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A Handwriting Manual for Early Elementary School Teachers

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A HANDWRITING MANUAL FOR EARLY ELEMENTARY SCHOOL TEACHERS

by

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&

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A Scholarly Project

Submitted to the Occupational Therapy Department

of the

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In partial fulfillment of the requirements

for the degree of

Master's of Occupational Therapy

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This Scholarly Project, submitted by Jennifer Frueh and Nicole Kieffer in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

Faculty Advisor

Date

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ABSTRACT

Children in elementary school classrooms are expected to participate in fine motor activities up to 60% of the day. These fine motor activities include writing, cutting, gluing, coloring, and self care tasks such as buttoning and tying shoes (McHale & Cermak, 1992). In a literature review conducted by Feder and Majnemer (2007) it was found that poor handwriting has a negative impact on academic and social performance into adolescence. Consequences of poor handwriting may be avoidance of fine motor activities (Jackman & Stagnitti, 2007) and decreased academic performance which may lead to poor self esteem (McHale & Cermak, 1992).

Jackman and Stagnitti (2007) conducted a qualitative study to investigate awareness of occupational therapy resources among Australian teachers and the level of knowledge the teachers had related to supporting students with fine motor difficulties. Teachers who participated in the study indicated they had limited knowledge of occupational therapy resources and there was a need for more support when dealing with fine motor delays. Hammerschmidt and Sudsawad (2004) described the importance of collaboration between teachers and occupational therapists when addressing handwriting problems because teachers are with students on a consistent basis and the primary source for handwriting instruction. Through collaboration, occupational therapists can

indirectly serve the students by providing teachers with the appropriate resources, resulting in increased focus on fine motor development in the classroom.

The purpose of this project was to design an educational resource for elementary teachers to use in the classroom to promote fine motor development for all students. This project is a resource manual containing educational materials regarding occupational therapy and its role in handwriting development, components of handwriting, and classroom activities aimed at promoting fine motor development.

The methods used in this project included an extensive review of literature including scholarly articles, books, and educational resources available for teachers. The benefits of this project include increased awareness among teachers of occupational therapy services in the school setting, knowledge of fine motor development, and activities to incorporate into the classroom to benefit all students' fine motor development.

CHAPTER I

INTRODUCTION

Occupational therapists support “health and participation in life through engagement in occupation” (OTA, 2008, p.626). Occupations are defined as “activities... of everyday life, named, organized, and given value and meaning by individuals and a culture” (Law, Polatajiko, Baptiste, & Townsend, 1997, as cited in OTA 2008, p.672). Occupational therapists may work in a variety of settings including hospitals, nursing homes, schools, and community settings. In the school setting, the role of the therapist is to assist the students with meaningful occupations such as play, peer interaction, and academics. Services may be delivered directly through 1:1 or group sessions with the students, or a therapist can work indirectly with students by implementing changes in the school environment or providing teachers with education. Students who do not qualify for direct occupational therapy may still benefit from the indirect services offered by occupational therapists.

Statement of the Problem

Handwriting is a primary occupation for students in elementary school because they spend up to 60% of the school day participating in fine motor activities (McHale & Cermak, 1992). Students use handwriting skills to

demonstrate the information they have learned by completing written tests and communicating ideas to teachers and peers (Case-Smith, 2002; Cornhill & Case Smith, 1996). When students lack the underlying skills needed to successfully complete handwriting activities, they often avoid participation in fine motor activities. In addition, poor handwriting can have a negative impact on the student's academic success and self concept (Feder & Majnemer, 2007).

Identification of students who demonstrate handwriting difficulties is important to ensure the students receive interventions that are aimed to improve fine motor skills. Because teachers spend a majority of their day with students, they will often notice the students' initial difficulty with handwriting tasks (Hammerschmidt & Sudsawad, 2004). Although teachers do not possess the underlying knowledge to assess and treat the components of handwriting, they can collaborate with occupational therapists to identify areas of difficulty and develop strategies to improve the fine motor skills needed for successful completion of handwriting activities (Jackman & Stagnitti, 2007).

Purpose of the Product

An educational manual was created for early elementary school teachers to use in their classroom with all students. It is hoped that use of this product will allow students with fine motor difficulties to remain in the classroom with peers while benefiting from activities aimed at improving their fine motor skills. This product follows the ideas of responsiveness to intervention (RTI). RTI emphasizes identifying students who are not displaying skills at the same time as their peers and providing interventions to assist the students in developing those

skills (Mellard, 2004). This manual will be used to help teachers provide instruction that meets the needs of all the students.

Incorporating fine motor activities into the curriculum will also allow the teacher to focus on all students rather than taking time away from the entire class in order to assist an individual student. The manual emphasizes collaboration between the occupational therapist and the teacher by providing a summary of handwriting components and activities that can be used to improve fine motor skills among all students in the classroom.

The product is not intended to replace an occupational therapist; rather it is a tool occupational therapists can use to assist teachers in developing fine motor skills in all students. It is important for the occupational therapist to continue to communicate with the teacher and follow-up on progress students are making related to handwriting development. A student may still need occupational therapy services to address handwriting outside of the classroom, but will benefit from increased practice with peers.

Theoretical Model

The educational manual was created based on findings from an extensive review of literature and is guided by the Occupational Adaptation frame of reference. The authors of Occupational Adaptation state as a person encounters an occupational challenge, he or she must adapt the usual way of doing things in order to successfully perform that occupation (Schkade & Schultz, 2003). The primary occupations of teachers relate to planning, implementing, and evaluating lesson plans to provide the students with grade appropriate skills. Adaptive

capacity refers to the teachers' ability to change their teaching strategies to fit the needs of all of their students. As the teacher adapts to the needs of the students, he or she must evaluate the changes made based on efficiency, effectiveness, and satisfaction of the teaching strategies. This is considered relative mastery as the teacher determines how well he or she is performing that occupation.

The result of the interaction between the teacher and the classroom environment is occupational adaptation. Occupational Adaptation consists of three elements: person, occupational environment, and the interaction of these two elements (Schkade & Schultz, 2003). When applied to this scholarly project, the person is the teacher and his or her desire for mastery is to assist the students in developing the underlying components of handwriting. The occupational environment consists of the students, amount of time allowed for handwriting activities, and materials available. There is an expectation placed upon the teacher to meet the demand of the environmental elements in order to achieve relative mastery. These environmental demands may be the special needs of the students, time available for handwriting instruction, and resources available for the teachers use.

Summary

A list of key terminology to assist in understanding the information presented in this project can be found in the Appendix. Chapter II contains the findings from an extensive review of literature which was completed to assist in the creation of this product. Materials used for this review included textbooks, research articles, and handwriting manuals. Chapter III describes in detail the

methodology used to create the educational manual, which can be found in Chapter IV. The fifth chapter contains the purpose of the product and recommendations for product implementation. This chapter also addresses limitations of the product and initial steps for researching its effectiveness in the classroom.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Legible handwriting is a critical skill in elementary school students. The underlying skills developed for handwriting are important for engagement in a number of occupations other than handwriting. Students with handwriting difficulties end up falling behind peers in classroom activities and need extra help to develop skills needed for successful academic participation. In an effort to address this concern, an educational manual for elementary school teachers has been developed. This manual will provide teachers with education and activities to promote the foundational skills required for good handwriting for all students. This product will emphasize the importance of collaboration between occupational therapists and teachers in developing enhanced fine motor skills in order to improve handwriting among students. Chapter II is a review of literature and research that was foundational to developing the educational manual. This chapter is divided into sections which identify the problems associated with poor handwriting and the impact occupational therapy intervention can have on those deficits.

Handwriting in Elementary Students

Students in elementary school spend up to 60% of the school day participating in fine motor tasks which include cutting, coloring, manipulating objects, and writing, with 85% of that time devoted to pencil and paper activities (McHale & Cermak, 1992). Marr, Cermak, Cohn, and Henderson (2003) describe the importance of fine motor skills to engage in valued occupations in addition to educational activities. A child's occupations that demand fine motor skills may be dressing, tying shoes, play and social engagement, among many other daily tasks. Handwriting is a predominant activity in elementary school as it is the primary way for children to demonstrate learned skills through testing in most academic subjects and to communicate ideas to teachers and peers (Case-Smith, 2002; Cornhill & Case-Smith, 1996). In a survey requesting information for criteria used to determine acceptable handwriting, 72% of teachers stated that assignments were graded on quality of handwriting and 80% stated legible handwriting was considered important or very important when determining acceptable handwriting (Hammerschmidt & Sudsawad, 2004).

Technology and Handwriting

Although increased technology has reduced the demand for written work, handwriting remains an important part of the school curriculum and the foundational skills learned in handwriting are needed to carry out other occupations at school and home (Amundson, 2005).

Barnhardt (2005) and McHale and Cermak (1992) discussed the impact poor fine motor skills may have on school subjects other than handwriting. Due to

decreased fine motor skills, students may be unable to copy a math problem out of the textbook, write legibly enough to read his answers, or have enough time to complete a simple math problem. Barnhardt (2005) found that visual motor skills, an important component of handwriting, play an important role in school performance. Students who performed poorly on the Developmental Test of Visual-Motor Integration (VMI) made more errors in spacing letters, words, and number problems when completing a simulated classroom activity. These findings imply that students who do poorly on math problems due to errors in alignment and organization may be performing the calculations correctly; however, they are unable to correctly complete the problem due to the visual-motor deficits, resulting in poor school performance.

Consequences of Poor Handwriting

In a review of literature, Feder and Majnemer (2007) found the percentage of children with handwriting difficulties ranged from 10-30%. The studies reviewed discussed consequences of poor handwriting and the impact it has on academic and social performance into adolescence. Handwriting is seen as a reflection of intelligence and teachers may view students with handwriting problems as lazy, noncompliant, or unmotivated to participate (Feder & Majnemer). Teachers who participated in a qualitative study identified students with fine motor difficulties as having lower academic levels which they believed caused avoidance of fine motor activities and impacted participation in occupations (Jackman & Stagnitti, 2007). Numerous studies have documented the impact poor handwriting can have on the student's academic success, self

concept, and self esteem. McHale and Cermak (1992) found that although only a small percentage of the school day is spent completing fine motor and other academic activities simultaneously, such as writing while listening to a teacher provide instruction, students with fine motor difficulties struggle to focus on the physical aspect of writing while focusing on the oral content being presented. These students may have difficulty completing assignments in a timely manner which may limit the quality of their work. Amundson (2005) discovered teachers may assign lower grades due to poor legibility even if content is similar to other students' work. If handwriting problems are not addressed these negative self perceptions may put children at risk for developing mental health problems, academic, and behavioral issues due to the increased demand for written work in higher grade levels (Cornhill & Case-Smith, 1996; Feder & Majnemer; Miller, Missiuna, Macnab, Mallo-Miller, & Palatajko, 2001).

Role of the Occupational Therapist

Occupational therapists working in school settings report handwriting problems are the most common reason for referrals (Case-Smith, 2002; Oliver, 1990). In a study by Reid, Chiu, Sinclair, Wehrmann, & Naseer (2006) teachers completed the Canadian Occupational Performance Measure (COPM) and identified 35% of problems among students in their classrooms were related to handwriting or printing. Occupational therapists have the skills and knowledge to assist children with fine motor difficulties through numerous intervention strategies, adapting the environment, and consultation with the classroom teacher (Feder, Majnemer, & Synnes, 2000). Occupational therapists analyze

foundational components of handwriting to determine the area in which a student is having the most difficulties. The occupational therapist then identifies and designs activities to improve the student's performance and assists in generalization of those skills to multiple tasks and occupations (Cornhill & Case-Smith, 1996).

Studies focusing on effectiveness of occupational therapy intervention in the school setting have consistently demonstrated students with fine motor difficulties have improved in overall writing performance following occupational therapy intervention. Oliver (1990) found weekly occupational therapy sessions and regular practice of fine motor skills led to increased writing readiness in elementary-age students who had fine motor difficulties. Case-Smith (2002) reported students with poor handwriting legibility made significant improvements in visual motor control, in-hand manipulation, and overall legibility following occupational therapy intervention over the course of a school year.

Dankert, Davies, & Gavin (2003) completed a study with preschool children with and without developmental delays to determine the effectiveness of occupational therapy intervention. Children with delays were given individual and group therapy focusing on fine motor, gross motor, and visual perceptual skill development. A second group of preschoolers who had no developmental delays engaged in group occupational therapy focusing solely on visual perceptual development. The third group received no occupational therapy intervention. The children with developmental delays had lower scores on visual motor testing throughout the year when compared with peers without delays, but were able to

lessen that difference following occupational therapy intervention. Short-term occupational therapy intervention has been shown to improve visual motor skills among first-grade students (Ratxon, Efraim, & Bart, 2007).

Wehrmann, Chiu, Reid, & Sinclair (2006) conducted a qualitative study to identify factors contributing to improvements in students' performance. The participants (teachers, case managers, occupational therapists, and parents) unanimously agreed that occupational therapy school-based consultation services provided to the students improved their performance in written communication, desk skills, organizational skills, and self-esteem and on-task skills in the classroom. A teacher stated, "His writing form improved, being able to write on the lines, leave space between words and also his confidence improved" (p.229).

Collaboration Between Teachers and Therapists

"When several disciplines work together for the complex needs of students with disabilities, collaborative practices are considered vital to accomplish the related educational outcomes" (American Occupational Therapy Association [AOTA], as cited in Barnes & Turner, 2001, p.87). According to Barnes and Turner, collaboration involves planning, developing, and monitoring interventions and developing goals, strategies, and educational outcomes as a team effort. It is important for occupational therapists to collaborate with the classroom teachers as the teacher is the primary source for handwriting instruction as well as the person who works with that child on a consistent basis. Occupational therapists need to understand the teachers' perceptions on handwriting legibility, how the

students' writing is evaluated, and the outcomes the teacher is expecting from occupational therapy services (Hammerschmidt & Sudsawad, 2004). McHale and Cermak (1992) observed 2nd, 4th, and 6th grade classroom activities to understand what fine motor activities students are expected to complete in the classroom. The researchers suggest students spend a large percentage of the day engaging in fine motor activities. For this reason, it is the role of an occupational therapist to collaborate with teachers to determine appropriate education for students with fine motor difficulties and assist them in making modifications to their curriculum.

Reid, Chiu, Sinclair, Wehrmann, & Neseer (2006) administered the COPM to teachers to determine the primary problems identified in the classroom. The most frequent problems identified by teachers were writing or printing, organizational skills, and desk skills. Occupational therapists provided additional resources to teachers and caregivers and educated the teachers on specialized approaches to improve organizational skills and positioning. Following the consultation, the students' performance had changed in a positive direction and an increase in satisfaction was reported by teachers. The authors discovered as teachers' knowledge and awareness of students' special needs increased, it was more likely that teachers would implement occupational therapy strategies.

Jackman and Stagnitti (2007) interviewed teachers working in Australian schools to investigate the level of knowledge teachers had related to occupational therapy intervention and the need for support for students experiencing fine motor difficulties. The authors identified two themes among all

participants: a need for additional support for students with fine motor difficulties, and a lack of awareness of services provided by occupational therapists for these students. Teachers were able to identify students with problems, but stated they were not educated in underlying factors contributing to fine motor problems and did not know where to get additional help in the school system. Teachers identified the following needs and services from which they would benefit: short group activities correlating with the curriculum, information to pass on to parents, background information related to fine motor difficulties, resources for students, and professional development sessions in order to increase awareness of occupational therapy services available in the school system. Cornhill and Case-Smith (1996) also stated teachers are able to identify students with fine motor problems but lack training in analyzing the contributing factors that contribute and remediating those problems.

Barnes and Turner (2008) conducted a study to describe the collaborative practices between teachers and occupational therapists as well as to explore teacher perceptions of the contribution of occupational therapy to the students' progress. The authors found that teachers and occupational therapists use collaborative approaches to meet the special needs of the students. The authors also found that 15% of participants reported frequently holding team meetings, indicating most meetings often happened informally in the classrooms or hallways due to difficulty scheduling time for formal meetings. The teachers in this study reported more positive perceptions of the contribution of occupational therapy to the students' skill development when occupational therapists

collaborated with the teacher. Bose and Hinojosa (2008) conducted a study to gain the perceptions occupational therapists had regarding teacher collaboration. Occupational therapists describe their collaborative interactions with teaching staff as “difficult” due to lack of time and teachers’ receptiveness. These authors also suggested that informal meetings contribute to the collaboration process; however, formal meetings prove to be more sufficient for creating and planning new interventions. Occupational therapists participating in a study to determine the effects of therapy services on children’s handwriting and school functions described communication with teachers as a “critical element of the intervention” (Case-Smith, 2002, p. 22).

Components of Handwriting

Ergonomics

Rosenblum, Goldstand, and Parush (2006) studied third grade students with good and poor handwriting to determine if biomechanical ergonomic factors differed in the two groups. Students with poor handwriting skills were matched with a control group of students on the basis of gender, age, school, and grade. Results of this study indicated students in the two handwriting groups differed significantly with respect to all biomechanical ergonomic factors measured (body positioning, pencil positioning, inconsistency of pencil grip). The authors discussed a relationship between the biomechanical ergonomic factors and other components of handwriting discussed above, implying that the components are all interrelated and need to be assessed in each child to determine the underlying problems related to poor handwriting. The authors discussed that poor

biomechanical ergonomics may contribute to decreased attention in the classroom, which may impact handwriting efficiency and overall learning.

Visual-Motor Integration

Visual-motor integration is the ability to recognize a letter and create an accurate motor output. This skill has consistently been reported as an important component related to handwriting (Cornhill & Case-Smith, 1996; Tseng & Chow, 2000; Tseng & Murray, 1994). The Developmental Test of Visual-Motor Integration (VMI) is used to identify proficiency in visual-motor integration with children ages 3 to 14 and to help prevent learning and behavioral problems through early screening identification (Beery, 1997). Results of studies conducted by Oliver (1990) and Weil and Cunningham Amundson (1994) support the idea that the VMI is a useful tool to determine the writing readiness of early-elementary age students. Weil and Cunningham Amundson discovered the VMI correlated significantly with a child's ability to copy 34 letter forms on the Scale of Children's Readiness in PrinTing (SCRIPT), indicating visuomotor skill (as measured by successful completion of the VMI) correlates with good handwriting ability. Further, as the ability to copy VMI forms increased, so did the ability to copy letters.

The VMI has been a significant predictor of early handwriting success in a number of the above-mentioned studies; however, research indicates there is a difference in underlying handwriting components among students with good and poor handwriting. Students with poor handwriting have been found to rely more on visual-motor skills whereas students without handwriting difficulties rely more

heavily on fine motor skills (Cornhill & Case-Smith, 1996; Tseng & Chow, 2000; Tseng & Murray, 1994). These results suggest students may initially rely on visual motor skills to learn the letters and produce them in the beginning stages of writing but as writing becomes more efficient, students begin to rely on more complex skills (Benbow, 2006).

Visual Perception

Visual perception is the child's ability to make meaning out of what he or she sees. This skill allows children to accurately determine size, spacing and creating of letters. Graham, Struck, Richardson, and Beringer (2006) examined handwriting differences among early elementary students who were classified as good and poor handwriters. Students who were considered poor handwriters were more than twice as likely as good handwriters to demonstrate errors in handwriting related to visual perceptual abilities such as letter size, placement on the page and spacing between and within words. The poor handwriters demonstrated more variability in visual perceptual skills than good handwriters. These differences were evident in both first and second graders, indicating as student mature they continue to experience difficulties with these skills.

Hammerschmidt and Sudsawad (2004) conducted a study with early elementary school teachers to gather information about teachers' perceptions on students' handwriting. When asked what they use to determine acceptable handwriting, the top five components identified related to visual perceptual skills. These factors included letter formation, proper spacing, letters on lines, uniformity and appropriate size.

Kinesthesia

Kinesthesia is the awareness of position and movement of one's body. In a writing sense, kinesthesia involves awareness of the pressure applied to paper and the direction of letter formation. As kinesthesia is developed, the student relies less on eye-hand coordination and handwriting becomes more of an automatic task. This is an important component of handwriting as it allows a student to complete handwriting activities without relying on visual feedback (Benbow, 2006; Cornhill & Case-Smith, 1996). Kinesthesia provides a child with immediate feedback when compared to the visual system, which is slower in providing feedback regarding errors in writing. Tseng and Cermak (1993) conducted a review of literature regarding the impact of various components on handwriting. The authors found children with poor kinesthetic feedback developed awkward pencil grips which led to a need for constant visual monitoring of writing, consequently making writing tasks less automatic. In a review of literature, Feder & Majnemer (2007) found that poor sensory awareness of fingers directly related to poor execution and coordination during handwriting activities. The lack of sensory awareness required the student to rely on vision rather than kinesthesia to monitor the handwriting task, therefore, decreasing the amount of written work that can be completed.

Hand Skills

Good handwriting relates to adequate strength in the hands and fingers. Children need strength to be able to hold onto writing tools to perform handwriting. Children who lack the strength to grasp the pencil may experience

fatigue and be unable to maintain writing pace of classmates as well as demonstrate difficulty holding and manipulating the pencil during writing activities. A child needs to be able to use two hands in a coordinated manner to complete classroom activities. This skill, known as bilateral integration, is important for handwriting as the student must stabilize the paper with one hand while holding the writing utensil in the other (Johnson Levine, 1991).

In-hand manipulation is a fine motor control skill involving isolating individual fingers and adjusting objects within the hand. In-hand manipulation consists of three separate components: translation, rotation, and shifting. Translation is moving items from the tips of the fingers to the palm or the palm out to the finger tips. A child uses translation when holding coins in his or her hand and moves one coin to the fingers in order to place it in a vending machine. Rotation is used to turn objects in a circular pattern using the fingers. When a student uses one hand to flip his or her pencil in order to erase, that child is using rotation. Shifting occurs when a child moves an object up or down in his or her hands, such as adjusting a pencil to place the hand closer to the tip for writing activities (Exner, 2006). In-hand manipulation is also important in daily activities such as dressing, hygiene, eating and handling tools (Exner, 1992; Exner, 2005). Cornhill and Case-Smith (1996) found a significant difference between students with good and poor handwriting in translation and rotation skills. These results are consistent with Exner's (1992) findings that poor in-hand manipulation skills correlate with poor handwriting performance.

Motor Planning

Motor planning influences a student's ability to plan and sequence what they are going to write and is especially important for students learning handwriting skills as it is a necessary component for learning unfamiliar motor tasks (Cunningham & Amundson, 1992; Feder & Majnemer, 2007). Graham, Struck, Richardson, and Beringer (2006) found that students with errors related to poor motor planning were more likely to be classified as poor handwriters. Tseng and Murray (1994) found that motor planning ability was the best predictor of legibility in poor handwriters.

Occupational Therapy Guiding Principles

Occupational therapists working with children use the developmental theory to guide treatment because it focuses on skill development related to the child's age and stage of life. The foundational component of the developmental approach is mastery of a specific task before moving to a higher-skilled task. When using the developmental theory to guide practice, therapists emphasize skill development at the stage at which the child is presenting before providing new and more challenging skills to the child (Mulligan, 2003).

Acquisitional

Several frames of reference can be used when remediating handwriting problems. The acquisitional approach focuses on "practice, repetition, feedback, and reinforcement" (Holm, 1986, as cited in Amundson, 2005, p. 600). This approach introduces similar letters and stresses overlearning of those letters

before moving on. It is important for the student to initially learn the letter formation correctly to avoid reinforcement of poor perceptual-motor patterns. As the student is acquiring handwriting skills, the instructor encourages the student to focus on legibility and speed of handwriting. The acquisitional approach promotes an individualized teaching strategy along with a meaningful learning environment to make handwriting fun and interesting for the student (Amundson).

When the student learns a new skill the instructor may need to provide visual or auditory cues. This is considered the cognitive phase as the student is learning the new demands of the skill and relies heavily on visual and fine motor control. As the student progresses, the instructor reduces the cues provided to encourage the student to rely on self-monitoring to master that skill. The next phase is the associative phase when the student begins to rely on his/her own feedback for proper letter formation and legibility. In the autonomous phase the student is able to write automatically which allows the student to attend to classroom activities (Amundson, 2005). Occupational therapists who participated in a study conducted by Dankert, Davies, and Gavin (2003) preferred to use an acquisitional approach to guide intervention because it helps to shape the behaviors that contribute to attainment of handwriting skills.

Motor Learning

Therapists also use motor learning to improve handwriting. Following assessment of movement patterns, the therapist uses this approach to enhance the quality of movement through intrinsic and extrinsic feedback and practice (Law, Missiuna, Pollock, & Stewart, 2005). Children who have poor postural and

limb control benefit most from this approach. The therapist uses preparatory methods to prepare the students body for the demands of handwriting and facilitates normal movement patterns. Techniques may include increasing or decreasing muscle tone, increasing proximal stability to promote distal control, and developing coordinated movements (Amundson, 2005).

Multisensory

A multisensory approach uses a variety of writing tools, surfaces and positions to provide students with varying sensory experiences to improve handwriting. Rather than students becoming frustrated with the repetitiveness of traditional paper and pencil activities, handwriting becomes an interesting and dynamic activity as it taps into all senses and enhances the students learning experience (Amundson, 2005).

One-third of therapists in a study by Case-Smith (2002) identified using sensory-based interventions with children who demonstrated handwriting problems. In a study by Woodward and Swinth (2002), 90% of occupational therapists responding to a survey indicated the use of multisensory approaches when treating students with handwriting problems. These occupational therapists completed a survey regarding common modalities and activities used for handwriting remediation. The participants identified common themes such as making learning an enjoyable experience for the students, addressing as many senses as possible, and discovering the ways that students learn best. One respondent stated, "It is very important to use a variety of modalities/activities in

the remediation of handwriting. The stimulation, fun, interest and motivational factors play a part in the activities chosen for each child” (p. 310).

Biomechanical

The biomechanical approach focuses on underlying components of handwriting that impact a student’s ability to participate in fine motor activities. These components which include range of motion, strength, and endurance are addressed through modification of context to improve the ergonomic factors rather than to improve performance skills related to handwriting (Amundson, 2005). Occupational therapists might focus on sitting posture, types of paper, paper position, pencil grip, and writing tools while using this approach. Using this approach, students are able to successfully engage in handwriting activities because the ergonomic factors of the environment have been adapted to fit the individual needs of the student.

Eclectic

Each approach described is valuable in treating children with handwriting problems; however, using interventions from each approach can increase the effectiveness of intervention. In a review of literature by Feder and Majnemer (2007), ninety percent of occupational therapists reported preferring to use an eclectic approach when treating students with handwriting difficulties. Teachers reported increased results when treatments combined several approaches. This information is supported by therapists in a Case-Smith (2002) study who reported using multisensory approaches in combination with behavioral, motor learning, and developmental techniques to increase handwriting performance.

It is important for occupational therapists to consider the psychosocial factors of each child when providing treatment. Poor handwriting can contribute to poor self esteem and disruptive behaviors which may impact a child's social interactions. Treatment should be tailored to the student's needs and provide encouragement in a positive atmosphere. This can impact the child's self concept and promote positive behaviors in the classroom as the child begins to feel a sense of success and accomplishment (Amundson, 2005).

Occupational Therapy Interventions

Oliver (1990) conducted a study on improving the writing readiness skills of elementary-age students. Oliver combined direct therapy sessions using a multisensory approach while implementing an ongoing treatment program administered by teachers and parents. Upon completion of the program students demonstrated improvements in developmental skills, as indicated by improved scores on the VMI. The authors identified that motivation and enthusiasm towards developing writing readiness skills may have increased as teachers and parents became involved in the treatments process. Oliver incorporated large movement patterns, a variety of size and type of writing tools, wrist weights, bead stringing, and paper folding into treatment sessions to improve the student's writing readiness skills.

In a study by Case-Smith (2002) students with good and poor handwriting completed several tests measuring underlying handwriting components, including position in space, figure-ground, copying, visual-motor control, in-hand manipulation, fine motor control and speed. Students identified as poor

handwriters were provided with weekly occupational therapy interventions focusing on handwriting and visual-motor activities (resistance or vibration, writing on vertical surface, shaping, stimulus fading, modeling, verbalized description of letter formation, and self monitoring). Following occupational therapy intervention, significant gains were made by students receiving occupational therapy on subtests measuring in-hand manipulation and visual-motor control. These students also had greater improvement in overall legibility of writing; students with no intervention demonstrated no change in legibility in the same time period. Children receiving occupational therapy were able to maintain and even gain skills related to handwriting over the course of the year, whereas students with handwriting difficulties often lose skills over time when compared to peers with good handwriting.

Woodward and Swinth (2002) administered a survey to occupational therapists to identify modalities and activities most commonly used in a multisensory approach. Adapting writing tools and surfaces was the approach most often used. Many occupational therapists also reported the use of commercially available writing programs, utilizing common everyday children's toys such as play dough, and addressing specific performance components such as intrinsic muscle development and eye tracking while using a multisensory approach to improve handwriting skills.

In a study by Dankert, Davies, & Gavin (2003), preschoolers were divided into three separate groups to determine the effectiveness of occupational therapy intervention with children with and without developmental delays. All children

receiving occupational therapy intervention improved scores on visual motor testing; however, children who had developmental delays made larger positive gains when compared to children in control groups. The activities used during intervention were found to be effective in improving overall visual motor skills. These activities focused on development of fine motor, gross motor, and visual-perceptual skills and included arts and crafts, finger plays, small manipulatives, obstacle courses, music, dancing, drawing, cutting, and assembly.

It is important to consider the interests and occupations of each student when planning interventions, as doing so will lead to more effective and successful treatment. Case-Smith (2000) found that play and peer interaction were the only significant predictors of fine motor outcomes, and suggested incorporating sensory and motor activities into play to give the students an enjoyable context to practice fine motor skills and motivate them to participate in fine motor tasks.

Need for Handwriting Intervention

Handwriting is a primary occupation for children in early elementary school because students use handwriting as a way to communicate with teachers and peers to demonstrate understanding of new information in the classroom (Case-Smith, 2002; Cornhill & Case-Smith, 1996). In a study by McHale and Cermak (1992), children in elementary school spent up to 60% of the day engaging in fine motor activities. Students with poor handwriting often experience consequences such as poor self esteem, poor academic performance, and behavioral problems due to their inability to participate in these important classroom activities (Feder &

Majnemer, 2007). Because handwriting takes up a majority of the day and it is important for effective communication in the classroom, it is important to identify students who exhibit handwriting difficulties and implement activities to improve fine motor skills.

Occupational therapists possess the knowledge and skills to identify underlying components of poor handwriting and provide activities to improve those deficits. Although occupational therapists have the training required to identify students with handwriting problems, therapists do not spend as much time with students as the classroom teacher (Hammerschmidt & Sudsawad, 2004). However, classroom teachers lack the knowledge needed to assess and treat the underlying components of handwriting (Jackman & Stagnitti, 2007). Therefore it is important for occupational therapists to collaborate with teachers in order to meet the needs of each student.

Collaboration has shown to be an effective tool used by occupational therapists in the treatment of students with various fine motor problems (Barnes & Turner, 2008). The product of this scholarly project emphasizes collaboration between the occupational therapist and the teacher as the occupational therapist educates the teacher on activities to improve fine motor skills among all students in the classroom. The product will allow the students with fine motor difficulties to remain in the classroom with peers while benefiting from activities aimed at improving their fine motor skills. Incorporating fine motor activities into the curriculum will also allow the teacher to focus on all students rather than taking time away from the entire class to assist an individual student.

The product is not intended to replace an occupational therapist; rather it is a tool for occupational therapists to assist teachers in developing fine motor skills in all students. It is important for the occupational therapist to continue to communicate with the teacher and follow-up on progress students are making related to handwriting development. A student may still need occupational therapy services to address handwriting outside of the classroom, but will benefit from increased practice with peers. The product was created to assist students who demonstrate fine motor problems but do not qualify for direct occupational therapy services. These students will receive indirect occupational therapy services through the collaboration between therapists and teachers.

CHAPTER III

METHODOLOGY

The primary methodology used to create this product included an extensive review of literature, including research, textbooks, and existing handwriting development materials. The purpose of the review of literature was to gain a greater understanding of the impact of poor handwriting on student development; the role of occupational therapists related to handwriting development and intervention; components of handwriting addressed during treatment; effectiveness of occupational therapy intervention in early elementary grades; and collaboration between occupational therapists and teachers.

From the literature review it was found that students spend a majority of their day completing handwriting activities (McHale & Cermak, 1992) and students who don't develop the foundational skills for good handwriting may avoid fine motor activities (Jackman & Stagnitti, 2007), experience poor academic success, and have decreased self esteem (Feder & Majnemer, 2007). The findings from the literature support teacher-therapist collaboration as teachers do not have the necessary education to assist students with handwriting activities and do not know where to get additional help (Jackman & Stagnitti, 2007). Teachers who collaborated with occupational therapists described progress in the students' academic performance and had a better understanding of the needs of their students. These teachers were also more likely to implement

the strategies suggested by the occupational therapists (Reid, Chiu, Sinclair, Wehrmann, & Naseer, 2006).

Handwriting development resources were examined and critiqued to provide a foundation for the final product. The concepts presented in these materials were used as a guide in the creation of a new product geared towards early elementary school teachers. After critiquing the available materials it was found that intervention ideas were not compatible with the classroom environment. Many activities were geared towards 1:1 interactions and were not teacher-friendly in that they would be difficult to implement in a large group setting. Some activities were not child-centered as they did not incorporate play or social aspects that are central to child development. These materials were created with the intent for use by therapy professionals and did not clearly explain the concepts or purpose of the activities. This may discourage teachers from using these activities in their curriculum or daily classroom routine.

The activities in this manual are based on the biomechanical and acquisitional frame of references. The focus of the biomechanical approach includes maintaining, compensating, or restoring skills to allow a person to engage in occupations. Activities that follow this approach focus on improving the students' strength and endurance in the hands, arms, and trunk muscles to increase handwriting skills (Cole & Tufano, 2008). The acquisitional approach focuses on repetition and feedback to develop skills needed for engagement in occupation. The manual was created following the concepts of the motor learning frame of reference. Teachers are provided with instructions for implementing

each activity to encourage repetition of activities in the classroom. By repeating activities, students will be able to practice the skills throughout the school year and improve occupational performance in handwriting (Amundson, 2005). A purpose for each activity is provided to educate the teachers on the skills targeted in each activity. When teachers understand the purpose of the activity, they can provide students with feedback to help them develop the targeted skills.

When developing the product, considerations were made to include activities that would be easy to implement in a large classroom setting as well as provide projects and ideas that were motivating to early elementary school students. Case-Smith (2000) found that play and peer interaction were the only significant predictors of fine motor outcomes, and suggested providing an enjoyable context in which to practice skill development and motivate students to participate in handwriting activities. Some of the materials reviewed used step by step instructions to provide the teacher with a guide to implement the activities; this strategy was incorporated into the development of this product. Some of the activities presented in this product are adapted from other resources. These activities were modified to meet the criteria used in developing this product. For example some activities did not provide a purpose for the activity or did not present step by step instructions which may have discouraged teachers from utilizing these resources.

This product is the result of a critique of available handwriting development resources and was created to provide early elementary school teachers with one resource that can be used to address multiple handwriting

components in a user-friendly format. Teachers can implement shorter activities as a warm-up prior to handwriting tasks or they can use these ideas to adapt their existing curriculum to address a wider range of components. This product provides teachers with activities to be used with all students in a time-efficient manner. Students who may struggle with handwriting will be able to remain in the classroom with their peers while benefiting from activities to address their underlying handwriting problems.

CHAPTER IV

PRODUCT

This manual was created to be used by teachers in the classroom to incorporate fine motor activities into their curriculum. Background information related to the role of occupational therapy in the school setting as well as the importance of collaboration between therapists and teachers specifically related to handwriting is provided. Essential components of handwriting are described to provide teachers with a basic understanding of factors related to handwriting. Following this educational information is a resource of handwriting activities for teachers to implement in the classroom to promote fine motor skill development among all students.

Occupational Therapy Defined

The American Occupational Therapy Association (AOTA) states the purpose of occupational therapy is to support “health and participation in life through engagement in occupation” (AOTA, 2008, p.626). Occupations are defined as “activities... of everyday life, named, organized, and given value and meaning by individuals and a culture” (Law, Polatajiko, Baptiste, & Townsend, 1997, as cited in AOTA 2008, p.672). Occupational therapists assist individuals with a variety of diagnoses or disabilities, including physical disabilities and mental illnesses. These individuals may see an occupational therapist in a hospital, nursing home, school, or community setting.

Occupations that are important to adults often differ from the occupations children find meaningful. Adults engage in occupations related to self care, work, leisure, social participation, and community involvement. Children, however, find meaning and purpose through play, education, self care, and social participation with peers and adults. These occupations are important for children to grow and develop into healthy adults. Occupational therapists use occupations and activities that are meaningful to children in therapy to promote skill development and address underlying areas that may hinder their participation.

Occupational Therapy in the School Setting

Occupational therapists in a school setting are a part of the education team and work with children, with or without disabilities, to address occupations relative to the educational environment. The goals of occupational therapy intervention are to improve the students' independence in occupations by restoring or developing skills needed to participate in school-related activities and access the school environment. The student may need assistance in the classroom or bathroom as well as on the playground or lunchroom. Handwriting is the most common reason for referral to occupational therapists in a school setting (Case-Smith, 2002; Oliver, 1990); however, occupational therapists can address social participation, mobility, self care skills, emotional and sensory regulation, and participation in classroom activities.

Occupational Therapy and Handwriting

McHale and Cermak (1992) found students in early elementary school spend 60% of their day engaged in fine motor activities (drawing, cutting,

coloring, writing, and during play activities). The authors also found that of the time spent in fine motor activities, 85% is spent completing pencil and paper tasks. Handwriting is an important skill to master because it is the primary way in which children demonstrate learning to their teachers starting in elementary and continuing through their educational career (Case-Smith, 2002; Cornhill & Case-Smith, 1996). When children have difficulty with fine motor tasks, especially handwriting, they experience numerous consequences such as lowered self esteem, avoidance of classroom activities, and poor academic performance. These factors may contribute to teachers' perceptions that these students are lazy or unmotivated (Feder and Majnemer, 2007).

Occupational Therapist and Teacher Collaboration

Although occupational therapists address handwriting among children in elementary school, not all children with handwriting problems qualify for occupational therapy services in the school setting. These students would still benefit from activities focusing on fine motor development even though they do not meet qualifying standards for occupational therapy. As part of the education team, occupational therapists collaborate with teachers to address the needs of individual students who qualify for direct occupational therapy services as well as to plan and develop activities that include all students. The therapist collaborates with teachers by providing education and resources to promote skill development for all students in the classroom. When addressing handwriting, collaboration is important as the teacher is the primary source for handwriting instruction as well

as the person who works with that child on a consistent basis (Hammerschmidt & Sudsawad, 2004).

CHAPTER V

SUMMARY

Based on the findings of the literature review, handwriting is an important skill for early elementary students to develop so that they can participate in classroom activities. Findings from the literature indicate these students spend up to 60% of the school day engaged in fine motor activities (McHale & Cermak, 1992) and use handwriting as the primary method to demonstrate learning in the classroom (Case-Smith, 2002). Occupational therapists have the knowledge and skills needed to identify underlying factors that lead to poor handwriting as well as the tools and resources to address those difficulties. Classroom teachers are with students for the majority of the school day and are the primary source of handwriting instruction (Hammerschmidt & Sudsawad, 2004). Therefore, collaboration between the occupational therapist and teacher will provide the teachers with resources to use in their classroom that will promote development of handwriting skills of all students.

This scholarly project was created to provide early elementary school teachers with handwriting development activities to incorporate into their curriculum and classroom routine. Through the use of this manual, students who would otherwise need occupational therapy services outside of the classroom will be able to remain in the least restrictive environment with their peers while still

benefitting from intervention activities. This manual will also benefit students who struggle with handwriting but do not qualify for direct occupational therapy services. The activities in this manual were created to be easily integrated into the classroom and step-by-step instructions are provided in order to be user-friendly. The activities in the manual were designed this way to encourage teachers to use them in their classroom because they do not require extra planning or time to implement.

Teachers may be reluctant to invest in this product due to its focus primarily on handwriting development; they may view this as a limitation because they may not see the benefit of focusing on handwriting and may wish to use alternate manuals that address a wider range of activities. Teachers may also be hesitant to invest the initial time needed to become familiar with the activities and integrate those activities into their curriculum. The range of handwriting skills among students may make it difficult to implement some of the activities in the manual because some students may require additional assistance with certain tasks.

This project will be distributed to local elementary school teachers for review and use in the classroom. Suggestions for possible changes or recommendations will be obtained through surveys provided to the teachers at the initial distribution. The product will also be given to school occupational therapists to gain feedback related to current activities and suggestions for additional activities. After these recommendations and changes have been made

to the product, it is recommended that research be conducted to determine the effectiveness of the product.

A proposed research method would be to compare handwriting test results between two classrooms of students; a treatment classroom in which the teacher incorporates the handwriting activities into the curriculum and a control classroom in which the teacher does not use the handwriting manual. Testing would be done 2-3 times throughout the school year and would be completed by the school occupational therapist. It is hypothesized that the students in the treatment classroom will demonstrate greater improvement over the course of the year than the students in the control classroom.

It is hoped that this product will encourage collaboration between occupational therapists and teachers to ensure all students are receiving appropriate intervention services. By encouraging teachers to utilize this manual in the classroom, it is predicted fewer students will experience negative consequences of poor handwriting such as low self esteem, poor academic performance, and avoidance of fine motor activities (Feder & Majnemer, 2007), and these students will begin to experience success in handwriting activities.

APPENDIX

Glossary of Terminology

Bilateral Integration: the use of two hands to support or manipulate an object; hands may be working in unison or performing different but complementary actions at the same time.

Biomechanics: the position of a child in his/her desk to promote optimal use of hands during classroom activities; considers the position of the paper and the dimensions of the desk and chair relative to the child.

Collaboration: the process of two or more people working together to achieve a common goal.

Consultation: a type of intervention where therapists use their knowledge and expertise to work indirectly with the client to identify the problem, create and alter solutions for greater effectiveness.

Developmental delays: occurs when children have not reached milestones by the expected time.

Early elementary students: students in kindergarten through 3rd grade.

Environment: the external physical and social environment that surrounds the client and in which the client's daily life occupations occur.

Eye-hand coordination: the integration of visual perceptual information with the purposeful movements of the hand and arm.

Figure ground: the ability to locate an object within a three dimensional presentation.

Fine motor coordination: use of small muscle groups for precise movements, particularly in object manipulation with thumb, index, and middle fingers.

Gross motor coordination: use of large muscle groups in the whole body to carry out skills such as balancing, running and jumping.

In-hand manipulation: the adjustment of a grasped object within one hand while it is being held; includes translation, shift, and rotation.

Intervention: the process and skilled actions taken by occupational therapy practitioners in collaboration with the client to facilitate engagement in occupation related to health and participation.

Kinesthesia: the perception of position or movement of limbs and the weight and resistance of objects without vision.

Motor planning: the ability to organize, plan, and then execute new or unpracticed fine motor or gross motor activity

Occupational therapy: services provided for the purpose of promoting health and wellness through the use of everyday activities (occupations) with individuals or groups who have or are at risk for developing an illness or injury. The purpose is to provide opportunities for individuals to participate in roles and situations in home, school, workplace, community, and other settings.

Occupations: activities that people engage in throughout their daily lives to fulfill their time and give life dynamic transaction among the client, the context, and the activity.

Preparatory methods: techniques that prepare an individual for occupational performance.

Responsiveness to intervention (RTI): an education model that promotes early identification of students who may be at risk for learning difficulties.

Rotation: an in-hand manipulation movement when an object is turned in the fingers; consists of two types simple - rotation or turning an object less than 90°, and complex - rotation or turning an object between 90°-360° using thumb and finger movements.

Shift: an in-hand manipulation movement where there is slight adjustment of an object on or by the finger pads

Translation: an in-hand manipulation movement when an object is moved in a linear direction between the palm and the fingertips; includes moving an object from palm to fingertips and from fingertips to the palm.

Visual motor integration: the coordination of visual information with movement; often associated with the ability to copy geometric forms.

Visual perception: the ability to recognize, discriminate, and process information through the eyes and central nervous system.

Writing readiness: development of skills necessary to successfully perform handwriting activities.

The above information was adapted from AOTA (2008); Case-Smith (2005); Feder and Majnemer (2007); Pehoski and Henderson (2006).

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A Handwriting Manual for Early Elementary School Teachers



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Introduction

This manual was created by two occupational therapy students from the University of North Dakota. We worked with our advisor to create a product that would benefit all early elementary school students as well as provide teachers with activities that promote the skills needed for handwriting. This manual is not intended to replace an occupational therapist, but should be used as a resource to integrate handwriting activities into the curriculum for the benefit of all students. We have provided background information related to the role of occupational therapy in the school setting as well as the importance of collaboration between therapists and teachers. Essential components of handwriting are described to provide you with a basic understanding of factors related to handwriting. Following this educational information is a resource of handwriting activities to implement in the classroom to promote fine motor skill development for all your students.

What is an Occupational Therapist (OT)?

Occupational therapists (sometimes referred to as OT) assist individuals with a variety of diagnoses or disabilities, including physical disabilities and mental illnesses and might work in a hospital, nursing home, school, or community setting. Occupational therapists work with people to help them engage in important occupations. An occupation is considered any activity you do each day that you find meaningful and valuable (AOTA, 2008). Occupations that are important to adults often differ from the occupations children find meaningful. Adults engage in occupations like dressing, driving, caring for others, bathing, cooking, and leisure or hobbies. Children, however, find meaning and purpose through play, learning, taking care of themselves, and interacting with peers and

adults. These occupations are important for children to grow and develop into healthy adults. Occupational therapists use occupations and activities that are meaningful to children in therapy to promote skill development and address underlying areas that may hinder their participation.

What does an occupational therapist do in the school?

Occupational therapists in a school setting are a part of the education team and work with children, with or without disabilities, to address occupations relative to the educational environment. The goals of occupational therapy intervention are to improve the students' independence in occupations by restoring or developing skills needed to participate in school-related activities and access the school environment. The student may need assistance in the classroom or bathroom as well as on the playground or lunchroom. Handwriting is the most common reason for referral to occupational therapists in a school setting (Case-Smith, 2002; Oliver, 1990); however, occupational therapists can address social participation, mobility, self care skills, emotional and sensory regulation, and participation in classroom activities.

Why is handwriting so important?

McHale and Cermak (1992) found students in early elementary school spend 60% of their day engaged in fine motor activities (drawing, cutting, coloring, writing, and during play activities). The authors also found that of the time spent in fine motor activities, 85% is spent completing pencil and paper tasks. Handwriting is an important skill to master because it is the primary way in which children demonstrate learning to their teachers starting in elementary and continuing through their educational career (Case-Smith, 2002; Cornhill & Case-Smith, 1996). When children have difficulty with

fine motor tasks, especially handwriting, they experience numerous consequences such as lowered self esteem, avoidance of classroom activities, and poor academic performance. These factors may contribute to teachers' perceptions that these students are lazy or unmotivated (Feder and Majnemer, 2007).

Why should I consult with an occupational therapist?

Although occupational therapists address handwriting among children in elementary school, not all children with handwriting problems qualify for occupational therapy services in the school setting. These students would still benefit from activities focusing on fine motor development even though they do not meet qualifying standards for occupational therapy. As part of the education team, occupational therapists collaborate with teachers to address the needs of individual students who qualify for direct occupational therapy services as well as to plan and develop activities that include all students. The therapist collaborates with teachers by providing education and resources to promote skill development for all students in the classroom. When addressing handwriting, collaboration is important as the teacher is the primary source for handwriting instruction as well as the person who works with that child on a consistent basis (Hammerschmidt & Sudsawad, 2004).

What if my student's handwriting isn't improving?

This manual wasn't created to replace the services an occupational therapist can provide to students with poor handwriting. Some students may need additional services to address underlying factors contributing to handwriting problems. Occupational therapists are trained to identify specific problems a student may have that you may be unable to recognize. Occupational therapists use specialized assessments and rely on extensive

training to understand the complexity of the problem and implement a variety of techniques to assist the student in overcoming those difficulties. If you feel your student is not improving and is falling behind his or her peers, don't hesitate to seek additional assistance from an occupational therapist. Occupational therapists can collaborate with you to determine strategies to use in the classroom to assist the student. If the student needs more help, he or she can be evaluated to determine the need for individualized occupational therapy services. This process is different in each school district so you need to refer to your special education director to determine how to contact an occupational therapist in your school.

Components of Handwriting:

- Ergonomics – specifically the positioning of a child in his/her desk to promote optimal use of hands during classroom activities. Considers the position of the paper and the dimensions of the desk and chair relative to the child.
 - 🚩 Red Flags:
 - Feet dangling from chair
 - Kneels on chair to reach desktop
- Postural Stability – proper muscle strength in neck, shoulders and trunk for upright posture allowing the child to use hands for fine motor activities and maintain eye contact with teacher.
 - 🚩 Red Flags:
 - Rest head on hand
 - Sit with a rounded back (slouched)
 - Rest upper trunk and both arms on desktop
 - Uses one hand to maintain sitting balance
 - Slips out of chair
- Visual Motor Control – the child’s ability to use his/her eyes to guide movements of his/her hand. Also called eye-hand coordination.

Example: Ability to successfully catch a ball, write on the lines, and follow a straight line when cutting.

 - 🚩 Red Flags:
 - Illegible writing
 - Difficulty staying within the lines for writing and coloring
 - Difficulty cutting
 - Difficulty copying design, shape, letter
- Visual Perception – the child’s ability to make meaning out of what is seen. This includes visual memory, discrimination, form constancy, visual closure, and figure ground.

Example: Ability to recall letters from memory, recognize letters on the blackboard, and discriminate between similar letters (M/N).

 - 🚩 Red Flags:
 - Searches room for visual examples of letters
 - Difficulty recognizing mistakes in handwriting
 - Irregular spacing in handwriting activities
 - Inaccurate letter size
 - Slow to learn number and letter forms
- Kinesthesia – the child’s awareness of body parts without visual cues. As kinesthesia is developed in early elementary, the student can focus visual attention on proper spacing and placement rather than on finger movement, pencil grip and pressure.

Example: Accurately swinging a baseball bat while watching the baseball approach. Vision is used to watch the ball while kinesthesia is to direct the bat.

🚩 Red Flags:

- Child bumps into things
- Slow and mechanical writing because child relies on vision to guide pencil movement
- Awkward grips during handwriting
- Visually monitor hand positions during handwriting

- Grip and Pinch – strength in the hand and fingers needed for grasping and manipulating objects.

Example: Ability of a child to maintain a constant grip on a cup of water.

🚩 Red Flags:

- Difficulty with zippers, snaps and opening jars due to decreased hand strength
- Awkward whole hand grasps in place of finer pinch patters
- Difficulty manipulating play dough
- Difficulty using Lego's for construction

- In-hand Manipulation- the child's ability to hold and move a pencil around in one hand without using another surface or the other hand. Three categories of in-hand manipulation are described below.

Translation – moving an object from palm to fingertips or from fingertips to palm

- Example: using one hand to transfer coins from palm to finger to place in vending machine

Rotation – turning an object with the pads of the fingers

- Example: using one hand to turn pencil over to erase

Shift – using fingers to adjust an object in the hand

- Example: repositioning fingers on a pencil

🚩 Red Flags:

- Use of two hands to rotate pencil to erase
- Drops pencil frequently
- Difficulty turning water faucets and tying shoes
- Uses two hand for one handed tasks

- Bilateral Integration – the child's ability to coordinate both hands to successfully manipulate objects.

Example: Ability to hold paper with one hand while writing with the other.

🚩 Red Flags:

- Trouble with buttons/snaps
- Switches hands during activities
- Difficulty using both hand in a coordinated manner

*Above information was adapted from Johnson Levine, 1991

Ergonomics

Positioning

Purpose: To encourage proper sitting posture in desk to improve ability to attend to classroom activities and complete handwriting activities.

Materials/Set Up: Students can be sitting in their chairs

Instructions:

1. "Today we are going to see if we can sit up straight in our chairs. Make sure your feet are flat on the floor and that you are not leaning too far forward."
2. "We want to be able to use our hands for all the activities we will be doing in class today, so try your best not to lean on your hands or rest your head in your hands."
3. "Now that we are all sitting so nicely in our desks, it's time to learn!"



Getting Ready to Write

Purpose: To encourage proper ergonomics while completing desk activities

Materials/Set Up: Students can be seated in their desks; have paper and pencils ready to write



Instructions:

1. "There are 3 things we need to pay attention to before we start handwriting."
2. "Anyone know what these three things are?"
3. "First, let's make sure everyone is sitting up nice and tall in their desks. Everyone's feet should be flat on the floor."
4. "Next, we want our paper to be slanted on our desks. If you write with your right hand, the bottom left corner of the paper should be pointed towards your belly. If you write with your left hand, the bottom right corner of the paper should be pointed towards your belly."
5. "You've got it! Good job!"
6. "And finally, we want to make sure both hands are free to help with handwriting activities. If you are sitting or leaning on your hands you cannot use them for handwriting. Everyone bring your hands to the top of your desk so that you can do the best job that you can while we are handwriting today!"

Postural Stability

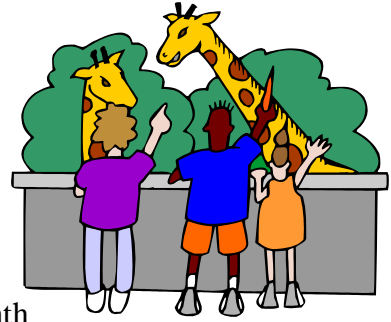
A Walk in the Zoo

Purpose: Increase shoulder stability

Materials: Large gym or classroom area; pictures of different zoo animals is optional

Instructions:

1. Students can line up single file or make their own path through the classroom.
2. Explain to students, "Today we are going to be animals in the zoo. When I say the name of an animal, use your hands and feet to walk like that animal and your voices to sound like that animal. Don't start until I say go. When I say stop, make sure you are quiet so you can hear the next animal."
3. Animals to imitate: bear, cat, monkey, crab, rabbit, horse, dog, frog, elephant, snake, pig, bird, duck, cow, giraffe, zebra, penguin.
4. Ask the students for additional animals to imitate.
5. "It's time for the penguin (or last animal) to leave the zoo and find his/her desk. Great job being animals today!"



Calisthenics*

Purpose: Increase shoulder and trunk stability in preparation for writing or fine motor activities

Materials/Set Up: Students can be seated at desks or in large group

Instructions:

1. Explain activity to students as you demonstrate. “We are going to get our hands and bodies ready for writing (or the next activity). Everyone put your hands in front of your body, with your palms facing each other. Pretend you have a big ball of clay in your hands. Push your hands together so the ball of clay becomes a big pancake!” You may count out loud to 10.
2. “Now you are going to pull that clay apart.” Turn your hands so one hand is facing the ceiling and the other is facing the floor and link your fingers together. “Keep pulling!” Again count to 10.
3. “Put that big ball of clay right on top of your head and smoosh it down. Keep your neck nice and strong while you are pushing!” Push for a count of 10.
4. The series can be repeated again, if desired.
5. “Great work. Now we are ready to start writing!”



*Adapted from Amundson, 1998

Popcorn*



Purpose: Increase shoulder and trunk stability

Materials/Set Up: Students need to be sitting in chairs; this activity can be used to prepare them for writing or fine motor activity.

Instructions:

1. “Today I need your help making popcorn. Everyone scoot your chair back away from the desk. Put your hands face down on the side of your chair and hold on to the edges.”
2. “Every time I say part of the recipe, I want you to lift your bottom off the chair, as high as you can go!”
3. “First, I need to get the ingredients.” While you are ‘gathering’ the ingredients, tell students, “Lift yourself up; 1-2-3-4-5. Good.” Students can sit back down.
4. “Now I’m going to pour the oil in the popcorn maker. Lift yourself up again. 1-2-3-4-5.” Students can sit back down.
5. “We have to wait for it to pop...Hold yourself up until it starts to pop. 1-2-3-4-5.”
6. “It’s starting to pop; try to pop yourself off your chair just like the popcorn. Up, down, up, down, up, down. Keep popping. Try to keep your feet off the floor.” Have students bounce up in down in their chairs like popcorn for 10-15 seconds.
7. “It’s done popping! Before we start writing, try to press down as hard as you can on your chair without lifting yourself up.” Count to 10 while students are pushing down on chair.
8. “Great work everyone!” Students’ bodies are now ready for the activity.

* Adapted from Amundson, 1998

Handwriting Warm-Up Routine



Purpose: To prepare the students for handwriting/fine motor activities; to increase overall strength/stability to allow participation in classroom activities.

Materials/Set Up: Students can stand in a circle or stand right next to his/her desk

Instructions:

1. "Before we start classroom activities today, we are going to do some exercises to get each of you ready to work!"
2. "Everyone stand up next to your desk and let's do 10 jumping jacks. Let's all count together. 1-2-3..." Teacher participates by providing demonstrations for students.
3. "Good, now I want you to lift your shoulders towards the ceiling 10 times. You want to get your shoulders as close to the ceiling as possible. Watch me. Now it's your turn. Let's count together." Teacher demonstrates a shoulder shrug.
4. "Next I want you to try to touch your ear to your shoulder. We will all do it together 10 times!" Teacher demonstrates alternating touching right ear to right shoulder followed by left ear to left shoulder.
5. "Now I want everyone to sit back down in your chair. Push up with your arms to make your bottom come off of the chair. Good, we will pop up off the seat 10 times. If it's too easy, try lifting yourself off of the chair without using your feet."
6. "Now, put the palm of your hands together like this and push firmly for 10 seconds." Teacher should demonstrate his/her fingers extended and pointing towards the ceiling while the palms are together.
7. "This time I want you to lock your fingers together like I am doing and try to pull them apart. Pull for 10 seconds!" Teacher should demonstrate locking fingers together by having one hand facing the ceiling and one hand facing the floor while locking the tips of the fingers together.
8. "Good job everyone! Are you ready to start writing?"

Partner Pull Ups*

Purpose: Increase shoulder and trunk stability

Materials/Set Up: Students need to have large area for sitting and standing with a partner.

Instructions:

1. "Everyone stand up and find a partner. Try to find someone that is close to your size."
2. "Sit on the floor facing your partner with your knees pointed to the ceiling and your feet on the floor." Make sure students are about 1' apart.
3. "Grab your partners arm between their elbow and their wrist."
4. "Using your partner to help you, slowly stand up."
5. Once students are standing, "Good job now I want you to sit back on the floor. Remember to go slowly and help each other out!"
6. "We'll do that a couple more times. Pull yourself up slowly and try to go at the same speed as your partner."

* Adapted from Amundson, 1998



Visual Motor Control

Silent Ball



Purpose: To promote visual motor control using a large ball

Materials: You will need a soft nerf ball. Students should be in a large circle or standing by their desks.

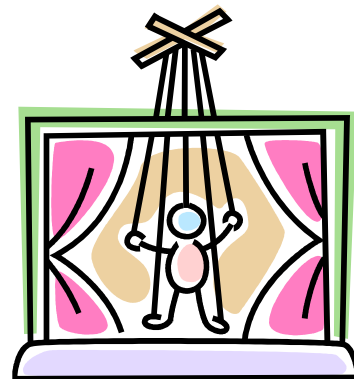
Instructions:

1. Explain rules to students. "This game is called 'silent ball' because you can't say a word! Everyone gets to stand up and play catch, but if you talk, you have to sit down and wait until the next game starts. If you cough or sneeze that is ok, but you cannot talk to your neighbor. Raise your hand if you need to tell me something and I will come over to you."
2. "We can't let the ball touch the floor, so if you drop the ball, you have to sit down, too. We want to try to keep everyone in the game so throw the ball gently and make sure your classmates can catch it. If you throw the ball too far away or at someone's face, you will have to sit down."
3. "Let's see how long we can keep everyone playing!"
4. Focus on having everyone involved to discourage students from throwing too hard or trying to get one another out of the game. You can make it a contest to see if the class can improve the length of time everyone is playing each week.

The Puppet Show

Purpose: To promote visual motor control through art activities.

Materials/Set Up: small paper bag, colored paper, glue, scissors, crayons/markers, other items to add decoration such as glitter, stickers are optional; students should be sitting at their desks or by a table.



Instructions:

1. Explain to the class, “Today we are going to make puppets out of a paper bag and later we will start to plan our class puppet show!”
2. Teacher hands out supplies needed to complete this activity.
3. “First we will need to give the puppet eyes, a nose, and a mouth. I want you to draw these objects onto the paper I gave you and cut them out. When they are cut out you can decorate them with colored pencils/crayons as you wish.” Teacher should be available for questions and to provide assistance as needed.
4. “When you are finished decorating your eyes, nose and mouth, glue each one onto the face of the puppet.”
5. “Next we need to make some clothes for the puppet. I want you to draw designs on this colored paper and cut them out.” Teacher can explain the designs will be used to decorate the puppets shirt, hat, body, etc. Suggestions include cutting out letters, shapes, buttons, etc. to add to the front of the puppet.
6. “You can glue the clothing onto to the puppet when you are ready.”
7. “Finally, the puppet is going to need some hair. Pick out what color hair you want your puppet to have. When you have the right color of paper I want you to draw lines a little more than half way up your paper.” Students should be drawing lines close together to resemble hair.
8. “Now I want you to cut on these lines to give your puppet the perfect hairstyle!” Teacher should make sure there is some paper left uncut at the top of the paper to hold all the strips of hair together.
9. “Looks like the hair is ready! Let’s glue the hair on to the top of the puppets head.”
10. “Wow! Look at all of these great puppets! I think we will have a great puppet show!”

Paper Chains



Purpose: To engage the students in fun activities promoting the use of two hands at once; address visual motor skills as students are required to follow a line on paper to cut a straight strip of paper

Materials/Set Up: Colored paper, scissors, glue/tape/stapler; students should be sitting in their desks

Instructions:

1. Prior to instruction, teacher determines what he/she wants to use the paper chain for. Suggested activities include: using the chain for a countdown to a certain time ie. Days until summer break starts, days until winter break starts, days until the students receive a free day, etc.; hanging small paper chain above each students desk; creating large chain for decoration around the classroom.
2. Teacher should have lines drawn on paper so students will all cut the strips the same length and width.
3. "Today we are going to make chains out of paper. You can use the chains for all sorts of things, but today we are going to make the chain to help us count down the days until summer break starts."
4. "First, let's count how many days of school we have left until school starts." Teacher brings out calendar and has students assist in determine how many days of school are left.
5. "Good job! Now, if we have this many days of school left, how many links does each student need to make?"
6. "Each of you can pick out any colors of paper you wish you use for your paper links."
7. "I want you to use your scissors to cut out the links by following the lines I already drawn on your paper."
8. "When you have your strips cut out, I want you to glue the very edges of the strips together, like you are making a link or bracelet."
9. "Good job! Now let's connect all of our links to make a large chain!"
10. Teacher can have students cut off a link each day to keep track of the number of days left until summer break begins.

Our Very Own Alphabet

Purpose: To promote visual motor skills through pencil and scissors activity.

Materials/Set Up: colored paper, scissors, crayons/makers, pencil; students should be sitting in their desk or at a table.



Instruction:

1. Teacher should provide each student with a letter to trace onto their own sheet of paper. The letter should be a block letter so it will resemble the letter after a student cuts it out. Example of block letters – **A, B, C**
2. “Today we are going to each make a different letter of the alphabet.”
3. “First I want you to trace the letter that I give you onto your sheet of paper.”
4. “After you have traced it onto your own paper, cut it out doing your best to stay on the line.”
5. “Now, I want you to decorate your letter however you want to.” Teacher can explain what supplies are available for students to add decoration.
6. “Good job everyone.”
7. Teacher can hang the letters up in alphabetical order around the room for students to use as a visual tool when writing letters.

You aMAZE me!

Purpose: To promote visual motor skills

Materials/Set Up: Maze provided or teacher can create a new maze for students to follow.

Instructions:

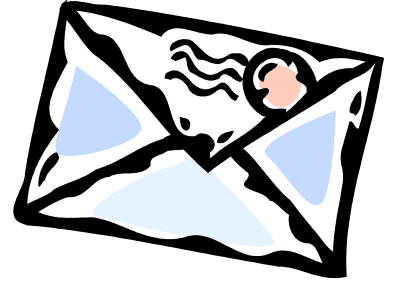
1. "I want you to find what letter on the left side of the paper goes with the animal on the right side of the paper."
2. "Use your finger or pencil to follow the lines to see what figures go together."



Pen Pals

Purpose: To promote visual motor skills by encouraging students to stay within the lines when writing letters

Materials/Set Up: graph paper, pencil; students should be sitting in their desk or at a table.



Instructions:

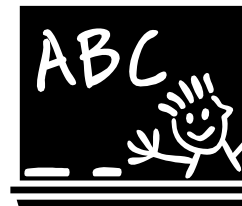
1. Instructions can vary depending on who the teacher would like the students to write a letter to. Suggestions include: military, parents, grandparents, pen pal, another teacher and/or student.
2. "Today we are going to write a letter to our pen pals!"
3. "I am going to give you each a piece of graph paper to write on today."
4. "In your letter to your pen pal you can explain that you are using this graph paper to improve your handwriting skills."
5. "As you are writing, I want you to pay special attention to the way you are forming letters and the spacing between the words. Write as neat as you can, trying to keep each letter within the correct box and using only one box as a space between words."
6. "Good job! Now that you paid so much attention to your work we know that your pen pal will be able to read your letter!"

Visual Perception

Wrong Letters*

Purpose: To increase awareness of spatial formation errors of numbers and letters.

Materials/Set Up: Black or whiteboard to write letters and numbers; students can be seated at desks or on the floor.



Instructions:

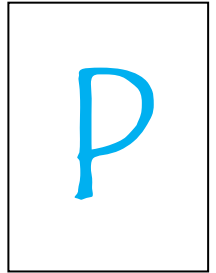
1. “Today we are going to practice our numbers and/or letters. I am going to write a number/letter on the board, but there will be something wrong with it. I want you to tell me what is wrong and how to fix it.” Students can participate as a large group, raising hands to explain correction or students can offer corrections by individually going up to board to correct teacher’s error.
2. Teacher writes a letter or number incorrectly on the board.
 - a. For example, a backwards capital E
3. Ask students, “What did I do wrong?”
4. Have student explain error first.
 - a. The letter is facing the wrong way, or you wrote it backwards.
5. Ask the student to come up to the board and fix the letter.
6. Students can work as a group or individually.

* Adapted from Johnson Levine, 1991

Pipe Cleaner Letters*

Purpose: To improve visual recognition of letter or numbers by encouraging development of 'images' using touch.

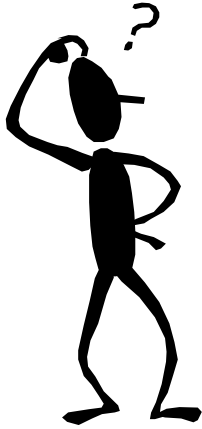
Materials/Set Up: Each student will need pipe cleaners, index cards, and glue. Students should be seated at desks.



Instructions:

1. Provide each student with pipe cleaners. "Today we are going to make letters and numbers with these pipe cleaners."
2. Ask students to make a letter or number with each pipe cleaner. Describe how to make each letter and encourage your students to verbalize how they are formed.
3. Pass out index cards and glue. "Now we are going to glue the letters onto the paper."
4. "When the glue has dried, close your eyes and trace the letter with your finger. Try to guess which letter you are tracing."
5. Students can make and trace one letter at a time or they can make numerous letters and try to guess which is which with a partner or individually.

* Adapted from Johnson Levine, 1991



?Mystery Letters?

Purpose: To improve ability to visualize letters and numbers for writing

Materials/Set Up: Plastic letters and numbers in a bag that students cannot see through, students need a pencil and paper; students should be sitting at their desk

Instructions:

1. "Today we are going to play a mystery game. I have letters and numbers in this bag, but I don't know which is which. I will hand you each a letter or a number and you have to use your hands to figure out what it is. You cannot use your eyes to look— your hands have to be the detectives!"
2. You can turn out the lights to make it more mysterious in the room and discourage students from using their eyes.
3. "I want you all to close your eyes and put your hands under your desk. I will put a letter/number in your hand and I want you to guess what that letter is."
4. "When you think you know it, you can move your hands to the top of your desk and write what letter you had. Make sure you leave the letter in your lap so your eyes don't try to help your hands solve the mystery."
5. When all students have finished identifying the letter in their hands, they can check their answer. "Now take your letter and put it on top of your desk. Did your hands solve the mystery? Great job lets try another one!"
6. You can do as many as you like. If you have enough letters, you can give each student the same letter and they can work on the 'mystery' together.

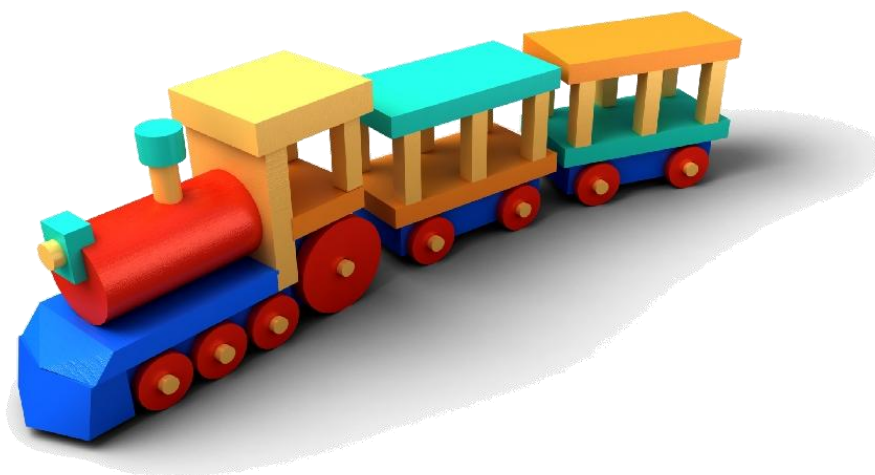
Letter Train

Purpose: To encourage visualization of letters and numbers using descriptions.

Materials/Set Up: Students should be separated into groups of 2 (3 if you have a large class) and can be sitting at their desks if they are near one another or around the room. Each group will need a bag of letters (plastic/magnetic or large paper letters cut out).

Instructions:

1. Before pairing students up, explain the rules of the game. “How many of you have played Pictionary? Today we are going to play a game like Pictionary but instead of drawing pictures, we are going to use our words to describe pictures of letters.”
2. “You are going to get with a partner to play this game. You and your partner will sit in a row, like you are on a train. Once you board the train, the partner in the caboose will pick a letter or number out of the bag and use words to describe that letter to the partner in the engine.”
3. “The driver of the train has to guess what letter is in the caboose. When the driver guesses that letter, the train turns around and heads the other way. Now the partner who was in the caboose is in the engine, driving the train. The partner who was driving is the caboose and has to pick out a new letter and describe it to the driver.”
4. Students may need help starting out with letter or number descriptions. You may need to practice with them by doing a couple in front of the class.
5. “Let’s try one together before you get on the train. You are all the drivers and I am the caboose.” Reach in a bag and find a letter or number. “This has one straight line with a circle next to it.” The students should guess the letter (p, d, b).
6. You can vary the descriptions according to your letter curriculum, but make sure you provide some examples before the students board the train.
7. “All aboard the letter train!”



Eye Spy

Purpose: To build visual perceptual skills, specifically figure ground, needed to visually attend to important information in the classroom and during writing activities.



Large Group Materials/Set Up: Prior to this activity, you will need to place several items around the room that are needed for an upcoming project or lesson plan. You can hide scissors, a glue bottle, markers, paper, and pencils before an art project or pictures of bears, Goldilocks, bowls, chairs, and beds before reading *Goldilocks and the Three Bears*. Make sure to keep track of the number and placement of all items you hide! Students should be sitting in their desks.

Large Group Instructions:

1. “Before we can begin our story today, we need to find the characters from the book. They all fell out and our hiding in our room! I need your help to find them.”
2. Tell students what they are looking for. “The first thing we need to find is a brown bear. He is hiding somewhere in our classroom, but I cannot find him.”
3. When students have found the first item, move on until all items have been found.
4. Try to encourage all students to participate. You can do this by assigning certain objects to a group of students, or having all the girls find something while the boys find a different object. This will allow students with poor figure ground skills to participate rather than letting the students with stronger skills participate and answer too quickly.

Small Group Materials/Set Up: Provide each student with a book or page with lots of detail. Create a picture list of objects to be found on each page. You can give each student the same list or provide different lists – it is up to you!

Instructions:

1. “I want you to find all the objects on the list in your picture I gave you. All the items are hiding somewhere and it is up to you to find where they are! Let me know if you need any help!”
2. Students may need help finding objects; encourage them to scan the page back and forth as if they were reading – left to right working their way down the page. This technique is helpful to organize the eyes for reading.
3. If a student is still struggling, give them clues, such as which area of the page to look at or what color they are looking for.

Body ABC's

Purpose: To encourage visualization and description of letters and numbers.

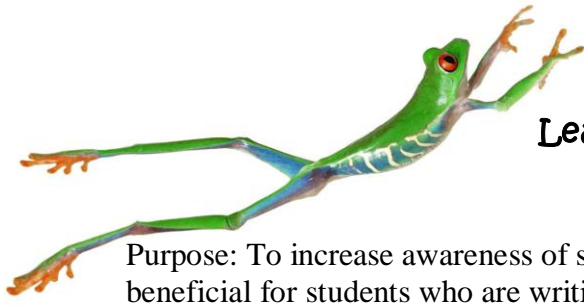
Materials/Set Up: No materials needed; you will need a large area for students to make letters and numbers with their bodies.



Instructions:

1. “Instead of using our pencils to practice our letters, we are going to use our whole body today. I am going to pick 2-3 people to come with me and make the letter I say with their whole bodies. Everyone else can help them by telling them where to stand or lay to make that letter.
2. Have two students come up for an example. You can help them by giving them instructions. “If I say the number 3, you two can lie on the ground and make the two half circles of the number 3.”
3. Each letter and number will require a different number of students. Below is a guideline for the number of students to bring up for each letter and number.
4. You may want to think of possible letter and number formations before playing as some letters are much more difficult to represent and the students may need extra help. Letters and numbers with only straight or only curved lines are easiest to replicate.

Letter	Number of Students		Number of Students
A	2	S	2
B	2	T	2
C	1 or 2	U	2
D	2 or 3	V	2
E	4	W	2, 3, or 4
F	3	X	2 or 4
G	2	Y	2 or 3
H	2	Z	2 or 3
I	3	0	1 or 2
J	2 or 3	1	1
K	3	2	2 or 3
L	2	3	2
M	2-4	4	2
N	2 or 3	5	3
O	1-2	6	2
P	2	7	2
Q	2 or 3	8	2
R	3	9	2



Leap Frog Writing

Purpose: To increase awareness of spacing during handwriting activity. This is beneficial for students who are writing words/sentences, especially if they have poor spacing and organization while writing.

Materials/Set Up: Each student will need a Popsicle stick with a picture of a frog glued on top during handwriting activity. Students should be seated at their desks.

Instruction:

1. Provide each student with a Popsicle stick with a picture of a frog on top. “We are going to use these sticks when we write today to make sure there is enough space between our words.”
2. “The frog on your stick needs to be able to land between each word. He can’t leap over more than one word, so make sure you leave enough space for him to land safely.”
3. Demonstrate how to use the stick by writing on a board or large paper in the front of the class. After writing a word, place the leap frog to the right of that word to create a space. Write the next word just to the right of the leap frog. When you bring the leap frog on the other side of your word, you will see a proper space in between the first two words.
4. Some students will have difficulty managing the Popsicle stick while writing. Encourage them to use one hand to stabilize the frog while the other hand writes. If they are unable, allow them to lay the Popsicle stick down and remove the stabilizing hand.

Baking Letters



Purpose: To increase visualization of letters and numbers using play dough

Materials/Set Up: Each student will need a small container of play dough. Students should be sitting at their desk or at a table.

Instructions:

1. “We are going to work at a bakery and make letter cakes! You all are going to get your own play dough and we are going to pretend to bake cakes.”
2. Give each student a small container of play dough. “We have had lots of people ask us to make cakes for them. I will tell you what letter they have asked us to make and you can use your play dough to make them a beautiful letter cake!”
3. You can verbally describe the letters to the students but don’t provide them with visual examples unless they cannot think of the letter. This activity is to encourage visual memory of letters and numbers for handwriting.
4. You can ask students to make a cake using the first letter of their name, the first letter of the day of the week, month, or an upcoming holiday. Number cakes can be made to represent age, date, or year.
5. Encourage creativity and have fun with your students!

Desk Letters



Purpose: To provide visual example for students while learning letters and number

Materials/Set Up: You will need an example of all the letters and numbers of the alphabet for each student.

Instructions:

1. Tape the letters and numbers on each student's desk prior to learning letters and numbers. Provide an example based on the handwriting curriculum you use.
2. It is helpful to have the letters and numbers on lines to demonstrate proper spacing and construction of each letter. Arrows indicating direction may be helpful, but some students may be confused by this.

Kinesthesia

Finger Statues*

Purpose: Increase awareness of hand positioning without using eyes to guide movements

Materials/Set Up: No materials needed; students should be sitting at desks or on floor. It may be helpful to have sign language alphabet as a guide.



Instructions:

1. “Before we start working today we are going to play a game to warm up our hands!”
2. “Everyone put your hands behind your back. I am going to make a shape with my hands like this” (teacher demonstrates a hand shape for all the students to see)
3. “When you see the shape, I want you to make the exact same shape while your hands are behind your back!”
4. “When I say go everyone can bring their hands in front of them to see if the shape you have matches the one I have in front of me.”
5. “Everyone ready? Let’s start!”

Type in “sign language alphabet” to any search engine to obtain images of a variety of hand positions.

*Adapted from Vreeland, 1998

Air Writing*

Purpose: To reinforce movement patterns and improve kinesthetic movement during handwriting

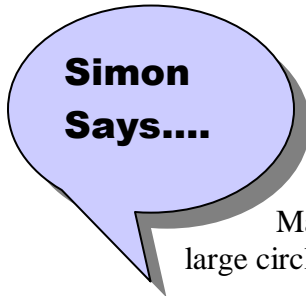
Methods/Set Up: Students can be sitting in their chairs; teacher will need a chalkboard; students will need a pencil and paper at their desk



Instructions:

1. "Today we are going to practice writing letters and numbers"
2. "I am going to write a letter or a number on the chalkboard and when I say go I want you to use the hand that you write with to write the letter in the air."
3. Teacher writes a letter or number on the chalkboard, providing verbal descriptions if desired.
4. "Okay, now I want you to write the letter/number in the air. Ready? Go! Good job!"
5. Students should have their elbow fully extended and use their index finger as a pointer.
6. "This time I want you to write it in the air with your eyes closed!"
7. When the teacher thinks the student understand the movement patters the students can move on to the next step.
8. "Now I want you to pick up your pencil and write this letter/number on your paper 5 times. Good job!"

* Adapted from Vreeland, 1998



Simon Says

Purpose: To engage students in a fun activity to help the students understand the positioning of his/her body

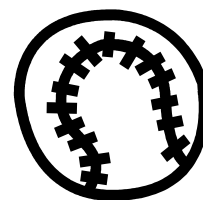
Materials/Set Up: Students can be standing by their desk or in a large circle

Instructions:

1. "Today we are going to play a game! Everyone form a circle at the front of the room."
2. "I will be the leader first. Here is how you play the game. If I say Simon says put your hands on your head, you should put your hands on top of your head as fast as you can. But make sure you are listening really well because if I don't say Simon says you shouldn't do it. So if I just say, put your hands on top of your head, you shouldn't do it because Simon didn't say to do it! Any questions?"
3. "Okay, let's start."
4. Teacher can choose when and when not to use Simon says. Some suggestions of actions to include:
 - a. Make a tight fist with your hand 2 times.
 - b. Clap your hands together
 - c. Touch the top of your head
 - d. Jump up and down
 - e. Cross your arms
 - f. Make large arm circles with your arms
 - g. Give your neighbor a high five
5. "Good job today! Now let's get back to work!"

Grip & Pinch Strength

Who has the Ball?*



Purpose: To increase strength and stability of the hands

Materials/ Set up: One foam squeeze ball; students should be standing in a large circle

Instructions:

1. Have students stand in a circle, shoulder to shoulder. One student is “it” and stands in the center of the circle.
2. The students have to pass the ball from one student to the next without the “it” students seeing.
3. “We are going to pass this ball around the circle, but we don’t want (“it” student) to see who has the ball. You have to use your muscles in your hands to squeeze the ball as hard as you can so (“it” student) can’t see who has it.”
4. “You have to keep your hands in front of you with your elbows bent.” Hands should be at chest level.
5. “If (“it student”) figures out when you have the ball, you have to go in the middle and can’t come out until *you* guess who has the ball.”
6. “If you don’t have the ball, you can move your hands like you are passing a ball so (“it student”) doesn’t know who really has it.”
7. A larger ball will make it more difficult to squeeze, thus increasing the strength needed to hide it.

* Adapted from Bridgeman, 2002

Bands on Your Hands*



Purpose: To increase strength and stability of the hands

Materials/ Set up: Each student will need a rubber band; students can be sitting at their desks or in a large group

Instructions:

1. Have student place rubber band on hand. “Cup your hand and touch your finger tips together so they are all facing the ceiling. Put the rubber band around the tips of your finger and your thumb.”
2. Students can practice opening and closing their hand, being careful not to let the rubber band fly off.
3. “See how many you can do. Try to do 10 on your right hand and then switch to your left hand to do 10 more. Great job!”
4. You can make this activity harder by using a thick, small rubber band or easier by using a large, thin rubber band.

* Adapted from Bridgeman, 2002

Fill the Coin*

Purpose: To increase pinch strength

Materials/ Set up: Each student will need an eye dropper, paper towel, and penny; it may be helpful to have small water container for students to refill dropper. Students can be seated in their desks or at a table.



Instructions:

1. Each student needs an eye dropper and a coin. Fill eye droppers with water or provide a small container to allow students to complete this task.
2. "Today we are going to see how many drops of water it takes to fill up this coin." You can have students try to guess how many drops it will take before the water runs over the edge of the coin.
3. Have the students hold the coin over the paper towel while they drop water onto it. Encourage them to hold the coin and the eye dropper with their fingertips.
4. Students can complete activity as a class and count out loud or they can drop water individually and count their own drops.
5. If student has difficulty holding the coin, it can be placed on the paper towel rather than being held.

* Adapted from Bridgeman, 2002

Cotton Ball Race*

Purpose: To increase pinch strength

Materials/ Set up: Each student will need a clothespin, medium-sized container, and 10-15 cotton balls (you can also use small sponges or beans). Students should be spread out on the floor or sitting at a large table.



Instructions:

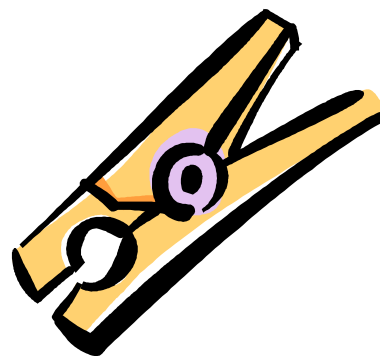
1. Have students spread out on floor or at a table. If students are on the floor, they should be sitting with legs straight in front of them with cotton balls on one side of their body and the container on the other. If at a table, place cotton balls off to one side and container off to the other.
2. “Grab the clothespin with your writing hand. Put the cotton balls on that side of your body. Place the container on the other side.”
3. Demonstrate how to hold a clothespin. “Hold the clothespin with your thumb, pointer, and middle finger.”
4. “When I say go, you are going to pick up the cotton balls one at a time with the clothespin. Bring the cotton ball across your lap/body to place it in the bucket on the other side. You can only take one cotton ball at a time and if you drop one, you have to bring it back to the starting pile. See how fast you can go!”
5. The student should turn his/her body if sitting on the floor to transfer the cotton balls.
6. Moving the start pile or container away from the student will make it more difficult.

* Adapted from Bridgeman, 2002

Hot Potato*

Purpose: To increase hand strength

Materials/ Set up: Each student will need a clothespin; 2-3 bean bags for entire group; students should be seated in a circle in an open area



Instructions:

1. Have students sit in a circle on the floor. Make sure each student has a clothespin. Students can be split into smaller circles (groups of 6-10 students work best).
2. Demonstrate how to hold the clothespin, with thumb, pointer, and middle finger holding the clothespin and the other two fingers curled into the palm.
3. Explain the activity to the students. “The first person (can be a student or the teacher) is going to pick up the beanbag with his/her clothespin. The person next to him/her is going to grab the beanbag with his/her clothespin, making sure the beanbag doesn’t touch the floor!”
4. Have students pass the beanbag around the circle until it reaches the last person. “The last person will place the beanbag in the bucket. If the beanbag touches the floor, we have to start over!”
5. You can challenge the students to keep all the beanbags from touching the floor or make this a race between groups to see who can get all the beanbags in the bucket the fastest.
6. If students are having difficulty holding onto the clothespin, you can place a small cotton ball or soft object in the palm so they have something to hold onto with their last two fingers.
7. Larger and heavier beanbags can be used as the students’ strength increases.
8. Students can also use two hands, each with a clothespin, to pass the beanbag along. This requires bilateral coordination as well as hand strength in both hands.

* Adapted from Bridgeman, 2002

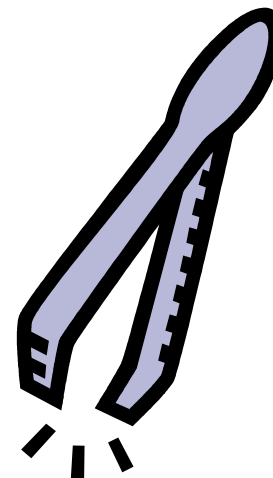
Fill the Cup*

Purpose: To increase hand strength

Materials/ Set up: Each student will need a tweezers, a handful of kidney beans, and a small container; students can be seated at their desks or on the floor.

Instructions:

1. Give each student a tweezers and a small handful of beans.
Make sure all students have the same number of beans.
2. Show the students how to hold the tweezers. “Hold the tweezers with your thumb and first two fingers.”
3. “Using your tweezers, pick up the beans, one at a time and place them in the container. If you drop a bean, you have to put it back in the start pile and try to pick it up again.”
4. You can start a timer and give them a set amount of time (2 minutes) to see how many they can get in the jar. This will eliminate competition between the students and encourage them to improve their own score each time they complete this game.



*Adapted from Bridgeman, 2002

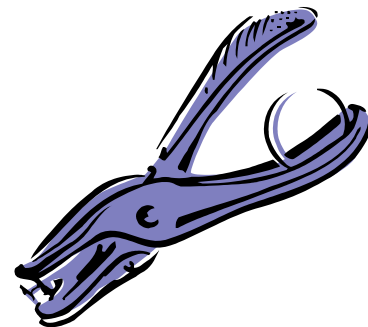
Hole Punch Art*

Purpose: To increase strength of the hands

Materials/ Set up: Each student will need a hole punch, pencil, and small piece of paper; students should be sitting at their desks.

Instructions:

1. Each student should have a small piece of paper and pencil.
“Draw a picture on this piece of paper.”
2. “Use your hole punch to outline your picture. Be careful to keep the paper over your desk top.”
3. Students can complete as many pictures as they choose.
4. You can provide pre-drawn pictures of hearts, leaves, snowmen, etc. to correspond with holidays and seasons or encourage students to create their own drawing.
5. This activity also addressed bilateral coordination as students need to hold the paper with one hand while hole punching with the other.

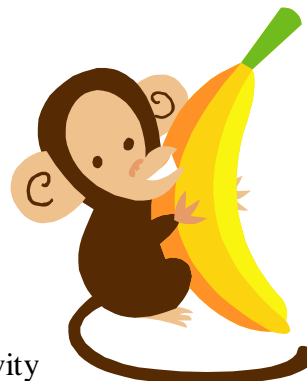


*Adapted from Bridgeman, 2002

Pulling the Monkey's Tail*

Purpose: To improve strength in the arms and hands

Methods/Set Up: Students can be seated in their chairs or standing. This activity can be used to prepare the students for handwriting or fine motor activities.



Instructions:

1. "Before we start writing today we are going to do an activity to strengthen our hands."
2. Teacher should demonstrate actions while verbally explaining activity to students
3. "Raise the hand you write with. We are going to pretend that this arm is a monkey's tail."
4. With one arm raised, "This is the monkey's tail. Watch what I am going to do. I am going to hold onto the monkey's tail with my other hand (the hand I do not write with)." Using the non-dominant hand, teacher grabs wrist of dominant hand.
5. "I'm going to try to pull the monkey's tail away, but don't let it go."
6. "Hold on tight. We are going to pull the monkey's tail for 5 seconds."
7. "Good, now let's try to pull it one more time."
8. Teacher counts to 5
9. "Now let's try the other arm."
10. Complete steps 4-8
11. "Good job! Now you are ready to write!"

* Adapted from Amundson, 1998

The Cat Scratch*



Purpose: To strengthen fingers before handwriting or fine motor activities

Methods/Set Up: Students should be standing behind their desks

Instructions:

1. "Everyone reach your arms out in front of you as far as you can. Place the palm of your hand on the top of your desk and push down hard."
2. "Now curl the tips of your fingers while keeping your palms pressed firmly on the desk."
3. "Now it's time to pretend we are cats! Pull the hand that you write with toward you like you are a cat scratching the top of the desk."
4. "Okay, good! Now put it back."
5. "This time I want you to scratch the desk with the hand that you don't write with. Pull your hand toward you."
6. "Remember you want your palms to be touching the desk at all times and you want to keep your fingertips curled."
7. "Good job everyone! You were all terrific cats!"
8. Do the cat scratch several times with both hands.

* Adapted from Amundson, 1998

Making Rain*



Purpose: To improve strength in the hands

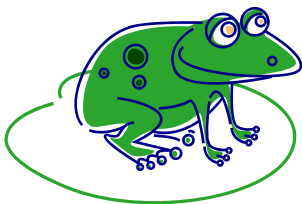
Methods/Set Up: Student can be sitting in their chairs or in a circle on the floor.

Instructions:

1. "Today we are going to make a rain storm!"
2. "Everyone close your eyes. I am going to make a sound with my hands and when you hear it, I want you to make that same sound. Remember to be quite and listen very carefully so you can make the same sounds as I make."
3. Teacher begins the rainstorm making a soft sound by rubbing palms together.
4. When all the students are rubbing their hands together, begin snapping fingers to make it sound like rain.
5. After all the students are making the snapping sound, begin slapping thighs to make it sound like even heavier rain
6. When all the students are slapping their thighs, begin stopping feet on floor in an alternating pattern to create the sounds of thunder.
7. Now it's time to calm the storm. Go through the actions in a reverse order: slapping the thighs, snapping fingers, and rubbing the palms together and finally the room should be quiet.
8. "Good job! We made quite the rainstorm!"
9. "Now we are ready to write!"

*Adapted from Amundson, 1998

Frogs in the Pond*



Purpose: To prepare the hands for fine motor/handwriting activities

Methods/Set Up: Students can be sitting or standing by their desks

Instructions:

1. "Let's pretend each of our fingers is a frog! We are going to make the frogs exercise by jumping around!"
2. "Everyone hold up the hand that you write with. The palm of your hand is the pond that your frog swims in. Each of your fingernails is a frog."
3. "We are going to put the frogs in the pond one at a time. Watch my hands." Teacher puts each finger into the palm of his/her hand, starting with the index finger and finishing with the thumb coming across the top to hold down each finger.
4. "Now you try it!"
5. "It's time to take them back out of the pond! Watch my hands." Teacher removes the fingers one at a time releasing the thumb first, and then taking each finger out of the palm starting with the little finger.
6. "Now it's your turn!"
7. "This time let's put all the frogs in the pond at the same time! Make sure the pond is full!"
8. "Hold the frogs in the pond for 1 -2-3. Good! Now pull them all out at the same time."
9. "Great job! Let's do this three more times!"
10. Complete steps 3-9 with the other hand.
11. "The frogs are tired from all the hopping! Let's let them rest while we work on handwriting!"

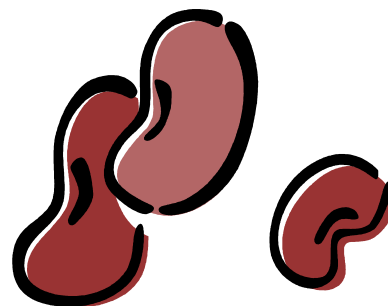
* Adapted from Amundson, 1998

In-Hand Manipulation

Hands Full*

Purpose: To increase translation skills

Materials/Set up: Each student will need several beans (10-20 depending on the size); Students can complete this activity at their desk or on the floor.



Instructions:

1. Give each student a handful of beans.
2. “Take the hand you don’t write with and put it behind your back.”
3. “With your writing hand, pick up the beans, one at a time, using your thumb and pointer finger. Move that bean into the palm of your hand and keep it there while you pick up the next bean.”
4. “See how many beans you can fit into your hand without dropping any!”
5. Once students have mastered this skill, they can try to bring the beans back out, one at a time. “Now try to put the beans in a line on your desk/in front of you by taking them out of your hand one by one. Use just your thumb and pointer finger to place them on the table and keep your other hand behind your back.”
6. Students can also use pennies or paper clips.

*Adapted from Bridgeman, 2002

Pencil Olympics*

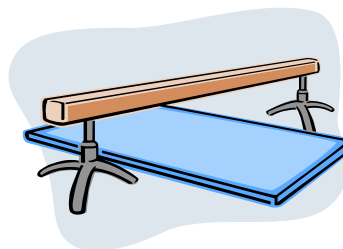
Purpose: To prepare the hands for handwriting activities

Materials/Set Up: Students can be seated at their desk; each student needs a pencil

Instructions:

“Let’s get ready for the Pencil Olympics. Pick up your pencil with the hand that you write with.”

- Weight Lifting:
 1. “The first activity we are going to do is weight lifting.”
 2. “Pick up your pencil as if you were going to write.” The teacher should demonstrate each action as he/she explains what the students should be doing.
 3. “Bring your fingers towards your palm, now straighten your fingers.”
 4. “Watch my pencil. We want the pencil to go back and forth from the palm to straight fingers. It’s like we are lifting heavy weights with our fingers.”
 5. “Now you try it! Let’s lift the weights five more times.”
- Downhill Skiing:
 1. “Now we are going to go downhill skiing!”
 2. “Pick up your pencil like you are going to write. Be sure to hold the pencil as close to the tip as possible.”
 3. “Alternate moving your thumb and fingers up the pencil. Continue to ski your fingers up the pencil until you reach the eraser.”
 4. “When you’ve reached the eraser, ski your fingers back to the tip of the pencil. You are doing an excellent job!”
 5. “Let’s do this five more times!”
- Balance Beam:
 1. “Next we are going to try the balance beam!”
 2. “Place your pencil between your index and middle finger with the eraser resting on the pad of your stretched thumb.”
 3. “Use your thumb to push the eraser until it is between your index and middle finger.”
 4. “Next put the pencil between your middle and ring finger. Try to push the pencil all the way through until the eraser is between your middle and ring fingers. That’s right, keep up the great work!”
 5. “Finally put the pencil between your ring finger and little finger. Push it all the way through until the eraser is between your ring and little fingers.”
 6. “Good job! You just scored a 10 on the balance beam!”



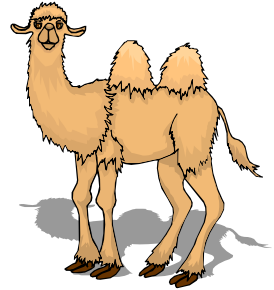
- Triple Flip:



1. "Now we are going to try one that is a little more difficult. It's called the triple flip!"
2. "Hold your pencil with your thumb, index finger, and middle finger."
3. "Flip your pencil so that the tip points to the ceiling and the floor. Keep spinning it! Make sure the tip of the pencil points to the ceiling three times to complete the Triple Flip! Wow, look at all those flips!"
4. "Now, let's try to do a backwards Triple Flip! Try to spin the pencil in the opposite direction. Spin the pencil three times that direction to complete a backwards Triple Flip!"
5. "Good Job! Should we move on to the most difficult one?"

- Flying Camel:

1. "This one is called the Flying Camel. It's a little trickier than the other ones so pay attention!"
2. "Hold your pencil with your thumb, index finger, and middle finger just like you did for the Triple Flip."
3. "This time I want you to spin the pencil so that the tip points to each wall in the room. Make sure the tip is always pointing towards a wall."
4. "Spin it three times. Good Job! You just did the Flying Camel!"
5. "Now, should we try a backwards Flying Camel? Spin the pencil in the opposite direction three times."
6. "That's right! Good Job at the Pencil Olympics. I think we are ready to write!"



*Adapted from Amundson, 1998



Snack Time! *

Purpose: To prepare the hands for handwriting activities

Materials/Set-Up: Small snacks (M&Ms, popcorn, jelly beans); Students may be seated in his/her desk or sitting in a circle on the floor

Instructions:

1. Teacher gives each student a small bowl/cup of the snack
2. "Let's try something new when we are eating our snack today!"
3. "I want you to put 5 jelly beans (or whatever snack is provided) into the palm of your hand."
4. "Using only the hand that the snack is in, I want you to move one jelly bean (or snack provided) from the palm of your hand to your fingertips."
5. "When it's in your fingertips you can eat it! Remember to eat only one piece at a time."
6. "Good job! Now keep doing this with the rest of the jelly beans that are in your hand. When your hand is empty you can put more from the bowl into your other hand and do the same thing!"
7. Students can complete this activity until the snacks in their bowl/cups are gone.

* Adapted from Amundson, 1998

Play-Dough!

Purpose: To practice in-hand manipulation skills needed for handwriting

Materials/Set Up: Each student will need a ball of play-dough; students should be sitting in their desks or at a table



Instructions:

1. Teacher hands out play dough to each student and explains that each student needs to keep the play-dough on his/her desk to avoid making a mess on their clothes or on the floor.
2. “Everyone should have some play-dough on their desk. I want you to watch me and listen carefully to the instructions. We are going to do some fun activities with the play-dough!”
3. Teacher should demonstrate each activity as he/she tells the students what to do.
4. “First, everyone pick up your play-dough and use both of your hands to make it as flat as you can, just like a pancake!”
5. “Now I want you to lay it flat on your desk and roll it up so it is long and skinny like a pencil.”
6. “Pick it up on one end and pinch it hard enough to leave your finger print in it. Now I want you to make another pinch mark right next to the one you just made. But, the trick is to only use one hand to move the play-dough between your fingers. Keep pinching the play-dough until your fingers are at the very end of the roll.”
7. “Finally I want you to roll the play-dough into a ball. When you have a ball, I want you to put the ball in the palm of your hand like this (teacher demonstrates putting the ball in the palm of his/her hand) and use your fingers to bring it out of your palm to the tips of your fingers.”
8. “Good! Now try it with the other hand!”

Finger Shadows*

Purpose: To practice hand positions in order to develop more coordinated, smooth movements needed for handwriting.

Materials/Set Up: Student can be sitting in his/her own desk or on the floor; will need to create a stream of light with a flashlight, overhead, or lamp to make a spotlight on the wall



Instructions:

1. Turn down the lights and create a beam of light on the wall using a flashlight, lamp, or overhead projector.
2. “Has anyone ever made puppets on the wall? Today we are going to make animals on the wall!”
3. The teacher can have the students take turns to make the animal figure in the beam of light or the class can make the animal shapes all together (depending on the size of the light beam)
4. “I will say the animal and make the shape with my hands and I want you to copy me.”
5. Animals can include dog, moose, rabbit, etc. If the teacher is unsure how to make animal figures, this activity can be altered by using the letters of the alphabet in sign language.
6. “Good job everyone!”

*Adapted from Amundson, 1998

Bilateral Integration

Helping Hands for Snacks



Purpose: To encourage use of two hands during functional activities

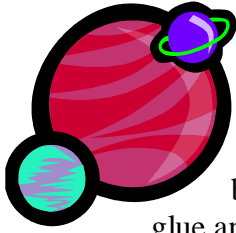


Materials/Set Up: Large bowl with snack mix (fish crackers, popcorn, cereal, pretzels, chocolate pieces, raisins, or other dried fruit); large spoon to dish snack; small pitcher with juice or water; each student will need a napkin or plate and small cup. Students can be sitting in desks or at large table for snack time.

Instructions:

1. Explain to students they are going to be helping with snack time today. “I want you to use both hands to get your snack and pour your juice.” (Have a small pitcher – about 1L – available in your classroom)
2. Encourage students to hold the large bowl and/or cup with their non-dominant hand while scooping the snack/pouring the beverage with their dominant hand.
3. Some students may need you to hold their supporting hand at first, but encourage them to continue practicing these skills.

Balloon Mache



Purpose: To encourage use of both hands in coordinated activities; may address visual motor if cutting activities are used.

Materials/Set Up: Students will need pieces of colored paper, a bowl or area to place pictures/papers, a balloon, and a mixture of glue and water (use roughly 1 cup water for every 3 cups glue). Students can also use a large paint brush to apply pictures and paper. You will want to lay newspaper down as this can be a messy project. Students can be at desks, tables, or on large gym floor area.

Instructions:

1. This activity can be used to make a number of projects for decorating the room or to correlate with curriculum activities. Some ideas may be planets for a solar system unit, Easter eggs, pumpkins, masks, or anything you might dream up!
2. Provide students with paper: "Today we are going to make planets! You need to use the paper on your desk and rip it into small pieces. You can make them different shapes and sizes but try to keep them the same sizes I have made here." Show them a large and small piece of paper about 3" rectangle or circular shape and 1" square. "You are going to need to a lot of paper to make your planet so try to make a big pile next to you."
3. When students have cut a large amount of paper, provide them with a balloon. You can blow up the balloon for the students; the larger the balloon, the more paper the students will need.
4. Provide students with a small bowl of the glue and water mixture and large paint brush, if wanted. "Now you are going to 'paint' your balloon with all the paper you have next to you. You can use the brush to 'paint' the paper on the balloon or you can dip the picture in the glue and put it on the balloon." Students who dip rather than paint will be more messy and require more cleaning following the activity,
5. Have the students cover the entire balloon with their paper. If they run out, they can tear more until they can cover the entire balloon.
6. Allow glue to dry overnight.
7. The project is nearly finished. The teacher needs to pop the balloon with a safety pin once the glue is dry and the planet can be hung from the ceiling using paper clips or clothespins attached to clothesline.
8. If students are able, have them assist you in hanging their planets. This will also promote coordinated use of two hands as well as grip and pinch strengthening.

Greenhouse Classroom



Purpose: To encourage coordinated use of two hands and hand strengthening during functional activities.

Materials/Set Up: Each student will need a small plastic cup, 2-3 flowering seeds, and a cup of dirt. You can provide a few permanent markers for the students to write their names on the cups; if you wish, you can have students decorate the cups with markers or you can buy colorful cups. You will also need to provide a large flat box or plastic container to store the flower ‘pots’ in as well as a watering can or cups for watering the plants. This activity can be done with students at their desks, at a table, or in a large open area. Garbage bags under the dirt can be helpful for clean-up.

Instructions:

1. “We are going to make our classroom into a beautiful garden by planting flowers.” Pass out cups to each student and pass markers around so each student can write his or her name on the cup. “Make sure your name is on the side of the cup and write so you can find your cup when it is next to your classmates’.”
2. “I have a big bag of dirt up here. I need you all to come up one at a time to fill your cup with dirt.” Provide students with a cup to scoop the dirt out of the bag. They can pour the dirt into their cup to work on bilateral integration. “Make sure to push to dirt down with your fingers.”
3. Provide each student with a couple flower seeds (you can use any seed, just make sure your classroom environment is adequate for the needs of that plant – sunlight exposure, watering schedule, etc.). “Place the seeds inside your cup and push them down into the dirt so you can see them.”
4. Students should water their plant right away and can use watering can to do so. “Put enough water so the dirt is wet but don’t fill it so full that you can see water on the top. The water should soak into the dirt.”
5. “When you are finished you can place your cup in the box/container by the window. Make sure your name is facing out so you can find your plant tomorrow.”
6. You may want to poke holes in the bottom of the cups to prevent overwatering, but make sure you have an adequate container to allow for water drainage. A garbage bag or plastic container will work well to catch the excess water.
7. Have a time each day or as often as the plants need watering when students can individually water their own plant. This might be in the morning before class begins or before lunch or recess. Watering the plants promotes bilateral integration as well as grip strength as the student needs to stabilize the cup with the plant while pouring the water and maintain grasp on the watering can.

Art Activities

Stenciling

Purpose: To promote the use of two hands during activities

Materials/Set Up: Stencils, paper (can use colored paper to make activity more enjoyable for students), pencil/markers/crayons; students should be sitting at their desks or at a table.



Instructions:

1. Teacher hands out stencils and paper to each student and tells each student to bring out a pencil and crayons.
2. "Today we are going to make an art project using these stencils."
3. "Has anyone used stencils before?"
4. "I want you to place the stencil where you want it to be on the paper. Now, hold it in place with the hand you do not write with while you trace the shapes from the stencil onto your paper."
5. "You can trace different shapes from these stencils to create the picture you want on your paper. When you are finished with your stencil, ask your neighbor if you can use their stencil to add more shapes/designs to your project."
6. "Remember to take your time and make sure you firmly hold the stencil to the paper so that you get the design you want."
7. When everyone has finished tracing the designs onto their paper, have them add detail by adding color, stickers, glitter, etc.
8. If time and space allows, students can hang their art project on the wall using one hand to stabilize the paper while using the other hand to tack or staple the art project to the wall.
9. "Good job everyone! Wow, These art projects look great!"



It's Snowing!

Purpose: To promote the use of two hands during activities

Materials/Set Up: scissors, coffee filters (any size), string; students should be sitting at their desk or at a table.

Instructions:

1. Teacher provides each student with several coffee filters.
2. "Let's decorate our room so it's full of snowflakes"
3. "First, I want everyone to pick up one coffee filter and fold it in half." Teacher provides demonstration while verbally explaining the process.
4. "Next, I want you to fold the coffee filter again." Students can fold the coffee filter as many times as desired.

5. "Now, use your scissors to cut slits (triangular, circular) on the folded sides of the coffee filter. You can make as many cuts as you would like." Again, the teacher should be providing demonstrations and assistance as needed.
6. "After you are done cutting your coffee filter, you can unfold the coffee filter to see the unique shape of their snowflake."
7. "After you finished your first snowflake, do the same thing with the other coffee filters so we can have all sorts of different snowflakes hanging in our room."
8. Students can add design by coloring, drawing, or adding glitter or stickers to the snowflakes.
9. If time allows, students can punch a hole through the end of the snowflake and thread a string through the hole. Students can hang the snowflakes from their desk, the bulletin board, or the teacher can hang the snowflakes from the ceiling.
10. "Good job today! Looks like it's snowing in here!"

Hearts on Valentine's Day

Purpose: To engage the students in activities requiring the use of two hands to complete

Materials/Set Up: scissors, colored paper, crayons/markers, (optional: glitter, stickers, paint, etc.) Students should be sitting at their desk or at a table.



Instructions:

1. "Do you know what holiday is coming up? You are right! Valentine's Day."
2. "Today we are going to make Valentine hearts for you to give to a friend, a parent, or a brother or sister."
3. "First, I want you each to pick a few colors of paper that you would like to use for your art project."
4. "Next I want you to fold your piece of paper in half." Teacher demonstrates which way she/he would like the students to fold.
5. "Now, I want you to draw half of a heart on the paper." Teacher again demonstrates what the students should be drawing. The middle of the heart should up against the folded side of the paper.
6. "Good job! Now everyone can use their scissors to cut out the heart by following the line that you drew on the paper. Now you can unfold it to see the heart you created!"
7. Students can cut out more hearts, designs, strips of paper, etc. to glue to the project to add decoration. Students can write messages to the person they are giving the heart to. All of these suggestions address bilateral integration as they require the use of two hands.

Suggestions

Ergonomic

- Students should sit with his/her feet flat on the floor.
 - If desk/chair size is too large for the student, place footrest or books under students' feet to provide flat surface for feet to rest on.
- Ankles, knees, and hips should all be bent at 90° angles
- Desktop should be 1 – 2 inches above the elbows when they are at the student's side
- After desk and chair height are fit to student, make sure students is leaning slightly forward with weight over feet to promote proper posture during desk activities.
- Paper should be positioned at a 20-35° angle for right-handed students and 30-35° angle for left-handed students.
 - If student has difficulty correctly positioning paper, place a line of tape his/her desk to guide proper positioning.
- Allow students to use desktop easel or write on a vertical surface (tape work to chalkboard or smooth wall). These surfaces promote shoulder steadiness and wrist extension to move the pencil more efficiently for handwriting.
- Writing on vertical surfaces decreases directional confusion. When writing on a flat desktop, up is away from the body and down is towards the body causing directional confusion for the student. However, when writing on a vertical surface, up is really up and down is really down.
- Place textured surfaces under the student's worksheet to provide additional input to the fingers and hands while writing. Allowing the students to use a variety of writing utensils also provides additional input and makes handwriting fun to practice for the student. Writing utensils may include: crayons, makers, colored pencils, felt-tip pens, paint brushes, mechanical pencils, and ball-tip pens.

Postural Stability

- Vary body positioning during class activities to promote strength and body awareness. Students can be lying on the floor, sitting at desk, or standing at white board/easel for writing activities.
- Establish a warm-up routine to improve strength and awareness of body positioning prior to writing (jumping jacks, stretches, or strength exercises).

Handwriting Manual

- While on the playground, encourage monkey bars and climbing to promote upper body strengthening
- Twister and obstacle courses are great activities to increase upper body stability in a large, open setting.
- Complete fine motor activities away from the desk top to prevent students from propping elbows or forearms on the desk and forcing them to use shoulder muscle and stability to hold arm up or out.

Visual Motor Control

- Provide worksheets and activities to encourage visual motor control. These can be dot-to-dots, mazes, tracing, Etch-a-Sketch, or puzzles.
- Have students cut along pre-drawn lines; can be straight lines (less challenging) or curved (more challenging). These activities can be incorporated into activities and art projects such as making paper chains or cutting out shapes.
- Provide opportunities for students to experiment with Tinkertoys, stringing beads, lacing boards, etc.
- Allow students to play games that involve throwing objects (bean bags, balls, darts) at a target

Visual Perception

- Provide a visual example of letters and numbers in the classroom for all students on the wall or on each individual desk
- Use activities that incorporate feeling letters or making letters out of other objects (clay, pipe cleaners, etc.) to use other senses to help learn letter formations
- Visually describe letter formations; “two tall people with a bridge in the middle to make the capital letter H.”

Kinesthesia

- Teach letters with other letters that have similar movement patterns (Teach letters with circles and a straight line at the same time – a, b, d, o, p, q)
- Teach letters while addressing multiple sense (verbally explaining letters, forming letters with string)

Grip & Pinch Strength

- Encourage students to hang art work or classroom decorations around the room using clothespins
- Encourage students to complete self care activities (zipping, snapping, buttoning) independently. You can assist them, but encourage them to try it first
- Play dough, legos, and construction kits can be used during free time activities to increase grip and pinch strength
- Have students crumple scraps of paper in one hand before throwing them away
- Have students help with cleaning whiteboards or tables and desks. Squeezing the spray bottle with cleaner or water and wringing out the rags or sponges are great activities to increase hand strength
- Use tongs to pick up objects and move them around the room
- To strengthen students' hands, give them a balloon filled with flour to squeeze
- Encourage students to use classroom tools that provide good resistance (staplers, hole punchers, etc.)
- Allow students to receive a treat from the "treasure jar" when they do something well in the classroom. Screwing and unscrewing jars is a great way to strengthen the students' hands
- Teach the students sign language to promote dexterity and steadiness of the hands
- Designate a different student each day to hold open school doors for other students when leaving the classroom or going out for recess to improve hand and arm strength

In-Hand Manipulation

- Create opportunities for fine motor activities during free time or recess.
 - Students can practice placing coins, beans, or other small objects in a jar (spice jar) or bottle (travel shampoo or medicine bottle). Holding all the beans in the palm of their hand and bringing them out one at a time focuses on translation.
 - Have small bottles or jars with tops that screw on/off. Encourage students to hold onto the bottle while screwing the lid on/off with the same hand.

Handwriting Manual

- Playing cards (Go Fish, Crazy 8s, Old Maid, math or spelling flash cards) are great activities to encourage in-hand manipulation skills. Students can flip the cards with one hand, shuffle, or deal cards to increase in-hand manipulation and control.
- Play board games with spinners or small markers (Life, Connect 4, BINGO)
- Encourage student to complete self care activities independently. Allowing students to tie own shoes, button shirt, zip pants, etc.
- When a student is beginning activities that address in-hand manipulation, only allow one object or tool in the hand at a time.
- Provide physical or verbal encouragement to help develop in-hand manipulation movements
- Provide opportunities for students to sharpen their own pencils.
- Provide opportunities for students to complete art projects such as stringing beads, cutting paper, folding paper, etc. to help the students learn to alternate thumb and finger movements and promote bilateral use of hands
- Provide treats in a “treasure jar” when students do something well in the classroom. This helps increase strength and simple rotation skills in the hands.
- Allow students to plant seeds into a pot for a science project. Translating the seeds from the palm to the fingertips helps develop smooth, coordinated hand movements used for handwriting.
- Keep small objects in containers that that zip, snap, button, or have twist tops

Bilateral Integration

- Any activity requiring students to use both hands – cutting with scissors, writing while stabilizing the paper, opening jars or containers, wind-up toys, musical percussion instruments, catching/throwing large balls, rolling pin with clay or dough, sand table using containers for pouring, magnets.
- Use clapping activities for classroom transitions to encourage coordinated use of hands; can be clapping hands, knees, thighs, or with other students

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