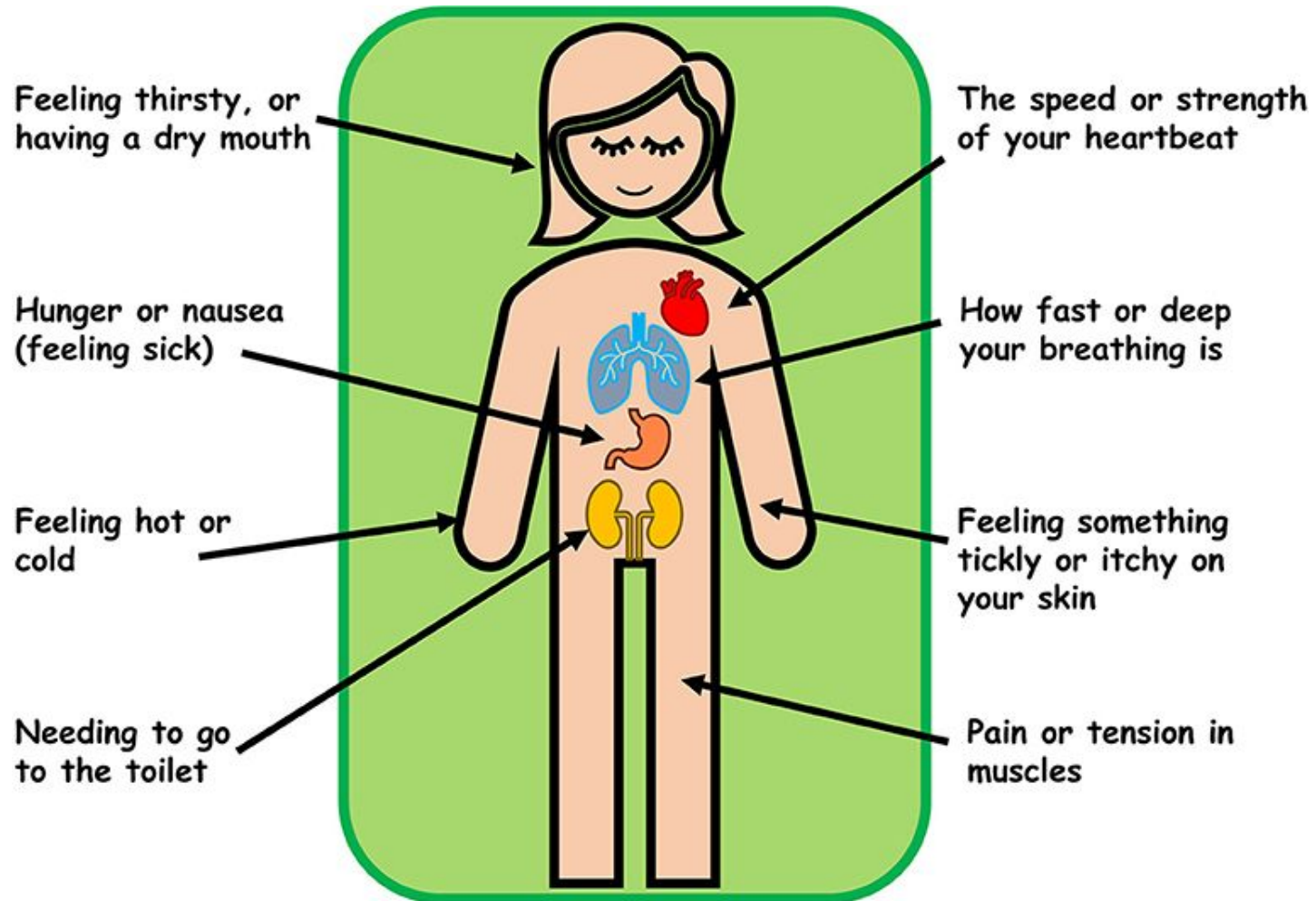
This chart provides an overview of alerting and calming qualities of each sensory system

Sensation	For Alerting	For Calming
<b>VESTIBULAR</b> (Moving the head through space – can be linear, angular, orbital or rotational)	<ul style="list-style-type: none"> <li>• Rapid or jerky</li> <li>• Changing directions</li> <li>• Visual stimuli with movement</li> <li>• Angular movement</li> <li>• Head inverting</li> <li>• Suspended equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Slow &amp; Rhythmic</li> <li>• Linear movement</li> <li>• One direction to and from</li> <li>• Eyes righted with horizon</li> <li>• Grounded equipment</li> </ul>
<b>PROPRIOCEPTION</b> (Bending, stretching, compressing, or jarring a joint)	<ul style="list-style-type: none"> <li>• Fast paced</li> <li>• Quick changes</li> <li>• Unexpected changes</li> <li>• Jarring or jerking</li> <li>• Stops or starts abruptly</li> </ul>	<ul style="list-style-type: none"> <li>• Steady compression</li> <li>• Slow stretch</li> <li>• Heavy or sustained resistance</li> <li>• Slowly alternating</li> <li>• Push/pull</li> </ul>
<b>TACTILE</b> (Light touch, pressure touch, temperature changes, or movement of hair, applied anywhere on the body)	<ul style="list-style-type: none"> <li>• Light touch</li> <li>• Unexpected</li> <li>• Dabs or pokes</li> <li>• Touch to face</li> <li>• Approaching from behind</li> <li>• Moving the hair</li> <li>• Rough texture</li> <li>• Cold</li> <li>• Sharp corners</li> <li>• Source is sharp</li> </ul>	<ul style="list-style-type: none"> <li>• Pressure touch</li> <li>• Tight wrap</li> <li>• Firm stroking over large areas</li> <li>• Familiar, predicted</li> <li>• Smooth</li> <li>• Warm</li> <li>• Simple shapes</li> <li>• Rounded</li> <li>• Dull or blunt</li> </ul>
<b>VISUAL</b>	<ul style="list-style-type: none"> <li>• Peripheral vision</li> <li>• Unexpected sights</li> <li>• Bright colors or lights</li> <li>• Red-yellow shades</li> <li>• Black on white</li> <li>• White on black</li> </ul>	<ul style="list-style-type: none"> <li>• Most visual stimuli are alerting when first presented</li> <li>• Unchanging stimuli</li> <li>• Subtle or subdued patterns</li> </ul>
<b>AUDITORY</b>	<ul style="list-style-type: none"> <li>• Unexpected</li> <li>• Loud</li> <li>• Complex or mixed</li> <li>• Pronounced</li> </ul>	<ul style="list-style-type: none"> <li>• Familiar or quiet</li> <li>• Gentle rhythm</li> <li>• Simple melodies</li> <li>• Sing-song rhythm</li> <li>• Low tones</li> </ul>
<b>OLFACTORY</b>	<ul style="list-style-type: none"> <li>• All odors tend to be alerting</li> </ul>	<ul style="list-style-type: none"> <li>• Odors with comforting, pleasurable experiences</li> <li>• Natural essences</li> </ul>

# Setting Kids up for Success

Also IMPORTANT! Consider physiological needs:

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# QUESTIONS?

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