Castleplunkett NS

Whole School Plan
Mathematics

Mathematics

Introductory Statement and Rationale

Introductory Statement:

This plan was formulated during the school year 2020 / 2021, following a consultative process with all teaching staff. It will be reviewed as required in line with curricular or school changes.

Rationale:

This plan was designed in order to

- benefit teaching and learning in our school
- conform to principles of learning outlined in the Primary School Curriculum
- review the existing plan for mathematics
- review, consolidate, clarify and build upon aspects of our existing school plan for Mathematics
- improve the standard of Mathematics in our school
- organise and coordinate work being carried out already by staff in
- Mathematics
- establish and provide a resource for staff members which is structured and researched
- provide a framework within which more specific planning can take place
- provide information for teachers, parents, Board of Management members and all other interested educational partners of the school community

Vision and Aims

Vision:
Our school cherishes all pupils equally and we aim to help them in achieving their true potential. It is envisaged that after their primary schooling they will have acquired the necessary mathematical skills to participate fully in the mathematical curriculum in second level and to engage in problem solving of a practical nature in their everyday lives. We are hopeful that all pupils will be confident in using Mathematics and that they will have reached their Mathematical potential to the full, in a meaningful and positive way.

Aims:

We endorse the following aims of the Primary School Curriculum for Mathematics.
- To develop a positive attitude towards mathematics and an appreciation of both its practical and its aesthetic aspects.
- To develop problem-solving abilities and a facility for the application of mathematics to everyday life.
- To enable the child to use mathematical language effectively and accurately.
- To enable the child to acquire an understanding of mathematical concepts and processes to his/her appropriate level of development and ability.
- To enable the child to acquire proficiency in fundamental mathematical skills and in recalling basic number facts.
- To provide many opportunities to revise Mathematics concepts before exploring new ones.
- To assess at regular intervals using a variety of methods.
- To share resources, ideas and practice.

We aim to do this through having a coordinated and comprehensive programme, which caters for the needs of all the children in our school, and ensures continuity and progression in their learning.

This Mathematics plan will be addressed under the following headings

Curriculum planning
1. Strands and strand units
2. Approaches and methodologies
3. Assessment and record keeping
4. Children with different needs
5. Equality of participation and access

Organisational planning
6. Timetable
7. Homework
8. Resources and ICT
9. Individual teachers' planning and reporting
10. Staff development
11. Parental involvement - home school links
12. Community links

Curriculum Planning

1. Strands and Strand units

(For content overview see Curriculum: Infants p.17; First & Second classes p. 37; Third & Fourth classes p.61; Fifth & Sixth classes p. 85)

	Infant Classes	**First and Second Classes**
Strands	**Strand Units**	**Strand Units**
Early Mathematical Activities	Classifying Matching Comparing Ordering	

Number	Counting
	Comparing and
	  Ordering
	Analysis of Number
	Combining
	Partitioning
	Numeration
		Counting and
		  Numeration
		Comparing and
		  ordering
		Place value
		Operations
		Addition
		Subtraction
		Fractions

Algebra	Extending Patterns	Exploring and using patterns
Shape and Space	Spatial awareness 3-D shapes 2-D shapes	Spatial awareness 3-D shapes 2-D shapes Symmetry Angles
Measures	Length Weight Capacity Time Money	Length Area Weight Capacity Time Money
Data	Recognising and interpreting data	Recognising and interpreting data

	Third and Fourth Classes	Fifth and Sixth Classes
Strand	**Strand Units**	**Strand Units**
Number	Place value Operations Addition and subtraction Multiplication and division Fractions Decimals	Place value Operations Addition and subtraction Multiplication and division Fractions Decimals and percentages Number theory
Algebra	Number pattern and sequences Number sentences	Directed numbers Rules and properties Variables Equations
Shape and Space	2-D shapes 3-D shapes Symmetry Lines and angles	2-D shapes 3-D shapes Symmetry Lines and angles
Measures	Length Weight Capacity Time Money	Length Weight Capacity Time Money
Data	Representing and interpreting data Chance	Representing and interpreting data Chance

All teachers are familiar with the strands, strand units and content objectives in the Mathematics Curriculum and refer to them regularly when planning for their classes ensuring all strands and strand units are covered. We endorse the objectives of the Revised Curriculum for Mathematics at each class level. We acknowledge that these objectives should be the starting point for individual teacher's long and short term planning. We also acknowledge that differentiation within a class is essential and that some children may be covering a modified maths programme with objectives from class levels above or below their class placement.

2. Approaches and methodologies

In the mathematics curriculum, the strands and strand units are viewed through the lens of the approaches and methodologies. (Refer to Teacher Guidelines: Mathematics pp. 30 - 67)

2.1 General

All children will be provided with the opportunity to access the full range (all strands) of the mathematics curriculum. In Castleplunkett School we ensure that this happens in the following ways:

- Through adequate timetabling within each class
- Ensuring that pupils receiving supplementary teaching from the learning support teacher in the area of Maths do not, in so far as timetabling allows, have their additional teaching timetabled to clash with mainstream Maths lessons.
- Ensuring that there is less emphasis and reliance on textbooks and workbooks and more on active learning strategies
- Ensuring that the textbooks we do use are in line with content objectives for the class level.
- Encouraging the appropriate use of concrete materials in all classes throughout the school and not just in the junior room.
- Providing opportunities for all children from fourth to sixth class to use calculators, *e.g. to check answers, to explore the number system, to remove computational barriers for weaker children or to focus on problem solving.*
- Allowing pupils to collect real data in other areas of the curriculum and using it to represent their findings i.e. using data from other subjects such as geography, history or science to find the answer to a question. Gathering data to answer their own questions such as "Do more/less children walk to school this year than five years ago?" "What are the three favourite vegetables eaten by children in our class? "
- Engaging in estimation strategies through every appropriate strand within the maths curriculum e.g. Shape and Space.
- Using whole school strategies and initiatives to raise the profile of mathematics as a subject to be enjoyed by all children, *e.g. mathematics fun days, display of mathematics work in school, Maths Trails during Maths Week.*
- Teachers ensure that the relevant Maths language is implemented appropriately and in context, formally through Maths instruction and informally across the Curriculum
- Exposing children to a Maths rich environment both within the classroom and in the wider school environment.

2.2 Talk and discussion

Guided discussion and discussion skills
Talk and discussion in mathematics is taken seriously and seen as an integral part of the learning process, e.g. teacher/pupil, pupil/pupil, pupil/teacher. This will provide the focus for the beginning of all Maths lessons particularly in the initial stages of a topic.

We provide opportunities for pupils to explain how they got the answer to a problem, discuss alternative ways of approaching a problem or give oral descriptions of group solutions. This will

be particularly important in Problem Solving lessons but will be relevant to all areas of the Maths Curriculum. Discussion skills are enhanced by turn taking, active listening, positive response to the opinion of others, confidence in putting forward an opinion,ability to explain clearly their point of view and re-voicing methods others have shared or used.

Scaffolding
Teachers actively model the language to be used, particularly when talking through the problem-solving process.

Integration
A thematic approach will be used for linkage within mathematics and integration across all areas of the curriculum e.g. measuring volumes of liquids in Science, collecting Data in S.E.S.E.

Linkage
Teachers will provide opportunities where a thematic approach might be used for linkage, *e.g. when dealing with decimals we also are aware of their use in data- pie charts; measures - all areas but particularly Money for introducing Decimals.*

Mathematical language for Skills and Concepts
There is an agreed emphasis on the language of mathematics i.e. for each class level we have a list of terminologies, language. There is a conscious effort made to use the children's own ideas and environment as a basis for reinforcing mathematical language, *e.g. you are taller than he is; is teacher's table longer/wider than yours?*
There is a very strong link between language and concept acquisition. We feel it is important to have a common approach to the terms used and the correct use of symbol names in order to ensure consistency. Our school has agreed the following:

Maths Language used in Castleplunkett School
Junior Infants
No signs used
Language: and, makes, add, is the same as, altogether makes, how many, count, set, pattern, same/different, combine, join, more/less

Senior Infants
Addition and Equivalence
Introduction of signs: +, =
Language: plus, equals (and, makes initially used as in junior infants), divide (split)
3 + 1 = 4 (Left to right orientation) 3 plus/and 1 equals/makes 4

  3   Top down
+1
  4

First Class
Subtraction
- is introduced as a symbol in First class
Language: take away, minus, forwards, backwards, fewer/greater, less than
Place Value: tens and units

18 – 5 = 13   18 take away/minus 5 equals/leaves 13

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 18
- 5
 13
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Second Class

Hundred square, columns, rows
Addition
Children are encouraged to find doubles, near doubles or pairs that make ten when adding more than two numbers.

Subtraction

TU	34 (3 tens and four units) take away 16 (1 ten and 6 units).
34	Step 1: Work out the units side first.
- 16	4 units take away 6 units I cannot do so I go next door to the tens and I rename a
18	ten as 10 units and add them to the units. I now have 2 tens and 14 units.
	14 units take away 6 units leaves 8 units.
	Step 2: Now work out the tens side.
	2 tens take away 1 ten leaves 1 ten

 Renaming/grouping will be the method used throughout the school. 'Big Bottoms Borrow'

*a tipsheet from the NCCA on helping your child with subtraction will be made available to parents

Rounding
Rounding numbers to the nearest 10. Plot the number on the number line. Identify how many 'jumps' to the ten above and below the number
*Rule: If the number in the units place is 1,2,3 or 4 we round down. If the number in the units place is 5,6,7,8 or 9, we round up.

The symbols for greater than > and less than < are introduced in second class. The children are taught to think of a greedy crocodile's mouth for the shape of the symbol and the 'rule' states that the greedy crocodile's mouth always opens to the greater/bigger number.

Fractions
½   one half;   2 halves make a whole, two halves must always be the same
 ¼   one quarter, 4 quarters make a whole, four quarters must always be the same
½ = ¼ + ¼ (2 quarters) a half is the same as two quarters

Shape and Space
Angles/Turns
Right angle/ square corners
Introduction to concept obtuse/acute through smaller/bigger than right angle.
Area, square, cover
Symmetry, symmetrical

Third/ Fourth Class

Multiplication/Division
÷ and x are introduced as symbols in Third Class.
Language: ÷ division, divide, divided by, split, share, shared between, group, how many in …

x multiplication, multiply, times, of

Short multiplication   Start with 4 groups of 3, move onto…
                              4 threes
                              4 times 3
                              4 multiplied by 3
                              from bottom

Long multiplication   from bottom
                              Units first. Language as above

Division   Language: Divisible by/ not divisible by, share among, left over, remainder
12 ÷ 4   12 shared among 4
                12 divided by 4

Fractions
¼ of 32   Share among 4 and/or 32 divided by 4,
                equivalence, equivalent, same value, fraction wall, thinking blocks

Decimals
1/10 is equal to 0.1
1/100 is equal to 0.01 include zero before decimal point
Number neighbours

Tessellation
Fit together with no spaces

Fifth/Sixth Class
Number Language; square, prime, composite, rectangular numbers   BIMDAS (Brackets, Indices, multiplication, division, addition, subtraction)

Multiplication/Division
Finding common multiples by listing numbers, finding common factors by listing factors
The words 'product' and 'quotient' are introduced.
Problem solving; sum, difference, products, quotients
Power/indices

Fractions
All children are taught to memorise table of equivalent fractions, decimals and percentages
Numerator, denominator
½ + ¼ = ¼ + ¼ + ¼ = ¾ or 2/4 + ¼ = ¾
½ - ¼ = 2/4 – ¼ = ¼ (two quarters take away one quarter equals one quarter)
Improper/proper fraction
Mixed numbers

Multiplication
1 x 1 multiply top number by top number
3   5 bottom number by bottom number
        simplify /break down

Division of whole number by fraction;
5 ÷ ¼ =
change the whole number to a fraction and turn the second fraction upside down and multiply
how many quarters in 5 units? 5 x 4 = 20   'Invert and Multiply'
                                                 1   1

Decimals
Decimal fractions
1/10, 1/100, 1/1000 – tenths, hundredths, thousandths
Addition; to 3 decimal places (with/without calculator)
Subtraction; to 3 decimal places (with/without calculator)
Rounding decimals; to the nearest whole number
Multiplication of decimals; to 1 decimal place, to 2 decimal places
Multiplying a decimal by a whole number, multiplying a decimal by a decimal

Division of decimals;
Converting a fraction to a decimal

Percentages
Converting a fraction to a percentage; multiply by 100/l or if possible change the fraction to
hundredths

Time
Addition; add minutes to minutes, hours to hours and simplify (changing minutes to hours)
Subtraction;
 hrs. mins.   hrs. mins.   If minutes number is bigger on bottom line, convert the top minutes ie
 3   15   2   75   change one hour to 60 mins, add to other mins. and rewrite sum.
-2   33   -2   33

Co-ordination
Introduce (x,y) axis; x comes before y in the alphabet, helps to remember which comes first, go in the
door, then up the stairs.

Area
Perimeter
Rectangle/Square
Length x width (l x w). breadth = width
Ares (1 Are = 100m, l hectare = 10,000m)
Relationship of sq. m to sq. cm
Area of room from scale plan
Surface area (cube and cuboid) find surface area of one face, count faces and multiply by no. of
faces
Examine area by counting squares

Circle
Radius, diameter, circumference, arc, sector
Relate the diameter of a circle to its circumference by measurement.
Measure circumference of circle using string
Construct circle when given radius/diameter

Lines and Angles
Right angle, acute, obtuse, reflex, straight, degrees, protractor, ruler

2-D shapes/3-D shapes
sum of the angles in a triangle = 180°
sum of the angles in a quadrilateral = 360°
sum of angles in a circle = 360°

Tables
Number facts up to 10 will be memorised. (Story of Numbers 1 - 10)
Addition facts up to 12 and doubles up to 20 will be memorised by the end of Second Class,
and multiplication facts up to x12 by the end of 4th class. Both will be revised up to the end of 6th
class. A variety of methods will be used including skip counting. For 3x4 we say 'three fours'.
Children are aware of the commutative properties of multiplication tables and of their relationship with
division. Subtraction and division tables will be learned as the inverse of addition and multiplication.
Tables are taught in the order of:
- addition and subtraction in First and Second
-revision of addition and subtraction in Third and Fourth
-introduction of multiplication and division in Third and Fourth
-revision of multiplication and division in Fifth and Sixth

Tables in the front of the school journals will be used from Third Class to Sixth Class.

Estimation
With regard to Estimation the following will apply:
This essential skill will form part of every maths lesson. Children will be encouraged to use each of
the following strategies selecting the most appropriate for the task in hand:
• Front end
• Clustering
• Rounding
• Special Numbers
These strategies are explained on pages 32 – 34 of the Teacher Guidelines for Mathematics

2.3 Active learning and guided discovery

  There are agreed strategies for teaching:

- Subtraction –we use concrete materials in the initial stages along with the crossing out of pictorial representations. We also focus on subtraction in its vertical state. When we are subtracting using regrouping we will focus on the "crossing out" method once the initial work has been done and the concept is understood. As a staff, we have agreed that this will facilitate quicker work for those with a good understanding of Maths and will allow those who have difficulties in the area to follow a set number of steps to allow for accurate answering.
- Multiplication – we follow the steps of; groups of, skip counting initially, using mental strategies such as identifying doubles, near doubles, multiplying by 5 and 10, using games to reinforce facts, developing and honing estimation skills. We also focus on the vertical method of representation once simple multiplication has been mastered.

- Division – we begin with the concept of sharing, moving on to understanding division as repeated subtraction, developing and honing estimation skills. We use all of the methods of representing division in all classes in order to ensure pupils are familiar with all of the guises.
- We add and subtract fractions using pictorial representation initially and then move on to the formula "find a common denominator and add the numerator". We use these correct terms always.
- We add and subtract time by converting an hour to sixty minutes initially when needed.

Children encouraged to develop personal benchmarks, particularly in the measures strand, *e.g. noting their height in relation to a metre, the width of their finger as close to a centimetre*

Mathematical games are encouraged at each level e.g. dice, dominos, spinners etc.
Websites are used to support the teaching of mathematical concepts. Many of the games on these sites are used in classes throughout the school.

Mangahigh is used from First to Sixth Class.

2.4 Collaborative and Cooperative learning

We ensure that children learn the skills needed to work *as* a group rather than just *in* a group, *e.g. listening to others, turn-taking, appreciating that others' opinions are important etc.* Opportunities are provided for children to learn from their peers, *e.g. buddy systems, think/pair/share, problem solving in groups*. Each class uses a variety of organisational styles, *e.g. pair work, group work and whole class work.*

2.5 Problem Solving

The child's attempts to solve a problem require her/him to call on many skills. Problems in mathematics have often been seen as textbook examples at the end of a section on a particular topic. Problems in life are rarely that simple and there is often more than one way of finding a solution.

Problem solving experiences should develop the ability to plan, take risks, learn from trial and error, check and evaluate solutions and think logically.

Discussion and acceptance of the points of view of others is central to the development of problem-solving strategies.

Problems can be classified in many ways. They can be presented concretely, diagrammatically or in written form. They can be open or closed. They can relate to one particular content area or include elements from one or more strands.

A written problem can be difficult to solve because of the readability or because it has 'multiple steps to solution' procedure. Large and awkward numbers often frighten children away from attempting a problem, and if the information is not presented in the order in which it is to be used some children just give up without trying. If children are taught to analyse the problem carefully and extract the relevant information they can often find it easier to solve than it appeared at first.

Children need to develop problem solving skills in general and to be confident in their own ability to attempt a solution. Children will be taught a number of strategies for problem solving and to experiment with applying the same strategy to different problems and different strategies to the same problems. These strategies will vary according to the child's age.

RUCSAC will be used to solve problems. RUCSAC stands for Read, Underline keywords, Choose an operation, Solve, Answer, Check

With regard to problem-solving children will be taught the R.U.D.E. method for solving word problems - Read, Underline, Draw, Estimate

The teacher will need to structure the problems given to the children so that they experience success. Rereading of the problem by the child will be encouraged. Cooperative group work and class discussion of the results of a problem solving exercise is encouraged. Children are asked to try different approaches themselves, to offer alternative solutions and to try them out on the board. We sometimes give children in senior classes problems with irrelevant information or with no solution possible because of missing information. This encourages them to analyse what it is that they are being asked for. Senior children are encouraged to invent problems for others to solve and discuss the results.

Problem Solving Strategies

Problem solving strategies must be varied and the children given ample opportunity to try them out concretely, orally or in a written task. Many children fail at mathematics because their mathematical vocabulary is insufficient to cope with the terminology of problems. Development of the necessary vocabulary in a consistent manner throughout the classes is stressed. Some strategies that we teach to children include:

- Constructing a model.
- Drawing a diagram to illustrate a problem
- Looking for patterns in a problem
- Making a guess and testing it out
- Breaking the problem down and solving each part
- Writing a number sequence for a problem
- Using appropriate equipment to solve a problem, for example balance, measuring instruments, calculator, blocks
- Solving a simpler version of the problem, for example using smaller numbers

2.6   Using the environment

We use the school environment to provide opportunities for mathematical problem-solving *e.g. how high/wide is the door*. Maths Trails, developed by class teachers are used within or outside of the school building, and are in line with the school's Health and Safety policy. Children are given the opportunities to present/display their mathematical work in the class and on noticeboards in the corridors.

2.7 Skills through content

All teachers ensure that skills are being actively developed through the lesson content. *(See Teacher Guidelines: Mathematics pp 68-69)* There is evidence that the transfer of those skills is taking place in other areas:

- **Applying and problem solving**. *e.g. selecting appropriate materials and processes in science*
- **Communicating and expressing,** *e.g. discussing and explaining the processes used to map an area in geography*
- **Integrating and connecting,** *e.g. recognising mathematics in the environment*
- **Reasoning,** *e.g. exploring and investigating patterns and relationships in music*
- **Implementing,** *e.g. using mathematics as an everyday life skill*
- **Understanding and recalling,** *e.g. understanding and recalling terminology, facts, definitions, and formulae.*

All classes encourage the use of mental mathematics. This is done through the use of 'Master Your Maths' as a homework book, and through general computation exercises in class.

3. Assessment and record keeping

Assessment is used by our teachers to inform their planning, selection and management of learning activities so that they can make the best possible teaching provision for meeting the varied needs of the children in our school.
We ensure that a broad range of assessment tools are used. These include:
1. Teacher Observation
2. Teacher Designed Tasks and Tests
3. Work Samples, Worksheets and work in copies
4. Busy at Maths textbook - Term Assessments
5. Standardised Tests
6. Diagnostic Tests

Teacher Observation

The Revised Curriculum makes reference to the validity of teacher observation as a means of building a broad understanding of a child's strengths. Teachers will note anything that they feel is important in relation to a child's progress in Maths. Observations may include the following:
• 	The level of engagement in or attention to activities
• 	Strengths and concerns in relation to written work
• 	Involvement in discussions
• 	The response to and initiation of questioning during class or group-work

Standardised Testing

Children from First to Sixth Class are formally assessed by means of the SIGMA -T. Children are tested every year in the final term. The result of each Sigma test and the test papers are kept in the child's school file. All such files are securely stored in the school office. It is the practice of this school to retain standardised test results until the pupil has reached the age of 25 years. The class results are collated and filed in the Standardised Test Results folder, and are reported to the DES. Sigma-T Results (the STen score) are communicated to parents at the end of year on the school reports. Teacher / Parents may also wish to make an appointment to discuss results.

Teacher-designed tasks and tests

The following are used throughout the school as a means for teachers to further inform themselves of each child's progress in Maths:
• 	Oral tests of recall skills (number facts, continuation of number patterns)
• 	Written tests of numerical competence
• 	Problem-solving exercises that use a variety of mathematical skills
• 	Projects that require compilation of data or the drawing of a diagram
• 	Screening Tests are used in Infant classes and by the special education teacher.

Following assessment teachers may do the following;

❖ Give extra help to individuals who need it
❖ Decide to increase time spent using concrete materials
❖ Discuss the situation with forwarding teacher at the end of the school year and beginning of new school year
❖ Discuss concerns with parents and encourage parents to help children informally
❖ Consult special education teacher who may provide support when needed using available resources within the school

4. Children with different needs

4.1 Children with learning difficulties
(Refer to school's Special Education Policy)

- Our school policy allows for flexibility within the Maths programme to accommodate children with differing abilities.
- Children with special needs have access to all strands of the Primary School Curriculum.
- Teachers will tailor the Mathematics Curriculum to make it accessible to all pupils.
- Differentiation is used in each class level within the class. This is achieved by the teacher varying the pace, content, methodology, teaching style, resource used and expected outcome, to ensure learning for all children.
- Children who receive scores at or below the 10th percentile on the standardised test SIGMA-T, will have priority in attending the special education teacher for supplementary teaching in Maths. The availability of this teaching depends on the case load of the special education teacher and arrangement will be in accordance with the recommended selection criteria as determined by the DES.

ICT is used regularly to support teaching and learning for children with special needs.
Resources for Mathematics will be purchased following discussions at staff meetings.

4.2 Children with exceptional ability
The school will endeavor to provide a range of strategies to provide challenges for children of exceptional ability.
· Teachers provide a challenging programme for these children
· Children are facilitated to work on independent maths projects
· ICT is used to support and challenge these children in various maths areas

5. Equality of participation and access

All children have access to services, facilities, or amenities in the school environment. Provision is made, as and where necessary, for the following:

➢ Children experiencing any form of disadvantage
➢ Children with learning disabilities
➢ Families with literacy problems
➢ Families for whom English is not their first language

6. Timetable

- In line with recommendations in the National Literacy and Numeracy Strategy, all teachers are aware of the time allocation at each level for mathematics, and timetable it as such:
  3 hours 25 minutes per week in the Infant classes, and 4 hours 10 minutes from First to Sixth class.
- When formulating timetables for withdrawal of pupils for supplementary numeracy teaching, the special education teacher, in collaboration with the class teacher, will mirror the mainstream mathematics programme as much as possible given the needs of the pupils.
- When timetabling maths in a multi-class situation, teachers will try in so far as possible to timetable the same topic at the same time for all classes.
- The Learning Support Teacher will take out and teach a group from the multi-class setting, when appropriate.

Time Allocation

Class	Daily time allocation	Weekly time allocation
Jun & Sen Infants	41 minutes	3 hours 25 minutes
1st - 6th	50 minutes	4 hours 10 minutes

7. Homework
(See Homework Policy)

- Mathematics homework reflects the active learning approach as described in the curriculum.
- As a staff, we believe that Mathematics homework is a vital component of Home/School relations. Homework in Maths should inform parents of the work being done at school and allow for the consolidation of same. Parents should supervise homework in line with the Homework Policy.
- Teachers differentiate homework taking into account the range of abilities within the class
- Children will receive homework Monday to Thursday with some exceptions at holiday time, special times of year. Homework is in line with the Maths topic of the day, and also covers continuous revision of concepts.
- We ensure that children attending learning support are not going home with two sets of maths homework. This is achieved through constant communication between teachers and is taken on a case by case basis.

8. Resources & ICT

- We acknowledge the importance of manipulatives in the development of mathematical concepts and every effort is made to provide them for all the children, throughout the school.

- Each teacher has a list of the resources and equipment available for their various class levels. Each item on the list is stored in the classroom. The class teacher is responsible for checking these resources at the end of the year.
- Larger Maths equipment is centrally stored in our Resource room situated off the entrance hall.
- Purchases of Mathematics equipment is discussed at staff meetings and approved by BOM.
- Each class has supplementary resources such as posters that correspond to the Maths Curriculum.

<u>Textbooks/Workbooks</u>

Textbooks are in line with the content objectives for each class level. Textbooks reinforce the concept taught and give adequate practice in each activity.
The following published programmes have been chosen for use in our school as it is felt they best illustrate the key concepts:

Busy At Maths - CJ Fallon, used in all classes, Junior Infants to Sixth Class

Master your Maths - CJ Fallon, used from First to Sixth Class

These textbooks are not shared in our multi class settings. Each child has his/her own book.
Each class uses the Busy at Maths & Master your Maths book appropriate to their class level.

<u>Calculators</u>

Children should be competent in the basic number facts and skills by the time they reach Fourth class. From fourth class upwards they are permitted to use calculators alongside traditional pencil-and-paper methods. Calculators are particularly useful for handling larger numbers. They also allow the child to focus on the structure of problem solving questions. It is important that the skill of estimation is developed along with the use of the calculator.
Calculators should meet the following requirements:
•   All calculators must use Algebraic Logic as opposed to Arithmetic Logic. Algebraic logic uses priorities in sequences of operation which we call BIMDAS (brackets, indices, multiplication, division, addition and subtraction)
•   Keys should be of a reasonable size.
•   They must have a display of at least 8 digits and be large enough for two children to see.
•   They should have a memory function

Information and Communication Technology
- Each class has a Projector and Whiteboard which teachers use to enhance the teaching of Mathematics.
- Our school iPads have apps installed which have been selected to enhance the learning of maths concepts.
- Staff share knowledge of using the internet for enhancing pupil learning in mathematics. Useful websites are listed at the end of this plan.
- The software selected for the teaching and learning of Mathematics will include a variety of activities to develop the children's conceptual knowledge and problem-solving skills, in addition to drill and practice activities.
- Google Classroom - Every child, from Infants to Sixth Class has a Google Classroom account. Maths content is uploaded by teachers to reinforce the learning at school.

- Castleplunkett School's Acceptable Use Policy ensures safe Internet usage.

9. Individual teachers' planning and reporting

- Teachers individual yearly and short term plans are informed by this whole school Maths plan and by the curriculum documents for Mathematics.
- New teachers and substitutes can access the school Maths plan from the folder in the office, or on the shared Google drive.
- Work covered in the classroom is outlined in the Cuntas Míosúil. This record serves in reviewing and developing the whole school plan and individual teacher preparation for following years.

10. Staff development

- Teachers have access to current research, reference books, resource materials and websites dealing with Mathematics.
- Staff will be encouraged to research and try out new approaches and methodologies.
- Teachers are made aware of any opportunities for Continuing Professional Development through participation in Numeracy courses offered online by Carrick on Shannon Education Centres or other venues. Skills, information and expertise amongst our staff are shared and developed through input at staff meetings held in Croke Park hours.
- Opportunities for team teaching can be facilitated in-class, using our special education teacher.

11. Parental Involvement - home school links

- Parents are encouraged to support the school programme for Maths.
- We make parents aware of the content of the mathematics programme and the approaches/methodologies used in Castleplunkett school, through Homework, Parent/Teacher meetings and this Maths plan.
- Parents are informed of the SIGMA-T standardised test result in the end of year school report.
- Class tests results are relayed through test sheets and signed by parents.
- Parents are asked to monitor homework on a regular basis and contact the class teacher should they have any ongoing concerns regarding Maths.
- Parents and teachers are welcome to make individual arrangements to discuss matters of relevance at any time throughout the school year.

12. Community Links

Members of the local community who could make a particular contribution to the mathematics programme are always welcomed and encouraged to share their knowledge with pupils. (Garda Vetting must be completed beforehand). Proposed invitations must be discussed in advance with the Principal.

Success Criteria

The success of this plan will be assessed using the following criteria:
- Teacher feedback and ongoing assessment, formal and informal, will show that pupils are acquiring an understanding of mathematical concepts and a proficiency in maths skills appropriate to their age and ability.
- Implementation of the school plan will be evident in teachers' preparation and monthly reports.
- We will also judge its success if the children have been enabled to achieve the aims outlined in this plan.
- Parental feedback at the Parent / Teacher meetings
- Sigma-T Standardised tests

Implementation

Roles and Responsibilities:

Class teachers are responsible for the implementation of the Maths programme for their own classes. Whole staff feedback on its implementation and development will be reported at staff meetings.

Timeframe:

This plan will be implemented from November 2020

Review

Roles and Responsibilities:

Informal review of this plan will take place on a regular basis to ensure optimum implementation of the Mathematics curriculum in the school. This will relate to the day to day delivery of the Maths curriculum. All staff will be involved in this review.

Timeframe:

This whole school plan will be reviewed when deemed necessary.

Resources used in the delivery of the Maths Programme in Castleplunkett School

Early Mathematical Activities	Number	Algebra
A variety of counters Unifix cubes Links Sorting bowls Teddy bears Lollipop sticks Matching cards Pegs	Counters Cubes Lollipop sticks Abacus BINGO-addition and subtraction	Counters Beads Number lines Unifix cubes 100 squares Coins Dienes Blocks Calendar Dice Fans Fraction charts and games Fraction walls Calculators Target Boards Playing cards

Shape and Space	Measures	Data
2-D shapes 3-D shapes Tangrams Geo-strips Lollipops Protractors Set squares Compass	Coins Clocks Trundle wheel Measuring jugs Metre Stick Balance Thermometer Kitchen scales Set of standard weights Samples of food in grams Measuring tape Cm rulers Measuring spoons Volume Set Egg timer Stop watch Timetables TV guides Atlas Catalogues Currencies	Posters Dice Tables and charts from newspapers Playing cards

Websites used in this school include

> www.topmarks.com
> www.kidsnumbers.com
> www.mathsplayground.com
> www.coolmath4kids.com
> www.mathsisfun.com
> www.xls.com
> www.seomraranga.com
> www.primaryresources.co.uk
> www.maths-drills.com
> www.primaryhomeworkhelp.co.uk/maths
> www.splat.com

This list is not exhaustive and will vary and adapt as new websites come online.

Ratification and Communication

This policy was ratified by the Board of Management at a meeting on _____

This policy will be communicated to the school community on the school website - https://www.castleplunkettns.com

This Maths policy will be reviewed when deemed necessary.

Signed _____ Date: _____ (Chairperson, Board of Management)

Signed: _____ Date: _____ (Principal)