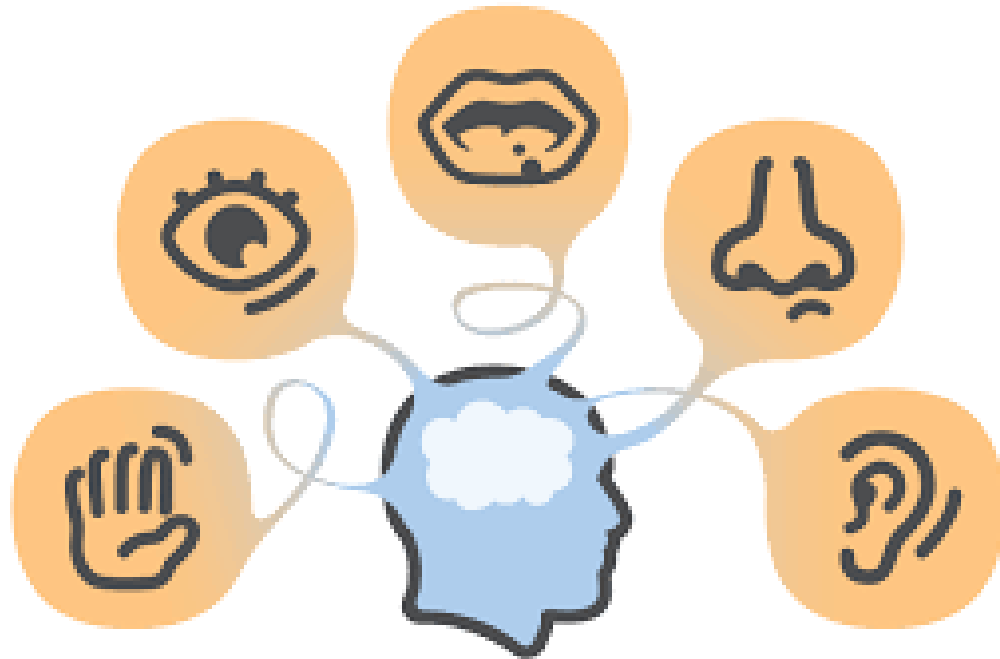


# Understanding the Sensory World



All experiences, knowledge and understanding of the world are gained from information gathered through our **SENSES**.

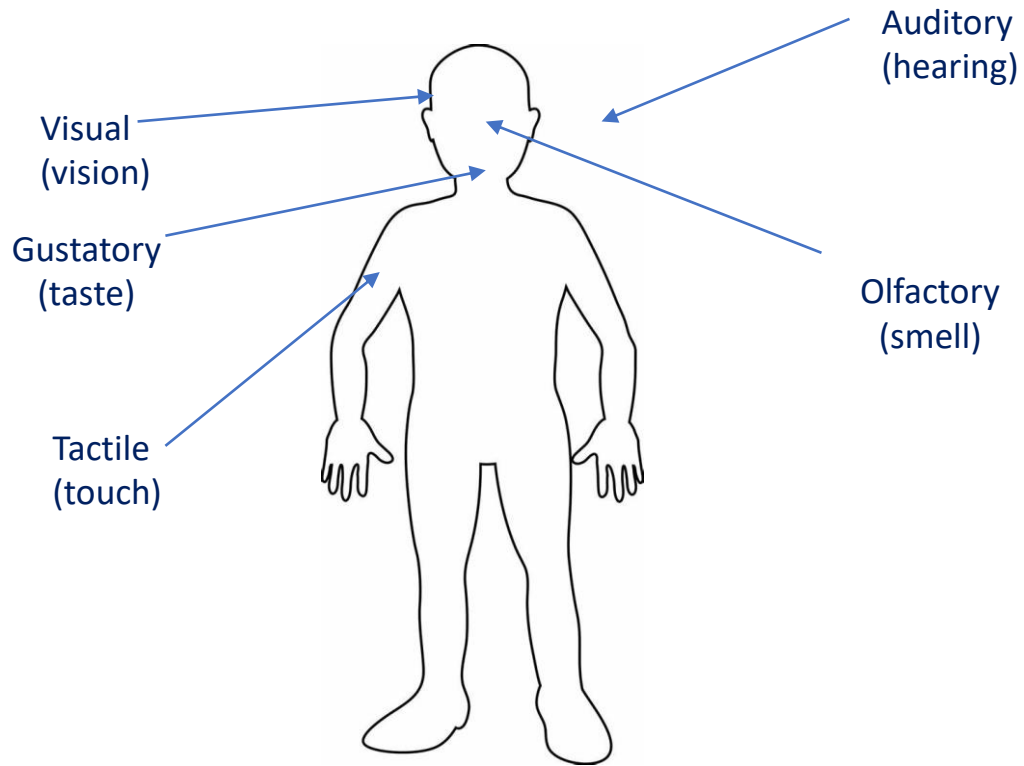
- We know walls are solid because as children, we bumped into them.
- We can recognise sweet, savoury, bitter food because of the sense of taste and smell.
- We know we might be in danger if we hear a loud, unexpected sound and we are able to cross a road because our senses allow us to see and hear traffic and anticipate how far away moving vehicles are.

Our brains continuously take in sensory information to make sense of what is going on around us. When our sensory processing is working as it should, it is a highly complex system that allows us to function.

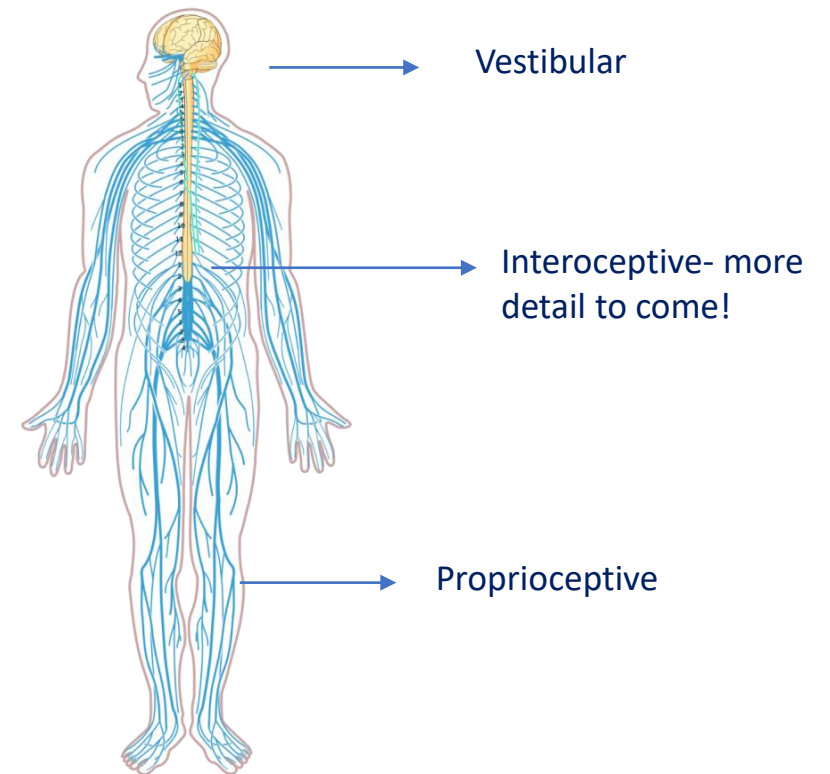
**Let's have a look at some our senses...**



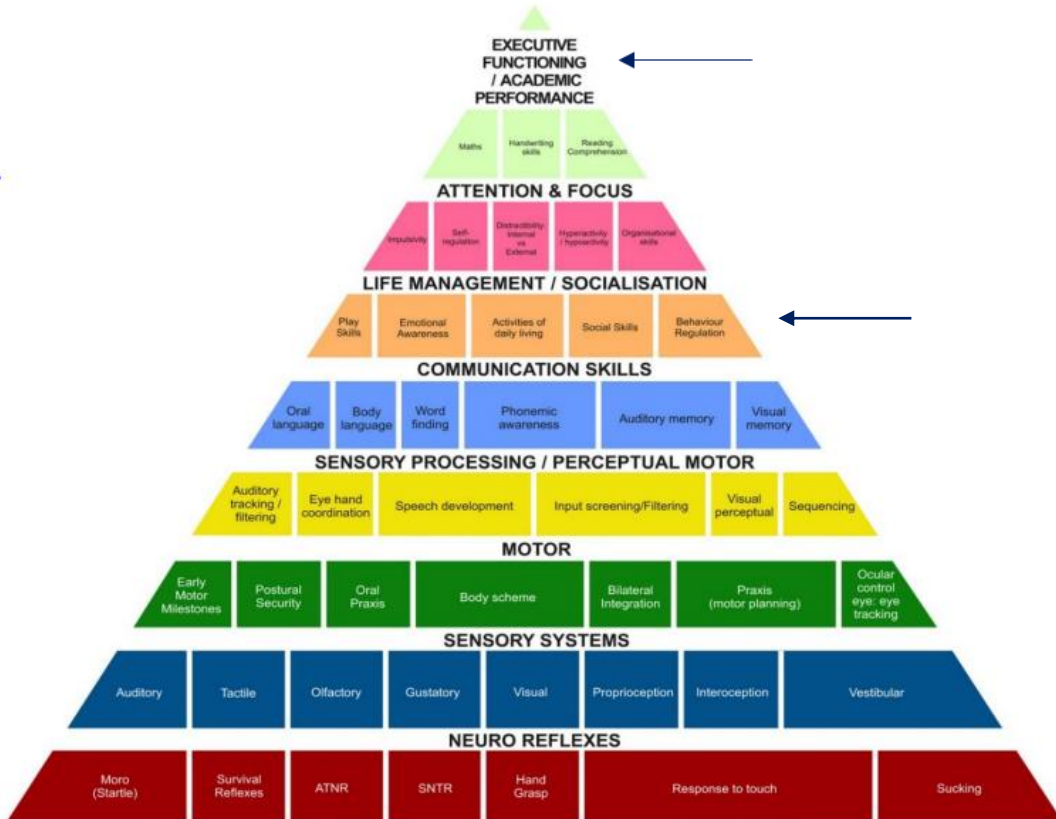
## External Senses



## Internal Senses



# Why is sensory processing so important?



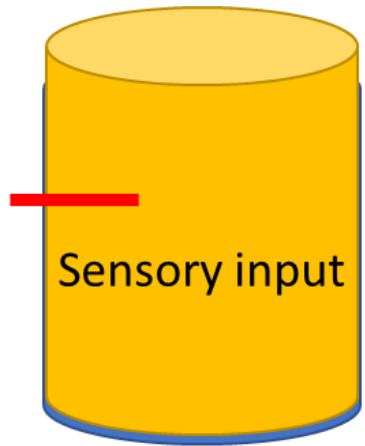
Pyramid as a representation of skills that are essential for day to day functioning.

House-foundations sensory systems.

Roof- academic learning.

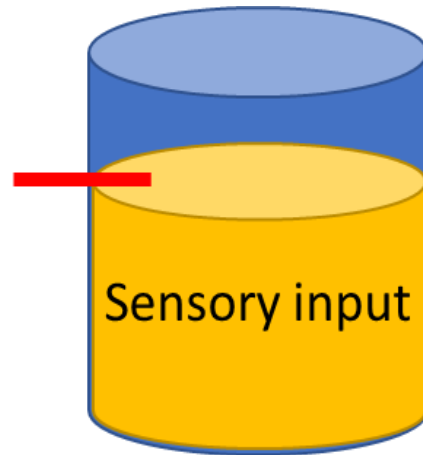
## Sensory cup analogy

- *The sensory cup analogy- can be hypersensitive in one area and hypo in another, we need to balance pupils cups.*
- *Sensory pages on pupils Happiness Passports can support with this.*
- *Examples.*

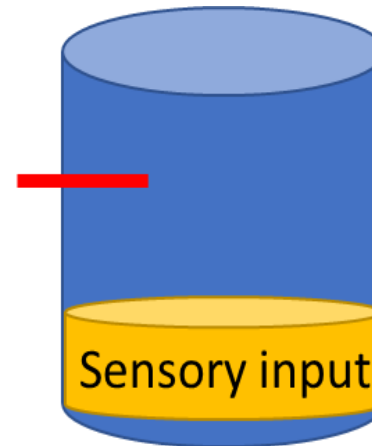


**Hypersensitive**

**Avoiding**



**Just Right!**



**Hyposensitive**

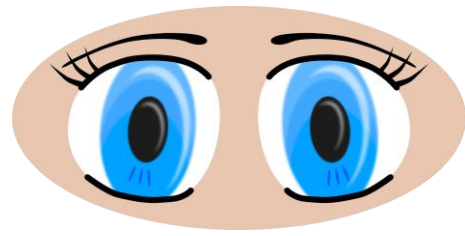
**Seeking**

# *Supporting the five external senses*

*All senses are linked and never work in isolation*



# Vision- visual system



## Seeking-visual

### You might see:

#### Pupils who may...

- Stare at spinning objects for prolonged periods of time.
- Spin their own bodies to gain visual feedback.
- Flick items/their hands or fingers in front of their eyes and look at this for long periods of time.
- Bring bright or coloured lights close to their eyes.
- Flap items and watch this.
- Enjoy watching items fall.
- Be fascinated with reflections.

### Ways to support:

- Increase visual stimulation when playing. Use lots of hand gestures and extra visual supports. Puppets can be motivating and appealing.
- Use lots of colour and movement.
- Add items 'falling from a height'- paint, glitter, feather, water.
- Tracking/visual games.
- Providing calming visual stimuli- bubble tubes, lights.



## Avoiding-visual

### You might see:

#### Pupils who may...

- Look away from an adult talking to help them listen to instructions.
- Withdraw from light sources- turn off lights when they go into rooms.
- Lose their place when reading and writing.
- Struggle with eye contact.
- Miss visual cues.
- Tilt their head when concentrating on an image/object.
- Misjudge spatial awareness and bump into people or things.

### Ways to support:

- Minimise visual stimulation and provide a “quiet space”.
- Encourage rest/relaxation session encouraging pupils to close their eyes.
- Reduce clutter in the environment- think about colours, etc.
- Use natural lighting where possible.
- Use table dividers/holders/clear boxes for items so pupil can locate items easily.
- Visual labels- think ‘supermarket’.



Pens

# Touch- tactile system



## Seeking- touch

### You might see:

- Seek out surfaces and textures that provide strong tactile feedback.
- Have decreased awareness of being touched or bumped unless done with extreme force or intensity.
- Have decreased awareness of dirty hands or face.
- Hurt others or pets while playing without realising.
- Repetitively touch soothing objects.
- Enjoy and seek out messy play.

### Ways to support:

- Firm massage (squeezing arms or rubbing the back).
- Thera putty or playdough to manipulate.
- Messy play activities (wet and dry) – This should be structured messy play and remember you don't need lots of mess for it to be effective.
- Variety of fidget toys.



## Avoiding- touch

### You might see:

- Find textures and light touch to be overwhelming.
- May misinterpret light touch as painful and respond in a state of fight or flight- “tactile defensive”.
- Pull away from hand holding/cuddling.
- Become distressed at being changed particularly at toileting times. (The feeling of being soiled or wet may also be distressing).
- Find certain fabrics itchy and cause upset.
- Find Messy play very distressing.
- Prefer to have their skin covered and might find some outside weathers upsetting e.g. wind and rain.
- Use fingertips to manipulate objects.
- Find self-care routines extremely difficult e.g. washing face, cutting and brushing hair, brushing teeth etc.
- Not want to touch some food items/textures. They might avoid mixing foods together particularly mixing hot and cold or different textures.

### Ways to support:

- Allowing pupil to wear gloves.
- Warn pupil ahead of messy activities and give clear visual cues so the pupil knows how long the activity is going to last.
- Introduce textures slowly.
- Do not force to touch textures.
- Allow the pupil their own personal space to sit on/within, for example own chair, bean bag, cushion etc.
- Give verbal warning when you are going to have to touch them, for example during personal care.



# Hearing- auditory system



## Seeking- hearing (struggle with filtering)

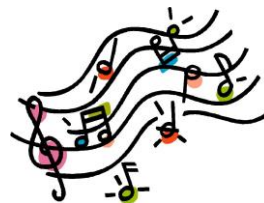
### You might see:

#### Pupils who may...

- Fail to respond to verbal prompts, verbal cues, and their own name being called- ***cant filter out your voice, hear everything.***
- Hum or sing to themselves and appear to make noise for no apparent reason. They may bang on surfaces, hit walls etc. They may also like loud music and like the TV on loud volume. They crave noise and will seek out noise wherever they can.
- Have difficulty understanding or remembering what has been said as they may not have tuned in to certain points of a conversation.
- Take longer to process verbal information.
- Appear oblivious to certain sounds e.g. sirens.
- Talk themselves through a task or activity.

### Ways to support:

- Allow pupils to listen to background music or background noise. MP3s or white noise can be helpful.
- It may help to use a loud auditory cue when you need to gain the pupils attention e.g. clapping, transition songs, nose toy etc.
- Visual supports and visual cues will support the pupil's communication and understanding.
- Give processing time when giving verbal instructions, requests etc.
- Use visual support to prompt, alongside spoken language.



## Avoiding- hearing

### You might see:

Pupils who may...

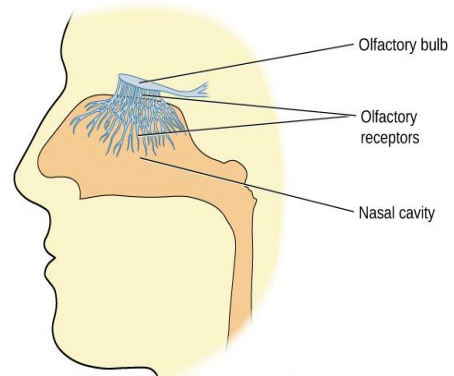
- Be distracted by sounds that others don't usually notice.
- Are fearful of some sounds – hand/hair dryers, hoovers, crying.
- Are bothered by background noise.
- Put fingers in ears or hands over ears.
- Hum or sing to themselves- to regulate.
- Avoid busy environments.
- Avoid certain people due to the sound of their voice.

### Ways to support:

- Use ear defenders or music to reduce noise levels.
- Use distraction free and noise free environments when doing activities where you would like the pupil to focus.
- Consider the pupils learning environment and be aware of all environmental sounds. As a class complete an environmental audit.
- Pupils might benefit from white noise, soothing background music or an MP3 player- to block out alternative sounds.
- Calming techniques may help in noisy situations and environments e.g. deep pressure, using squeeze toys (stress balls), therapy balls (proprioception).



# Smell-olfactory system



## Seeking- smell

### You might see:

Pupils who may...

- Crave certain smells.
- Frequently sniff items/people.
- Fail to identify “unsafe” smells and may be drawn to strong odours (bleach, chemicals, washing detergent etc).
- Smear.

### Ways to support:

- Provide safe and appropriate methods of stimulation – lotions in massage, scented candles etc.
- Provide regular activities with a smell element e.g. scented playdough, cooking with different spices etc.
- Use scratch and sniff stickers, scented markers etc.
- Use ‘smell bottles’.



## Avoiding- smell

### You might see:

Pupils who may...

- Gag (or are sick) when they encounter certain smells.
- Become distracted by smells.
- Struggle at mealtimes.

### Ways to support:

- Try to limit exposure to smells and give pupils support strategies to cope with smells.
- Refrain from wearing strong perfume.
- Introduce smells slowly and in a fun way – always work at the pupil's pace.
- Offer a 'safe smell'- scented scarf or item they enjoy when overstimulated.
- Offer foods which are more bland with less seasoning, no strong sauces etc.
- Non scented toiletries- soaps, bath wash, lotions, toothpaste etc.



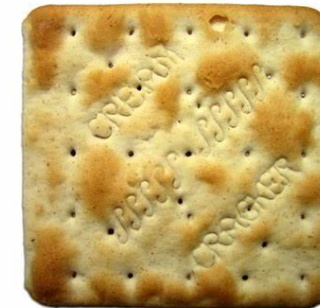
## LINK: Gustatory processing and eating

- **Consistent evidence-** link sensory processing and eating behaviours- children with ASD 5x more likely to be selective with eating.
- 46% to 89% of children with autism have some level of food selectivity (*Ledford & Gast, 2006*).
- SPD- alters typical food responses, more likely to notice how something feels and tastes.
- Consistency in foods- no surprise to sensory system- difference in brands.
- Link between Olfactory and Gustatory systems.

**"Why does my child struggle with fruits and veggies?"**



The same every time.



# Taste- gustatory system



# Seeking- taste

## You might see:

Pupils who may...

- Constantly put items in their mouth.
- Chew clothing/hair/fingers.
- Overstuff their mouths at mealtimes.
- Like extreme tastes of foods. They may use lots of condiments on their food.
- Lick, taste and/or smell everything, even non-food items.
- Salivate or “drool” excessively even when past the “teething stage”.

## Ways to support:

- Encourage oral-motor games such as blowing bubbles/whistles. This may help just before mealtimes.
- Encourage crunchy foods such as pretzels, celery, crackers, apples, ice cubes.
- Redirect to chewy if pupil is chewing inappropriate items.
- For pupils that chew clothes a Necker- chew may be successful.



# Avoiding- taste

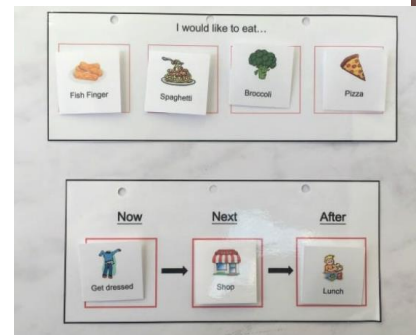
## You might see:

### Pupils who may...

- Gag easily sometimes at the thought of certain foods.
- Be fearful of foods.
- Not like to mix foods and food textures.
- Have difficulty with food textures and food temperatures.
- Be “fussy eaters”.
- Not like their teeth being brushed.
- Show distress around mealtimes.
- Control certain elements of mealtime e.g. only using a certain plate/cup/spoon.

## Ways to support:

- Sensory food play activities always offering pupils the food you are playing with.
- Listen to calming music at mealtimes or have an alternative place to eat at mealtimes.
- Give the pupil a deep pressure massage before mealtimes and during mealtimes.
- Show the pupil lots of visual supports to help them understand the expectations of mealtimes.
- Allow as much food choice as possible and show them a visual timer and now and next so they understand that mealtime will end.
- Avoid presenting all food at once and use separate plates or divider plates.



## LINK: sense of smell and eating

- **Consistent evidence-** link sensory processing and eating behaviours.
- SPD- alters typical food responses, more likely to notice how something smells, feels etc.
- Research- **over 80% of what we perceive as taste is actually due to how the food smells** (air up bottle).
- Pupils who smell everything before they eat?
- Picky eater'- may genuinely experience the smell of food in a negative way.
- **How do we support?** Finding out foods that smell good to the pupil is a good start, as what they smell will ultimately be what they taste when they eat.



**Seek strong smells:** offer strong food flavours



**Avoid strong smells:** offer plainer flavours, less seasoning etc



# *Supporting the three internal senses*



## Vestibular processing

- This is the sense that is responsible for detecting movement and gravity.
- It is located in our inner ear. This sense gives us BALANCE and COORDINATION.



# Hyposensitive- seeking

## You might see:

### Pupils who may...

- Be thrill seekers, jumping from high places and climbing high.
- They seem to have no sense of danger.
- Enjoy spinning and do not appear to become dizzy.
- They will swing very high and fast at any opportunity.
- Enjoy being upside down.
- Have trouble staying seated.
- Move head from side to side.

## Ways to support:

- Give pupils regular movement breaks. Perhaps they could complete regular “jobs” around the school.
- Lots of physical movement E.g. rockers, swings, therapy balls, using the trampoline.
- Opportunities to climb safely.
- Opportunities to spin.
- Alternative “seating” e.g. sitting on a therapy ball in circle time or using a wobble cushion.
- Engage in activities that encourage head movement, for example ‘row your boat’.



# Hypersensitive- avoiding

## You might see:

Pupils who may...

- Be cautious, hesitant to take risks. Avoid movement and may be fearful of heights. They have “gravitational insecurity”.
- Be disorientated and prefer laying down to sitting upright. They may lean their head on their arm.
- Find balancing activities very difficult.
- Drop to the floor.

## Ways to support:

- Limit unnecessary movement.
- Allow pupils to hold on for support when balancing.
- Ensure that pupils have their feet on the ground when seated in class.
- Introduce new movements slowly and let the pupil dictate the pace.
- Provide self-regulation techniques e.g. using a safe space, weighted blanket, therapy ball rolled over their body, deep pressure etc.
- Encourage pupils to move on if they have dropped to the floor using visuals, now and next boards etc but be mindful that they are struggling with the sensory experience.



# Proprioceptive System

This system gives us the information we need to **know the position of our bodies and the amount of pressure we using in our movements.** It is an **unconscious awareness of our body.**



# Hyposensitive- seeking

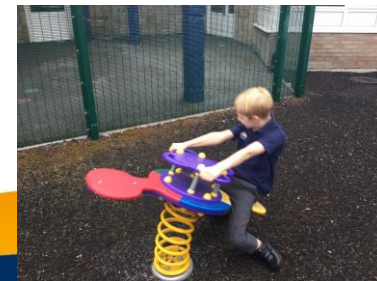
## You might see:

### Pupils who may...

- Pulling, twisting or chewing objects e.g. their own clothing.
- Frequently breaking toys not aware of their own strength – they may also hurt others unknowingly.
- Difficulties with fine motor skills and appear “heavy handed”
- Lean or bump into items.
- Stamp their feet when walking.
- Kick their heels on chair legs when sitting.
- Crave rough and tumble play.
- Prefer tight clothing and like to be cuddled and squeezed.
- Touch walls/ the floor as they are walking along and stay near to the perimeter of large spaces.
- They may rock back and forth and fidget continuously.
- Use too much pressure when writing/mark making.
- Appear uncoordinated.
- May engage self-injurious activities– seeking sensory input.
- Toe walking.

## Ways to support:

- Regular movement breaks
- Access to sensory diet and sensory equipment e.g. swings, Trampolining, IJoy, scooter boards, balance boards, bouncing on a therapy ball.
- Use fidget toys
- Use malleable material to manipulate e.g. playdough or blu tac.
- Use of foot fidgets or theraband.
- Chewelery
- Special/alternative seating – therapy balls, wobble cushions.
- Regular sips of cold water.
- Allow chewing of crunchy foods or ice cubes to support concentration.
- Steam roller massage – using a therapy ball, rolling over the body.
- Use of the “mangle”.
- Deep pressure, particularly at times the pupil needs to focus.
- The sausage roll game – using a blanket to roll pupil up.
- Therapy putty.
- Vibration toys/massage toys to limbs, hands, feet and back.
- Squeezing sponges of water – transferring water from one container to another.
- Swimming.
- Wall pushes and pushing against another person’s hands. Wheelbarrow walking.
- Weighted equipment



# Hypersensitive- avoiding

## You might see:

Pupils who may...

- Avoid physical contact with others.
- Appear very timid around peers and avoid physical play.
- Refuse to play on slides, swings, and other playground equipment.
- Become anxious in crowded spaces or when standing even somewhat close to others.
- Be unable to properly assess risk in their physical environment. For example, they may believe they can fall into the small gap between the train and the platform.

## Ways to support:

- Warn others ahead of time that hugging and touching is not desired.
- Be attentive and comforting around playground equipment and other children.
- Give verbal cues regarding your surroundings and properly contextualise the risks. (“There is a gap before the train. It is smaller than your foot. You cannot fall in. Let’s step over it together.”)



# Interoception

## The 8<sup>th</sup> Sense



- What is it?
- How does it affect our pupils?
- How does it affect Regulation?
- What can we do to help?

# Interoception – What does it do?



This sense is hard at work all of the time, monitoring your entire body— e.g. heart, lungs, stomach, bladder, muscles, skin, etc —and collecting information about how these body parts **feel**.

For example our interoception collects information which helps our brain identify how your stomach feels: does it feel empty, full, gassy, nauseous, tingly or something else?

Our brain uses the information about the way our body feels as **clues to our current emotion(s)**: are you hungry, nervous, tired, sick, excited etc?

So, interoception can be defined as the sense that allows us to answer the question, **“How do I Feel?”** .

## Homeostatic Emotions

Hunger

Fullness

Thirst

Need for Bathroom

Pain

Illness

Body Temperature



Sexual Arousal

Sleepiness

Exertion

Fever

Physical Exertion

Constipation

Sensory Overwhelm

## Affective Emotions

Happiness

Anxiety

Frustration

Boredom

Distraction

Focus

Irritation



Excitement

Sadness

Shame

Fear

Jealousness

Calmness

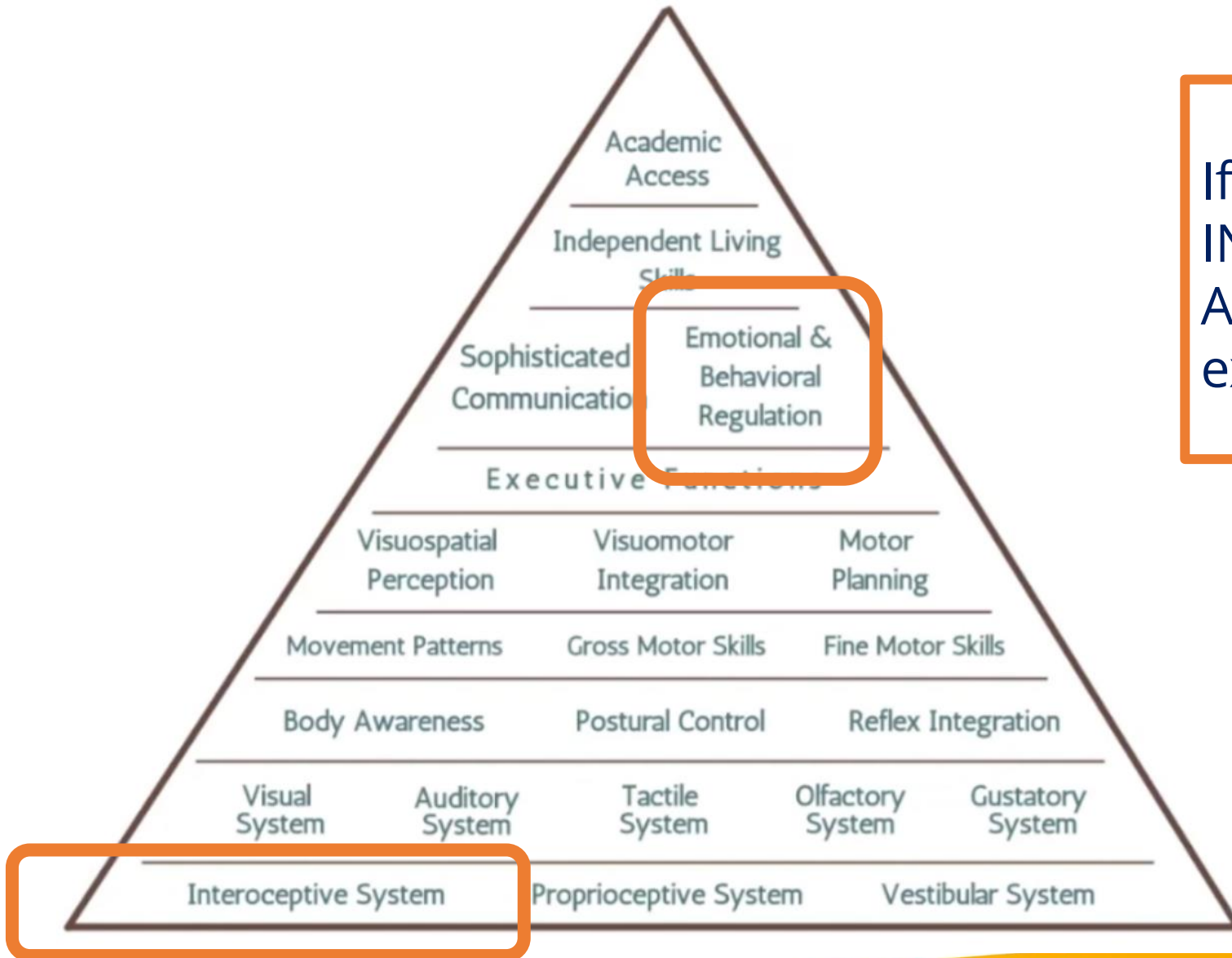
Guilt

# Interoceptive Awareness

*Not as simple as  
'seeking' or 'avoiding'*

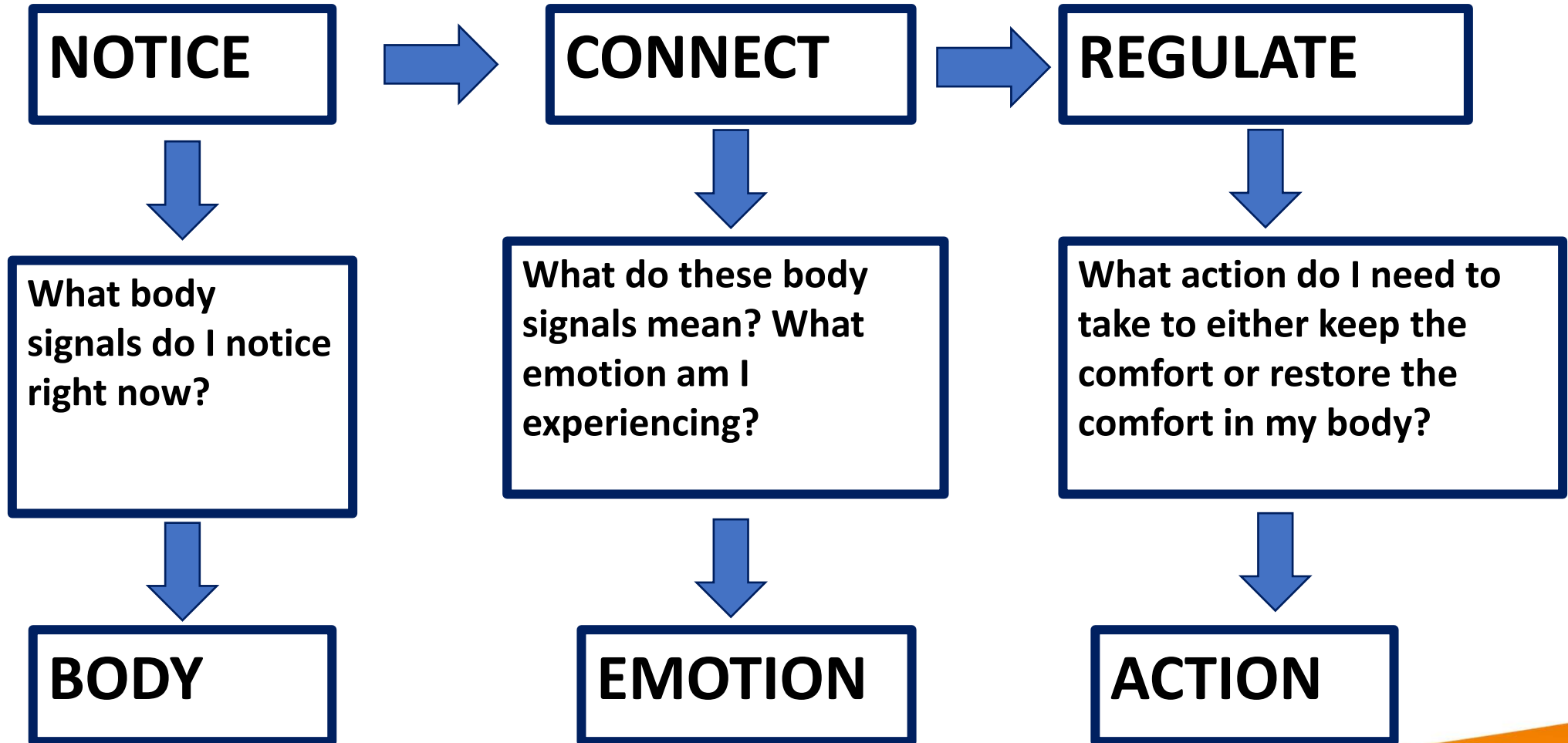
**The sliding scale!**





If pupils have MUTED or INTENSE Interoceptive Awareness, what are our expectations of **regulation**?

# The Process of Regulation:



## This is Interoceptive Awareness



This is  
**Interoceptive  
Awareness**



# This is Interoceptive Awareness



**NOTICE** the body signals  
Shaky hands, fast heart, swirling brain & shut-off ears



**CONNECT** the body signals to the emotion  
Anxious



Urge to act



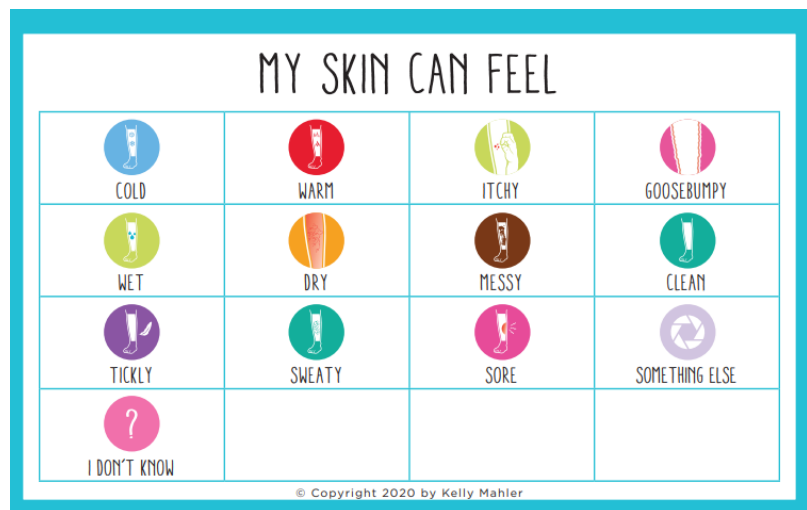
**REGULATE** with an Action (Behavior)  
Go for a Walk



**Outcome**  
Discomfort fades (No more: Shaky hands,  
fast heart, swirling brain & shut-off ears)

## Be aware!

- Treat even very minor injuries as if they are substantial. Remember, they *feel* serious.
- Use the bathroom or have a small snack before each new activity or transition, such as getting into the car or going to bed.



## Ways to support:

- Practice ways to identify normal bodily processes, take the time during daily activities to pay attention to our body signals. Many times, it can be easier to notice a body signal when participating in an activity that evokes a strong sensation. For example, it can be easier to notice how your heart feels during active play/exercise or how your mouth feels when sipping a cold drink.
- Use 'Interoception Talk': Label the way your various body parts feel during daily activities (e.g. "My hand feels warm when you hold it; My cheek feels wet when you kiss it; My breathing feels fast when I run with you.").



