Sensory Strategies

SEN Occupational Therapy Team Training - Autumn 2021

Bi-borough SEN OT Team

The team is commissioned to deliver OT provision outlined in EHCPs

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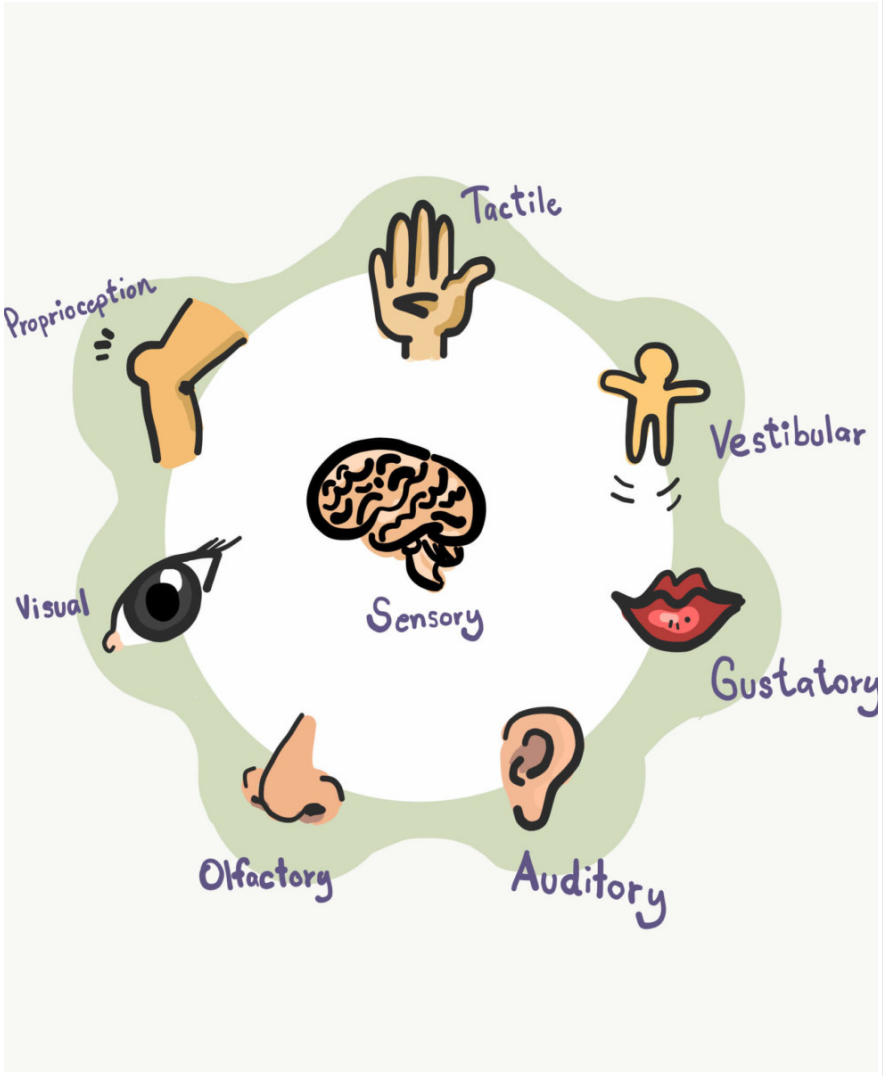
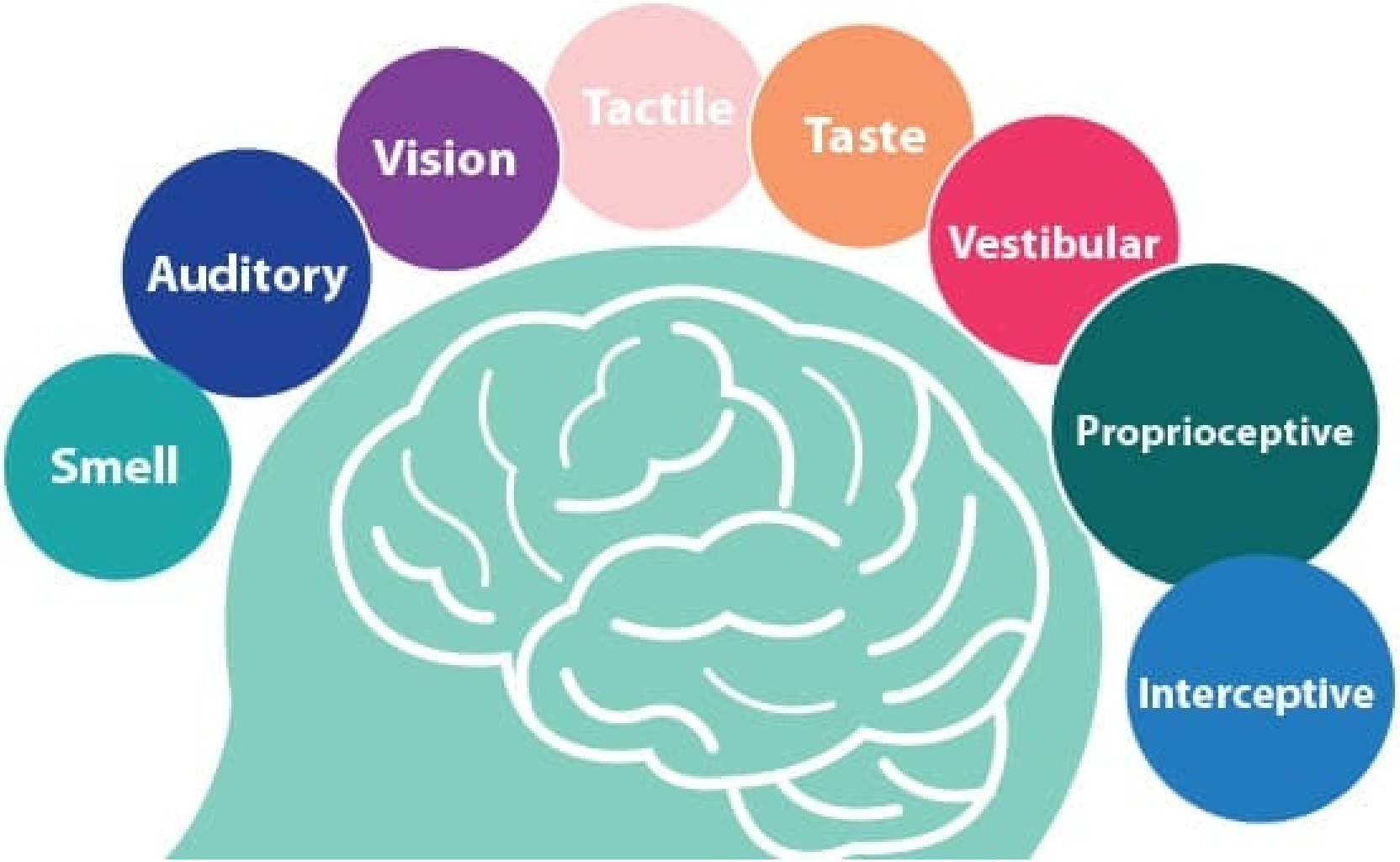


Training Aims

- **To give an overview of sensory processing and how this impacts upon learning.**
- **By the end of this training you should:**
  - Be able to understand the difference between hyposensitivity and hypersensitivity.
  - Be able to recognise the difference between sensory seeking and sensory avoiding behaviours.
  - Understand what is meant by the term ‘calm-alert’ and have knowledge of sensory strategies that can help children to reach this state.

The Senses


Tactile
Vision
Taste
Auditory
Vestibular
Smell
Proprioceptive
Interceptive

Proprioception

‘An awareness or a feeling of one’s own self’

- The ability to detect subtle changes in movement, position, tension and force within the body.
- The way we can ‘feel’ where all our body parts are in relation to each other (and also ‘see’ them in our mind’s eye), without actually having to touch them with a hand or look at them with our eyes, is an ability that we get from our proprioceptive sense.
- This sense helps us to plan our movements, to position ourselves in the correct way, and to grade our movements without always having to use vision to check what we are doing.

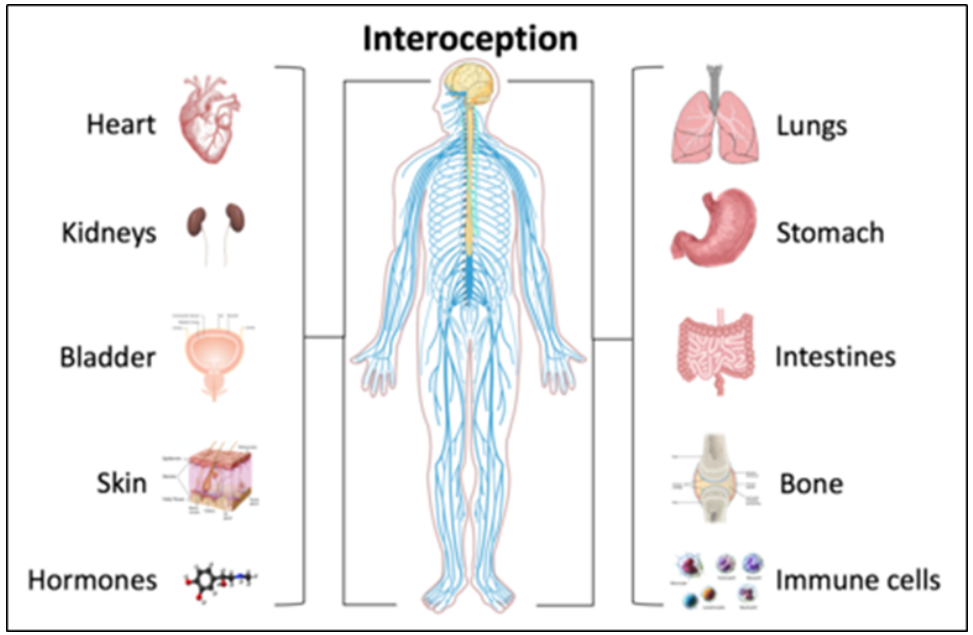
Vestibular

The balance/movement system

- The vestibular system detects movement and gravitational pull.
- This system affects aspects of physical function like posture, balance, movement, coordination, attention, arousal level, impulsivity and behaviour.
- Vestibular input has an impact on arousal levels. Too much vestibular input may lead to high arousal and too little vestibular input may lead to low arousal.
- Some children may seek more intense vestibular experiences.
- Hypersensitivity of the vestibular system will result in an over-cautious approach to any movement, for example avoidance of PE lessons and sports and travel sickness. Life can be very stressful for children who are hypersensitive to vestibular input.

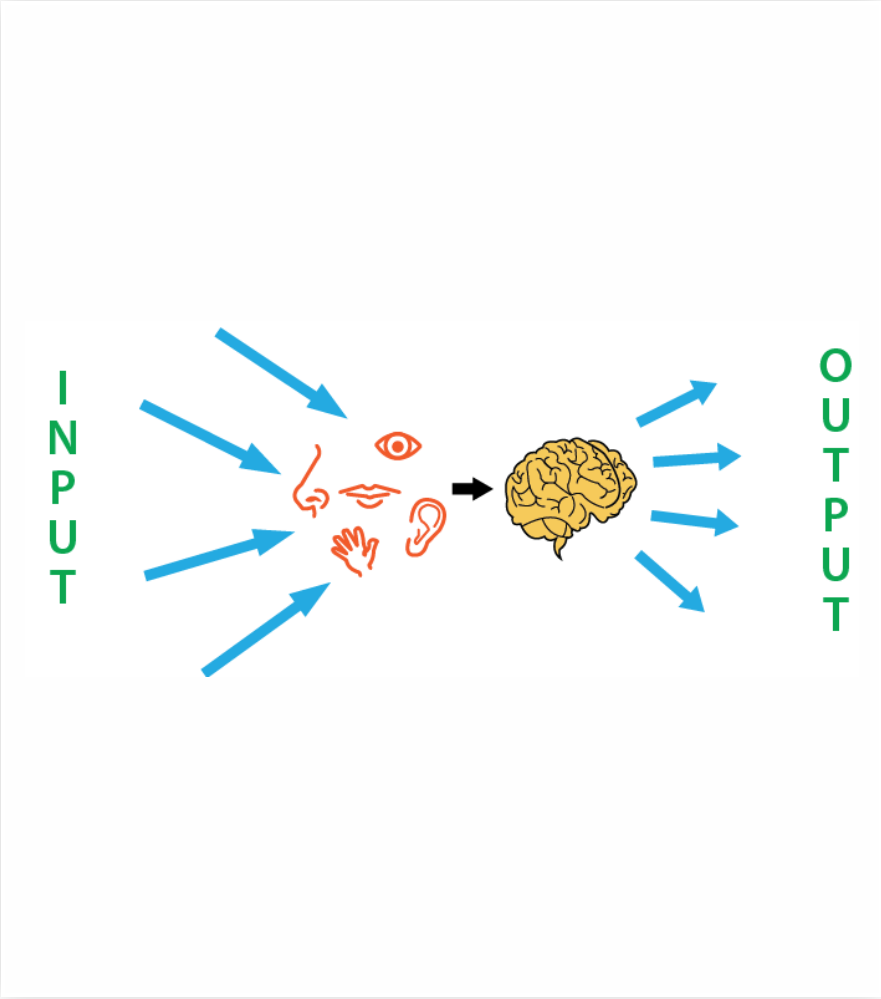
Interoception

The sense of the internal state of the body



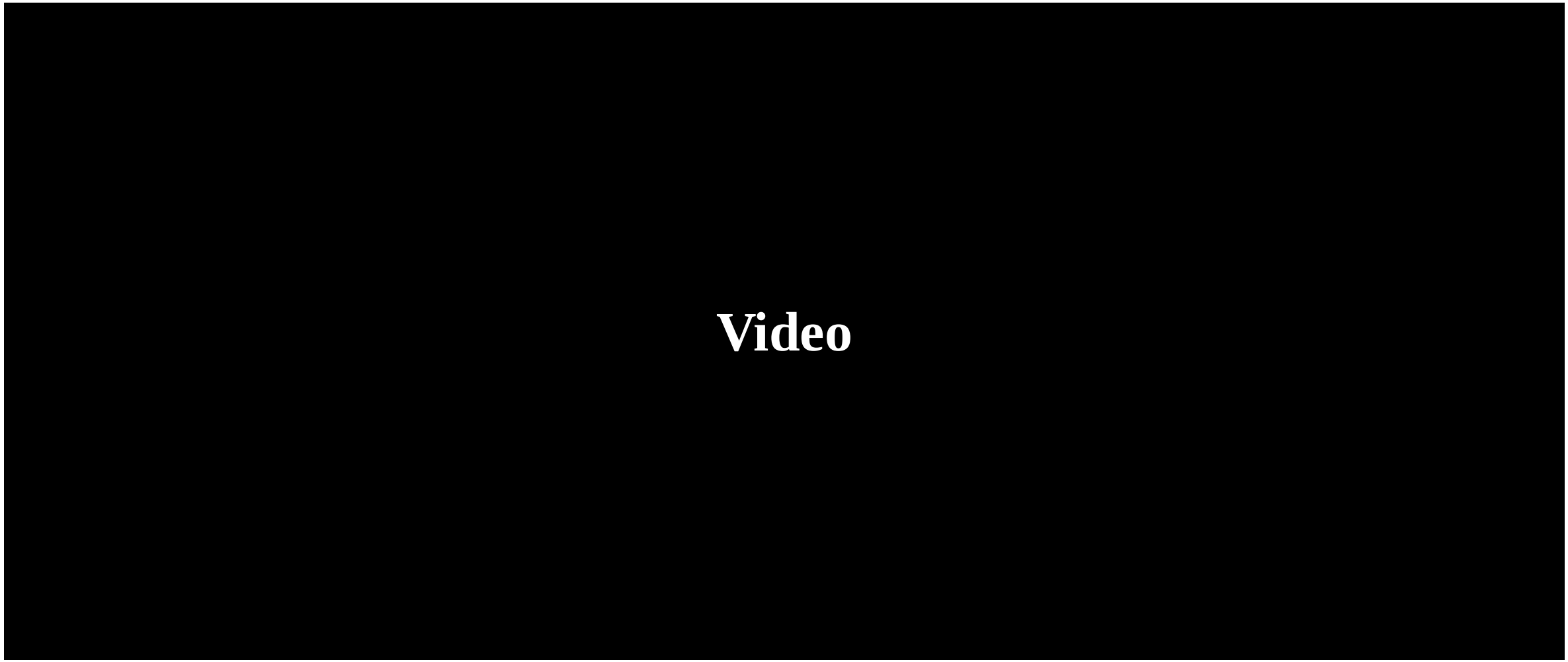
- 'Interoception' is a sense that links closely with emotional and sensory regulation. It is an internal sense that can be reflected externally in our students through emotional expression.
- There is a big connection with interoception and how we are 'feeling'.
- We describe being hungry as 'feeling hungry' and we talk about 'feeling thirsty.' These body sensations relate directly to how we are feeling and therefore our sensory and emotional regulation. Our interoceptive sense is doing all the work internally to tell us what we need to do to regulate.
- Children or young people who struggle with the interoceptive sense may have trouble knowing when they need the toilet, feel hungry, full, hot, cold or thirsty.

What is Sensory Processing?



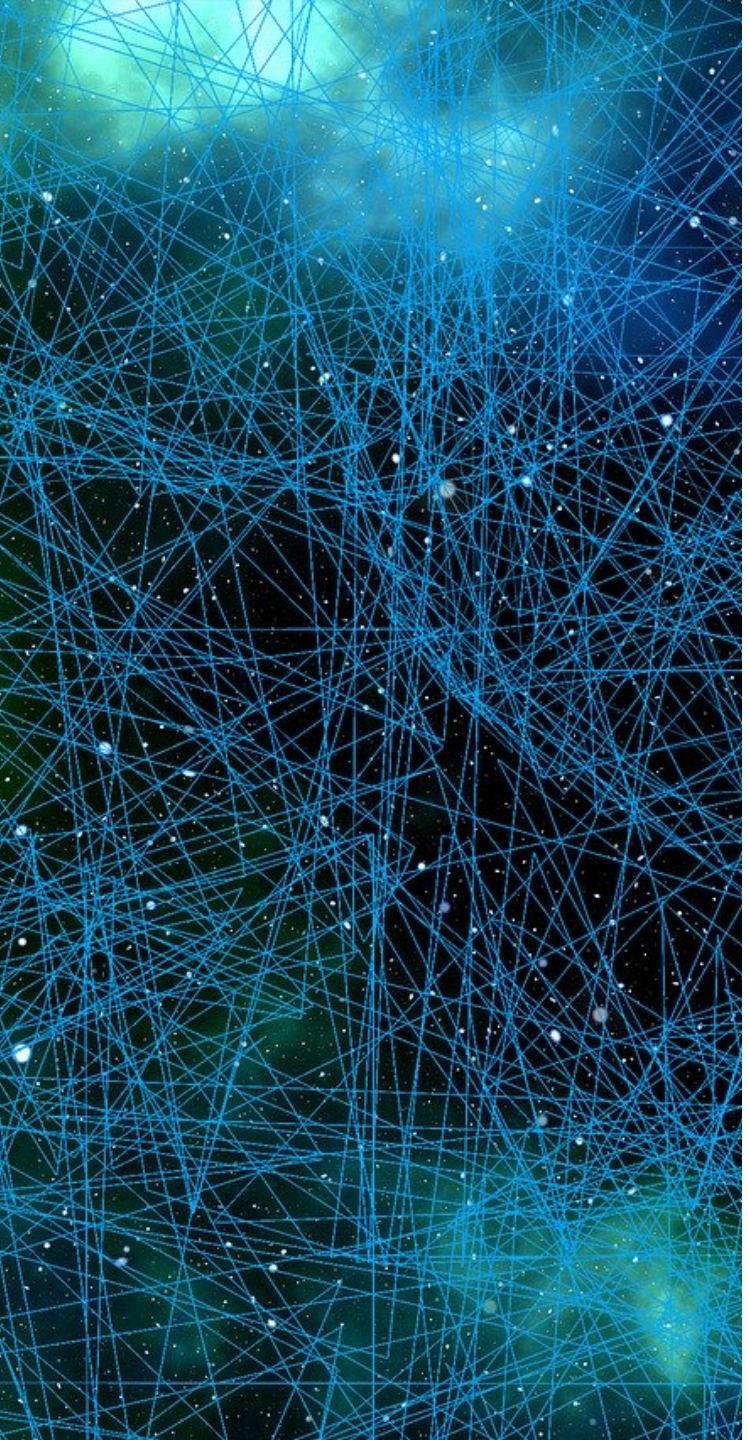
- Sensory processing refers to the way the brain receives messages from the senses and turns them into appropriate motor and behavioural responses.
- Sensory processing is a process that we are all doing, all of the time. It involves taking in information from the world around us through what we see, hear, feel, smell and taste….
- 80% of brain activity is processing sensory information.

A Child's View of Sensory Processing - The Senses



Sensory Processing in Individuals with Autism

- Children and young people with autism process and respond to sensory stimuli in a much different way than typically developing/ neurotypical peers.
- 80-95% of people with Autism have Sensory Processing issues.
- Auditory, Tactile and Visual Systems are most frequently reported systems affected.



What is Sensory Integration?

- Sensory integration is about how our brain receives and processes sensory information so that we can do the things we need to do in our everyday life.
- The different parts of our body that receive sensory information from our environment (such as our skin, eyes and ears) send this information up to our brain.
- Our brain interprets the information it receives, compares it to other information coming in as well as to information stored in our memory and then the brain uses all of this information to help us respond to our environment.

Why is Sensory Integration important?

- **Sensory information needs to processed, then integrated so that we can effectively carry out activities in our daily lives.**
- **Sensory input from our bodies tells us whether we are..**
  - Hot or cold
  - Hungry
  - Need the toilet
  - Falling
  - Positioned comfortably in our chair
  - In pain

Pyramid of learning

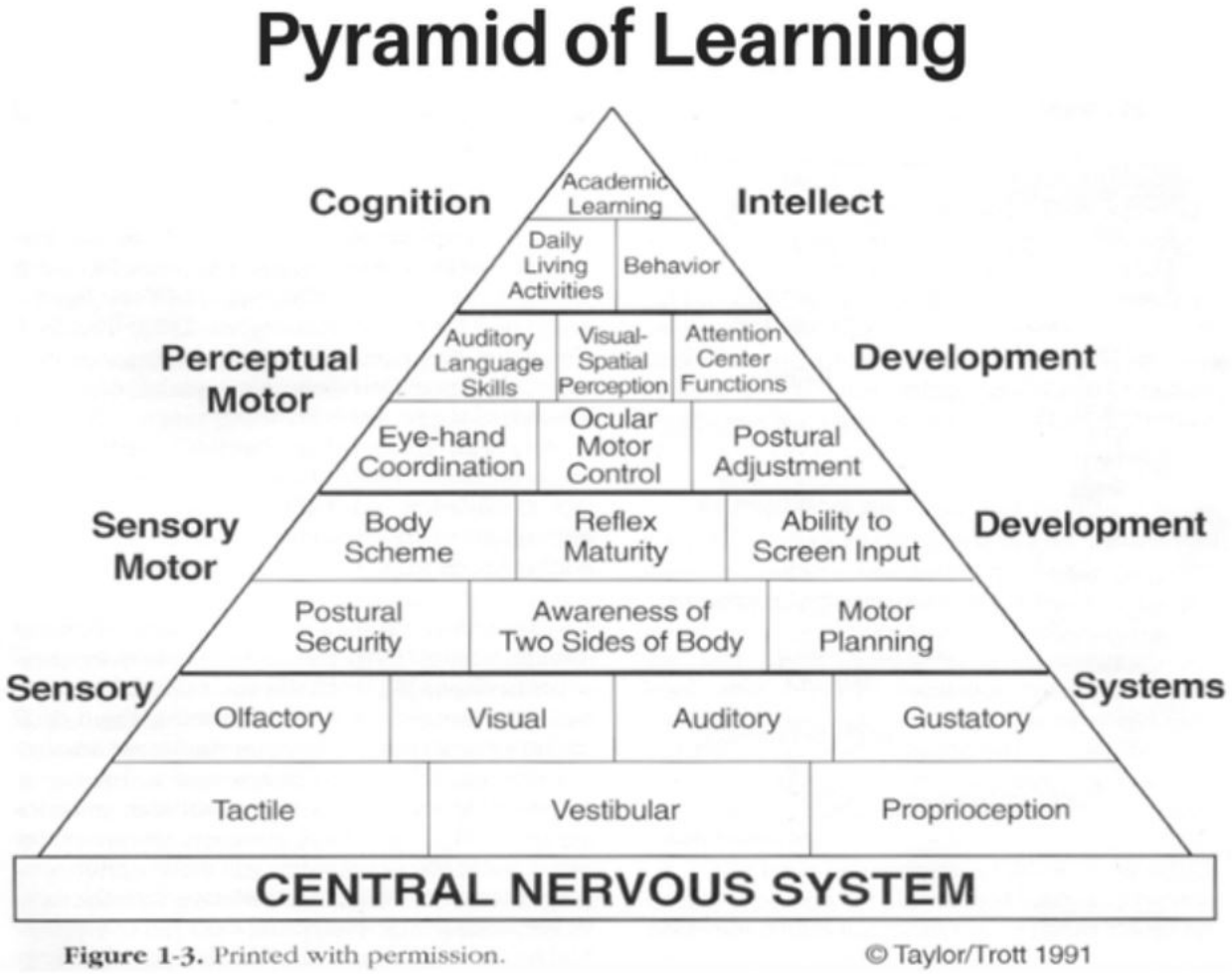
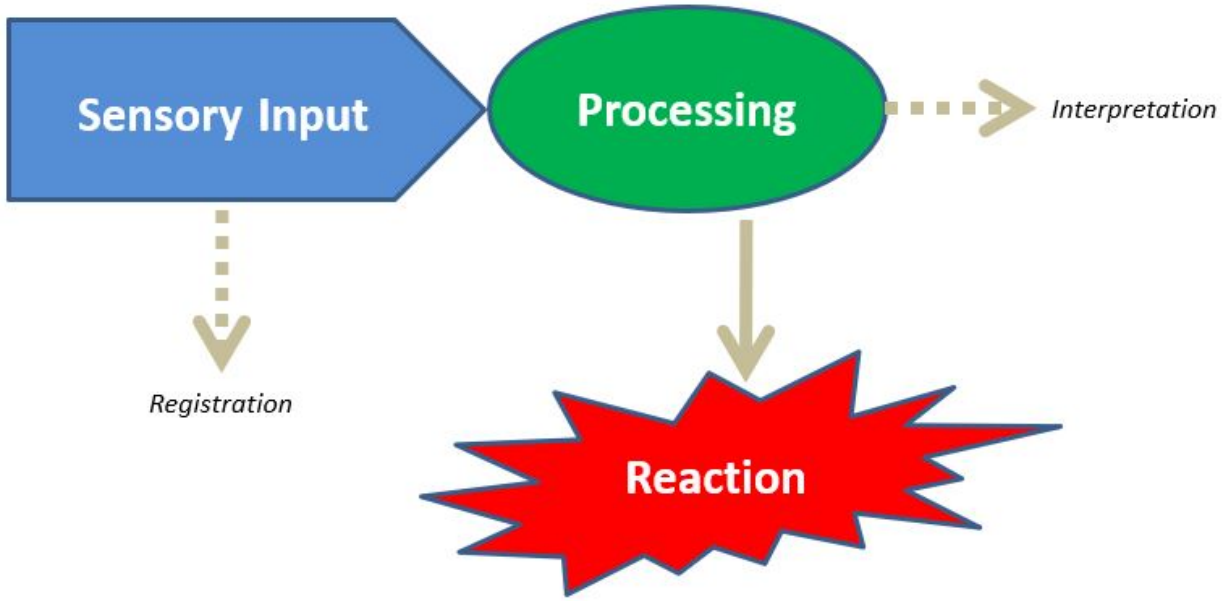


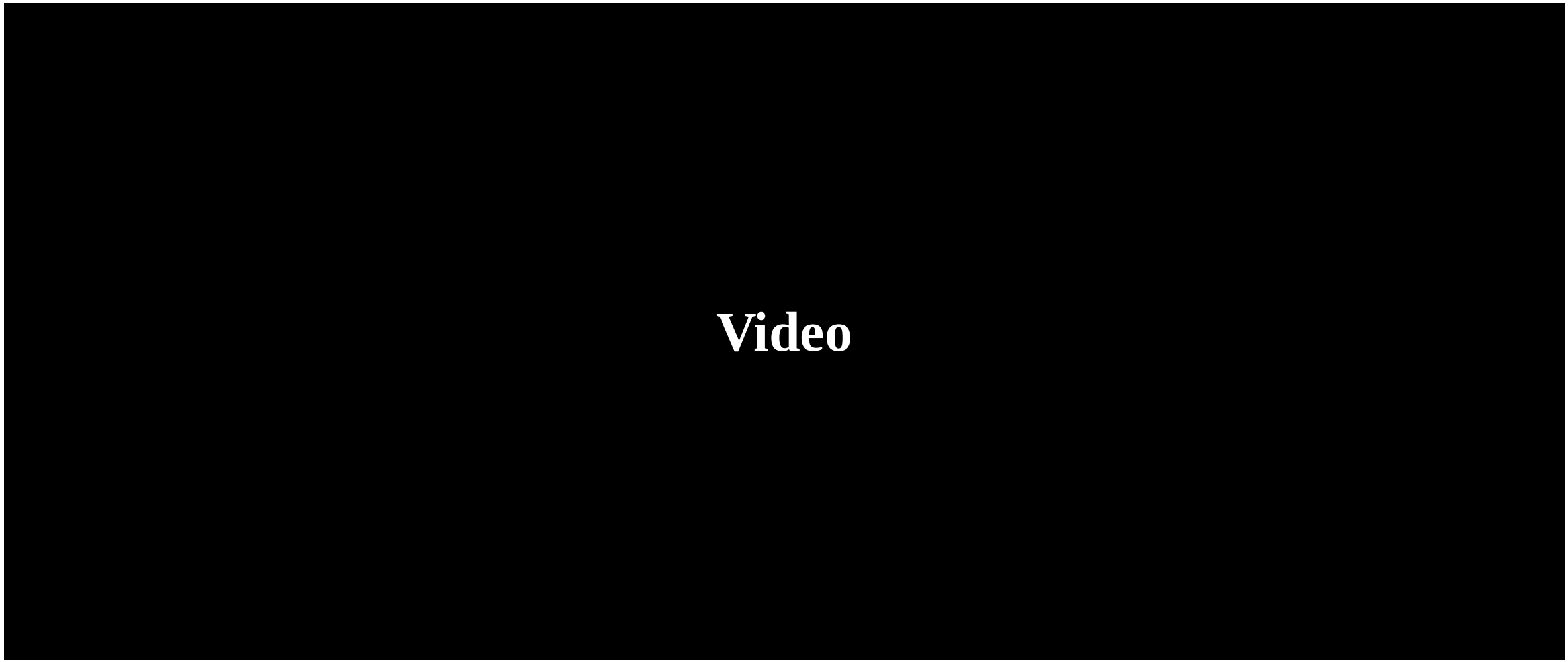
Figure 1-3. Printed with permission. © Taylor/Trott 1991

Sensory processing difficulties

- We can be hypersensitive (over responsive) or hyposensitive (under responsive) to sensory information and this can be different within each sensory system.



Sensory sensitivities explained



Hyposensitive (big cup)

- Also known as…
- Being under responsive to sensory information.
- Having a high threshold to register sensory information.
- May seek out or require extra sensory input to participate in activities.

Effect on behaviour

Passive Behavioural Response:

Environment is not engaging enough.

Active Behavioural Response:

Sensory seeking more stimulation to wake their systems up or to recognise sensory input.

Sensory Seeking / Active behaviours

- Sensory seeking e.g. jumping, bumping, spinning, swinging, climbing, crashing, running, fidgeting
- Excessive banging/noise making
- Mouthing/chewing objects
- Tip-toe walking/feet stomping
- Throwing self on floor
- Pushing/pulling/dragging/throwing objects
- Hitting, bumping/pushing others
- Self-injurious behaviour

Passive behaviours

- Lack of motivation
- Withdrawal
- Sedentary
- Lethargy
- Difficulty engaging
- Passive compliant

* In some school settings, these children's needs can be missed as they are not causing 'trouble'.

Hypersensitive (small cup)

- Also known as…
- Being over responsive to sensory input
- Having a low threshold to register sensory information.
- May avoid or require a reduction of sensory input to participate in activities

Effect on behaviour

Sensation Avoiding

e.g. covering ears/ standing in corner of playground

Sensation Seeking

e.g. making a noise to block out disturbing noise

Sensory Avoiding behaviours

- Sitting at edge of playground
- Avoiding movement activities
- Avoiding/just using fingertips for messy activities
- Moving away from others
- Covering ears
- Withdrawing from social touch
- Avoiding certain tastes/textures

Sensory seeking behaviours

- Humming, self-talk to block out background noises
- Pinching, grabbing during shower time to cope with the inconsistent tactile information

Important to remember:

- A child can have both hypo and hyper reactions in the same sensory system
- This can vary throughout the day - sensitivity can go up & down throughout the day
- Sensitivities may be more noticeable if tired, hungry, sick, busy or in a stressful situation
- A child's sensitivities are real. When a child gets distressed it is often because their sensory experience triggers a horrible feeling. It is not that they are being naughty.

Break

Focus on the following three senses:

- Tactile
- Vestibular
- Proprioceptive

Tactile system

- **Tactile Receptors in the skin provide information about touch (light touch, pain, temperature, pressure)**
- **2 functions:**

  Protection: pain, temperature, reflex, arousal

  Discrimination: using tools, fine motor skills

- **Helps to develop body awareness needed for independence in self care activities (feeding, dressing and toileting – recognising when nappy is wet, clothing twisted, mouth full)**
- **The tactile system is vital for bonding and attachment.**

Types of Tactile Input

Light, unexpected touch can be alerting

Firm, deep pressure touch can be calming

Sensitivities in the Tactile System

Hyper sensitive

- Avoids getting messy
- Distress during grooming
- Reacts emotionally to touch
- Sensitive to certain fabrics

Hypo sensitive

- Doesn’t seem to notice when touched
- Decreased sense of pain/temperature
- Touches people and objects
- Unaware when face and hands are messy

Tactile Sensory System is also responsible for regulating body temperature

Hyper sensitive

- Difficulty cooling down after a short time in the sun
- Shivering after a brief period in air conditioning
- Quickly overheating in bath/shower or a hot room

Hypo sensitive

- Not feeling the cold – refusing to wear shoes outside
- Not feeling heat – not reacting when touches hot radiator
- Preference for food to be very hot/cold

Hyper sensitive/ Hypo sensitive?

Sensitivities in the Vestibular system

Hyper sensitive

- Avoids playground equipment
- Holds head upright when bending
- Hesitates at kerbs
- Clings to bannister

Hypo sensitive

- Seeks all kinds of movement
- Rocks self
- Twirls / spins
- Climbs/ hangs

Hyper sensitive/ Hypo sensitive?

Types of Vestibular input

Linear can be calming

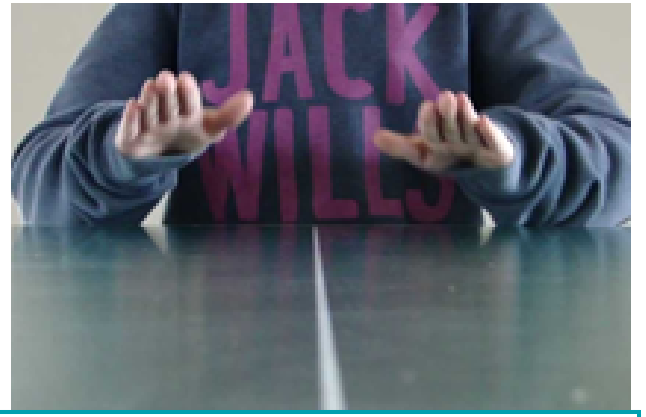
Rotatory can be alerting

Proprioception

- Proprioceptive receptors are in the muscles and joints.
- They give us an awareness of where our body parts are in space.
- Enables familiar movements without having to look.
- Adjusts body to changes in the environment e.g walking along uneven ground.

Types of Proprioceptive input

Physical activity can have a calming and organising effect on the central nervous system.

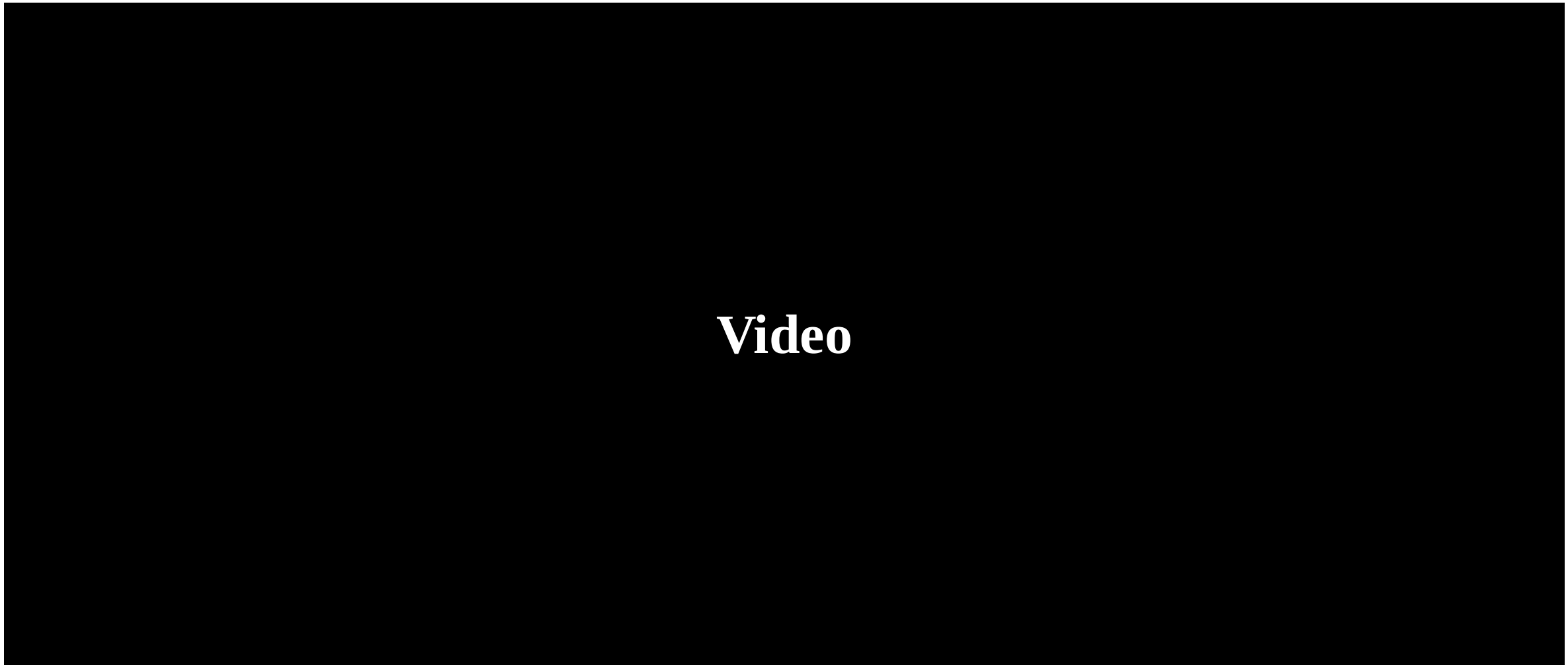


Stereotypical Autistic behaviours (e.g. hand flapping, toe walking) may provide additional proprioceptive feedback about where the body is in space

Sensory Thresholds

Individual thresholds vary amongst mainstream population

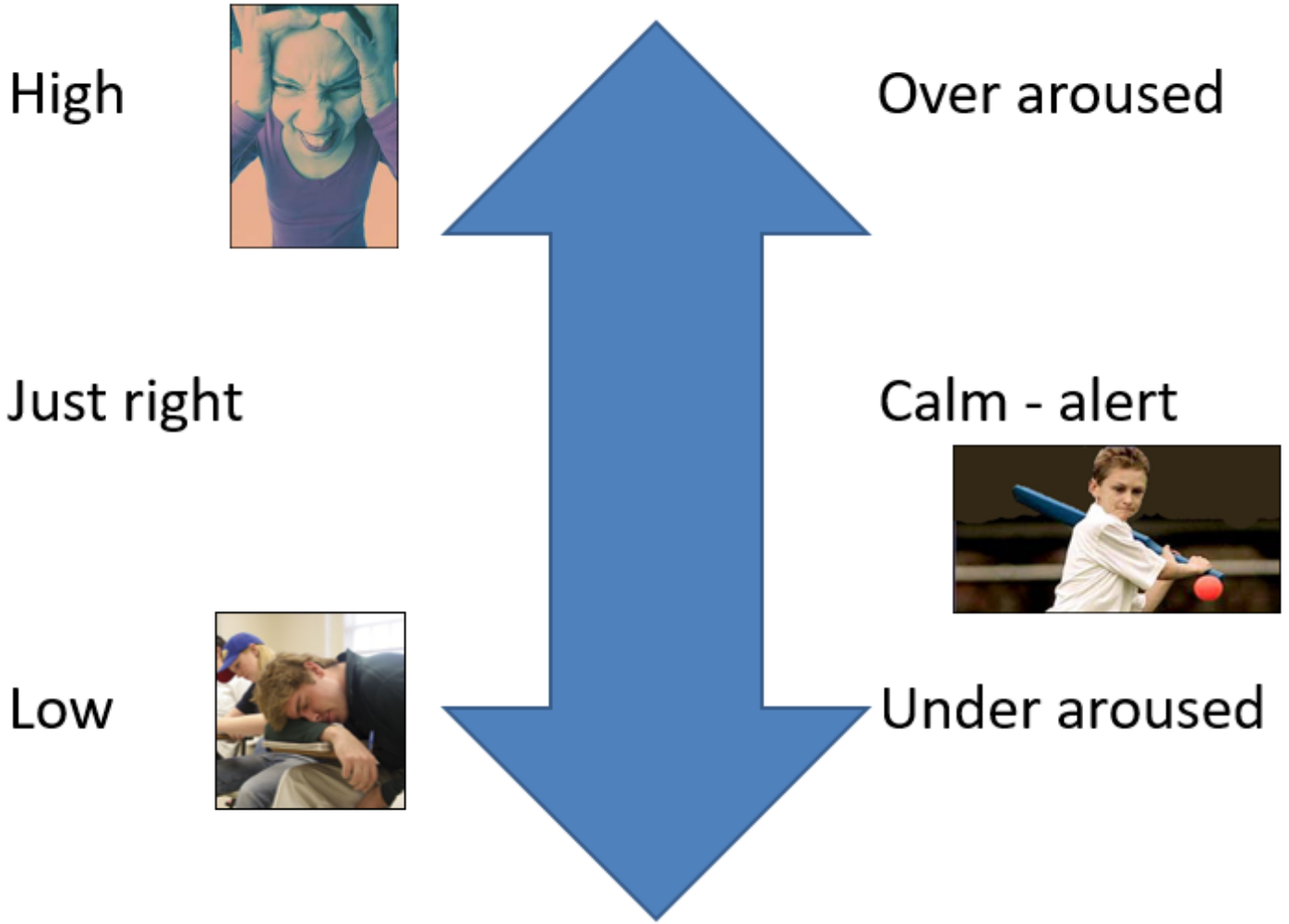
Sensory overload - how does it feel



Exploring your own sensory preferences and sensitivities

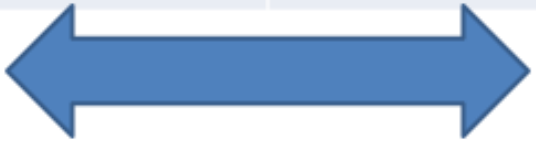
- How do you feel when someone on the tube is sitting too close to you?
- How do you feel on a roller-coaster or swing?
- How do you feel in a restaurant with lots of people talking, music playing and you're struggling to hear your friend?
- How do you feel when you get ice cream on your fingers?

Levels of Alertness



Emotional Regulation - Adult strategies

Self Regulation	Mutual Regulation
The ability to independently attain an optimum level of arousal.	The ability to request and accept assistance from others in regulating ones arousal.
Adult strategies: Afternoon naps, exercise, mindfulness, Yoga	Adult strategies: Talking with friends, asking for assistance, group interests, friends + family

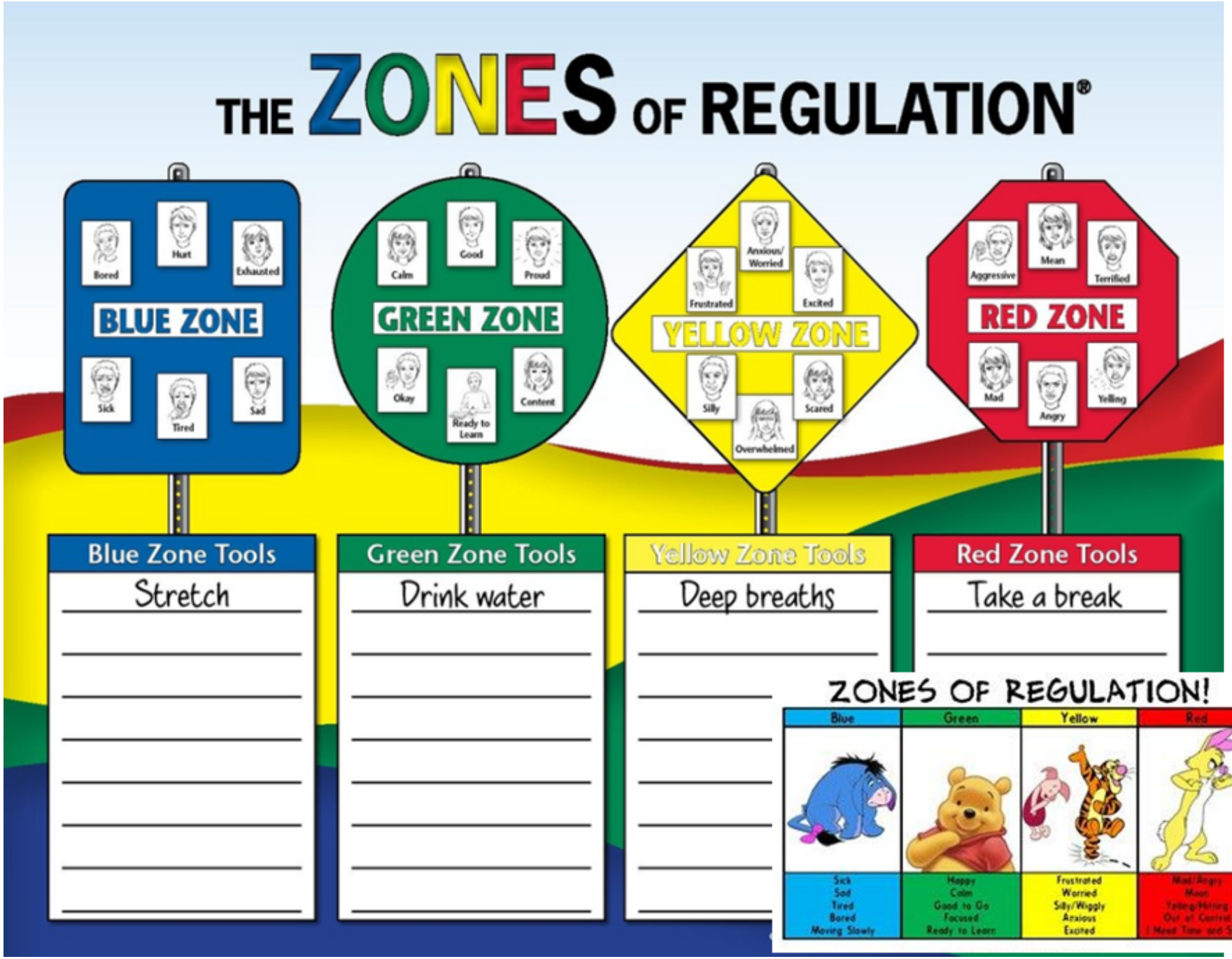


We need a balance between both for good mental health

Emotional Regulation in children with complex needs

Self Regulation	Mutual regulation
In children with complex needs self soothing behaviours are often immature due to limited ability to learn from others.	Difficulty predicting that others are a source of engagement or support Difficulty in requesting assistance
Example behaviours: - Self soothing behaviours such as flapping, vocalising, rocking - In some cases self injury –head banging/biting	Example behaviours: - Hitting out in order to communicate need for assistance - Unconventional greetings or communication strategies
So…….we need to provide and teach strategies to enable them to regulate.	

THE ZONES OF REGULATION®



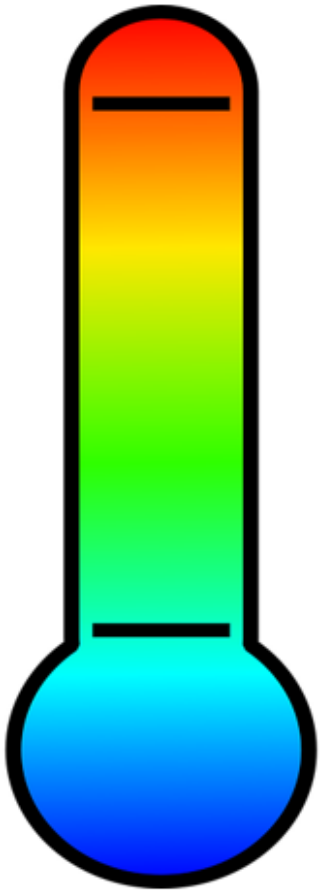
How can we help students to stay regulated at school?

- Frequent opportunities for movement
- Sensory room
- Quiet time
- Environmental modifications
- Sensory toys and equipment
- ‘Tuning in’ to the children and their regulation levels

Emotional Regulation in children with complex needs

Vestibular (Movement)	Proprioception (body Sense)	Touch	Hearing	Vision	Smell and Taste
Rocking Swinging Gym Ball - Exercises Trampettes	Deep pressure/resistive (pulling & pushing) Weighted/pressure equipment Massage Oral Motor Programmes Vibration Putty Therabands	Messy Play Brushing Vibration Putty Different temperature Fidgets	Calm/ alerting music Quiet Spaces Ear Defenders	Dim lights Dark dens – light toys Reduce visual clutter/ increase contrast	Oral motor Programme Calming or alerting scents

Example of sensory diet activities



RED = VERY HIGH:
'time out', space, remove from the environment.

YELLOW = HIGH:
traction: push/ pull activities, weighted objects, pressure activities, movement breaks.

GREEN = READY TO LEARN:
maintenance activities, sensory boxes, visual cues, verbal encouragement, movement breaks.

BLUE = LOW:
alerting activities, jumping (trampoline), catching games, animal walks, stretching.

Sensory Circuits

Alerting activities

Organising activities

Calming activities

Sensory Circuits

- Structured activities to help modulate arousal levels
- **Alerting activities**: (bouncing on a trampette, gym ball, jumping, running on the spot, skipping, movement in the wheelchair – back and forth/round and round –check for response)

  Vestibular input to stimulate the body's central nervous system in preparation for learning.
- Organising activities (i.e balancing on one leg, rolling over ball and throwing into a target, catch, copying body actions)

  Multi-sensory activities that demand **brain and body to work together**. Requires individual to organise their body, plan approach and do more than one thing at once.
- Calming activities (**Proprioceptive**/heavy muscle work and deep pressure- weighted equipment, putty, massage)

  Give an awareness of their body in space and increases the ability to self-regulate sensory input.

Alerting activities

Ball bounces

Jumping

Running/knee lifts
(on spot/up stairs)

Star jumps

Scooter board

Spotty dogs

Frog jumps

Spinning

Pillow fights

Other activities: Sliding, climbing, swinging, tug of war, 'hot potato' ball games
Consider: colder rooms, cold water, dancing, singing, messy play, crunchy foods, bright light toys, tickling, fresh air

Organising activities

Wheelbarrow walks

Animal walks

Rolling

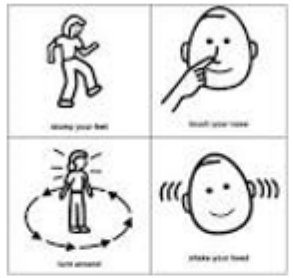
Crawling

Ball activities – rolling, throw and catch against wall/ basketball bouncing

Bench pulling/balancing

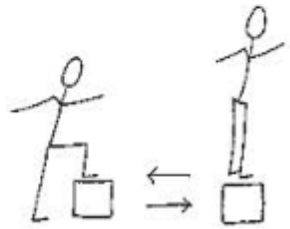
Step ups

Ball rolling



Simon says/copy me

One leg balance

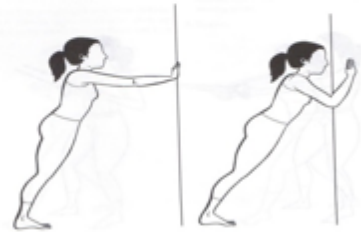


Calming activities

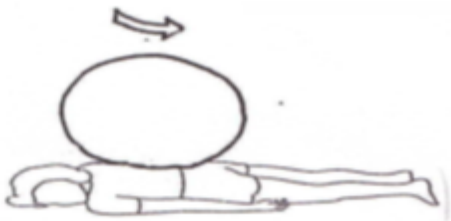
(consider dimming lights/using calm music)

Curl into a ball

Body sock

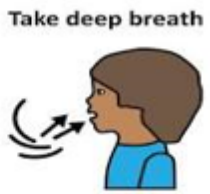


Wall press ups



Ball squashes

Tug of war/push/pull



Bridge

Deep pressure strategies:
Weighted vests, blankets, lap pads, brushing, massage, arm, leg squeeze and shoulder squeezes, yoga

How to help individuals with sensory processing difficulties

- **Honour the individual's need for more or less sensory input.**
- **Observe behaviours carefully:**

  Is the child in high or low arousal?

  Are they sensory seeking or avoiding sensory input?

  If sensory seeking, is this to help them to calm down or to 'wake' them up?

  Is the behaviour helpful?

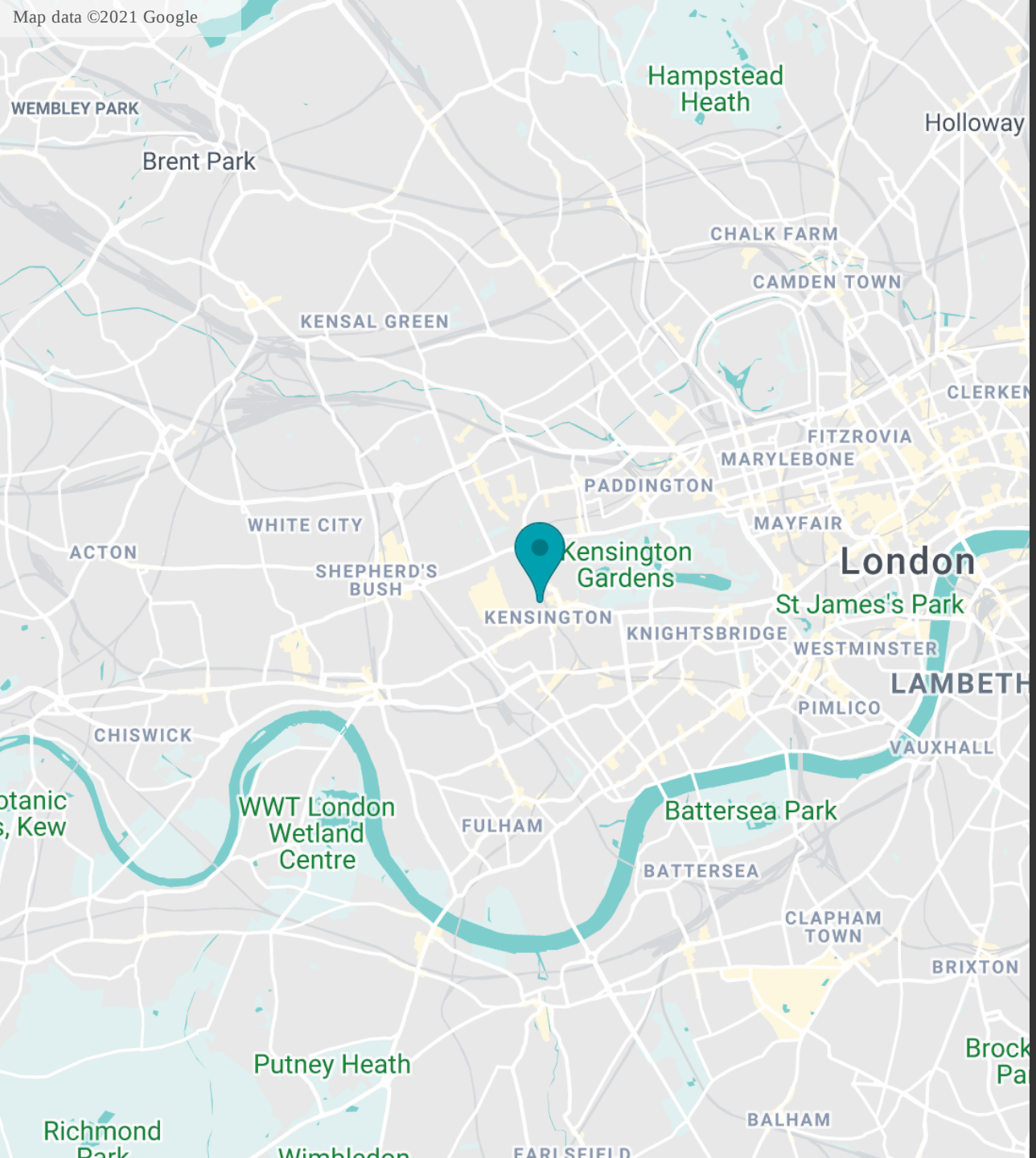
- **A challenging behaviour COULD be caused by a sensory need.**

Why Sensory Interventions?

- Sensory Integration is based on the principle of neuroplasticity
- Improvements in neuro functioning provide the foundations for adaptive behaviour, motor skills and academic learning
- By giving more or taking away sensory stimulation, we are hoping to achieve a...CALM ALERT STATE
- Calm enough to concentrate, alert enough to learn.

Final thoughts

- Be a detective!
- Be aware of the sensory responses of the students you work with and how this may impact on their learning and participation.
- Spend some time putting the pieces together in each child's sensory "puzzle."



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Thank you for listening!

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