



Teaching Strategies for Noonan Syndrome (NS)

Introduction

- Children with NS may have visual, auditory, motor and/or cognitive difficulties
- It is recommended that teachers ensure NS students have had visual, auditory, Occupational Therapy and Physical Therapy assessments prior to commencing classes to facilitate positive learning outcomes and classroom participation
- Most children with NS have normal intelligence, but many will require educational supports

Motor Development

- Motor issues may lead to poor sitting posture and difficulties with balance which will adversely affect attention and distractibility
- Short stature may affect positioning
- Activities that require good hand eye control (i.e. writing, drawing and painting) may present difficulties
- Pencil and tool skills may be weak due to poor motor control and difficulty with coordination
- May have a higher rate of clumsiness and coordination (particularly relevant for Physical Education and Play based lessons)

Motor Development Interventions (if applicable)

- Use thickened pencils, pencil grips and scissors
- Sloping working surface may help
- Use fine motor activities (Lego, play dough, beading) to improve co-ordination
- Practice folding, cutting with scissors
- Allow writing on every other line or provide large, spaced, lined paper
- Allow tracing or copying or print notes to be taken home
- Allow extra time for written activities; older students may find typing easier and more productive than handwriting for written tasks
- Ensure appropriate seating and positioning (may need supportive cushioning, wobble cushion/chair or an adjustable chair)
- Storage and lockers are appropriate size and height

Language Development

- Language difficulties in children are common and can be the root of future difficulties in literacy skills, including reading, writing, and spelling.
- Verbal performance is typically lower than nonverbal performance.

- May have difficulty with higher order language such as reasoning, problem solving, understanding humour, and perceiving the rhythms and subtle contours of verbal speech

Language Development Interventions (if applicable)

- Choose rhyming books with high repetition of words and phrases
- Facilitate phonemic awareness for blending, segmenting, deletion and discrimination tasks
- Allow longer time periods to orally answer questions
- Dramatically pause to allow students to fill in the refrain as you are reading
- Provide templates for students to jot down notes and key concepts as they read
- Improve vocabulary for written and verbal expression by forming associations between words, paraphrasing, and elaborating on an idea
- Log unfamiliar words in a personal dictionary that includes the sentence that contains the word, page number, a guess about the meaning, the pronunciation, a dictionary definition, and a new sentence using the word
- Group words into word families with multiple exemplars of each phonetic pattern
- Explicitly teach phonics rules and review them multiple times
- Promote language understanding by using simple short sentences, visual prompts, and pictures
- Allow extra time
- Repeat directions
- Provide lesson summaries
- Record lesson so child can listen again
- Promote language development by giving ample time for responding, calling on them if they know the answer and encouraging them to repeat the question before providing the answer

Cognitive Development

- Cognitive difficulties including, executive functioning, concentration, attention, impulsivity, short-term memory, receptive language, repetitive behaviours and visual/spatial impairments may be evident.
- Executive functioning issues may include problems with attention, short term memory, planning, inhibition and social interaction
- Problems with sustaining attention, switching tasks
- Abstract language and concepts can be difficult to grasp
- Metaphors may be rarely used or understood
- Instructions may be heard but not retained long enough for action
- Difficulty with integration skills, working memory, and episodic memory
- Executive function issue affect planning, thinking flexibly, and understanding the abstract.
- May struggle to remember, process, and organize information efficiently

Cognitive Development Interventions (if applicable)

- Simplify verbal and explain concepts clearly – break instructions into steps
- Provide visual cues and instructions
- Repeat information and use positive reinforcement
- Ask child to repeat instructions
- Give manipulatives (things to touch and move around) whenever possible to work on concepts (such as in maths when teaching sums or fractions)
- Assign class readings a week ahead of time for students to preview. This will improve attention and comprehension
- Allow extra time to complete tests
- Give the student a choice of what to read within selected genres, topics, and themes. High interest reading facilitates comprehension and reading for pleasure
- Both auditory and written instructions should be provided
- Help the child find a starting point especially on complex tasks
- Select relevant task goals
- Use a calendar to track important events
- Monitor and evaluate behaviour and emotions
- Help organize everyday needs at school (for example: have specific places for specific items and different coloured notebooks or texts for different subjects)
- Provide lesson summaries
- Record lesson so child can listen again
- Classroom seating is important – front of class will reduce distraction and background noise
- Modify assessments (ie multiple choice) to suit student's learning strength and style to better assess student knowledge