Understanding Fetal Alcohol Spectrum Disorders (FASD):

A Comprehensive Guide for Pre-K - 8 Educators

Chandra D. Zieff, M.Ed. and Rochelle D. Schwartz-Bloom, Ph.D.

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About the Authors

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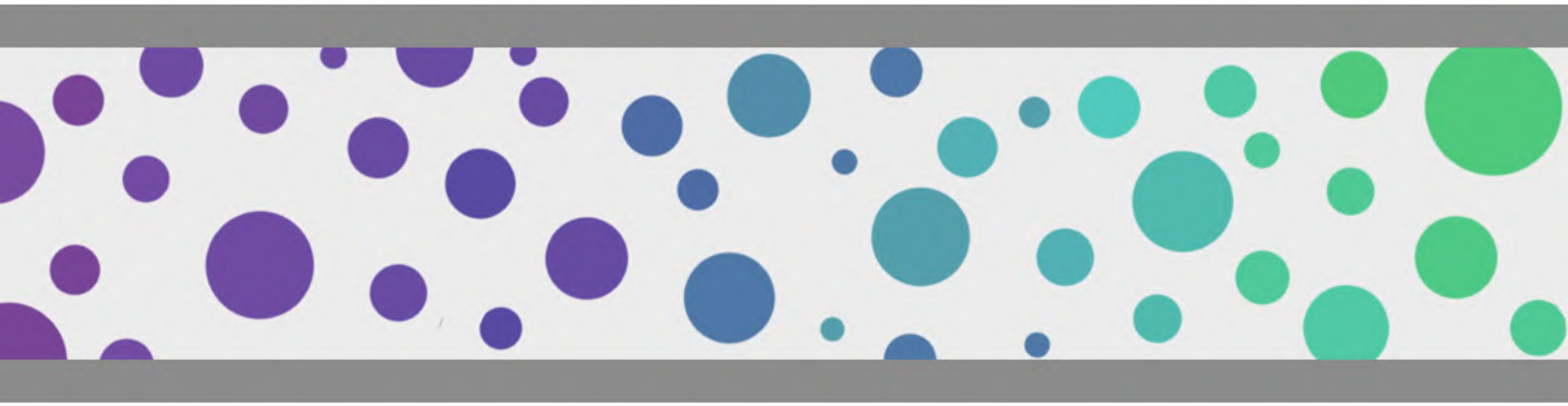
Table of Contents

Table of Contents

Introduction



What is FASD?

Fetal Alcohol Spectrum Disorder (FASD) is a group of developmental disorders that results from the exposure of a fetus to alcohol. FASD includes, Fetal Alcohol Syndrome (FAS), Partial FAS, Alcohol-Related Neurodevelopmental Disorder (ARND), and Alcohol-Related Birth Defects (ARBD). While each of these disorders includes damage to the brain that results in neuropsychological and behavioral dysfunction, FAS is the most well-known of the disorders because of the classic craniofacial dysmorphologies and growth deficiency produced by early fetal exposure to alcohol. Partial FAS does not show the growth deficits and ARBD has the physical defects of FAS without the full syndrome. ARND shows only the neuropsychological and behavioral dysfunction without the physical characteristics of FAS. FAS is the major cause of birth defects in the Western world, yet it accounts for only 10% of all the cases of FASD. Contrary to public thought, FASD children can have either a low or normal IQ. Depending on the time during pregnancy when the mother drinks alcohol as well as the drinking pattern, the facial dysmorphologies and other physical abnormalities of FAS can be absent, making a diagnosis quite difficult. In fact, children with FASD are often diagnosed with other disorders such as Attention Deficit (Hyperactivity) Disorder (ADD/ADHD) or Oppositional Defiant Disorder (ODD). Nevertheless, all children with FASD can suffer the same degree of central nervous system dysfunction and secondary effects (defined below) as do children with FAS.

Who Should Use This Manual and the Reasons Why

This guide is designed for every educator (e.g., teachers, special education teachers, resource specialists, speech and language specialists, school nurses, psychologists, and occupational therapists) who works with K-8 elementary and middle school level students. The guide addresses the impact of prenatal exposure to alcohol and how it affects the K-8 grade student. Many educators believe they do not have students in their classes who have FASD, and they may even wonder why this guide would be useful in their own teaching and classroom management.

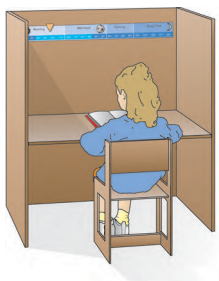
Alcohol is the most commonly abused substance in the United States. Despite health warnings, 20% of women drink alcohol while knowing they are pregnant. Therefore, it is not surprising that there is a high incidence of children in the United States with FASD.

The most conservative estimate of the prevalence rate for FAS is 3 in 1,000; while the combined incidence of FASD is 1 in 100. In some popula tions, those rates are even higher. FASD occur with more frequency each year than does Down's Syndrome, Cystic Fibrosis, Spina Bifida, and Sudden Infant Death Syndrome, combined.

Students with prenatal exposure to alcohol are in our classrooms. Educators have taught and are teaching students with FASD. While a small percentage of these students have been diagnosed with one of the FASD, most of these students remain unidentified. Some students have physical characteristics indicative of FAS, most of the FASD students look like their peers. They seem "perfectly normal," yet they have a "hidden disability". Teachers are often baffled by the puzzling, and sometimes unexpected, behavior and learning dif ficulties these students exhibit. Working with these students can be frustrating and discouraging. Teachers find traditional learning theories and standard teaching practices inef fective for the FASD student. These students want to please their teachers, but they end up feeling like failures. There is a societal lack of awareness and understanding of FASD. These unidentified students are often misunderstood. Many reasons are attributed to the lack of success for these FASD students.

"He just doesn't try."
"He's so capable, but he's an underachiever."
"There's just not any motivation, unless it has to do with something he's inter ested in."
"She doesn't listen...just tunes me out."
"Her family life is very chaotic. The parenting skills are weak."
"I've never met anyone more stubborn."
"She's the class clown, always looking for attention."

The reason many FASD students are not capable of meeting age appropriate academic or behavioral expectations is through no fault of their own. They have organic brain damage, due to prenatal exposure to alcohol. While not all children whose mothers drink alcohol during pregnancy are affected, those who are affected must cope with lifelong consequences. These children do not grow out of FASD, and there is no cure.



Yet, there is reason for hope. FASD students can and do learn. In fact, FASD students are capable of leading productive and successful lives. Recognition of their disabilities and early intervention are critical in order to provide a meaningful and positive learning experience for these students. Elementary school may be the first time in a child's life when the effects of fetal alcohol exposure are noticed.

Although students with FASD have a broad range of differences, they also share very specific behaviors and learning styles. Only when teachers understand the unique profile of the FASD student can they can begin to work effectively with their students who have been identified. This profile may also alert educators to students who have not been identified with FASD, but who seemingly have many of the same behaviors and learning patterns. Educators can then seek outside help for a correct diagnosis for these students. Fetal Alcohol Spectrum Disorder requires a medical diagnosis even though there are no biochemical tests to confirm the disorder.

There are devastating secondary disabilities that manifest themselves when students have not been identified with FASD and have not received an educational program addressing these needs. These secondary disabilities are currently quite prevalent with FASD teenagers. They range from mental health problems, trouble with the law , alcohol and drug problems, sexual inappropriateness, school truancy, and homelessness to other alarming difficulties. These problems are a huge burden to the individuals, their families, as well as to society. Early recognition of FASD is the greatest factor in safeguarding against the onset of secondary disabilities.

I would like you to know that it isn't easy having FAS[D]. That it's hard in school.
I need someone to explain things in a way I'll understand.
(P. Lasser, 1999)

Understanding FASD: A Comprehensive Guide for Pre-K-8 Educators is a resource for educators who work with children with FASD. The goal of this guide is to equip educators with an overall understanding of FASD. Normal brain development and the effect of prenatal exposure to alcohol on brain development are discussed. This leads educators to understand the academic and behavioral challenges the FASD student faces. The guide outlines the profile that these students present and provides effective instructional strategies to assist teachers. Initially teachers may be overwhelmed when learning about the profile these students present, due to their extensive challenges and difficulties. Teachers may be overwhelmed further when presented with the multitude of strategies proposed here for students with FASD.

"How is it possible to implement all of these strategies?"
"These students present too many learning difficulties.
I can't possibly help them!"
"What about the other students in my classroom?
I won't have time to work with them."

Upon further reflection teachers will realize these are the students who are already consuming the most effort and energy. The FASD students are the constant targets of teachers' worry. Now, with the proper understanding and sensitivity to FASD we can stop "spinning our wheels," and begin helping these students effectively. The educator's job will be made easier.

> Of all the community's institutions, the schools are most advantageously situated to influence the lives of people with FAS[D]. If schools are responsive to the challenges presented by these students, the students' lives can be greatly enhanced. If the schools fail to respond appropriately, these students can face tremendous obstacles. (Streissguth, 1997)

Teachers will discover that many of the suggested strategies will be appropriate for other students in the classroom who do not have FASD, but who exhibit similar behavioral issues. The strategies outlined in the guide will be effective for students struggling to keep up in class and for those with learning disabilities. Students who are learning English as a Second Language will also benefit from many of these suggestions. Teachers do not have to implement all of these strategies at once. The guide is designed to be a practical resource. Teachers will decide which suggestions will be best to implement for their FASD students and for their classroom.

Educators involved with FASD students should attend Student Study Team (SST) meetings. Student Study Team reports in the guide provide educators with a positive and successful SST model. The information from the reported SST often leads to the development of an Individualized Education Plan (IEP). Sample IEPs of students with FASD are presented in the guide for the educator. Educational summaries are presented along with common short and long-term goals. Educational resources and strategies are outlined to accomplish these goals. Teachers can use these sample IEPs to assist in developing meaningful and attainable IEP goals for their students. Students can work on educational goals in a supportive environment, where their disabilities are understood and they can strive for success.

In addition, the Educational Plan can establish valuable documentation for these students as they progress on to the next grade level and as they transition from the education system. With this legal document as a guide, students have the opportunity to remediate their primary disability, avoiding secondary disabilities and improving the outcome of their lives.

How to Use This Guide

The guide is organized in three major sections. The first (Chapters 1-3) presents the science behind FASD-how alcohol affects brain development to produce learning and behavioral difficulties. The second section (Chapters 4-6) covers in depth several of the neuropsychological and behavioral disabilities of students with FASD. In addition, it presents teaching strategies to address the neuropsychological and behavioral problems. There is a great deal of repetition built in to these chapters due to the overlap in approaches that can be used for different disabilities. When appropriate, the reader is referred to another section in which the topic is discussed in more detail. The third section (Chapters 7-8) presents two case studies, along with the background, the SST report and the sample IEP for each. These can be used as guides in developing your own SST reports and IEPs when appropriate. The sample cases are followed by a chapter (9) discussing the roles of other school professionals in helping the FASD student, teacher, and family work together to develop a productive learning experience at the elementary grade level.

Terms used throughout the guide are bolded when defined in the Glossary, found at the end of the manual. In addition, a list of resources for school professionals and students and their families is found after the bibliography section.

Physical, Neuropsychological, and Behavioral Manifestations of Children with FASD

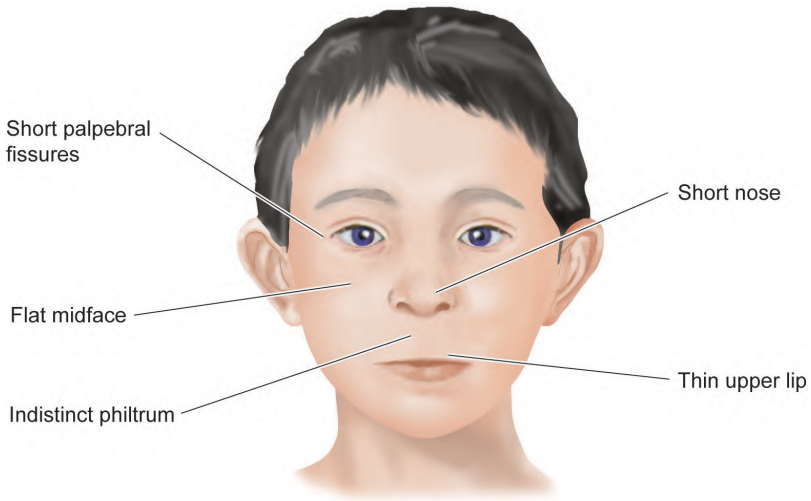
Overt Physical Symptoms of FAS

The physical effects of exposure of the fetus to alcohol have been well-described. Along with evidence that the mother consumed alcohol during pregnancy, the physical effects associated with FAS include growth retardation, musculoskeletal abnormalities, small head circumference **(microcephaly)** and a group of distinctive facial dysmorphologies (see Figure 1).

Figure 1: Facial Dysmorphologies

Facial dysmorphologies associated with FAS:

- Folds over the upper eyelids
- Short ***palpebral fissures***
  (the openings between the eyelids)
- Small eyeballs
- Short or small nose
- Indistinct ***philtrum***
  (the groove between the nose and upper lip)
- Thin upper lip
- Flat midface



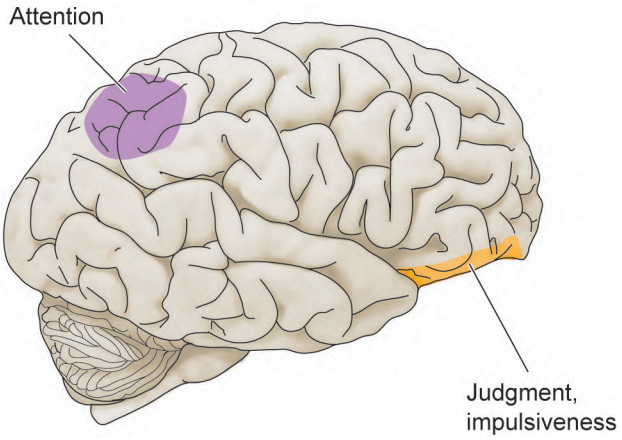
While very evident during childhood, many of these facial abnormalities tend to diminish with age, and adults with FAS may not exhibit the classic facial dysmorphologies characteristic of this disorder in children. Other physical effects that are not quite as obvious include, reduced vision and visual acuity due to retinal malformations, speech pathologies, and awkward motor control.

Neuropsychological and Behavioral Symptoms of FASD

In addition to the overt physical effects manifested in FAS children, the effects of alcohol on the developing fetus can produce a host of other symptoms postnatally, notably neuropsychological or behavioral dysfunction and learning disabilities (see Chapter 3).

Not all children exposed to alcohol in utero exhibit all of these symptoms, but the most common ones are listed below.

Most children diagnosed with FAS exhibit some combination of these neuropsychological and behavioral problems. However, many children who are exposed in utero to alcohol do not exhibit the overt physical abnormalities of FAS. Often, these children are mislabeled with disorders such as **Attention Deficit Disorder** (ADD) because of some of the similarities in their behavioral dysfunction (for a comparison between ADD and FASD, see page 52).

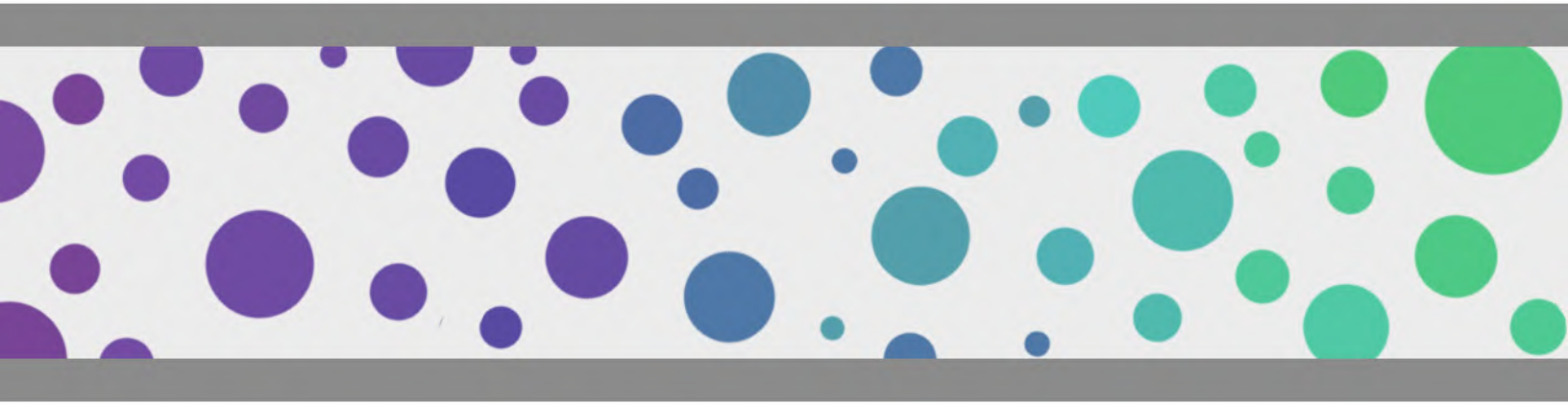


Neuropsychological and behavioral problems include:

- Low-average IQs (IQ can range from mental retardation to normal)
- Poor ***executive functioning***
- Lack of social and communication skills
- Lack of appropriate initiative
- Poor judgment
- Failure to consider consequences of actions
- Poor concentration and attention
- Social withdrawal
- Poor impulse control
- Intermittent anxiety
- Stubbornness

There is considerable evidence to demonstrate that mothers who drink during pregnancy can give birth to children who do not have the physical characteristics (or even low IQ) associated with FAS, yet still exhibit the same neuropsychological and behavioral problems. These children also suffer the same degree of disabilities later in life as do FAS adults.

Pattern of Prenatal Alcohol Exposure Determines the FASD Phenotype



Drinking Patterns

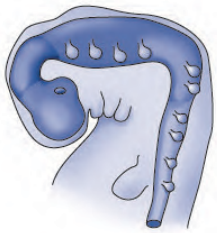
The pattern of drinking alcohol during pregnancy is a very important factor in determining whether the of f-spring is likely to suffer from neuropsychological and behavioral dysfunction with or without the physical characteristics. There are two major groups of drinking patterns during pregnancy—women who drink continuously during pregnancy and women who binge drink periodically. In the latter instance, many of these women decrease drinking once they find out they are pregnant and then binge occasionally in the second and third trimesters. A binge is defined as drinking at least 5 drinks over a several hour period.

Chronic drinking throughout the pregnancy can produce a variety of effects, including both the physical dysmorphologies and neuropsychological/behavioral dysfunction. The high blood alcohol peaks that occur with binge drinking are also dangerous as they can lead to physical dysmorphologies and neuropsychological/behavioral problems if the binging occurs early in the pregnancy. If binging occurs later in pregnancy, the high blood alcohol peaks can lead to neuropsychological/behavioral problems. In fact, the peak level of blood alcohol reached in the mother during a single binge may be more important than the overall amount of alcohol consumed over a longer period of time! In major studies of mothers who drank during pregnancy, very specific problems have been identified with respect to the pattern of drinking and exposure time. For example, these studies reveal that mothers who drink more than 5 drinks on any day before realizing they are pregnant can expect that their children will be 1-3 months behind their peers in reading and math at the end of 1st grade. Drinking 1 drink/day during the 2nd trimester can lead to problems in academic achievement (reading, spelling, and arithmetic). Moreover, when mothers drink even 1 drink/day, their children may have reduced IQ scores as much as 7 points. Regardless of whether intelligence is reduced, these children can still exhibit many of the behavioral and neuropsychological deficits (discussed below).

Relationship Between Alcohol Exposure, Gestation Period, and Damage to the Fetus

Pregnancy can be divided generally into three trimesters. During the first trimester , organogenesis takes place. During these first 10 weeks of gestation, organs are being formed, including the brain and spinal cord (See Chapter 3). Early exposure to alcohol, especially if the woman

doesn't know if she is pregnant, can lead to physical defects, such as facial dysmorphologies, a curved spine, and problems with visceral organs. Typically, the growth retardation and small head circumference occur with the highest doses of alcohol consumed. During the first trimester, cell division and protein synthesis are reduced; these cellular functions are crucial in the formation of skeletal muscle, bone, and internal organs, including the brain. The disruption of the brain formation at this time is due to the ability of alcohol to decrease the proliferation of neurons.



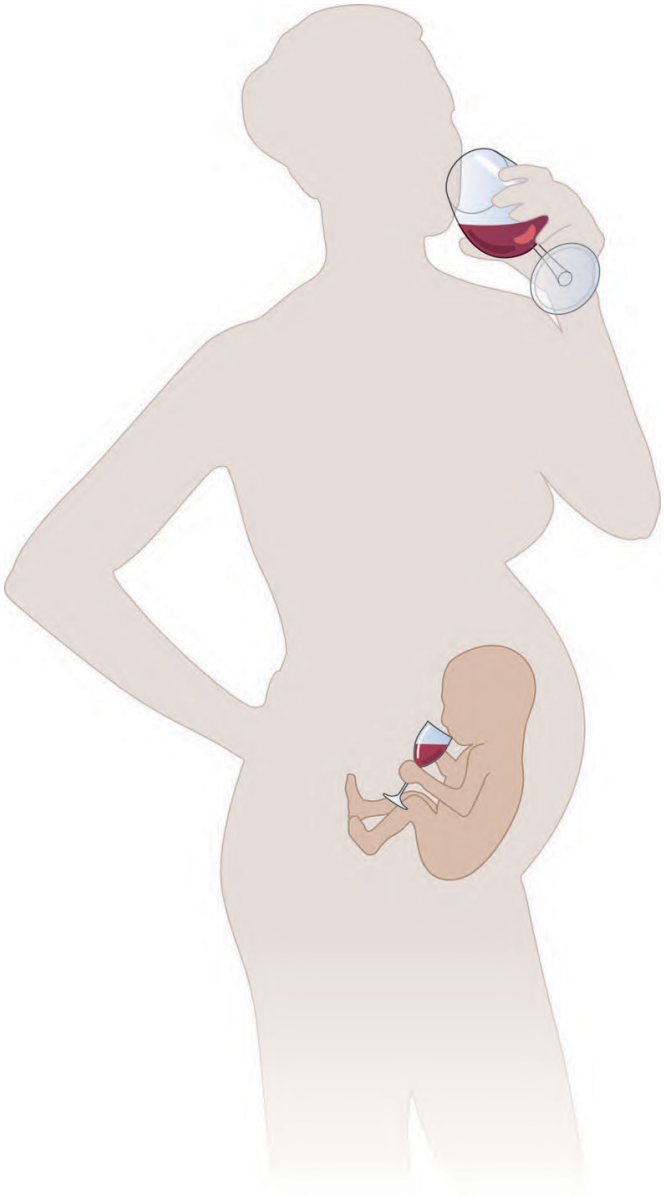
First Trimester

During the second and third trimesters, there is a growth spurt of the musculoskeletal system and visceral organs, including the brain. The major brain cells, **neurons** and **glial cells**, grow and establish their branches and connections. The long **axons** of neurons become surrounded by **myelin**, which allows the neurons to send electrical information along the long length of the axon. When a woman drinks alcohol during these periods, the fetus can develop neuronal abnormalities leading to behavioral and learning deficits (see Chapter 3 for more detail) without any manifestation of the physical dysmorphologies. There is a common misconception that the absence of the facial dysmorphologies means that the child's exposure to alcohol was minimal, and therefore, the child has a milder form of FASD. On the contrary, drinking during the 2nd and 3rd trimesters can produce children with severe behavioral and neuropsychological dysfunction even in the absence of facial dysmorphologies.

Second Trimester

Thus, when alcohol is consumed chronically throughout pregnancy, there is a wide variety of effects on the fetus, ranging from injury to the central nervous system, musculoskeletal damage, to growth retardation. In cases of episodic binge drinking, injury to the brain and other organs may be more selective. Damage to specific organs (including the brain) will depend on whether the particular organ is undergoing a growth spurt at the time the alcohol binge takes place. A more detailed discussion of the effect of prenatal alcohol drinking on brain development is found in Chapter 3.

Third Trimester



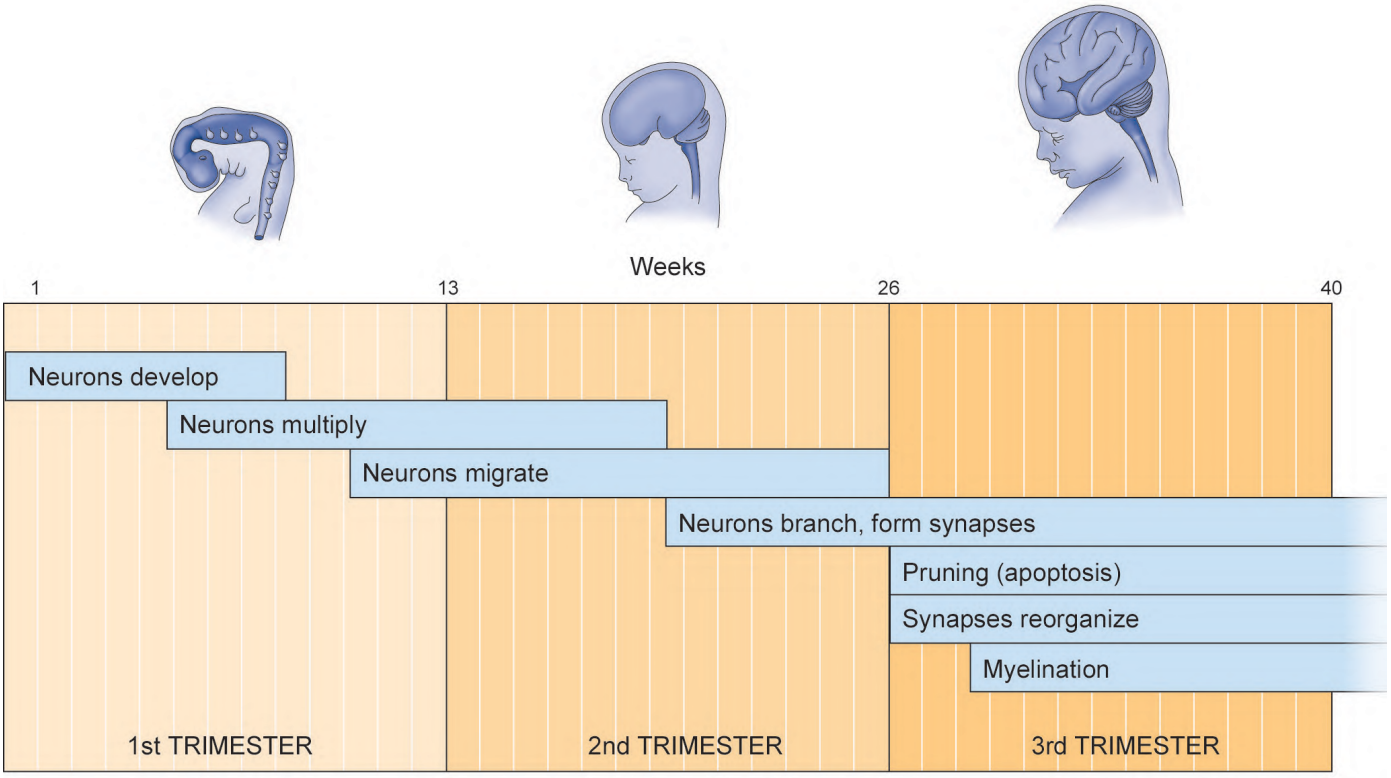
Adapted from Streissguth, 1997.

Effects of Prenatal Exposure to Alcohol on Brain Development and Postnatal Function

Normal Brain Development

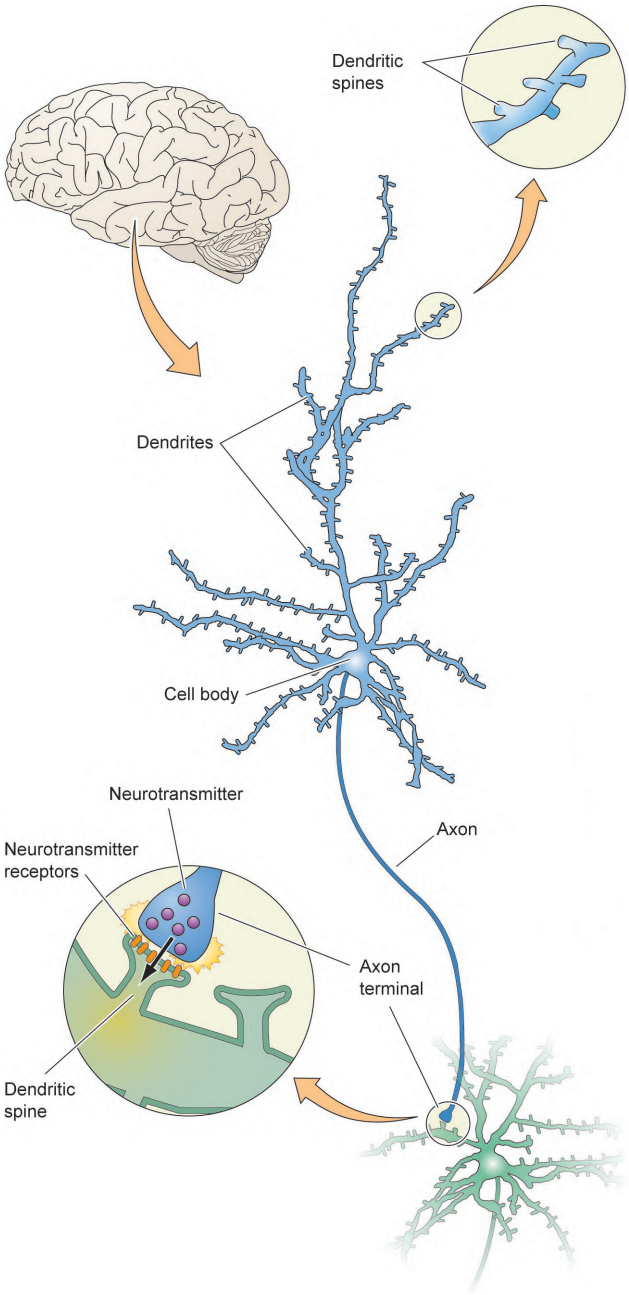
The brain develops throughout pregnancy, and continues developing even through adolescence. During the first 10 weeks of pregnancy, the basic cells that make up the brain are formed (Figure 2). These include neurons, which eventually send electrical and chemical signals to one another, and glial cells, which provide both structural and chemical support to the neurons. During the 1st trimester, the neurons and glia undergo cell division, multiplying aggressively in preparation for their subsequent organization into specialized functions.

Figure 2: Stages of Brain Development Through Pregnancy



As pregnancy moves into the 2nd and 3rd trimesters, several events take place. The neurons grow, forming numerous branches (**dendrites**) and an axon, structures that are crucial in sending and receiving information (Figure 3). The dendrites grow small protrusions called "**spines**"—this increases the surface area for communication between neurons (see next page). At the same time, the axons become surrounded by myelin, a fatty sheath provided by glial cells, which will help the neurons conduct electrical impulses over long distances.

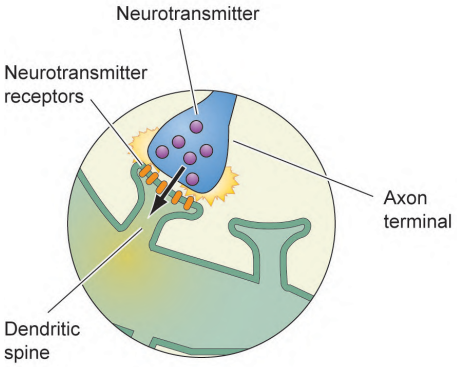
Figure 3: Neuron Structure



A typical neuron is shown making a synapse with another neuron. The cell body contains the nucleus where the DNA resides. A long axon leaves the cell body and ends in a terminal. The terminal makes a connection (synapse) with the dendrites of another neuron. An enlarged view of a synapse is shown at the bottom. Within the synapse, neurotransmitters are released from the terminal of a neighboring neuron; the neurotransmitters bind to specific receptors located on the dendritic spines of the receiving neuron. Receptor binding leads to either electrical or chemical signals in the receiving cell.

Once the structural aspects of neuronal development are in place, several chemical events emerge. The neurons start to synthesize their own chemicals, called **neurotransmitters**. Examples include **dopamine, serotonin, norepinephrine, glutamate,** and **γ-aminobutyric acid** (GABA). In the postnatal brain, these neurotransmitters signal neurons to perform work. The neurotransmitters are released from the terminals of axons in response to electrical signals, and they bind to special proteins called **receptors** on a neighboring neuron (Figure 3).

There is a high density of these **receptors** on the dendritic spines of neurons. Each neurotransmitter binds to its own receptor; serotonin binds to serotonin receptors; and glutamate binds to glutamate receptors. All of this activity takes place in the **synapse** or the connection between two neurons. The consequence is a change in the rate at which the receiving neuron conducts an electrical impulse. It is the rate at which neurons fire impulses within different brain regions that underlies every function in the brain, whether it is motor control, speech, learning, attention, or judgment.



However, in the developing brain, this sophisticated function of neurotransmitters is not yet needed. Instead, the neurotransmitters play a different role; they serve as growth factors, directing neurons to establish connections (i.e., synapses) with appropriate neighbors bearing the corresponding receptors that will be needed for future communication. The instructions provided by the neurotransmitters and their corresponding receptors during development are crucial to the formation of functional and efficient synapses that are needed after birth.

Once the major neuronal connections are formed, there is some "pruning" that must be performed. This pruning is called **apoptosis**, a genetically-programmed form of cell death. Apoptosis helps eliminate those neurons that don't grow very well during the first two trimesters—there aren't quite enough growth signals provided by neurotransmitters and other growth factors to reach every neuron. Thus, apoptosis ensures that any neurons that don't grow properly are eliminated so that neuronal transmission will occur normally . Apoptosis continues well into post-natal development.

All of these developmental events progress at different rates within different brain regions. Such variation in developmental rates may explain, in part, the differential effects of alcohol, depending on when it is consumed during pregnancy.

Effect of Alcohol on Brain Development

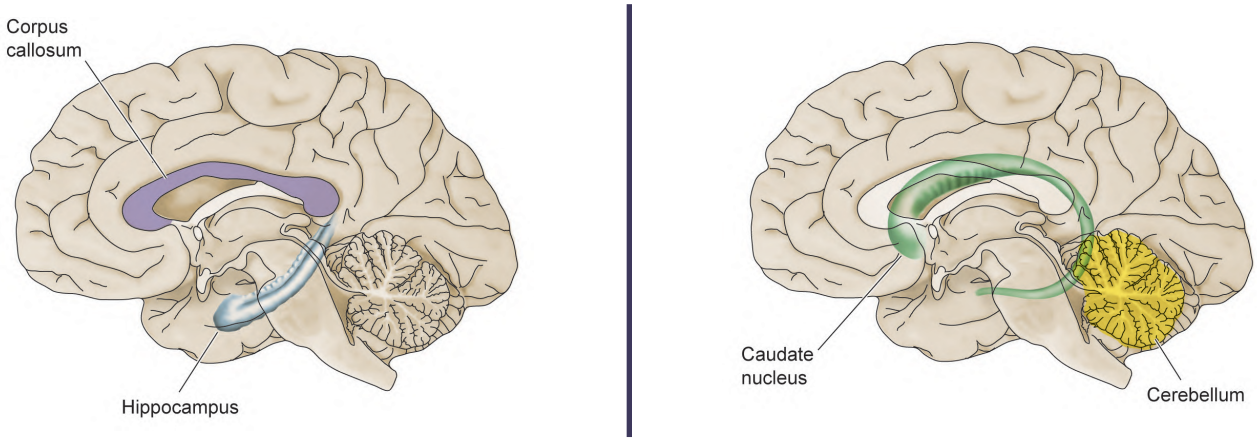
What does alcohol actually do to the brain, and how does this translate into behavioral and learning dysfunction? Scientists have made tremendous progress in understanding how alcohol damages the brain, and only recently have they begun to put together this complex puzzle.

Unlike many organs in the body, the brain is exquisitely sensitive to alcohol throughout pregnancy. The timing of fetal exposure to alcohol and the ongoing developmental processes within the fetal brain will dictate the appearance and severity of structural abnormalities within the brain, as well as future behavioral and neuropsychological dysfunction. Although the entire fetal brain is exposed to alcohol when the mother drinks, it is not affected globally. As discussed above, specific regions are affected differently, depending on the ongoing developmental processes in those regions.

Brain Imaging Reveals Structural Defects

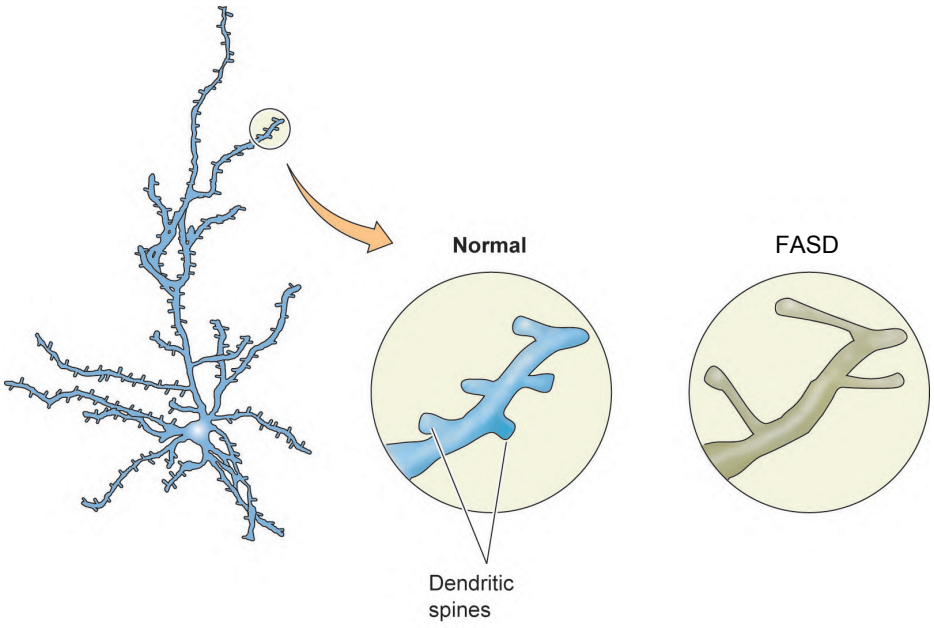
Sophisticated brain imaging technologies are now being used to identify the structural abnormalities present in the brains of living FASD children. **Magnetic resonance imaging** (MRI) has revealed an overall reduction in brain size, confirming previous autopsy findings. However, independent of the overall reduced brain size, MRI has revealed at least 4 major brain structures that are affected (i.e., reduction in size or abnormal shape) by prenatal alcohol exposure (Figure 4). These include: 1) the **corpus callosum**, a large bundle of nerve fibers that connects the two hemispheres together, enabling communication between the right and left brain; 2) the **caudate nucleus**, a structure that resides below the level of the cerebral cortex, which controls motor abilities and **cognitive function**; 3) the **hippocampus**, another subcortical structure, which controls the ability to store new memories and participates in spatial learning; and 4) the **cerebellum**, a structure that resides at the back of the brain, controlling motor skills, balance, and coordination. The importance of these brain regions in the neuropsychological and behavioral effects of prenatal alcohol exposure are discussed below.

Figure 4: Brain Structures Affected by Alcohol in Utero



Using animal models (usually rats and monkeys) that mimic the effects of alcohol on human fetal brain development, scientists can demonstrate exactly how alcohol disrupts the development of these brain structures. For example, alcohol reduces the number of neurons within the cerebellum by suppressing cell proliferation and increasing neuronal apoptosis (genetically-programmed cell death; see above). Thus, alcohol triggers neuronal death during the 3rd trimester of otherwise healthy neurons. Alcohol also disrupts **synaptogenesis** or the proper formation of synapses—the connections between neurons that allow them to communicate. Animal models help scientists understand how this happens. When animals are exposed to alcohol in utero, the density of spines on the dendrites is reduced in areas such as the hippocampus, cerebral cortex, and cerebellum; the remaining spines become elongated (Figure 5), as if they are reaching out for communication with an axon terminal. Although it is difficult to obtain this information from children (via autopsy), there is one study that reports a greater than 50% reduction in dendritic spine density (and elongation of the spine) in a 4-month-old boy with FASD, compared to a healthy baby. The effect of alcohol on spine density and shape disrupts synaptogenesis, ensuring that neurons will not function normally after birth. These events are particularly evident when binging takes place in the 3rd trimester .

Figure 5: Loss of Dendritic Spines After Exposure to Alcohol in Utero



In addition to imaging structural abnormalities, other forms of brain imaging can reveal functional abnormalities within specific brain areas. For example, scientists have shown that FASD children have a delay in a certain type of electrical activity within the **parietal cortex** that is associated with information-processing. In addition, imaging techniques, such as **positron**

emission tomography (PET), can be used to study the metabolic activity of the brain (i.e., how well it is actually working). In FASD children, there is a reduction in metabolic function within the caudate nucleus as demonstrated by PET imaging. When combined with structural information from MRI studies, these studies can provide a powerful picture of the damage to specific regions within the working brain.

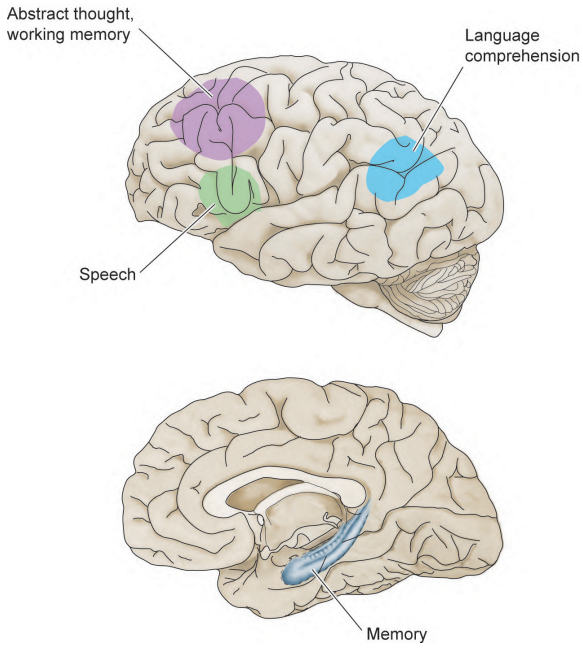
Brain Regions Important in Neuropsychological Effects of Prenatal Alcohol Exposure

In the past, scientists theorized that the neuropsychological effects in FASD children could be attributed to damage of specific brain structures. Now by using MRI to see the damage in living subjects, researchers are performing studies to link specific brain region structural damage with specific neuropsychological deficits in FASD children. A review of the areas most affected by prenatal alcohol exposure and the corresponding neuropsychological problems follows below.

Cerebral Cortex

The **cerebral cortex** (the outer part of the brain, see Figure 6) is responsible for several functions that involve higher levels of control and organization. Such functions include: sensory and motor control, cognition and abstract thought, working memory, speech and language, and visual and hearing perception. Executive functioning, which is dependent on working memory, is associated with the cortical areas in the frontal lobe (the "**prefrontal cortex**"). Much of the final circuitry within the cerebral cortex is established during the 3rd trimester, so any or all of these cortical functions can be disrupted if the fetus is exposed to alcohol during this time.

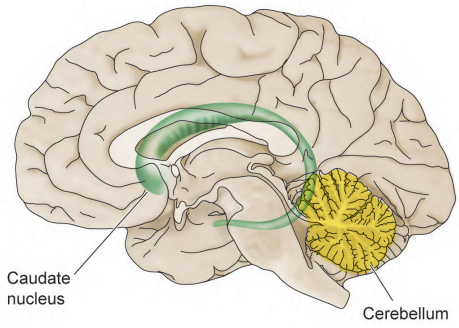
Figure 6: Cerebral Cortex



Cerebellum

The cerebellum is a structure that has not completed its development at birth; it continues to form its circuitry early in the postnatal period. If the fetus is exposed to alcohol as late as the 3rd trimester, there can be considerable effects on cerebellar function. In addition to the motor control and coordination provided by the cerebel-

lum, there are several other functions. It helps to provide cognitive processing, acquisition of language fluency, task sequencing, and time perception and estimation. Children with FASD are dysfunctional in each of these tasks.



Caudate Nucleus

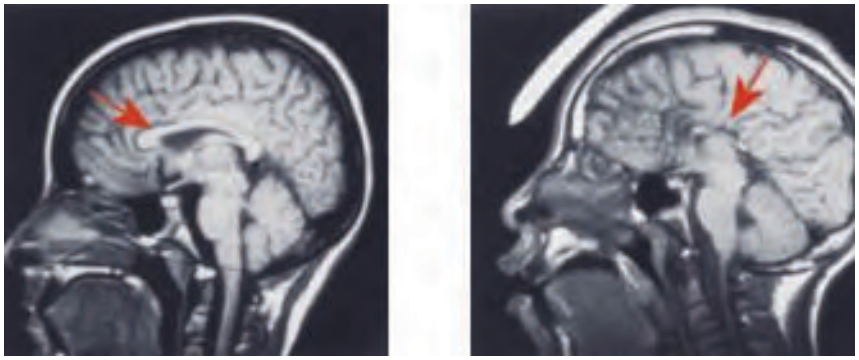
The caudate nucleus is part of the basal ganglia. It, too, plays an important role in motor function. However, the caudate is also important in cognitive function, motivation, and executive functioning, or the ability to plan and execute specific tasks. FASD children have particular trouble with executive function. The basal ganglia work together with the cerebellum in cognitive and attention tasks; damage to the caudate by in utero alcohol can be expected to result in attention deficit problems manifested in the classroom.

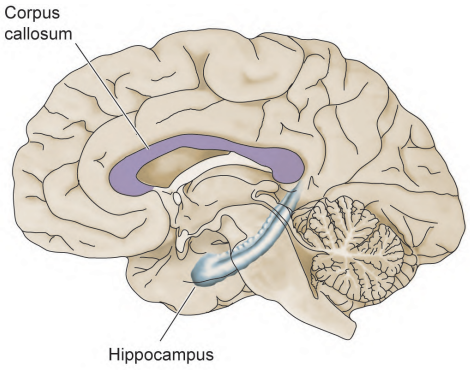
Corpus Callosum

One of the most consistent defects in brain structure in people with FASD is the reduction in size, altered shape, or complete absence of the corpus callosum. Examples of MRIs of a normal child and an FAS child with a missing corpus callosum are shown in Figure 7.

Figure 7: MRI Images of Normal and Abnormal Brain Structure

The MRI of a normal child (age 14) is shown on the left. A red arrow points to the corpus callosum. The image on the right is from a child with FAS (age 14); the red arrow points to the corpus callosum that failed to develop. MRI photos courtesy of Drs. Ed Riley and Sarah Mattson, San Diego State University





This major bundle of nerve fibers that connect the left and right brain is important in timing tasks, motor tasks, and coordination. Failure of the corpus callosum to develop properly leads to slow reaction times and anything from mild cognitive impairment to extensive mental retardation. In an MRI study of children and young adults with FASD, the damage to the corpus callosum was associated specifically with verbal learning ability. In another study of adults with FASD, different corpus callosum shapes were associated with deficits in **executive function** and motor function; it did not matter if there were facial dysmorphologies. Although the corpus callosum is formed around the 10th week of gestation, it undergoes a major growth spurt relatively late in pregnancy (at about month 6 or 7). Drinking during the 1st trimester can prevent its formation; drinking during the 2nd or 3rd trimester can affect its shape and ability to communicate with neurons in cortical areas.

Hippocampus

The major structure in the brain responsible for learning and memory is the hippocampus, although other structures such as the cerebral cortex are involved as well. The circuitry of the hippocampus is established rather late during pregnancy and exposure of the fetus to alcohol in the 3rd trimester (or before) can be expected to have significant effects on learning and memory.

Brain Regions Important in Behavioral Effects of Prenatal Alcohol Exposure

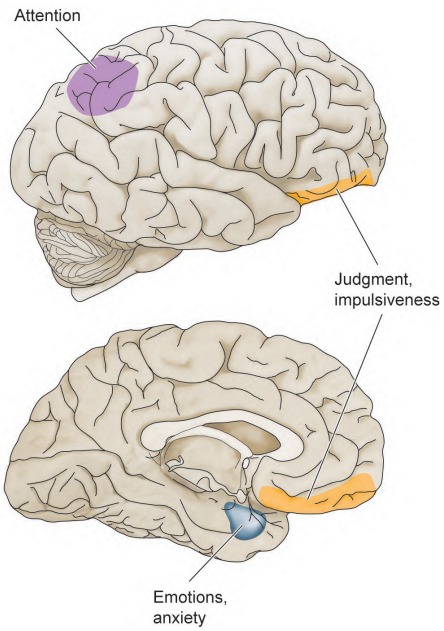
While there has been considerable progress in identifying areas of the brain damaged by fetal alcohol exposure that are associated with neuropsychological dysfunction, there is less data available to demonstrate similar associations with behavioral abnormalities. However, it is possible to match behavioral problems typical of FASD children with brain areas that control those behaviors. For example, attention is regulated by several brain areas, including the parietal cortex (Figure 8). Judgment is also a behavior that is regulated by a part of the cerebral cortex in the front of the brain called the **orbitofrontal cortex**. In fact, the poor judgment exhibited by someone drinking a few too many drinks is due to alcohol's effects in the orbitofrontal cortex. The orbitofrontal cortex is important in impulsiveness as well. The cerebral cortex communicates with structures beneath it, such as the amygdala, which is very important in mood, anxiety, and emotions.

The caudate nucleus, mentioned above, helps provide the motivation to carry out activities that involve movement.

Neurotransmitter Systems Important in Neuropsychological and Behavioral Effects of Prenatal Alcohol Exposure

Even in the presence of normal brain structure, faulty development of neurotransmitter systems can cause profound effects on neurological and mental health. As shown below, the neurotransmitter systems are developed during the 1st and 2nd trimesters. Alcohol exposure during the time that these neurotransmitter systems are developing can cause faulty function postnatally. Because it is difficult to "see" faulty neurotransmitter systems in the same way one can "see" damage to brain structures, its importance is often overlooked. However, newer techniques, such as PET (positron emission tomography), have enabled scientists to measure neurotransmitter receptor activity in living human brains. Disruption in neurotransmitter systems can be linked to specific neurological and mental dysfunction typical in FASD children. Several examples are provided below:

Figure 8: Cerebral Cortex

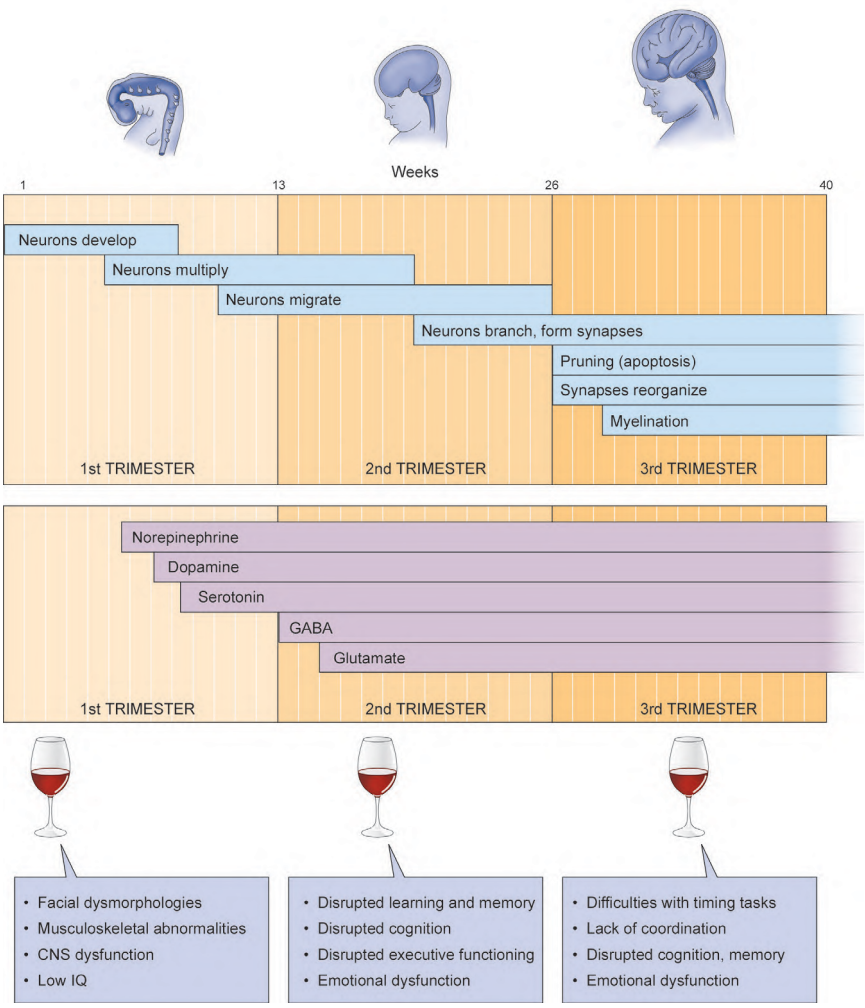


Disrupted Neurotransmitter System	Resulting FASD Problems
Glutamate →	Learning, working memory, cognitive processing
GABA →	Learning, working memory, anxiety
Dopamine →	Motor control, cognition, judgment, impulsivity, attention
Serotonin →	Moodiness, anxiety
Norepinephrine →	Moodiness, anxiety

Summary of the Relationship Between the Timing of Alcohol Exposure, the Development of the Brain, and the Phenotype of the FASD Child

Figure 9 summarizes how the exposure of the fetus to alcohol at specific times during brain development can have profound effects on neurological function and on behavior. The figure includes examples of the types of dysfunction that can be associated with drinking at specific times during pregnancy. For example, drinking early in the first trimester not only produces facial dysmporphologies, but it also produces central nervous system damage. Drinking in the 2nd and 3rd trimesters avoids facial dysmorphologies, but central nervous system damage can occur to the same extent as if alcohol were consumed earlier. **Thus, there is no "safe" period that alcohol can be consumed during pregnancy without risk to fetal brain development.**

Figure 9: Summary of Brain Exposure During Development Stages



The FASD Student and the Classroom

Classroom Settings

Due to the wide range of intellectual and behavioral abilities, the FASD student is placed in a variety of educational settings. Many students are not able to attend regular education classes and require special education classes due to the severity of their disabilities. Other students have minor learning disabilities and are able to cope in a regular education classroom with little assistance. When learning assistance is needed, it may come in the form of modifications and adaptations outlined by a student's IEP. Most FASD students in regular education classes need the help of a Resource Specialist, Speech and Language Specialist, or a Classroom Aide. Each student's unique educational profile will determine the setting which best reflects his or her needs.

Students do not outgrow the brain damage caused by prenatal alcohol exposure. However, the manifestations of FASD may change as the students get older. Educational placements may also need to change, reflecting the needs of the student. Many FASD students seem better able to manage elementary school than middle school. Middle school places greater demands on students. The FASD student has difficulty with the increased expectations, more abstract lessons, and the many transitions in middle school.

Specialists are a key to success for many FASD students in the regular and special education setting. Most often, the speech and language specialist and the occupational therapist are critical members of the student's educational team. Some students also benefit from the physical therapist's expertise. The school psychologist or counselor can also help navigate these students through elementary school. These specialists provide invaluable input for the classroom teacher.

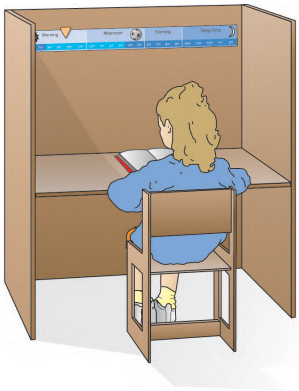
The policy of special education is to mainstream students when they demonstrate a certain level of proficiency. Mainstreaming is understood to be a positive educational step. However, research has indicated that mainstreaming needs to be approached differently with the FASD population. This student relies on consistency, routine, and structure. Mainstreaming necessarily entails transition and a less controlled, less restricted environment. Success for the FASD student may not include mainstreaming if current supports need to be kept in place.

Successful Classroom Environment

> I went for a walk with her. I was so shocked to discover this calm girl who could tell wonderful stories about the animals in the park. But at school, she was bouncing off the walls and not able to string words, let alone sentences, together. I really watched how she dealt with the different environments: school, home and community. Others had just tried to change her and her mom and hadn't looked at how we could shape her environments to help her develop.
> (Copeland and Rutland, 1996)

FASD students benefit from a classroom environment where attention has been given to a sense of calm, order, and organization. Auditory and visual distractions need to be minimized to maximize learning. The well-organized and highly structured classroom minimizes the impact of demands to process and interpret new information. This diminishes the confusion and frustration many FASD students experience and maximizes their ability to focus on the task at hand. This calm environment provides a sense of security. Since the FASD student cannot be changed, the environment needs to be modified to encourage positive educational outcomes.

A small classroom with few students is often the environment that works best for these students. However, it is unrealistic to expect that a small classroom setting is always available, and it is likely that there may be several FASD students who have not been identified. Instead, small work areas can be created in the classroom: carrels, worktables, or a special area with positive names, such as "The Office," or "The Work Station."



Traditional desks in rows give order and provide a defined space for students from which FASD students benefit. When students sit on the rug, delineate their space with masking tape. Learning centers and sitting at tables with other students can be distracting and require greater student management.

> They need a small classroom with hardly any kids in it and hardly anything on the walls. They don't need a whole bunch of pictures up...no stimulation except for what they're actually meant to be learning.
> (Copeland and Rutman, 1996)

Classroom Environment Strategies

Define and organize classroom space

- Strategically place the student's desk away from distractions
- Create a quiet corner or "office" work space with a carrel or a table
- Use photos, pictures, or words to label storage shelves and define where items belong

Keep the classroom tidy and neat

- Use cabinets and storage boxes to put away the teacher's supplies and classroom materials
- Cover bookshelves with cloth when not being used
- Use in/out baskets for class work and homework

Keep visual distractions to a minimum

- Eliminate hanging mobiles from the ceiling
- Decorate bulletin boards in quiet colors
- Remove colorful displays near student work areas
- Use "calm" colors (e.g., light blue, pale yellow , cream) for the classroom

A quiet, calm environment is desired

- Keep the lighting subtle and the noise level low
- Provide soft music when beneficial
- Have headphones available for quiet time

Effective Teaching Strategies

It has been acknowledged that FASD students have a variety of learning and behavioral issues. Effective teaching strategies begin with the recognition and understanding that these students have sustained neurological damage due to prenatal exposure to alcohol. The educational environment must be modified in response to the student's unique needs. Five essential teaching methods and strategies for the FASD student have been established and recognized; they are: a structured environment, consistent routine, brief presentations, variety, and repetition. In addition, effective classroom teachers utilize: creativity, flexibility, humor, compassion, and patience. Lastly, the importance of teachers working as a team with parents is emphasized.

Provide a Structured Environment

A structured environment is critical for the FASD student. These students need reliable order Providing structure helps them with their internal confusion. When students can rely on consistent external structure, they do not need to exert ener gy interpreting their environment.

Structure the Environment

Plan and organize each lesson

Teach a few simple rules

- Make them concrete rules, such as “don't hit”
- Write them down
- Use picture cues
- Review rules
- Practice rules
- Use the same language when teaching and enforcing rules
- Enforce the rules in a consistent manner
- Give consequences immediately when a rule is broken

Simplify student notebooks & belongings

- Use one notebook for all subjects
- Color code dividers for each subject
- Have student keep a 2nd set of books at home
- Require a school backpack for supplies, lunch, gloves, hat, etc.

Keep communication open between home and school

- Include a daily homework sheet in the student's notebook that requires a parent/guardian signature

Use a Consistent Routine

Routine should be emphasized for the FASD student. A highly consistent routine allows students to understand and predict their day. FASD students have difficulty with cause-and-effect, generalizing, and information processing. Often, these students worry about what is happening next, and they are concerned that they won't know what to do. The familiar

routine alleviates these concerns and assists the students in predicting outcomes. The consistent routine also enhances positive behavior. In this safe environment, students are better able to focus on learning. Change is known to be difficult and frustrating for these students, and it should be avoided when possible or prepared for when necessary .

Keep Consistent Class Routines

Assign seats

- Keep these constant throughout the year

Post and review the daily schedule

- Keep the schedule predictable and consistent
- Activities should occur the same time each day
- Provide students with a linear clock (see Chapter 5), highlighting activities and times
- Discuss the schedule each morning—involve students in a positive discussion of what will be happening and when it will occur
- Review the schedule at the end of each day , discuss what they did that day

Provide routines throughout the day

- Before school begins
- Beginning of the day
- Recess
- Choice times
- Lunch time
- End of the day

Assist Students with Transitions

Prepare students ahead of time for transitions/changes from the schedule

- Post any major changes on the daily schedule
- Use a calm, quiet voice
- Recognize the following types of transitions or changes in routine can cause difficulty
    - New student joins classroom
    - Substitute teacher
    - School vacation or holiday
    - Mondays and Fridays
    - New classroom

  - Switching subjects
  - Switching classes
  - Learning a new skill
- Provide a signal to let students know a transition is coming
  - Tap their shoulder
  - Ring a bell
  - Use a xylophone
  - Turn the light switch on and off

- Tell them a transition is coming

  ("The lunch bell is going to ring soon. You need to put away your books now.")
- Supervise transitions so they will go smoothly

Keep Presentations Brief

Brief presentations using simple language help the student stay focused and process information that is presented. When too much verbal information is presented, a student can become overwhelmed and inattentive.

Make Presentations Simple and Brief

Keep language simple

- Be explicit and brief
- Keep concepts concrete
- Use vocabulary familiar to students
- Accompany language with gestures, using hands, arms, and facial expressions
- Point to illustrations or posters in the classroom for visual cues

Multi-step directions are confusing due to sequencing, processing and memory difficulties

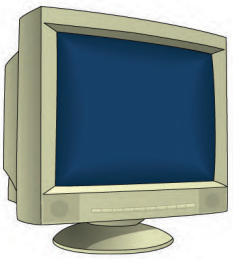
- Break information into small pieces or chunks
- Give steps one at a time
- Use pictures or visuals to represent steps

Use Variety

"Do not tell me what I cannot do. Help me find a way to do it." J. Lutke quoting her daughter (Streissguth, 1997)

Variety is the optimal teaching technique. Many teachers often rely on providing most information verbally. However, the FASD student has weak auditory skills. A visual style of teaching should be the base of learning new material.

- Pair oral information with visual information
- Provide visual images, photographs, and pictures cues to reinforce learning
- Write directions on the board or overhead
- Use videos
- Use computers



Use Multi-sensory Learning

Multi-sensory learning creates multiple neurological pathways to learn. This whole brain approach maximizes understanding, learning, and memory. Multi-sensory learning eliminates the possibility of information solely being presented in the student's weakest sensory modality and, instead, ensures addressing a student's learning strengths.

Involve as many senses as possible when learning: visual, auditory , kinesthetic, tactile

- Sing songs and use music; words are often repeated
- Use dance and movement
- Use rhymes and rhythm games
- Use art
- Use drama; act out topics being discussed
- Use hand signs, employ body cues—use exaggeration
- Use puppets

Use Activity-based Learning

- Learn by doing—hands-on projects
- Work in groups where everyone contributes

Relate Learning to Student's Life Experiences

Use Technology Tools

Technology offers several tools to help students learn, such as the tape recorder, computer, calculator, and videos. These tools tap into different modalities to reinforce learning. They also offer other benefits, such as increasing attention, motivation, and allowing students to work at their own pace.

Use Repetition

Repetition is a key to teaching the FASD student. A learning curve does occur through repetition. These students learn slowly, but they can learn. Many students can master a task one day, forgetting the task the next day, and a few days later, remember the task again. Repetition cannot be overemphasized as an educational tool.

Kevin, a third grade boy with FAS[D], completed his multiplication facts with 100 percent accuracy on Monday and received lots of praise from the teacher and his peers. Two days later, on a new but similar assignment, Kevin missed almost half of the facts. His teacher, familiar with the learning differences of students with FAS, knew that spotty or intermittent learning and retrieval is normal. She was able to reassure Kevin he was okay and began the process of re-teaching. Kevin likes his teacher, feels safe in such a stress-free environment, and continues to look forward to coming to school.
D. Evenson (Conry, 1996)

Repetition Is the Key

- Reteach and reinforce learned concepts
- Practice, practice, practice
- Analyze steps of task and break them into small components
- Use a step-by-step approach
- Teach steps in the same sequence

Use Creativity, Flexibility, and Humor

In grade 2, my favorite teacher, Mrs. Whitely, gave me a reward for working so hard;
a diligence award. I kept it. I still have it.
(Copeland and Rutman, 1996)

Creativity, flexibility, and humor combine to make a warm, happy learning environment. The classroom must be structured and still allow for flexibility . The routine can be consistent without being rigid or controlling. Learning can be fun and effective.

Approach learning from a variety of ways

- Use creative approaches when the student has difficulty understanding a concept
- Be flexible when the student is overwhelmed
- Use humor to diffuse difficult situations and nurture student's self-esteem

Have Compassion and Patience

Compassion and patience are needed to encourage the FASD student. Teachers must remember that these students want to comply, yet their many disabilities interfere.

I'll never forget Mrs. Spencer.
She let me go at my own pace and said not to worry about keeping up with the class.
(Copeland and Rutman, 1996)

Set them up for success

- Create successful experiences for the students
- Praise achievements large and small
- Celebrate improvement
- Give honest praise
- Give frequent encouragement

Work as a Team

The classroom strategies discussed in this manual will help the FASD student reach his/her educational potential. Teachers work with many educational specialists to get the support they need in order to best work with the student.

Communication between home and school is an essential factor when trying to help the student reach his optimal potential.

When teachers get to know the family of the FASD student, they are better able to help the student. Teachers must let parents know that they are allies, working together. In order for parents to feel that they are allies, they must not feel that the teacher is judgmental or blames them for poor parenting skills. The FASD student can cause chaos and disruption in the home and family. The team approach will encourage more consistency and structure when home and school are working together.

Parents and teachers need to exchange information about how the child is doing. The flow of communication between home and school creates a stronger home and school environment for the child. A teacher's classroom management skills will be strengthened by knowing when there are upcoming changes, difficulties, or successes. Parents will benefit from feeling that they are part of a team with the teacher. Parents of these children are often overwhelmed and quite vulnerable. Some of these mothers may themselves have FASD. When a parent feels supported by the teacher, they are able to support their child as well.

The FASD Student and Learning Issues

Overview of Intellectual and Cognitive Abilities of the FASD Student

While certain behavioral and educational characteristics have been identified with FASD, it is important to note that this is a varied population. FASD students cross all socioeconomic backgrounds. Students with FASD are affected differently, and they must be treated individually. Each FASD student is unique, presenting strengths and weaknesses.

The intellectual abilities of students with FASD differ tremendously. While FASD is the leading cause of mental retardation, IQ scores fall within the range of 20 to 120, with the mean falling within the borderline of mental retardation. ARND has a higher range and its mean is in the low-average range. Many students with FASD have intellectual abilities in the normal range. However, FASD students with IQ scores in the average range can still have serious organic brain damage and express characteristic behavioral and learning difficulties associated with this disability.

As discussed in Chapter 4, FASD students are placed in a variety of educational settings, depending upon their individual needs. There are success stories of young FASD students who thrive in school. These students are able to learn; however, they learn differently. With the support of educational modifications and/or accommodations, some students have graduated high school; otherse have even gone on to college. Adults with FASD can be found in a variety of occupations, such as teachers, artists, counselors, administrators, musicians, and computer programmers.

I would like teachers to know that we learn differently than others. Simple tasks like taking notes are very difficult. Teachers need to explain things in simple words.
(Lasser, 1999)

As educators become increasingly familiar with FASD, more students will be identified. In the past, these students were not identified and misdiagnosed. Some of them were diagnosed late. For FASD, behavior and learning issues can be puzzling and frustrating for the educator, the student, and the parents.

In addition to the varied intellectual range exhibited by these students, there are learning difficulties common to FASD students.

These are listed here and discussed in detail below:

- Difficulty with information-processing and memory
- Attention difficulties
- Difficulty with abstract thought and conceptual thinking
- Math difficulties—especially computational math
- Reading and writing difficulties—especially reading comprehension and organization of writing
- Problems with executive function

Difficulty with Information-processing and Memory

Information-processing deficits can occur in four domains: when information is recorded, interpreted, stored (memory), or retrieved.

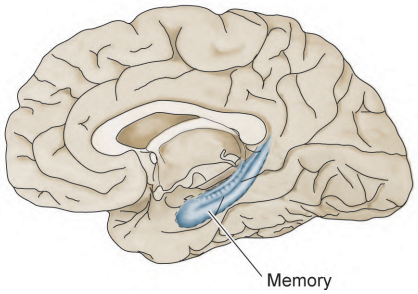
Many students who have learning disabilities have information-processing deficits in one or two domains. The FASD student has processing deficits in all four domains. These deficits have significant impact on the student's ability to learn academics and behaviors. When information is processed, the connections needed for appropriate actions or behaviors do not take place.

A malfunctioning word processor offers an analogy to understand how these deficits affect a child's ability. Although full sentences are typed into it, only pieces of the sentences can be retrieved. Some information has not been saved or has unwittingly been stored in an inaccessible place. Special cues may bring it back, or perhaps only pieces of sentences are available; it is very difficult to understand the full meaning of the typed text.
(Kleinfeld and Wescott, 1993)

The FASD student may appear to comprehend information that is presented to them. FASD students are very social and chatty, and their expressive language is much stronger than their receptive language. However, just because they are capable of repeating information back, does not mean that they understand. These students describe themselves as "lost" in class when trying to process information as the teacher presents it. They need more time to process information; typically, they learn at a slower pace.

Listening to teachers make speeches. I can't handle that. I...just sat there looking at the book. So I can read it okay, but I can't listen to it properly. It's like "What?" And then I totally, I had to ask somebody, and then by the time I am asking somebody the question or the answer, then I've already lost the next part too.
(Copeland and Rutman, 1996)

Memory difficulties are common with FASD students. While these students do have memory skills that allow them to learn, they are often unable to retrieve specific information when needed. Many students with learning difficulties have similar memory deficits; skills learned one day are forgotten the next, only to be recalled at some future time. Lost information is very frustrating for the student. Educational performance is inconsistent and unpredictable.



Marilyn is very inconsistent in her classroom performance. She reminds me of a piece of Swiss cheese. The information slides down one hole in her brain, only to slip out of another hole. She often does the work we have gone over that morning, but in the afternoon, or the next day, she remembers very little. Then two days later, she can do the work again, with no new instruction. She repeats this cycle over and over.
(Kleinfeld and Wescott, 1993)

* * *

... I have to write down everything in small steps or else I will forget how to do it. I used to get in trouble for cheating at school, but I wasn't cheating—I just needed to look at my book to see how I did it before. I just couldn't memorize things the way the others did.
(Copeland and Rutman, 1996)

Problems with memory and information-processing deficits are further compounded by attention difficulties. Due to this haphazard memory capability, many FASD students approach each day as brand new without continuity from the previous day. These students have many gaps in their learning due to information-processing and memory deficits.

Information-processing and memory deficits of FASD students:

- Difficulty translating information (hearing, reading, speaking) into appropriate behavior
- Difficulty learning from past experiences
- Difficulty generalizing
- Difficulty perceiving similarities and differences
- Difficulty with sequencing
- Selective/spotty memory
- Stored information is disorganized and hard to retrieve
- Difficulty following rules

Many FASD students demonstrate difficulty generalizing and making associations from one activity to the next.

A mother says, "Don't ride your bike in the street," and points to the street in front of the house. The child says, "O.K., Mom" and then rides his bike in another street. The child is unable to generalize that the second street is different, and therefore, requires a new rule.
(Malbin, 1993)

They have difficulty recognizing cause-and-effect relationships:

- Difficulty considering the effect of an action before initiating it
- Difficulty changing behavior because of consequences
- Behavior modification is ineffective

The information-processing and memory deficits lead to the following behaviors:

- Familiarity with strangers
- Frustration
- Lying/confabulation

Effective Strategies for Information-processing & Memory Difficulties

> If somebody explains it clearly...like very outlined and like one step at a time...without skipping steps, making sure I understand each step, then I can put it all together in my mind.
> (Copeland and Rutman, 1996)

Most of the learning that takes place in school is memory-based. FASD students have reported they are fearful of their memory "blanks" and frustrated that they cannot rely on their memories. Step-by-step learning, repetition, and using memory aids/strategies have been successful cessful in facilitating learning with these students.

General Strategies to Assist with Information-processing and Memory Deficits

Noncompliant behavior may be interpreted as defiant and willful misconduct when, in fact, it may be a response to difficulty understanding and processing information. There are three general issues to keep in mind:

These students learn at a slower pace.

- Allow extra classroom time to process information
- Allow extra time for tests
- Teach students how to "self-talk"
    - Helps them problem solve
    - Helps them remember routines

Perseveration (repeating words/actions) signifies student overload

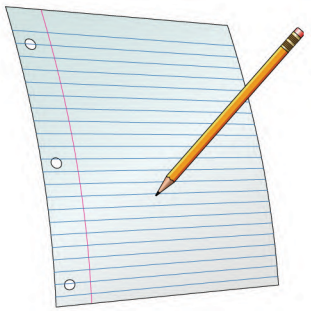
- Decrease information
- Decrease stimulation

Difficulty generalizing

- Identify when and how to generalize a learned skill given a new situation

> One student regularly had difficulty in the cafeteria. He was suspended numerous occasions for breaking the cafeteria rules. When he was asked to tell someone the rules, he could state them. When he was asked to demonstrate he understood them, he became teary-eyed. He did not know where to sit or what to do with his tray.
>
> The counselor helped him role-play different cafeteria scenarios and showed him where to sit and where to get his tray. Then, she took photos of him doing things the correct way in the cafeteria so he would have them as a reference.
> (Kleinfeld, Morse, and Wescott, 2000)

Use a Step-by-step Approach and Repetition of Skills



Use task analysis and break skills into small components

- Step-by-step approach
- Teach steps in the same sequence
- Practice skills
- Re-teach skills
- Overlearn skills
- Reinforce concepts
    - Revisit skills throughout the year
    - Practice, practice, practice!

Temporal concepts are difficult for most FASD students; this is reflected in the confusion that surrounds sequencing of events. FASD students benefit from making the abstract process of sequencing as concrete and visual as possible.

Practice Sequencing Strategies

- Create linear timelines
- Create linear calendars
- Create a photo story; use photographs showing each step
- Use songs with actions
- Practice taking turns; use a "talking stick" that is passed around a circle when it's the speaker's turn to speak

Be aware that sequences of information, such as the alphabet, zip codes, phone numbers, and combination locks may be a problem. They should be written down.

Teach Memory Strategies

Most FASD students have a strong long-term memory. Short-term memory is weaker.

- Make a list
- Use a calendar
- Create a daily schedule including class subjects and times
- Use highlighters
- Use mnemonic devices

Use Memory Aids

- Allow the students to use open books or notes on tests
- Provide examples of finished projects

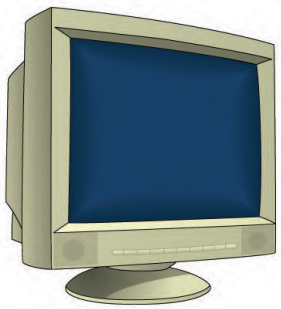
Use a Multi-sensory Approach

Use a multi-sensory approach to teaching skills. Creating multiple pathways to learning is the most effective way for FASD students to learn. Learning occurs more easily when words are linked to an action, paired with music or a rhythm. This can help students anchor information input and trigger or cue information retrieval.

- Pair oral information with visual cues
- Teach concepts through art, music, and drama
- Involve as many senses as possible
- Use an activity-based curriculum—learning by doing provides a stronger base to remember
- Relate learning to student's life experiences

For details using visual information, a multi-sensory approach, and an activity-based learning refer to Chapter 4 - Variety.

Use Technology Tools



- Tape recordings allow a student to listen to information many times (i.e., books on tape)
- Videos provide visual and auditory input
- Computers enable visual and auditory interaction

Keep Language Simple

Traditional verbal classroom presentations are challenging to FASD students. Keeping language simple and brief is helpful. For details on using brief and simple language, please refer to Chapter 4.

- Provide instructions one-at-a-time
- Have student demonstrate that he/she understands the directions (repeating the information back does not necessarily demonstrate understanding)
- Keep concepts concrete and provide examples
- Use vocabulary familiar to students

Simplify and Supervise Student Notebooks, Belongings, and Homework

- Use one notebook for all subjects
- Use a homework sheet or notebook that goes home daily and requires a parent signature
- Report assignments on line
- Each morning require that homework be placed in the classroom homework bin
- Designate a homework buddy or peer to help with homework assignments

---

The school has a system that compensates for issues such as a short-term memory. They have a book that the children bring home each day; parents are to sign on a daily basis. It lists the activities of the day, any homework to be done, what the behavior (acceptable as well as difficult) was like, and any other pertinent information that the parent should have.
(Copeland and Rutman, 1996)

Additional suggestions for ways to simplify students' notebooks and belongings are found in Chapter 4.

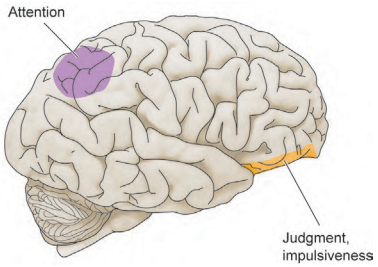
Attention Difficulties

Many students with FASD have attention difficulties. They become distracted easily and lose their focus. They have difficulty concentrating. They may seem to be listening, yet often they do not know what is being discussed, or what the assignment is. Many students can also be be hyperactive and restless; they may wander about the classroom.

... I just couldn't sit in my desk and concentrate—for me, being in a classroom was like being at Playland Park or what Disneyland must be like—too much to deal with or to be able to focus.
(Copeland and Rutman, 1996)

The following characteristics describe FASD students who have attention problems. These students are:

- Slow to settle down
- In constant motion
- Unable to wait their turn
- Easily distractible
- Difficulty filtering out external distractions
- Unable to focus on their work
- Unable to remain on task
- Unable to sit still



- Constantly fidgeting
- Poor listeners
- Impulsive
- Hypersensitive or hyposensitive to stimuli
- Constantly disturbing others

FASD students may feel overstimulated or overwhelmed. The following are typical behaviors that often emerge: averted gaze, "shutting down," withdrawing, or having a temper tantrum.

ADD/ADHD vs FASD

Many educators are familiar with Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD). Because FASD students have attentional problems, they are often confused with the ADD/ADHD student. Indeed, the FASD student and the ADD/ADHD student both exhibit attention difficulties and they can share a host of other behavioral and learning difficulties.

FASD and ADD/ADHD are two separate and distinct disorders. While they share some of the same behavioral and learning issues, these students do present with different profiles. However, some FASD students have been diagnosed with ADD/ADHD as a co-occurring illness.

As the profile of the FASD student is better understood, the distinction between the two disorders becomes more apparent. Some of these differences are listed below:

FASD Student	ADD/ADHD Student
Low-to-average intelligence	Typically quite bright
Weak math skills	Math skills can be strong
Weak reading comprehension vs decoding	Weak reading decoding vs comprehension
Testing for attention may be normal	Testing for attention shows deficits
Reading recognition good (early grades)	

Many of the strategies discussed in this FASD manual will also help the ADD/ADHD student. However, it is important that each student receives the correct diagnosis, determined by a medical expert in the field. This will help the student receive the proper educational assistance and decrease the chances of misinterpreting their behaviors and learning dif ficulties. Students who are identified accurately have a greater chance of succeeding in school, home, and in their communities.

Educational Strategies for Attention Difficulties

The classroom may be overstimulating; visual and auditory distractions need to be minimized. See Chapter 4 (Classroom Settings) for detailed information on minimizing distractions.

Reduce Visual Distractions

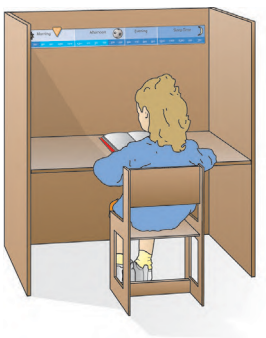
Visually, the classroom should allow a student to concentrate on the task at hand. Many classrooms have too much visual information.

- Strategically place the student's seat away from distractions, such as doorways and windows
- Clear the student's desk of everything, except the lesson at hand
- Put away (or out of view) teacher's equipment and books competing for a student's attention

Reduce Auditory Distractions

Auditory attention issues require the teacher to focus on reducing competing auditory distractions.

- Seat student closest to where you present information
- Seat student next to "good role model" students—those who do not distract others
- Provide nonverbal cues that are familiar to the student to keep students focused and working quietly:
    - Tap shoulder lightly (if student isn't hypersensitive to touch)
    - Give eye contact
- Use hand signals
- Move close to student
- Smile



Create quiet spots in your classroom

- Use carrels
- Refer to a quiet area as "The Office"
- Use extra tables or bean bag chairs, but not as punishment
- Encourage and praise students for choosing to work in a quiet spot

Engage Student Attention

> When giving instruction, all you have to say is the child's name, and then give the instruction to the whole class. Everybody will hear it, but if you don't say his name it's not for him. (Copeland and Rutman, 1996)

- Address the student by name when giving instructions
- Give a lesson outline to help anchor student attention
    - Helps with organization
    - Helps with listening comprehension
- When possible, teach to students' interests
- Use random participation

Make Good Listening Skills a Habit

Teach students good listening skills

For example, say: "Pencils in your desks. Eyes looking at me. Hands on your lap."

- Demonstrate
- Practice
- Reinforce

Plan Active Times

Alternate activities that require quiet desk time with lessons that allow for movement and activity. Students who are restless may benefit from having a class job that requires activity or being sent on a class errand. (Some students will find that some physical activity is too overstimulating). Do not keep students inside during recess.

Use Movement and Music to Help Student Focus

A quiet background of music can be calming.

- Teach concepts using music and rhythm
- Engage in choral reading
- Sing songs about a learned concept
- Use rhythmic activities
- Pair learning with an active motion

- Use a squeeze ball if there is a need for physical stimulation. A squeeze ball at the desk can help a student channel energy without disrupting others or losing focus.
- Use a sensory-inflatable seat cushion for students who need movement and tactile input without leaving their seats.

Monitor Students

- Monitor students when they begin their assignment
- Check back frequently to help student refocus
- Teach students "self-talk" to help them stay focused
- Have students monitor their ability to "stay on task"
- Provide close supervision and monitoring
- Be positive

Additional Attention Strategies

- Have students work 1:1 or in small groups
- Use electronic tools, such as computers, tape recorders, and videos
- Medication may need to be explored with parents and a physician

Difficulty with Abstract and Conceptual Thinking

Tell me, I forget
Show me, I remember
Involve me, I understand
Chinese Proverb

Abstract reasoning and conceptual thinking are often problem areas for the FASD student. These thinking skills require the ability to understand relationships and ideas that are in our mind. Abstractions and concepts change or vary given the situation. These skills work together to provide guidelines and an understanding to our world. The following characteristics describe FASD students who have difficulty with abstract and conceptual thinking:

- Does not understand consequences
- Does not generalize learning to new situations
- Does not understand cause-and-effect
- Has difficulty understanding similarities and differences between events
- Has difficulty with concepts, such as money and time
- Has difficulty interpreting verbal information
- Does not complete homework

- Has difficulty with social skills
- Tries hard but fails
- Is disappointed and frustrated
- Has poor self-esteem
- Is stubborn

Educational Strategies for Difficulty with Abstract and Conceptual Thinking

Educators should view students as being unable to understand instead of unwilling to understand. FASD students are typically motivated to do well and want to please the teacher. Please review the educational strategies discussed previously in this chapter for information-processing and memory. Many of the same strategies are relevant and are presented in greater depth.

Goal planning, modifications, and accommodations:

- Involve students in realistic goal planning
- Modify homework assignments as needed
- Make necessary accommodations for testing
- Make goals attainable and oriented for success

Even though these students may be quite verbal, their receptive language is compromised. They may appear to comprehend what is presented to them verbally when in actuality, they are confused.

Communication Strategies:

- Keep language simple
- Keep concepts concrete
- Use the same language to explain concepts
- Speak slowly and pause to give time for understanding
- Repeat directions and information
- Rephrase what they've said to you to check for understanding
- Avoid idiomatic expressions such as: "Knock it off"
- Avoid telling them what you don't want: "Don't wander around the classroom."
- Tell them what behavior you do want: "Please stay in your seat."
- Make eye contact when speaking
- State the child's name when speaking to them
- When possible, avoid group directions
- Pair verbal information with visual cues whenever possible

Commonly Used Idioms and Abstractions to Avoid:

- Behave yourself
- You know the consequences
- Play safe
- Think ahead
- Be responsible
- This is your warning
- Knock it off
- Settle down
- Watch your step
- Quit horsing around
- Skip question ...
- Use your head

Classroom strategies discussed in Chapter 4 provide the external structure students need to focus and concentrate on new information.

- A consistent, highly structured classroom provides predictability
- Make routines habits; routines are internalized
- Consequences need to be taught through association, structure, consistency , and repetition

Abstract Issues and Concepts Must be Made Concrete Whenever Possible (Refer to Chapter 4 - Variety)

- Relate learning to student's life experiences
- Multi-sensory learning is essential
- Activity-based learning is most effective
- Visual teaching methods should be emphasized
- Use step-by-step instruction

Example of Activity-based and Multi-sensory Learning by an FASD Student in a 5th Grade Class Learning about Explorers

The class:

- Reads excerpts from explorers' diaries
- Reads information from the text book
- Listens to tapes of explorers telling their tales
- Makes class maps of explorer routes using different color yarn for each explorer
- Watches a video of different explorers and their stories
- Learns a song with hand motions about different explorers

The small group:

- Writes short skits about different explorers
- Acts out the skits and performs for other groups

Each individual student:

- Chooses an explorer and comes to school in character in costume and with a prop
- Is interviewed by the teacher regarding their explorations and their contributions

Difficulties with Mathematics

Most FASD students have significant learning problems in mathematics; it is typically the most challenging academic subject. Mathematics relies on several areas that are weak for many FASD students: problem solving, abstract thinking, memory, sequencing, and generalizing. The abstract concepts of time and money are particularly problematic. In addition, basic problem solving and computation skills can be difficult. Mathematical life skills should be the goal for the student who has demonstrated difficulty learning math. The FASD student may have the following difficulties with mathematics:

- No real understanding of what a number is and what it represents
- Difficulty with basic math skills (relies on calculator or fingers)
- Confusion with math symbols
- Unable to remember where to begin working on a problem (left-right, right-left)
- Difficulty understanding math vocabulary
- Confusion when many math terms are used for the same concept (addition, total, sum, all together, in all)

- Overwhelmed by too much on a page
- Confusion when to use a math operation or concept
- Inability to read, understand, or solve word problems
- Inability to determine which strategies to use for word problems
- Difficulty with number sequencing
- Unable to quickly locate a page in a textbook

Educational Strategies for Difficulties with Mathematics

Number Concepts

Students may have difficulty with number concepts. Although a student may be able to count, the numerical concepts may not be understood. An important goal for the FASD student is to develop number concepts, including the concept of greater than or lesser than.

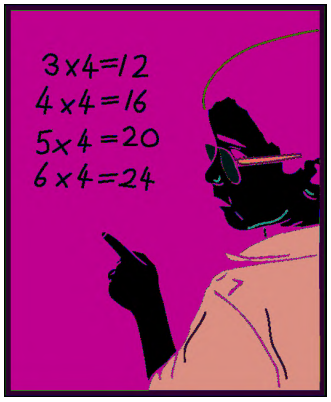
- Create a physical representation and pair this with verbal information
- Use concrete materials when possible; making the connection between the manipulative and the number symbol
- Use manipulatives: Unifix Cubes, Cuisenaire Rods, Base 10, and blocks
- Use art projects to create numbers that students can see and feel—decorate with glitter, noodles, yarn, etc.
- Use a number line, fingers, or anything that works

Basic Math Facts

Teaching practical math is the goal. Simple addition, subtraction, multiplication, division facts, and basic fractions skills should be taught within the context of life skills. Due to memory weakness, memorization of the multiplication table may be problematic. Division may also prove to be difficult. Some students are quick in mental arithmetic, others benefit from a calculator. Many students resort to counting on their fingers or making tally marks on paper. Math vocabulary can be confusing.

- Use concrete objects/manipulatives to introduce basic math facts.
- Relate math facts to student's life experiences.
- Use a multi-sensory approach; this gives meaning to the rule and helps with remembering the rule
    - Sing math facts
    - Chant math facts
    - Draw pictures of math facts
- Use a multi-sensory program such as "Making Math Real"

- Say a fact aloud, write the fact, read the fact
- Use a tape recorder and headsets
- Use computer programs to practice math facts
- Use a number line
- Use a calculator



- Learn by doing
  - Create a student store, post office or bank; practice basic computation
  - Use cooking; practice fractions and measuring

Successful Math Interventions

- Make the math page user-friendly
- Reduce the number of math problems on a page
- Keep a simple layout; this reduces frustration, as well as visual distraction
- Put the same types of problems on one page (only addition)
- As the student becomes proficient, gradually add new problems to the page
- Practice math facts
  - Daily for short periods of time; this may lead to automaticity
  - Practice and more practice—overlearn
- Teach math at a slow pace
- Allow extended time on quizzes or assignments
- Use consistent math vocabulary

Computational Skills

Computations require a sequential process; sequencing is a difficult skill for many FASD students. Use the above-mentioned strategies. Further strategies are required for computation skills such as: regrouping in addition and subtraction, double-digit multiplication, and long division.

Processing Cards and Checklists

- Assist with sequencing steps
- Create checklists for sequencing
- Create “process” cards to break down the computation in a step-by-step format
- Allow checklists or process cards to be used during testing

Example: (Laminate the cards; attach the cards sequentially to a ring)

Card 1	Card 2	Card 3	Card 4	Card 5
34	34	34	34	34
x12	x12	x12	x12	x12
8	68	68	68	68
		4	340	+340
				408

Use Discovery Learning with Guided Learning

- Use concrete objects, multi-sensory method, group work
- Provide cues and guide student to the conclusion/answer

Problem Solving

Problem solving requires making the abstract concrete.

- Include the student's name in the word problem
- Visualize the problem; draw a picture
- Highlight key words in the problem

Spatial Directionality and Organization

Confusion regarding left/right may make it difficult to know where to start.

- Use a highlighter to help the student know where to begin
- Teach visual and verbal cues to remember where to start

Use graph paper to help with spatial or ganization

- Use for column addition, double-digit multiplication, subtraction with regrouping, and long division

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I was a whiz at fractions, long division, for about as long as I was doing the examples, till she wrote out a couple for me to do on a paper or another board. Big rosey blank! Then as she started to explain, she would get maybe five words out, then bang, I could do it.
(Copeland and Rutman, 1996)

* * *

One student said, "If I can't do it today, I'll get it tomorrow and, if I can't get it then, there's always the calculator."
(Kleinfeld, Morse, and Wescott, 2000)

Memory Aids

Weak information-processing and memory skills may interfere with consistent ability to retrieve information.

- Allow student to use calculator if needed
- Allow students to use the multiplication table if needed
- Provide examples of problems

Temporal Concepts and Time Management

Time is an abstract concept, and many FASD students find the concept of time meaningless or confusing. Abstract concepts of time, such as "morning", "yesterday", "before", "in a while", "later", telling time, and being aware of the passage of time, are difficult ideas for these students to grasp. We experience the passage of time because we have an internal clock. We are able to distinguish between fifteen minutes and two hours. The FASD student's world is driven by internal or external stimulation, rather than by an internal clock or the concept of time. These students are "in the moment" and flit from one activity to the next. They experience a disorientation in time and can experience feeling "lost" in the day. For example, a student may not know if it is before or after recess.

The language of time is confusing—quarter to 3 is the same as 2:45, half past 2 is the same as 2:30. Even if a student does learn how to "tell time," the meaning of it may elude them. They may learn how to count by fives yet continue to read 1:20 as 1:4. Digital watches may be used as a strategy to help students learn how to tell time. However, even if the student can tell you that the time is 11:55, he may not be able to tell you that it's almost 12:00 or that it is 5 minutes before lunchtime.

I told her it was quarter past 12.
She said: "It's not quarter past 12 - the microwave says 12:15..."
"It can't be quarter past 12 because a quarter is 25 cents and 25 isn' t 15."
"And...12:45 has a five in it like a quarter ...so ...quarter past 12 is 12:45."
"Quarter to 12 is 25 minutes to 12."
(Lasser, 1999)

Due to these difficulties with time, students are often late for class. They may not understand when their assignments are due, and so these often handed in late. This may lead to the misperception that they are purposely misbehaving.

David's teacher asked him to buy (another) digital watch so that he could go from his regular class to his special class on his own. The teacher had given up teaching David to tell time. Instead, he gave David a piece of paper with 9:45 written on it. He told David when his digital watch matched the piece of paper, he should go to his other class. He never got there, because he did not happen to be looking at his watch when 9:45 came around. As far as David was concerned, 9:47 or 9:55 was not 9:45. He just kept wandering around waiting for 9:45 to happen. (Kleinfeld and Wescott, 1993).

The FASD student often has difficulty with temporal concepts and time management. Difficulties may include:

- Understanding the concept of time
- Recognizing or "feeling" time passing
- Reading or understanding a clock or watch
- Understanding the abstract language of time
- Prioritizing which assignments/projects to work on first
- Ability to plan for future projects
- Knowing how to start an assignment
- Planning the steps needed for an assignment
- Knowing when an assignment or project is completed

Educational Strategies for Difficulty with Temporal Concepts

(Strategies for time management are discussed in the section on Executive Functioning at the end of this chapter)

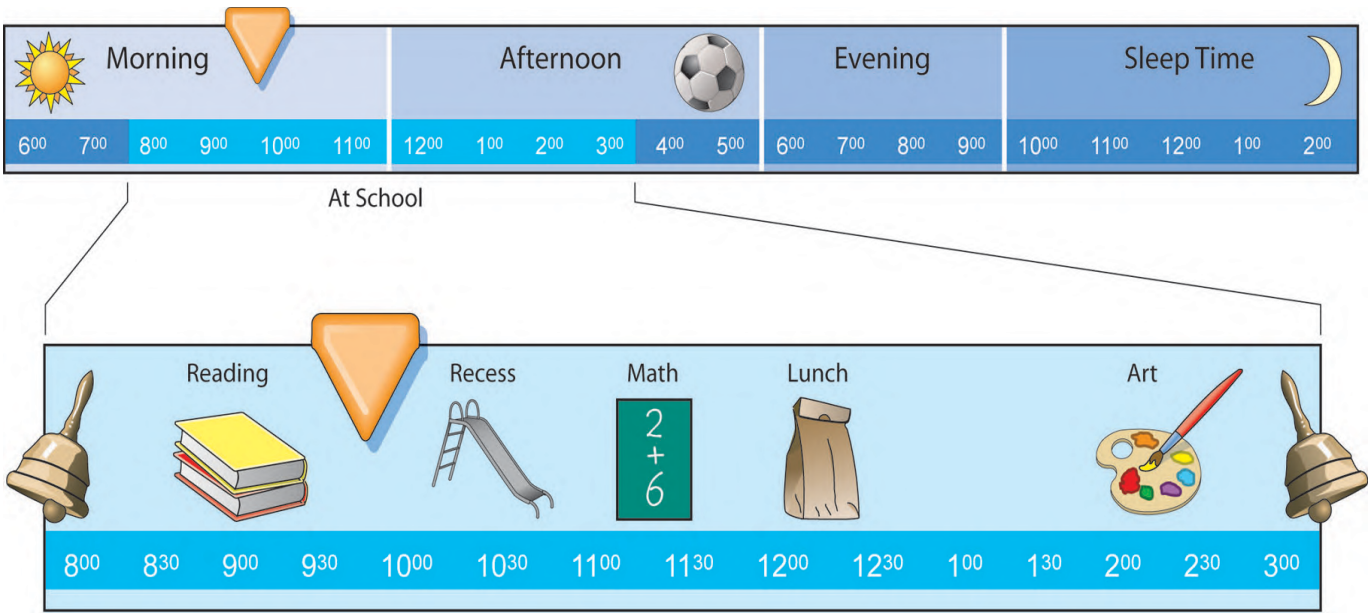
Make the abstract concept of time as concrete as possible; use a visual method. Several examples are listed below. Help students develop a sense of time by discussing how much time it takes to complete various activities.

Make Time Concrete

Tools Can Help to "Visualize" Time

- Use a linear clock (see figure on following page)
    - Indicate student arrival and departure
    - Use pictures to identify key activities
    - Have a marker that slides to indicate what time it is
- Use a visual timer

A Linear Clock
(adapted from Laplante, Kleinfeld, Morse, and Wescott, 2000)



- Use an hourglass
- Use an egg timer
- Use a digital watch; have the student wear a digital watch in school.

Give the Student a Daily Classroom Schedule.

Discuss the abstract concepts of time, such as tomorrow, before, afternoon.

- Discuss real life examples
- Pair with visual images whenever possible

Money

Money is another abstract concept that is difficult for the FASD student to grasp.

> According to Dr. Ann Streissguth, 95% of the FAS[D] students she studied did not understand the value of money regardless of age, background, or any other factor.
> (McCreight, 1997)

Students have difficulty understanding the value of money and the calculation of change from a purchase. In addition, they have difficulty understanding different coin values equaling the same amount. The FASD student does not not understand that 1 quarter has the same value as 5 nickels.

Due to poor impulse control and lack of understanding of the value of money, some students steal (e.g., money from their classmates or teachers). The FASD student may also be at risk for being taken advantage of by others.

Educational Strategies for Difficulties with the Concept of Money

Learn by Doing

- Create a student store, post office, or bank to practice money skills; use realistic looking coins and bills
- Present different everyday objects and talk about their value
- Work with real life money skills, such as paying for book orders and school lunch
- Use menus from local restaurants; have students select items for a meal, calculate the cost and determine the change they receive
- Use various catalogs of interest to the student; have the student select items and calculate the cost

Difficulties with Reading and Writing

Reading and writing are easier skills to learn than mathematics. In the lower grades, reading and spelling are concrete skills, and the FASD student may be a successful reader and speller. However, this may be masking difficulties and/or learning disabilities the FASD student has in language arts. Reading recognition and decoding are stronger for the FASD student than reading comprehension. As the students approach fourth and fifth grades, reading comprehension requires abstract thinking and problem solving: identifying the main idea of the story, making inferences, drawing conclusions, and recognizing the author's point of view. These are weak reading skill areas for the FASD student. As the student gets older, the gap between the ability to decode and the ability to comprehend widens.

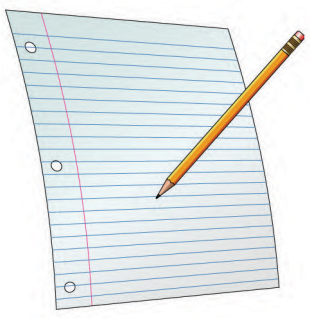
Reading difficulties may include:

- Weaker reading comprehension than decoding skills
    - Making inferences
    - Making predictions
    - Drawing conclusions
    - Understanding the author's point of view
    - Identifying the main idea
    - Ability to answer "why" questions
- Following the sequence of a story
- Understanding idioms, metaphors, hyperbole, jokes, humor

Similarly, written language tasks are initially concrete and brief. Students in the lower grades may be asked to write a phrase or a sentence explaining an illustration. As the student approaches the upper grades in elementary school, new demands are required for written language. Students need to be able to write an essay or a response to a reading. Written language skills require an ability to organize thoughts in a sequential manner, stay on topic, and pay attention to the mechanics of writing. Organizing thoughts onto paper, putting ideas in a logical sequence, and paying attention to detail are very difficult for the FASD student.

Writing difficulties may include:

- Mechanics of writing (punctuation, capitalization)
- Spelling
- Organizing thoughts sequentially
- Word order
- Production



Educational Strategies for Students with Reading and Writing Reading and Writing Difficulties

Consult with a learning specialist (see list below) if there are language concerns; he/she may suggest specific interventions.

- Speech and Language Specialist
- Resource Specialist
- Occupational Therapist

Address Tracking Difficulties

Reading decoding may be difficult for some FASD students due to tracking difficulties.

- Have the student's vision checked once a year
- Use a bookmark or a ruler if the student has trouble tracking
- Use a green arrow on the left side as a reminder that reading is a left-to-right process

Make Reading Meaningful

- Teach sound/symbol association in a meaningful manner
- Do not use nonsense words or programs that incorporate a purely phonetic approach; this method will lead to confusion
- Teach word families
- Use a lot of repetition
- Review learned material

Read for Comprehension

- Use contextual clues to assist with comprehension
- Use pictures/illustrations to assist with comprehension
- Use a technique to help a student visualize what he has read, such as Lindamood-Bell's Visualizing-Verbalizing Program
- Read in small chunks; check for understanding
- Use high interest reading material at the student's reading level

Visualize Writing

After reading a short story, make a picture-outline.

- Tell the student to fold a paper in 1/4's
- Draw four main scenes from the story
- Write a sentence about each picture
- Put the sentences together

The student now has a short paragraph.

Write for Communication

- Practice writing phone messages
- Write shopping lists
- Write notes and memos
- Write letters

Organize Writing

- Anchor ideas
- Brainstorm
    - Story web
    - Outline
- Provide examples students can keep at their desks
- Allow students to begin their writing assignment using a tape recorder first

Teach Word Processing

- Teach keyboarding skills
- Desk size keyboard may be useful for students in the 4th and 5th grades when they are taking notes or working on writing assignments

Problems with Executive Function

People who have been exposed prenatally to alcohol often exhibit deficits with "executive functions". Executive functions are a cluster of processes involved in "the ability to plan and guide behavior to achieve a goal in an efficient manner" (Kodituwakku, Kalberg, and May). In order to carry out an assignment at school, students must organize and order their behavior and actions.

Executive functioning has been defined by Muriel Lezak (McCreight, 1997) as having four major components:

1. Goal formation
2. Planning
3. Carrying out goals
4. Doing so effectively

If the teacher tells the children to get out their math books and do questions one to ten, each pupil must understand this in terms of first getting out the textbook, the exercise book, the pencil, and eraser, and also clearing the desk of anything that is extraneous to the task or distracting. Then the pupil must understand the number of questions to be done in terms of a quantity with a beginning and an end and must make some judgment about how much time to spend on each question. After this, the pupil must begin the work, stay on task, use his or her knowledge of the subject, and finally, complete the task. (McCreight, 1997).

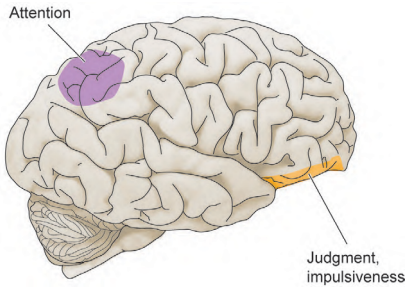
When an assignment is given, most students are able to get started without consciously thinking about it. However, when the FASD student with executive dysfunction is given an assignment, he/she does not know where to begin. Often, he reacts impulsively before determining his desired goal, planning, and organizing the steps he needs to obtain his goal.

Executive functions are "higher order" processes and require the ability to:

- Delay responding
- Shift between activities flexibly
- Plan for the future

These higher order processes require the integration of several abilities, such as:

- Working memory
- Impulse control
- Organizational skills
- Temporal ordering and sequencing
- Internalizing language
- Mental flexibility
- Attention and effort

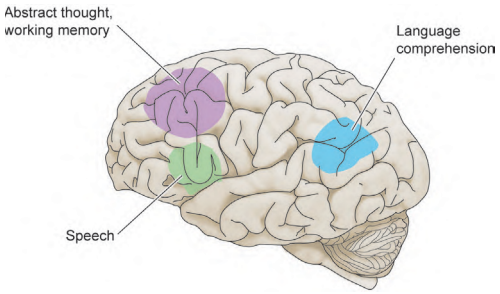


Executive functions have been likened to a bicycle wheel, and the many skills (such as the ones mentioned above) that comprise it are the spokes. It is possible that only 1 or 2 spokes are damaged; however, the wheel is affected. FASD students whose executive functions are compromised may have only 1 or 2 of these skills affected, or they may have many skills affected. When executive functions are compromised, learning is disrupted.

The following characteristics describe the FASD student who has executive function deficits in each of the areas listed above:

Working memory

- Forgetfulness - these are the "I forgot" students.
  (They never had the information in the first place.)
- Difficulty holding information "in their heads"
- Missing chunks of information
- Difficulty remembering multi-step directions
- Can't keep track of their things
- Forgets supplies, assignments, and books
- Difficulty with mental math
- Difficulty with reading comprehension



Impulse control

- Responds quickly in class without thinking
- Calls out in class
- Acts out in class

Organization

- Has difficulty knowing how to start an assignment
- Has difficulty organizing a plan of action to complete an assignment
- Has difficulty organizing or sequencing written information logically
- Has difficulty seeing the forest through the trees
- Looks anxious and overwhelmed

Time management

- Difficulty judging the order in which assignments need to be completed
- Difficulty estimating how much time it will take to complete an assignment
- Difficulty planning or preparing for future projects

Mental flexibility

- Difficulty with transitions
- Difficulty shifting to a new strategy or a new way to look at something
- Perseverates; gets stuck

Internalizing language

- Lack of using self-talk or reflective thinking
- Difficulty with problem solving
- Difficulty drawing from past experiences

Attention and effort

- Easily distracted
- Difficulty paying attention and maintaining attention
- Difficulty getting started
- Assignments often incomplete

Effective Strategies for Executive Function Difficulties

Educational Environment (See Chapter 4)

Modify the educational environment by providing remediation and accommodation.

- Provide a classroom where attention is given to structure, routine, brief presentations, variety, and repetition
- Understand individual strengths and weaknesses
- Recognize neurological damage

Working Memory (See this chapter – Information-processing & Memory)

Teach memory strategies - give them a bag of tricks and tell them what you're doing

- Categorize/organize
- Use chunking
- Use mnemonics
- Practice
- Provide repetition
- Provide lists
    - Teach them when lists are useful
    - Allow students to rely on notes and examples

Use Multi-sensory Teaching

Take advantage of multiple neurological pathways for learning (See Chapter 4)

- Provide visual cues
- Provide alternate tests forms (oral, multiple choice)

Teach Concept of "Reading Readiness" (See this chapter - Reading & Writing)

- Provide outlines
- Pre-read chapter reviews
- Use thought mapping, brainstorming, and other strategies for written language

Break Math into Steps (See this chapter - Mathematics)

- Use a calculator
- Use process cards

Impulse Control (See Chapter 6)

- Teach self-talk/reflective thinking

Organization (See Chapter 4)

- Make organizing a habit
- Designate parents and teachers as "organizational coaches"
- Check backpacks
- Check desks
- Help students manage to stay on task
- Enlist a student buddy to help with organization
- Use 1 notebook for all subjects with a zip pouch for supplies
- Color code subjects
- Keep a 2nd set of books at home
- Communicate regularly with parents
- Involve parents in the organizational plan for homework

Time Management (See this chapter - Information-processing & Memory, Mathematics)

- Work may need to be modified; tailor it to the student
- Allow a realistic amount of time to work
- Allow extra time on tests
- Use visual timers, linear clocks, watches with alarms to help with organizing and managing time
- Teach students to be active participants in breaking projects and assignments down step-by-step
    - Break a project into components: book report, picture, diorama
    - Help them with time lines

Mental Flexibility (See Chapter 4)

- Limit transitions
- Prepare student for transitions

Internalizing Language (See this chapter – Information-processing & Memory)

- Work on self-talk for problem solving (can whisper in class)
- Allow taking test in another room so they can talk aloud
- Start a dialogue with students; teach them how to self monito , so they can begin to evaluate themselves
- Work on verbally approaching problem solving
    - Form a goal
    - Create a plan
    - Monitor progress
    - Evaluate success
- Teach them to be mindful of the immediate goal
- Teach them how to identify the "next step" in a process
- Make the implicit explicit
    - Spell it out
    - "This is what we are doing." "This is why we are doing this."
    - "We used this approach/strategy because it helps us see an image."

Attention and Effort (See this chapter - Attention)

- Minimize distractions
- Seat student close to teacher presentation
- Cue students nonverbally to keep them on task
- Make lessons relevant
- Offer positive reinforcement and praise

The FASD Student and Behavioral Issues

Overview of Behavioral Characteristics of the FASD Student

Alcohol compromises and modifies brain development and thus affects behaviors.
Dr. Barbara Morse, a researcher, has called it a "behavioral teratogen".
(Malbin, 1993)

Fetal Alcohol Spectrum Disorder is a neurological disability. Students with FASD exhibit many common behaviors due to the brain damage that occurred before birth. These behaviors occur across all FASD populations, ages, races, socio-economic backgrounds, including those those with normal IQs. (Dr .Ann Streissguth, a pioneer in the field of FASD, has developed a behavioral phenotype with 36 distinguishing FASD characteristics that is used as a research tool called the Fetal Alcohol Behavior Scale or FABS.)

While there is a recognized FASD behavioral profile or phenotype, behavior problems vary from student-to-student, and some students will have more difficulties than others. In the classroom, it is critical to observe each student and respond to his/her unique profile of learning and behavior strengths, needs, and weaknesses. Observation provides insight into a student's temperament and how he/she responds to stress, copes with difficulties, and responds to change. When each student's unique profile is considered, a successful educational program can be determined.

Experienced and devoted teachers, unfamiliar with the behavioral profile of FASD, often experience frustration working with these students. These students are usually quite verbal and social. Yet, these students exhibit unpredictable and inconsistent behaviors. Their difficulty with "cause-and-effect" is challenging for the teacher. These students do not follow the rules. Teachers misinterpret these behaviors and consider these students to be manipulative, lazy, and inattentive along with a host of other misunderstood behaviors.

The students most at risk to be misunderstood are the students with an average to above average IQ. These higher-functioning students show no physical evidence of brain damage.

They seem capable and look normal. They hear:

"You deliberately disobeyed me."
"You knew the rules, but you chose to break them."
"You knew better."
"If only you tried harder."

> Almost without exception, children with FAS[D] fall in the mentally handicapped range in terms of adaptive behavior, no matter how bright they are intellectually.
> FAS[D] Support Network
> (Lasser, 1999)

These students are at high risk of suffering from secondary characteristics as they get older.

In fact, the FASD student is on a different developmental track than his peers. While not necessarily age appropriate, milestones are reached when "developmentally appropriate" for their developmental age. These students do progress, but it is at their own individual rate, one that is a slower rate than their peer group. As a result, some of the FASD student's behaviors are viewed as immature.

Recognizing that the FASD behavioral phenotype stems from a neurological disorder is the missing clue for many educators. This essential information provides an understanding of the ramifications of this disease. Common misinterpretations of FASD student behavior can be avoided (see 'Misinterpretations' box next page). As educators begin to understand that FASD student behavior results from prenatal alcohol-induced brain damage, their perceptions, expectations, and approach to behavioral interventions will change.

Misbehavior is often an FASD student's attempt to communicate his needs. The behavioral phenotype is affected by cognitive, memory, and attention difficulties. The student with FASD is often confused or overwhelmed, and may not know what to do. He/she may react to problems in a misguided way; these students have difficulty communicating their needs (i.e., they don't say: "Please slow down, I don' t understand"). When an FASD student is in a classroom where his needs and skills are not understood, behavior problems escalate. When the behavior is misunderstood repeatedly, a sense of failure and defeat ensues.

Traditional behavior modification techniques are not successful with this population. Typically, behavior modification does work with Severely Emotionally Disturbed (SED) students when they are deliberately manipulating or disobeying classroom protocol. When they have a system set up with meaningful rewards or consequences, the response is usually effective. The FASD population is different. They are not manipulating or disobeying deliberately in the classroom; they do not understand what was expected of them. They have poor cause-and-effect reasoning and difficulty generalizing and understanding abstract concepts.

Common Misinterpretations of Normal Responses in Students with FASD
(DL Evensen, 1994)

Behavior	Misinterpretation	Accurate Interpretation
Noncompliance	• Willful misconduct • Seeking attention • Stubborn	• Has difficulty translating verbal directions into action • Doesn't understand
Repeats the same mistakes	• Willful misconduct • Manipulative	• Can't link cause to effect • Can't see similarities • Has difficulty generalizing
Doesn't sit still	• Willful misconduct • Seeking attention • Bothering others	• Has neurologically based need to move while learning • Is experiencing sensory overload
Doesn't work independently Doesn't complete homework	• Willful misconduct • Poor parenting • Irresponsible • Lazy, slow • Unsupportive parent	• Has chronic memory problems • Can't translate verbal directions into action • Has memory deficits • Is unable to transfer what is learned in class to the homework assignment
Is often late	• Willful misconduct • Lazy, slow • Poor parenting	• Doesn't understand the abstract concept of time • Needs help organizing
Uses poor social judgment	• Willful misconduct • Poor parenting • Abused child	• Is not able to interpret social cues from peers • Needs help organizing
Is overly physical	• Willful misconduct	• Is hyper- or hypo-sensitive to touch
Steals	• Deviancy • Deliberate dishonesty • Lack of conscience	• Doesn't understand social cues regarding boundaries • Doesn't understand concept of ownership over time and space • Demonstrates immature thinking (finders keepers)
Lies	• Deliberate dishonesty • Lack of conscience • Sociopathic behavior	• Has problems with memory and/or sequencing • Is unable to accurately recall events • Tries to please by telling you what they think you want to hear

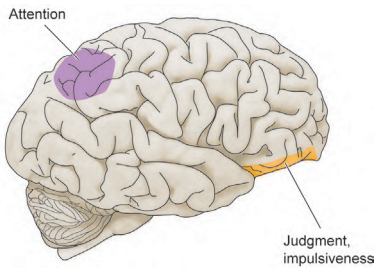
Thus, a reward and punishment system will not work for them when they do not understand the misbehavior in the first place.

When educators recognize and understand the FASD behavioral phenotype, effective interventions can be determined to encourage success. Dreikkurs, an expert on child-rearing, suggests that rather than try to change the child, flexibility should be used to "influence" a child (McCreight, 1997). This is precisely the direction educators must take with the FASD student. The FASD student has brain damage; however, the educator and the environment can influence how a student learns to control his behavior.

There are many educational strategies that have been successful in teaching behavior management to FASD students; Chapter 4 refers to several effective teaching strategies. Successful behavior management requires a teacher who understands the behavior and, most importantly, is compassionate and nurturing. FASD students need adult assistance to protect them from the overstimulation they encounter, as well as the confusion they have intepreting their environment. The FASD student experiences internal confusion and is in need of external structure and support. The team approach with parents, discussed in Chapter 4, can lead to a more successful behavior management plan. The educator must determine the student's strengths, weaknesses, and needs and modify the educational environment accordingly.

An educator's successful interventions depend upon an awareness of the neurological impact of FASD, the associated behavioral characteristics, commonly misinterpreted behaviors, and sensitivity to the child's disabilities. The following is a list of common behavior characteristics of FASD students:

- **Overly friendly**
- Affectionate
- Charming
- Trusting
- Determined
- Cheerful
- **Lack of judgment**
- **Low self-esteem**
- **Impulsive**
- **Confused under pressure**
- **Stubborn or oppositional**
- Hyperactive
- Immature
- Very Social
- Fearless
- Difficulty dealing with transitions or change
- Extreme mood changes
- Kind to animals
- Creative



In this chapter, general teaching strategies for behavioral issues are discussed. This is followed by a more detailed presentation of teaching strategies for six specific behaviors (in bold on previous page) associated with FASD students.

Effective General Teaching Strategies for Behavior Issues

The environmental setting always needs to be considered when an undesirable behavior occurs (see Chapter 4 - The Classroom).

Create a supportive classroom

- Provide a calm environment
- Minimize distractions
- Emphasize routine
- Behavioral expectations should reflect behavioral abilities
- Focus on assisting student rather than disciplining
- Provide a time out/study area away from the group
- Make sure the student feels safe

Use simple and brief communication

- Provide brief, clear information
- Give explicit instructions
- Check for understanding (verbally)
- Have student demonstrate understanding

Establish clear and simple rules

- Post the rules and the consequences
- Review the rules and the consequences
- Model the rules and review the consequences
- Rehearse the rules and review the consequences
- Follow the rules and consequences

The school psychologist or school counselor may be a good resource to help with social skills training.

Use social skills training

- Model appropriate behavior (role play; students may imitate observed behavior)
- Reward other classmates for their positive behavior
- Teach how to appropriately handle frustration and disappointment
- Teach how to get someone's attention in an acceptable way
- Practice desired behavior
- Reinforce desired behavior
- Re-teach appropriate behavior

Teach self-talk

- Teach how to ask for help
- Teach how to consider good choices
- Teach how to remember rules
- Involve the student in discussing solutions to dif ficulties

Effective Teaching Strategies for Specific Behavioral Problems

Overly Friendly and Lack of Boundaries

Often, elementary school age FASD students are considered very social but overly friendly. They seem to lack an awareness of personal boundaries and invade other people's territory. While they can be sensitive and concerned about others, eventually, the FASD student begins to bother classmates. They annoy people and push things too far, not knowing when to stop. They are too friendly. Classmates give them social cues that they are being annoying, but the FASD student does not pick up on the cues. Instead, the FASD student perceives social difficulties as someone else's fault and does not take responsibility for his role.

The FASD student is also very tactile and affectionate. They do not understand the concept of body space and often are physically intrusive. Some of these students stand too close to their peers. Others act sexually inappropriate. While they have a strong desire to be liked by their classmates, they are viewed as very immature. Sometimes they are "picked on" by their classmates. They usually end up playing with children much younger than themselves. Many of these FASD students are lonely and have poor self-esteem.

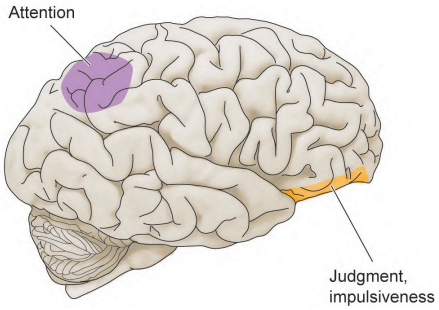
The behavior of these students is often misinterpreted as willful or attention seeking. Often, it is assumed that poor parenting underlies the poor decisions these students make. As these students become older their behavior is sometimes considered deviant.

I also used to get into trouble a lot at school and at the foster and group home for stealing. I don't think I was really trying to be mean or dishonest or steal. I do know that I would want things that other people had or had made. But I remember just wanting to feel friends or close to them and having something of theirs—like stupid things like a letter they wrote or a picture of them or a picture they made—made me feel like we were friends...
(Copeland and Rutman, 1996)

FASD students have the following deficits, which explain their overly friendly behavior and lack of boundaries. These deficits are associated with damage to specific areas in the cerebral cortex (See Chapter 3).

- These students can't interpret social cues from classmates because a social cue is too abstract.
- These students are hyper-or-hypo sensitive to touch.
- These students have a disorientation in space.
- These students have poor judgment.

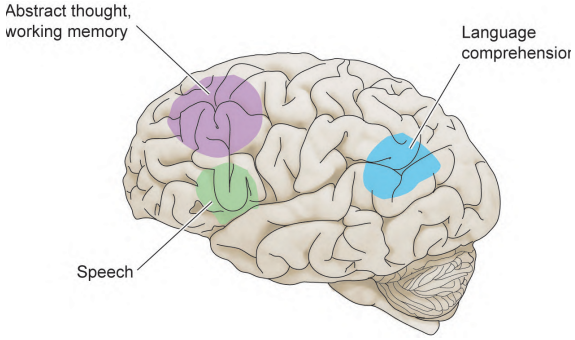
Effective Strategies for Overly Friendly and Lack of Boundaries Behaviors



The concepts of personal space and social space are abstract and must be taught in a concrete manner . Appropriate social interactions must be taught as these student's have poor generalization and poor cause-and-effect skills.

Give Students "Hurdle" Help

- Anticipate difficulties and circumvent them
- Be aware of nonverbal communication
- Diffuse situations before they escalate
- Give them eye contact
- Hold their hand if in line
- Stand next to them
- Sit next to them
- Use time out spaces



Use Visual Cues

- Use colored tape to delineate where someone sits on a rug.

Model Appropriate Behavior

- Role play
- Use puppets

Let Them Know You Care

- Provide jobs for the student; show the student he is a valued member of the class
- Praise students for appropriate social interaction

Seek Help from the School Counselor or Psychologist

- Engage a special friends group
- Engage a student advocate
- Consider counseling

Low Self-Esteem

Students with FASD have low self-esteem because of the many difficulties they encounter due to their prenatal exposure to alcohol. Often, the FASD student is not diagnosed, or mis-diagnosed, so their disability remains hidden. Their learning differences and behavioral difficulties are attributed to laziness, attention seeking, and other explanations that blame the student. "If only he would try harder!" is a common lament of their teachers. Most of these students experience failure and frustration, because no matter how hard they try, they are not successful.

The best way to help a child feel good about himself in school
is to make it possible for him to learn.
J. Rosner (Lasser, 1999)

These students get into trouble at school and at home. They do not understand why they are in trouble when they have difficulty with cause-and-effect. They do not know how to correct mistakes when they have difficulty generalizing. They confabulate and tell adults what they think they want to hear because they have memory difficulties and cannot remember the sequence of events. The FASD student is given repeated reprimands; teachers are disappointed and frustrated with their behavior; parents are exhausted dealing with them.

As a result of this inability to follow the rules and understand what's expected of them, the FASD student believes he/she is "dumb," "lazy," or just "bad." Furthermore, FASD students struggle with social skills. Developmentally, social skills lag far behind what is expected for the typical student. The vast majority of FASD students are immature, and they are considered peculiar or weird by their classmates. Desperately wanting to be well-liked and included by their peers, the FASD student often becomes the class scapegoat. The poor judgement that FASD students exhibit alienates them from their classmates. The FASD students feel excluded in their classrooms; they are the last to be chosen for games and group activities. On the playground, they stand near their peers, hoping to be included in recess games. The FASD students often feel lonely, rejected, unhappy, and confused.

Effective Teaching Strategies for Students Exhibiting Low Self-Esteem

Tell Students You Believe They Can Learn

- Explain to them that their brain works differently
- FASD is not their fault
- Everyone has unique strengths and weaknesses

Create a Classroom Where Students Feel Lovable and Capable

- Greet each student in the morning & say something positive
- When students are leaving at the end of the day, shake each student's hand (unless they're hypersensitive) and say something positive

Create an Educational Environment Where FASD Students Will Thrive

- Few distractions
- Routine
- Consistency
- Predictability

Create Successful Academic and Behavioral Goals

Class Lessons Should be Presented with Modifications for the FASD Student (Chapter 4)

- Use a multi-sensory approach to teaching
- Pair visual with verbal instruction
- Have realistic expectations
- Proceed in small steps
- Give praise and encouragement
- Students should be capable of completing homework and class assignments
- Keep assignments short
- Lengthen assignments when students are confident

Be Creative to Ensure Success

- Troublesome academic skills can be skipped—go on to another skill (e.g., If the student is unable to solve long division problems after sufficient teaching, introduce a new skill such as fractions).
- Return to the difficult skill later on and try again
- Use checklists for big projects
- Teach students to check off small sections as they complete them

Acknowledge Positive Student Skills

- "Deborah is acting like a 3rd grade student. She has her pencil out and her book is on her desk."
- "Sam has begun his work right away. Bravo, Sam!"
- Use praise
- Use stickers
- Use awards
- Contact parents with a "good news" call or note

Control Choices for Teams or Groups

- Put names on popsicle sticks and assign teams or activities randomly

Assign Buddies

- Buddy FASD students with students who are positive, patient, and kind.

Be Sensitive to the Many Difficulties Students Face

- Ask, "How can I help you get started?" rather than saying "You never start your work on time. What's the problem?"

Remind Students That You Like and Appreciate Them

- Smile
- Use body language
- Give them a pat on the shoulder

Separate the Behavior from the Student

- Praise positive behavior, say, "great job listening" rather than "good boy" or "good girl."
- When the student misbehaves, focus on changing the behavior. Explain to the student that he/she is not "bad."

Find Things at Which Your Student is Successful and Focus on That When Possible

- "Drew, you are such a talented artist, would you draw the picture for our class newsletter?"
- Sport
- Social activity
- Art
- Music
- Craft
- Dance

Help Students Feel Needed and Give Them Class Responsibilities

- Line leader
- Class messenger
- Guinea pig feeder
- Teacher's assistant passing out papers
- Sharpen pencils
- Erase the boards

Poor Judgment

The lack of personal judgment compromises the FASD student in the classroom. He trusts others and is easily led by peers into negative situations; being liked by peers and being one of the group is of prime importance to him. He can be the class scapegoat. The student also has an inability to make a thoughtful choice. When several ideas or choices are offered, the student often chooses the first or last choice presented. He does not stop to consider all the alternatives. In making his choice the student does not take into account the rules of the classroom, the lunchroom, or the playground.

The poor judgment exhibited by these students is quite worrisome. Not only do they lack common sense, they also exhibit fearlessness. Indiscriminate trust of others, including strangers, and being influenced easily can lead to dangerous and unhealthy situations. Poor judgment leads to poor decisions, which can become a more serious concern as the student enters middle school.

At one time an older adolescent who was living with his parents met someone at a bus stop. His parents were out of town at the time. He invited his new friend over to his home where his new friend proceeded to rob the family. When his parents returned home and saw the loss, they were stunned. They asked, "How could you bring a stranger home?" Their son replied, "That wasn't a stranger; I met him at the bus stop."
A. Streissguth (Malbin, 1993)

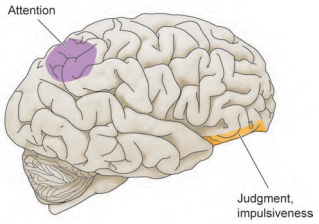
The behavior of these students is often misinterpreted as deliberate misconduct. Their behavior is viewed as bizarre; it does not make sense. The teacher has told them the consequences of misbehavior, but these students do not seem to listen or care. Teachers give these students a choice to make the right decision, but the student doesn't follow through. When the student is confronted about his misbehavior, he is usually confused. He gives several responses until he stumbles upon the one the teacher is expecting.

Difficulty with problem solving is one of the reasons FAS[D] persons lie and steal. They may be sincere in wanting to tell the truth, but not have the faculties available to relate to others accurately or, in wanting to please, create a fantasy.
(Kulp, 2000)

FASD students have the following deficits, which explain their lack of judgment. These deficits are associated with damage to specific areas in the cerebral cortex and hippocampus.

- These students are impulsive and often act without stopping to think.
- These students have difficulty with attention.

- These students have poor short-term memory and information-processing difficulties:
    - Difficulty generalizing
    - Difficulty learning from past experiences
    - Difficulty following rules
    - Difficulty recognizing cause-and-effect
- These students are unable to interpret social cues from their classmates due to poor abstract thinking.



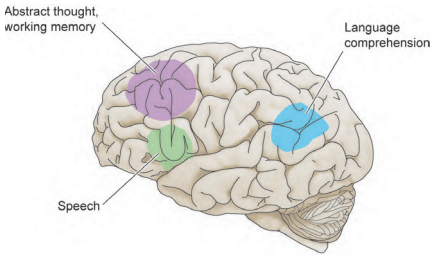
Effective Teaching Strategies for Poor Judgment

Assist with Abstract Social Skills

- Help students understand different classroom scenarios
- Teach them how to recognize social cues
- Present social skills in a concrete way
- Do not attempt to explain and re-explain abstract concepts

Train Social Skills through Role Play

- Teach habits that promote success in the classroom
- Script the role play with the student
    - Students will help write or type
    - Practice the script
    - Give assistance when needed
    - Provide plenty of repetition
    - Positively reinforce
- Anticipate Possible Difficulties
- Help the student avoid or circumvent them
- Routines and predictability help
- Consult the school counselor or school psychologist for a social skills group or individual counseling.



Teach Conflict Resolution

Role play using different settings where conflict occurs (help them generalize)

- Playground
- Choice time in the classroom
- Group instruction
- Lunchroom

Reinforce cause-and-effect

- Rehearse
- Practice
- Reteach

Reinforce positive behavior

- Give praise
- Rewards (change frequently to ensure interest)
- Stickers
- Smile
- Call home or send a note
- Recognize small achievements, too!

Give immediate feedback for negative behavior

- Avoid threats
- Be consistent
- Keep explanations brief
- Give established consequences

Supervise and Monitor

Poor Impulse Control

A father in Nome, Alaska, told a story about his daughter. She was perched on her sled on a road at the top of a hill. Another road intersected with the sledding road at the bottom of the hill. He saw a truck approaching, waved and called to her to warn her about the truck. She looked, saw the truck, waved and smiled, and zoomed down the hill on her sled. She passed underneath the truck between the front and rear sets of wheels as the truck moved by, and came to a stop near her father, who had fallen over in fear. When he would speak, he said, "Didn't you see the truck?" She smiled and said, "Sure. I didn't know it was going to go there." She was unable to predict the future path of the truck as it crossed in front of her.
Biermeister (Malbin, 1993)

Many students with FASD exhibit poor impulse control. This leads to many difficulties for the FASD student. Impulsivity often leads to students being put in dangerous or unsafe situations. They want to belong and they want to have friends. Due to many variables, such as poor social judgment and confusion under pressure, the FASD student will follow others and take direction from them. These students are vulnerable.

FASD students have difficulty anticipating or considering the effect of their actions. They are "audible thinkers;" often they say the first thing that they think of without screening thoughts. Rules are broken repeatedly. Teachers will set up logical consequences, but these students are unable to link cause-and-effect. They have trouble generalizing from one situation to the next.

These students are also quick to anger. Sometimes they react angrily to something and lash out. They can be quite volatile. The combination of poor impulse control and attention deficits can lead to impulsive behavior, but the feeling that ignited the behavior is soon forgotten. It's hard to predict what these students will do, or how they will react.

Impulsivity also leads to stealing, lying, and physical aggression.

> She knows it is wrong to steal, but if it means missing ice cream from the ice cream truck, she will take money from my purse without a thought of the consequences.
> (Lasser, 1999)

An object looks inviting. The FASD student picks up the appealing object, does not stop to consider whose it is, or plan what he/she should do with it. Instead he puts it in his or her pocket and then forgets that it is there. The FAS student does not intend to steal, nor do they have the savvy to cover it up. Even if other students are stealing, it is the FASD student who will end up being caught.

Innocent impulses get FASD students in trouble. Their behavior is not seen as innocent. Instead the student is viewed as manipulative, dishonest, and mean-spirited. Poor parenting skills are often blamed.

FASD students have the following deficits, which explain their impulsive behavior . These deficits are associated with damage to specific areas in the cerebral cortex, hippocampus, and corpus callosum.

- These students have attention deficits.
- These students have impaired executive functioning.
- These students have information-processing difficulties.
- These students have memory deficits.
- These students have poor personal boundaries.

Effective Teaching Strategies for Poor Impulse Control

> Managing behavior is about predicting and preventing an unwanted behavior before it happens—not always possible but a more effective place to put our energy than always being reactive.
> A. Weir (Lasser, 1999)

Teach good habits that are impulse-responsive through role play and practice. This reduces the critical thinking step and helps positive behavior become routine.

Provide Lessons in Cause-and-Effect ("If I do this, then this will happen.")

Provide Close Supervision

- For safety
- For positive peer interaction
- To assist them in following the rules

Anticipate Problems

Avoid them on the playground

- Make certain the yard duty supervisor is aware of the student's FASD needs
- Provide the student with something to do (a special game/activity/ball, etc.) or a buddy
- Create playground games which include anyone who wants to join in
- Explain FASD to classmates. Let them know how important it is to include FASD students even though the FASD student may get confused during a game or may not remember the rules.

Avoid them in the lunchroom

- Practice lunchroom behavior (where to sit, what to do when they are finished, etc.)
- Seat FASD student with a good role model

Avoid them walking in the hall

- Have student be the line leader, walking with a teacher
- Hold the student's hand (if young)

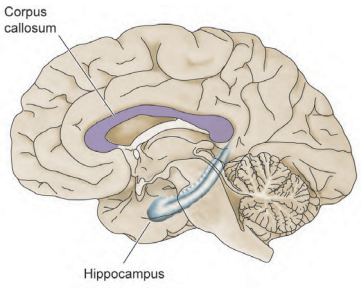
Confusion Under Pressure

It may seem obvious to point out that the FASD student feels confusion under pressure. However, this behavior characteristic is important to illuminate. The FASD student experiences confusion when feeling pressure just like other students. In addition, the FASD student has neurological insults that exacerbate the situation. When questioned about an incident, information-processing and memory deficits might make it difficult to remember what just happened. Abstract questions about other people's feelings and how they plan to resolve the situation may not be possible to determine. Often the FASD student is over-whelmed and confused under this pressure. When questioned about why misbehavior occurred, or how they plan to correct it, they typically respond with an, "I don't know." They are being truthful because they really do not know what happened. Adults who are not familiar with FASD profile interpret this type of response as the student being lazy or lacking in motivation.

It is important to recognize that the FASD student has a myriad of pressures they must deal with with on a daily basis. The many difficulties resulting from brain damage create pressure and stress at school and at home. These students rarely have days at school without challenges.

Many people find changes in their routine to be stressful. For the FASD student, routines are a stabilizing factor in their life, helping them predict what will happen. Routines and consistency reduce the amount of overload that overwhelms them. When change or transitions do occur (such as a new teacher), it is stressful for the FASD student, and they experience confusion. While they are capable of adapting to change, it may be a long, arduous road.

FASD students have the following deficits, which explain why they feel confused under pressure. These deficits are associated with damage to specific areas in the cerebral cortex and hippocampus.



- These students experience poor habituation
- They have information-processing difficulties
- They have memory deficits

> Habituation represents the ability of an organism to "tune out" the many stimuli that are not relevant to its well-being.
> (Streissguth, 1997)

Effective Teaching Strategies for Confusion under Pressure

Reduce the Pressure in the Classroom

- Follow the guidelines outlined in Chapter 4
- Prepare for transitions and changes
    - Contact parents
    - Give advance notice and reminders
- Encourage positive self-esteem
    - Encourage students to ask for help
    - Encourage self-talk

Stubborn or Oppositional

Stubbornness or oppositional behavior is a characteristic that is often used to describe the FASD child. While the refusal and unreasonable behavior is frustrating for the teacher, there are reasons underlying why the FASD student is stubborn.

When an FASD student is asked to do something that is too hard or too frustrating, he/she may become very upset. These students may not understand the directions given. Teachers are likely to see these students cry, "close down," refuse to participate, or become disruptive.

When the student cannot process anything else, he/she is on overload. The student is saturated and cannot take in any more information. They may feel they know something, and if they're asked to alter it in any way, it may be too much for them. This is when stubborn or oppositional behavior occurs.

When there is a change in a routine, it is very difficult for the FASD student to function. They have a hard time "switching gears." In general, transitions are difficult for the FASD student (see Routines in Chapter 4).

I am a bowling ball. Once I get rolling down one lane, I just can't switch over... it takes me forever to slow down or move on to another kind of activity even when it's something I can remember I like doing."
(Kleinfeld and Wescott, 1993)

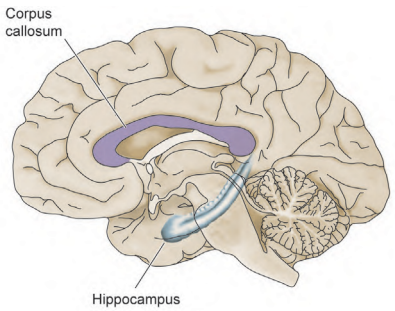
* * *

"I'm like a train. Once I get going one way , I can't just suddenly go off in another direction cause there's this whole chain of things I'm holding together .
(Kleinfeld and Wescott, 1993)

Stubborn behavior is also a form of control for these students. While it is an ineffective strategy, it is more comfortable than dealing with the uncertainty of change or transition.

FASD students have the following deficits, which explain their stubborn or oppositional behavior. These deficits are associated with damage to specific areas in the cerebral cortex and hippocampus.

- These students have information-processing difficulties.
- These students have memory deficits.



Effective Teaching Strategies for Stubborn or Oppositional Behavior

Keep the Student from Being Overwhelmed

- Keep a calm, organized classroom
- Minimize distractions and stimulation
- Keep a consistent routine
- Keep communication simple
- Prepare for upcoming transitions and changes
- Anticipate difficulties and avoid them if possible

Create an Emotionally Safe Classroom

- Be creative
- Be flexible
- Be nurturing

Check for Understanding

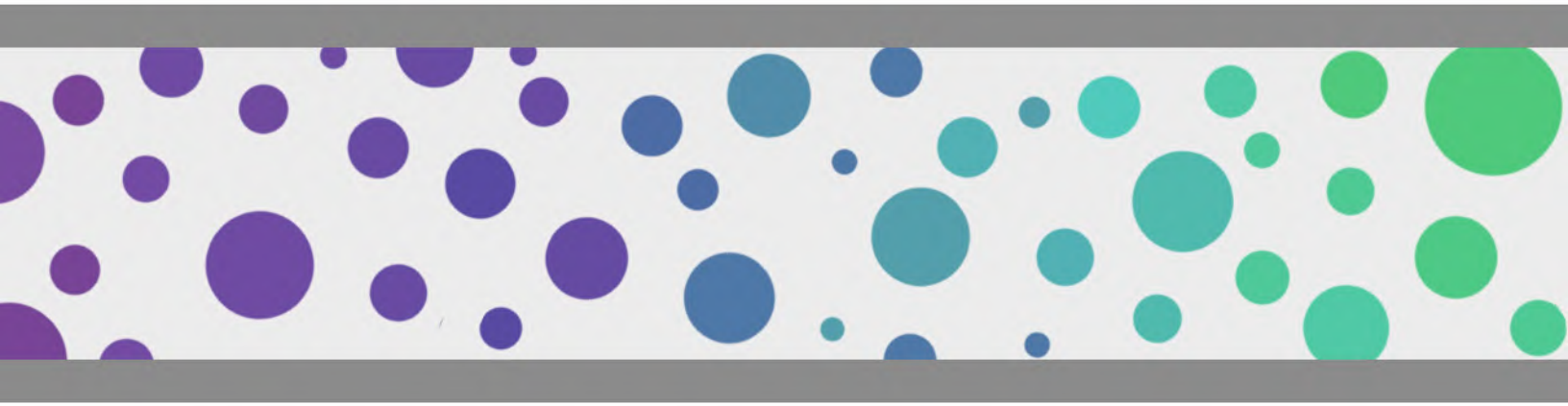
- Repeating directions does not necessarily mean they understand
- Shaking their head "yes" does not necessarily mean they understand what to do or how to do it

Have Realistic Expectations

- Academic work should be success-oriented
- Keep assignments brief

Maintain Regular Communication with Home

Case Study 1



Case 1: Lynn Copeland

Information for a Student Study on Lynn Copeland

Lynn is an 8 year old 1st grade student attending Oakview Elementary School. Very little information is known about her biological mother. It is reported that her mother had a history of substance abuse, and Lynn was possibly exposed to alcohol in utero. It is known that Lynn has a sibling who was born when she was 1 years old. Shortly after her sibling was born, Lynn was placed with a foster family. She was adopted by the Copelands when she was 3 years old.

Lynn was the Copelands' first child and they were not certain when developmental milestones should be achieved. The Copelands brought Lynn to a pediatrician. They wanted her to have a thorough check-up given her high activity level and their concern with her short stature and low weight. The pediatrician reassured the Copelands that Lynn was adjusting to her new home and that she was "on the charts" with height and weight at the 5th percentile, not to worry.

As the Copelands spent more time with Lynn, they were concerned that she had special needs. They decided to take Lynn to another pediatrician. This pediatrician took note of the limited known history of her biological mother and observed that Lynn had some mild dysmorphia. The pediatrician, familiar with FASD, assessed that Lynn had some behavioral and cognitive features consistent with prenatal alcohol exposure. Lynn was given the diagnosis of Fetal Alcohol Spectrum Disorder.

When Lynn first arrived at the Copelands', she was quite active; in fact, she was described as rambunctious. She ran from one activity to the next. Although quite verbal, language difficulties became apparent. Lynn had a slight articulation difficulty, but more problematic was her difficulty remembering the names for things and communicating effectively. She was impulsive—always getting into things. The parents describe Lynn as not yet knowing how to tie her shoes, very slow to learn how to do simple chores, and unable to tell her right from her left.

The pediatrician suggested that Lynn attend the Strawberry Preschool when she was 5 years old. The class was small and developmentally oriented. Usually, the children worked in groups of 4 and received a lot of adult attention. The teachers were engaged with the students. The daily routine was consistent. Every day there was music and art. The parents report that their goal for Lynn was to develop her social skills and interact with other children. Lynn did develop a friendship with one girl. She loved going to school.

The following year when Lynn was 6 years old she began kindergarten at a public school. The day was short and the class size was small, although not as small as Strawberry Preschool. Lynn was described as friendly but immature, not interested in pre-academic skills, and had many developmental delays. At the kindergarten teacher's request, a Student Study Team meeting was held at the end of Lynn's 1st year in kindergarten. The team decided that Lynn would repeat kindergarten with the hope that an extra year would give her time to catch up with her peers. Lynn's 2nd year in kindergarten proved to be beneficial in terms of lengthening her attention span, improving her social skills, beginning to learn sound/symbol association, and developing some pre-academic skills.

This year, Lynn's 1st grade teacher, Ms. Meltzer, is requesting a 2nd student study team to discuss Lynn's educational and behavioral strengths and concerns. Halfway through 1st grade, Lynn has made many gains. Ms. Meltzer describes Lynn as learning although her learning is at a very slow pace. Lynn is beginning to read CVC and CVCC words. She is able to read some common irregular words (e.g. the, of, come). She works best when reading with 1:1 help or small group work. Lynn loves to listen to the teacher read big picture book stories. She not only looks carefully at the illustrations she even touches them. When asked questions about the story, Lynn remembers pieces of it. She is not able to sequence the events of the story.

Math skills are a weaker area for Lynn. She has difficulty understanding number concepts (i.e., bigger than and smaller than) and remembering the math symbols for addition and subtraction. At the beginning of the school year, Lynn would work on math with the class. Lynn enjoyed working with manipulatives but was not on task. She would build with the blocks or play with the manipulatives; she did not follow the directions given. When paper and pencil tasks were presented in mathematics, Lynn became very frustrated. This led to tearing up math papers and refusing to work. Now, Lynn works 1:1 on math skills with the classroom aide. She also enjoys working on math programs on the computer. Lynn responds to positive reinforcement.

Lynn's 1st grade teacher reports that poor focus and attention continue to be a hindrance to her learning. She loses her focus quickly. Lynn's attention span varies depending on the activity. She gets out of her seat and wanders. She visits with other students, is very chatty, and likes to hug them. She also likes to take the pet rabbit and guinea pig out of the cage even when it's not a "free time." During "free time," Lynn darts from one activity to the next.

Due to her small stature, petite frame, and immature behavior, Lynn is regarded as a younger child and is babied by her peers. A few of her classmates want to hold her hand and lead her to

the music room or the lunchroom; they want to help her when she's "stuck" or confused. When Lynn invades her classmates' space, they become annoyed with her. Some classmates keep their distance from her. Her peers do not include her in recess games unless an adult organizes an activity and encourages everyone to join in. During recess, Lynn usually plays in the sandbox with some of the kindergarten children.

During her 2nd year of kindergarten, Lynn was evaluated by the Speech and Language Specialist. She now receives speech and language assistance 2 times a week for 30 minutes. Even though Lynn is very verbal, her language interferes with her social skills. She is not an effective communicator, as she gets off subject and is unaware of her listener. She often has difficulty finding the word she wants to say, forgetting the names of her classmates. Many of her classmates fill in her words. Her slight articulation difficulties are age appropriate and do not interfere with her communication.

When Lynn enters the classroom, it seems as if it's a new experience each time. She needs to be reminded to put her lunch pail in the lunch box. Then, she needs to be directed to the coat hooks and take off her coat. Next, Lynn begins a process of wandering or flitting about the classroom unless she is directed to an activity with adult supervision.

During group lessons, Lynn will sit and listen for a short period of time. She can follow a 1-step direction. However, multi-step directions are very difficult for Lynn. She does not seem to remember the 1st part of what was said. She never asks for help. She will focus her attention on something else that interests her even if all the students are working on a class project. Lynn rarely finishes an assignment. When she does work, it takes her a long time to finish a project. When she's frustrated, she cries.

Safety is a concern. During field trips, it is imperative for Lynn to be paired with an adult the entire time. On her 1st field trip to the zoo, Lynn wandered away from the group. They found her happily talking to an animal trainer and petting a llama. She did not demonstrate an understanding of why the teacher was upset.

Gross motor skills are a strength for Lynn. Her parents have enrolled her in swim lessons, which she seems to enjoy. She is also starting to skate. Fine motor control is coordinated yet slow. Lynn likes to draw with big magic markers. She does have an awkward pencil grip and seems to tire easily.

Student Study Team

Student: Lynn Copeland
Grade: 1st
Teacher: Ms. Meltzer
Today's Date: 1/19/2007

Members of Student Study Team Attending:

Ms. Joanne and Mr. Michael Copeland (Parents)
Ms. Meltzer (1st Grade Teacher)
Ms. Rambler (Speech and Language Specialist)
Ms. Germaine (Principal)
Mr. Barber (Resource Specialist)
Ms. Leitner (School Psychologist)

Important Medical/Educational History:

- 8 year old 1st grader in Ms. Meltzer's class
- Adopted by the Copelands when she was 3 years old
- Pediatrician diagnosed Lynn with FAS at 5 years old
- Repeated kindergarten last year
- Speech and Language evaluation at the beginning of last year

Strengths and Interests:

- Very friendly
- Quite verbal
- Likes to draw
- Swims
- Likes to have stories read to her with illustrations
- Likes to sing
- Enjoys music
- Is learning
- Can read
- Wants to please

Areas of Concern:

- Learning but very slowly; spotty memory
- Needs small group instruction or 1:1
- Short attention span; frequently off task
- Distracts others; speaks out in class
- Rarely finishes work; tires easily
- Easily frustrated; gives up easily
- Difficulty following directions with more than 1 step
- Too friendly; doesn't have personal boundaries; can annoy others
- Change of any sort is very upsetting to Lynn; especially if teacher is absent
- Demands more attention than able to give
- Needs specialized assistance in mathematics
- Lagging behind in written language

What's Been Tried So Far:

- Seat is up front, right next to teacher's desk
- Behavior modification (does not work)
- Responds to positive reinforcement
- Buddy sits next to Lynn and gives directions (helps occasionally)
- Works in small groups or 1:1 when possible
- Attends "Special Friends" with counselor
- Incomplete work sent home
- Fluid communication with parents
- Attends Speech and Language 2x a week

What Needs to Be Done Next:	By Whom:
Try to get the same substitute teacher	Ms. Meltzer - Classroom Teacher
Prepare parents for any changes to schedule	Ms. Meltzer & The Copelands
Modify class assignments; shorten them	Ms. Meltzer
Teacher gives individual instructions and in chunks	Ms. Meltzer
OT evaluation suggested b/c tires easily when writing	OT
Psychoeducational evaluation suggested to determine Lynn's ability and her achievement; give insight into her attention issues, learning strengths, and weaknesses	District Psychologist - Ms. Leitner & Resource Specialist - Mr. Barber
Schedule an IEP meeting when the evaluations are complete (within legal timeframe)	Special Education Secretary/ Resource Specialist
Speech and Language Specialist will present her observations and goals for Lynn at the IEP meeting	Speech & Language Specialist - Ms. Rambler

Individual Education Plan (IEP)

Student Name: Lynn Copeland
Birthdate: 11/18/1998
Today's Date: 3/4/2007

Parents/Guardians: Joanne and Michael Copeland
School: Oakview Elementary
Address: 3 Walnut Avenue
Teacher: Ms. Meltzer
Phone Number: (995) 925-8810
Grade: 1st
Previous School Attended: Strawberry Preschool

Reason for Referral

Lynn is a 1st grade student in Ms. Meltzer 's class. She was adopted by the Copelands when she was 3 years old. She was diagnosed with Fetal Alcohol Spectrum Disorder when she was 5 years old. A Student Study team meeting was held in kindergarten of 2005. The concerns at that time were Lynn's lack of interest in pre-academic skills. She seemed young/immature socially and behaviorally. It was suggested that Lynn attend a 2nd year of kindergarten to help get "caught up." Due to poor language communication including word retrieval difficulties, the team suggested Lynn be evaluated by the Speech and Language Specialist. Lynn qualified for Speech and Language assistance and receives help 2 times a week for 30 minutes.

Lynn's kindergarten teacher notes that the 2nd year of kindergarten was beneficial. Lynn seemed to feel more comfortable having the same teacher again. She developed some pre-academic skills; she made gains in sound/symbol identification. Her attention span improved slightly.

A second Student Study team was held January 19, 2007. Ms. Meltzer reported Lynn demands a great deal of attention to keep her on task. Her assignments must be modified, and she needs to be taught on a 1:1 basis or in small group instruction. Ms. Meltzer also was not certain of Lynn's ability as she performs in an inconsistent manner . Lynn seems to know something one day, and then the next day is unable to remember it. Lynn was referred for a Psychoeducational assessment to help determine her ability , achievement, learning strengths, and learning difficulties. The Student Study team also was concerned with Lynn tiring quickly when given

a writing assignment and her need for sensory stimulation. An Occupational Therapy assessment was recommended. The team expressed concern whether her current 1st grade class is an appropriate placement for her.

Strengths:	Needs:
Quite verbal	To increase attention span; decrease disrupting others
Can read	
Enjoys stories	To become a more independent worker; to increase task completion
Very friendly	
Strong gross motor skills	To follow directions
Enjoys music	To improve math skills
Likes Speech & Language class	To improve written language skills
Wants to please	To improve social skills

The Speech and Language Specialist Reports:

Lynn has been coming to the Speech and Language Center twice a week for 40 minutes for the past 1 year. Lynn is chatty, yet her communication is ineffective. Lynn's language is disorganized, and she is unaware of her listener. She often uses circumlocution because she cannot "find" a word. For instance, Lynn refers to Ms. Grey, the 1st grade aide who Lynn works 1:1 with daily, as "the math lady." She has made significant progress on her articulation. Her speech is intelligible. Lynn's speech and language goals are targeted to increase her metapragmatic abilities to help her with more effective social communication including word retrieval. Lynn enjoys the vocabulary and word association games we play, as well as the role playing of social situations.

The Psychologist and the Resource Specialist Report:

Testing on the WISC-III indicates that Lynn had a wide scatter profile on her subtests. Her Performance IQ was significantly higher than her Verbal IQ. Performance scores require less abstract reasoning and less short-term memory. Verbal memory was particularly weak. She had an overall IQ score in the average range. Testing indicated auditory processing deficits, memory impairments, and attention issues.

Educational testing revealed Lynn is at grade level in reading. She is at the mid-kindergarten level in written language and mathematics. These scores are based on grade; Lynn is an older 1st grade student. During testing, Lynn's attention and focus varied with the subtests. She demonstrated a low frustration level when the assessment became challenging.

The Occupational Therapist Reports:

Lynn demonstrates good gross motor skills. She demonstrates some weakness in fine motor skills that require strength and control. She uses a quadrapod (4-fingered) grasp for writing and exerts a lot of pressure when writing. She has trouble fastening buttons, zippers, and snaps. Lynn needs to work on strengthening her fine motor skills.

The Sensory Profile and clinical observations indicate L ynn has sensory seeking behaviors. She enjoys riding on a scooter board and playing catch with a large ball. Lynn needs some additional sensory strategies to keep her organized and on task.

Lynn is eligible for Occupational Therapist (OT) services twice a week for 30 minutes. In addition to the goals Lynn will work on with the OT, resources will be made available to Lynn's classroom teacher.

IEP Goals:

Area: Focus and Attention

Lynn's classroom attention varies, depending on the subject or activity. When the class is expected to sit quietly and listen to a lesson, Lynn is often restless and distracted easily. She calls out, gets out of her seat, and disturbs other students.

Effective Strategies:

Lynn is focused for some activities: when a story is being read, when music is an integral part of the lesson, and when she is actively engaged in the learning process by multi-sensory presentations.

Lynn's attention is increased when the lesson is structured and academic tasks are broken in small "chunks." Lynn stays on task longer when she is seated in close proximity to her teacher. She also responds positively to eye contact with her teacher .

See Occupational Therapist's report regarding suggestion of inflatable stimulating seat.

Long Term Goal: Lynn will increase her focus and attention.

Short Term Goals:

1. Given a group lesson, Lynn will stay on task for 10 minutes longer as noted by the teacher.
2. Given a group lesson, Lynn will raise her hand if she has a question.
3. Given a group lesson, Lynn will initiate using a squeeze ball instead of getting out of her seat 25% of the time.

Strategies and Resources:

1. Praise and encouragement
2. Modeling and praise
3. Squeeze ball

Area: Improve Study Habits

Lynn does not start assignments independently. A teacher needs to help Lynn organize so she will begin the assignment. Written language and mathematics assignments require small group or 1:1 assistance. She does complete reading assignments although quite slowly . Assignments in mathematics and written language get completed 10% of the time.

Effective Strategies:

Lynn benefits from having directions independently explained to her. In order to get organized Lynn "thinks aloud" with a teacher what tools she will need to complete her assignment without outside help 25% of the time. She reluctantly begins an assignment when a teacher stands by her. These strategies work for Lynn in helpings her begin her work and sustain it: direct eye contact by the teacher, a reinforcement to remind her to work, a study carrel, positive reinforcement, and a lot of "stickers".

Lynn may complete a modified math assignment that is enlarged and shortened. The fewer distractions on a page, the better. Language arts assignments are more easily completed when Lynn uses the computer.

Long Term Goal: Lynn will become a more independent worker.

Short Term Goals:

1. When an assignment is given, Lynn will begin on the assignment with out teacher help 25% of the time.

Strategies and Resources:

1. Reinforcement prop or aid on desk

2. Given a reinforcement or prop to aid with her work, Lynn will work on 2 problems	2. Eye contact, verbal reinforcement
3. Given an assignment, Lynn will self-advocate by asking for repetition, saying directions another way, or asking the teacher to slow down 50% of the time.	3. Modeling, role playing
4. Given an assignment, Lynn will "self talk" and help get organized 25% of the time.	4. "First I get my pencil. Then..."
5. When work is completed, Lynn will put work in the work-basket 3 out of 4 times.	5. Work-basket clearly labeled for COMPLETED WORK

Area: Following Directions

Following more than 1 step in a direction is confusing for Lynn. She usually can repeat back part of a direction, but it doesn' t necessarily mean that she understands it. Testing indicates difficulty with auditory processing.

Effective Strategies:

Please see the Speech and Language Specialist's report. She will be working on this within the context of her speech and language program. In the classroom, Lynn's ability to follow directions is improved when visual cues are given. Repetition also helps. Lynn benefits from the teacher asking other students to explain the directions. Having a "study buddy" next to Lynn has sometimes been helpful as the student can re-explain and show Lynn how to get started. Lynn, however, usually relies on her teacher to individually explain and demonstrate directions to Lynn.

Long Term Goal: Lynn will improve her ability to follow 2-step directions.

Short Term Goals:	Strategies and Resources:
1. Given a group lesson, Lynn will demonstrate understanding of a 2-step direction 50% of the time with teacher assistance.	1. Teacher will explain directions 1:1. Lynn will explain directions back to ther teacher. Teacher ensures understanding.

2. Given a group lesson, Lynn will demonstrate understanding of a 2-step direction with visuals and repetitions 50% of the time.

2. Teacher will use visuals to explain a 2-step direction. Two or 3 students will be asked to re-explain the directions to the class.

Area: Mathematics

Current Performance: Lynn is currently performing at a mid-kindergarten level in mathematics. She requires 1:1 assistance in mathematics. She depends on manipulatives to assist her. She prefers relying on her fingers for counting. Money and time are particularly difficult for Lynn. Mathematical knowledge is inconsistent.

Lynn is working on temporal concepts (yesterday, tomorrow, etc.) with the Speech and Language Specialist. Please refer to her goals.

Lynn is able to:

- Count to 30
- Count by 10's to 100
- Use manipulatives 1:1 with the teacher to determine addition and subtraction problems for 2 numbers that are less than 10 each.
- She is able to identify a penny and a quarter

Lynn is unable to:

- Demonstrate an understanding of the concept of addition or subtraction
- Demonstrate understanding the value of a number; 5, 50, and 500 are all the same
- Identify a nickel and a dime
- Demonstrate an understanding of the value of coins
- Identify time to the nearest hour or demonstrate understanding the concept of time: morning, afternoon, yesterday, tomorrow, before, after

Long Term Goal: Lynn will achieve a mid-1st grade level in mathematics by 3/2007.

Short Term Goals:

Lynn will:

1. Identify time to the nearest hour of everyday events on 3 out of 5 trials.

Strategies and Resources:

1. Linear clock with visuals of everyday events

2. Given 2 sets of objects (up to 10 objects in each group), identify which set is equal to, more than, or less than the other with 75% accuracy.	2. Manipulatives
3. Demonstrate the meaning of simple addition and substration problems in 3 out of 5 trials.	3. Concrete objects or manipulatives
4. Compare and order whole numbers to 30 with 80% accuracy.	4. Manipulatives, number line.
5. Identify a nickel and dime with 100% accuracy.	5. Nickels, dimes
6. Show different combination of coins that equal the same value up to $ .50 with 25% accuracy.	6. Quarters, dimes, nickels, pennies

Area: Written Language

Lynn's written language skills are at a beginning 1st grade level. Lynn is able to write simple words or phrases; she does not write sentences. Fine motor skills are weak. Spacing between letters and words are uneven as is letter size. Lynn tires easily when performing written language tasks. (Please see Occupational Therapist's goals).

Long Term Goal: Lynn will achieve beginning-2nd grade level writing skills by 3/2007.

Short Term Goals:	**Strategies and Resources:**
1. Given a topic with a picture as a cue, Lynn will write one brief sentence 3 out of 4 times.	1. Pictures and topics of interest
2. Given a topic with a picture as a cue, Lynn will write one descriptive sentence 3 out of 4 times.	2. Visualizing/verbalizing method Pictures and topics of interest

3. Given a topic with a picture as a cue, Lynn will independently write 2 sentences 50% of the time.

3. Visualizing/verbalizing method
   Tape recorder/Teacher transcribes
   Word processor

4. Given a white board and marker, Lynn will practice letter size, shape and spacing as noted by the teacher.

4. White board and marker
   Occupational Therapist

Area: Social Skills

Lynn is older than her classmates by 1 - 2 years. Yet, her behavior is very young. She has difficulties with boundaries and often gets too close to the other students. She often will hug her classmates; sometimes she stares at them. When she does play, she often plays by herself or with the younger children at the school. Her classmates tend to treat her like a younger child. They try to help her or they give her a wide berth. (Please see the school counselor's observations).

Long Term Goal: Lynn will strengthen her relationship with peers in her grade.

Short Term Goals:

1. Lynn will develop appropriate ways to get attention with her peers as noted by her teacher.
2. Lynn will learn how to play grade appropriate games with her peers as noted by the teacher and P.E. instructor.
3. Lynn will learn personal boundaries as noted by her teacher.

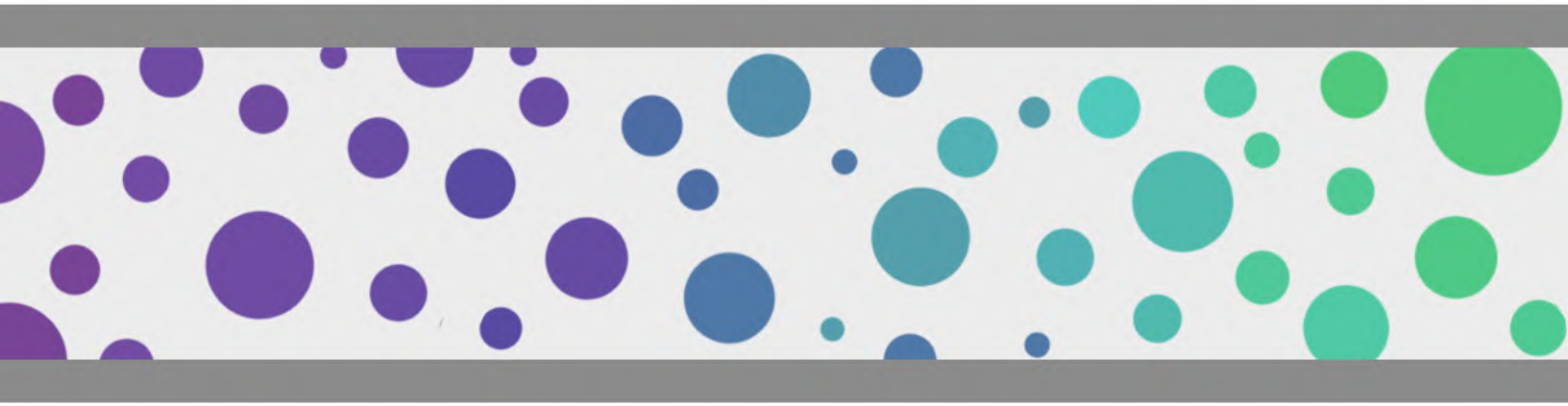
Strategies and Resources:

1, 2, 3. Role play/modeling
   Social Skills Group
   School Psychologist
   School Counselor
   P.E. Instructor
   Teach positive self-talk

Team Recommendations:

The team agrees that Lynn's academic needs cannot be met in a regular classroom at this point in time. The least restrictive environment for Lynn is a Special Day Class. This small group setting will address Lynn's needs for individualized and small group instruction. She will also attend pull-out classes for Speech and Language, as well as Occupational Therapy.

Case Study 2



Case 2: Robbie Vern

Information for a Student Study on Robbie Vern

Robbie is a 10 year old 4th grade student attending Baker Elementary School. Robbie was premature and was in intensive care for the 1st two weeks of his life. His early developmental milestones were delayed. His parents attributed these developmental delays to his premature birth. By the time Robbie was 2 years old, he was a strong, healthy toddler. Robbie's parents separated when Robbie was 3 years old. His parents had joint custody, but Robbie spent most of his time with his father, as his mother was often ill. She died 3 years ago when Robbie was beginning 1st grade. He currently lives with his father, his stepmother, and his 9 month old baby stepbrother.

When Robbie was in the middle of 3rd grade, Mr. Vern, Robbie's father, began having some concerns regarding Robbie's "quirkiness." Sometimes Robbie seemed to "space out" and lose focus. Robbie, a bright child, talented mechanically and artistically, had trouble explaining things. Also, Robbie didn't "get things" that Mr. Vern felt that Robbie should understand. He didn't make logical connections. When Mr.Vern brought his concerns to Robbie's 3rd grade teacher, she reassured Mr. Vern that Robbie was doing fine in school. She believed the sporadic inattentiveness and forgetfulness she observed in class were due to the major changes in his life: the recent loss of his mother and his new family situation. She thought it unlikely, but wondered if Robbie might have ADD.

Reports from previous teachers indicate that Robbie has been an average student from kindergarten through grade 3. He has made the Honor Roll in 2nd and 3rd grades. He has been a conscientious student, and his teachers remark that he is a hard worker. His past teachers describe him as sweet, outgoing, talkative, and somewhat absent-minded. He has never been a discipline problem.

Mr. Vern's concerns for Robbie have increased this year. This past February, Mr. Vern met with Dr. Stevens, a child psychologist. In March, a physican diagnosed Robbie with a Fetal Alcohol Spectrum Disorder (FASD) called Alcohol-Related Neurodevelopmental Disorder (ARND).

Robbie's core 4th grade teacher, Mr. Sweeney, and Mr. Vern have requested a Student Study team meeting. Mr. Vern plans to discuss the FASD diagnosis with the Student Study Team. Mr. Sweeney is concerned that Robbie is anxious and seems to be struggling to keep up in some areas. Robbie used to love attending school and now it seems to be quite stressful for him. Mr. Vern reports that Robbie does not want to go to school and often comes home in tears.

Robbie has told his father that school is too hard, and he hates math. Mr. Vern reports that math has never been an issue for Robbie in the past.

Mr. Sweeney reports that at the beginning of the school year, Robbie was completing all of his assignments. Robbie was outgoing and seemed happy. He worked slowly but steadily. However, as the school year has progressed, Robbie has become quieter and more withdrawn. Several of Robbie's mid-year homework assignments and class assignments are incomplete, and some have not been turned in to the teacher.

Academically, Robbie has always been strong in language arts. Mr. Sweeney reports that Robbie consistently receives As and Bs on his weekly spelling tests. Robbie is an active participant during oral reading, and he always follows along. His decoding skills are satisfactory for 4th grade. He is able to sound out multi-syllabic words and has a good 4th grade vocabulary. During class discussion, Robbie demonstrates a basic understanding of what he has read, usually understanding the plot of a story, characters, and the setting. He is less able to accurately make predictions or draw conclusions regarding class novels. Some of his responses to comprehension questions are way off target, answering questions with his wishes or his experiences. Sometimes he does not respond at all. While he appears to be paying attention, it's possible he's daydreaming. Mr. Sweeney wonders if he's seeking attention from his classmates even though this seems uncharacteristic of Robbie. When directions are presented verbally, Robbie does not always seem to know what to do even though he can repeat the directions back. Mr. Sweeney has discovered that if Robbie hears the directions 2 or 3 times, then he seems to know what to do.

When a written language assignment is short, Robbie does quite well. He willingly writes captions to his drawings, cartoons, and paintings. When an assignment requires writing more than 2 or 3 sentences, he resists. He is able to explain what a paragraph includes, but his paragraphs lose their original focus. He has difficulty sequencing his written ideas unless an adult helps him organizes his thoughts. Written language assignments begun in class are rarely completed in class. Instead, Robbie finishes his assignments at home. Several of those assignments are not turned in. Robbie says some of the missing assignments he did complete, but he just doesn't know where they are. The written language assignments that are turned in are typed up on the computer. Robbie says that writing assignments are easier for him when he uses the computer. He has produced very little for his portfolio this year.

In 4th grade, the students are placed in ability groups for mathematics. Robbie leaves his core class to attend math class with Ms. Kazan. Robbie seems to be having difficulty transitioning from one class to the next. He is often late to class, and if he remembers his math book, it is

disorganized. Some of the other 4th grade students experienced similar difficulties getting used to the 4th grade routine of switching classes. However, at this late point in the school year, most of the students have become comfortable with the routine. Robbie continues to seem anxious and concerned about the transitions.

He takes pride in knowing his math facts, does well on quizzes, and enjoys playing math games. Long division has been difficult for Robbie; he does not consistently remember the sequence of steps required for long division. He has struggled with problem solving, especially when more than 1 operation is needed. Surprisingly, he cannot read a clock. When a new math concept is presented in class, Robbie sometimes looks agitated and squirms in his seat. Other times he is found doodling. He never disturbs anyone else. When the lesson is over and the other students are working independently, Robbie asks for help. Robbie does not turn in all of his math homework. When questioned about this he says, “Sorry, I forgot." Losing recess has not changed his intermittent pattern of turning in homework.

Science continues to be Robbie's favorite subject. He is very curious and actively participates in science class. Robbie likes science lessons that involve marine animals, plants, and astronomy. Most of the science classes are hands-on and group work. Robbie is a strong class participant and a valuable member to the science class.

Robbie’s next-door neighbor, also a 4th grader, has been his best friend since 1st grade. Robbie gets along with other students but has few friends. He is a follower, not a leader. He seems to enjoy individual sports (bike riding, swimming) and does not tend to play group sports games at recess. During free time, Robbie chooses computer games or card games with 1 student. He does not join other students when they play board games during free time. Robbie is the class artist and enjoys drawing and painting. He paints all the class posters for bake sales and open house. He is a whiz at taking things apart and putting them back together .

Ms. Kazan and Mr. Sweeney both raise some concerns:

Robbie is clearly very bright and quite capable verbally.

Does Robbie have emotional issues that are interfering with his academic progress?
Does Robbie have ADD?
Is it possible that Robbie has some learning disabilities?
Is Robbie lazy or seeking attention?
What does the diagnosis ARND mean? Does this affect Robbie’s school experience?

Student Study Team

Student: Robbie Vern
Grade: 4th
Today's Date: 4/4/2007
Teachers: Mr. Sweeney (Core)
Ms. Kazan (Mathematics)

Members Attending Student Study Team

Mr. Alan Vern (Father)
Mr. Sweeney (Core Teacher)
Ms. Kazan (Mathematics Teacher)
Mr. Beckler (Principal)
Ms. Lundgren (Resource Teacher)
Ms. Freemire (School Psychologist)

Important Medical/Educational History:

- 10 year old 4th grader in Mr. Sweeney's class
- Parents separated when Robbie was 3 years old
- Robbie was mainly in father's custody after the divorce
- Biological mother died 3.5 years ago (9/15/04) of liver cirrhosis
- Lives with father, stepmother, and 9 month old stepbrother
- Last month, in March 2007, Robbie was diagnosed with ARND

Strengths and Interests:

- Has friends
- Verbal
- Artistic (paints and draws)
- Swims
- Bikes
- Enjoys computer games
- Loves science
- Likes to read
- Gets along well with adults
- Cares about how he's doing in school

Areas of Concern:

- Frustrated this year in school
- Missing some verbal directions
- Not turning in all of his class assignments or homework
- Difficulty comprehending some of his reading
- Needing 1:1 help with some 4th grade math concepts
- Difficulty transitioning to math class
- Father's concern: Understanding the diagnosis of ARND to create a successful educational environment for his son

What's Been Tried So Far:

- Given 1:1 help in mathematics when a new concept is introduced
- Home tutor in math 1x a week
- Father helps with some written assignments
- Robbie has come for some after school help in reading comprehension
- Dr. Stevens, Child Psychologist, consulted (February 2007 and ongoing)

What Needs to Be Done Next:	By Whom:
Permission to assess paperwork	Resource Teacher - Ms. Lundgren
Educational Assessment	Resource Teacher - Ms. Lundgren
Consult Dr. Stevens regarding Psychological Assessment given in 2/07	School Psychologist - Ms. Freemire and Dr, Stevens
Determine whether there's a need for School Psychologist to give further testing	
Schedule IEP meeting (within legal time frame)	Resource Teacher - Ms. Lundren
Request District Special Education Director present information on FASD with emphasis on creating a successful school environment for teachers, professional staff, and Robbie's father	Principal - Mr. Beckler
Request District Special Education Director attend Robbie's IEP	
Modify math and written language assignments	4th grade teachers: Mr. Sweeney and Ms. Kazan
Preread at home to help with reading comprehension	Robbie's father - Mr. Vern
Assist with transition to math—provide a math buddy	4th grade teacher - Mr. Sweeney

Individual Education Plan (IEP)

Student Name: Robbie Vern
Birthdate: 2/17/1998
Today's Date: 6/10/2007

Parents/Guardians: Alan Vern
School: Baker Elementary
Address: 10 Elm Avenue
Teacher: Mr. Sweeney
Phone Number: (997) 383-3665
Grade: 4th

Reason for Referral

Robbie is a 4th grader in Mr. Sweeney's class. He was referred to the Student Study team by his father and Mr. Sweeney. They were both concerned with the increasing anxiety Robbie' s exhibiting in class and at home. Robbie often does not want to go to school. He often comes home from school in tears reporting that school is too hard. In the past, Robbie has been a solid student. He has always been a hard worker and liked attending school.

When Robbie was in 3rd grade, Robbie' s father, Mr. Vern, had some concerns regarding his son. This year, Robbie's frustration and school avoidance has resulted in a consultation with Dr. Stevens, a child psychologist, in February 2007. Dr. Stevens met with Robbie and gave him a psychological assessment. She indicated that Robbie might have Fetal Alcohol Spectrum Disorder. The following month in March, a physician later diagnosed Robbie with Alcohol-Related Neurodevelopmental Disorder. Mr. Vern feels that it is important for the staff to understand ARND in order to provide a successful educational environment for Robbie. Ms. Pankin, the Director of Special Education for the district, has recently presented an after school workshop for the staff at Baker Elementary on FASD. Ms. Pankin's presentation was well-received by the staff. Effective teaching techniques and educational strategies for students with FASD (which includes ARND) are reflected in this IEP.

Mr. Sweeney describes Robbie as a likeable student. Mr. Sweeney believes Robbie wants to do his best; however, Robbie seems forgetful at times and does not always pay attention. Mr. Sweeney views Robbie as an inconsistent learner; he knows something one day and another day he can't seem to remember what he learned previously. Reading comprehension is weak and his written language production is below grade level. Mr. Sweeney is concerned with

Robbie's poor organizational skills especially evidenced when he switches classes for mathematics. Robbie needs peer and adult cues to help remind him to bring his math materials to class.

Ms. Kazan, Robbie's math teacher, indicates that Robbie is a capable student. However , at times math does seem stressful for Robbie. On occasion he has bitten his pencil and eraser and torn papers from pressing down too hard on his pencil. Ms. Kazan's academic concerns are in the areas of problem solving, long division, and telling time.

The Student Study Team suggested Robbie receive an educational evaluation and ap sychological assessment to profile his learning strengths and areas of concern.

Strengths:	Needs:
• Verbal • Has friends • Cares about school • Gets along well with adults • Likes to read • Reading • Decoding • Spelling • Math facts • Loves science • Good keyboarding skills • Computer games • Artistic • Mechanical	• Small group help with reading • Comprehension • Small group help with difddicult math concepts • Assistance with the organization of written language, memory and processing strategies • Assistance with turning in class work and homework • Assistance with transitions

Dr. Stevens, Child Psychologist, Reports:

Alcohol-Related Neurodevelopmental Disorder (ARND) is a hidden disorder. Robbie does not show any of the physical characteristics present in Fetal Alcohol Syndrome (FAS). He does not show abnormal facial features, or have a small head, or short stature. Robbie does have some mild learning and behavioral difficulties that are typical of ARND. His IQ score is at the high end of average. Neuropsychological measures indicate memory deficits, distractibility, and weak abstract reasoning. Sequential skills were weak, and he demonstrated a

haphazard approach to some tasks. The cognitive difficulties Robbie is experiencing are greater than would be assumed by solely looking at his IQ.

As expressed in his psychological assessment and demonstrated in the classroom, Robbie has been anxious about school. Robbie describes feeling "stupid, because no matter how hard I try, I make a lot of mistakes. I'm letting my dad and my teachers down."

Two weeks ago, Mr. Vern, Robbie, and I sat down to discuss ARND. Robbie was relieved to learn about ARND and realized that his difficulties weren't all his fault. He responded, "Oh, so that's it! I didn't do anything wrong."

Ms. Lundgren, Resource Specialist, Reports:

Robbie has many educational strengths. Robbie enjoys reading and does read for pleasure. His overall reading is at grade level, 4.9 grade equivalent. His reading decoding is above grade level, and he has a good vocabulary. His reading comprehension scores are 1.5 years below his decoding scores. Literal comprehension is strong; inferential comprehension is more difficult for Robbie.

In written language, Robbie tests at grade level in spelling. When given individual picture prompts, Robbie is able to write complete sentences at a beginning 5th grade level. When asked to write a composition, given a picture prompt, Robbie's written language scores fall to the mid 3rd grade level. He started off with a topic sentence and then his thoughts rambled. He never completed the task. Robbie was biting his pencil throughout this subtest.

Mathematics has always been a strong area for Robbie, and he is scoring at grade level. His standardized scores are at the 50th, lower than last year 's state achievement scores, which were at the 72nd percentile. Robbie worked slowly on the mathematics subtests. He guessed on several word problems, frequently asking if he was proceeding correctly. He is able to do simple division, but he becomes confused with the process of long division. Telling time was a particularly weak skill.

Ms. Freemire, School Psychologist, Reports:

Robbie has been identified as having one of the FASD called ARND. Psychological and educational testing indicate that Robbie's IQ is an above average IQ. However , ARND causes behavioral and cognitive impairments.

Some of the learning issues Robbie has that have been identified with ARND are:

- Difficulty with abstract concepts
- Memory deficits
- Attentional issues
- Difficulty with transitions

Some of the behavioral issues Robbie has exhibited in class can be explained by his ARND disorder:

- Attention seeking may be due to an inability to understand
- Incomplete schoolwork or homework may be due to memory deficits

IEP Goals:

Area: Reading Comprehension

Reading decoding scores are at grade level. Reading comprehension scores are at a 3.5 grade level. Robbie is having particular difficulty understanding the main idea, the author's point of view, and drawing conclusions and inferences when facts are not stated directly.

Effective Strategies:

Robbie's reading comprehension is strengthened when a teacher provides the chapter review and chapter questions before the reading assignment has begun.

Long Term Goal: Robbie will increase his reading comprehension skills to a beginning 5th grade level.

Short Term Goals:

1. Given five short stories at the 3.5 grade Robbie identify the main idea with 80% accuracy.

2. Given a short chapter book at the 4.0 grade level, Robbie will answer 5 inferential questions with 80% accuracy.

Strategies and Resources:

1. Reduce distractions.
   Highlight important information.
   Use contextual clues.
   Use a visualizing/verbalizing technique.
   Use praise.

2. Use above strategies and pre-read chapter review and questions.

3. Given a short reading assignment at the 4.5 grade level, Robbie will identify the author's point of view 3 out of 4 times.	3. Use above strategies for 1 & 2 and give multiple choice answers.
4. Given a short novel at the 5.0 grade level, Robbie will orally summarize each chapter accurately as measured by the teacher.	4. Use strategies for 1 & 2. Books on tape
5. After completing the novel in #4, Robbie will answer 10 comprehension questions including literal, inferential, and the author's message with 80% accuracy.	5. Use all the above strategies including some multiple choice answer.

Area: Written Language

Robbie has a good vocabulary and is very imaginative. He is able to write in complete sentences. Paragraph writing is laborious for Robbie. While Robbie starts off with a strong beginning, he has difficulty sequencing his story properly. His story becomes jumbled, and he gets off track.

Effective Strategies:

When Robbie dictates a paragraph to the teacher, he is better able to stay in sequence and remain with the topic.

Picture cues stimulate ideas and assist Robbie in staying on topic.

Long Term Goal: Robbie will write a beginning 4th grade level paragraph essay .

Short Term Goals:

Strategies and Resources:
For All:

Find a quiet space to work.
Provide picture cues.
Provide practice.
Provide topics of interest.
Reinforce and praise.

1. Given a topic, Robbie will independently use brainstorming and thought mapping 3 out of 4 times.	1. Provide sample thought maps. Provide sample brainstorming/ inspirations.
2. Given 4 situations, Robbie will write step-by-step directions (e.g. recipe, brusing teeth) with the proper sequence 75% of the time.	2. Provide a sample sets of directions. Follow directions, does it work? Draw pictures for each step.
3. Robbie will chose a topic and write a paragraph, including a topic sentence, supporting sentences, and a conclusion as noted by the teacher.	3. Use word processing. Brainstorm/inspirations Thought mapping Draw 4 pictures and write captions underneath. Write a skeleton/outline. Allow extra time. Use a tape recorder..
4. Robbie will chose a topic and write a 3 paragraph essay as noted by the teacher.	4. See #3 above. Model, practice and provide samples.

Area: Mathematics

Robbie is testing slightly below grade level on the educational assessment he was given (4.3 GE). His standardized test score for 4th grade is at the 50th percentile. Strongest for Robbie is his ability to add and subtract, including regrouping for both operations. Robbie also knows his math facts for addition, subtraction, multiplication, and division.

Word problems are difficult for Robbie to solve, and at times, he becomes confused by extraneous wording. When word problems involve more than 1 step, Robbie isn't certain which operation to use or where to begin. About 50% of the time Robbie is able to correctly complete a long division problem. When Robbie does make long division errors, they are sequential in nature. Robbie's weakest math skill is telling time.

Effective Strategies:

- When a new concept is introduced, Robbie receives 1:1 assistance.
- Robbie benefits from an example of long division broken up in steps.
- When Robbie, with the teacher's assistance, draws a word problem picture, he is more likely to solve the word problem correctly.
- Robbie wears a digital watch.
- In certain areas Robbie needs to be given modified math assignments.
- Testing may require extended time.

Long Term Goal: Robbie will gain 1 1/2 years of growth in mathematics.

Short Term Goals:	**Strategies and Resources:**
1. Given 5 long division problems with a single digit divisor and a 3 or 4 digit dividend, Robbie will compute with 80% accuracy or higher.	1. Find a quiet place to work. Use long division process cards. Allow extra time. Use graph paper. Include a few problems on a page. Practice by working the 1st long division problem of the day with Robbie. Use real-life situations (e.g. money). Use a calculator to practice division and check answers. Use reinforcement & praise.
2. Given 4 word problems at a mid-4th grade level that require a one-step process, Robbie will identify the key words that indicate the mathematical operation with 100% accuracy.	2-4. Find a quiet place to work. Allow extra time. Include a few problems on a page. Discuss and provide key words required operations. Use real life situations.
3. Given 4 word problems at a 5.0 grade level that require a two-step process, Robbie will analyze aloud the steps required to solve the word problem with 75% accuracy.	Create concrete representations of the word problems. Allow use of a calculator. Provide a number line to use as a reference.
4. Given 4 word problems at mid 5th grade level that require a two-step	

process Robbie will restate the word problem in his own words and compute with 75% accuracy.

5. Robbie will match a linear clock with a face clock and digital clock/watch 4x during the day, and tell time.

5. Linear clock with key events
Maniupulative face clock
Digital clock/watch accuracy

Area: Homework And Class Assignments

Robbie completes to turn in approximately half of his class and homework assignments.

Effective Strategies:

- Communication with parents is helpful.

Long Term Goal: Robbie will complete and hand in 90% of his assignments.

Short Term Goals:

1. Given 10 assignments, Robbie will ask for help if he needs it 90% of the time.

Strategies and Resources:
For All:

Provide short, successful assignments.
Provide enough time.
Have Robbie work in a quiet area.
Ask Robbie to explain the assignment to demonstrate understanding.
Provide written and oral instructions.
Develop self-talk strategies to organize and complete the assignment.
Reinforce and praise.

2. Robbie will turn in completed homework and class assignments 90% of the time.

2. Assign a peer to remind Robbie to turn in completed work.
Establish a time to turn in completed homework (before school begins).
Set up homework and class bins to put completed assignments.
Create a daily assignment sheet.
Provide a homework sheet/ notebook that requires a parent signature.
Put homework assignments on line.

Area: Transitions

Robbie has a difficult time getting organized to go to math class. He is usually the last one to leave for any transition. He also worries when his core teacher, Mr. Sweeney, is absent.

Effective Strategies:

- Peer or buddy helpers reminding Robbie that math class is approaching have been beneficial.
- Letting Robbie know ahead of time if there is going to be a disruption to the schedule (teacher's absence, assembly, etc.).
- Communication with Robbie's father is helpful if there's a big change of any sort.

Long Term Goal: Robbie will transition from one class to the next with greater success.

Short Term Goals:

1. Robbie will be on time and come prepared for class 95% of the time.

Strategies and Resources:

1. Set up a transition time.
   Provide a peer or buddy to remind about the transition.
   Provide cues and assistance.
   Offer rehearsals.
   Limit transitions.
   Have 1 set of books in 2nd class.
   Have 1 color-coded notebook for all subjects.
   Provide consistency and routine.

Area: Attention

Robbie is less attentive when he finds the subject matter of an assignment difficult or if it does not interest him. He is easily distracted. He sometimes withdraws, looks out the window, and seems to be in his own world. He does not know directions to some of the assignments.

Effective Strategies:

- Robbie is most focused when he sits close to the teacher.
- Robbie is focused and attentive in science class.

Long Term Goal: Robbie will increase his attention span.

Short Term Goals:

1. Robbie will increase his time on independent assignments as noted by the teacher.

2. Robbie will increase his participation in class lessons as noted by the teacher.

Strategies and Resources:

1. Provide enough time.
   Use of quiet study space to reduce distractions.
   Provide brief and successful assignments.

2. Pair verbal lessons with visuals.
   Provide multi-sensory teaching techniques.
   Periodically ensure understanding.
   Decrease distractions.
   Reinforce and praise.

Team Recommendations:

The team recommends that Robbie continue in the regular education classes. Next year in 5th grade, Robbie should stay with his core teacher for all subjects including math. Thus, math transition will be eliminated. He will receive assistance from the Resource Specialist in a variety of ways. The Resource Specialist will consult with Robbie's core teacher. The Resource Specialist can serve Robbie in the regular education class. He will also receive pull-out services from the Resource Specialist as needed. The last period of the day will be spent in the Resource Room to work on IEP goals, review assignments, and work on homework.

Strategies for Other Educational Professionals

Strategies for Other Educational Professionals

The school is the most important institution to influence the life of the FASD student. The school experience has the possibility of enhancing a student's life, or conversely, if the school fails to recognize the many difficulties FASD students experience, devastating secondary characteristics (such as school disruption) could unfold. In order to provide a positive educational experience for the FASD student, a variety of school personnel may be involved.

School Administrators (Principal, Vice Principal, Special Education Director)

School administrators have the very important job of making sure that the staff is familiar with FASD. Whether or not FASD students have been identified, they are being taught in our schools. Educators who recognize this invisible handicap can make a life-long differences in these students' lives. The staff must be informed about the nature of FASD, and they should should be given the educational tools to help these students perform to the best of their ability.

The school administrator should make certain that a Student Study Team (SST) model is in place at the school. This is an opportunity for the classroom teacher and other educational professionals to discuss their concerns about a student. The Student Study Team is a vehicle for identified students to be referred for a medical evaluation or a psychoeducational evaluation if they are considered at "risk." While teachers are not qualified to diagnose a student, they can identify those students of concern. An early diagnosis is the single most contributing factor to positive success for an FASD student.

The principal or vice principal usually officiates at the SST. She/he is also an important member of the IEP, offering insight into how the student handles himself and interacts with others on campus.

Finally, it is important for the administrator in charge of school discipline to understand the FASD student's motivation behind any misconduct. Typically, the FASD student is not willfully misbehaving. Rather, he/she has difficulty understanding verbal directions and has difficulty interpreting social cues form peers and authority figures. School administrators

responsible for student discipline should understand that the punishment appropriate for willful misbehavior is not appropriate for FASD students who have limited social judgment abilities.

School Psychologists/School Counselors

The school psychologist or school counselor is a valuable support to the classroom teacher throughout the school year. A classroom teacher may request the school psychologist/counselor to visit the classroom to observe the FASD student in the educational setting. The school psychologist/counselor may help determine what is frustrating the student or how to assist with difficulties such as transitions. She may advise teachers on classroom management, make suggestions for new behavioral techniques, or assist with learning problems.

The school psychologist and school counselor are able to provide counseling for the student. These professionals can help students cope with stress they experience. They can teach social skills, perhaps they will run a "Social Skills" group at school or a "Special Friends" group. This supportive professional is a very important liaison for the FASD student who can be emotionally sensitive. The school psychologist or the school counselor is best qualified to provide crisis intervention if a crisis arises.

The school psychologist or school counselor is a member of the SST and IEP Team. The school psychologist assesses the student's IQ and academic ability. Their testing also indicates the student's learning style, strengths, and weaknesses. The social and emotional development of the student can also be assessed. These tests can assist in a diagnosis. As a member of the IEP team, the psychologist will assist with planning educational and behavioral goals.

Resource Specialist

The resource specialist is a member of the SST and of the IEP. The resource specialist is able to support the classroom teacher in several ways. The classroom teacher may request the resource specialist observe the student in the classroom, or in another school setting. The resource teacher offers feedback from the observation to the classroom teacher.

The resource specialist tests for academic achievement, learning disabilities, and learning strengths and weaknesses. Testing results, shared at the IEP, will suggest what kind of academic support the student needs. Whether the student requires special education, resource assistance, or remains in the regular classroom, the resource specialist can suggest academic and behavioral modifications to help the student manage his behavior and reach his academic potential.

School Nurse

The school nurse develops an Individual Health Plan (IHP). Medication is kept in the nurse's office, and the nurse dispenses any medication. Health care needs and concerns related to school are coordinated by the school nurse. Pertinent information is communicated with teachers and staff.

The nurse may be called when a student has had an injury. The FASD student has a high threshold for pain. He may be seriously injured and may not realize it. The nurse should make certain that a yearly hearing screening is given. Ear infections are quite common, and the FASD student may not feel the discomfort indicating an ear infection. Ear infections can interfere with hearing, and the FASD student may be unaware that they are missing information presented orally. Vision screening should also occur annually. FASD students who are having tracking difficulty or difficulty seeing may not be aware of these problems. This may impact their performance in all academic subjects, especially in reading.

If there are significant health issues, the school nurse may be asked to be a member of the IEP team.

Speech and Language Specialist

> Children with FAS[D] usually show some degree of language disability or delayed language development. They often have significant problems in communicating regardless of whether or not their general development is delayed. This difficulty with language affects social communication as well as academic learning.
> (Conry, 1996).

The speech and language specialist should be consulted when working with this population. While the FASD population has a wide range of language profiles, there are certain language deficits that characterize the speech and language of these students. The FASD student often appears loquacious and engaging, leading teachers to believe their expressive and receptive language are adequate. However, this may be masking serious language problems. Often the FASD student has a lot to say with little substance. He/she may be able to repeat information, but it does not mean they understand it. As a result, these students have pragmatic skill deficits. They have difficulty with their interpersonal skills, communicating, and socializing.

There are many speech and language disorders associated with FASD. The speech and language specialist evaluates for voice and articulation disorders, speech delay, and language disorders. Expressive and receptive language should be assessed. The pragmatic skills are of prime importance to assess. If it is determined the student qualifies for speech and language assistance, the speech and language specialist will provide therapy .

The speech and language specialist is an important member of the SST and a primary member of the IEP team.

Occupational Therapist

This professional helps to improve motor functions. An occupational therapist diagnoses arm and hand weaknesses and also determines whether a student has sensory motor difficulties. The student may work with an occupational therapist in the classroom, in a "pull-out" during school, or after school. An occupational therapist is a wonderful resource to the teacher, suggesting adaptations and modifications to assist in learning (e.g., fine motor tasks such as cutting, coloring, and handwriting). The occupational therapist may also be resourceful in suggesting various sensory supports to help improve student focus and attention. The occupational therapist can be a valuable member of the IEP team.

Advocate

Janey had FASD and was diagnosed when she was 10 years old. Her adoptive parents who were attuned to her needs had been pleased with her academic success up through the fourth grade. As she entered the fifth grade at a new school, however, she seemed to be at psychosocial risk because of her maladaptive behaviors, which isolated her socially. Although Janey had an IQ score in the normal range and was passing all her subjects (particularly favoring science), she'd been kicked out of Girl Scouts and made a laughingstock among her classmates because of the "whoppers" she told—unbelievable stories with sexy, gory details.

The school nurse, recognizing Janey's need, became her advocate. Every day from then on, Janey took her sack lunch into the nurse's office and ate with her. This allowed the nurse to carefully monitor the day's activities, assess Janey's stress level in relation to her various academic subjects, and provide Janey with some respite from her most stressful activity - peer interactions. The nurse, her advocate at school, was also in close touch with her parents, her advocates at home. Working together, they gave her enough support to get her through her first year at the new school while she brought her social behaviors under better control.
(Streissguth, 1997)

The FASD student has complex needs. In the school, there are many adults assisting these students experience a successful education, in spite of the many challenges these students face. To assign one person, a school-based advocate, to check in with the staff, the classroom teacher, the parents, and the student on a regular basis is invaluable. An advocate is someone at the school who works on the student' s behalf. Advocates can be nurses, classroom teachers, resource specialists, school counselors, administrators, speech and language specialists--anyone who is comfortable and able to take on this role.

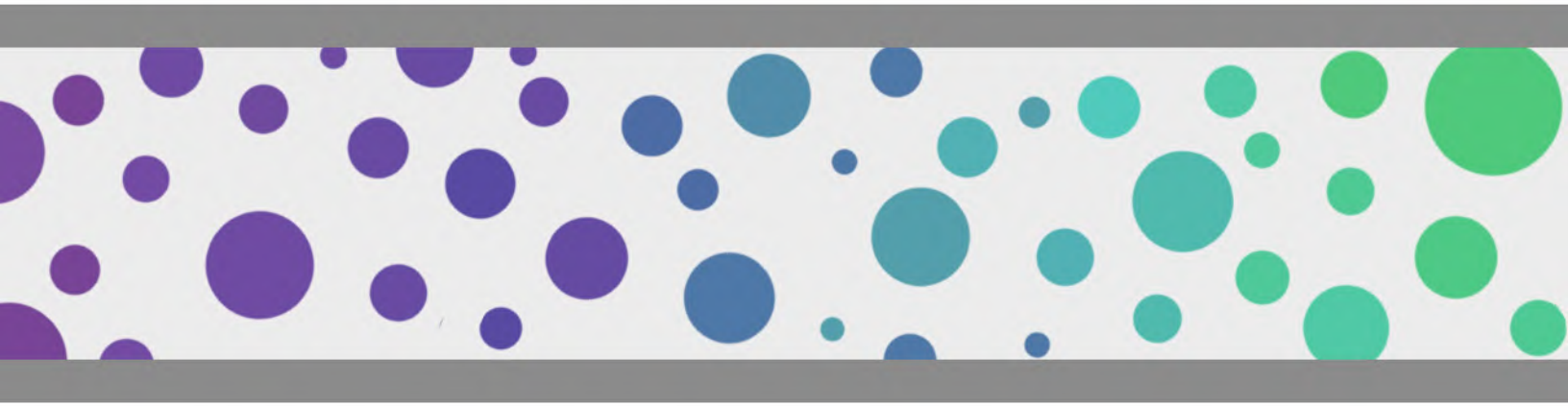
...she would listen to me and tell me all the good things that she saw about me. I never had that with anyone, really. I think that's what made the difference in grade 7. She made me feel good about myself and that made me turn myself around. (Copeland and Rutman 1996)

Task of the school advocate of a student with FAS[D] (Streissguth, 1997)

- Befriend the student in an advocacy relationship.
- Provide a safe haven where the student can stop in and chat.
- Talk to the student regarding concerns, confusions, misperceptions, and perceived injustices going on in his or her everyday life at school. The initial goal is to understand the student's perspective - to try to feel how the world feels to this student. The goal is not to uncover historical data, to interpret or criticize past behaviors, or (initially) to give unsolicited advice.
- Become a clearinghouse of information on the student, receiving complaints, crisis reports, and compliments from teachers and school personnel.
- Initiate observations of the student in problem settings, such as functional analysis of behavior to determine factors related to problem behaviors.
- Mediate as needed between the student and teachers and between the student and other students.
- Coordinate between school and parents with respect to the student' s needs, perceptions, and misperceptions. Diffuse potential parent/teacher misunderstandings by establishing direct links of communication, such as regular telephone calls and notes.
- Give direct help. After the relationship is established, it is possible to give quite a bit of direct advice and feedback to the student with FAS[D].

... I would like to have a counselor that I can go to see whenever it feels like it's too much to handle in the class. I need to be allowed to just leave the class or the hall when I feel like my head is spinning from too much movement around me. (Copeland and Rutman, 1996)

Appendix



Amygdala – an area of the brain beneath the cerebral cortex near the underside of the brain. It is involved in mood and emotions. A dysfunctional amygdala results in anxiety and moodiness.

Apoptosis – a genetically-programmed form of cell death — 'cell death by suicide;' during development those neurons that don't grow properly self-destruct.

Attention Deficit Disorder (ADD) – a neurologically-based condition in which the individual has significant impairment in academic, social, or occupational functioning due to symptoms of inattention and impulsivity. If hyperactivity is present, the disorder is called ADHD.

Axon – a long appendage leaving the neuron cell body that ends in a terminal. Electrical impulses flow from the cell body down the axon to the terminal where neurotransmitters are released.

Basal ganglia – a set of structures beneath the cerebral cortex, in the middle of the brain, that includes the caudate nucleus. These structures govern movement, cognition, executive functioning, and mood.

Caudate nucleus – a structure beneath the cerebral cortex that controls movement, cognition, and executive function.

Corpus callosum – a set of nerve bundles that connect the right and left hemispheres of the brain. These myelinated nerve fibers help govern cognition, motor function, verbal learning, and executive function. Prenatal alcohol exposure can prevent the corpus callosum from developing.

Cerebellum – a structure that lies above the brainstem; it governs balance and coordination, and it plays a role in cognition, language fluency, and perception of time.

Cerebral Cortex – the largest part of the brain; it is highly developed, consisting of 4 lobes that govern thinking, reasoning, movement, touch, vision, hearing, and smell. Specific areas within the cerebral cortex are responsible for speech and language, attention, judgment, impulsivity, abstract thought, and working memory.

Cognition – the psychological result of perception, learning, and reasoning.

Dendrite – a branching-like part of the neuron that contains numerous synapses for receiving information from other neurons. Information flows from the dendrite toward the cell body.

Dendritic spine – small protrusions on dendrites; these contain the synapses for receiving information from a neighboring neuron. Prenatal alcohol exposure decreases the density of spines on dendrites.

Dopamine – a neurotransmitter that is important in motor function, mood, judgment, executive functioning, and attention.

Executive function – a cluster of processes involved in the ability to plan and guide behavior to achieve a goal in an efficient manner.

γ-Aminobutyric acid (GABA) – a neurotransmitter that is important in learning and memory, anxiety, and sleep.

Glial cell – a major cell-type in the brain that provides support and clears away debris; during development, it provides a scaffold to help neurons migrate to the places they need to be.

Glutamate – a neurotransmitter that is important in learning and memory.

Habituation – the ability of an organism to "tune out" the many stimuli confronting it that are not relevant to its well-being.

Hippocampus – a curved structure that lies deep in the heart of the brain; it is very important in learning and memory.

Individual Education Plan (IEP) – the specific educational plan and strategies designed for a student who qualifies for special education services under PL 94-142 (IDEA).

Least restrictive environment – from PL 94-142 (IDEA) requiring that, to the greatest extent possible, students with disabilities must be educated with their non-disabled peers.

Magnetic resonance imaging (MRI) – an imaging technique that uses electromagnetic forces to detect the structures deep inside the body. It has excellent resolution, providing detailed 3D information about brain structures.

Mainstreaming – placing students with special needs in regular education classes with accommodations and modification support services.

Metapragmatics – that part of language that is a tool for social interaction and negotiation.

Microcephaly – a small head circumference. Although many FASD children have microcephaly, some may have a normal head circumference.

Myelin – a fatty sheath that surrounds long axons. This sheath helps the nerve conduct electrical impulses down the axon to the terminal.

Neuron – a major cell-type in the brain that provides intracellular communication using electrical and chemical signals.

Neurotransmitter – a chemical that is stored in axon terminals and released upon an electrical stimulus. The neurotransmitter binds to specific receptors on neighboring neurons to produce a change in neuron firing rates or in enzyme function. Before birth, neurotransmitters function as neuronal growth factors.

Norepinephrine – a neurotransmitter involved in mood, anxiety, control of respiratory, and cardiovascular function.

Orbitofrontal cortex – an area of the cerebral cortex at the base of the frontal lobe. It is important in judgment and impulsiveness.

Organogenesis – the formation of organs. This takes place early during the 1st trimester.

Palpebral fissure – the space between the upper and lower eyelid; the width is shortened in children with FAS.

Parietal cortex – an area of the cerebral cortex that governs attention, working memory, abstract thought, and sensations.

Philtrum – the groove between the bottom of the nose and the top of the upper lip; it is flattened in children with FAS.

Positron emission tomography (PET) – an imaging technique that uses radioactive molecules to indicate how specific brain structures are functioning (for example, utilization of glucose).

Prefrontal cortex – an area of the cerebral cortex in the frontal lobe that helps to regulate executive functioning and judgment.

Receptors – specialized proteins that bind to neurotransmitters and hormones; the binding initiates some form of cellular work.

Serotonin – a neurotransmitter involved in regulating mood, anxiety, and visual perception.

Spines – see 'dendritic spines.'

Synapse – the connection between two neurons; it includes the terminal of one axon, the membrane of a neighboring neuron (usually a dendrite), and the space between. It is where the neurotransmitter is released and most of the receptors are found. The synapse is where neurotransmission takes place.

Synaptogenesis – the formation of synapses. This takes place in the 2nd and 3rd trimesters once neurons have migrated to the place where they need to be. It also continues through adolescence!

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- Dear World: We Have Fetal Alcohol Syndrome.
- So Your Child Has FAS/E: What You Need To Know
- My Name is Amanda and I Have Fetal Alcohol Effects - A Book For Young Children with FAS/E

Organizations:

March of Dimes
1275 Mamaroneck Avenue
White Plains, NY 10605
(914) 428-7100

National Organization on Fetal Alcohol Syndrome
1815 H Street, NW, Suite 750
Washington, DC 20006
1-800-66-NOFAS

Internet:

http://www.niaaa.nih.gov/gallery/fetal/fetal.htm
The National Institute on Alcohol Abuse and Alcoholism (NIAAA)

http://www.bced.gov.bc.ca
on-line version of the B.C. Ministry Guide, Teaching Students with FAS: A Resource Guide for Teachers.

http://www.nofas.org/main/strategy.htm
National Organization of Fetal Alcohol Syndrome

http://www.fetalalcohol.com
FAS Support Network

http://www.modimes.org
March of Dimes

http://www.makingmathreal.org/
A multisensory structured mathematics program

http://fascenter.samhsa.gov/documents/WYNKTeachersTips2.pdf
FASD: Tips for Elementary School Teachers

http://www.fascenter.samhsa.gov/
A comprehensive website devoted to prevention and treatment of FASD

http://en.wikipedia.org/wiki/Fetal_Alcohol_Spectrum_Disorder
An excellent review of FASD, including a discussion about the terminology and diagnosis

Videos:

Helping Families, Helping Children
Part 1 & Part 2
FAS Bookshelf, Inc.
#438-6540 E. Hastings Street
Burnaby, B.C. V5B 4Z5
(604) 942-2024

What is FAS?
Perennial Education
930 Pitner Avenue
Evanston, IL 60202
Phone: 1-300-323-9084

One For My Baby
AIMS Media
6901 Woodley Avenue
Van Nuys, CA 91405-4878

Straight from the Heart
Vida Health Communications
6 Bigelow Street
Cambridge, MA 02139

Newsletters:

FAS and Other Drugs Update
Prevention Resource Center
822 South College Street
Springfield, IL 62704

The Iceberg
P.O. Box 95597
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