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A Parent Handbook: How Parents Can Foster Learning to Enhance Formal Schooling

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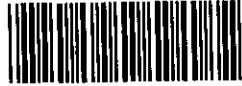
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**A PARENT HANDBOOK: HOW PARENTS CAN FOSTER
LEARNING TO ENHANCE FORMAL SCHOOLING**

**A Project Report
Presented to
The Graduate Faculty
Central Washington University**

**In Partial Fulfillment
Of the Requirements for the Degree
Master of Education
Administration**

**By
Janet M. McKee
July 2000**

ABSTRACT

A PARENT HANDBOOK: HOW PARENTS CAN FOSTER LEARNING TO ENHANCE FORMAL SCHOOLING

By

Janet M. McKee

July 2000

This project examined the role of fostering brain development before formal schooling begins. Included is a parent handbook that provides parents with child development guidelines and ideas for fostering brain development. The research based guidelines and ideas supply information in the following areas: prenatal/infancy care, oral language/literacy accomplishments, a collection of songs, physical development, and nutritional guidelines that encourage optimal brain development.

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CHAPTER ONE

BACKGROUND OF THE PROJECT

Introduction

The goal for year 2000 for children living in the United States, states that all children will arrive at school ready to learn ("Healthy Children", 2000). Early childhood professionals have known that experiences occurring between the earliest prenatal care and the third year of life are of the utmost importance (Sylwester, 1995). New research in the last 10 years has proven without a doubt that learning begins in infancy and children who live in a good environment that is cognitively stimulating, emotionally supportive, healthy, and safe are striving for the goal of 2000 (Porter Graham, 1999).

A supportive, loving parental environment from conception on is important to establish healthy brain development for children. A baby's brain at birth contains 100 billion neurons roughly the same number of stars in the Milky Way ready to be connected with the right stimulation (Nash, 1997). Frank Newman, president of the Education Commission of the States, states there is a time scale for brain development and that is the first three years of life (Nash, 1997). If a child has been neglected or abused, the damage is difficult to erase. Even changes in the environment of the womb can have devastating effects on the brain development of the unborn child. If the pregnant mother is malnourished or is using drugs and alcohol, permanent damage can be done causing the developing brain to take a wrong turn. Some forms of mental retardation,

epilepsy, and autism are the results of the development process going wrong (Nash, 1997).

By the age of two, a child's brain is consuming twice as much energy as an adult. This mass energy boost lasts until age 10 or 11 states Dr. Peter Huttenlocher (Nash, 1997). Thompson (1998) also states the importance of parent involvement with their child during these crucial years:

1. Early influence can have long-term consequences for children.
2. Untapped potential exist in the human brain.
3. Lifelong potential can be shaped by experiences that occur early in life.
4. Parents play a crucial role in optimizing or blunting unborn capability.
5. The effects of early deprivation may not be easily remediated later.

Parents who are involved in creating a healthy stimulating environment for their children supply them with the best chance for success later in life. Parent involvement has been the key element of developing healthy children (Mason, 1989).

Purpose of the Project

The purpose of this project was to develop a Parent Handbook for the Omak Early Childhood Program located at North Omak Elementary School. This can be distributed to each parent participating in the birth to five program designed as an integrated model, which has both children with disabilities, as well as typically developing children. To construct this handbook, a review of current research and literature regarding brain development in young children

through prenatal and infancy care, oral language and reading aloud to young children, listening and participating in music, physical movement and nutrition was conducted.

Scope of the Project

For purposes of this project the following limitations were set:

1. Research: The research and literature reviewed for this project was limited to information found within the past twenty-five years.
2. Scope: The handbook consists of information regarding children from prenatal to seven years of age.
3. Target Population: The parent handbook was designed for the parents of the Omak Early Childhood Program at North Omak Elementary School in Omak, Washington.

Definition of Terms

Terms used within the project are defined as follows:

1. Neuron (Brain Cells): "One of two types of brain cells. We have about 100 billion of these" (Jensen, 1998, p. 117).
2. Axon: Long fibers extending from the neurons that carry information to other neurons.
3. Dendrites: The spider-web like fibers that receive information for the neuron.
4. Synapses (Connections): "When an axon of one neuron release neurotransmitters to stimulate the dendrites of another cell, the resulting process where the reaction occurs is a synapse" (Jensen, 1998, p. 118).

5. Brain Development: Encouraging optimal neuron development and synapses to occur.
6. Stimulation: Increase action or interest.
7. Cerebellum: In Latin this word means "little brain". It is linked to balance, posture, coordination, and muscle movement (Jensen, 1998).
8. Windows of Opportunity: Times in a child's life when he/she can learn a concept best.
9. Oral Language: The words that are spoken in your native tongue.
10. Reading Aloud: Reading a book out-loud to a child.
11. Story Schema: Knowledge about what is being read.
12. Story Elements: Different parts of a story.
13. Independent Reading: When a child can read on his/her own.
14. Melodic and Rhythmic Elements: The tune of a song and the long and shorts sounds heard within a song ("Music and you", 1988).
15. Spatial Reasoning: The ability to visualize the world accurately (Hancock, 1996).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

The review of research and literature in Chapter 2 has focused on the importance of brain development from prenatal care to the age of seven. Goals 2000 states that all children will start school ready to learn (Stone, 1998), but Kindergarten teachers today report that 1 in 3 students are not equipped with the fundamental skills necessary for learning (Carnegie Corporation, 1994). The following areas were studied with emphasis on how they affect a child's brain development before they enter formal schooling.

1. Prenatal and Infancy Care
2. Developing Oral Language and Reading Aloud to your Child
3. The Value of Music in Young Children's Lives
4. Physical Movement Stimulating Brain Development and Nutritional Impact on Young Children
5. Summary

Data collected in Chapter 2 spans twenty-five (25) years of research compiled in Educational Resources Information Center (ERIC) computer search, professional journals, educational digests, various sources on the Internet, and researcher's own personal experiences.

Pre-Natal and Infancy Care

Good prenatal care is essential in an unborn child's brain development. Early in the prenatal months, nerve cells (or neurons) are produced at an astonishing rate of two hundred and fifty thousand per minute or fifteen million cells per hour. By the time a woman has reached her sixth month of pregnancy, the fetus has nearly developed all of the nerve cells it will use throughout its entire life. Since all of a child's neurons are developed prior to birth and can not be produced after birth, this stage of brain development is extremely important (Thompson, 1998). By the time a baby is born it has approximately one hundred billion neurons (Begley, 1997) ready to use if a pregnant mother does not have a poor nutritional diet, use drugs and/or alcohol, or endure high levels of stress during this sensitive time in their child's brain development.

Good nutrition during pregnancy is crucial in the development of a child's brain. A developing brain is like any other biological organ and can not grow adequately unless its physical need is being met. Because the brain grows at such a rapid rate during this stage it consumes a significant amount of oxygen, glucose, and other nutrients. If a fetus is deprived of important nutrients during this stage it can have devastating effects on early brain development.

Specific nutritional deficiencies like folic acid can cause brain damage, spina bifida, and anencephaly in newborns (Thompson, 1998). Women that are pregnant should also take vitamin and mineral supplements to ensure proper nutrition. A study of low-income urban women who took supplements in their first and second trimester of pregnancy reduced their odds of delivering a pre-term

baby by almost half (Olenick, 1998). Proper nutrition is only one of the elements of good brain development in an unborn child, but because the brain is growing at such a rapid rate it is also susceptible to many other factors, such as drugs, smoking, pesticides, and alcohol with the last being one of the most devastating toxins (Thompson, 1998).

Fetal alcohol syndrome is the leading cause of mental retardation in the Western world (White, 2000). Approximately 20-25% of women will drink some alcohol during pregnancy (Stratton, Howe & Battaglia, 1996) which can endanger their child's development. The United States has seen a tremendous increase of fetal alcohol syndrome in the last 24 years. In 1979 there were 1 in 10,000 fetal alcohol syndrome children born, but that number has increased by six-fold, in 1993 there were 6.7 cases per 10,000 births (Chang, Wilkins-Haug, Berman, & Goetz, 1999). Avoiding drinking during pregnancy can eliminate this unnecessary damage to an unborn child. Following a few guidelines during pregnancy can give an infant an optimal start in life.

Once a child is born, a baby's neurons (brain cells) are waiting to be wired. Some of these neurons are hard-wired by the genes in the fertilized egg, but trillions are waiting to be stimulated in their environment, so they can make a connection, or synapse. Neurons in the brain send out long fibers, called an axon, which carry electrical message to other neurons, these messages are received by dendrites. When an infant is stimulated it causes the neurons to fire an electrical charge (synapses) and the brain begins to learn how to communicate with itself (Sterling Honig, 1999). The more parents stimulate their

infants, the more synapses occur between the neurons. With each electrical charge, the stronger the axon gets and faster the brain can communicate with itself.

Parents or the primary caregiver have an astounding affect on a baby's brain development. They have direct contact with how the child's brain will be wired. Parents who feed their babies' brains are doing what most people have done for generations; they are rocking their children, playing peek-a-boo, encouraging explorations, providing a loving environment, furnishing verbal interaction and singing lullabies. These activities encourage stimulation of the brain and its growth (Puckett, Marshall, & Davis, 1999). Parents of newborn children have a tremendous opportunity to provide stimulation at this critical stage in their child's life. One study shows that babies who are infrequently touched develop brains that are 20 to 30 percent smaller than normal (Sterling Honig, 1999). Thompson expresses a strong need for parents and caregivers to interact with all the child's senses. Not only is holding and stroking an infant important, but also he stresses a need to stimulate them through vision, sound, movement, and smells to encourage brain development (Thompson, 1998).

There are crucial periods in child development, which scientists and researchers call windows of opportunities. During these windows or periods in a child's life, nature opens and closes the door; these are optimal times when neuron connection development is at its peak (Begley, 1996). If these critical periods are not fostered properly a child's optimal brain development can be lost forever, without reversals. For instance, the critical window is open for speech

and vocabulary development between birth and three years of age. The sounds a child hears in these years will largely determine the size of his/her adult vocabulary (Begley, 1996). A study done in the 1970s by Hubel and Wiesel emphasize the importance of these windows of opportunities. The researchers conducted a study on how cat's brains were wired for sight at birth. They

found that sewing shut one eye of a newborn kitten rewired its brain: so few neurons connected from the shuteye to the visual cortex that the animal was blind even after its eye was reopened. Such rewiring did not occur in adult cats whose eyes were sewn shut (Begley, 1996 p. 56).

The conclusion of this study stressed that during the early periods of life when neuron circuits are connecting, they must be stimulated or life long damage may ensue.

This is a crucial stage in a child's brain development between the age of birth to three. At this stage the brain contains twice as many synapses and consumes twice as much energy as a normal adult (Sterling Honig, 1999). Synapses operate on a use it or lose it operation. In order for the child's brain to have permanent connections they must be reinforced through everyday experiences ("The Facts", 2000). "Over time, those connections that are seldom or never used are eliminated" (Nash, 1997 p. 48). Stress and neglect also play a vital role in a young child's brain development. Neuroscientists are just beginning to understand the damage that can be done (Thompson, 1995). One study showed that a 36 month toddler whose mother was severely depressed had abnormally low brain activity in the left frontal lobe of the brain (Sterling

Honig, 1999). Neuroscientists are now finding out that by age four, the brain is essentially designed, and even though formal learning occurs after four much of the brain's infrastructure is in place (Kotulak, 1996). Besides good prenatal and infancy care there are many other stimulus that foster brain development in young children, these include oral language, and reading aloud to young children.

Oral Language/ Reading Aloud

One of the easiest things parents can do to help stimulate good brain development is to talk to their children.

The brain of a four-month-old responds to every sound produced in all of the world. But by the time babies are 10 months old, their brains have become so sophisticated that they can now distinguish the sounds of their own language and no longer pay attention to the sounds of languages that are foreign (Sterling Honig, 1999, p. 21).

Talking to infants encourages their brains to make important connections for the sounds they hear in their language. By the time infants reach their first birthday they have lost the ability to discriminate sounds that are not in their primary language (Begley, 1996).

Young children's oral language knowledge is a dominant predictor of a child's success in reading. Wiig (1994), found that 70 to 80 percent of students with learning disabilities had language disorders. Wiig's study shows that a child's deficit in oral language is a major characteristic of low-achieving readers.

Children that acquire good reading skills, have knowledge and understanding of their language, have the main component of literacy.

“Infants whose parents talk to them more frequently and use bigger “adult” words will develop better language skills” (Begley, 1996 p. 57). When parents talk to their children about things that interest them, while exposing them to new information and experiences, they are helping them build their knowledge of language to be used later in reading and writing (Mavrogene, 1990). Infants and toddlers must learn the sounds, of the language, the meaning of the language, the formation of words in the language, and the communication of the language (Weiser, 1991). This huge task is acquired by the interaction of the caregiver who responds to the child’s attempt to communicate with them in a warm and supportive environment (Nuba, Searson, Lovitky Sheiman, 1994).

Thompson (1998) states that parents who talk to their children at an early age are essentially stimulating the brain cells, but children who have a limited exposure to new words never develop the brain cells or connections that will enable them to discriminate between different sounds in our phonetic language. The ability to discriminate between sounds becomes crucial when a child enters school and begins the process of learning to read.

In a study by Dickinson and Tabors (1991), mealtime discussions were recorded. This study revealed that children who scored high in vocabulary and comprehension skills were those who were exposed to explanatory and narrative language during mealtime. These children did not necessarily have to contribute to the conversation, but were present. Talking to your child is like muscle

massage, the more you talk to them at this young age, the greater the natural language will grow ("New Evidence", 1985). Children are learning from the day they are born. One of the most pleasurable ways to stimulate oral language and brain growth is by reading to your child (Lamme, 1985).

The single most important activity for building knowledge for later success in reading is reading aloud to your child. The benefits are at their greatest when the child has an active participant role. Allowing discussions about the story, learning to identify letters or words, and talking about the meaning of the words, all enhance a child's success (Anderson, Hiebert, Scott & Wilkinson, 1985). Other studies have found that children who come from a high literacy environment have better oral language skills, a better understanding of story schema, and use more story elements than those children who do not (Doiron & Shapiro, 1988). Parents who talk to their children and read stories to them at an early age are fostering language development, enabling the child to have a better chance of entering formal schooling ready to read and write. Durkin (1966) found parents who: spend time with their children, read to them, answer their questions, and demonstrate in their own lives that reading is a rich source of relaxation, (p. 136) are parents' of successful readers. Children need adults in their lives that value reading in the home. Hildebrand and Bader's (1992) study showed that children who came from homes that valued books, alphabet materials – including magnets, cards, and blocks; trips to the library; reading and discussions, had a higher emerging literacy skill when they entered school, than those children who did not come from homes which valued these home environments.

Reading to children should begin at birth. Larrick (1975) states that "the time to begin [reading] is with the first feeding, pampering and bathing, when the parent's singing or chanting and gentle conversation begin to set the stage for the infant's participation only a few months later" (p. 78). If reading becomes a regular part of the daily routine, then books will become an accepted part of the child's life and they will look forward to this time (Lamme, 1984). Reading aloud to children has many benefits;

1. Exposure to books develop children's vocabulary and sense of story structure, which later assist them in learning to read (Teale, 1981).
2. Children learn from parents how to use literacy to engage in problem-solving activities (Goodman, 1986).
3. Reading aloud improves reading and listening skills, expands oral language and motivates the child to read (Butler, 1980).
4. Reading aloud promotes independent reading (Haskett & Lenfestey, 1974).
5. Children who are read aloud to on a regular basis obtain word meaning, recognition of letters and words, understand who the author was, and what a title is (Yaden, Smolkin, & Conlon, 1989).

Parents who realize the importance of reading aloud to their children possess the power of stimulating good brain development. Parents who have current knowledge of the optimal windows of opportunities and foster learning during these periods, are parents that are active and create stimulating environments for their child's early years of life. Developing oral language and

reading aloud to young children are important elements of encouraging this development, but recent research has also unveiled the importance of music in stimulating brain development.

Music

Music has a great impact on young learners by stimulating the neurons, which fosters good brain development in children. Making music extensively exercises the brain cells and their synaptic interconnections. Education in both music making and listening encourages students' intellectual development and even helps students learn basic subjects, such as reading (Weinberger, 1998). A study done in 1975 investigated the effects of music training on reading performance of 1st graders:

For 40 minutes daily for seven months, the experimental group learned how to listen to folk songs and to recognize melodic and rhythmic elements. The control group, similar in age, IQ, and socioeconomic status, received no special treatments. After receiving instruction in music listening, the experimental group exhibited significantly higher reading scores than did the control group, the former scoring in the 88th percentile and the latter scoring in the 72nd percentile. The differences in scores did not result from better reading instruction because the same teacher taught both groups (Hurwitz, Wolff, Bortnick & Kokas, p. 46).

Another study of 8th and 9th graders showed that reading comprehension improved with listening to background music (Giles, 1991). Classical music has shown to be important in the development of the brain. Music written by Mozart

was found to influence the stimulation of neurons, with only ten minutes of listening to Mozart selections daily, researchers found that it had dramatically improved spatial temporal reasoning (Rauscher, Shaw, Levine, Ky, & Wright, 1993).

New technology enables scientist to see brain activity and what actually stimulates the brain, research conducted at the University of California at Irvin by Weinberger (1998) suggests that infants are quite receptive to and discerning about music. Recent studies show that infants have musical capabilities:

1. Infants can discriminate between two notes as well as adults can (Olsho, 1984);
2. They can remember the contour or pitches of melodies (Trehub, Bull, & Thorpe, 1984);
3. They can mentally segment, or "chunk," extended melodies into smaller phrases, as do adults (Thorpe & Trehub, 1989);
4. Infants can comprehend rhythm (Trehub & Thorpe, 1989);
5. They can use music to remember what happened earlier in the day (Fagen, Prigot, Carroll, Pioli, Stein, & Franco, 1997).

Music is probably the simplest things that parents can do for their children to stimulate the brain and improve development, because children naturally have a love for music and making rhythms. Toddlers spontaneously exhibit music behaviors. They compose their own songs, invent original musical notation, and use music in their play and communication (Moorhead, 1977). Music also fosters positive attitudes, enhances creativity, promotes social development,

boosts reading readiness, facilitates language development, assists general intellectual achievement, and has been known to lower truancy in middle and high school students (Hanshumacher, 1980).

The importance of music and how it increases academic success is shown in a recent study of preschoolers. Two groups of preschoolers were given either training in music keyboard skills or private computer lessons. The preschoolers that received music keyboard training showed significant improvement on spatial-temporal reasoning, greater than those preschoolers that only received training in computer lessons (Rauscher, Shaw, Levine, Wright, Dennis, & Newcomb, 1997). Spatial-reasoning is particularly important in learning standard subjects such as mathematics and science.

Music has many positive school correlation's, such as better abstract conceptual thinking, stronger motor development, coordination, verbal abilities, and creativity (Jensen, 1998). Music not only fosters brain development, but also can help children learn complex or abstract concepts through the use of songs. Weinberger (1998) states that music actually exercises the brain, and strengthens the synapses between brain cells. "Which major functional systems of the human brain depend on synaptic strength?

1. The sensory and perceptual systems: auditory, visual, tactile, and kinesthetic;
2. The cognitive system: symbolic, linguistic, and reading;
3. Planning movements: fine and gross muscle action and coordination;
4. Feedback and evaluation of actions;

5. The motivation/hedonic (pleasure) system; and
6. Learning memory" (p.38).

The brain depends on these functional systems for survival, which this critical strengthening comes through the use of music. We have seen the importance of language, reading and music in enhancing good brain development, but physical movement and nutrition also play a key role in proper stimulation of a growing brain.

Physical Movement and Nutrition

The brain is a complex system and the windows of opportunity are constantly opening and closing. Physical movement is an important part in these critical time periods in a child's life. Physical activity is essential in promoting normal growth for young learners. Researchers suggest that the relationship between movement and learning should continue throughout a person's life. Physical activity is controlled in the back part of the brain called the cerebellum. The cerebellum takes up only one-tenth of the brain by volume, but it contains over one-half of all the neurons that the brain possesses. In rat tests, scientists were able to visually see the difference in neuron connection in those rats that exercised versus those that lacked physical activities (Jensen, 1998). There also seems to be a strong link between the cerebellum and memory, spatial perception, decision making, emotions, language, and attention.

Young children seem to have an intrinsic desire to create movements through games or dances. The average two year old today is estimated to spend five hundred hours strapped in a car seat compared to two hundred hours in the

1960s (Jensen, 1998). This lack of physical movement of young children can affect the development of the inner ear's vestibular area, which is an area that plays a key role in school readiness. Restak (1979) found infants that were given periodic vestibular stimulation by rocking, gained weight faster, developed vision and hearing earlier in life. Children who do not play much or are rarely touched develop brains that are 20 to 30 percent smaller (Nash, 1997).

Researchers believe the lack of physical movement in children may also be creating a costly link to violence. Studies have shown infants that are deprived from stimulation either from touch or physical activities may never develop the movement-pleasure link in the brain (Kotulak, 1996). This frightening discovery shows that a child may grow up unable to experience positive experiences through typical pleasures. Parents need to allow time for their children to run, jump, dance, tumble, and swing to encourage proper stimulation to the brain.

Lastly, nutrition or a child's diet can greatly influence brain development. A well balanced diet is important, but a poor nutritional diet has devastating effects upon a child's brain development, especially in the early years of life. Barely one-fourth of toddlers and preschoolers eat a balanced diet (Vander Schaaf, 2000). Postnatal malnutrition is a twofold problem, because undernourished young children are not only deprived of the brain's physical nutrients, they are also more likely to be lethargic and unresponsive to the experiences that stimulate the developing brain (Thompson, 1998). The brain is dependent on energy provided by food to properly function, grow, and mature.

Critical nutrients needed by a young child include proteins, unsaturated fats, vegetables, complex carbohydrates, and sugars. Proteins have an important function in our ability to learn properly, since they hold water in the blood, a diet that consists of insufficient levels of protein cause fluids from inside the cells to seep out. This causes children to become sluggish and have limited concentration (Spreen, Risser, & Edgett, 1995). Scientists are finding that students who eat a nutritious breakfast make fewer errors throughout the morning, and students who tend to skip breakfast and eat lunch tend to become sluggish in the afternoon (Pollitt, Leibel, & Greenfield, 1981).

Since the human brain is made up of a higher percentage of water than any other organ in our bodies, it suffers the most from the lack of water. Dehydration in children today is a common problem, which leads to lethargy and impaired learning (Hannaford, 1995). Today's society is increasingly using other means of hydrating their bodies. Not only are our children not eating a well balanced diet but also, drinking soda pop has gained popularity as a thirst quencher. Beverages that contain aspartame have been known to cause blurred vision, headaches, hyperactivity, tearfulness, and violent behaviors (Given, 1998). Parents need to become aware of the ingredients that today's products have and watch for side effects in their children. Parents and teachers also need to realize the importance of water and encourage our youth to consume more water for maximum brain function.

Summary

The educational systems need to equip parents of young children with research finding and methods of implementing this research at home. So many windows have already been closed by the time the child has reached formal school age, that permanent damage has already occurred. Educating parents of these critical time periods and providing children with stimulating environments is extremely important. Providing environments that foster good neuron connections in the brain include, good pre-natal and infancy care, talking and reading to children at a very young age, providing a large amount of time listening, participating, or creating music, allowing time for physical activities, and good nutritional diets. All of these help foster optimal neuron connections during those critical periods throughout a child's life before they enter formal schooling.

CHAPTER THREE

PROCEDURES OF THE STUDY

The purpose of the project was to study new and current research in order to encourage parents to provide an environment that stimulates the brain development of young children. The information of the current research for the project was researched in the following areas: brain development in prenatal/infancy care, oral development and reading aloud to children, how brain development is fostered by music, physical movement and nutritional needs. An ERIC and microfiche search was conducted at the Central Washington University Library. Search was done through Central Washington University Library's Proquest. Other articles were found on the Internet at the writer's home. Personal articles or books were scanned and gleaned for information about the subject. All of the information was organized and written for a formal review of literature in Chapter Two of the project.

The project was completed to create a parent handbook that gives parents guidelines and ideas for fostering good brain development before their child enters formal schooling. The handbook is written to inform parents of the following areas:

1. Good prenatal care is essential to develop optimal brain development. All of a child's brain cells are produced before a child is born. Therefore, a pregnant mother is encouraged to eat a healthy diet, take nutritional vitamins, refrain from drinking,

smoking, drugs, and other toxins in order to give their child optimal brain cell development before birth.

2. Birth to two years of age is an optimal time for fostering brain development in young children through a good nutritional diet. Important activities for parents and children include communication, reading, playing games, and singing songs.
3. Three, four, and five year olds' brains are still growing at an astounding rate and are primed for learning. Parents should continue interacting with their child by reading books aloud to them, playing games, talking to their child, providing a nutritional diet, and singing songs, rhymes or chants with them.
4. Six and Seven year olds are now attending school, but parents still need to be involved with encouraging their child to sing and listen to music, eating a healthy diet, talking to their child, reading to their child, and providing opportunities to let their child run and play.

This handbook was developed for the use of the Early Childhood Department at North Omak Elementary School. This program encompasses birth to five year olds that have special needs, and/or qualify by income levels, or are a part of a community preschool program. This handbook will be shared with the parents of this program through the classroom teachers or presented at a parent education class.

The following criteria was used when writing the Parent Handbook:

1. Information is to be presented so that parents can read and be informed of current research on brain development.
2. Information must be written in the handbook with ease of reading and comprehension in mind.
3. The handbook must be suitable for the Omak Early Childhood Program able to use in their program and share it with their families.
4. Graphics must be added for appeal and interest of the readers.

CHAPTER FOUR

THE PROJECT

A parent handbook follows. It was developed for parents of Omak Early Childhood Program located at North Omak Elementary School to guide them in the years prior to their child's entrance into Kindergarten.

The parent handbook is divided into four sections: Prenatal, Birth to Two, Three to Five, and Six and Seven. Provided in each sections are guidelines and ideas to foster optimal brain development in the following areas: Literacy and Language, Physical Movement, Music, and Nutrition.

This handbook will be distributed to the parents of the Omak Early Childhood Program.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this project was to develop a parent handbook to be used by parents in the Omak Early Childhood Program, located at North Omak Elementary School. This handbook was accomplished by reviewing current research and literature on the topics of brain development in prenatal/infancy care, oral language, reading aloud to children, the impact of music, physical movement, and nutrition.

Conclusions

The conclusion reached due to this study shows that to insure optimal brain development of young child a parent must:

1. Maintain a healthy prenatal environment for her fetus, by eating a well balanced diet, taking multivitamins, refraining from alcohol, drugs, and smoking.
2. Provide a safe and stimulating environment for the young child.
3. Read aloud stories to help promote brain development and language that is essential for formal schooling.
4. Create an environment that promotes listening and participating in music to stimulate brain development and foster learning.

5. Encourage physical activity to promote brain development to occur in young children.
6. Maintaining a proper diet is essential to learning and good brain development.

Recommendations

As a result of creating this project the following recommendations are suggested:

1. Teachers and staff members of the Early Childhood Program located at North Omak Elementary School will use this handbook to supplement current handouts given to parents.
2. Break apart the handbook into smaller booklets for parents and teachers to use. Hopefully the smaller books could be used for specific ages.
3. Share the parent handbook with pregnant teenagers enrolled in the Omak Alternative High School.
4. Encourage parents to read current research provided in the handbook and will realize the important role they play in their child's learning.
5. More data needs to be found in the areas of physical movement and nutrition and how they affect learning.
6. Continued search need to be made in all early childhood research, especially as new findings occur.

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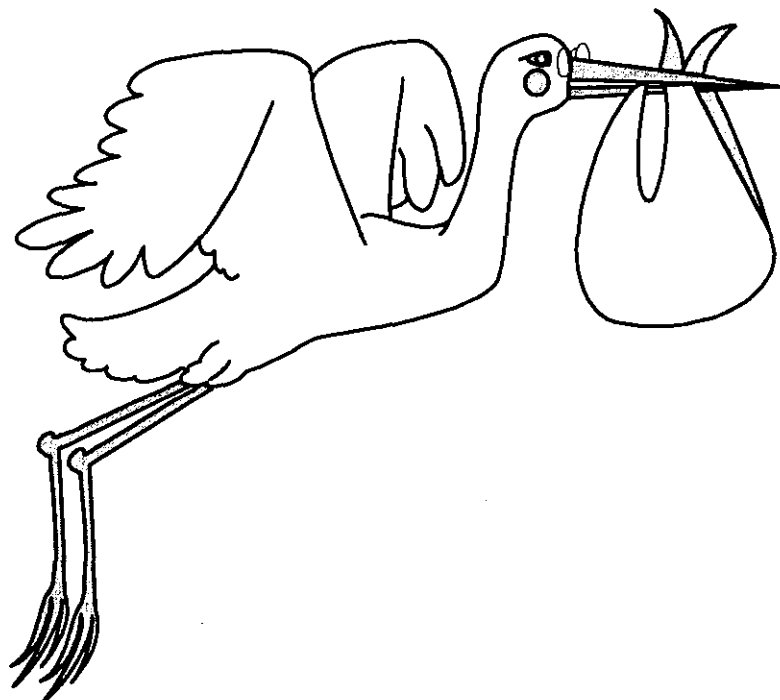
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Prenatal Care



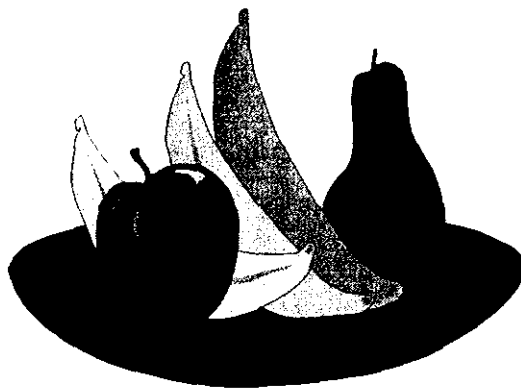
Current Research:

Throughout the early prenatal months, nerve cells (or neurons) proliferate at an astonishing rate-by some estimates, more than 250,000 per minute-to populate the developing brain. By the sixth month of prenatal development, nearly all of the nerve cells that a person will use throughout life have been created. Since neurons neither develop later nor are usually replaced when they die, this prenatal growth establishes lifelong neural capacity (Thompson, 1998).

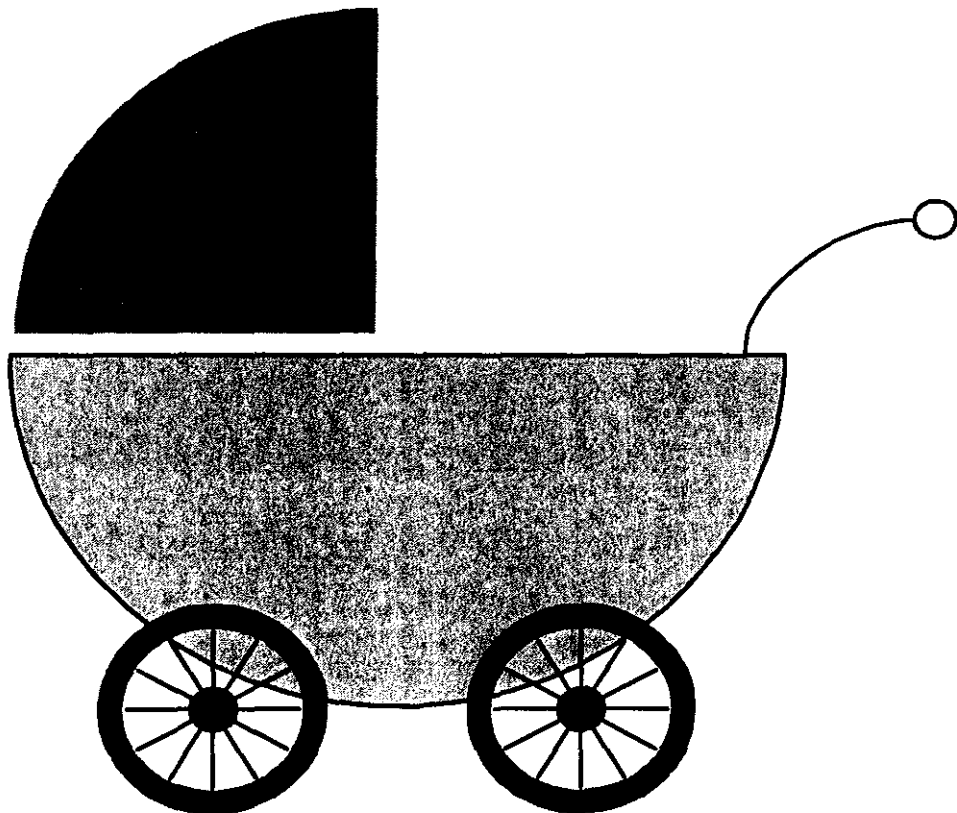
Prenatal Care

- Get vaccinated against hepatitis, rubella and chicken pox well before pregnancy.
- Take folic acid before conception and during pregnancy. Lack of folic acid is linked to brain damage, spina bifida, and anencephaly in newborns.
- Take prenatal vitamins as recommended by your doctor, but don't take megadoses of any vitamin.
- Once you are pregnant, get prenatal care early. Women who don't are more likely to have babies with health problems.
- Don't smoke. Smoking slows the growth of the fetus, including the brain, and can decrease a child's potential for learning. It also is linked to a higher rate of miscarriages, behavioral problems, and criminal activity.
- Don't drink alcohol. Even light or moderate drinking may pose a risk to the fetus. Binge drinking is believed to cause more problems than moderate drinking. Fetal alcohol syndrome is the leading cause of mental retardation in the Western World.
- Don't use street drugs. Ask a doctor before taking any prescription or over-the-counter drugs. Even ibuprofen taken late in pregnancy can harm a child.

- Avoid exposure to pesticides, insecticides, solvents, paints, wood-finishing products, formaldehyde, lead, arsenic and cleaning fluids with strong odors. An unborn baby's liver and kidneys can not process toxins as an adult's can. Let someone else debug your garden, fumigate the house, or fix up the nursery. Ask a doctor about any other materials or products you are concerned about.
- Work to reduce stress, which can be transmitted across the placenta and increase the risk of pre-term birth.
- Eat nutritious meals. Foods rich in iron (chicken, red meat, whole-grain breads, and green, leafy vegetables), folic acid (dried fruits, citrus fruit, and fortified grains), and calcium (broccoli, milk, cheese, and sardines) are important.



Birth to Two



Current Research:

A newborn's brain contains about 100 billion nerve cells, or neurons, and throughout the first year of life, trillions more connections, or synapses, between these nerve cells are produced—far more than baby's brain could ever use. A two-year-old's brain contains twice as many synapses and uses up twice as much energy as a normal adult brain. The more you talk with toddlers, croon to and sing with them, read picture books together, and point out and name objects, the more firmly these synaptic connections are reinforced and the less likely they are to disappear (Sterling Honig, 1999).

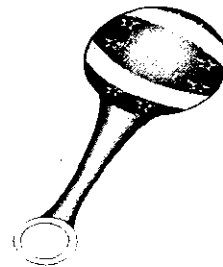
Birth to Two-Year-Old Accomplishments of Literacy – As your child develops,

he/she should be able to do the following skills by age 2.

- Recognizes certain books by cover
- Pretends to read books
- Understands that books are handled in particular ways
- Has a routine of sharing books with primary caregivers
- Makes play sounds in crib that turns into the enjoyment of rhyming language, nonsense word play, etc.
- Labels objects in books
- Talks about characters in a books
- Listens to stories
- Asks or insists that an adult read or write to them
- May begin noticing specific print such as letters in names
- Begins to scribble with a purpose in mind
- Sometimes can tell the difference between drawing and writing
- Writes some letter-like forms and scribbles with some features of English writing

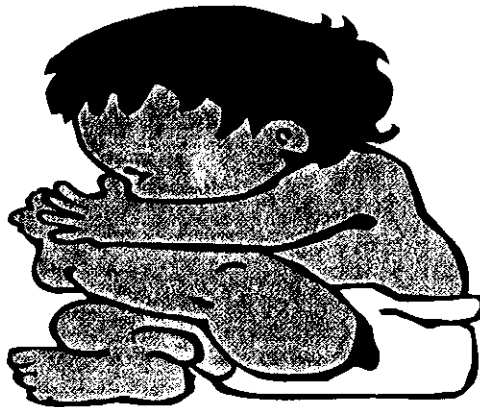
Encouraging Language and Literacy Skills at Home:

- Talk, read, and sing to infants-they learn from everything they see and hear even in the first stages of life
- Always make books a part of your baby's toy selection, even if he/she enjoys handling books more than being read to
- Point out pictures of objects and offer their names of them. Eventually, your child will be able to name the pictures, too
- Read and reread favorite stories
- Read and reread stories with predictable sentences to children
- Encourage associations between symbols and their meaning, as they get closer to toddlerhood, children begin to recognize familiar signs for products and logos for cereal or fast food restaurants
- Encourage children to share experiences and describe ideas and events that are important to them
- Participate in rhyming games or songs



Physical Development: Birth to One Year Old

- Can follow a moving person or object with eyes
- Will look at suspended objects
- Moves arms and legs actively
- Learns to roll over
- Uses eye-hand coordination in reaching
- Picks up small things with thumb and forefinger
- Creeps or gets from one place to another
- Can stand holding on to furniture around the house
- Walks holding on to objects
- Drops or places objects into a container



Physical Development for a Toddler

- Throws ball
- Builds two-block tower
- Walks well without holding onto objects
- Walks backwards
- Uses spoon with little help
- Scribbles
- Kicks ball forward
- Throws ball overhand
- Walks up steps
- Runs
- Drinks from cup or glass



Encouraging Physical Development at Home

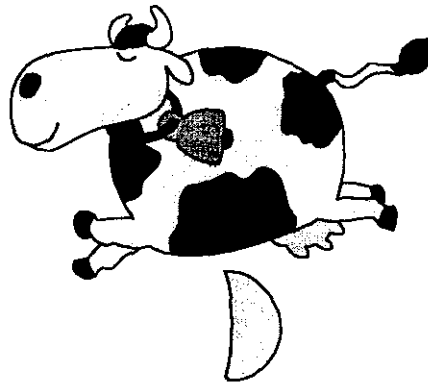
- Hold objects up for your child to grasp at
- Provide a safe environment for them to lay on the floor and practicing rolling over
- Provide walkers or Johnny Jump-ups to encourage leg strength
- Assist child in learning to walk
- Foster eye-hand coordination by the use of balls and blocks
- Assist your child in crawling or walking up stairs
- Let your child hold their own spoons and cups when eating

Current Research:

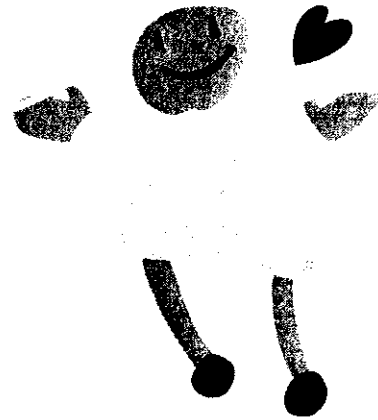
Maclean, Bryant, and Bradley (1987) found that children who knew nursery rhymes were better at detecting rhymes and learned to read faster than children who lacked that knowledge.

Music for Birth to Toddlers

- Baa, Baa, Black Sheep
- Hey Diddle, Diddle
- Hickory, Dickory, Dock
- Hot Cross Buns
- Humpty Dumpty
- Jack and Jill
- Little Bo-Peep
- Little Boy Blue
- London Bridge
- Mary Had a Little Lamb
- The Muffin Man
- The Mulberry Bush
- Old King Cole
- One, Two, Buckle my Shoe
- Pat-a-Cake
- Ring-a-Round the Rosy
- Three Blind Mice
- Twinkle, Twinkle, Little Star



Three to Five



Three-and Four-Year-Old Literacy Accomplishments

- Knows that alphabet letters are special symbols that can be individually named
- Recognizes local print around town (Wal Mart, McDonalds, etc.)
- Knows that it is the printed word that is read in stories, not the pictures
- Pays attention to separate and repeating sounds in language (e.g., Peter, Peter, Pumpkin Eater)
- Uses new words and in proper form in own speech
- Understands and can follow spoken directions
- Is sensitive to some events in stories
- Shows an interest in books and reading
- When being read a story can connect story to life experiences
- Shows off reading and writing attempts, calling attention to self: "Look at my story."
- Knows 10 alphabet letters, especially those from own name
- "Writes" (scribbles) message as part of playful activity
- May begin to notice beginning or rhyming sound in words

Kindergarten Reading Accomplishments – By the end of Kindergarten your child, should be able to accomplish most of these skills.

- Knows the parts of a book and what they are for
- Begins to track print when listening to familiar books or when rereading own writing
- “Reads” stories, not necessarily word for word
- Recognizes and can name all uppercase and lowercase letters in the alphabet
- Understands that the order of letters in a word represents a sounds in a spoken word
- Learns many, though not all, one-to-one letter sound relationship
- Recognizes some words by sight, including a few very common ones (a, the, I, my, you, is, are)
- Uses new words and proper use in the sentence when speaking
- Notices when simple sentences fail to make sense
- Connects stories in a book to their own life and experiences
- Retells, reenacts, or dramatizes stories or parts of stories
- Listens carefully to books teacher reads to class
- Can name some book titles and authors
- Correctly answers questions about stories read aloud
- Can guess what the story is about, based on the pictures in the book
- Given spoken sets like “dan, dan, den” can identify the first words sound the same and the third as different

- Can rhyme words with other words
- Can write many uppercase (A,B,C) and lowercase (a,b,c) letter without any help
- Uses sounds and letter knowledge to spell words
- Writes to show own meaning (can use invented spelling)
- Writes own name (first and last) and the first names of some friends, classmates, or family members
- Can write most letters and some words when asked to

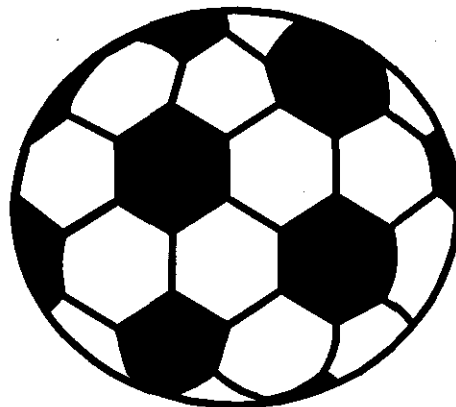
Encouraging Language and Literacy at Home

- When reading stories to your child talk about the front and back of the book
- Discuss with your child what an author is (person who writes the story) and who the illustrator is (person who draws the picture for the book)
- Let your child know when you read that you always start at the top and read to the bottom
- Point to the words when you are reading to your child so they can see that you read from the left side of the page to the right
- Allow your child to pretend read
- Have books available that have 3-4 words on a page or less
- Invite your child to read with you or let them fill in a missing word
- Talk about everyday events with your child, this will help increase your child's vocabulary
- Listen patiently as your child talks about different things and tells stories.
- When driving down the road play "I spy" and have them describe objects they see
- Eat at the dinner table, this will encourage conversation
- Sing songs that have rhyme and repetition in them or let your child make up their own words
- Read to your child daily and allow them to hear their favorite books over and over again



Physical Development of 3-Year-Olds

- Walks without watching feet; walks backward; runs at an even pace; turns and stops well
- Climbs stairs with alternating feet, using handrail for balance
- Jumps off low steps or objects; does not judge well in jumping over objects
- Shows improved coordination; begins to move legs and arms to pump a swing or ride a trike, sometimes forgetting to watch the direction of these actions and crashing into objects
- Perceives height and speed of objects (like a thrown ball) but may be overly bold or fearful, lacking a realistic sense of own ability
- Stands on one foot unsteadily; balances with difficulty on the low balance beam (four-inch width) and watches feet
- Plays actively (trying to keep up with older children) and then needs rest; fatigues suddenly and becomes cranky if overly tired



Physical Development of 4 Year-Olds

- Walks heel-to-toe; skips unevenly; runs well
- Stands on one foot for five seconds or more; masters the low balance beam (four-inch width) but has difficulty on the two-inch-wide beam without watching feet
- Walks down steps, alternating feet; judges well in placing feet on climbing structures
- Develops sufficient timing to jump rope or play games requiring quick reactions
- Begins to coordinate movements to climb on a jungle gym or jump on a small trampoline
- Show greater perceptual judgment and awareness of own limitations and/or the consequences of unsafe behaviors; still needs supervision crossing a street or protecting self in certain activities
- Exhibits increased endurance, with long periods of high energy (needing increased intakes of liquids and calories); sometimes becomes overexcited and less self-regulated in-group activities



Physical Development of 5 Year-Olds

- Walks backward quickly; skips and runs with agility and speed; can incorporate motor skills into a game
- Walks a two-inch balance beam well; jumps over objects
- Hops well; maintains an even gate in stepping
- Jumps down several steps; jumps rope
- Climbs well, coordinates movements for swimming or bike riding
- Shows uneven perceptual judgment; acts overly confident at times but accepts limit setting and follows rules
- Displays high energy levels; rarely show fatigue; finds inactivity difficult and seeks active games and environments



Encouraging Physical Development at Home

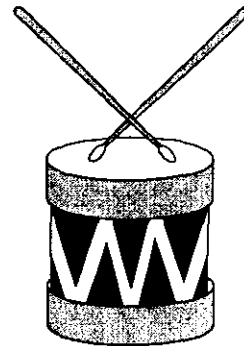
- Walking around the neighborhood or to the park
- Walking like different animals
- Rocking in a rocking boat
- Walking a trail or obstacle course
- Walking on balance beams
- Hopping
- Jumping
- Skipping
- Leaping
- Running
- Galloping
- Climbing
- Crawling
- Throwing
- Catching
- Riding tricycles
- Putting together puzzles that have large pieces
- Zipping or snapping clothing
- Pouring water into other containers at the sink, in the tub, or at the lake
- Cutting paper, string, or other items around the house
- Printing, tracing, painting objects

Current Research:

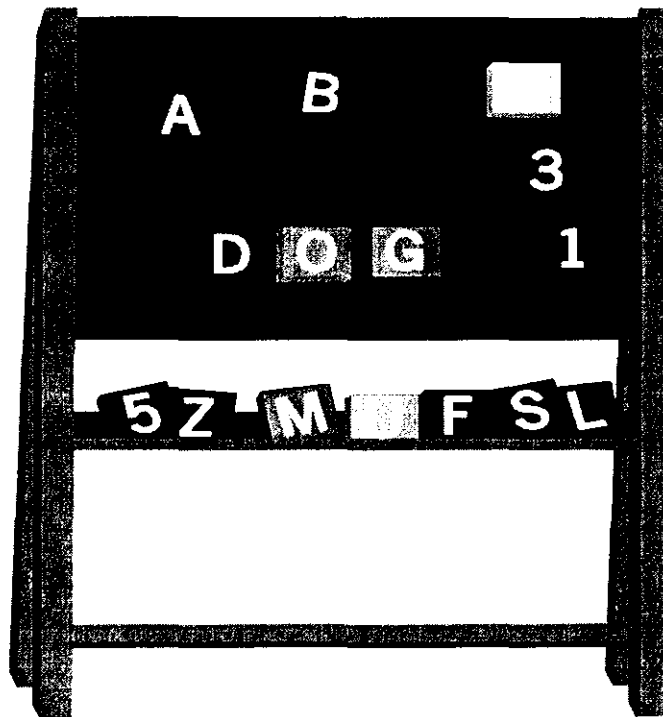
University of California, Irvine found that after six months of piano lessons, preschoolers performed 34% higher on spatial-temporal testing than those who received no training and those who received computer training. (Raushcher, Shaw, Levine, Wright, Dennis, & Newcomb, 1997).

Music for Preschoolers

- The Alphabet Song
- The Farmer in the Dell
- Hokey Pokey
- Looby Loo
- Mitten Song
- Head and Shoulders
- Old MacDonald
- Teddy Bear
- Twinkle, Twinkle, Little Star
- Five Little Monkeys Jumping on the Bed
- I'm a Little Teapot
- Itsy Bitsy Spider
- This Little Pig
- Where is Thumbkin
- The Bus Song
- Johnny Works with One Hammer



Six and Seven



First-Grade Reading Accomplishments

- Changes from pretend reading to reading the words that are printed in a story
- Can read out-loud stories that have first grade words written in them
- Uses letter-sound correspondence knowledge to sound out unknown words when reading story
- Recognizes common, irregularly spelled words by sight (have, said, where, two)
- Has a reading vocabulary of 300 to 500 words, sight words and easily sounded out words
- Can judge their own reading and self-corrects when they make mistakes, especially when it does not make sense
- Reads and understands both make believe and real stories at a first grade level
- Writes own stories for others to read
- Notice when they do not understand the story they are trying to read
- Can read and understand simple written instruction
- Predicts and can explain their predictions of what is going to happen in a book
- Discusses how, why, and what-if questions when reading real stories
- Explains new information learned from a story in own words
- Can answer simple written questions on material read
- Can count the number of syllables (sounds) in a word

- Spells correctly three- and four-letter short vowel words (cat, dog, etc)
- Uses invented spelling to spell by themselves, when necessary
- Uses commas, periods, and capitalization when writing
- Can write in a variety of different ways (e.g., stories, descriptions, and journal entries)
- Chooses to read books, stories, or writes notes to a friend

Second-Grade Reading Accomplishments

- Reads and understands both make believe and real books that are written at a second grade level
- Can sound out regular multi-syllable words and nonsense words (e.g., capital, Kalamazoo)
- Knows more words and can use them in speaking and writing
- Reads for their own interest and purposes
- Rereads sentences when they are confused
- Can understand information from diagrams, charts, and graphs
- Can tell you facts and details of what they just read
- Discusses similarities in characters and events throughout a story
- Poses possible answers to how, why, and what-if questions about what they just read
- Correctly spells previously studied words and spelling patterns in own writing
- Makes reasonable judgments about what to include in a written product
- Can proof read their own writing and others
- Given help, can write informative and well-structured reports
- Can write a variety of different ways (e.g. stories, reports, correspondence)

Facts: Hours of reading books by age 5.

If you read to your child 30 minutes per day, by the time your child is 5 they will have 900 hours of brain food. Reduce that experience to just 30 per week and your child will only have 130 hour of reading before age 5. A kindergarten student who has been read to less than 30 minutes a week will enter school with about 60 hours of brain food and book knowledge ("Feed me", 2000).

**Encouraging Literacy and Language at Home:**

- Give children books with rhythm, rhyme and repetition. Read those books over and over again
- Encourage children to use language and movement to increase learning by 90%
- Read books aloud to children daily (about 30 minutes)
- Stop occasionally to discuss story
- Read a variety of books, for example chapter books, poems, folktales, myths, and rhymes
- When reading to your child, model fluent reading using good expressions
- Have books on tapes available for your child to listen to
- Let children read to you or another member of the house, and accept approximations in their reading
- Read signs while driving down the road
- Rent sing-along videos that show the words at the bottom of the screen
- Encourage children to write stories at home

Physical Development for Children 6 and 7 Years of Age

- Skips, hops, gallops, and slides well
- Can dribble a ball while running
- Can apply rules and procedures to game play
- May suddenly become moody
- Learns well through active play
- Manipulates small items well, like beads, buttons, and pencils
- Has good balance
- Is able to catch smaller balls
- Ties shoelaces
- Enjoys planning and building things

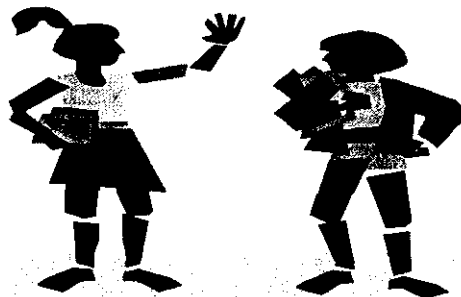


Current Research:

The rapid rate of growth during the preschool years slows down with major development now occurring in the trunk and limbs (Schickedanz, Schickendanz, Hansen, & Forsyth, 1993). Childhood obesity can occur, a condition that is prevalent and increasing among children of these ages (Epstein, Wing, & Valosi, 1985).

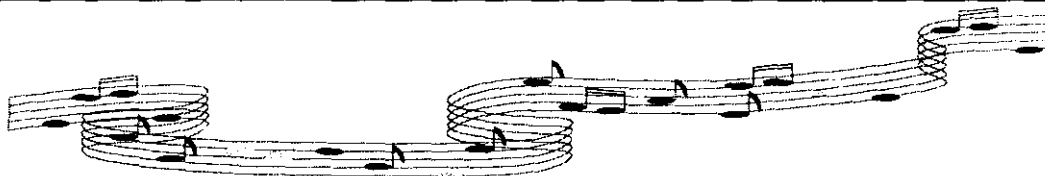
Physical Activities to Enhance Learning at Home

- Basketball
- Baseball
- Soccer
- Gymnastics
- Dance lessons
- Hide-and-seek
- Hopscotch
- Marbles
- Checkers
- Jacks
- Sewing
- Making crafts
- Puzzles



Current Research:

Phonemic awareness is the most potent predictor of success in learning to read. It is more highly related to reading than tests of general intelligence, reading readiness, and listening comprehension. (Stanovich, 1994)

**Music for Primary Age Children****Songs that encourage Phonemic Awareness**

- Apples and Bananas
- Down by the Bay
- Michael Finnigin
- Willoughby Wallaby, Woo
- Miss Mary Mack
- Goin' to the Zoo
- Bibbidi-Bobbidi-Boo
- Jim Along, Josie
- Bingo
- Charlie Over the Ocean
- I Know an Old Lady
- This Old Man

Current Research:

Barely one-fourth of toddlers and preschoolers eat a balanced diet (Schaaf, 2000). Americans eat too much saturated fat, sugar, and simple carbohydrates. They eat too few fruits, vegetables, and complex carbohydrates (Woteki and Thomas, 1992). This creates less than optimal, learning and memory ability (Wurtman, 1986).

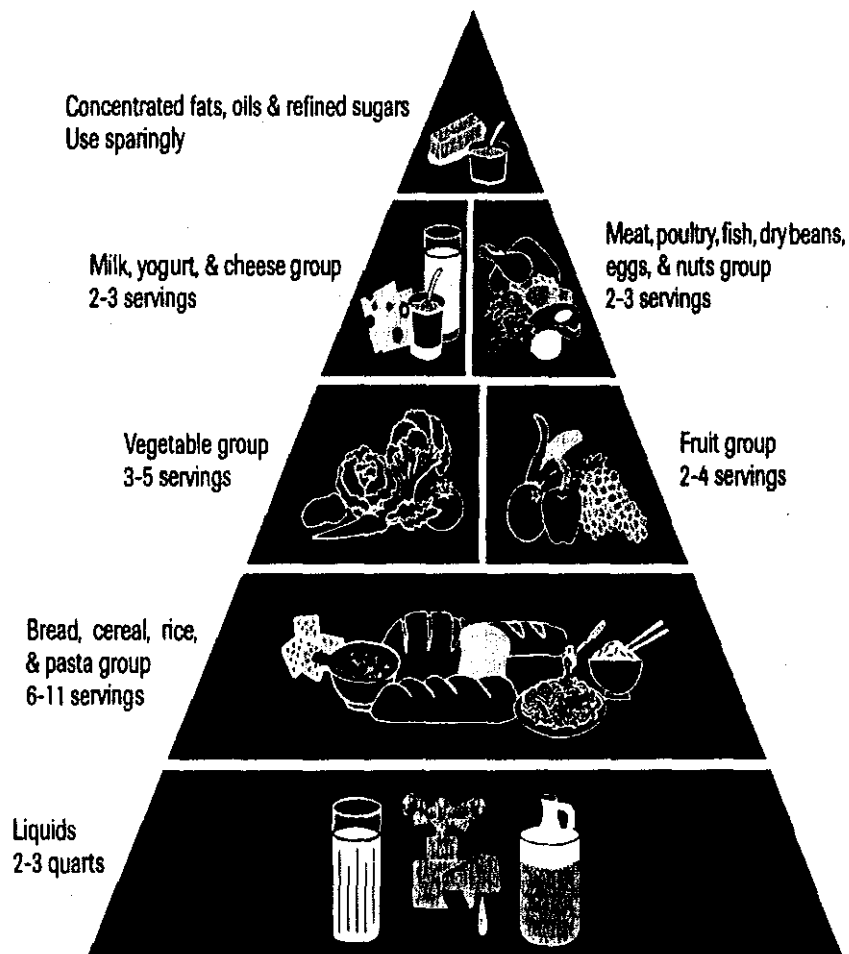
Nutritional Guidelines for Children

Figure 10.2 A modified Food Guide Pyramid focusing on daily intake. impact.

Reprinted, by permission, from AAHPERD, 1999, *Physical Best Activity Guide—Elementary Level*. (Champaign, IL: Human Kinetics), 67.

Definition of Words

- Neuron – One of two types of brain cells. We are born with about 100 billion of these. When stimulated they connect with other neurons, if they are not stimulated they die off
- Axon – Are long fibers extending from the neuron that carry information to other neurons, they connect to dendrites
- Dendrites – Are the spider web like fibers from the neuron. They receive information for the neuron from the axon
- Myelin – A fatty white shield that coats and insulates axons. They make the neurons more efficient and allow electrical impulses to travel up to 12 times faster. The more a child is stimulated the thicker the myelin sheath and the faster a child can think
- Phonemic Awareness – The awareness of the sounds in spoken words or ability to hear the sounds within the words
- Inventive Spelling – A Child's attempt to write a word as it sounds
- Rhyme – Correspondence of ending sounds of words or lines of verse
- Sight Words – Words that can be read instantly on sight
- High-Frequency Words – Words that are used "over and over"
- Syllables – Word parts, children can detect these sounds by clapping with the word

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