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Facing the challenge and shaping the future for primary and secondary aged students with Foetal Alcohol Spectrum Disorders (FAS-eD Project)

**PRIMARY FRAMEWORK: TEACHING AND LEARNING STRATEGIES TO SUPPORT
PRIMARY AGED STUDENTS WITH FOETAL ALCOHOL SPECTRUM DISORDERS (FASD)**

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This Teaching and Learning Framework is designed for teacher training and development. It can be used by a range of professionals, but will be particularly useful for practising teachers and support staff or trainers of trainee teachers.

UNDERSTANDING FOETAL ALCOHOL SPECTRUM DISORDERS (FASD)

What are Foetal Alcohol Spectrum Disorders?

Foetal Alcohol Spectrum Disorders (FASD) operates as an educational umbrella term to represent the range of effects caused by prenatal alcohol exposure. It encompasses the following diagnostic terms:

Foetal Alcohol Syndrome (FAS) is used to describe a specific identifiable group of children who all share certain characteristics: a specific set of facial features, central nervous system (CNS) dysfunction, and often growth deficiency and a scattering of other birth defects resulting from confirmed maternal alcohol exposure.

Partial Foetal Alcohol Syndrome (pFAS) indicates confirmed maternal alcohol exposure. A child with pFAS exhibits some, but not all, of the physical signs of FAS, and also has learning and behavioural difficulties which imply central nervous system damage.

Alcohol-related Neurodevelopmental Disorder (ARND): A child with ARND exhibits central nervous system damage resulting from a confirmed history of prenatal alcohol exposure. This may be demonstrated as learning difficulties, poor impulse control, poor social skills, and problems with memory, attention and judgement.

Alcohol-related Birth Defects (ARBD): A child with ARBD displays specific physical anomalies resulting from confirmed prenatal alcohol exposure. These may include heart, skeletal, vision, hearing, and fine/gross motor problems. (Stratton, Howe and Battaglia 1996).

FAS is the most easily recognisable condition under the umbrella due to facial anomalies which are a distinctive hallmark of FAS (see Figure 1). These are formed only when there is maternal alcohol consumption during the first three months of pregnancy and will dissipate with age. The three core features are short palpebral fissures, thin upper lip and an elongated philtrum.

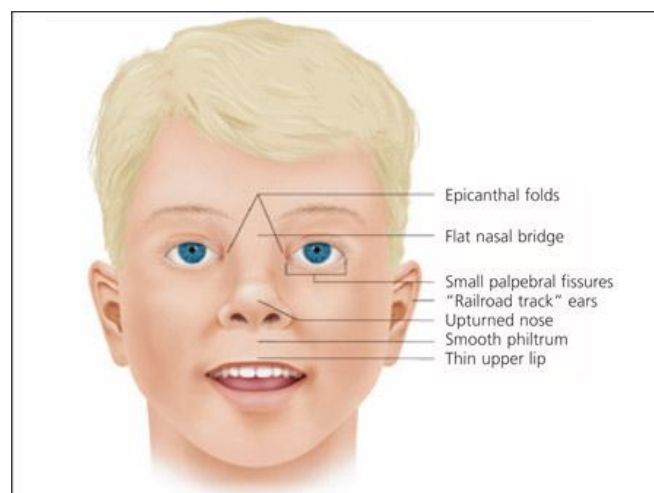


Figure 1: Facial Features of a Child with a Full FAS Diagnosis - DarrylLeja.www.nih.gov

Damage to developing organs and bones can occur at particular periods of pregnancy. Damage to the Central Nervous System continues throughout pregnancy and results in changes to the structure of the brain which cannot be reversed and persist throughout life.

What are the effects of damage to different regions of the brain?

Each student with FASD is individual and their learning difficulties and disabilities will depend on the extent of damage caused to the developing organs and brain (see table below).

Area of Brain Damaged	Area of Learning Affected
Amygdala	• Ability to regulate reactions with the environment such as whether to attack or escape • Decision Making
Basal Ganglia	• Initiation and modulation of motor activity • Motor timing behaviours, specifically difficulty in producing accurate and consistent motor responses when intercepting a moving target or moving through a spatial target in a specified amount of time • Cognitive functioning
Caudate Nucleus	• Regulation of the transmission of information regarding worrying events or ideas between the thalamus and the orbitofrontal cortex • Effects on learning and memory as well as threshold control activities
Cerebellum	• Postural control, gait, balance, and the coordination of bilateral movements • Behaviour and memory
Corpus Collosum	• Speed of processing • Connecting two sides of the brain
Frontal Lobe	• Executive function • Co-ordination • Processing and labelling/memory • Focussing and Shifting attention • Planning • Understanding consequences • Maintaining and Shifting attention
Globus Pallidus , Acumbers, Thalamus, Cortex circuit	• Decision Making
Hippocampus	• Ability to consolidate new memories • General Learning and emotional regulation
Nucleus Acumbens	• Links to reward, pleasure , laughter, addiction , aggression, fear, and the placebo effect
Parietal Lobe	• Spatial awareness • Mathematical ability • Dyspraxia

Table 1: An overview of the cognitive effects of damage to different regions of the brain commonly compromised by FASD (Blackburn 2009 from Kellerman 2008, Blaschke et al 2009, Mukherjee 2009)

This damage results in difficulties for students in many areas of the curriculum in the acquisition of new information, linking new information to previously learned information and the practical application of knowledge gained.

How Does a Student Affected Differ from His/Her Peers?

FASD can be, and is often diagnosed alongside other disabilities such as Autistic Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD) Attention Deficit Disorder (ADD) Attachment Disorders and Sensory Integration Disorder (SID) (O'Malley 2007). These co-existing disorders usually have overlapping symptoms with FASD, for example students with ASD will present with social communication difficulties and students with ADHD with hyperactivity and impulsivity, which are common features of FASD. A full diagnostic assessment is important in order to ensure an accurate diagnosis.

There are some features of FASD which may be evident in other disorders and disabilities, but these features can be so pronounced in students with FASD, depending on the severity of presentation that it is worth highlighting them. These include:

- **Memory/Learning/Information Processing** difficulties, including inconsistent retrieval of learned information, being slow to learn new skills, inability to learn from past experiences, problems recognising consequences of actions and problems with information processing speed and accuracy.
- **Planning/Temporal skills** including needing considerable help to organise daily tasks, inability to organise time, not understanding the concept of time, difficulty in carrying out multi-step tasks.
- **Behaviour Regulation/Sensory Motor Integration** difficulties including poor management of anger/tantrums, mood swings, impulsivity, compulsive behaviour, perseveration, inattention, inappropriately high or low activity level, lying/stealing, unusual (high or low) reaction to sound/touch/light.
- **Abstract Thinking/Judgement** difficulties including exercising poor judgement, requiring constant supervision, poor abstract thinking, poor understanding of safety and danger.
- **Spatial Skills/Spatial Memory** difficulties, gets lost easily, has difficulty in navigating from one destination to another.
- **Social Skills and Adaptive Behaviour** including behaving at a level notably younger than their chronological age, poor social/adaptive skills.
- **Motor/Oral Motor Control** including poor/delayed motor skills, poor balance, difficulty in feeding (chewing, swallowing and sucking). A lack of clarity in speech may be compounded by cleft palate or palatal dysfunction. This can affect children in the following ways:

Children with cleft palate and FAS may have specific needs regarding their speech and resonance. If they have a cleft palate or velopharyngeal dysfunction i.e. their palate is not functioning correctly, they should be under the care of a Regional Cleft Palate Centre. There are two aspects to assessing a child with cleft palate:

1. Resonance – this will be determined by how effectively their palate functions. There may be normal resonance or there may be signs of increased nasality – hypernasality or audible air escape
2. Articulation – the production of consonants and vowels.

If there are difficulties in either or both of these areas then this can impact on their intelligibility. This may lead to frustration if they are not understood resulting in inappropriate behaviour. Liaison with the Speech and Language Therapist at the Regional Cleft Palate Centre would be recommended to ensure that young people are supported in the best way possible. It may be that speech targets can be incorporated in their general language and social programme.

- **Cognition/Academic Achievement**, including working at curriculum levels below peers, requiring constant repetition of instructions, rules and subject areas.
- **Language/Social Communication** including lack of understanding of social cues, strong expressive language coupled with poor receptive language skills, lack of empathy for others. Communication can also be affected by cleft palate (see above) and the following factors:
 1. Hearing - conductive hearing loss as a result of chronic otitis media (glue ear) is common. If the young person is not understanding/ responding then their hearing should be checked to eliminate the compounding factor of a hearing loss.
 2. Hoarseness - can be common and makes the voice sound distinctive.
- Obvious **physical symptoms** may include distinctive facial features (FAS only), small head (microcephaly), small stature, organ damage and skeletal damage.
(Astley 2004 and Birmingham Children's Hospital)

The damage caused at this stage is commonly referred to as Primary Disabilities resulting from alcohol damage. There are a number of secondary disabilities associated with FASD, the occurrence of which can be reduced by a range of protective factors.

Secondary disabilities include:

- Mental Health problems
- Disrupted school experience
- Trouble with the law
- Confinement (for mental health problems, alcohol/drug problems or crime)
- Inappropriate Sexual behaviour
- Alcohol/drug problems

Protective factors include:

- Living in a stable and nurturant home for over 72% of life
- Being diagnosed before the age of 6 years
- Never having experienced violence against oneself
- Staying in each living situation for an average of more than 2.8 years

- Experiencing a good quality home (10 or more of 12 good qualities) from 8 to 12 years
- Being found eligible for disability services
- Having a diagnosis of FAS (rather than pFAS)
- Having basic needs met for at least 13% of life (Streissguth and Kanter 1997)

It is important to recognise the diagnoses that a student with FASD has received, whilst bearing in mind that the student has structural damage to their central nervous system of an individual nature and will require understanding and patience from adults to achieve success.

How does Foetal Alcohol Spectrum Disorders Impact on Child Development?

Characteristics of FASD will change over time and children's developmental age will differ from their chronological age, as students with FASD will follow an asynchronous developmental pathway. Generally, however, the following characteristics may be observed:

Indicators and Characteristics often seen in Newborns or Infants

- Of low birth weight
- Small size
- Difficulty Sleeping - Unpredictable Sleep/Wake Cycle
- Failure to Thrive
- Feeding Difficulties including weak sucking reflex
- Heart Defects, kidney Problems, or skeletal Anomalies
- Increased sensitivity to light and sound and easily over stimulated
- Poor Fine Motor Control
- Poor Gross Motor Control
- Seizures, Tremors, or Jitteriness
- Susceptibility to Infections
- Vulnerable to ear infections

Indicators and Characteristics often seen in Preschool Aged Children

- Missed or delayed developmental milestones such as walking, talking and toilet training
- Increased emotional over-reaction and tantrums
- Impulsivity and hyperactivity
- Difficulty with gross and fine motor skills.
- Lack of understanding of danger and stranger danger
- Small stature
- Speech delays (may include poor articulation, slow vocabulary or grammar development, or perseverative speech)
- Difficulty in learning new skills that other children find easy
- Difficulty with co-ordination and balance and muscle control

Characteristics often seen in Primary School Aged Children

- Attention deficits and hyperactivity
 - Language difficulties (delayed development or difficulties with expressive and/or receptive language)
 - Learning difficulties
 - Difficulties with short term memory
 - Poor impulse control (often seen as lying, stealing or defiant acts.)
 - Small stature
 - Social communication difficulties (may include being overly friendly with strangers and peers, immaturity, being easily influenced and difficulty in making choices).
- (For older students, please refer to the Secondary Framework).

The developmental profile of the child with FASD is variable, and the severity of presentation is not necessarily indicative of the severity of impairment (Stratton et al., 1996). Some children will not present any obvious characteristics of FASD; their symptoms will be purely behavioural. It is important that teachers are aware of the true effects of the hidden impairments, so they can recognise and accommodate children's learning needs.

Children with FASD may score within normal limits on measures of IQ, appear physically mature, and give the appearance of functioning at a level consistent with their chronological age. Their expressive language may be in advance of their actual age, and their reading skills may be chronologically appropriate. However, the academic abilities of individuals with FASD are below their IQ level; their living skills, communication skills and adaptive behaviour levels are even further below IQ levels; and in areas such as social skills and emotional maturity, they may be performing at half of their developmental age (Streissguth et al., 1996).

How does Foetal Alcohol Spectrum Disorders Impact on Teaching and Learning?

Students with FASD will require informed, empathetic, reflective practitioners who are prepared to personalise learning in order to provide a practical, multi-sensory approach to teaching with opportunities for 1:1 support, small group work and extension activities, which allow students to consolidate and generalise their learning experiences in readiness for living experiences.

The Guiding Principles to Supporting a Student with FASD, together with the Teaching and Learning Strategies contained in this Framework provide suggestions for inclusion linked to the outcomes of:

- Being Healthy
- Staying Safe
- Enjoying and Achieving
- Making a Positive Contribution
- Achieving Economic Well Being (link to ECM)

These approaches are evidence-based. They have been suggested and used by teachers and support staff working in mainstream and special schools in the UK to support students with FASD. Not every child on the spectrum will experience the same difficulties or have the same strengths. Strategies mentioned in the

frameworks, therefore, are starting points and may not be effective for every child. A comprehensive assessment of each child on the spectrum will be necessary to determine their exact needs.

Some strategies may appear over simplistic. It is important to remember that students with FASD will need to be taught skills which other students will learn quickly by observation and peer interaction. A number of strategies have been repeated in more than one area of the framework. This is because teachers have found them useful for more than one aspect of learning. It is expected that teachers and support staff will add to and adapt these strategies so that a rich pedagogy based on sensitive teaching and reflective practice will result.

How can Schools Work in Partnership with Families?

Parents and carers are a child's first and most enduring educators and their role in a student's educational journey should be valued. For students with FASD the family structure may consist of Foster or Adoptive parents as well as, or instead of biological parents and sensitivity about possible attachment difficulties is required. If the student is living with biological parents, sensitivity and understanding about how parents may be feeling about their child's disability is paramount.

Students with FASD will often present with a different set of needs in school than at home and parents/carers may have many concerns about how their child will manage through the school day. These concerns should always be taken seriously as it is important that parents/carers feel that they have been listened to and their concerns addressed. It is important that students with FASD receive consistency of approach and language in both home and school setting as this will help them to make sense of the world and simplify the number of things they need to remember.

Transition from Primary to Secondary education can be particularly difficult for students with FASD and needs to be carefully managed, to ensure that communication is efficient and services to families do not become disrupted. A full assessment of the students needs should be undertaken at this time. For teenagers, issues around emotions, friendships and sexual behaviour, independence and achievement can compound their difficulties. A lack of understanding of the students particular learning needs can lead to unrealistic expectations. Without sensitive support and communication between primary and secondary teachers and families, students may experience behavioural, cognitive, and psychological secondary disabilities, for example, depression, self harm, loneliness and low self esteem, leading to disrupted schooling and trouble with the law. In addition, this is a particularly worrying time for families and they will need additional support from schools and supporting services to ensure a smooth transition.



A simple checklist of some of the important aspects of including a student with FASD in the classroom is provided on page 30 of this Framework. This list is not exhaustive but should provide a starting point for teachers and support staff for inclusion. Identifying and recognising the student's strengths (which are generally in the areas of practical and artistic ability) should always be a priority in order to plan a learning pathway which builds confidence and improves long term outcomes.

GENERAL GUIDING PRINCIPLES TO SUPPORTING STUDENTS WITH FOETAL ALCOHOL SPECTRUM DISORDERS (FASD)

Approach	• Adopt a holistic approach which builds on the student's sensory strengths. • Provide sequential sensory experiences (visual, kinaesthetic or auditory) and ensure a range of sensory opportunities throughout the lesson so that the student receives a multi-sensory experience. • Demonstrate rather than describe new techniques and be prepared to repeat demonstrations, instructions, rules and concepts often. • Prepare students for new concepts by providing them with any new vocabulary beforehand to practise and learn. • Provide opportunities for small group and 1:1 work where possible and construct a personalised learning plan based on the student's strengths and interests (usually in the areas of practical and artistic ability).
Communication With Families	• Ensure effective communication with parents and carers to reduce anxiety and develop an ethos of partnership. • Consistent language and approaches used and at home school will provide security and predictability for students who are easily overwhelmed by change and disruption.
Environment	• Ensure that the environment is free from distractions as far as possible. This includes distraction from noise, smell, tactile and visual distractions. • Constant supervision may be necessary to keep students who are developmentally younger safe from harm.
Routine and Structure	• Ensure routine is communicated to the student to reduce anxiety and enable them to organise themselves as independently as possible. • Changes to routine should be communicated to the student soon as possible and the student supported through them. • Structure will help the student with FASD make sense of their environment. Provide frequent breaks throughout a lesson to give the student time to refocus. It may help if they can do something physical for a few minutes between activities.
Simplicity	• Ensure that instructions, directions and tasks are broken down into short achievable, easily understood steps and delivered at a level which is developmentally appropriate to the student. • Be realistic about expectations.
Understanding	• Ensure that the student has understood instructions and directions. Say their name before giving instructions and directions. • Ask them to repeat what you've said them back to you in their own words. • Ensure that language used is simple, positive, concrete and free from jargon, sarcasm or idioms. • Provide visual aids if necessary as students may not always respond to auditory input alone. • Be specific when giving directions and provide step by step instruction.

Being Healthy

Physically Healthy - Mentally and emotional Healthy - Sexually Healthy - Healthy Lifestyles –
Choose not to take illegal drugs



Barrier to Learning	Suggested Teaching and Learning Strategies
Food/Diet Issues: • Small body build. • Poor appetite/ inconsistent eating pattern/food intolerances (can lead to poor self perception). • Lack of understanding about the importance of healthy eating. • Reduced dietary choices/inability to eat sufficient quantities of food to maintain energy levels.	• Provide access to appropriate social experiences for leisure/eating activities during Physical Education and lunchtime. • Encourage appropriate understanding of 'self' through discussion time activities. • Increase understanding amongst staff of the range of difficulties the student experiences. • Provide visual displays on food groups and healthy eating. • Promote healthy eating options at snack times and break times. • Provide opportunities for small group work planned around diet and healthy eating. This provides the opportunity for the student to ask questions that they may not be confident enough to ask in a large group situation. • Provide opportunities for practical food technology lessons. • Set small achievable goals to encourage eating meals and trying new foods. Encourage the student to try one new food each week. • Reduce the amount of food provided on a plate at any one time. Encourage the student to try small amounts of new foods and

	provide a clear target for the amount he/she should try to eat. • Provide choices in meals. • Share knowledge of the students eating and dietary difficulties with all staff within the school. • Encourage activity such as dancing outside of Physical Education lessons to improve activity and energy levels. • Ensure that members of staff located in the chosen Secondary setting are fully briefed on the student's needs on transition into Year 7.
Medical/digestion issues and personal care needs.	• Encourage medical, personal care staff, lunch time staff and teaching staff to work together on site to support in enabling student to manage issues as unobtrusively as possible in order to build student independence. This can result in improved relationships for the student with staff and peers. • Ensure thorough communication with parents about diagnosis/medical needs and cascade to all staff within school. • Encourage speed in going to and returning from the medical room to minimise missed lesson time. • Share news and inform the student what has been missed when they return to the classroom in order reduce anxiety about missed lesson time. • Ensure that members of staff located in the chosen Secondary setting are fully briefed on the student's needs on transition into Year 7.
Lack of understanding about personal hygiene.	• Provide specific support around personal hygiene issues in individual and group work, as students with FASD may need extrinsic motivation and frequent and constant reminders to remember hygiene routines. • Provide the opportunity for peer discussions relating to personal hygiene.
Inappropriate sexual behaviour.	• Provide low impact 1:1 supervision where necessary and if possible a separate changing room for the student such as an office. Ensure that the student is not left in a position where they are able to take advantage of other students, visitors or members of staff. This will reduce the risk of the student acting on impulse, make them more aware of how their behaviour impacts on others and improve peer relationships. • Use role play and social scripts to talk through social scenarios

	and demonstrate appropriate and inappropriate interactions with others. • Allow extra time for discussions to ensure understanding of basic information. A propensity for a student to expose themselves or touch others may simply be an attempt to engage others on an emotional level without understanding how others may feel or react. • Sex education needs to highlight concrete rules which are easily understood and do not need to be generalised. For example, unprotected sex is <i>always</i> unsafe sex, condom use is <i>never</i> optional and masturbation must <i>always</i> take place in private (ensuring an understanding of what private means). Consequences must be clearly and simply explained, using role play, social scripts and repetition, and consistently applied. • It may not be realistic to expect a student with FASD to understand that unprotected sex may <i>or</i> may not end in pregnancy or disease, or that there is a time delay between intercourse, pregnancy and the arrival of a baby. The delivery of these concepts may require careful planning, liaison with parents and carers, repetition and extra time for discussion and explanation. • Engage external services to look for a community peer to support the student through social scenarios and positive role models. • Consider inviting parents to sex education lessons so that discussions in the classroom can be extended at home using the same concepts and language and to reduce any concerns parents may have about the nature of sex education lessons for students with learning difficulties. • Monitor and record the incidence (including time of day, type of environment, particular room, other students involved, preceding incidents) of inappropriate interactions to determine any patterns and possible reasons, e.g. stress, comfort. • Consider how the student can participate in external visits, community opportunities or take on prefect responsibilities within school and what kind of support they will need for this.
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Stay Safe

Safe from maltreatment, neglect, violence and sexual exploitation – Safe from accidental injury and death
 – Safe from bullying and discrimination – Safe from crime and anti-social behaviour in and out of school –
 Have security, stability and are cared for



Barrier to Learning	Suggested Teaching and Learning Strategies
Difficulty in understanding of personal/social dangers/danger of actions to self and other students.	• Conduct a safety walk around the school buildings and grounds with the student in order to highlight dangers around school. • Provide a safe environment and ensure adequate adult support. • Provide safety notices and ensure appropriate explanation at a level of understanding appropriate to the student. • Liaise with parents/agencies/pupil to identify danger issues. Agencies such as Barnados can work alongside Teaching Assistants in small groups with students, providing a safe environment for students to express concerns and ask questions confidently. • Ensure effective communication with parents and cascade information from parents to all staff.
Inappropriate interactions with other vulnerable students.	• See section in Be Healthy on Inappropriate Sexual Behaviour • The provision of 1:1 adult supervision 100% of the time may be necessary for some students. • Ensure supervision is low impact and subtle.
Vulnerability due to trusting nature, lack of stranger danger	• Address stranger danger and personal safety issues during circle time/drama work.

and engaging with unsuitable peers.	• Model keeping safe and explaining reasons for keeping safe. • Explain steps for keeping safe with constant and frequent reminders and reinforcement. • The provision of a very safe learning environment can mean that there is little need for students to be wary of strangers. Provide opportunities to meet strangers through organised visits and visitors to the school in order to build awareness of risks whilst working on strategies to avoid or remove them. • Discuss with the student, individually and in small group work, the many reasons why people bully others, including feelings of unhappiness, loneliness and frustration, illusions of power, and attempts to make themselves feel bigger and stronger. Use concrete examples and simple language.
Becoming distressed.	• Provide a quiet time area where the student can go to calm down. Provide earphones, eye masks, lavender and calming music. • Ensure that this is viewed by the student as a positive aid for them to regulate their own emotions rather than being viewed as a punishment in order to build confidence and self esteem. • Record the occurrence of incidents in order to observe possible triggers which may be causing the distress. Monitor to see if this occurs at particular times, with particular peers or members of staff, etc, in order to reduce occurrences.
Inflexibility over changes to timetables/schedules.	• Where changes to timetables and schedules are necessary ensure that the student is informed as soon as possible and given an appropriate explanation. This will help to reduce anxiety and disruptive behaviour. • Provide adult support to prepare the student for and guide them through changes to timetables and arrangements.
Impulsive behaviour /no Sense of danger regarding self or others.	• Provide constant supervision and appropriate adult ratios in practical lessons and laboratory situations (it may be necessary for 2:1 adult supervision during some practical lessons to support unusual levels of impulsivity/hyperactivity). • Provide specific teaching of routines and safety rules. • Be prepared to repeat instructions/routines/rules as often as necessary to ensure understanding. This will help to increase confidence and motivation. • Provide a quiet space to discuss sensitive issues with the student.

Enjoy and Achieve

Ready for school – Attend and enjoy School – Achieve stretching national educational standards at primary school – Achieve personal and social development and enjoy recreation – Achieve stretching national educational standards at secondary school



Barrier to Learning	Suggested Teaching and Learning Strategies
Communication: Level of Understanding.	• Provide opportunities for small group work. This will provide a secure environment in which the student may feel more confident to ask and respond to questions than they would in large group situations. • Provide visual aids (such as pictures, symbols and timetables) to reinforce instructions and tasks. • Make visual timetables concrete by including photographs of the student doing activities rather than symbols or drawings. • Break instructions into chunks. Keep instructions as short as possible, provide them one at a time and reinforce with visual cues as prompts. • Break tasks into small achievable steps starting with what you know the student can already do to in order to build self esteem. • Provide multi-sensory opportunities with natural gesture and consistency of language throughout the school. For students with more complex communication needs formal signing may be useful.

	• Use positive language, tell the student what you would like them to do rather than what you would not like them to do. • Avoid confusion by being direct, instead of saying “do you know where your lunch box is?”, say “where is your lunch box?” • Identify key words/concepts for a topic and discuss with the student before the topic is introduced to the whole class. • Provide tactile examples of what you are teaching. Allowing the student with FASD to touch, see and/or feel something will help him/her to succeed in learning what you are teaching. This can be particularly helpful for practical sessions such as science, where the need to touch and feel objects can lead to dangerous situations. Providing a 1:1 session with the student before the lesson in order to enable safety messages to be understood can reduce impulsivity and increase safety. • Use the student’s own life when teaching new ideas. This will give the student a reference point for his/her learning. • Language used in the classroom will ideally reflect the language used in tests and exams to avoid confusion
Communication: Literacy Skills.	• If students have difficulty with learning to read through a phonic approach encourage them to build up a sight vocabulary by using a multi-sensory approach such as Look, Cover, Write, Check. Expect to repeat words frequently. • For very young students, the ability to build a story by sequencing symbols and pictures is a simple way to build confidence. Encourage parents to write events from the weekend in the student’s home-school diary so that the student can be supported to remember events they may have forgotten and record them with adult support through the use of symbols and pictures. • Encourage the enjoyment of books at a level that is developmentally appropriate to the student, picture books without too much text may be more appealing regardless of age. • Provide the student with a reading journal where they can record their reading at school and home. Ensure reading targets are broken down into achievable steps (perhaps 2 – 3 pages). Provide 2 or 3 comprehension questions for them to answer about the text. • If students have difficulty with directionality of text used coloured dots (green for left and red for right) to indicate the correct

	direction. Explain that we start at green and stop at red. • Allow opportunities to tell or record stories pictorially as some students may not be ready for lengthy writing. • Consider other methods of recording progress such as photographs and video recording. • Mind maps can be used to help organise thoughts and tasks and help to embed understanding of subjects and tasks. • Writing frames can be used for written homework, providing clear structure and concise organisation of what to put on the page and where, making tasks more manageable. • Consider colour coding words for sentence construction. For example all nouns could be red, all verbs yellow and adjectives green (taking into account the students own colour preferences). This works well when used with writing frames. • Provide a laptop and/or scribe if necessary for written work. This can help to improve enjoyment of a task and improve concentration and engagement with a task. • Use picture dictionaries where possible to aid vocabulary development. • Provide audiotapes or CDs of textbooks, literature and social stories.
Difficulty with abstract concepts (including maths).	<u>General</u> • Demonstrate a concept, show rather than tell and be prepared to repeat the demonstration/instruction. • Expect learning to take place at a slower pace, make teaching interactive and allow the student to talk through mathematical processes and problems as this may help with memory. • Provide concrete examples of abstract concepts such as number lines, abacus for understanding place value and real objects for counting in sequence and establishing the concept of what numbers stand for. • Use vertical number lines instead of horizontal number lines so that students can identify that adding results in numbers going up and subtracting results in numbers going down in a visual way. • Plan games activities involving right and left instructions.

- Plan physical activities involving mathematical concepts such as number, positional language, colour, shape as movement can aid memory retention.
- Use ICT as a visual representation of number rules and mathematical concepts. Computer based learning programmes may work well because they are repetitive, visual and provide immediate feedback coupled with a hands-on learning experience.
- Teach cause and effect with the use of three dimensional tactile resources, such as pop up toys, scented bubbles, jigsaws and books with sound effects.
- Use a consistent language for all concepts and in all classrooms/lessons, for example do not say nought one day, and zero the next.
- Too many maths problems/questions on one page may overwhelm the student. One or two problems/questions on one page with plenty of white space in between is more manageable.
- Include the students name in word problems.
- Produce mathematical process cards by highlighting examples of mathematical processes (e.g. multiplication, division, subtraction) broken down in a step by step process for the student to refer to as a reminder.
- Avoid mixing addition and subtraction, multiplication and division problems on the same page. Ensure that the operation symbol is in large and bold type so that it is clear what the student is expected to do.
- Questions and problems involving a story which needs decoding is an extra task, which may be overwhelming. Allow extra time and provide adult support.
- Graph or lined paper can help students to line mathematical problems up more easily than plain paper.
- Allow the use of calculators if necessary.
- Use art projects to make abstract concepts more concrete. Use coloured sand to teach the student about volume. Give the student a clear plastic cup or a clean glass jar and allow him/her to fill in the item with different colours of sand.

- When teaching the student about temperature, use a blanket as an example of cold and hot. The student will understand that he/she will put on a blanket when they are cold and will take the blanket off when warm.

Money/Time

- Use real money and clock faces as they are more concrete and this will allow students to move the hands on the clock.
- Consider the use of a linear clock if the student finds conventional clock faces difficult.
- Use objects in the classroom and around the school such as calendars, clocks, watches to highlight numbers and number patterns to encourage the ability to generalise.
- Plan role play sessions involving time and money with shop, restaurant and shopping scenarios. Use real objects so that students do not have to generalise.
- Use sand timers, egg timers, growing plants and daily calendars to help students visualise the passing of time.
- Use timers to help students recognise how long they have to complete a task.

Number Sense

- Relate numbers to meaningful concrete objects to enable students to view numbers as values rather than labels. For example there are two wheels on a bicycle, three wheels on a tricycle and four wheels on car.
- Create a large number line across the classroom which students can physically move across.
- Help students to recognise that many things cannot be measured precisely by providing practice with estimation in a range of situations.
- Provide a range of materials that involve number and number representations such as dice, dominoes, playing cards, coins, clocks and rulers.
- Look for ways to incorporate students own interests and strengths into number work in order to personalise their learning. For example, football teams provide countless opportunities for number work.



Sensory processing difficulties. (Relates to difficulty in processing movement input, such as sensory seeking (hyperactivity), distractibility, irritability and inattention).	• Consider asking an Occupational Therapist to undertake a sensory profile if the student seems switched off frequently, or easily overwhelmed by texture, noise, light, smell, movement, sound, temperature, crowded places or too much dialogue, as they may be hypo sensitive or hyper sensitive. • Ensure that all staff in contact with the student are aware of the issues relating sensory processing difficulties and the impact on learning. • Consider the classroom and school environment in terms of noise, light, sound, ease of access. Particularly problematic are florescent lights, scraping chairs, air conditioning units, school bells, ticking clocks, echo in changing rooms and toilets, chemicals and Bunsen burners in practical lessons, textiles in technology lessons, some food items and perfume aromas. • Place carpet or tennis balls on the legs of tables and chairs to eliminate noise when other students move. • Seat the student away from distractions such as windows, doors and the movement of other students as far as possible. • Provide a calmer environment and opportunity to visit this when the student becomes overwhelmed. Provide earphones, eye masks, lavender and calming music. If appropriate, provide earphones to use in this classroom.
Inattention/distractibility/hyperactivity/irritability.	• Consider whether the student has sensory processing difficulties (see above). • Provide a stress ball or other item to encourage focus. • Seat the student at the front of the room so that they can maintain eye contact with the teacher and receive both auditory and visual input. • Keep tasks short and achievable and break tasks up with physical activity to expend energy and refocus attention. • Build up the time that the student is expected to sustain attention gradually. Make a visual chart showing progress to share with them so that they can see their own achievement in terms of sustained attention. • Use percussion instructions for students to create rhythms and to practise following instructions to play and copy patterns. Students will need to listen and sustain attention to hear patterns.

	• Music therapy sessions can provide a safe space for the student to explore and express emotions and feelings, reducing anxiety and hyperactivity. This can also improve listening and attention skills. • Consider whether diet is a contributing factor or whether there are any underlying undetected health problems. • Frame the students working area (including seat and desk) with masking tape to keep their attention focussed on their work space and enable them to remember their personal space. • For carpet work, provide an individual cushion for the student to remind them of their personal space.
Difficulty with self image: • Egocentric behaviour. • Overly competitive. • Poor self esteem. • Inability to set realistic expectations for self in respect of tasks or outcomes	• Provide plenty of positive feedback and be positive about the student's efforts in order to build up student self esteem and motivation. • Ensure peer assessment is conducted in a positive way. • Ensure praise is immediate and given in a consistent way. • Provide frequent and ongoing clarification of expected outcomes. • Provide therapies which are carefully planned around curriculum strengths and weaknesses (e.g. music therapy).
Memory difficulties/ lack of organisation skills/not following rules.	<u>Teaching</u> • Consider whether non-compliance with rules is due to lack of understanding or because the student has been distracted. • Provide clear, consistently applied rules across the school to reduce the number of things which need to be remembered. • Expect to repeat instructions and rules frequently. • Ensure that the consequences of not following rules are consistently applied. This will ensure that the student is more aware of his/her own actions and helps students to make better decisions. • Use short sentences in instructions and lesson delivery to reduce complexity. • Allow extra time for students to process information. • Using an animated voice, facial expressions and exaggerated gestures will engage students who are developmentally younger

and aid memory retention.

- Provide concrete examples of abstract concepts to aid retention.
- Provide visual timetables in classrooms as a memory aid and to enable the student to see what is happening now and next.
- Visual timetables would ideally use photographs of the student as a concrete representation of what is required, what's happening next.
- Check the students understanding frequently, including checking understanding about homework.
- Communicate with parents/carers about homework through a home/school diary or emails.
- When asking a student to repeat an instruction you have given, ask them to repeat it in their own words to ensure they have processed and understood the information.
- Use appropriate reward systems which reward the student for their individual achievement and which motivate them personally.

Environment

- Reduce as many distractions from the learning environment as possible (see section on Sensory Processing).
- Consider colour/shape coding items which the student needs to access frequently, e.g. red triangles for maths books, yellow circles for literacy books.
- Seat the student in the same place consistently, ideally where the teacher can easily see the student (and vice versa) and maintain eye contact (some students will be better placed near the front and others may need to be at the back where they can see everyone and leave the room quickly if necessary).

Make a Positive Contribution

Engage in decision making and support the community and environment – Engage in law abiding and positive behaviour in and out of school – Develop positive relationships and choose not to bully and discriminate – Develop self confidence and successfully deal with significant life changes/challenges – Develop enterprising behaviour



Barrier to Learning	Suggested Teaching and Learning Strategies
Difficulty in forming and maintaining relationships with peers and staff.	• Use social stories and scripts to explain to students how to behave in different social situations. Provide a script for each situation as students may not be able to generalise from one situation to another. Repetition of stories and scripts can help to embed them in the student's memory, improving engagement, confidence and understanding. • Provide visual prompts showing required behaviour, preferably using photographs of the student rather than pictures or symbols. • Use puppets, role play and drama to explore feelings and attitudes. This can help in improving peer relationships through language development and conversation. • Provide opportunities to work 1:1 with an adult and then with a peer. • Pair the student with other students who are good role models for paired activities, and plan student groups carefully in order to ensure that the students has good role models to observe at all times.

	• Plan for turn taking games and circle games to encourage appropriate social interaction. • For students who interrupt or find it hard to know when it is their turn, provide a concrete object such a small toy as a holding item to indicate when it is appropriate to talk or have a go i.e. when the toy is in the students hand it is their turn. • Provide peer groups for break times and lunch times to facilitate friendships. • Carefully plan therapies around curriculum strengths and weaknesses. • Provide the opportunity for supervised social situations with good role models in unstructured free time. • Provide a key worker with whom the student can discuss social and emotional difficulties related to home or school life (this could be a Teaching Assistant, Learning Mentor or Teacher) who is well known to the student and with whom the student is able to bond. • Provide a positive learning environment with opportunities to engage with peers and adults, and support engagement with praise and encouragement. • Discuss with the student their general state of emotional well being at the beginning of each day using a scale from 1 – 5, and record this in their planner. This can be used as a communication aid amongst support staff about the student’s mood and ability to cope with the coming day. This may help to reduce anxiety throughout the day. • Discuss with the student, individually and in small group work, the many reasons why people bully others, including feelings of unhappiness, loneliness and frustration, illusions of power, and attempts to make themselves feel bigger and stronger. Use concrete examples and simple language.
Over exuberance /changeable emotions and temper.	• Balance opportunities for the student to contribute and share ideas about group work and participate in group performances, then provide sufficient praise and encouragement to support them in these situations to build confidence. • Provide advice on appropriate behaviour and be prepared to repeat frequently. • Provide 1:1 adult support and time out in a small, quiet room if

	needed. Provide headphones, eye masks, lavender and calm music. Ensure that this is viewed as a positive experience in order for the student to regulate their own emotions and provide independence rather than being viewed as punishment. • Consider whether the student has Sensory Processing difficulties (see section on Enjoy and Achieve).
Becoming overwhelmed during special events.	• Use role play, social stories and scripts and photographs to prepare students for special events, including trips. • Ensure parents/carers have advance notice of events so that they may prepare students adequately. • Some events may need to be discussed with parents before informing students, in order that parents may decide whether it is appropriate for their child to be included. This will avoid any unnecessary disappointment for the student and assist with parental partnership. • For trips make a book with photographs and pictures depicting what to expect during the trip. Include photos of the journey and what to expect on arrival. Share this with parents/carers. • Carefully plan the student's transition to the chosen Secondary setting, ensuring liaison with parents/carers and other professionals involved in the students support plan. • Provide the student with a photographic record of their new school with members of staff, learning environments, new uniform, journey details and other important details included so that they can familiarise themselves with the new setting well before they arrive.

Achieve Economic Well Being

Engage in further education, employment or training on leaving school – Ready for employment – Live in decent homes and sustainable communities – Access to transport/material goods – Live in households free



Barrier to Learning	Suggested Teaching and Learning Strategies
Limited understanding of the value of money.	• Provide plenty of concrete opportunities for handling money within mathematics, reinforced by community experiences of money handling such as visiting shops to buy specific items. • Provide a personalised learning pathway which builds on the student's strengths and interests to facilitate employment opportunities and ensure that key life skills are in place. • See section on abstract concepts in Enjoy and Achieve.
Unrealistic expectations/awareness of self.	• Work on self awareness and life skills through Citizenship. • Provide opportunities for participation in Enterprise Activities such as fund raising. • Provide opportunities for participation in decision making activities supported by adults.
Lack of life skills, particularly around personal safety and forming appropriate relationships.	• Provide gentle guidance over appropriate behaviour. • Provide life skill experiences through circle time/discussion time, Physical Education and Social Clubs and make time to listen to students concerns. • Provide adult modelling regarding appropriate

	responses/behaviour. • Facilitate regular discussions about personal safety and appropriate interactions with peer groups. • Teach life skills specifically and frequently. Provide practical opportunities for shopping, cooking, cleaning and other domestic chores.
Immaturity and lack of social understanding about employment opportunities and job roles.	• Provide opportunities for role play in pretend shops, offices and other work based environments. Provide real props where possible as students with FASD find it difficult to generalise. • Provide opportunities for visits from appropriate professions, e.g. 'People Who Help Us'. • Provide opportunities for visits in the community, so that students can be exposed to a variety of job roles. • Facilitate discussions using social stories and scripts about employment, further and higher education and career opportunities. • Provide opportunities for the student to take on special roles within school where appropriate, such as Prefect or 'Special Helper'. Give the student small tasks to perform throughout the day such as taking the register to reception. • Encourage the student to participate in fundraising for specific schools goals, for example participating in the Christmas Fair to raise money for a school trip. • Provide opportunities for students to make items to be sold at Fetes and Fairs.

Appendix A - Inclusion Checklist for FASD

- Say the student's name at the beginning of an instruction or sentence. Make sure you have the student's attention before you speak to them.
- Make sure you are facing the student so that they can see your facial expressions and gestures.
- Use simple concrete language and use consistent language across the curriculum and throughout the school. Share language for educational concepts with parents/carers.
- Think about the language used in tests/exams and whether it matches what the student is familiar with.
- Give only one instruction at a time.
- Keep instructions short; use the minimum number of words.



- Say exactly what you want the student to do (e.g. instead of saying "Tidy up", say "Put the scissors in the blue box"), and reinforce with pictures if necessary.
- If you are interrupted whilst giving an instruction, go back to the beginning of your sentence.
- Ensure that the student has understood by asking them to repeat an instruction back to you in their

own words.

- Give the student time to think about what you have asked of them.
- Use positive communication; instead of saying "Don't run", say "Walk".

- Use exaggerated facial expressions and gestures to give the student clues as to your meaning.
- Reinforce auditory input with visual aids and provide students with a visual timetable.
- Break tasks into small steps and be realistic about expectations.
- Use visual prompts and concrete objects such as puppets for story telling for young students and number lines for mathematics.
- Show rather than tell; demonstrate concepts so that students know exactly what is expected.
- Provide opportunities for discussion of new concepts before they introduced in the classroom and check understanding afterwards.
- Provide opportunities for new learning to be connected to existing knowledge.
- Communicate with parents/carers regularly by email/phone/home-school diary.
- Provide worksheets which have plenty of white space and do not mix mathematical concepts and operations.
- Plan around the student's strengths and interests and provide immediate, frequent praise for each achievement.
- Be flexible about how achievement is recorded, consider video, photographic evidence and provide a scribe where necessary for technical lessons such as science where the student may be overwhelmed by sensory stimulation.
- Plan multi-sensory experiences based around the students sensory strengths and needs including activities involving movement.
- Remove as many distractions from the environment as possible to enable the student to concentrate on the teacher/task.



Further Reading and Information

Books/Publications:

Astley, S.J. (2004) *Diagnostic Guide for Fetal Alcohol Spectrum Disorders: The 4-Digit Diagnostic Code Third Edition*, Center on Human Development and Disability School of Public Health and Community Medicine University of Washington Seattle, Washington,

Blaschke, K., Mataverne, M., Struck, J., (2009) *Fetal Alcohol Spectrum Disorders Education Strategies, Working with Students with a Fetal Alcohol Spectrum Disorder in the Education System*, Sanford School of Medicine, University of South Dakota

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Sousa, D, (2008) *How the Brain Learns Mathematics*, Corwin Press, California

Zeiff, C and Schwartz-Bloom (2008) *Understanding FASD: A Comprehensive Guide for Pre-K Educators*. Available online: [<http://www.rise.duke.edu/resources.html>] accessed 03.03.2010]

Web:

National Organisation on Fetal Alcohol Syndrome: www.nofas-uk.org

FASAware: www.fasaware.co.uk

FASD Trust: www.fasdtrust.co.uk

Skill: National Bureau for Students with Disabilities <http://www.skill.org.uk/index.aspx>

Att (Autistic Spectrum Disorder Transition Toolkit) (suitable for students moving from Primary to Secondary education <http://www.autismtoolkit.com/whatis.htm><http://www.autismtoolkit.com/whatis.htm>)

The author and publisher accept no responsibility for the content of any materials suggested in this Framework. The websites referred to existed at the time of publication.

This Framework is free to download from www.nofas-uk.org

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