

Sensory Systems

Sensory System		Functioning Well	Functional Difficulty	Strategies
Movement and Balance Vestibular	<ul style="list-style-type: none"> • First sensory system to develop • Foundation of the brain to understand all other senses and motor behaviour • Essential in creating a calm and alert state 	<ul style="list-style-type: none"> • Maintain balance and postural tone • Maintain head position and directs the gaze of the eye • Orients us in space • Gives our sense of movement and understanding of gravity 	<ul style="list-style-type: none"> • Difficulty with posture, movement, balance <p><u>Over-responsive:</u> fear of movement, motion sick/nausea, dislikes playground swings and slides</p> <p><u>Under-responsive:</u> craves intense movement experiences, does not get dizzy spinning</p>	<ul style="list-style-type: none"> • Spin, Roll, Swing, Rock • Scooter board • Jump rope, hop scotch • Dynamic seating (therapy ball, rocking chair) • Somersaults, cartwheels, log roll • Biking, swimming, gymnastics
Muscles Proprioception	<ul style="list-style-type: none"> • Unconscious information regarding load and tension for movement 	<ul style="list-style-type: none"> • Informs of how much muscle contraction is needed to maintain a posture or complete a task, including force, timing and speed of movements. • It provides a sense of body awareness by telling us where we (including our limbs) are in space. 	<ul style="list-style-type: none"> • reduced feedback through muscles and joints, poor body awareness • difficulty with motor planning, motor control, and postural stability • a loose and floppy body (tone), slumped posture, odd postures • may lie on the floor during carpet activities or “W” sit • holds pencils tightly, messy work with erasure holes • props body, locks joints • uses deep pressure to gain body sense • stomp his feet on the ground while walking • crash on the floor or into 	<ul style="list-style-type: none"> • Jump, hop, skip • Balance board/Bosu • Trampoline • Weight-bearing: wall, desk, floor, animal walks • Stretching, yoga • Push & pull and climbing • Joint compressions • Lift and carry weighted items • Weighted material: lap pads, pencils, dumbbells, wrist/ankle weights

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			<p>walls</p> <ul style="list-style-type: none"> • prefers snug clothes • kicks heels against the floor or chair 	
Touch Tactile	<ul style="list-style-type: none"> • Dysfunction in either the protective or discriminative system may cause a child to interpret ordinary touch as threatening or dangerous resulting in extreme reactions/responses: <ul style="list-style-type: none"> ➢ flight (bolt, avoidant) ➢ fright (clingy, crying, fearful) ➢ fight (physical, aggression) 	<ul style="list-style-type: none"> • <u>Protective/Defensive</u>: alerts us to potentially harmful stimuli (e.g. severe temperature, light touch, pain.). We need it for survival. • <u>Discriminative</u>: tells us <i>what</i> we are touching, <i>where</i> on our body is being touched and provides information about the <i>properties</i> of that touch. For instance, it tells us about the size, shape, texture, temperature and pressure (light/deep) associated with that touch. 	<p>Poor tactile discrimination:</p> <ul style="list-style-type: none"> • unable to identify without looking • difficulty with fine motor activities and tool use (cutlery, scissors, pencils, etc.) • may be a messy dresser (appear disheveled), eater, and/or messy with crafts/hands-on activities • may avoid certain tactile experiences (such as touching certain toys, textures, etc.) <p><u>Overresponsive:</u></p> <ul style="list-style-type: none"> • light or unexpected touch is uncomfortable or threatening • bothered by clothing tags, seams, different materials • dislikes grooming (hair, teeth or nails) • avoids certain surface textures e.g. grass • defensive to messy, sticky activities <p><u>Underresponsive</u> (reduced response to touch or has an unusually high tolerance) ...</p> <ul style="list-style-type: none"> • excessive touching, pressing 	<ul style="list-style-type: none"> • Ball Pit • Cocoon Crawl • Deep Pressure to reduce protective reactions • Sensory bins (water, sand, beans) • Squish- play-doh, clay, goop, putty • Walk on different textures • Koosh Balls, fidget tools • Hand Held Massager (vibration) • Identifying different textures in a bag “feely bags”

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			<p>too hard, mouthing, self-harming (bang head, picking)</p> <ul style="list-style-type: none"> • may play “too hard” with pets/kids – resulting in injury • show no reaction to pain • seek certain messy experiences, enjoy intense touch/input (e.g. vibration) 	
Taste Gustatory	<ul style="list-style-type: none"> • Sensory input through the mouth 	<ul style="list-style-type: none"> • <u>Sucking</u> is calming • <u>Chewing</u> helps with concentration on thoughts • <u>Crunching</u> is alerting 	<ul style="list-style-type: none"> • Constantly putting things in their mouth: toys, fingers, pencils, hair, clothing OR may avoid certain food textures 	<ul style="list-style-type: none"> • Sensory snacks • Sucking on a water bottle, straws • Chewing Gum • Blowing activities (cotton ball) • Horns or Whistles
See Vision	<ul style="list-style-type: none"> • Information (light) received through our eyes is interpreted in the brain. • The visual system works closely with the vestibular and auditory systems (navigating our environment, spatial awareness/orientation). 		<ul style="list-style-type: none"> • difficulty sustaining visual attention/distractible • light sensitivity • may squint, shield eyes or position head at an odd angle • difficulty copying, reading, with mathematics • orients drawings poorly, letter reversals, writes uphill or downhill • confuses right and left/poor sense of directionality • challenges with catching/throwing • balance, depth perception (stairs) 	<ul style="list-style-type: none"> • Eye Tracking/Cross Midline (Board Work) • Flip and Catch, Ball activities • Launch Board • Mazes, Puzzles, Word Searches • High contrast backgrounds (e.g. on desk) • Highlight margins/lines, etc. • Raised line paper • Simplify worksheets • Reading box/ruler to block out extra stimuli

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<p>Hear Auditory</p>	<ul style="list-style-type: none"> • Receiving (filtering), interpreting and responding to information received through our ears 		<ul style="list-style-type: none"> • sensitive or defensive to sounds (cover ears, agitated) • difficulty paying attention to one voice or sound • appear unaware of sounds • looks around for the sound source • miss verbal directions or name being called • trouble attending to, understanding, or remembering what he/she hears 	<ul style="list-style-type: none"> • Advance warning of sudden or loud noise • Dampen loudspeaker • Headphones (noise cancelling or with music) • Quiet work station or “zone” (e.g. tent, carrel) • Music, background (“white”) noise • Preferential seating (close to teacher, away from door) • Pair auditory input with another sense (vision, touch) • Carpet flooring • Tennis balls on chair legs
<p>Smell Olfactory</p>	<ul style="list-style-type: none"> • Smells need to be intermittent to prevent habituation 			<p>Excite:</p> <ul style="list-style-type: none"> • Use smells such as citrus and foul odours <p>Calm:</p> <ul style="list-style-type: none"> • Use smells such as lavender, baby powder, sweet