

Comprehensive Resource & Infrastructure Requirements

HARDWARE, ENVIRONMENTAL ADAPTATIONS, ASSISTIVE TOOLS & SUPPORT SYSTEMS FOR CHILDREN, TEACHERS, AND PARENTS

1. Essential Infrastructure & Tools for Children (Ages 2–6)

Personal Assistive Tech & Retention Gear INDIVIDUAL HARDWARE

- **Phonak Roger / FM Receivers:** Wireless receivers attached directly to hearing aids/cochlear implants, streaming the teacher's voice directly to the child's ear over ambient room noise.
- **Retention Softbands & Huggie-Klips:** Silicone straps and elastic softbands designed to keep hearing aids and processor coils securely anchored on active toddlers during playtime.
- **Electronic Dehumidifier Drying Boxes:** Compact UV-C electric drying stations (e.g., PerfectDry Lux) used daily at school or home to remove moisture and preserve processor electronics.

Sensory & Vibrotactile Integration Tools SENSORY THERAPY

- **Vibrotactile Sound Mats & Bass Platforms:** Wooden floor platforms connected to low-frequency subwoofers that convert voice, rhythm, and music into physical vibrations felt through barefoot play.
- **Multi-Sensory Room Equipment:** Fiber-optic light strands, bubble tubes, weighted lap pads, and textured tactile walls that help develop spatial awareness, balance, and fine motor skills.

Visual Communication & AAC Hardware VISUAL AIDS

- **Magnetic Visual Schedule Boards:** Visual Picture Exchange Communication System (PECS) boards featuring standardized Indian Sign Language (ISL) icons alongside real photos for daily transitions.
- **Ruggedized AAC Tablets:** IP68-shatterproof iPads loaded with gesture-based symbol apps (e.g., Proloquo2Go) tailored with ISL video sign banks.

Speech & Oral-Motor Therapy Tools CLINICAL THERAPY

- **Oral-Motor Vibrating Probes:** Medical-grade silicone vibrating massagers (e.g., SpeechGears / Z-Vibe) to stimulate tongue placement, lip closure, and jaw stability for articulation therapy.
- **Therapy Mirrors with Integrated LED Strips:** Desktop double-sided mirrors for speechreading (lip-reading) and facial expression mapping.

2. Essential Infrastructure & Tools for Teachers & Specialized Staff

Classroom Acoustic & Environmental Infrastructure CLASSROOM SETUP

- **Sound-Field Classroom Amplification:** Wall-mounted directional speaker arrays (e.g., Lightspeed Redcat) that amplify the teacher's voice at an even +15 dB Signal-to-Noise Ratio (SNR) throughout the room.
- **Acoustic Treatment & Dampening:** High-density (NRC 0.85+) acoustic wall panels, rubberized carpet tiles, and felt table-leg glides to eliminate room echo and reverberation.
- **High-CRI Glare-Free LED Lighting:** Flicker-free 5000K daylight lighting setups that eliminate facial shadows, reducing eye fatigue during long lip-reading and sign language sessions.

Instructional Tech & Live Captioning Hardware **PEDAGOGY TECH**

- **Phonak Roger Touchscreen Microphone:** Multi-directional lapel/lanyard microphone worn by teachers that automatically filters noise and captures both teacher instructions and peer responses.
- **Interactive Smart Displays with Dual Video Feeds:** Touchscreen displays capable of split-screen output—one side displaying interactive lesson media and the other running live ISL video feeds or real-time speech-to-text captions.

Diagnostic & Classroom Management Systems **OPERATIONS**

- **Ling-6 Sound Test Visual Cards & Puppets:** Diagnostic visual card kits for morning daily equipment checks across six core speech frequencies (/m/, /ah/, /ee/, /oo/, /sh/, /s/).
- **Flashing Visual Strobe Alerts:** Multi-colored visual strobe light systems synced to class bells, activity transition timers, and fire safety systems.

3. Essential Tools & Support Systems for Parents & Caregivers

Home Intervention & Practice Kits **HOME LEARNING**

- **Home Visual Daily Routine Kits:** Portable magnetic schedule boards mirroring the classroom routine for bedtime, mealtime, and hygiene habits.
- **Cochlear / Hearing Aid Early Intervention Toolkits:** Activity goal decks (such as Advanced Bionics Tools for Toddlers or Cochlear Sound Foundation Kits) providing weekly guided auditory-verbal exercises for home practice.

Home Safety & Environmental Alerting Devices **HOME SAFETY**

- **Visual & Vibrotactile Signalers:** Flashing light doorbells, vibrating bed-shaker alarm clocks, and vibrating baby monitors designed for deaf households.

Digital Learning, Diagnostics & Tele-Rehab **PARENT ENABLEMENT**

- **ISL Family Mobile Apps:** Video learning suites (e.g., ISLRTC Sign Apps, Spreadthesign) for whole-family sign vocabulary practice.
- **Clinical Listening Stethosets & Battery Testers:** Diagnostic listening tubes allowing parents to hear what their child is hearing through the hearing aid to detect distortion, static, or dead batteries before school.
- **Tele-Coaching Platforms:** Secure video conferencing setups enabling remote speech therapists to observe and coach parent-child interactions in their natural home environment.