School
Green Avenue
Scuola dell'infanzia Bilingue

EARLY CHILDHOOD DEVELOPMENT IN 8 SPECIFIC AREAS

We identified **eight key developmental areas** that play a critical role in a child's success in preschool, kindergarten, and beyond.

For each of the 8 key developmental areas, we provide:

- An explanation of the developmental area, including a discussion of how and why that area is critical to success to in school;
- A summary of what will be expected of your child during preschool and kindergarten.

We concentrate our work on these 8 Developmental Areas:

Fine Motor Development

Visual Discrimination

Phonemic Awareness

Social and Emotional Development

Auditory Processing

Letter and Word Awareness

Math and Number Awareness

Gross Motor Development

1

FINE MOTOR DEVELOPMENT

What is it?

Fine motor movements involve the coordination of small muscles in the hands and fingers. Strong fine motor skills are essential to complete tasks such as writing, cutting, using a fork or spoon, threading beads, moving puzzle pieces, zipping, buttoning, and tying shoe laces. Without well-developed fine motor skills, a child may have difficulty learning to write or performing many of the other critical tasks presented in the preschool and kindergarten classrooms.

Role of the Dominant Hand and Non-Dominant Hand

Asymmetrical bilateral integration is the ability to simultaneously move both hands in different motions to complete a single task.

Nearly all fine motor activities, including cutting and writing, require a **dominant hand** (being left-handed or right-handed) and a **non-dominant hand**. Hand dominance can be seen as early as age three or four, although it may not be firmly established until a child reaches age six or seven. Once a child becomes comfortable with one hand as the dominant hand, the remaining hand becomes the non-dominant hand by default. While the dominant hand performs tasks such as using a pencil or scissors, the non-dominant hand acts as the "stabilizer." For example, one hand holds the scissors when cutting while the other hand moves the paper.

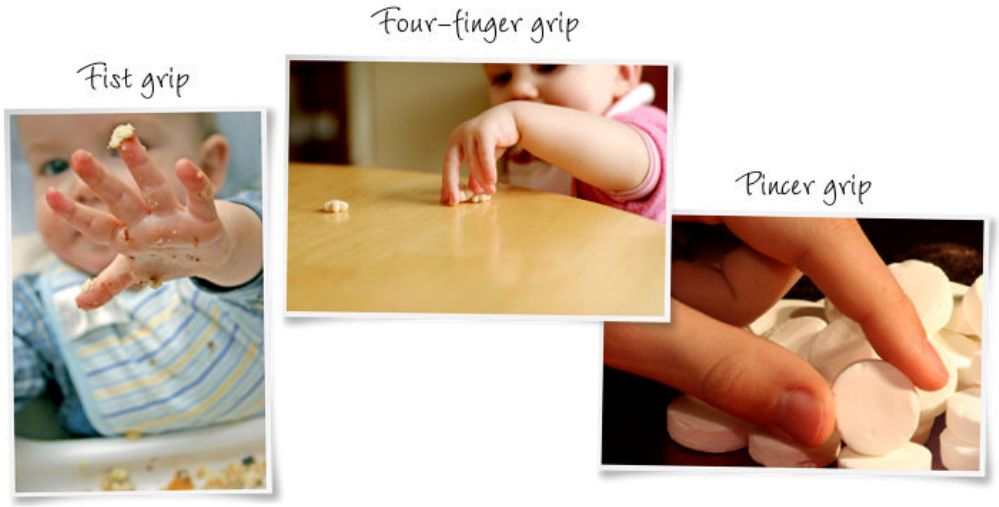
Dominant and non-dominant hands working together

Importance of the Proper Pincer Grip

The "pincer grip" is a common term among elementary school educators, therapists, and doctors. Simply put, the pincer grip is the grasp used by the index finger and thumb to pinch a shoe lace, a cereal puff, or a pencil.

There are typically three different grip styles children use as they develop fine motor skills:

- **Fist grip.** Children younger than one year old typically reach for and hold items with their entire fist. When using a pencil or crayon, a young child will hold the item in their closed fist with their pinky closest to the paper and thumb on top.
- **Four-finger grip.** As children gain fine motor control, they typically progress from using a fist grip to a four-fingered grip. With a four-fingered grip, a child uses all four fingers together to hold an object against his thumb. This grip gives a child greater control when holding small items (or self-feeding), but it is still clumsy and inefficient.
- **Pincer grip.** Once children develop strong fine motor skills, a true pincer grip emerges. With this grip, a child uses only his thumb and index finger to hold and manipulate small objects. With a pincer grip, a child can easily twist dials, turn the pages of a book, open and close a zipper, and use crayons or pencils with precision.



Importance of the Proper Pencil Grip.

The correct pencil grip involves holding the pencil between the thumb and pointer finger, and resting the pencil on the middle finger for added stability. Since a child's natural inclination is to hold a pencil with his entire fist (pinky finger closest to the paper and index finger and thumb on top), the proper pencil grip must be actively taught.

Correct pencil grip

Incorrect pencil grip

Since writing comfortably is a skill your child will use throughout his lifetime, it is wise to help your child develop a comfortable and efficient pencil grip when he is young. Also, it is much easier to learn to hold a pencil correctly at the start than it is to unlearn an improper pencil grip and retrain muscles to learn the proper grip once your child is older.

Importance of the Proper Scissors Grip

Like the proper pencil grip, the proper scissors grip must be actively taught. This is because the proper scissors grip is completely unlike any other grip your child has likely used. Most children explore with their hands outstretched and their palms facing downward. Or, as they get older, they default to holding small items with their thumb and pointer finger (the pincer grip!). The proper scissors grip requires a child to rotate his hand so that the thumb faces upward and the pinky finger points at the floor. Then he must spread his thumb and pointer finger as far apart as possible while using his palm to help stabilize the scissors.

Correct scissors grip

Incorrect scissors grip

As if the proper scissors grip wasn't complicated enough, your child must also rely on his **non-dominant hand** to stabilize the paper while his dominant hand uses the scissors. When first learning to use the scissors, the non-dominant hand will simply hold the paper in a stable position as the dominant hand moves the scissors forward. But, as your child begins cutting more complex designs, his non-dominant hand will be responsible for twisting and turning the paper as the dominant hand operates the scissors.

2

AUDITORY PROCESSING

What is it?

Auditory processing is the ability to recognize, interpret, and analyze spoken language. Strong auditory processing skills are critical components of two different activities in the classroom: following a teacher's instructions and successfully interacting with peers.

Importance of Auditory Processing Skills for Following Directions

Children with **strong auditory processing skills** are able to respond immediately and appropriately to a teacher's direction or request.

Children with **weak auditory processing skills** often rely on visual cues from others to help them guess about what to do or how to behave. (These visual clues may be peering at a friend's worksheet to see how another child is completing the work or watching other children go to their cubbies and begin putting on their jackets, for example.) As they search for visual clues, they may seem confused or distracted and often have delayed responses to verbal instructions.

After a few weeks in school, it is common for classmates to recognize a friend's deficit and begin to repeat the teacher's direction for the struggling child or help guide him in the right direction. This may temporary hide a child's weak auditory processing skills, but the child's confidence in the classroom will diminish when he consistently feels lost and confused.

Importance of Auditory Processing Skills for Smooth Social Interactions

A child with **strong auditory processing** skills can immediately and accurately process a classmate's words and respond appropriately.

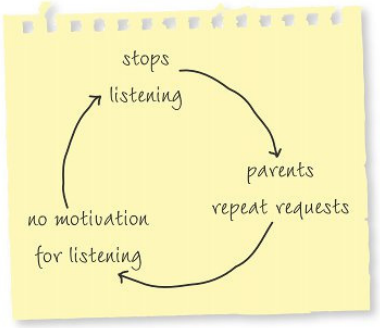
A child with **weak auditory processing skills** frequently misunderstands a classmate's verbal cues and often responds inappropriately. When this happens, both children are likely confused and unable to engage in a meaningful social interaction. Over time, a child with weak auditory processing skills will feel isolated from his peers as he repeatedly misunderstands other children's questions, comments, and invitations.

Difference between Strong Auditory Processing Skills and Lucky Guessing

It is common for young children with slightly undeveloped auditory processing skills to hear only one or two key words in a sentence and infer meaning from those words. As an example, you may say the sentence, "It's time to go to bed so let's go to your room and get ready." A young child may only be able to discern the word "bed" in that sentence – and he may walk to his bedroom.

While the child in this example was successful in completing the desired task of going to his bedroom, he will not always get so lucky with his guesses. This is especially true as your (and his teacher's) directions become more complicated. For example, what if you had said, "Since you already made your bed, let's get ready to leave." Unless your child is able to hear and accurately process all of the spoken words in a sentence, lucky guessing will rarely fully mask an auditory processing deficit.

Difference between Weak Auditory Processing Skills and Bad Habits



Not all children who do not follow directions have undeveloped auditory processing skills. In many cases, what appears to be weak auditory processing skills is simply a child's bad habit of

ignoring a teacher's or parent's directions.

When this habit emerges, an unfortunate cycle can result. First, for whatever reason, a child stops consistently listening to his parents. To compensate, parents begin repeating their requests over and over until the child eventually listens. Finally, the child learns that he will have many opportunities to hear the request and begins to intentionally tune out his parents' comments.

3

VISUAL DISCRIMINATION

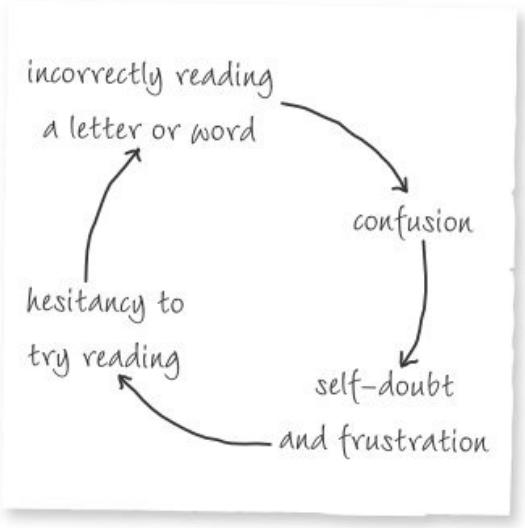
What is it?

Visual discrimination is the ability to identify differences in visual images. Many parts of a preschool or kindergarten classroom use visual imagery, including: 1) Reading and writing; 2) Mathematics; 3) Social studies and science; and 4) Social interactions.

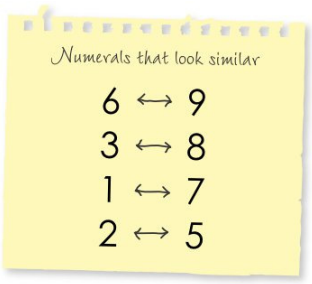
Role of Visual Discrimination in Reading and Writing

Children must be able to successfully distinguish between different letters in order to read and write words. As Winnie the Pooh famously said, "To the uneducated, an A is just three sticks."

For example, if your child is unable to distinguish the letter "b" from the letter "p," he will incorrectly read the word "bat" as "pat." This will inevitably lead to frustration and self-doubt, as your child struggles to understand why the sentence does not make sense (which it likely will not since "bat" and "pat" are not interchangeable words).



Role of Visual Discrimination in Mathematics



Comfort with numbers and mathematical concepts relies foremost on the ability to distinguish between different number symbols. As with letters, numerous numerals are similar in formation, such as:

For example, many young children can respond appropriately when asked, "What is three plus one?" However, many of these same children could not complete a basic math worksheet where the same question is asked in writing, "3 + 1 = ?" This is because children with weak visual discrimination skills cannot properly distinguish between all of the numerals.

Double-digit numbers also pose a unique visual discrimination challenge for children. When facing a double-digit (or triple- or quadruple-digit) number, a child must not only identify the numerals correctly, but also process them in the correct order from left to right. For example, 18 and 81 represent very different amounts and 7:05 and 5:07 are very different times of the day (just ask a sleep-deprived parent!). Also, consider the visual similarity between the number 10 and the numbers 100 and 1000.

Role of Visual Discrimination in Social Studies and Science

Regardless of the type of school your child is or will be attending, all social studies and science classes introduce information with visual models and demonstrations. Often a teacher will model an activity for the class and then ask the children to replicate the activity at their own workstation. Or, children may be asked to make observations about the experiment by drawing a picture or writing descriptive sentences.

A child with weak visual discrimination skills will observe the demonstration but will be unable to replicate the work at his own desk or complete a worksheet asking follow up questions. Out of frustration, he may fool himself into thinking he is "not good at science." When, in actuality, he may have a strong natural ability for science but simply lack well-developed visual discrimination skills.

Role of Visual Discrimination in Social Interactions

Visual discrimination skills also play an important role is facilitating smooth social interactions. Children must be able to interpret and understand subtleties in facial expressions and body language to interact comfortably with others.

Just think of how hard it would be for your child to remember the names of his classmates if everyone was a four foot tall girl with long brown hair and green eyes. Easily identifying and remembering the physical differences in each classmate, along with identifying and remembering the details of the classroom setting and routine, will allow your child to comfortably navigate the new school environment.

4

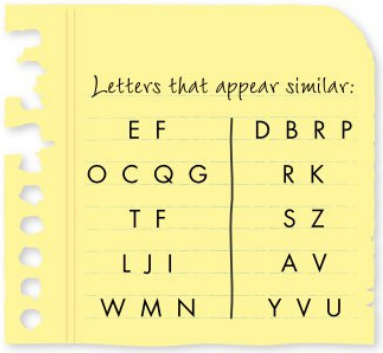
LETTER AND WORD AWARENESS

What is it?

Letter and Word Awareness is the ability to identify individual written letters and words. Once children are able to identify printed letters, they develop the ability to identify entire words. The entire developmental progression from letter awareness to word awareness to fluent reading typically begins around age three with letter awareness and continues through age five, six or seven with fluent reading.

Relationship Between Letter and Word Awareness and Visual Discrimination

Letter and Word Awareness is a subset of Visual Discrimination development. Where Visual Discrimination involves the ability to distinguish between numerous similar but different images, Letter and Word Awareness involves only the ability to distinguish between different (but, often time, similarly shaped) letters and words.

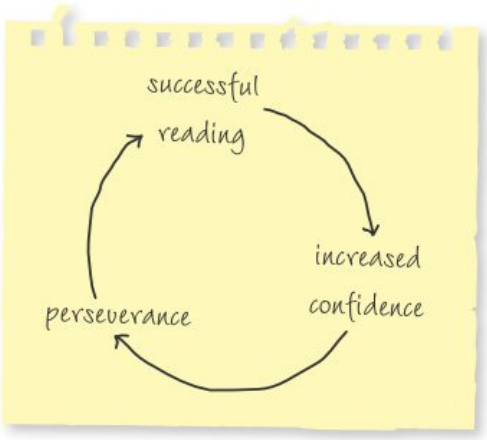


For example, the letters E and F have very different sounds and very different roles in reading and writing. However, their appearance is very similar. Consider the many groups of similarly shaped letters:

"Sight Word" Vocabularies

As children begin understanding how letters form words, they will naturally begin recognizing words on a page. Words that begin with the same letter as their name, words that appear frequently in a favorite book and words with a fun sound such as "Woof" are usually the first words children begin identifying. When this happens, children start creating their own personal "sight word" vocabularies.

Sight word vocabularies are the collection of words that your child is able to "read" simply by looking at the word and without having to "sound it out" letter by letter. For example, when a three-year-old child sees a common sign (for a store or restaurant, perhaps), a frequently written word in a favorite book or his own name written down, he is likely able to name that word. He is not reading the word in the conventional sense. Rather, he has memorized what that word looks like in print. In addition to sight words a child learns naturally by seeing the word on favorite signs or in favorite books, some parents and teachers may use "sight word flashcards." These are created by printing or handwriting commonly used words on one side of small flashcard. By showing a child one card at a time and reading the word aloud to him, he will be able to more quickly expand his sight word vocabulary.



Benefits of Sight Word Vocabularies

Sight word vocabularies foster self-confidence in reading skills. When a child identifies a word from his sight word vocabulary and says it aloud at the appropriate place in a sentence, he believes he is reading. This belief makes him feel successful and helps foster a belief that he is a "good reader." This confidence will help him to persevere through the challenges of reading increasingly complex words.

Also, all children enjoy feeling successful and your child's belief that he **can read** will fuel his desire to continue reading. As with all self-fulfilling cycles of success, this perseverance only further enables success.

Role of Sight Words Once Your Child Starts Reading

Once a child has learned to read by identifying each letter in word and then recalling the appropriate sound each letter makes, "sounding out" each and

every word is still time-consuming. Also, many words (such as "where" or "might") cannot be sounded out using basic phonetic rules. Because of this, your child will continue using sight words long after he learns to read.

For example, each time your child comes across a common word such as "the," "that" or "and" when reading, he will likely not sound out each letter. Instead, he will remember what the word "the," for example, looks like and will just say the word aloud each time he sees it. This ability will increase his reading speed and fluency since most sentences contain at least a few common words such as "the" or "that" and your child will be able to quickly "read" these words.

5

PHONEMIC AWARENESS

What is it?

Phonemic awareness is the ability to recognize, differentiate and manipulate the individual sound units in spoken words. As if the term "sound units" wasn't pretentious enough, early childhood educators and speech therapists often refer to individual sound units as "phonemes." Phonemes are more than just syllables. The word "hat" has one syllable, but three phonemes: the /h/ sound, the /a/ sound and the /t/ sound.

Common Notations Regarding Phonemes

Teachers typically use three common practices when discussing letters and their sounds, and I will follow all three practices throughout this section:

1. Writing the letter M, for example, to signify the letter M and writing /m/ to signify the sound the letter M makes ("mmmm").
2. Using the phrases "short vowel" and "long vowel." An example of a "short vowel" would be /a/ in "cat" whereas a "long vowel" would be /a/ in "plate."
3. Using the phrases "hard consonant" and "soft consonant." The letters C, G, and S all have "hard" and "soft" sounds. An example of a "hard C" would be /c/ in "cat" whereas a "soft C" would be /c/ in "cent." An example of a "hard G" would be /g/ in "game" whereas a "soft G" would be /g/ in "gym." An example of a "hard S" would be /s/ in "prize" whereas a "soft S" would be /s/ in "sat."

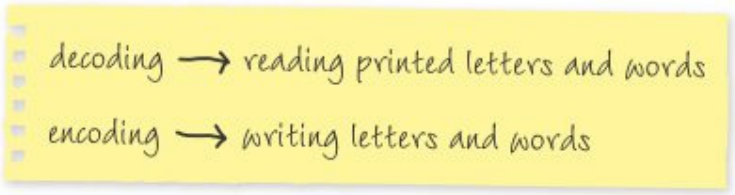
Stages of Phonemic Awareness Development

Phonemic awareness starts with babies hearing and repeating consonant sounds like "bah bah" or "dah dah" and progresses to fluent speaking. Phonemic awareness skills are acquired over a span of several years and develop in sequence.

1. Recognizing individual words in a sentence.
2. Recognizing individual sounds in a word.
3. Recognizing rhyming words.
4. Identifying syllables (word parts).
5. Recognizing or matching identical consonant sounds at the beginning of words. For example, matching the /b/ at the beginning of "balloon" and "bike." This often happens by age four or five.
6. Recognizing or matching identical consonant sounds at the end of words. For example, matching the /t/ at the end of "jacket" and "bat." This skill is normally developed by age five or six.
7. Recognizing or matching identical consonant sounds in the middle of words. For example, matching the hard /g/ in the middle of "wagon" and "digger." This skill generally develops by age six or seven.
8. Recognizing or matching identical vowel sounds in the middle of words. This includes matching the short /e/ in the middle of "bed" and "hem." This skill normally develops by age six or seven.

Importance of Phonemic Awareness

The relationship between phonemes and letters is the basis for reading and writing. Of course, we educators have fancy terms for these processes also:

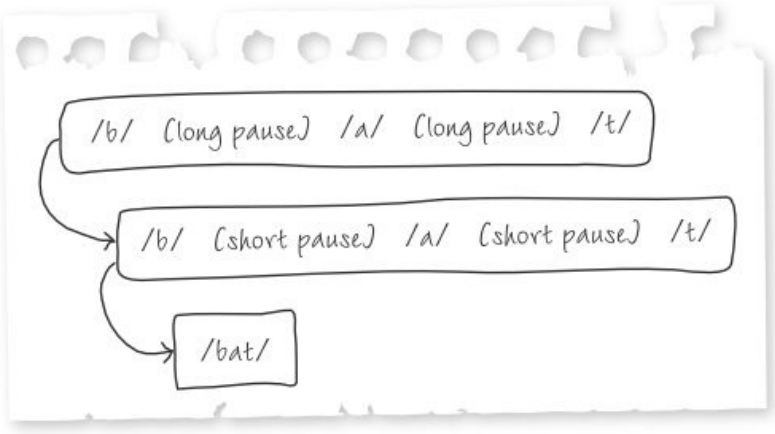


Relationship Between Phonemic Awareness And Reading

Children first start reading by developing a sight word vocabulary. A sight word vocabulary is a collection of words that your child is able to "read" simply by looking at the word and without having to sound it out letter by letter. Children typically begin creating a sight word vocabulary as early as age 3 and the number of words in that vocabulary grows exponentially as the child gets older.

As your child begins a formal reading program (normally in kindergarten or first grade), he will naturally encounter numerous words outside of his sight word vocabulary. When this happens, he will need to "sound out" the word by saying aloud (or thinking aloud in his own head) the sound each letter makes and coupling all the sounds together to form the word.

For example, consider the word "BAT." If this word is outside of your child's sight word vocabulary, he will need to sound out each letter. First, he must see the letter B and identify the /b/ sound. Then he must see the letter A and identify the short /a/ sound. Finally, he must see the letter T and identify the /t/ sound. It is common for young children to say aloud each distinct sound they identified and repeat those sounds until they can decode the word. That process typically looks like this:



Beyond reading the single word "bat," a child must also be able to carry the knowledge of the sounds made by each and apply it to future words. For example, a child must remember the sound /ba/ made by the B and A and apply that knowledge to words such as "bad" or "bag."

Relationship Between Phonemic Awareness And Writing

When writing, a child must be able to accurately isolate and identify the sounds in the word he wishes to write. After identifying the sounds in the word, he needs to write the appropriate letter for each sound. For example, a child wishing to write the word "hat" must first identify the distinct sounds in

the word: /h/, /a/, and /t/. Then, he must be able to recall the letters that correspond with the sounds he has already identified: H, A, and T.

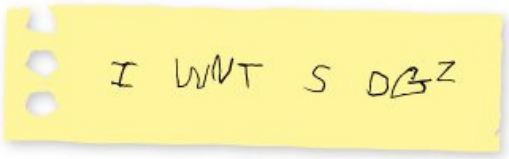
Once a child identifies the letters representing the sounds in the word he wishes to write, he can begin the process of writing the word. This can include a child writing the letters himself on the page or, before he is ready to write himself, dictating to a teacher or adult the letters to write. In either case, this very early writing is called "phonetic writing" or, perhaps more aptly, "inventive spelling."

Inventive Spelling

Inventive spelling occurs when a child applies letters to the sounds he deciphers in a word and uses those letters to represent the whole word. The wonderful thing about inventive spelling is that is allows a child to express themselves in writing long before he is able to correctly spell all the words he wishes to write.

An example of inventive spelling might look something like this:

With time, as the child's phonemic awareness skills further develop, he will be able to hear and distinguish even more sounds in the sentence he is trying to write. When that happens, the same sentence may turn into:



With even more time, the child will be able to hear and distinguish all the sounds and letters in the sentence. When that happens, the sentence will turn into:

Interestingly enough, inventive spelling is making a comeback among teenagers and adults as text messaging grows in popularity. Consider the text, "hv to go bcuz im late." The word "because," when spoken aloud, has only a few dominant letter sounds: /b/ /c/ and /z/. As a shortcut, we default to writing "bcuz" since those four letters, when read in order, mirror the same sounds in the full-length word. Just as a child learning to write defaults to inventive spelling as the most basic way to communicate an idea, so does a teenage or hurried adult with a text message.

6

MATH AND NUMBER AWARENESS

What is it?

Math and Number Awareness involves a variety of skills, including: 1) Numeral identification (recognizing all 10 numerals from 0 through 9 and knowing each numeral's name); 2) Counting; 3) One-to-one correspondence; 4) Counting on; 5) Patterning recognition and creation; and 6) Sorting and classifying.

The Importance of Strong Math and Number Skills

Basic math and number concepts utilized in a preschool or kindergarten classroom set the foundation for learning more advanced math concepts. Early exposure to math and number activities will promote your child's comfort with these skills. Also, additional opportunities to practice these skills will increase your child's confidence when working with math and number concepts and will lead him to believe he is "good at math." If your child does not become comfortable with math and number concepts at a young age, he will lack confidence in his abilities and may become hesitant as more advanced math concepts are introduced. When this happens, he may default to believing he is "bad at math" and he risks beginning a self-fulfilling cycle of failure.

Numeral Identification

The first step in Math and Number Awareness is learning what the 10 numerals (0 through 9) look like. This requires strong Visual Discrimination skills since many numerals (such as 6 and 9, or 1 and 7) look very similar. Once a child is able to recognize the 10 numerals and know each numeral's name, he can develop an understanding of the amount each numeral represents.

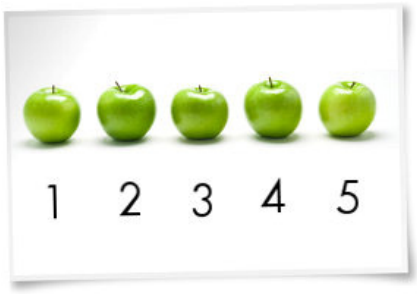
Children in the classroom may be asked to "Cut out five circles," "Pick three friends," or "Ask one question," for example. Understanding the significance of numerals will directly contribute to a child's success in the classroom.

Counting

When first learning to count, a child counts by rote memorization. This means he will likely be able to say the names of the numbers from 1 through 10 simply because he has memorized the order of the words, "one, two three ... ten." However, he likely does not yet understand that 5 is 2 more than 3, for example.

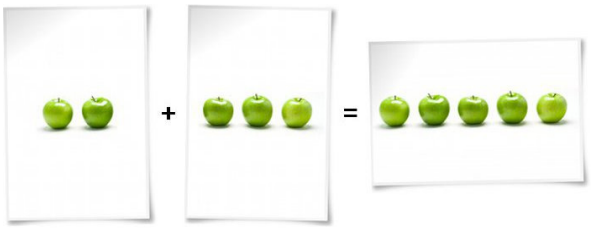
One-To-One Correspondence

When counting, the concept of "one-to-one correspondence" is the understanding that each object being counted represents "one more."



Before a child understands one-to-one correspondence, he will count by rote memorization. When asked to count a small group of objects, he will likely count quickly through the numbers he has memorized and randomly touch the objects being counted instead of touching and counting each object just once. For example, a child given five beads may automatically count aloud from 1 to 10 when asked to count the beads, pointing to random beads as he proudly shows how well he can "count."

Counting On



"Counting on" allows a child to continue counting objects added to a previously counted group without recounting the entire group. For example, give your child two apples and ask him to count them. Then, give your child three more apples. Counting on would involve your child applying one-to-one correspondence to the additional three apples by counting "three, four, five" instead of restarting at one and recounting all five apples.

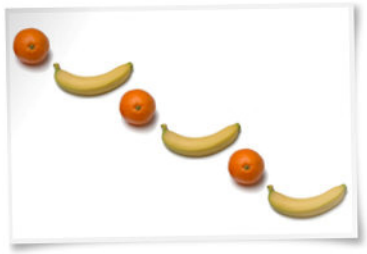
Counting on is an important skill because it is time-consuming and impractical to recount a group of items each time additional pieces are added.

Patterning recognition and creation

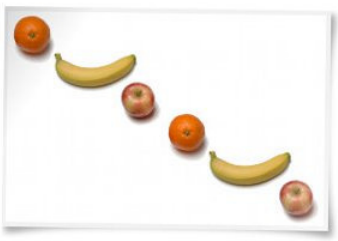
Understanding patterns is an underlying theme in preschool and kindergarten math lessons. A pattern is defined as any sequence that repeats at least twice. As a practical example, consider counting from one to one hundred by ones. When counting, there is a recurring pattern in which all digits rotate from 0 to 9 before restarting back at 0.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29

The first pattern that is introduced in the preschool classroom is called an AB pattern. This means that two different objects line up in an alternating pattern, such as: orange (A), banana (B), orange (A), banana (B), and so on.



As comfort with patterns grows, the patterns will become more complex, moving to an ABC pattern or an AAB pattern.



The ability to recognize, identify and create patterns not only supports learning in math but it also contributes to broader social development. Through an understanding of patterns, children are able to make predictions about what comes next. Just as a child can predict that a red bead will come next after seeing a string with a red bead, blue bead, green bead, red bead, blue bead, green bead pattern, a child will be able to make accurate predictions about other things or events that occur with regularity. For example, predicting what comes next after eating lunch (cleaning up) or after taking a bath (putting on clean clothes) will help a child maneuver more confidently in his environment.

Classifying and Sorting

Children are also introduced to sorting and classifying in preschool or kindergarten math lessons. These activities provide children with opportunities to develop logical reasoning skills as well as demonstrate divergent (independent) thinking.

For example, three different children will likely sort a pile of buttons of varying shapes, sizes, colors, and materials in three different ways. One child may put all the round buttons in one group and all the odd shaped buttons in a different group. A second child might put all the metal buttons in one group and all the plastic button in a different group. And a third child might sort the buttons according to color or size. The particular organizational system is not important. What **is** important is that each child accurately sorts according to his organization system and is able to explain his thought process.

Importance of Hands-On Learning

Math learning is most exciting for children when hands-on manipulatives (fancy teacher-speak for small objects that can be easily handled or manipulated) are incorporated. Manipulatives give children tangible representations of the otherwise abstract concepts related to numbers and counting. For example, when asking a child to count to 30, he may become lost or distracted halfway through. But, when you give the same child 30 small beans and ask him to count them, he will likely be able to apply one-to-one correspondence and accurately count all 30 beans.

Hands-on manipulatives are also essential when teaching patterning. Consider trying to explain pattern creation to your child without using hands-on

manipulatives, by asking your child "red block, blue block, red block, blue block… what comes next?" Understandably your child probably did not memorize the order of words that you said and will struggle to answer correctly. By giving your child small red and blue blocks to place in order as you say the same pattern, "red block, blue block, red block, blue block," you will increase the likelihood that he will be able to continue the pattern.

7

SOCIAL AND EMOTIONAL DEVELOPMENT

What is it?

Children learn best when they are comfortable in their environment. When children feel comfortable, they can relax in their surroundings and concentrate on the lessons being taught.

Important Social Skills For Children

There are many specific social and emotional skills that children must possess to be comfortable at school, including:

- Separating easily from parents.
- Sharing materials and taking turns.
- Helping others.
- Demonstrating empathy and caring.
- Respecting people and their personal materials.
- Staying focused and on task during a lesson.
- Complying calmly with directions from authority figures.
- Attempting to solve problems before asking others for help.
- Verbally communicating needs and ideas accurately.

Making Comfort a Priority

All children have a strong need to feel that they fit in and belong with their peer group. Because of its importance, children will strive to meet this need before turning their attention to other matters, such as learning.

For example, if a child is uncomfortable being away from his parents or if he does not feel that other children like him, he will likely become tense and distracted. When this happens, he will instinctively devote his energy towards

managing those emotions and away from focusing and learning during instruction time.

This is the same phenomenon that happens to many children in their pre-teen years. For example, I am never surprised when I hear about the smart, motivated, preteen girl who goes from getting straight As (and wearing her hair in a messy ponytail) to getting Bs and Cs (and spending an hour each morning in the bathroom with a can of hairspray and a disturbingly large collection of eye shadow and lip gloss). As her interest in boys increases, she becomes increasingly insecure at school. This unease in the classroom is the precise reason for her sudden inability to focus in school and actually, um, like, you know, learn.

8

GROSS MOTOR DEVELOPMENT

What is it?

Gross motor skills involve movement of the large muscles in arms, legs, and torso. Gross motor activities include walking, running, skipping, jumping, throwing, climbing and many others. It may be easiest to think of "gross motor" skills as skills most utilized in a gym class or on a playground.

Gross motor skills also include *small* movements of the large muscle groups. There are always a few children in every preschool or kindergarten classroom who suddenly fall out of their chair during a lesson. In each case, the child was probably shifting his weight, but inadvertently moved his leg, hip or torso muscles too much, causing him to fall out of his chair.

Preschool and kindergarten children need strong gross motor skills so they can engage in age-appropriate physical activities (such as running, climbing, and throwing) and so they can participate in classroom activities that require body control (such as walking in a crowded room or sitting still during a lesson).

What is Bilateral Integration?

Bilateral integration is a fancy term that refers to the ability to smoothly perform actions using both sides of the body **simultaneously**. Successful gross motor movements are a result of bilateral integration.

There are several stages of bilateral integration that develop in sequence:

1. **Symmetrical Bilateral Integration.** Symmetrical bilateral integration involves both sides of the body working in mirror-image unison, where the actions on one side of the body mirror the actions performed on the other side.

2. **Reciprocal Bilateral Integration.** Reciprocal bilateral integration involves moving both sides of the body at the same time in opposite motions.

3. **Asymmetrical Bilateral Integration.** Asymmetrical bilateral integration involves each side of the body acting in a different way to complete a single specific task. For example, one foot may kick a ball as the other foot plants on the ground and balances the body.

4. **Crossing the Midline.** The "midline" is the imaginary line down the center of your body from the top of your head to your toes). Crossing the midline involves instinctively reaching across your body to complete an activity.

Importance of Bilateral Integration in Reading and Writing

Successful **writing** depends on well developed asymmetrical bilateral integration and an ability to cross the midline. First, a child must use one hand to control the pencil and

the other hand to position and stabilize the paper (asymmetrical bilateral integration). Then, a child must use one hand to write words along the entire horizontal length of the page, without switching the pencil from the left hand to the right hand at the mid-way point of the page (crossing the midline).

Without well developed asymmetrical bilateral integration or an ability to cross the midline, a child will limit his drawing to the portion of the paper closest to his writing hand since he cannot comfortably reach his hand to other areas of the paper and his non-writing hand does not instinctively readjust the paper's position.

Successful **reading** depends on an ability to cross the midline. When reading, a child's eyes must follow along the entire horizontal length of the page, before moving to the next line.

Without well developed bilateral integration, a child will likely read the first few words on a page and then pause. After thinking for a moment, he may continue to read the second half of the page. This pause is because the child was unable to instinctively cross the midline so he needed to pause and needed to deliberately move his eyes to the next word to resume reading.