

Appendix

Common classroom modifications for sensory modulation disorder (SMD):
 Rationale and effect on adaptive response

SEATING AND POSITIONING

Strategy	Rationale	Benefit and effect on adaptive response
Dynamic cushion	<p>Wedge-shaped: allows child-generated minor movement in linear front to back plane (some bounce)</p> <p>Disc-shaped: allows child-generated variable movement in all planes; heavy work to postural core; can be used on chair or floor</p>	Increases proprioception and thus arousal; suits degree of movement to child; enhances attention; extends work endurance; outlet for sensory-seeking behavior; use on floor to delineate child's space, increasing comfort in group (placing child at periphery can be more tolerable to overresponsive child); increases intensity of sensation
Rocking chair; glider	Child-generated, rhythmic, linear movement	Child adjusts movement intensity to calm or alert; enhances attention; extends work endurance during quiet times (silent reading); delineates space; provides respite when child needs a break
Cube chair; booster seat; armchair	Provides tactile boundaries around child's body	Provides constant, predictable pressure touch for calming (especially if padded); delineates space on floor; increases duration of sensation
Small inner tube	"Cradles" child when seated on floor	Provides constant, predictable pressure touch for calming; child-generated movement as tolerated; delineates space on floor; provides respite
Therapy ball	Can be used as alternative to desk chair; provides child-generated movement in multiple planes; can be used for universal support to whole class. Variations for floor: inflated "animal seat," inflated stool, bolster, peanut-shaped ball	Rock for calming; bounce for alerting; extends work endurance and attention to task; outlet for sensory-seeking behavior; adjusts intensity, frequency, duration

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“Uneven” chair	One shorter leg on chair provides for minor rocking	Can be alerting or calming; outlet for sensory-seeking behavior
Beanbag chair; large pillows	Envelops child when seated or provides “crash” pad; child can “burrow” under pillows	Deep pressure touch to multiple body surfaces; calms; burrowing allows “escape” and/or respite Crash pad increases proprioception for organization of behavior; outlet for sensory-seeking behavior; increases intensity
T-stool; rolling chair	Child-generated movement in variable planes and directions	Proprioception from postural core; alerts and/or organizes; extends work endurance and attention to task; outlet for sensory-seeking behavior; adjusts intensity, frequency, duration

ENVIRONMENTAL MODIFICATIONS

Strategy	Rationale	Benefit and effect on adaptive response
Modify walls	Limit decorations and/or hangings to include at least one “neutral” wall; paint with calming colors (blues and/or greens)	Calms visual environment; removes distraction; enhances attention; prevents gradual escalation of arousal
Modify lighting	Turn fluorescent lights down on sunny day; include lamplight; use “daylight” bulbs or full spectrum lighting	Reduces harsh light; calms visual environment; enhances attention; may increase work duration; prevents gradual escalation of arousal; flashing lights may be intolerable to overresponsive child
Modify sound	Provide background music to suit needs of student; provide movement break; provide rhythm; provide warnings of loud sound (fire drill)	Provides calming or alerting auditory sensation Calming: quiet, nature sounds; beat-per-second rhythms; predictable; moderation of teacher voice; “silent clapping” Alerting: loud, variable rhythms; unanticipated sound (clapping or burst of laughter)

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Consider furniture	Are children too close? Is there enough space at table? Do chairs fit child? Do chairs make noise when moved on floor? Does furniture leave enough floor space to allow for variable body positions during floor play?	More space “protects” tactile or movement-sensitive child and reduces likelihood of unwanted touching by sensory-seeking child; well-fit chairs provide contact with feet on floor for movement-sensitive child; alternative floor play enhances tactile encounters, pressure to body, natural movement
Designated sensory room	Designed by the OT to include specialized equipment for maximal benefit to children with SPD	Individualized therapy; supervised movement or respite breaks; restores self-regulation and enables ability to reengage in occupational tasks with optimal adaptive response
Seat assignment	Provide placement at periphery; experiment with back or front of classroom; change positions regularly for novelty	Distracted or visually overresponsive child at front; underresponsive child in front to receive instructional cues; novelty for under-responsive child; sensory-seeking child in back to allow for standing, stretching, or movement without disturbing others; experiment for movement-sensitive or touch-sensitive child; slightly separate desk to prevent unanticipated touch or reduce proximity of peers
Study carrel	Modifies child’s immediate visual (some sound) environment; limits distraction	Increases focus on immediate task; some respite (<i>Note:</i> consider impact on constructivist learning methods. OT and teacher should negotiate regarding other options for supported group encounters.)
Room arrangement	Open space; carpeted space; respite corner; reading “loft”; space for mini-trampoline or rocking board; higher counter for standing work	Room for movement breaks; space for alternative positions to encourage postural and antigravity adjustment for baseline arousal; social engagement; separation when necessary; respite breaks
Modify storage	Cover or enclose extraneous materials (book shelves, dress-up clothing; blocks); unify storage containers; consider height of storage to encourage stooping, reaching, stretching	Covering materials removes distraction; unifies visual environment; calms; prevents gradual escalation of arousal Height of storage facilitates proprioception via movement opportunity

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Weighted vest, shoulder “snake” or lap pad; weighted backpack	Increases proprioception and deep pressure touch	Calms and/or organizes for self-regulation; increases attention and adaptive response; limits sensory-seeking behavior; weighted backpack can be worn during transition times between classrooms to organize the overresponsive or sensory-seeking child; regulates intensity, duration
Spandex or Lycra clothing; bike shorts; pressure vests	Increases deep pressure touch	Calms and/or organizes for self-regulation; regulates intensity, duration
“Body sock” or Lycra wrap	Increases deep pressure touch; “heavy” (resistive) work	Calms and/or organizes for self-regulation; respite activity; can be incorporated into classroom movement games; social engagement
Hooded sweatshirt; soft, worn, or all-cotton clothing; seamless socks; tags removed	Increases warm and/or tolerable touch; hood allows for occasional “escape”	Calms and/or organizes for self-regulation; eliminates sources of nonhabituating tactile sensation that can distract the overresponsive child and escalate behavior
Headphones	Provide soothing or alerting sound or no sound; filter or eliminate ambient sound via general noise reduction	Calms, alerts, or organizes for self-regulation; provides respite from multiple sound environments of classroom; increases attention to task; may improve test taking; eliminates source of nonhabituating auditory sensation

MATERIALS

Strategy	Rationale	Benefit and effect on adaptive response
General toys and/or materials	Consider sensory characteristics, including texture, color, sound, weight	Note that weighted toys (heavy balls, weighted blocks, or building bricks) provide increased proprioception and “heavy work” for embedded regulatory sensation throughout the day

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Fidget toys	Any combination of sensory characteristics: squishy, soft, bumpy, vibrating, bendable, stretchy, smooth and/or hard, scratchy, weighted. Allow anytime access or during “listening” times or transitions	Tailored to sensory needs of child; self-regulation; outlet for sensory-seeking behavior; enables selective attention; prevents child from touching and/or pestering peers (note: to prevent distraction to peers, select quiet toys during listening times); regulates frequency, duration, some intensity
Chewables and other oral options	Chewable bracelets or necklaces, whistles, straws, harmonicas, age-appropriate choices for oral exploration	Allows for self-regulation, attention; provides outlet for oral sensory-seeking (especially for child who chews and/or sucks clothing); provides a source of “heavy work” to specific muscles and joints
Snacks	Flavors: Intense (cinnamon, citrus, salty) Bland (vanilla)	All for self-regulation: Alerting Calming
	Intense textures: crunchy, chewy	Alerting
	“Heavy work” to muscles of mouth: strong sucking through small straw; thickened liquids (yogurt, milkshake); lollipop; gum	Organizing
	Temperature	Cold for alerting; warm for calming
Olfactory options	Aroma kits	Assists with self-regulation (calming or alerting); promotes attention
Vibration	Teething toys; pillows; small massagers; stuffed animals	Initially alerting; calming over time
Tactile placemat	Needlepoint grid, sandpaper, tub decals	Place under coloring paper to increase sensory feedback: alerting; can sustain attention to task
Bright placemat	Orange, red, yellow under written work	Alerting; sustains attention
Roller or rocker board under feet; spandex wrap on chair legs	“Fidgets” for the feet	Provides outlet for sensory-seeking behavior; spandex offers heavy work or resistance for self-regulation; regulates frequency, intensity, duration
Velcro tabs	Place on or under edge of desktop: loops for soothing touch, hooks for alerting touch	Assists with self-regulation; provides outlet for sensory-seeking behavior; inconspicuous

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Small fans	Handheld as fidget toy; desktop as sound and/or tactile sensation	Assists with self-regulation; alerting; provides “white noise” for masking ambient sound
Sensory bins and tables	Fill with beans, cornmeal, sand, rice, water, bubbles	Assists with self-regulation; provides outlet for sensory-seeking behavior; can gradually desensitize child to touch, depending on material. (<i>Note: slimy textures are often rejected by the overresponsive child; lightweight materials [rice] can overstimulate a child and create disorganized behavior</i>)

Do not force participation

ROUTINE

Strategy	Rationale	Benefit and effect on adaptive response
Early arrival or dismissal	Enables packing or unpacking before group arrives	Reduces likelihood of unwanted physical contact or “chaotic” movement; enables selective attention to arrival and/or dismissal routine; provides a better start and end to the day
Movement breaks	Embed regularly into daily routine and learning activities; allow extra as needed	Excellent for self-regulation of all children; enhances learning via the movement–learning link
Special assignments	Additional movement breaks (bring attendance to office; hand out or collect papers; stack books; erase board; carry materials bin while walking in line; be door holder, note taker, stopwatch manager)	Creates embedded proprioception and movement for self-regulation; provides respite; provides outlet for sensory-seeking behavior; provides protection from unwanted sensation; promotes self-esteem and confidence
Daily schedule	Predictable or novel, depending on child’s needs	Predictable for overresponsive child; novelty for underresponsive or sensory-seeking child
Visual schedule	Aids predictability of daily events and transitions	Reduces anticipatory anxiety and hypervigilance; facilitates work duration when breaks are known

Strategy	Rationale	Benefit and effect on adaptive response
Timers	Aid predictability of work session or end of break	Reduces anticipatory anxiety; facilitates work duration Visual timer for child who processes best through visual channel
