



# Creating Inclusive Multi-Sensory Environments for Neurodivergent Learners

A Resource for Educators and Families



# What This Guide Intells

This visual shares the main ideas presented in my capstone research. The study explored the positive impact multi-sensory learning environments have on neurodivergent learners.



# About This Study



This capstone studied examined qualitative research through a rapid review process to better understand how MSE and UDL environments support the diverse needs on ND students as well as how educators can better support these learners by thoughtfully designing their environments, that are flexible, inclusive and responsive to their learning needs.





# Quick Links Along the Way



click the link for more resources



click the link for more resources





# Key Findings

1

Enhanced Cognitive, Emotional and Physiological Development

2

Increased Student Engagement through Gamification

3

Inclusive and Adaptive Learning Environments

4

Teacher Development and Personal Growth



# What is Multi-Sensory Learning

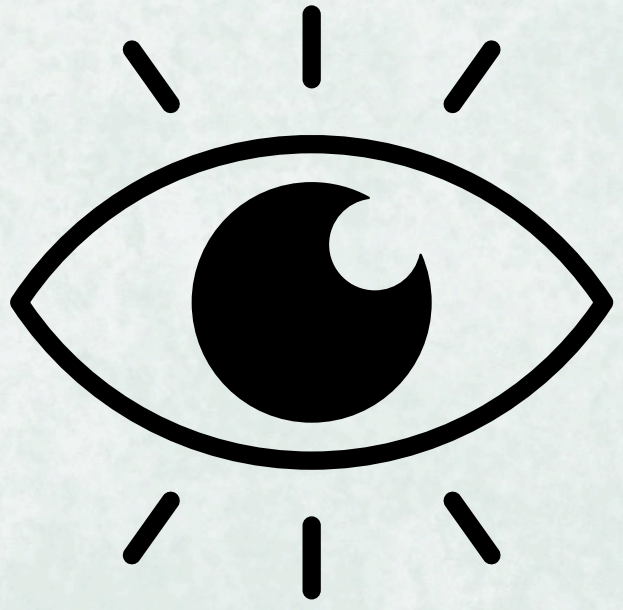
Whether you are an educator or caregiver you have may have heard of the term multi-sensory learning.

This approach encourages learners to use multiple senses when taking in new information. Instead of relying on one method.





# Designing Multi-Sensory Learning Environments



Visual supports such as clear images, colouring coding, high contrast text, simplified layout



Auditory supports such as music, storytelling, recorded instructions, or sound cues



Tactile experiences such as textured materials, and hands on manipulatives



Kinesthetic learning such as movement and interactive exploration





# What is UDL

Universal Design for Learning (UDL) is a framework that provides multiple means of engagement, representation, and expression in order to accommodate diverse learners. UDL ensures that lessons are accessible to all students regardless of neurological differences.

CAST (2024)

## The Universal Design for Learning Guidelines

The goal of UDL is **learner agency** that is purposeful & reflective, resourceful & authentic, strategic & action-oriented.





# Why It Matters

This study suggest that uisng multiple pathways improves understanding and helps learners remember information effectively.

(MacKenzie, 2019)

Multi-sensory learning is particular beneficial for:

- Neurodivergent learners (ND) (ADHD, ASD, Dyslexia)
- Students with visual impairment
- Young learners whose senses are still developing

Benefits Include:

- Higher engagement and motivation
- Improved memory and comprehension
- Higher confidence in learner
- Emotional regualtion support

(Broadbent et al., 2017)



# Designing MSE

Thoughtfully designing a multi-sensory learning environment (MSE) involves creating a balanced environment that supports both learning and emotional regulation through flexibility and intentional sensory elements. This includes providing sensory inputs for all learning styles through visual, tactile, auditory, and movement based learning while minimizing sensory overload.

Providing both a calming and engaging environment that students can move freely throughout and access materials when needed to support each individual learner.





# Gamification

Gamified learning involves using gaming elements such as points, challenges and rewards to motivate students and make learning more engaging.

In a MSE gamified experiences can support ND learners by incorporating hands on experiences, movement, visuals and interactive tasks that tick all those boxes for sensory input.

Gamified approaches create a low pressure interactive environment that reduces academic anxiety and promotes confidence amongst learners.

(Durgungoz & Durgungoz, 2025, Belaich, 2025)

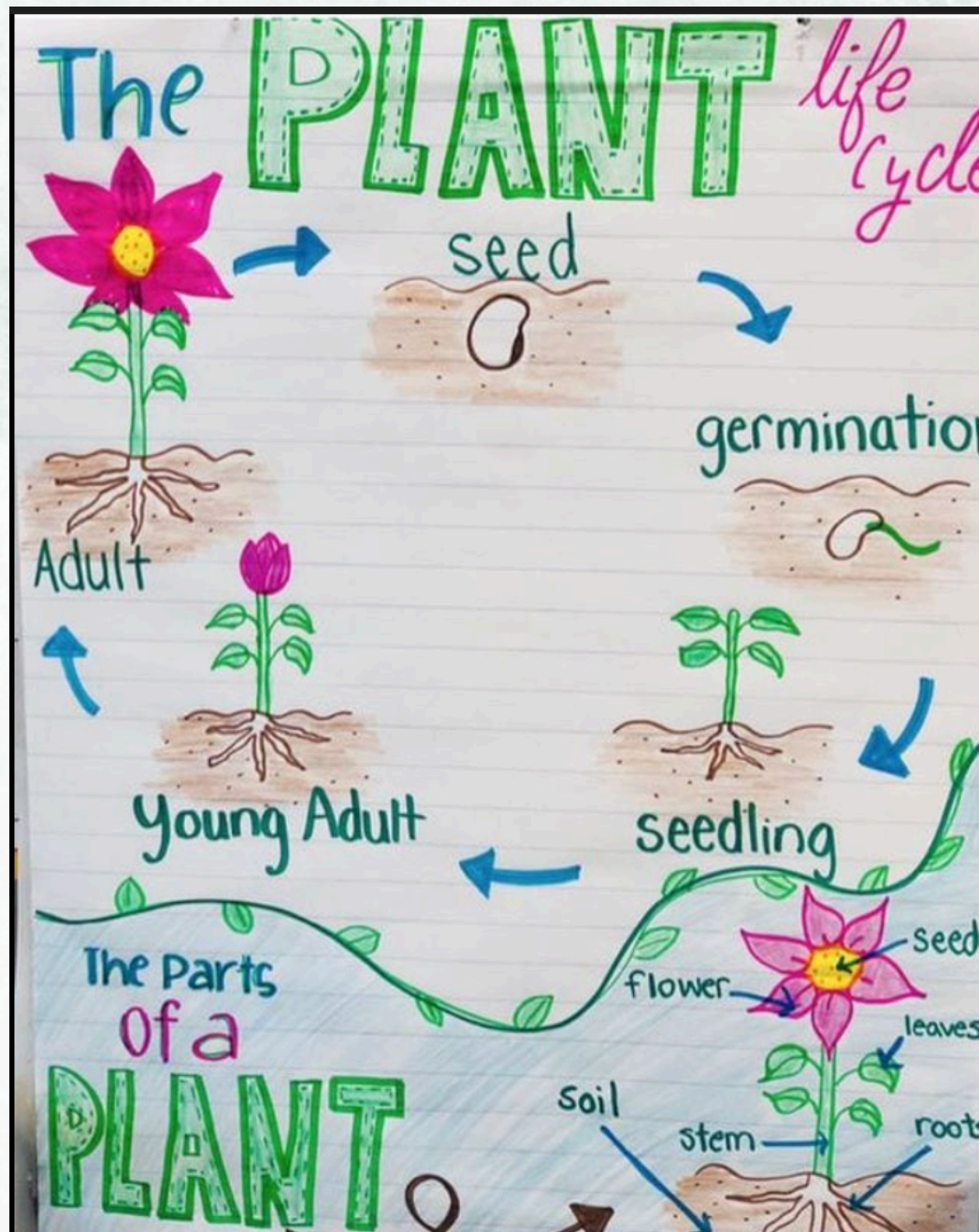




# Building an Understanding

Multi-sensory incorporation helps learners create connections between ideas and experiences. Instead of being taught a concept strictly through verbal explanations or visuals, students are able to explore it using their senses which help reinforce their understanding.

For example teaching the life cycle of a plant



Strictly through a visual can still gain basic knowledge of the stages but limits learning. Without interacting with the process students may find it harder to fully understand how plants change over time and lack retention of information.

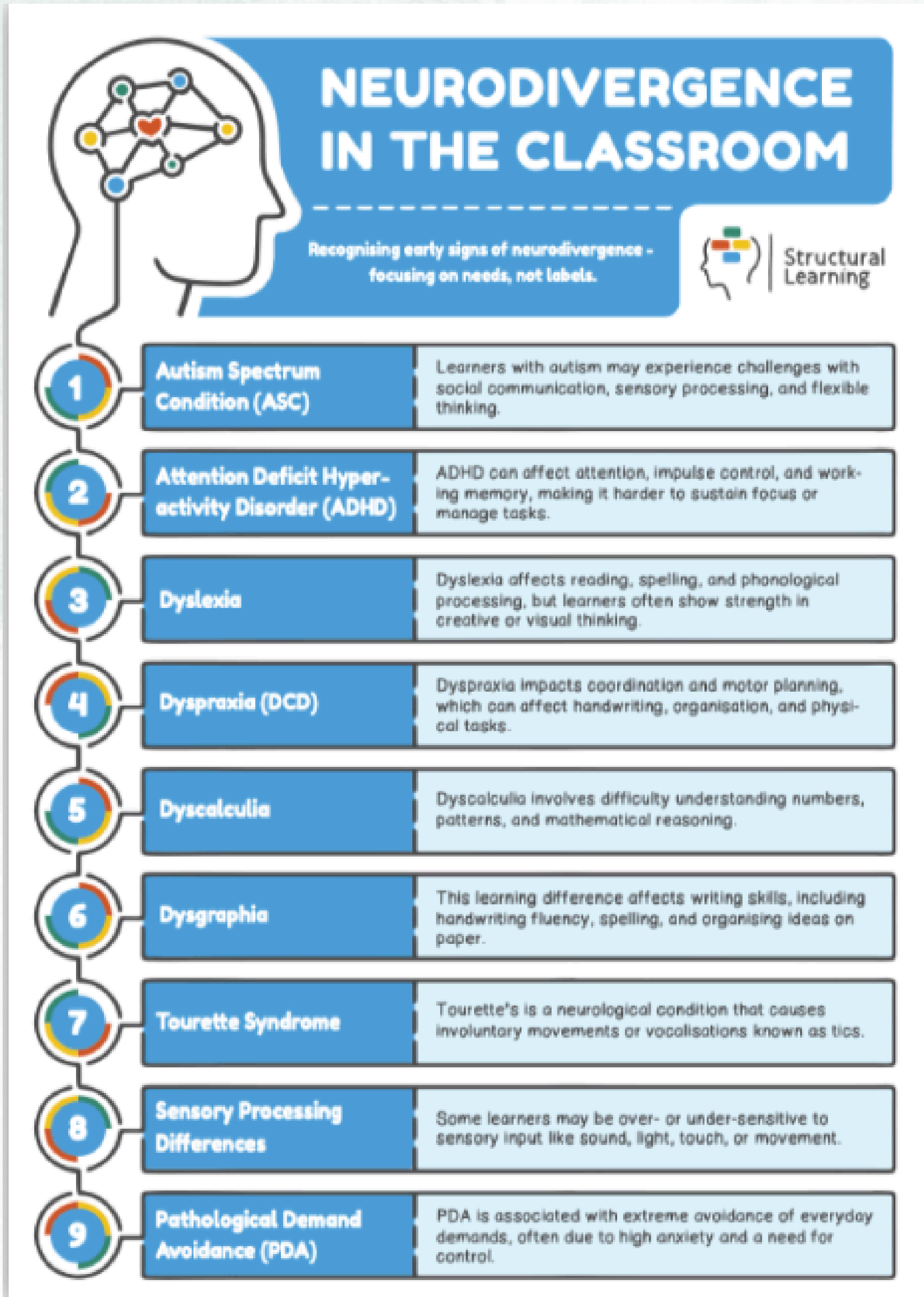


Students are able to feel the dirt and plant seeds, and care for the plant by watering them and understanding that they need sunlight to grow. This opportunity allows them to observe the stages of growth and make a meaningful impact on their learning and understanding of the life cycle of a plant.



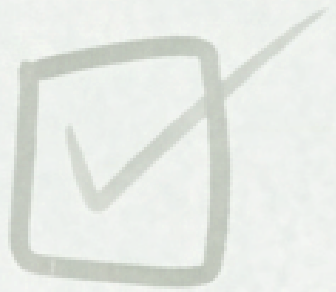
# Tip Sheet

Understand the different types of neurodiversity that could present in the classroom





# MSE Checklist



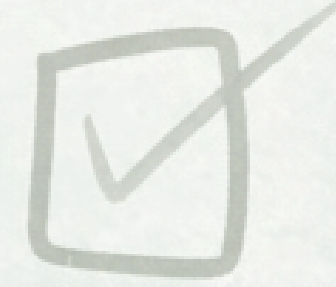
Are visual supports clear and easy to interpret?

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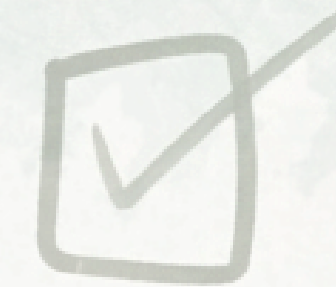
Are there enough hands on exploration opportunities?

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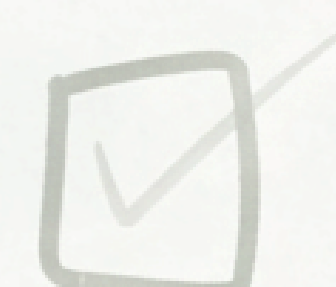
Are materials accessible for learners with sensory needs?

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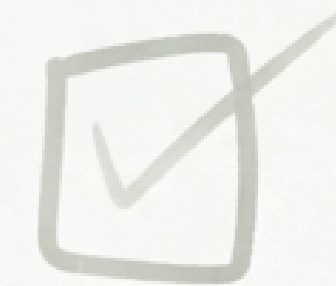
Are auditory supports available?

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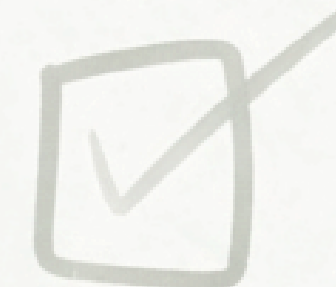
Do students have the opportunity to move and interact with materials?

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is there flexible seating and regular movement breaks?

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Is there a designated calming area?

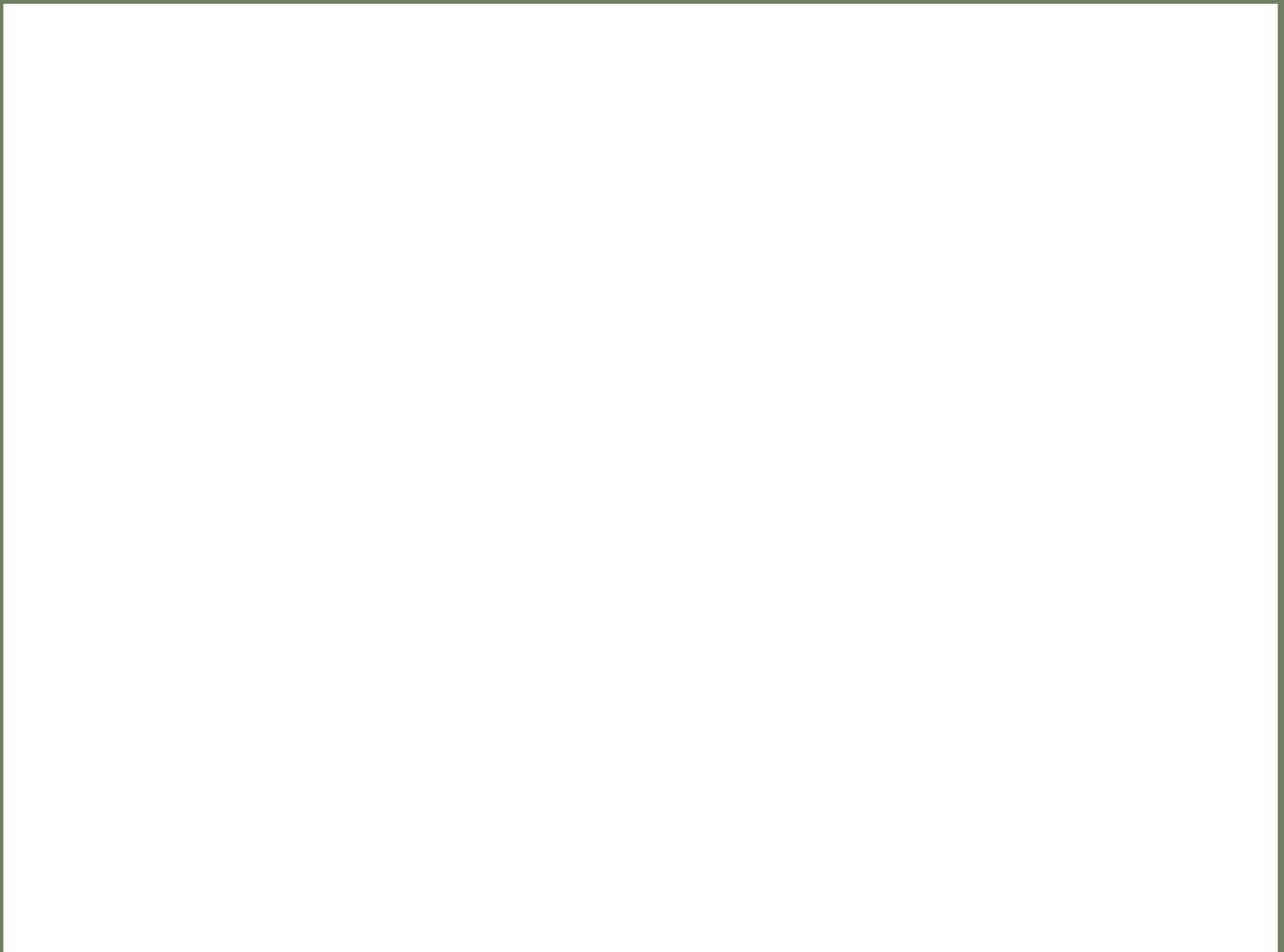
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# Reflection Guide

## Undertsanding Student Needs

- Which sensory preferences does the student prefer?
- How does the student communicate their sensory needs?
- What are the students strengths?
- What areas of the day are more difficult for the student?
- How does the student cope with stress? What are the best ways to approach them?

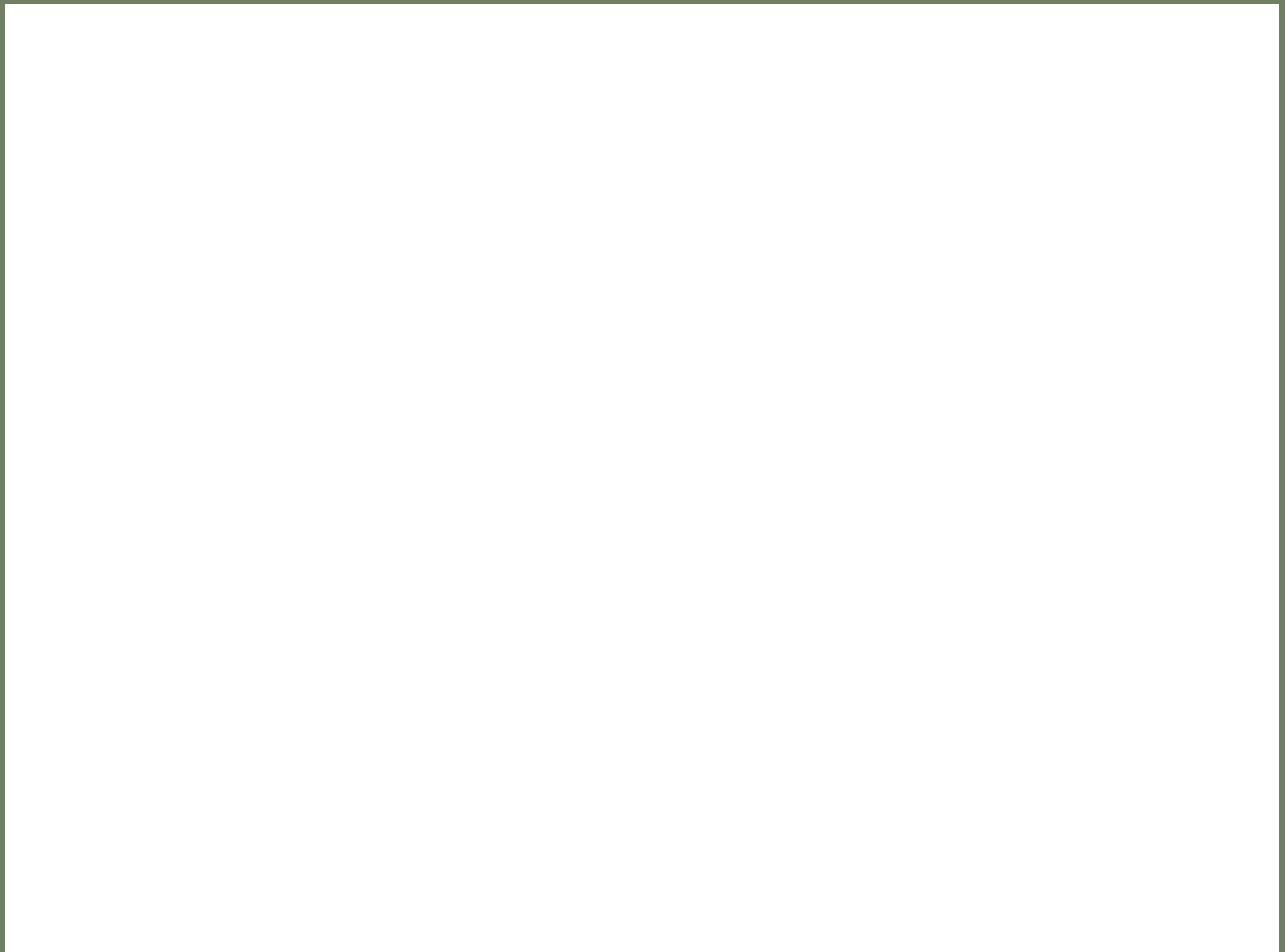
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# Reflection Guide

## Evaluating the Environment

- Does the space provide a balance of sensory experiences?
- Are visuals clear and accessible?
- Are sensory tools accessible (noise canceling headphones, fidgets, visuals)?
- Is there a designated calming space?

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# Reflection Guide

## Reflecting on Teaching Practices

- Do my teaching strategies support multiple ways of learning?
- Am I relying on one method of instruction?
- How often do I incorporate hands on learning experiences?
- How can I continue to build on my knowledge of neurodiversity and inclusive practices?
- Is my classroom a space where students feel safe, supported and included?

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# Reflection Guide

It is important for educators to reflect on their knowledge and practice to move beyond simply teaching and teach with intention and inclusivity in mind, when supporting all learners.

By understanding how neurodivergent learners engage with their environments, which strategies support their engagement and well-being, and how barriers can be addressed through multi-sensory learning, educators can create more inclusive learning experiences.

(Kolb et al., 2019; NAEYC, n.d.).

Inclusive neurodiverse practices benefit all learners and educators by providing support for diverse learning styles.





# Reference

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