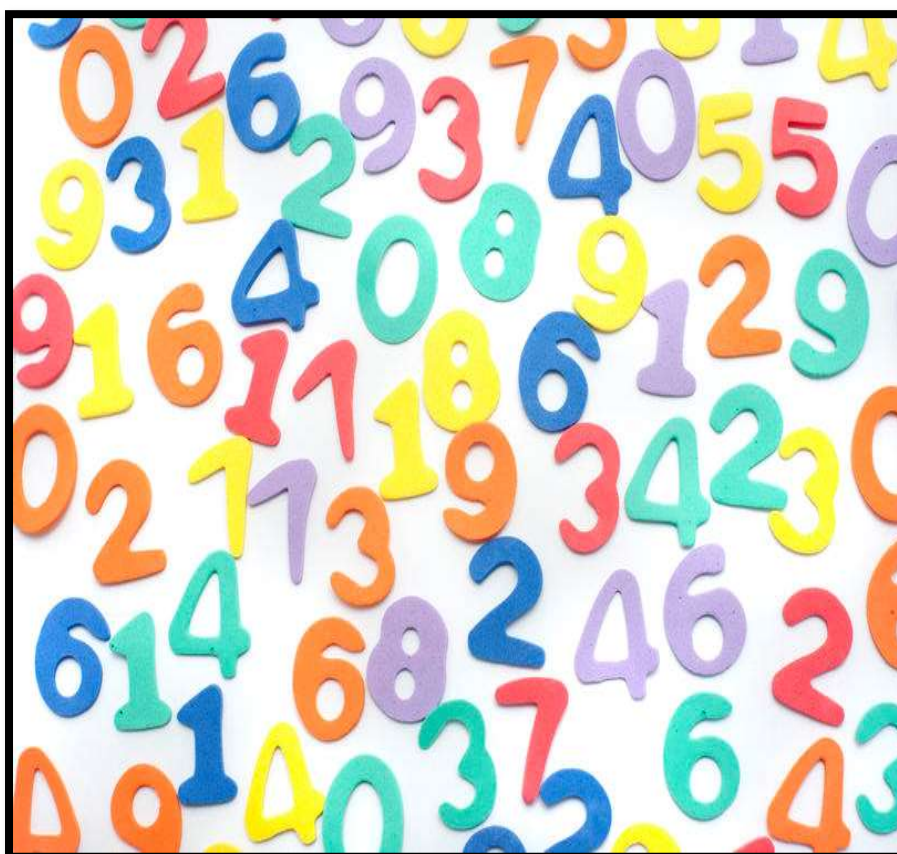




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Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention

Revised June 2018

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Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention is based on a progression pathway and framework which was designed and implemented by Gail Hendry, Educational Psychologist in Falkirk Council. The process has been developed in East Dunbartonshire, in consultation and collaboration with:

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Mary-Louise James	Educational Psychologist
Julie Murray	Inclusion Support Officer
Elisabeth Faulks	Inclusion Support Officer
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Education Support Teachers	

1. Supporting Specific Learning Difference (Dyscalculia)

Every pupil has a unique profile of strengths, skills and areas for development. This can be described as 'learning differences'. Learning differences are a normal part of development. In a small number of pupils, a learning difference presents a barrier to one aspect of learning. This is known as a Specific Learning Difference. Dyscalculia is one type of Specific Learning Difference.

East Dunbartonshire Council is committed to raising attainment and ensuring equity for all pupils. It aims to ensure that strengths and individual approaches to learning are recognised and nurtured, and that any barriers to learning are identified and addressed timeously. *Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention* provides a framework for identifying and supporting pupils with Specific Learning Difference (Dyscalculia) and clarifies the roles and responsibilities of education staff within this framework.

1.1 Key Aims of Supporting Numerical Difference (Dyscalculia) Guidance

- To provide a clear assessment process to support the identification of Specific Learning Difference (Dyscalculia).
- To support schools to consider evidence based differentiation and intervention strategies to enhance the progression of numeracy skills.
- To ensure that the impact of differentiation and intervention is regularly tracked, monitored and considered in forward planning.
- To engage with parents/carers as partners in supporting pupils' numeracy progression.
- To ensure the voice of the pupil is held central and pupils are involved in both discussion, decision making and the identification of support strategies.

2. Introduction

Most pupils acquire and develop numeracy skills easily if they attend school regularly, have access to appropriate learning opportunities and receive support at home. However, for some pupils, numeracy skills develop more slowly or with greater difficulty than would be expected. Dyscalculia is a Specific Learning Difference which can cause significant difficulty in learning to apply and retain numerical concepts (Butterworth & Yeo, 2004). The impact of dyscalculia is on a continuum, varying from mild to moderate to severe. There is less research exploring dyscalculia than other Specific Learning Differences such as dyslexia, however, it is estimated that dyscalculia affects between 3% and 6% of the population. It occurs across all cultures, socio-economic backgrounds, and genders (Shalev, Auerbach, Manor & Gross-Tsur, 2000).

Specific Learning Differences such as dyscalculia do not reflect upon an individual's general cognitive ability, and pupils are likely to have strengths and skills in other aspects of the curriculum. With support and access to appropriate strategies, pupils with dyscalculia should achieve their full potential in school. However, in cases where dyscalculia is not yet identified or supported, pupils may experience low self-esteem, anxiety, atypical behaviour, and low educational achievement. Early identification and intervention ensures that pupils' skills and strengths are nurtured, and that progression through the curriculum is supported. Many pupils presenting with Specific Learning Difference (Dyscalculia) can develop sound mathematical skills providing appropriate teaching methodology is implemented, tracked and monitored to support progression (Emerson & Babbie, 2013).

East Dunbartonshire Council promotes optimum numeracy progression and attainment for all children and young people. Where children experience barriers to learning, these barriers are considered within the context of the learning environment and within the cyclical process of assessment and intervention. Any Specific Learning Difference which presents as a barrier to a pupil's progress is therefore assessed and supported in line with the general practices of promoting learning and inclusion. Effective assessment and intervention considers numeracy progress, the learning environment and individual strategies the pupil uses. The main objective is to promote learning and support pupils to become independent learners. This can be achieved in most cases through differentiation within class or through Universal Support strategies. In some cases, Targeted Support may be considered.

East Dunbartonshire Council recognises the importance of partnership working in supporting pupils. A collaborative approach is essential in considering assessment information and evidence to determine whether a pupil meets the criteria for dyscalculia. As such, the pupil, parents/carers, Class Teachers, Education Support Teachers, the Additional Support Needs Co-ordinator and the Educational Psychologist may be involved in the process. If appropriate, other multi-agency professionals may be involved in supporting decision-making, dependent on the needs of the pupil.

2.1 Definition of Dyscalculia

There is no universally accepted definition of dyscalculia, and a number of definitions currently exist. East Dunbartonshire Council refers to the Department for Education and Skills (2001).

2.1.1 National Numeracy Strategy Definition (Department for Education and Skills, 2001)

“Dyscalculia is a condition that affects the ability to acquire arithmetical skills. Learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning number facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence”.

3. Evidence Required to Support Decision Making

Every school in East Dunbartonshire adopts a whole school approach to identifying and supporting the needs of pupils with Specific Learning Difference (Dyscalculia). When concerns are raised about a pupil's progress in numeracy, *Appendix 1: Progress Profile Record (Numeracy)* is used to collate evidence. *Table 1: Assessment Evidence (Numeracy)* provides an overview of the evidence which schools will gather, collate and synthesise to support decision making against the Department for Education and Skills (2001) definition. Evidence is gathered over time to ascertain if the difficulties persist despite access to appropriate intervention and learning opportunities.

Appendix 2: Professional Profile Criteria (Numeracy) is designed to support Class Teachers assessment in key areas of numeracy development, with the guidance of the Additional Support Needs Co-ordinator. Contextual assessment over time is most valuable in identifying strengths and areas which may require support. Therefore, it is appropriate that *Appendix 1: Progress Profile Record (Numeracy)* and *Appendix 2: Professional Profile Criteria (Numeracy)* are used on more than one occasion. This allows the team around the pupil to ascertain if the difficulties persists despite access to appropriate support and learning opportunities interventions.

East Dunbartonshire Council recommends Maths Recovery as a key evidence based intervention to support the revision of key concepts in numeracy. Each primary school and nursery has a trained Maths Recovery Champion who has been provided with specific professional learning on the Stages of Early Arithmetical Learning (SEAL) and how to use Maths Recovery principles to plan and deliver effective learning and teaching in numeracy and mathematics. Maths Recovery Champions will use their knowledge and skills to support and challenge pupils in their learning and plan for effective early intervention.

A suite of Maths Recovery Assessment Scales have been developed by East Dunbartonshire Council to support Class Teachers with assessment of learner progress. It is expected that these resources will be utilised with pupils who have experienced difficulties in acquiring basic arithmetical skill and will form a substantial part of the evidence gathering process.

3.1 Table One: Assessment Evidence: Numeracy

Area	Evidence	Guidance for evidence gathering
1. Development of numeracy skills: • Development of mathematical thinking • Understanding of basic mathematical concepts and processes Refer to <i>Appendix 2: Professional Profile Criteria (Numeracy)</i>.	An evaluation of numeracy development will include: • <i>Appendix 2: Professional Profile Criteria (Numeracy)</i>. • Pupil Profile Record (e.g. pupil reports, internal referrals, support plans). • Evidence of unsupported mathematics work (addition, subtraction, multiplication, division, problem solving). • Evidence of assessments.	Evidence is required that numeracy skills have developed incompletely or with great difficulty, relative to the age and developmental profile of the pupil. There will be notable asynchrony in the pupil's strengths in other areas of the curriculum. Evaluation of curricular strengths, preferred learning style and identified areas for development is required.
2. Learning Environment	An evaluation of the learning environment will include: • Evidence of differentiation in learning. • Environmental adaptations. • Attendance pattern. • Other contextual factors (e.g. change of teacher/school).	Evidence is required that the pupil has had consistent access to differentiated and appropriate learning opportunities.
3. Support Over Time	Support over time will be evidenced using <i>Appendix 1: Progress Profile Record (Numeracy)</i>.	Evidence is required that the difficulties continue to persist over time despite appropriate access to intervention and support.
4. Wellbeing	The following may be helpful to consider if the assessment evidence is indicating emotional need: • Structured observations • Assessment using the Wellbeing Indicators. • Strengths and Difficulties Questionnaire.	Evidence is required that social and emotional factors are not the primary barrier to numeracy progress. Assessment of the pupil's social and emotional presentation in relation to the acquisition of numeracy skills will be considered. Analysis of other possible factors to ascertain that they do not impact on numeracy progression (e.g. motivation, anxiety etc).
5. Parent/Carer and Pupil Views	Pupil and parent/carers views will be incorporated into the assessment. As a minimum, the following information will be collated and	Evidence will be collected from parents/carers and pupils, and compared with school assessment information. Analysis of early development, family history, contextual assessment from home

	compared with school assessment evidence. • <i>Appendix 3: Parents/Carers View.</i> • <i>Appendix 4: Pupil View.</i> • Review Meetings.	or previous establishments, vision, hearing, health and other identified barriers to learning is required.
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NB: This table is intended as a guide to support professional thinking and evidence gathering. It is not intended to be a definitive list of assessment information or evidence required. Assessment should consider evidence from multiple sources, including context specific resources or material.

4. Assessment Process (Numeracy)

Class Teachers continually assess planned learning experiences across contexts. Teachers will use a variety of approaches to gather evidence to identify strengths and areas of difficulty, recognise achievement, describe progress and identify next steps.

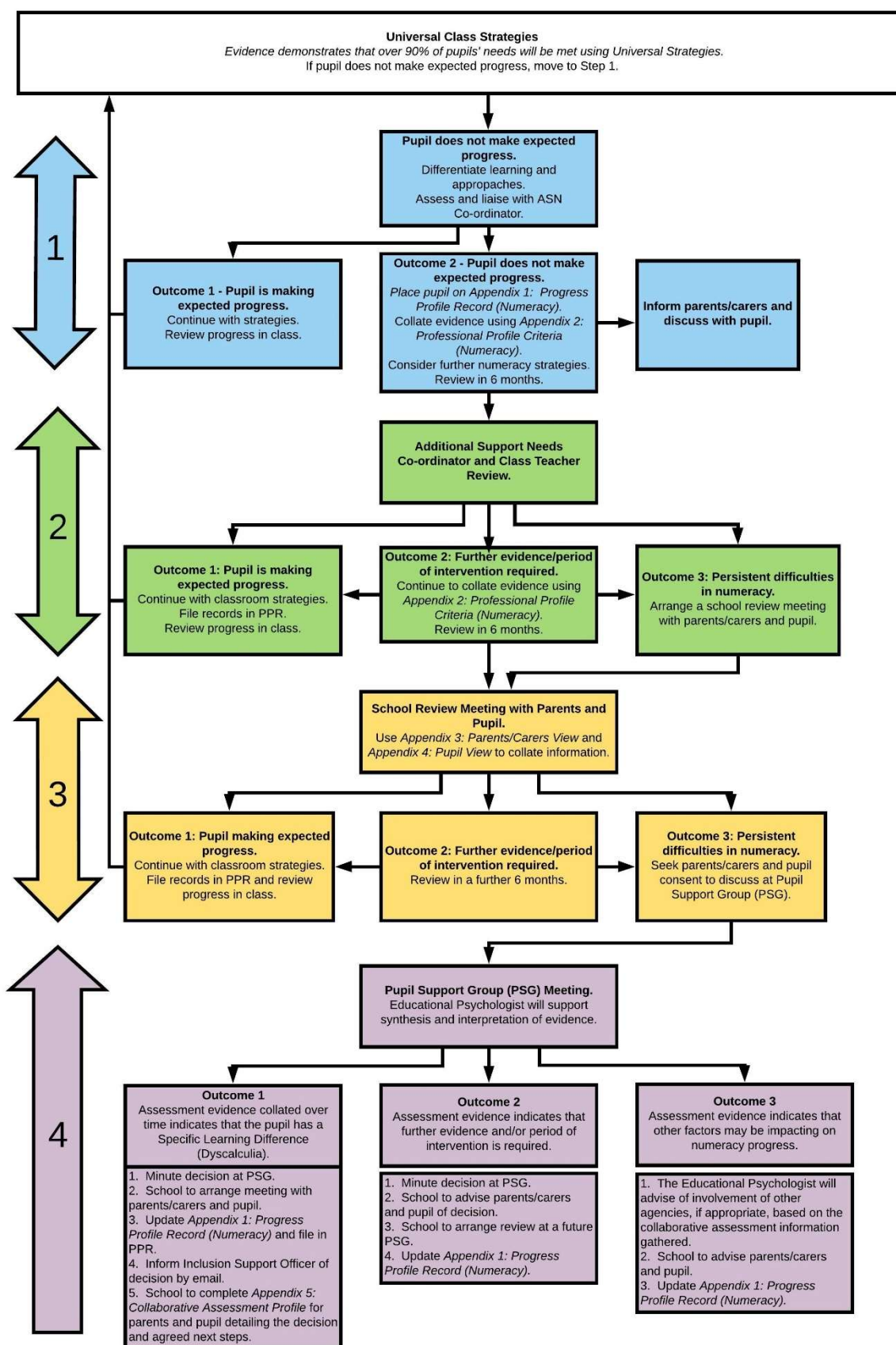
Pupil progress is assessed across the following key areas:

- Knowledge and Understanding
- Skills
- Attributes and Capabilities

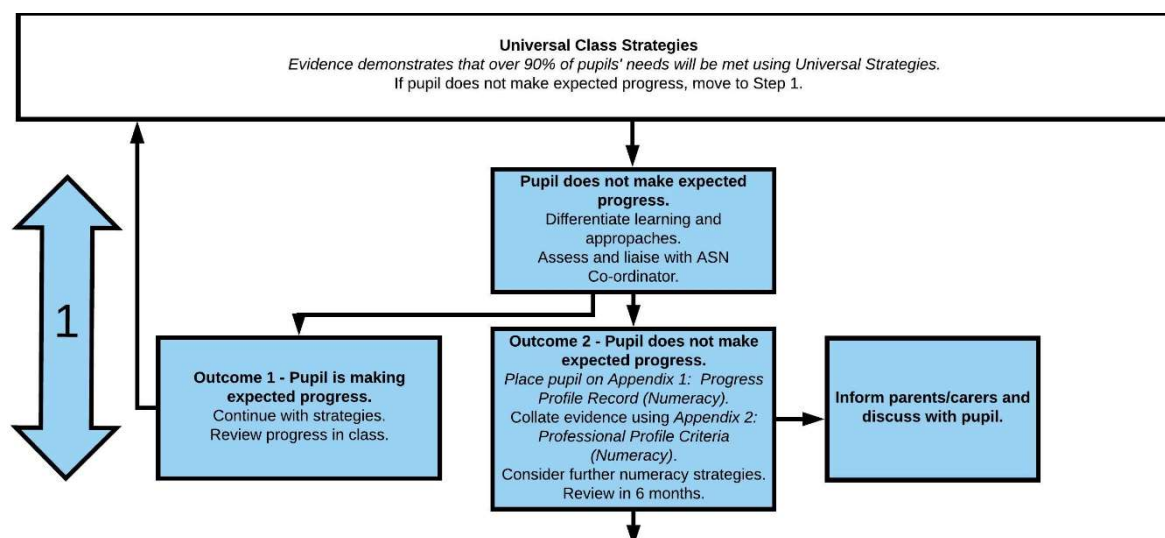
Assessment is an integral part of learning and teaching. It supports learning through explicit teaching methodology and reflective feedback. Good quality assessment enables learning to be effectively differentiated to allow learners to achieve success. It serves to encourage and promote learner engagement and achievement (The Scottish Government, 2011).

In many cases, concerns will be raised by Class Teachers in the first instance. However, parents may also raise concerns with the school via discussion with the Class Teacher or Additional Support Needs Co-ordinator. Parents/carers should be regularly informed about pupils' strengths and areas which may require further support to improve learning. *Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention* outlines the assessment process to track and monitor numeracy progress and achievement across the curriculum.

4.1 East Dunbartonshire Numeracy Assessment Process Flow Diagram



4.2 Step 1 (Level of the Classroom)

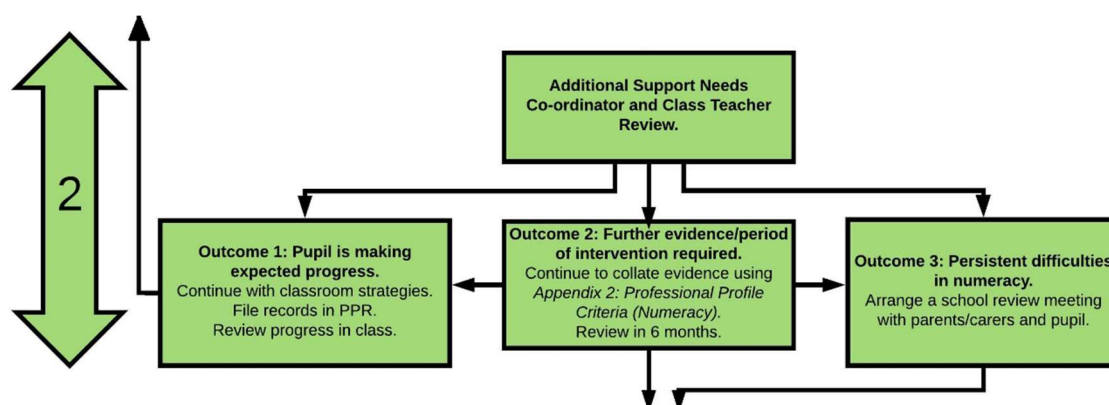


It is the role of the Class Teacher to provide a holistic assessment of strengths and to identify areas which may require further support. This is achieved through regular tracking and monitoring across curricular areas and the provision of universal support strategies and differentiation. Any concerns should be shared in the first instance with the school's Additional Support Needs Co-ordinator who will review and clarify the assessment information and classroom intervention(s).

In cases where the pupil makes expected progress, **Outcome 1** is selected. Support strategies should continue and progress should be regularly reviewed in class.

In cases where the pupil does not make expected progress, **Outcome 2** is selected and the assessment process moves to **Step 2**. Parents/carers should be advised that the pupil's numeracy progress will be closely monitored and key areas will be assessed to determine appropriate support strategies. *Appendix 1: Progress Profile Record (Numeracy)* and *Appendix 2: Professional Profile Criteria (Numeracy)* should be used to record information.

4.3 Step 2 (Additional Support Needs Co-ordinator and Class Teacher Review)



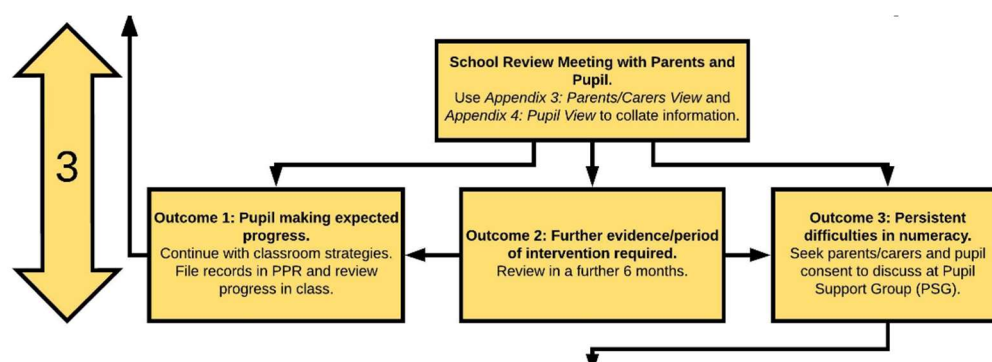
At **Step 2**, a formal review between the Class Teacher and Additional Support Needs Coordinator should be held and evidence gathering should continue. A date should be agreed to review assessment evidence within six months of the initial discussion. Following the review of the assessment evidence, one of three outcomes may be reached.

In cases where the pupil is making expected progress, **Outcome 1** is selected. Classroom strategies should continue and *Appendix 1: Progress Profile Record (Numeracy)* and *Appendix 2: Professional Profile Criteria (Numeracy)* should be filed in the Pupil Progress Record (PPR).

In cases where further evidence is required, **Outcome 2** is selected. Further evidence is gathered through routine classroom assessment and through *Appendix 2: Professional Profile Criteria (Numeracy)*. A review should be arranged within six months of the discussion. It is anticipated that **Outcome 2** may require to be revisited on more than once before **Outcome 3** is considered.

Where it evident that a pupil is experiencing persistent difficulties in numeracy, **Outcome 3** is selected. A review meeting should be arranged between the Additional Support Needs Co-ordinator, parents/carers and pupil. The assessment process should then move to **Step 3**.

4.4 Step 3 (School Review Meeting)



At **Step 3**, a school review meeting should be arranged with parents/carers, the pupil and school staff. The purpose of the meeting is to review school strategies and intervention(s),

reaffirm strengths and identify areas of educational need. It will also provide opportunity for parents/carers to share their knowledge and views of the pupil's numeracy progress within the home context. *Appendix 3: Parent/Carer Views* provides a framework to formally gather parent/carer assessment information during the meeting.

4.4.1 Pupil Voice

Schools in East Dunbartonshire actively seek the views of pupils and involve them in decision making. Pupils are encouraged to freely express their opinion on all matters which affect them. This enables pupils to become active participants in their learning and promotes confidence, a sense of agency and responsibility in determining what will help them with their numeracy progress. Pupils should be invited to participate in meetings and planning in whatever way they feel most comfortable with. *Appendix 4: Pupil Views* is provided to formally gather views and can be completed more than once, with the support of a trusted adult, to assess if there has been change over time. Pupil's views will also be gathered informally on a regular basis to ensure learning is appropriately balanced and supports numeracy development and wellbeing.

4.4.2 Education Support Teachers

Education Support Teachers provide support to school staff on all areas of additional support for learning. Education Support Teachers may attend the review meeting and advise on intervention(s) to support numeracy development for individual pupils and/or groups of pupils. Dependent on the assessment, Education Support Teachers may also provide:

- Support in classes through team teaching
- Group support for cohorts of pupils
- Individual support for pupils

All assessment evidence will be considered at the review meeting along with the impact of agreed strategies and intervention(s) over time. At the end of the meeting, one of three outcomes will be reached.

In cases where the pupil is making expected progress, **Outcome 1** is selected. Classroom strategies should continue and *Appendix 1: Progress Profile Record (Numeracy)* and *Appendix 2: Professional Profile Criteria (Numeracy)* should be filed in the PPR.

In cases where further evidence is required, **Outcome 2** is selected. Further evidence is gathered through routine classroom assessment and through *Appendix 2: Professional Profile Criteria (Numeracy)*. A review should be arranged within six months of the discussion.

Where it is evident that a pupil is experiencing persistent difficulties in numeracy, **Outcome 3** is selected. Consent should be sought from parents/carers and the pupil for discussion at the Pupil Support Group (PSG).

4.5 Step 4 (Pupil Support Groups)

PSGs are held in each school and attended by the Additional Support Needs Co-ordinator, Education Support Teacher, Class Teachers, link Educational Psychologist and other agencies, as appropriate. The purpose of the PSG is to raise attainment and promote social inclusion for all East Dunbartonshire pupils through the process of Universal and Targeted Support. Getting it Right for Every Child (GIRFEC) provides the education service framework within which schools and partners assess and then support needs, implement strategies and review any pupil plan to ensure the best outcomes for pupils.

Where there are concerns regarding Specific Learning Difference (Dyscalculia), evidence will be considered at a PSG in order to reach a conclusion to the assessment process.

4.5.1 The Role of the Educational Psychologist at the PSG

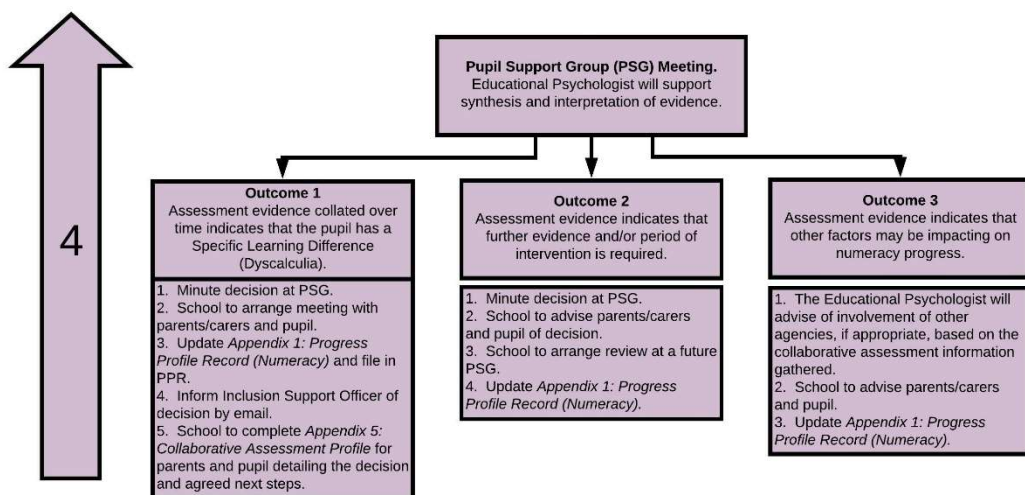
Each school in East Dunbartonshire is allocated a link Educational Psychologist. Educational Psychologists provide support for pupils with additional support needs through the cycle of consultation, assessment and intervention.

The school's link Educational Psychologist will attend each PSG to provide consultative advice to the group. In relation to Specific Learning Difference (Dyscalculia), Educational Psychologists provide consultative advice on the assessment, identification and educational planning for pupils. This may include:

- Reviewing the assessment process and evidence gathered in order to decide whether the definition of dyscalculia is appropriate;
- Advising on strategies to support young people with Specific Learning Difference (Dyscalculia);
- Supporting practitioners in developing their knowledge and skills regarding Specific Learning Difference (Dyscalculia).

In some cases, it may be agreed that further assessment is required. The Educational Psychologist will advise if the involvement of other agencies is appropriate based on the collaborative assessment information gathered.

Any support provided at PSG aims to enhance pupils' learning. Support sits within the framework of A Curriculum for Excellence and East Dunbartonshire Council's Wellbeing Framework. The PSG also allows for the provision of the entitlement to personal support for all pupils particularly in relation to reviewing learning, planning next steps and providing access to learning activities designed to meet identified needs. This ensures that schools and other agencies can maximise opportunities for all pupils to develop skills for learning, life and work. The PSG will decide on one of the following three outcomes:



5. Assessment Summary

It is important that any barrier to learning or Specific Learning Difference is recognised at the earliest possible stage so that appropriate strategies and support can be put in place timeously. *Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention* aims to provide a clear process of assessment, and intervention to enhance attainment for all and provide Universal and Targeted Support (if required) to meet individual need. Many children who have a learning difference in numeracy do not fulfil the Department for Education and Skills (2001) definition of dyscalculia. Assessment completed over a period of time provides greater certainty that an identification of Specific Learning Difference (Dyscalculia) is accurate and appropriate compared to independent, discrete assessments. Therefore, it is important that a robust assessment which considers the many factors which influence the pupil's development takes place.

In cases where a private assessment has identified a Specific Learning Difference (Dyscalculia), the parent/carer should provide a copy of the report to the school's Additional Support Needs Co-ordinator. Schools should give regard to private reports and take their contents into account when planning for the pupil's learning and support. However, contextual assessment of the pupils' numeracy skills should continue in school.

The application of a label to describe an area of difficulty during the early stages of development may not be particularly helpful or meaningful, as progress will be affected by maturation and experience. In the majority of cases, an identification of dyscalculia can be confidently determined from the middle to upper primary stages. Evidence must be gathered which demonstrates that difficulties in numeracy persist over time despite access to appropriate learning environments, teaching and support. Evidence must also demonstrate that no other factors which may have impacted upon the development of numeracy skills.

It is important to note that strategies to support numeracy development will be implemented regardless of the stage of evidence gathering or identification of Specific Learning Difference (Dyscalculia).

6. Support and Intervention

Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention sits alongside East Dunbartonshire Council's Including Every Learner policy and Wellbeing Framework.

East Dunbartonshire Council recommends the use of Maths Recovery as a key intervention to support the revision of key concepts in numeracy. Therefore, it is expected that Maths Recovery resources will be a key resource for schools. Further support can be sought from the following recommended resources. Advice and consultation regarding evidence based resources and/or intervention(s) for numeracy development can be obtained from East Dunbartonshire Council Educational Psychology Service via the link Educational Psychologist in school.

Books:	
Practitioners	Bird, R. (2017). <i>The Dyscalculia Toolkit</i>. London: Sage Publishing. Bird, R. (2017). <i>The Dyscalculia Resource Book</i>. London: Sage Publishing. Bird, R. (2017). <i>Overcoming Difficulties with Number: Supporting Dyscalculia and Students who Struggle with Maths</i>. London: Sage Publishing. Butterworth, B. and Yeo, D (2004). <i>Dyscalculia Guidance: Helping Pupils with Specific Learning Difficulties in Maths</i>. London: NFER Nelson
Parents	Attwood, T (2003). <i>Practical Activities for Children with Dyscalculia: Parents Edition</i>. First and Best Education Ltd Glen, S. (2014). <i>Dyscalculia: An Essential Guide for Parents</i>. Create Space Independent Publishing Platform. Simmons, C. (2015). <i>Dyscalculia; A Parents' Guide to Understanding Dyscalculia in Children and How to Help a Dyscalculic Child</i>.
Websites:	
Practitioners	The Dyscalculia Centre: www.dyscalculia.me.uk Call Scotland: http://www.callscotland.org.uk/information/dyslexia/numeracy/
Parents	The Dyscalculia Centre: http://www.dyscalculia.me.uk/resources-for-parents.html Call Scotland: http://www.callscotland.org.uk/information/dyslexia/numeracy/

6.1 Transition Support

Consideration will be given to all pupils who are being tracked and monitored through the *Supporting Specific Learning Difference (Dyscalculia): Guidance for Assessment and Intervention* to ensure transitions are effectively managed from one academic session to the next. A profile of strengths and any strategies and intervention(s) in place will be passed to key members of school staff to support a seamless transition for pupils.

Careful transition planning is particularly important for pupils presenting with additional support needs at the following key stages:

- Nursery to Primary 1
- Primary 7 to S1
- Secondary School to Post School

6.2 Transition to Secondary School

If a pupil has met the criteria for dyscalculia, they will be raised again at the PSG prior to transitioning to secondary school. The Additional Support Needs Co-ordinator (Primary) will invite the Pupil Support Co-ordinator (Secondary) and the Principal Teacher of Support for Learning to a PSG to discuss an appropriate plan to meet individual need.

6.3 Secondary School and Alternative Assessment Arrangements

Regular tracking and monitoring of numeracy progress and support strategies will continue following a pupil's transition to secondary school. The assessment evidence will determine if alternative assessment arrangements are required.

Alternative assessment arrangements are informed by the Scottish Qualifications Awards policy documentation (Scottish Qualification Authority, 2010). Access to alternative assessment arrangements are based on the principle of ensuring every pupil has the opportunity to demonstrate their ability without compromising the assessment process. As such, the assessment evidence will identify the most appropriate intervention(s) to support individual need. It is important to note that an identification of a Specific Learning Difference does not automatically entitle a pupil to alternative assessment arrangements. Contextual evidence must be gathered to demonstrate what strategies support the pupil's learning and what impact this has on achievement.

6.5 Transition to Post School

A copy of the *Appendix 5: Collaborative Assessment Profile* will be held in the Pupil's Profile Record (PPR) and will be provided to parents/carers when agreement has been reached that

the pupil has a Specific Learning Difference (Dyscalculia). Prior to the pupil leaving school the documentation will be updated and a copy will be provided to the pupil. It will be up to the individual to decide if they wish to share this information with prospective employers and/or further educational establishments.

7. References

Butterworth, B. & Yeo, D. (2004). *Dyscalculia Guidance*. David Fulton: London.

Department for Education and Skills. (2001). *National Numeracy Strategy: Guidance to support pupils with dyslexia and dyscalculia*. Retrieved from: <https://www.gov.uk/government/publications?departments%5B%5D=department-for-education>

Emerson, J. and Babbie, P. (2013). *The Dyscalculia Assessment*. Continuum Publishing: London.

Shalev, R. S., Auerbach, J., Manor, O. and Gross-Tsur, V. (2000). Developmental dyscalculia: prevalence and prognosis. *European Child & Adolescent Psychiatry*, 9(2), S58 - S64.

Scottish Qualifications Authority (2017). *Assessment Arrangements Explained*. Retrieved from: https://www.sqa.org.uk/sqa/files_ccc/AssessmentArrangementsExplained.pdf

The Scottish Government (2011). *Curriculum for Excellence: Building the Curriculum 5*. Retrieved from: <http://www.gov.scot/Publications/2011/02/16145741/0>

The Scottish Government (2008). *Getting it Right for Every Child*. Retrieved from: <https://www.gov.scot/resource/doc/238985/0065813.pdf>

Appendix 1: Progress Profile Record (Numeracy)

Step 1: Level of the Classroom

Pupil Information		
Name:		
Current School/Establishment:		
Date of Birth:		
Stage:		
Attendance:		
First Language:		
Nature of Numeracy Difficulty:		
Assessment	Analysis	
Review of assessment information collated <i>Appendix 2: Professional Profile Criteria (Numeracy)</i> :		
Areas of strength:		
Intervention	Analysis	
Review impact of strategies and class based Intervention:		
Next steps		
Signed:	Designation:	Date:

Step 2: Additional Support Needs Co-ordinator and Class Teacher Review Meeting

Assessment	Analysis
Review assessment information collated from <i>Appendix 2: Professional Profile Criteria (Numeracy)</i> .	
Areas of strength:	
Intervention	Analysis
Review impact of strategies and class based intervention:	
Next Steps	

Outcome	Select agreed outcome	Action
Pupil assessed as making good progress with classroom strategies and intervention(s).		- School to file class teacher contextual assessment grid in Pupil Profile Record (PPR) noting date it has ceased. - Class Teacher to continue with classroom based strategies and assess progress.
Additional Needs Co-ordinator has identified that further classroom based assessment evidence is required.		- Additional Support Needs Co-ordinator to specify assessment information required and reschedule internal meeting. - Class Teacher to continue with agreed strategies and support
Assessment evidence indicates that concerns persist and require further investigation.		- The Additional Support Needs Co-ordinator will arrange a Team around the Child meeting with parents and pupil to review assessment information and plan next steps. - The Additional Support Needs Co-ordinator will note agreed action on the profile record.
Signed:	Designation:	Date:

Step 3: School Review Meeting with Parents/Carers and Pupil

Assessment		Analysis	
Review assessment information and impact of intervention(s). Review other environmental factors:			
Areas of strength:			
Parent/Carer Views: (see Appendix 3):			
Pupil Views (see Appendix 4):			
Outcome	Agreed Outcome	Action	
Outcome 1: Pupil making expected progress.		- File <i>Appendix 2: Professional Profile Criteria (Numeracy)</i> in Pupil Profile Record (PPR) noting date it has ceased - Continue with classroom strategies. - Review progress at class level	
Outcome 2: Further evidence/period of intervention required. Review in 6 months.		Agree intervention and date for Team Around the Child review	
Outcome 3: Persistent difficulties in numeracy.		- The Additional Support Needs Co-ordinator will seek consent from parents/carers to discuss the case with the Educational Psychologist at the next Pupil Support Group meeting (PSG). - School to collate evidence for review at PSG.	
Signed:	Designation:	Date:	

Step 4: Pupil Support Group

Pupil Information					
Name:					
Current School/Establishment:					
Date of Birth:					
Stage:					
First Language:					
Nature of Numerical Difficulty:					
Evidence					
<i>Provide evidence of the implementation of strategies and impact of strategies over time.</i>					
Appendix 2: Professional Profile Criteria (Numeracy):					
Work Samples: <i>Examples of classwork (time taken, analysis of error).</i> <i>Evidence of reading number (time taken, analysis of error).</i> <i>Evidence of writing number (time taken, analysis of error).</i> <i>Evidence of word based problem solving (time taken, analysis of error).</i> <i>Evidence of mental calculations (time taken, analysis of error).</i>					
Scottish National Standardised Assessment: Numeracy	P1 S.S.	P4 S.S	P7 S.S	S3 S.S	
Wellbeing Assessment (if school pupil or parent/carers data indicates it would be beneficial:					
Pupil Assessment Information (See Appendix 4):					
Parental Assessment Information (See Appendix 5):					
Outcome	Agreed Outcome	Action			
Outcome 1: Assessment evidence collated over time indicates that the pupil has a Specific Learning Difference (Dyscalculia).		- Minute decision at PSG. - School to arrange meeting with parents/carers and pupil. - Update <i>Appendix 1: Progress Profile Record (Numeracy)</i>. - Inform Inclusion Support Officer of decision by email. - School to complete <i>Appendix 5: Collaborative Assessment Profile</i> for parents/carers and pupil.			
Outcome 2: Assessment evidence indicates that further evidence and/or period of intervention is required.		- Minute decision at PSG. - School to advise parent/carers and pupil of decision.			

		• School to arrange review at a future PSG. • Update <i>Appendix 1: Progress Profile Record (Numeracy)</i>.
Outcome Three: Assessment evidence indicates that other factors may be impacting on numeracy progress.		• The Educational Psychologist will advise of involvement of other agencies, if appropriate, based on the collaborative assessment information gathered. • School will advise parents/carers and pupil of decision. • Update <i>Appendix 1: Progress Profile Record (Numeracy)</i>.
Signed:	Designation:	Date:

Appendix 2: Professional Profile Criteria (Numeracy)

All children, through the teaching and learning process will be assessed on their knowledge, skills and process of numerical learning. Identification of Specific Learning Difference follows a staged procedure of assessment and intervention. The purpose of this tool is to build a profile of strengths and highlight areas which may require additional support. It is designed to provide a standard unified approach to support pupil planning and early identification. East Dunbartonshire Council recommends the use of Maths Recovery as a key intervention to support the revision of key concepts in numeracy. Regard should be given to Appendix 2: Professional Profile Criteria (Numeracy) and the Maths Recovery assessment and tracking tools as they provide evidence based information in relation to key concepts which may indicate a pervasive specific numerical difference. Intervention over time should inform assessment and pedagogy to determine whether the young person presents with a Specific Learning Difference (Dyscalculia) or a delay in the development numeracy skills. The assessment record has been arranged into the following key sections:

Pupil's Name:		Completed by:	
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Section	Assessment Area
A	Pupil Information
B	Number Sense (Subitising and Estimation)
C	Early Number Skills
D	Numerical Sequencing
E	Number Reading and Writing
F	Number Bonds and Place Value
G	Early Calculation
H	Application of Mathematical Knowledge and Word Problem Solving Skills
I	Memory, Retention and Processing

Each sub-section highlights descriptors which are designed to support assessment and planning. Descriptors are dependent on the developmental stage and chronological age of the young person and this should be considered during assessment. All contextual information should be considered e.g. observations of strengths, parental/carers and pupil views, collation of multi-agency data and any other relevant data. The Educational Psychologist will support the Team Around the Child with the synthesis and interpretation of data in order to support planning and identify next steps.

Section A: Pupil Information

Name:			
Date of Birth:			
Stage:			
English as an Additional Language:	Yes/No	Please detail:	

Assessed Areas of Strength/Interest:

Section B: Number sense

Assessment should consider number sense in a number of different learning contexts. If concerns are noted with basic number sense, assessment evidence should be gathered to ascertain contexts and conditions where number sense is improved. Strategies and intervention(s) will be identified to support individual need. General advice to support the development of number sense are:

- *Use of concrete visuals*
- *Access to structured play activities with focus on numerical outcomes*
- *Practitioner modelling*
- *Critical enquiry*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Subitising	• Instantly identify differences in size and magnitude between one and six? • Recognise that two rows of three dots is six? • Employ visual strategies to assist subitising? • Instantly recognise the number of objects in a set (between one and six) without employing individual counting strategies? • Automatically recognise the number in a set? • Use concrete resources or measures? • Demonstrate counting strategies? • Pause? • Look to adults for support or clues? • Use patterns to support subitising? • Use observable strategies?		

Estimation	• Automatically provide estimates without hesitation? • Recognise differences in quantity and use this information to assist estimation (e.g. larger, smaller, the same)? • Demonstrate an understanding of the concepts and language of estimation? • Provide reasonable answers when asked to estimate quantity? • Look to adults for support or clues? • Use observable strategies? • Use counting strategies? • Use patterns to support estimations? • Make an informed guess as to how many items are in a set without counting? • Use strategies to check if an estimate is correct?		
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Section C: Early Number Skills

Assessment should consider the development of basic number skills in a number of different learning contexts. If concerns are noted with early number skills, assessment evidence should be gathered to ascertain contexts and conditions where the pupil can demonstrate emergent skills. Strategies and intervention(s) will be identified to support individual need. General advice to support the development of number skills are:

- Use of concrete visuals and multi-sensory active learning
- Access to structured play activities with focus on the development of numerical skills
- Practitioner modelling and guidance to support developing behaviours
- Recognition of developing skills to shape learning e.g. if the child demonstrates repeated sequence of numbers with the same error pattern indicates developing stable order
- Structured observation to identify when scaffolding is required
- Critical enquiry: Probing questions to develop insight into pupil's thinking

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
One to One Correspondence	• Demonstrate understanding that each item must be given one count and only one count? • Independently identify separate objects through movement or pointing and count each object once? • Have a secure understanding within stage of development with minimal error? • Self-correct, if more than one object is selected?		
Stable Order	• Demonstrate a secure understanding that counting sequence remains consistent? • Have secure rote knowledge of order? • Demonstrate secure but incorrect order?		

Order Irrelevance Principle	• Demonstrate a secure understanding that when counting, they can begin with any object in a set and the total will be the same?		
Principle of Quantity	• Recognise the quantity will reduce or increase accordingly when adding or subtracting from the group? • Estimate and understand the language and concepts of bigger and smaller? • Consistently identify correct answer without prompting or support?		
Cardinality Principle	• Understand that the last count of a group of objects represents how many are in that group? • Stop counting and correctly identify number of objects in group? • Recount when asked for the answer?		
Conservation Principle	• Understand that the count for a set group stays the same no matter whether the objects are spread out or are close together?		
Abstraction Principle	• Understand that the quantity of five large things is the same count as the quantity of five small things? • Demonstrate this skill and know the quantity is the same as a mixed group of five small, medium and large things?		

Section D: Numerical Sequencing

Assessment should consider the pupil's ability to sequence patterns of numbers in a number of different learning contexts. Focus should be placed on assessment of secure understanding of concepts and processes. Errors should be analysed to ascertain thought process and application to task. If concerns are noted with sequencing patterns of numbers, assessment evidence should be gathered to ascertain what aspect of number sequencing can be developed with scaffolding and support. General advice to support the development of number sequencing is:

- *Salient materials designed to reflect identified area(s) of interest*
- *Reduction of stimuli presented to pupil*
- *Multi-sensory experiences and precision teaching pedagogy*
- *Staff modelling, scaffolding and reinforcement*
- *Access to structured play activities with focus on number sequencing*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Number Sequencing	• Demonstrate secure knowledge of number sequencing? • Count forward in 1s, 2s, 5s and 10s? • Backwards in 1s, 2s, 5s and 10s? • Count forwards and backwards with bridging? • Identify numbers before, after, between? • Sequence and order numbers from smallest to largest? • Identify correct placing of numbers on a number line 1 - 100? • Pause or make errors (identify the frequency and pattern of errors and observable behaviours)? • Randomly select numbers in the hope of identifying the correct one? • Engage in over-extended gaze in an attempt to extract cues from practitioner and/or peer? • Avoid tasks or give up when tasks are challenging?		

Section E: Reading and Writing Number

Assessment should consider the pupil's ability to correctly identify the symbolic representation of number and write numbers correctly. Focus should be placed on assessment of secure ability to read and write numbers, placing careful attention on reversals, omissions and place value error. If concerns are noted with reading and writing numbers, assessment evidence should ascertain if this difficulty is only evident with reading and writing of numbers..

General advice to support the reading and writing of number is:

- *Exposure to numbers throughout the learning and play environment*
- *Multisensory approaches*
- *Visual supports to prompt reading and writing number*
- *Modelling and scaffolding by key staff*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Number Meaning	• Understand that number names and written symbols represent the same underlying quantities? • Understand that numbers represent quantities? • Confidently use and recognise the names of numbers and their symbolic representation?		
Reading Numbers	• Correctly identify numerals? • Demonstrate a secure understanding of place value when reading numbers? • Read numbers fluently? • Use visual or concrete clues efficiently to support the recognition of written number? • Look for adult support or guidance when reading number? • Make frequent errors in place value?		

Writing Number	• Correctly write dictated numbers with single digits? Two digits? Three digits? • Correctly write sequences of numbers? • Copy numbers quickly and accurately? • Set out work legible and correctly? • Demonstrate hesitation or slow pace when writing numbers? • Require concrete resources to support number writing? • Seek adult support or guidance in writing numbers? • Demonstrate a discrepancy between oral ability and written work? • Reverse numbers (for example, 72 rather than 27)? • Make frequent place value errors? • Use a range of strategies to support number writing?		
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Section F: Number Bonds and Place Value

Assessment should consider the pupil's understanding and application of number bonds and place value. If concerns are noted around the understanding of number bonds and place value, assessment evidence should be gathered to ascertain what aspects can be developed with scaffolding and support. General advice to support the application of number bonds and place value is:

- *Provision of concrete and visual resources to support the understanding*
- *Use of multisensory strategies*
- *Frequent repetition and overlearning to increase automatic recall*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Number Bonds	• Have automatic understanding of number bonds? • Understand the concepts of addition and subtraction? • Quickly and accurately identify alternative number bonds? • Remember and automatically recall of common number facts? • Use concrete resources or visuals to assist understanding and calculations? • Demonstrate explicit counting strategies? • Write two and three digit numbers correctly (eg. 127 rather than 10027) • Set out hundreds, tens and units correctly in written calculations?		

Unitizing Principle	• 'Carry over' correctly when completing larger calculations? • Use strategies to support calculations? • Demonstrate an understanding that in the base ten system, objects are grouped into tens when the count exceeds 9 (and into sets of tens when it exceeds 99), and that this is indicated by a 1 in the tens place of a number? • Demonstrates understanding that the value of a digit will vary according to its position in a number? • Demonstrate understanding of unit addition and subtraction? • Add a ten to a single digit and correctly identify the value? • Identify single digits to multiples of tens?		
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Section G: Early Calculation

Assessment should consider the pupil's ability to complete early calculations in a range of learning contexts. If concerns are noted around early calculation, assessment evidence should be gathered to ascertain what aspects can be developed with scaffolding and support. General advice to support the development of early calculation are:

- *Salient materials designed to reflect identified area(s) of interest*
- *Concrete resources*
- *Reduction of stimuli/task segmentation*
- *Multi-sensory learning experiences*
- *Staff modelling, scaffolding and reinforcement*
- *Access to structured play activities with games designed to support early calculation skills*
- *Precision Teaching*
- *Questions to support developing cognition and meta-cognition*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Addition Subtraction Multiplication Division	• Add, subtract, multiply or divide at an age appropriate level? • Identify mathematical symbols (+, -, x, ÷, =) correctly? • Use mathematical language appropriately? • Identify the most appropriate calculation/process to solve problems? • Demonstrate understanding of taught processes to support calculation? • Set written work out correctly to assist calculations? • Use memorised number facts to support calculations? • Are simple calculations completed mentally? • Are concrete resources required?		

	• Is there confusion regarding symbols? • Are processes and strategies used correctly and consistently? • Are unusual strategies or processes used? • Is frequent repetition required? • Is adult support or prompts sought? • Does the pupil require additional time to complete tasks?		
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Section H: Application of Mathematical Knowledge and Word Problem Solving Skills

Assessment should consider the pupil's ability to apply their mathematical knowledge in 'real world' contexts. If concerns are noted around the application of mathematical knowledge and skill, assessment evidence should be gathered to ascertain what aspects can be developed with scaffolding and support. General advice to support the application of mathematical knowledge and skill is:

- *Provision of 'real world' experiences in which skills can be applied.*
- *Use of 'real world' resources such as money, digital/analogue clocks, scales, calculators or rulers.*
- *Explicit teaching of life skills such as following recipes, accessing timetables, reading graphs or maps.*
- *Introduction of ICT to support 'real world' maths.*
- *Frequent repetition and overlearning to support retention.*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Life Skills	• Complete financial tasks such as dealing with money, calculation prices, using change with ease? • Follow and give directional instructions or read maps? • Tell the time on digital and analogue clocks? • Read graphs to support understanding or solve problems? • Read timetables to support understanding or solve problems? • Read measurement scales accurately? • Mentally complete simple mathematical problems? • Require concrete resources? • Use strategies consistently and correctly? • Use unusual strategies or processes? • Require frequent repetition? • Seek adult support or prompts?		

	• Require additional time to complete tasks?		
Verbal and Literacy Skills	• Accurately access written mathematical problems? • Use written information or environmental text to help solve mathematical problems? • Understand key mathematical words and phrases? • Link or transfer verbal or written information to mathematical processes?		

Section I: Retention and Processing

Assessment should consider how the pupil retains knowledge and understanding across the curriculum. If concerns are noted with retention and processing, assessment evidence should be gathered to ascertain contexts and conditions when retention and processing are improved. Strategies and intervention(s) will be identified to support individual need. General advice to support processing and retention concerns are:

- *Provide concrete literal instructions with discrete checks for understanding and feedback*
- *Use of mnemonics*
- *Task segmentation and reinforcement*
- *Use of visual supports – reduction of visual task stimuli*
- *Use of organisational task cards*
- *Note taking/concept mapping*
- *Precision Teaching*
- *Frequent repetition and overlearning to support retention.*

Contextual Assessment Evidence	Guidance <i>Does the pupil...</i>	Date(s)	Comment
Retention and Processing	• Require support to follow verbal instructions? • Require support to follow visual sequence of information? • Require support to sequence familiar concepts/rote sequences? • Correctly sequence ideas orally? • Correctly segment and sequence visual tasks? • Require additional processing time to complete tasks? • Need additional support when completing tasks which require more than one aspect or skill need additional support? • Organise and sequence tasks correctly? • Have difficulty retaining previous learning?		

	• Have difficulty linking learning to other related concepts? • Have difficulty responding to extended discussion? • Have difficulty repeating information? • Require support to copy information from the board or a written sheet? • Describe good ideas but forgets ideas when writing? • Require support to access visual supports? • Require reinforcement and/or scaffolding when introducing new concepts in learning?		
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Appendix 3: Parent/Carer View

Pupil's Name:		DOB:	
Establishment:		Stage:	
Form Completed by:		Date:	

Family History	Yes	No	Unsure
Has a member of your family had difficulties with numeracy?			
Has a member of your family met the criteria for Specific Learning Difference (Dyscalculia)?			
If yes, please provide further information.			

Developmental Milestones	Yes	No	Unsure
Did your child meet expected developmental milestones?			
If no, what areas were raised as a concern?			
Did your Health Visitor raise any concerns regarding your child's early developmental milestones?			
If yes, please detail concerns raised.			

Vision and Hearing	Yes	No	Unsure
Has your child had their hearing checked?			
If yes, please state date, outcome and recommendations (if any).			
Has your child had their eyes tested?			
If yes, please state date, outcome and recommendations (if any).			

Multi-agency Involvement	Yes	No	Unsure
Are any other agencies involved in supporting your child? <i>For example, Speech and Language Therapy, Social Work Service, Occupational Therapy, Physiotherapy, CAMHS.</i>			
If yes, please provide the dates of involvement, outcomes and recommendations.			

Numeracy Progress	Comment
When did you begin to have concerns regarding your child's numeracy progress?	
What were your concerns?	
What do you do at home which you feel helps support your child to access numeracy tasks?	
What else do you feel helps your child with numeracy tasks?	
Does your child speak to you about numeracy or maths? What do they say?	
How does your child present when asked to complete a numeracy homework task?	
How does your child present at home when engaged in a task involving numeracy? <i>For example, following a recipe, using money, telling time.</i>	
What strengths would you identify in your child's numeracy skills?	
What are your aspirations for your child in the next year in numeracy?	
Is there anything else you feel the school could do to help your child progress?	

Any other relevant information?

Appendix 4: Pupil View

Pupil's Name:		DOB:	
Establishment:		Stage:	
Completed with:		Date:	

Organisation	Yes	No	Unsure
Can you set out your work neatly?			
Do you feel your maths work is easy for others to read?			
Do you sometimes have to explain your number or maths work to others?			
Do you lose your place when you are setting out your maths work?			
What helps you to organise your work?			
What else do you think would help you to organise your work?			

Attribution	Yes	No	Unsure
Do you enjoy working with numbers?			
Which part of number work do you most look forward to?			
What part of number work do you think you are best at?			
Which part(s) of maths and number work do you feel you need help with?			

Attitude					
The next few questions will ask you to rate how you feel from 0 (I am not worried or upset) to 4 (I would be really worried or upset).					
	0	1	2	3	4
Recite the seven times table.					
Complete a timed mental maths task in class.					
Answer a maths question in front of others.					
Learn a new skill in numeracy or maths.					

Explain your homework to your parents					
Being asked to help someone else with their maths or number work.					
Sit a maths test in class.					
When the teacher is marking your number or maths work in front of you.					

Overview

Please rate how easy you find different parts of numeracy work from 0 (very hard/I need lots of help) to 4 (very easy, I need no help).

	0	1	2	3	4
Counting					
Adding/Subtracting					
Multiplication/Division					
Mental Maths					
Telling the time					
Using money					

Support

What things help you when you are doing maths or number work?	
Is there anything else your teacher could do to help you to get even better at maths or number work?	
Is there anything else you would like to share?	

Appendix 5: Collaborative Assessment Profile



East Dunbartonshire Council

www.eastdunbarton.gov.uk

Pupil's Name:		DOB:	
Address:		School:	
Stage:		Date:	

Contributors to Assessment

Definition of Dyscalculia
<i>East Dunbartonshire Council adheres to the following definitions of dyscalculia:</i> <i>“Dyscalculia is a condition that affects the ability to acquire arithmetical skills. Learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning number facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence”</i> (Department for Education and Skills, 2001).

Summary Analysis of Assessment Evidence

Agreed Outcomes		
Evidence collected and analysed against the definition(s) confirms that [INSERT NAME] meets the criteria for the Specific Learning Difference (Dyscalculia). This is in relation to specific difficulties with [INSERT AREAS OF NEED]. Planning and intervention will address the specific need. School will regularly track and monitor progress and assess impact.		
Signed on behalf of contributors to assessment:	Designation:	Date:

