

Occupational Therapy

School Based Occupational Therapists (OTs) work with students who exhibit delays in their fine motor skills, visual motor skills, visual perceptual skills, self-regulation, and/or sensory processing that negatively impact their access to or progress in the general education setting. The following are areas an OT can target:

- Visual Motor Skills enable a child to coordinate their eyes and hands to draw and write. Children may have difficulty with copying shapes, handwriting, lining up math problems, etc.
- Visual Perceptual skills involve the ability to organize and interpret the information that is seen and give it meaning
- Fine Motor Skills refer to the coordination between small muscles, like those of the hands and fingers, with the eyes. Fine motor skills involve the small muscles of the body that enable such functions as writing, grasping small objects and fastening clothing
- Sensory Processing/Self-Regulation: refers to the way the nervous system receives messages from the senses, processes them in the brain, and turns them into responses.

Age-Appropriate Grasp Patterns

Before you panic about your child's grasp, check to see if it is developmentally appropriate. Grasping skills develop in stages, don't rush kiddos to a "mature grasp" before they are ready. Hand dominance is not fully established until 6 or 7.

Palmar- Supinate	Digital Pronate	Static Tripod	Five Finger	Dynamic Quadrupod or Tripod
1-1.5 years	2-3 years	3-4 years	3.5-4 years	4-7 years
Pencil is held in fist; arm moves as a unit. 	All fingers hold the pencil, but the wrist is turned /palm facing down. Movement is from the elbow. 	Pencil is held with thumb, index and middle fingers. Arm moves as a unit. 	Pencil is held between thumb and tips of the other fingers. Arm moves as a unit. 	Pencil is held with fingertips of thumb, index, and middle finger (tripod) and ring finger (quadrupod). Movement is from the fingers and wrist. 

Irregular Grasping Patterns

A pencil grasp may be considered irregular if it causes discomfort, causes fatigue, or blocks the movement of the fingers. A grasp that is too tight or too light impacts endurance and control. If you're child uses one of these grasps but does not have discomfort, fatigue, or messy work, then the grasp is functional even if irregular.

Thumb Wrap	Tucked Thumb	Closed Web Space	Inter-Digital
The thumb wrapped over the index finger. 	Thumb is tucked into the pencil or index finger. 	Space between thumb and index finger is closed. 	The pencil is braced between the fingers. 

Handwriting is a complex skill that develops over years of practice.

1 year old: controlled scribbles

2 years old: imitates vertical lines, horizontal lines, and circles

3 years old: copies a vertical line, horizontal line, and circle

4 years old: copies a cross, diagonal line, square, and some letter formations

5- 6 years old: copies a triangle, prints name, copies letters.

6+ years old: writes sentences

Messy handwriting is not always the result of underlying motor delays. Some kids just have messy handwriting. If it's legible but not perfect, don't worry about it. If your child's teacher can't read it, then reach out to your school's OT for recommendations (pencil grips, adaptive pencils, evaluations, etc.)

Cutting is another complex skill that develops between the ages of 2 and 6. It requires bilateral coordination, isolated finger movements, and a stable shoulder girdle. Again, don't rush this. Snips at 3 are great! They also make adaptive scissors to help kids develop the skill while they work on their fine motor strength.



Make sure elbows are in and the thumb right side up

2-3 years old	Holds scissors, makes snips in paper with open-close cycles
3-4 years old	Moves scissors forward simultaneously, cuts straight-lined shapes
3 ½ -4 ½ years old	Cuts curved lines and circles, uses non-dominant hand to shift paper
4-6 years old	Cuts complex shapes and simple figures

Age-Appropriate Self-Care Skills

It feels natural to help our little ones, but they can do a lot on their own. To foster independence, look at the chart and encourage age appropriate self-care skills. They will need these skills for school too.

3-year-old	Child begins to zip/unzip jacket, pullover shirts with a little help, buttons large buttons. Child goes to the bathroom independently, may need help with clothing and personal hygiene. Child can carry things, help in the garden or kitchen, wipe up spills, and put toys away. Child eats with utensils and drinks from a cup. Child can help clean up toys and do classroom jobs with 3-5 verbal prompts from an adult.
4-year-old	Child removes pull overs independently, can zip/button/snap fasteners, and put on shoes. Child is independent with toileting and personal hygiene. Child can help sort laundry, set up the table, and get snacks. Child can help clean up toys and do classroom jobs with 1-2 verbal prompts or visuals. Child eats with utensils and drinks from a cup.
5-year-old	Child ties shoes, dresses self independently, manages fasteners. Child is independent with toileting. Child begins doing simple chores (sweeping, wiping, etc.) and classroom jobs independently. Child eats with utensils and drinks from a cup.
6-year-old	Child should be independent with dressing, feeding, and toileting. They are beginning to organize materials/their desk and take on more responsibility.

Age-Appropriate Sensory Development

Our sensory systems begin developing in the prenatal period and refine over time. Everyone's sensory profile is different, there is no right and wrong. However, there are ways to adjust the environment to suite individual sensory profiles.

<u>Low Registration</u> Child has difficulty registering sensory input.	<u>Sensory Seeking</u> Child seeks out sensory input in their environment.
<u>Sensory Avoiding</u> Child avoids sensory input in their environment.	<u>Sensory Sensitivity</u> Child is sensitive to sensory input in their environment.



For kids that are overwhelmed by noise, try noise buffering headphones. For kids who struggle to sit still, try a movein sit cushion. Reach out to your school OT for more recommendations.

SENSORY SYSTEMS

Sensory Systems

1. Sight
2. Smell
3. Taste
4. Sound
5. Touch
6. Vestibular
7. Proprioceptive



A child's ability to take in and use information through the senses and respond appropriately is known as sensory integration (Thompson & Raiser, 2013; Lynch & Simpson, 2004).

Sensory Processing is the way the brain 1) receives sensory input, 2) organizes sensory input, and 3) responds to sensory input in order to behave in a meaningful & consistent manner.

A baby is able to see, hear and sense their body but is unable to organize these senses well. As the child is exposed to various sensory inputs, they gradually learn to organize them within their brain. By organizing sensory input, the child is able to modulate their response and as a result they seem to be in control of their emotions/behavior.

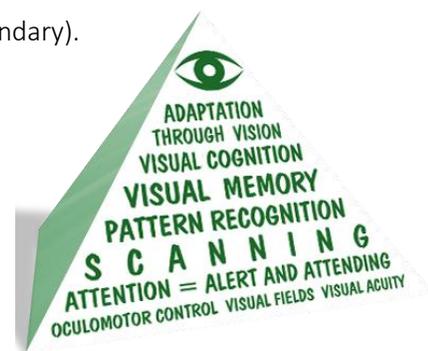
If your child's responses to sensory input significantly impacts their attention, tolerance of their learning environments, or availability for learning they may need some strategies or environmental modifications to feel regulated.

- Prenatal: Responds to touch, noise, and sights. Period of reflex development.
- 0-6 Months: Visual motor skills develop, hand eye coordination development, and movements change from reflexes to volitional.
- 6 Months-1-year-old: Continued development of visual, tactile, and auditory input to improve communication.
- 1-2 years-old: Further refinement of fine motor skills to improve complexity of gestures and movements.
- 2-3-year-old: Further refinement leading to improved balance, coordination, fine motor skills, and motor planning.
- 3-7-year-old: Child is driven to challenge sensorimotor competencies through games, art, activities, and social interactions.
- 7+ year-old: Continued refinement to improve focus and participation.

Age Appropriate Visual Perceptual Skills

Visual Perceptual Skills are not the same as Acuity. Many children with visual perceptual delays have 20/20 vision. It's about how our kids process the visual information they are receiving from their environment. Components of visual perception include:

1. **Eye-hand coordination** (drawing precise straight or curved lines within a visual boundary).
2. **Figure ground** (the ability to see an object or form when presented in a complex background)
3. **Visual discrimination** (being able to differentiate shapes, colors, patterns)
4. **Position in space** (directional language concepts, such as in/out, up/down, in front of/behind/between, left/right, when relating to objects or shapes such as letters).
5. **Visual memory** (ability to remember and recall objects, shapes, movements or a sequence of movements).
6. **Visual motor integration** (ability to make sense of visual information and then use it appropriately when performing a motor task, such as writing)
7. **Visual closure** (ability to visualize the whole of an object or picture when part of it is hidden or missing)
8. **Form constancy** (ability to recognize forms and objects as the same in various situations)



Difficulty or delays in visual perceptual skills impact kids across the board: math, reading, handwriting, copying from the board, taking notes, identifying important information on busy worksheets etc. There is a hierarchy to visual perceptual development, first the eyes learn to scan, then attend, then visually recognize, then discriminate, etc.

Resources

Occupational Therapy

<https://www.aota.org/About-Occupational-Therapy/Professionals/CY/Articles/School-consumer.aspx>

<https://www.aota.org/-/media/Corporate/Files/AboutOT/Professionals/WhatIsOT/CY/Fact-Sheets/Children%20and%20Youth%20fact%20sheet.pdf>

Fine Motor

<https://www.ot-mom-learning-activities.com/fine-motor-skills.html>

<https://theimaginationtree.com/40-fine-motor-skills-activities-for-kids/>

<https://mamaot.com/category/fine-motor-posts/>

Visual Motor

<https://www.ot-mom-learning-activities.com/visual-motor-integration.html>

<https://www.theottoolbox.com/visual-motor-skills-for-kids/>

Visual Perceptual

<https://www.ot-mom-learning-activities.com/visual-perceptual-skills.html>

<https://www.toolstogrowththerapy.com/family-resources/visual-perception/>

Sensory Processing

<http://mamaot.com/category/sensory-posts/>

<https://childdevelopment.com.au/areas-of-concern/sensory-processing/>

<https://www.toolstogrowththerapy.com/family-resources/sensory-processing/>