

Mount Sion Primary School

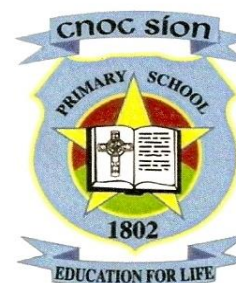
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Mount Sion Primary School
Barrack Street,
Waterford City.

School Roll Number: 19947U

SCHOOL SELF-EVALUATION REPORT NUMERACY

Evaluation period: *September 2014 to June 2015*

Report issue date: *June 2015*

School Self-Evaluation Report

1. Introduction

1.1 The focus of the evaluation

A school self-evaluation of teaching and learning in Mount Sion Primary School was undertaken during the period January 2014 to June 2014. During the evaluation, teaching and learning in the following curriculum areas were evaluated:

- Numeracy

This is a report on the findings of the evaluation.

1.2 School context

Mount Sion Primary School is an urban vertical boys only primary school, under the patronage of the Catholic Bishop of Waterford and Lismore. It was founded by Blessed Edmund Ignatius Rice and is the founding school of the Irish Christian Brothers. Mount Sion continues to promote the Catholic caring ethos and vision of Br. Rice, with particular focus on disadvantage. The school participates in the Department's *Delivering Equality of Opportunity in Schools* (DEIS, being a DEIS Band 2 school) programme and we also participate in the *School Completion Programme* (SCP, SCP na Siúire).

Our school is situated in Waterford's inner city and draws its pupil population from many areas of Waterford city. Current school enrolment stands at 291 pupils. 115 of the 291 pupils (39.5%) are of ethnic origin other than Irish with a total of 30 countries represented in the school population. Our Traveller pupils account for between 2% and 3%

We have 12 class teachers, 1 Literacy Support teacher, 1 Numeracy Support teacher, 2 Resource teachers, 1 EAL teacher, 1 HSCL teacher, .6 EAL/GA teacher and an administrative principal. Our school also has 4.5 SNAs and a part-time Play Therapist.

2. The findings

The following sources of evidence were used to compile the findings of this report:

- Parental Questionnaires
- Pupils' Questionnaires
- Teacher Focus group meetings
- Whole Staff meetings
- Teacher Class-grouping meetings
- Results of standardised testing – Sigma-T

The Findings of the Evaluation

Numeracy

Preparation for Teaching:

Teachers prepare short and long term plans and use their plans to guide teaching and learning. Learning outcomes and teaching approaches, activities and resources are identified in the plans. Curriculum objectives and the school plan, including DEIS 3 year plan are used to devise long and short term plans by teachers. Commercial products are only used with reference to curriculum objectives. IEPs, where needed, are prepared using a team approach. Teachers plan for how they are going to assess the pupils learning.

Teaching Approaches:

Teachers employ a wide variety of teaching methodologies appropriate to the development of mathematical skills. Discussion, hands-on experience with materials, and active learning are utilised as well as the development of mathematical language to share ideas and thinking. Very good use is made of resources including ICT to support pupils in their learning. Teachers differentiate the lessons effectively to cater for the needs and abilities of all pupils. Pupils are taught in whole class, group and individual settings. Teaching supports are provided on a withdrawal basis (either individually or in groups) and on in-class basis. In-class supports are provided in whole-class settings and in station teaching settings.

Management of Pupils:

Collaboration between class teachers and Learning Support teachers takes place on a regular basis and team teaching/In class support is being used to support the development of Numeracy. A variety of organisational groupings and settings are used in classrooms to support Numeracy. A positive code of behaviour including an anti-bullying policy is implemented in a fair and consistent way. This is an inclusive school which respects all pupils regardless of background or gender. Teachers have very high expectations of pupils' behaviour and learning and they communicate these to the pupils and to parents.

Assessment:

Teachers employ a large selection of assessment tools to assess learning in Numeracy – observations, checklists, curriculum objectives, questioning, self-assessment, tests and standardised tests. The BIAP (Belfield Infant Assessment Profile) is used at Infant level to identify learning difficulties when necessary. The Raven's Progressive Matrices screening test is also used with pupils if necessary. The Sigma-T Literacy standardised test is administered to all classes from first to sixth in May each year and results are reported to parents in the end of year summer report. NRIT tests are undertaken with second and fourth classes and the EAL Integrate Ireland Language and Training testing is used with EAL pupils.

Learning Environment:

A Maths rich environment is evident around the school. Displays on corridors emphasise the active and everyday life aspects of Mathematics. Guidelines for the teaching and learning of Numerical calculations are on display in each classroom and children's' work is also displayed. A Maths Week is held each year in the Autumn term where pupils experience hands-on activities in group/station settings. A 'Weekly Problem' is called out

over the school intercom for pupils to solve at their own class level and at the end of the school year an 'Annual Maths Factor' competition is held in the school hall with teams from each class competing. Maths games are held in all classes, this activity is organised in various ways including, stations, inter-class buddy systems, Mata sa Rang, Chess, Arcademics.com and Number Shark4, who Wants to be a Mathionaire?.

Pupil's engagement with learning:

Pupils at all class levels are actively engaged in their learning and the level of pupil interest and participation is high. Pupils enjoy the active side of learning Maths but commonly pupils express difficulty with Problem solving.

Parental Involvement:

Parents are supportive of school Numeracy initiatives. In consultation with the principal and class teachers, our HSCL teacher organises 'Maths for Fun' with classes from Senior Infants to 4th Class. This initiative sees parents/guardians from each class coming into school to help with Maths games organised in a Station Teaching style.

74% of parental responses to the Parental Maths Survey showed that parents/guardians believed their sons to have a positive attitude towards Maths. A significant finding from the survey indicates that parents/guardians are unsure of their child's ability in Maths, a significant 55% of parents/guardians indicated that their child regularly needs help with Maths homework and this provides a challenge for our school. Another challenge arises for us is to build on the 77% of parents/guardians that believe they get good information from the school about how their child is doing at Maths.

Analysis of Pupils' Maths Survey:

71% of pupils indicate that they like Maths. 90% of pupils stated that when they know their tables they find Maths easier, while 73% of pupils recognise that talking over problems with a friend or group helps them to solve Maths problems. 77% of pupils find telling the time easy while 70% find using Maths equipment helpful when solving Maths problems.

Only 44% of pupils said they use ROSE when solving Maths problems. Interestingly in classes where a high percentage of pupils used the ROSE strategy a corresponding high percentage stated they liked solving Maths problems. In classes where a lower usage of ROSE was indicated by pupils a correspondingly low percentage of pupils stated that they did not like solving Maths problems.

52% of pupils stated that they are able to explain clearly how they solved a Maths problem to others and 54% stated they have trouble getting started on a problem that is new to them.

Assessment of Pupil Problem Solving Ability:

The P.D.S.T. "Problem Solving Rubric" was used to assess 6 Tracker Pupils from each class.

(9/3/'15-13/3/'15) A total of 72 pupils were assessed. The results are as follows:

	Level A	Level B	Level C	Level D
Pupil Totals	19/72	49/72	3/72	1/72

Attainment in Numeracy:

An average of Standardised Sigma-T Test results for the 3 years 2011/12, 2012/13 and 2013/14 are as follows:

% of pupils scoring	STEN 1 - 3	13.6%	National Norm	16%
% of pupils scoring	STEN 4	16%	National Norm	16%
% of pupils scoring	STEN 5 - 6	38%	National Norm	36%
% of pupils scoring	STEN 7	16.33%	National Norm	16%
% of pupils scoring	STEN 8 -10	15.66%	National Norm	16%

Scorz Analysis of Sigma-T 2014/15	Maths Level Indicator	1 st	2 nd	3 rd	4 th	5 th	6 th
Extremely Low		0.00	2.63	0.00	0.00	4.55	0.00
Low		2.22	5.26	3.03	10.34	0.00	8.82
Low Average		11.11	7.89	21.21	17.24	13.64	23.53
Average		44.44	55.26	42.42	44.83	54.55	50.00
High Average		22.22	18.42	18.18	10.34	13.64	11.76
High		11.11	7.89	9.09	13.79	6.82	5.88
Extremely High		8.89	2.63	6.06	3.45	6.82	0.00

STEN Analysis of Sigma-T Results for 2014/15

% of pupils scoring	STEN 1 - 3	6%	National Norm	16%
% of pupils scoring	STEN 4	16%	National Norm	16%
% of pupils scoring	STEN 5 - 6	48%	National Norm	36%
% of pupils scoring	STEN 7	16%%	National Norm	16%
% of pupils scoring	STEN 8 -10	14%	National Norm	16%

3. Progress made on previously-identified improvement targets

- N/A as this is the first year of School Self-Evaluation reporting

4. Summary of school self-evaluation findings

4.1 Our school has **strengths** in the following areas:

- Enthusiastic and competent Staff
- Planning as a team and common approach to Numeracy teaching
- The Number Operations guidelines are being used
- A greater awareness amongst staff of the importance of Maths
- More time is being dedicated to the teaching of Maths
- The Hands-On practical approach is widely accepted by teachers as a beneficial strategy
- Maths for Fun
- Parental involvement in Maths for Fun
- Mata sa Rang
- The problem solving technique ROSE is being used
- Pupils are eager to participate in the Weekly Intercom Problem solving task
- In-class numeracy support is seen as beneficial
- Maths Games as a dedicated strategy during each week
- Paired work between classes, e.g. Infants and 5th class and between 1st and 4th classes
- Maths games on Interactive Whiteboards are widely used
- The strategy of doing Mental Maths at the beginning of each Maths lesson is beneficial
- The integration of music by using Maths songs
- The use of Tables Champion
- 74% of our parents/guardians believe that their children like Maths
- 71% of pupils indicate that they like Maths.
- 90% of pupils stated that when they know their tables they find Maths easier
- 73% of pupils recognise that talking about Maths problems with their friends makes it easier to solve the problems
- Compared with national norms on standardised Maths testing our pupils scores compare very favourably
- All teachers have the guidelines 'Teaching Maths to EAL pupils'
- The provision of Maths Equipment Boxes and the considerable work done by the team which assembled the boxes
- The Maths Factor event at the end of each year
- Annual Maths Week in the first term

4.2 The following areas are prioritised for improvement:

Problem Solving Skills:

One outcome of the Teachers Maths Review questionnaire (January 2014) was that while the strategies of ROSE and practical Maths are being used we need to place particular emphasis on Problem Solving over the next three years.

We will improve the pupils' Problem Solving Skills by:

- Continuing to place emphasis on the ROSE strategy
- Continuing with the weekly Intercom Maths Problem
- Continuing with the setting of a problem at the beginning of each Maths lesson
- Enabling pupils to create their own Maths Problems
- Providing real examples of everyday Maths tasks e.g. using shopping catalogues, utility bills, ordering groceries
- Displaying the language of Problem Solving Skills in each classroom

Maths for Fun:

This initiative is highly regarded by teachers as worthwhile and productive. Teachers expressed the need to extend Maths for Fun to all Infant classes.

We will

- Continue to facilitate Maths For Fun from Senior Infants to 4th Class (new games are needed to freshen the initiative)
- Introduce a version of Maths for Fun into Junior Infants

Number Operations Guidelines:

Teachers expressed the view that these guidelines while being used need to be made more visually appealing especially for the younger classes

We will reproduce the Guidelines in a more visually dynamic and colourful format.

Practical Maths equipment:

Teachers responded to the Maths review with a positive view of the use of practical Maths lessons. However the availability of essential equipment on a consistent basis is seen as vital to the success of this strategy. Big classes and limited space are seen as hindrances to the use of practical strategies, this can be negated by having additional personnel available for practical lessons.

We will complete the provision of 'Maths Boxes' by

- Providing more coins to the money boxes for Junior Infants to 2nd class
- Providing appropriate and quality balances/weighing scales for Junior classes
- The provision of 'Maths Boxes' for the strands of Length, Area, Shape & Space and Time Speed & Distance
- Implement the timetable drawn up for the timing of the use of practical Maths equipment
- Provide Infant Classes with sand and water play facilities

Maths Homework:

Only 38% of parents/guardians disagreed that their child regularly requires help to complete his Maths homework. 7% of parents/guardians didn't know if their child needed regular help and 55% agreed that their child regularly requires help to complete his Maths homework.

Support teachers responded in their review of Maths that when specific concepts/operations are being taught the HSCL teacher may intervene to bring in groups of parents/guardians to demonstrate the strategies and methodologies being used.

We will address this by

- Producing demonstration videos for the school website
- Displaying methodologies and examples of Maths solutions in written form on the website
- Providing parents/guardians of Infant Classes with information on how to complete homework with their children
- Bringing in parent/guardian groups when a particular concept is proving difficult or when a particular method needs to be explained. This will be facilitated by Support Staff including the HSCL teacher.
- Insert Maths methodologies into the school Homework Journal

4.3 The following legislative and regulatory requirements need to be addressed:

In line with the School Self Evaluation Report of October 2013 the following policies have been developed by Staff, Parents and the Board and sanctioned by the Board of Management

- Anti-Bullying Policy
- Data Protection Policy
- Critical Incident Policy

Policies which need to be addressed over the next school year are as follows:

- Respect Policy in development
- SEN policy to be developed
- EPV Day policy to be reviewed
- Attendance Policy to be developed
- Custody & Separation Policy to be developed
- School access policy to be developed
- Curricular plans and policies will be reviewed as follows

2014/15
English
Maths
Gaeilge
History
Science
Music

2015/16
Visual Arts
Drama
PE
SPHE
Geography
Religion

DEIS 3 Year Plan, Literacy and Numeracy will be reviewed on an ongoing basis as part of the 3 Year plan.

Signed: _____

T. O'Sullivan, Chairperson

Date: 17/06/2015

Problem Solving Rubric

	Level A: <ul style="list-style-type: none"> • Little or no engagement • Lack of understanding 	Level B: <ul style="list-style-type: none"> • Pupil started problem but was unable to complete task • Some understanding 	Level C: <ul style="list-style-type: none"> • Correct answer • Strong understanding • Appropriate solution 	Level D: <ul style="list-style-type: none"> • Correct answer • Exceptional understanding
Problem Solving	*Pupil did not engage with task. *No strategy is chosen or the strategy chosen that will not lead to a solution.	*A partially correct strategy is chosen. *No evidence of monitoring effectiveness of strategy chosen.	*A correct strategy is chosen. *Planning or monitoring of the strategy is evident.	*An efficient strategy is chosen. *Adjustments in strategy, if necessary, are made along the way, and /or alternative strategies are considered.
Reasoning	*Arguments are made with no mathematical basis.	*Arguments are made with some mathematical basis.	*Arguments are constructed with mathematical basis.	*Deductive arguments are used to justify decisions and may result in formal proofs.
Communicating and Expressing	*No explanation is given as to how the problem was solved. * Mathematical language is not used. * Little or no mathematical notation. *No use of pictures/tables/graphs to aid explanation.	*Some explanation of an approach is evident through verbal/written account. *An attempt is made to use formal mathematical language. *Some use of mathematical notation. *Some use of pictures/tables/graphs to aid explanation.	*Explanation of approach is evident through coherent, sequenced response. *Formal maths language is used to share and clarify ideas. * Correct use of mathematical notation. *Pictures/tables/graphs used to aid explanation and clearly labelled.	* Explanation lays out problem solution clearly and completely. *More than one solution is indicated, or detail of solution shows deep understanding. *Formal maths language is used to consolidate thinking and to communicate ideas. *Correct use of mathematical notation.

Integrating and connecting e.g.	*No evidence of drawing on prior knowledge. *No connections are made or connections made are mathematically or contextually irrelevant.	*Evidence of drawing on some relevant previous knowledge. *A mathematical connection is attempted but is partially incorrect or lacks contextual relevance.	*Evidence of reinforcement of prior knowledge and applying it to the problem-solving task. *A mathematical connection is made. Proper contexts are identified that link both the mathematics and the situation in the task.	*Mathematical connections are used to extend the solution to other areas of mathematics. *Mathematic connections lead to a deeper understanding of the mathematics in the task.
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PS Task given to pupils to assess their place on PS rubric

Infant Task: Open ended Investigation- 3 Block Towers (JI) 4 Block Towers (SI)

How many different towers can you make using one red, one blue and one yellow block?

How many can you make if you have a green block as well (SI)?

Record your findings.

1st- 2nd Task: Open ended Investigation- Farmer Jack

First Class:

On Farmer Jack's farm there are pigs and ducks.

Counting his animals, he counted 5 heads and 18 legs.

How many cows and how many geese on Farmer Jack's farm?

Can you find another way to do it?

Record your findings

Second Class:

On Farmer Jack's farm there are cows and geese.

Counting his animals, he counted 13 heads and 36 legs.

How many cows and how many geese on Farmer Jack's farm?

Can you find another way to do it?

Record your findings

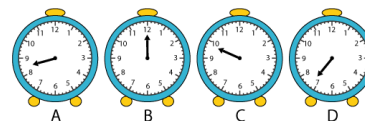
3rd- 4th Task: rich problem: Two clocks

Third Class:

Sam and Julie are friends. Both of them have rather odd clocks at home.

In Sam's bedroom there is an old alarm clock which his Dad had thrown out

because it had lost its minute hand. Although it has only its small hand, Sam can still tell the time using it. He can tell the hour, such as midday. He can tell when it is time to get up, time to go to school and time to turn his light out at night.



Which clock is showing it is midday?

At what time does Sam get up?

At what time does Sam go to school?

At what time is Sam supposed to turn out his light?

Fourth Class:

In Julie's hall there is a very old clock which lost its hour hand a long time ago.

School finishes at half past three and it takes Julie at least half an hour to get home. Sometimes she goes to the shop on the way, and sometimes she leaves school a bit later. When she first gets home Julie always looks at the

clock in the hall to see what time it is.
One week these were the times she saw:



On which day was it raining so she hurried straight home?
On which day did she go to the shop to buy some sweets on the way home?
On which day did she stay at school to practise in the band?
On which day did she play with Sam for about half an hour before setting off for home?
On which day did her teacher keep the class in for five minutes?

5th- 6th Task: Practical Task- Newspaper Fractions/Percentages

Choose any page in a newspaper and using fractions (5th) percentages (6th) estimate how much space each article takes up
How many different ways could you measure this? Select one method and measure these articles
How could you record these measurement



Numeracy Evaluation – Pupils’ Maths Survey



Class: 2nd to 6th

Room: 10, 11, 20, 13, 21, 22, 14

Líon daltaí: 169 completed survey

Read each sentence and then mark a ✓ in the box to show your answer.

	Pupils’ Maths Survey November 2014	Yes	No	Not sure
1	I like Maths.	120 71	31 18	18 11
2	I like solving Maths problems.	96 56	40 24	33 20
3	Do you use drawing to help you solve Maths problems?	58 34	90 53	21 13
4	Do you find using Maths equipment helpful when solving Maths problems?	118 70	22 13	29 17
5	If I am given a Maths problem I can figure it out myself.	109 65	16 9	44 26
6	I am able to explain clearly to others how I solved a Maths problem.	89 52	35 21	45 27
7	I have trouble getting started on a problem that is new to me.	91 54	49 29	29 17
8	Talking over Maths problems with a friend or group helps with solving Maths problems.	124 73	22 13	23 14
9	I take time to estimate what the answer to a problem will be before I do the problem.	85 50	54 32	30 18
10	I always use ROSE when trying to solve a Maths problem.	74 44	54 32	41 24
11	When I know my tables I find Maths easier.	153 90	8 5	8 5
12	I can arrange fractions in order of size.	87 52	36 21	46 27
13	I can arrange decimals in order of size.	83 49	48 28	38 23
14	I find Maths helpful when I am buying something in a shop.	115 68	32 19	22 13
15	I find telling the time easy	130 77	16 9	23 14
16*	5 th /6 th classes I know how to get the average of a group of numbers.	47 66	15 21	9 13

Total for Q16 = 71