

Alvervalley Schools

An introduction to sensory processing

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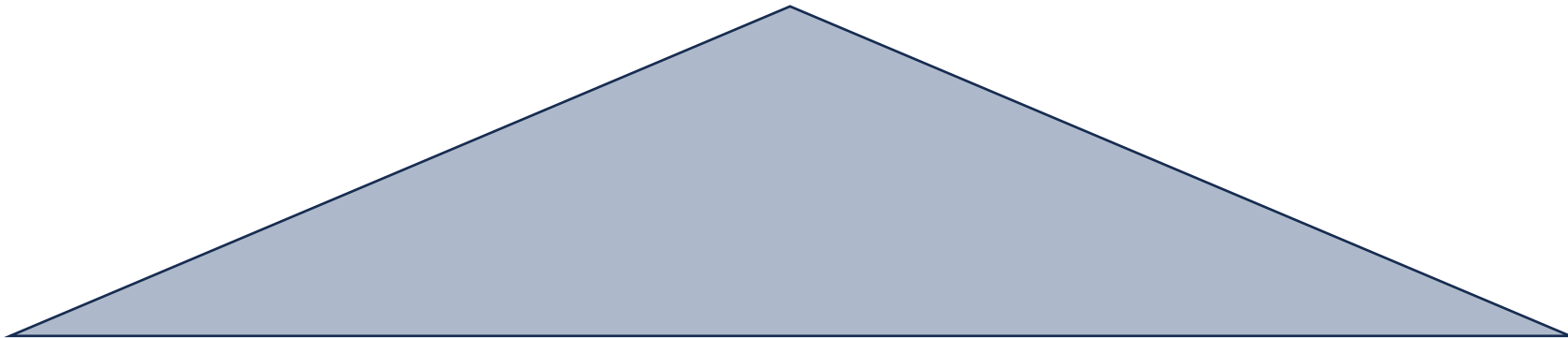
By the end of today you will...

- Have experienced a range of sensory inputs
- Have an understanding of what is meant by sensory integration and the areas within it
- Be able to explore your setting's environment to ensure it supports individual sensory needs
- Have tools to help you identify sensory processing needs
- Have an awareness of some initial strategies that you can use to support sensory processing needs

A young child with curly hair is lying on their back on a white mat on a wooden floor. The child is wearing a white shirt and colorful patterned pants. A wrapped gift in green and white paper with a grey ribbon is visible in the bottom left corner. The background is a light-colored wooden floor.

What is sensory integration?

- “The neurological process that organises sensation from one’s own body and from the environment and makes it possible to use the body effectively with the environment.” (Ayres, 1972)
- It involves the processing, integration, and organisation of sensory information received through our receptors
- We all rely on sensations to function in everyday activities that are at the “just right” level for us
- Integration of the senses underpins everything that we do (e.g. focusing our attention, tying shoe laces, running, eating etc.)
- If we do not register, process, integrate and organise information from our senses correctly, this will impact on our ability to function



Sport	Sitting at a desk	Hand Skills	Hand-writing	Play	Self-Care	Socio-emotional	Organi-sation	Orientation of letters and numbers	Layout of work	Copying	Maths	Reading and Spelling
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Attention & Concentration					Visual-Motor Integration							Attention & Concentration
		Fine Motor Components										
					Directionality Left-Right Progression	Visual Memory Visual Sequential Memory	Spatial Perception					
		Gross Motor Components			Hand Preference	Left-Right Discrimination	Visual Closure					
				Midline Crossing			Figure-Ground Perception					
		Postural Control & Balance	Bilateral Integration	Praxis		Basic Concepts: form, colour, texture & size						
		Postural Stability		Body Scheme		Visual Skills						
		Muscle Tone		Tactile Discrimination	Sensory Modulation	Self-Regulation						

	Vestibular System	Proprioception	Tactile Input	Visual Input	Smell, Taste & Auditory Input	The Wall Model® © Bunty McDougall Occupational Therapist
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Under-reactive

- Under reactive to sensory input
- Will not be experiencing sufficient input from senses
- Won't always register and respond to sensory input
- Will seek sensory input to help them reach threshold of registration
- Can be unresponsive, disengaged, slow to process information, becomes more alert in active activities

Over-reactive

- Over reactive to sensory input
- Will experience too much input from senses
- Will often avoid sensory input
- Have difficulty filtering out sensory input that is not relevant
- Can be defensive, avoidant, easily upset, anxious, distractible
- May try and block out irrelevant sensory input by carrying out repetitive movements (e.g. rocking, tapping, flapping)

The Tactile System



Our sense of touch

The tactile system

- The largest sensory system
- Receptors on outer skin as well as inside our bodies including roof of the mouth, throat, digestive system etc.
- Includes temperature, pain, pressure, vibration and our body position
- Responses to touch vary between people and can trigger emotional responses (e.g. calming/fear)
- The first system to develop at around 8 weeks in utero
- Developed from birth with skin to skin contact, being swaddled etc.





Under-reactive to tactile input

- Not notice when they are messy or if clothes need adjusting
- Have difficulties doing up buttons and other fine motor tasks
- Enjoy getting stuck into messy play, mud etc.
- Want lots of hugs and squeeze hard
- Have a high pain threshold

Over-reactive to tactile input

- Dislike personal care (e.g. hair brushing, washing, teeth brushing, hair cuts etc.)
- Become distressed in busy environments if people are close by/brush past them
- Avoid sensory/messy play
- React in what appears to be an extreme way to pain
- Dislike different clothes textures/labels etc.



The Vestibular System



Our sense of balance and where we are in space

The vestibular system

- Receptors can be found in the inner ear within our semi-circular canals
- Directly informs our motor output and motor control
- Helps with balance, maintaining posture, identifying where our body is (upside down or not), stabilising our head
- Provides information about motion and spatial orientation
- Contributes to ability to focus attention





Under-reactive to vestibular input

- Be constantly on the move and seek spinning/upside down movement
- Enjoy running, jumping, climbing, hopping, swinging
- Continually rock in their chair
- Fidgets frequently

Over-reactive to vestibular input

- Avoid movement, particularly spinning, jumping, bending over
- Dislike PE
- Prefer still activities
- Struggle to focus particularly if feet don't touch the floor in chair



The Visual System

A young girl with dark skin and braided hair, adorned with a red ribbon and blue beads, is smiling broadly while looking through a pair of bright green binoculars. She is wearing a pink and white patterned top. The background is a soft-focus outdoor setting, possibly a beach or park, with a person lying on the ground visible in the distance.

Our sense of sight

The visual system

Includes all visual skills including:

- Clarity
- Seeing 3D
- Depth
- Visual field
- Visual attention
- Assigning meaning from print
- Identifying an object on a busy background
- Object and facial recognition
- Visual spatial skills
- Visuomotor skills
- Maintaining vision in motion.







Over-reactive to visual input

- Prefer to wear caps and sunglasses
- Dislike bright lights and busy environments
- Prefer calm spaces and den
- Complain of headaches and not liking the light
- Be easily distracted by visual stimuli

Under-reactive to visual input

- Struggle to find items in a busy background (e.g. socks in a messy bedroom, coat in a messy cloakroom)
- Like looking at lights
- Struggle matching shapes/letters
- Find it hard to write on lines/with spaces between words



The Auditory System



Our sense of hearing

The auditory system

- How we hear and understand sound within our environment
- Sounds cause vibrations which are picked up by sound receptors within the ear
- Includes sound localisation and processing of auditory messages
- Helps us to interpret target sounds and “screen out” unimportant sounds
- Plays a key role in comprehension





Over-reactive to auditory input

- Find busy places overwhelming
- Startle easily to noise
- Become distressed easily to sound (e.g. tapping/hover/hand drier)
- Maybe loud themselves to drown out other or unexpected sounds,
- Can be explosive and show lots of emotion

Under-reactive to auditory input

- Not respond to name being called or instructions being given
- Appear unaware of things happening around them / day dreamer
- Hard to gain their attention



The Olfactory System



Our sense of smell

The olfactory system

- Can trigger memories and emotions
- Helps keep us safe
- Used to help motivate us to purchase items
e.g. Marks and Spencer's add the smell of chocolate to their sweet aisle





Over-reactive to olfactory input

- Avoid places due to smell e.g. the dinner hall, toilets, lush shops
- React strongly to smells and move away

Under-reactive to olfactory input

- Seem unaware of smells around them e.g. burning
- Repeatedly smell items (e.g. playdoh, hair, leather bag etc.)



The Gustatory System



Our sense of taste

The gustatory system

- Provides protection
- Supports homeostasis
- Provide pleasure
- Sensation felt through tastebuds (clusters of receptor cells) across the tongue and pharynx
- On average we have 2000 and 3000 tastebuds which last 10 days and are constantly replaced





Over-reactive to gustatory input

- Avoid food/described as fussy
- Gag easily on food
- Only like very bland foods – e.g. rice/pasta with no sauce
- Over-reactivity to tactile input can also impact on this

Under-reactive to gustatory input

- Seek to eat spicy/sour food
- May add lots of flavour to food – e.g. strong squash, lots of salt
- May eat everything insight - playdoh



The Proprioceptive System



Our sense of where our body is at anytime

The proprioceptive system

- Located in our muscles, ligaments and joints
- Incorporates information from our visual, tactile and vestibular systems to improve it's accuracy
- Detects and controls force and pressure
- Plays a key role in calming and helping us to feel safe, as well as helping us to keep alert and supports positive behaviours.
- Helps us to regulate and pay attention



Proprioceptive processing difficulties

- Carry out activities with too much force – e.g. open a door hard, push too hard when writing, hug too hard
- Lean against items
- Slouch, flop over desks
- Appear clumsy and weak
- Struggle manipulating small items e.g. doing buttons/zips
- Be unaware of body sensations e.g. hunger
- Appear cautious in movement
- May seek movement activities to help them to regulate e.g. jumping, pushing, pulling, crashing into things



A quick note on interoception.....

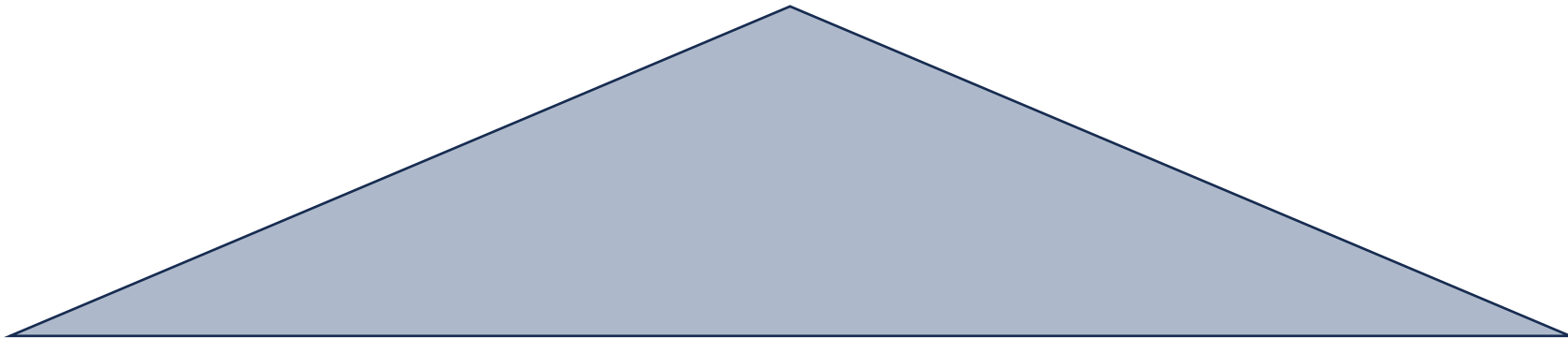
- Interoception includes all the signals from your internal organs, including your cardiovascular system, your lungs, your gut, your bladder and your kidneys
- Includes difficulties interpreting signals including breathlessness, hunger, thirst, needing the toilet, internal temperature regulation etc.



Sensory Discrimination

For some children they may register the sensory input but have difficulties discriminating and recognising different aspects of the stimulus. This is known as sensory discrimination.

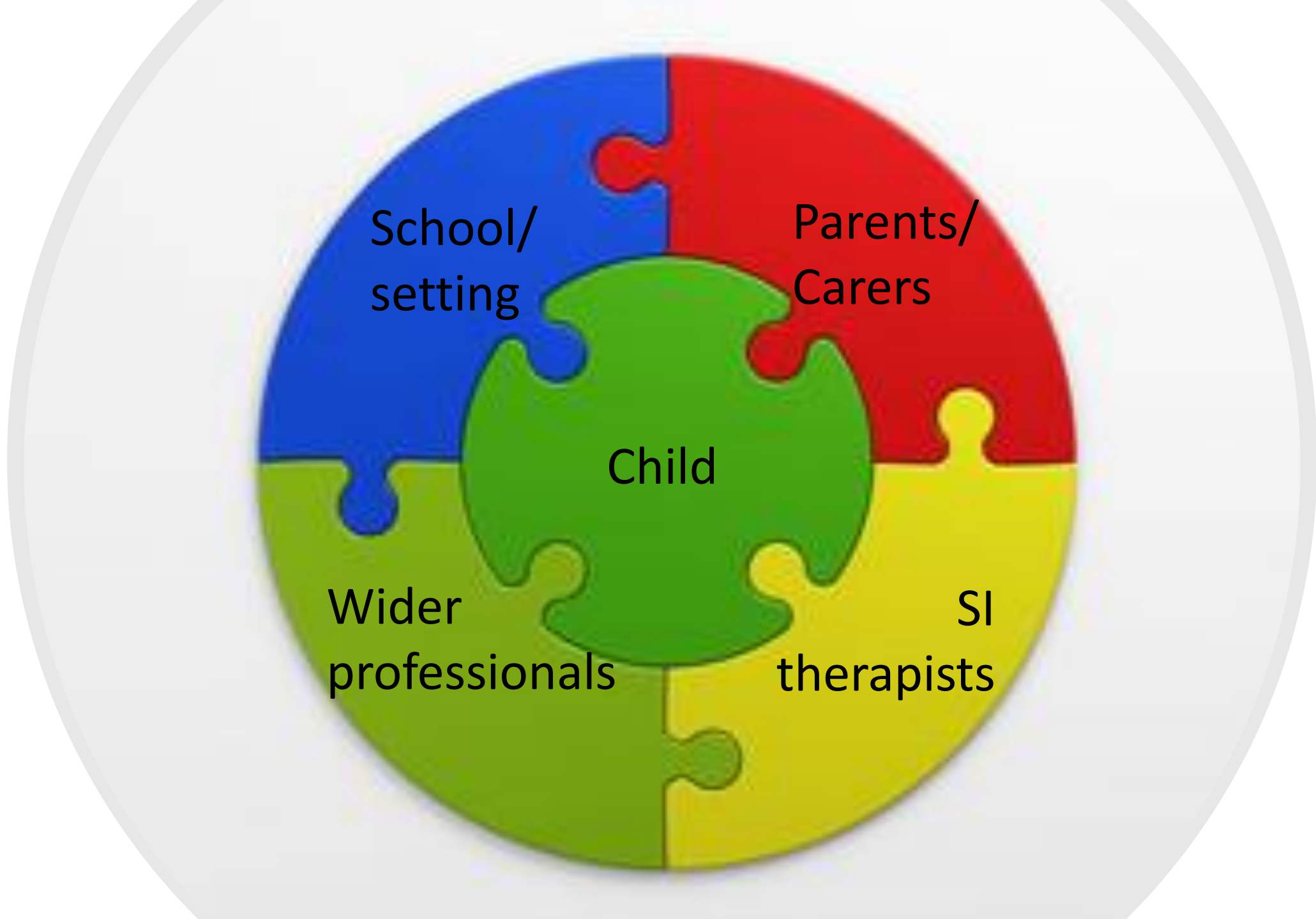
- **Auditory** – being able to hear the difference between the words cap and tap
- **Visual** – recognising people's faces, picking an item off of a busy back ground,
- **Tactile** – feeling the difference between items e.g. furry and rough, feeling the difference between a 20pence and 50 pence in your pocket
- **Gustatory** – recognising if an item is sour/spicy or not
- **Olfactory** – identifying where a smell is coming from
- **Vestibular** – knowing how fast you're are moving or what direction you are in



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School/
setting

Parents/
Carers

Child

Wider
professionals

SI
therapists

Case study

5 year old Jack is described as an active boy who is constantly on the move. He is unable to sit still or focus his attention and can often become frustrated and angry in busy environments such whole group carpet activities, when playing inside and whilst eating his lunch. He is often getting into trouble and nursery staff are unsure how to support him.

His mum reports that he does not sleep much at all and hates getting his hair cut and wearing certain clothes.

What could be the cause of this?



YOU

“Just right level”



Too little

Their cup is
never full

Too much


Their cup is
overflowing




IMPORTANT!

- When supporting a child with sensory processing difficulties it's important to seek support and advice from a sensory integration practitioner to help with assessment and planning of support strategies.
- Please contact the Solent NHS Telephone advice line on 0300 300 2019

Sensory preference checklist

Auditory (hearing) 		
Over responsive	Under responsive	Seeking
<ul style="list-style-type: none"> Dislikes loud, unexpected sounds (alarms, bells, sirens) Responds to loud noises by running away, crying and/or holding hands over ears Easily startled to unexpected sounds Prefers to stay away or avoid noisy environments Easily distracted by background noises Overwhelmed by canteen, shopping centres, assemblies Difficulties with higher pitched sounds like hand driers / hoovers 	<ul style="list-style-type: none"> Does not respond when his/her name is called Does not respond to instructions given just once Does not notice sounds around them May appear to be in their own world May not be able to tell where a sound is coming from Ask 'what' frequently in conversations Makes their own noises for fun 	<ul style="list-style-type: none"> Plays music and TV at very loud volumes Makes noises while doing other tasks Enjoys noisy places and environments

Taste 		
Over responsive	Under responsive	Seeking
<ul style="list-style-type: none"> Only eats familiar food Prefers bland food Dislikes strong food like mint sweets, spicy food Gags when new food is on offer 	<ul style="list-style-type: none"> Often doesn't notice whether food is spicy or bland 	<ul style="list-style-type: none"> Adds salt and spice to their food Prefers spicy/ salty food Puts objects to their mouth prior to playing with them

Sensory environment checklist



Sensory environment checklist for Schools and Classrooms



Child's name:

Date:



VISUAL

Pointer	Evidence to look for	Effect on pupil (note your observation and rate the reaction and/or behaviour)				Action for Medium and High risks	Who by & When	Done	Review Date & Actions
		N/A	Low	Med	High				
(example)	Low lighting (e.g. when watching a film at assembly)	Highly distressed, unsettled, shouting, and has hit out at others within reach (pupils and LSA)				Use now/next visual, discuss what will happen and expectations. Position next to a well-lit area, student aware to move from room if feeling or showing signs of overwhelm	Classroom staff & student (next event 31 Oct 22)	LSA (1/11/22)	Student was more settled, however forgot now/next visual – next event 08/12/22 – use visuals
Lights	Class lighting- neon lights- flickering lights								
	Sunlight coming through blinds and creating patterns								
	Sunlight coming through the window								
	Light reflecting on objects such as metal or shiny surfaces								
	Glare from the board or computer screen								
Classroom	Cluttered desk								
	Busy walls								
	Hanging displays from ceiling								
	Displays around the interactive board								
	Floor or wall patterns								
Position	Near a window with views of school ground								
	Looking at the whole class								

Work with parent and where appropriate the child themselves to find out likes/dislikes and how the child presents at home



top tips



IMPORTANT!

When implementing strategies, always monitor a child's responses closely. If they start to become dysregulated, upset, distressed or over stimulated then pause that activity and come back to it another time



The Proprioceptive System – top tips for modulation difficulties

- These are calming activities so a good place to start!!
- Provide opportunities for frequent pushing / pulling / lifting / stretching / swinging (e.g. carrying books to a class, partner stretch, yoga, moving tyres, tug of war, rocking etc.)
- Remember oral activities such as blowing bubbles, sucking through a straw, chewing
- Consider deep pressure – either hugs, wrapping in a blanket

Our sense of where our body is at anytime

The Tactile System – top tips for modulation difficulties

- Give regular, short exposure to tactile input when the child is feeling comfortable and at their pace. E.g. tactile tiles, tactile boxes (filled with rice, saw dust, playdoh, gloop, slime)
- Find alternatives to clothing that the child is comfortable with whilst working on their tactile processing
- If they are applying too much pressure with drawing or too rough with peers then proprioceptive activities including stretching, pushing, pulling activities etc. maybe beneficial
- Consider where the child sits or stands e.g in the line / on the carpet

Our sense of touch

The Vestibular System - top tips for modulation difficulties

- Give regular, short exposure to movement activities that are led by the child. This may include jumping, running, climbing, rolling, spinning, swinging. Start off small and work up (e.g. pushing a swing, sitting on the swing, swinging on it)
- For children who are under-reactive, they will need regular opportunity for vestibular activities – sandwich between focus tasks. Movement breaks are essential!
- Consider sitting on a gym ball or wobble cushion for under-reactive children
- For over-reactive children consider less fast/unpredictable movement activities

Our sense of balance and where we are in space

The Visual System - top tips for modulation difficulties

- Consider your environment – are there too many visual distractions which need reducing or does the child need things to be more eye catching? (e.g. different coloured pens being used)
- Give access to visual stimuli for short periods of time e.g. flashing lights, finding items in busy box
- Clearly label where the child needs to be returning resources/toys
- Consider your lighting – is it too bright or too dull?
- Is it ok for the child to wear darkened glasses?

Our sense of sight

The Auditory System - top tips for modulation difficulties

- Consider your environment – are there background noises such as hand driers, cars outside, heaters, toilets etc.
- For under-reactive children remember to call their name before giving an instruction and use visual cues
- For over-reactive children consider having a quiet area they can go to or access to ear defenders, visual timers to show how long they have with an activity
- Always use visuals to help
- Play listening games to help children be exposed to sounds as well as tune in to sounds.

Our sense of hearing

The Olfactory System - top tips for modulation difficulties

- Consider your environment – are there strong smells e.g. paint, toilets, coffee, shampoo
- Give children regular exposure to smells for short periods of time and talk about the smells – e.g. smell in playdoh, baking
- For children who are under-reactive talk to them about other ways to stay safe e.g. appearance of the food, making sure smoke alarms work
- For over-reactive children consider your perfume/shampoo, keep rooms ventilated, gradually expose children to smells for short periods of time (e.g. lunch hall for 1 minute then build up)
- Consider having a fabric that has a comforting smell on it to smell if other smells become too much.

Our sense of smell

The Gustatory System - top tips for modulation difficulties

- Give regular, short opportunities for stronger tasting, crunchy, sweet/sour, spicy food
- Allow food play at regular intervals
- Use “stop” / “no eating” visuals for those who want to eat everything
- Consider chewy toys
- If under-reactive to gustatory input then try mouthwash/stronger snack before a focused learning task

Our sense of taste

Case study

Katie is 7 years old and often reluctant to come into the setting. She prefers to sit still and is reluctant to join in movement games. Mum reports that she does not respond when she is spoken to, and nursery feel she often sits and daydreams. Katie can become very upset at lunch time and does not like it when peers come close to her. She can interact very well when she feels happy to, but her speech and language skills are delayed.

What could be impacting on Katie's presentation?

Who would you need to speak to?

What could you initially do?



Remember!

Always monitor a child's reaction to an activity closely. If you notice them becoming dysregulated (e.g. avoiding, becoming upset/anxious etc.) stop the activity and try at a lower level at another time

Where possible always seek support from a qualified sensory integration practitioner.



Remember!

- All children are unique and will interpret sensory information differently.
- Get to know your children and find what they need to be at their “Just right level” for the activity they are doing
- Give pockets of focused support on the areas they need e.g. if they need to spin for a bit that’s ok to do, then do focused learning.





—
An introduction to Sensory Ladders




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A tale of the senses - an introduction to sensory stories

Further sensory training available

<https://sway.office.com/GOREmSmTGXOhwkJ0?ref=Link>



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Sensory Feeding



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Services for young children -
Sensory processing training portfolio



By the end of today you will...

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- Be able to explore your classroom environment to ensure it supports individual sensory needs
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Any questions?

Course code: 2324AVsensorysupport



<https://childrenshampshire.welcomesyourfeedback.net/ujvtu3>