Observer Name: _____

Date: _____ Time of day: _____

Teacher: _____

Length of lesson:_____mins. Lesson interrupted: Yes ☐ No ☐

Boys: _____ Girls:_____ Control Classroom ☐ Experimental Class ☐

Lesson Focus/ Topic: _____

Physical Context

Computer Lab ☐ Whole class ☐ Stations/Centres ☐

Technology Centre ☐

Physical Environment

Heating Appropriate ☐ Inappropriate ☐ _____
Lighting Appropriate ☐ Inappropriate ☐ _____
Space Appropriate ☐ Inappropriate ☐ _____
Background noise Appropriate ☐ Inappropriate ☐ _____
Unobstructed view of teacher Appropriate ☐ Inappropriate ☐ _____
Unobstructed view of tools Appropriate ☐ Inappropriate ☐ _____

Classroom Management

Organisation of classroom Appropriate ☐ Inappropriate ☐ _____
Tone/approachability of teacher Appropriate ☐ Inappropriate ☐ _____
Teacher's voice projection Appropriate ☐ Inappropriate ☐ _____
Order in classroom Appropriate ☐ Inappropriate ☐ _____
Clarity of expectations Appropriate ☐ Inappropriate ☐ _____

Quality of Teaching

Clear instructions Yes ☐ No ☐ _____
Logical activity sequence Yes ☐ No ☐ _____
Appropriate feedback Yes ☐ No ☐ _____
Ability level differentiation Yes ☐ No ☐ _____
Scaffolding effective Yes ☐ No ☐ _____

Quality of Learning

Students are on-task Yes ☐ No ☐ _____
Students complete activity Yes ☐ No ☐ _____

Affects of Technology

Software loading time Appropriate ☐ Inappropriate ☐ _____
Teacher's comfort level Appropriate ☐ Inappropriate ☐ _____
Students' comfort level Appropriate ☐ Inappropriate ☐ _____
Engagement of teacher Appropriate ☐ Inappropriate ☐ _____
Engagement of students Appropriate ☐ Inappropriate ☐ _____

Time taken before actual teaching began: _____ minutes

Actual time taken on teaching/learning activities: _____minutes

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Observation Chart:

Number Concept Activities Structure

I. **Counting**

Technology used:	Y	N
Computers ☐ Tablets (e.g. iPads) ☐		
How many? _____		
Smartboard ☐ Other _____		
Software/website(s)_____		

a. How much time was spent on counting activities?
___1-5 min
___5-10 min
___10-15 min
___More than 15

b. If counting in ELM, which activities did students do?

Activity 1 ☐ Activity 2 ☐ Activity 3 ☐ Activity 4 ☐ Activity 5 ☐

c. Did the students experience technical problems?
_____

_____
_

d. Did the teacher use the ELM lesson plans? Yes ☐ No ☐

Fragments: Warm-up ☐ Additional activity/ies ☐ Specify
_____

e. If not counting in ELM, what type of counting activities did you see? (mark all that apply)
___ counting physical objects
___ keeping record while counting
___ one-to-one counting/enumeration
___ counting up/down
___ counting by twos, etc
___ applying ordinal terms
___ associating numeral with a count of objects

What other types of counting activities did you see?
_____

_____

f. What types of errors did students make?
_____

_____

g. How did teacher address these errors?
_____

_____

II. **Comparing**

a. How much time was spent on comparing activities?
___1-5 min
___5-10 min
___10-15 min
___More than 15

Technology used: Y N
Computers ☐ Tablets (e.g. iPads) ☐
How many? _____
Smartboard ☐ Other _____
Software/website(s)_____

b. If comparing in ELM, which activities did students do?

Activity 1 ☐ Activity 2 ☐ Activity 3 ☐ Activity 4 ☐

c. Did the students experience technical problems?
_____

_____
_

d. Did the teacher use the ELM lesson plans? Yes ☐ No ☐

Fragments: Warm-up ☐ Additional activity/ies ☐ Specify
_____

e. If not comparing in ELM, what type of comparing activities did you see? (mark all that apply)
___ determining whether cardinalities are the same
___ determining which cardinality is smaller/bigger
___ practicing different ways of saying/writing that cardinalities are the same, bigger or smaller
___ comparing neighbouring numbers
___ playing games that involve keeping score
___ mental comparison of number words

What other types of comparing activities did you see?
_____

_____

f. What types of errors did students make?
_____

_____

g. How did teacher address these errors?
_____

_____

III. **Adding**

a. How much time was spent on adding activities?
___1-5 min
___5-10 min
___10-15 min
___More than 15

Technology used: Y N
Computers ☐ Tablets (e.g. iPads) ☐
How many? _____
Smartboard ☐ Other _____
Software/website(s)_____

b. If adding in ELM, which activities did students do?

Activity 1 ☐ Activity 2 ☐ Activity 3 ☐ Activity 4 ☐

c. Did the students experience technical problems?
_____

_____
_

d. Did the teacher use the ELM lesson plans? Yes ☐ No ☐

Fragments: Warm-up ☐ Additional activity/ies ☐ Specify
_____

e. If not adding in ELM, what type of adding activities did you see? (mark all that apply)
___ determining the missing addend by adding objects
___ counting on or up (using a finger pattern, etc)
___ solving problems based on part-whole understanding
___ writing equations representing adding

What other types of adding activities did you see?
_____

_____

f. What types of errors did students make?
_____

_____

g. How did teacher address these errors?
_____

_____

IV. **Subtracting**

a. How much time was spent on subtraction activities?
___1-5 min
___5-10 min
___10-15 min
___More than 15

Technology used: Y N
Computers ☐ Tablets (e.g. iPads) ☐
How many? _____
Smartboard ☐ Other _____
Software/website(s)_____

b. If subtracting in ELM, which activities did students do?

Activity 1 ☐ Activity 2 ☐ Activity 3 ☐ Activity 4 ☐ Activity 5 ☐

c. Did the students experience technical problems?
_____

_____
_

d. Did the teacher use the ELM lesson plans? Yes ☐ No ☐

Fragments: Warm-up ☐ Additional activity/ies ☐ Specify
_____

e. If not subtracting in ELM, what type of subtraction activities did you see? (mark all that apply)
___ removing objects from a pile
___ counting down (using a finger pattern, etc)
___ solving problems based on part-whole understanding
___ writing equations representing subtraction

What other types of subtraction activities did you see?
_____

_____

f. What types of errors did students make?
_____

_____

g. How did teacher address these errors?
_____

_____

V. Decomposing

a. How much time was spent on decomposing activities?
___1-5 min
___5-10 min
___10-15 min
___More than 15

Technology used: Y N
Computers ☐ Tablets (e.g. iPads) ☐
How many? _____
Smartboard ☐ Other _____
Software/website(s)_____

b. If decomposing in ELM, which activities did students do?

Activity 1 ☐ Activity 2 ☐ Activity 3 ☐ Activity 4 ☐

c. Did the students experience technical problems?
_____

_____
_

d. Did the teacher use the ELM lesson plans? Yes ☐ No ☐

Fragments: Warm-up ☐ Additional activity/ies ☐ Specify
_____

e. If not decomposing in ELM, what type of decomposing activities did you see? (mark all that apply)
___ finding all pairs of numbers that sum to a given number
___ solving problems based on part-whole understanding
___ writing equations representing a decomposition of a number
___ addressing recognition of either or both the vertical or horizontal pattern in a table of decompositions of a number

What other types of decomposing activities did you see?
_____

_____

f. What types of errors did students make?
_____

_____

g. How did teacher address these errors?
_____

_____

Motivation/engagement/enthusiasm

Are students engaged by Math activities? How do they show this?

_____

_____

Is the teacher enthusiastic about teaching Math? How does s/he show this?

_____

_____

When in ELM, does the students' motivation/interest change, when activities become more abstract (more focused on numbers) and less concrete (more focused on images)?

_____

_____

*On a scale of 1 to 5, where 1 means "never" and 5 means "very frequently", rate the non-verbal behaviours shown by **the students who are doing ELM activities**:*

	Idea:			*Idea:*			*Idea:*		
	Warm up	*Activity*	*Additional*	*Warm up*	*Activity*	*Additional*	*Warm up*	*Activity*	*Additional*
Engaged:									
Smiles/laughs									
Leans close to the screen									
Furrows brows (concentrated)									
Impatient									
Surprised									
Disengaged:									
Sighs									
Yawns									
Looks around the room									
Starts random conversations									
Fidgets									
Inactive									
Unhappy:									
Frowns									
Grimaces									
Tired:									
Bounces									
Wriggles uncontrollably									
Anxious:									
Avoids working at the ELM centre									
Goes to the bathroom a lot									
Gets up from the seat all the time									
Asks a lot of questions									
Angry/Irritated									
Frustrated									

Implementation Check
On a scale of 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree", rate the following items

1. Students were able to effectively navigate ELM. _____

2. Teaching support was adequate. _____

What support/scaffolding was provided as students used ELM? _____

_____

_____

3. Students provided support for each other. _____

How did they support each other? _____

_____

4. The ELM activity/activities were related to other activities. _____

5. Teacher used mathematical language when giving instruction. _____

6. Teacher provided clear directions. _____

7. Teacher grouped students appropriately if applicable (*e.g.*, ability level etc). _____

8. Teacher circulated and provided feedback. _____

9. Teacher reacted to the ELM "softlock" and attempted to help a student. _____

10. Teacher reinforced Math concepts and skills. _____

11. Teacher allowed the students who mastered the basics taking more challenging tasks. _____

What types of additional tasks were these? If ELM additional activity(ies) were used, please name them

_____

12. Teacher took initiative to check on student understanding during instructional time. _____

13. Teacher took initiative to check on progress during work time. _____

14. Teacher encouraged student dialogue and discussion during activities. _____

What kinds of techniques did teachers use to involve students? (*i.e.*, questioning, etc.)

_____

What types of student-to-student interactions were there?

_____

_____

Teacher comments on ELM experiences

Student comments on ELM experiences

Overall Quality of Teaching and Student Engagement:

"When observing this classroom, I see the following happening…" (Circle the appropriate response)

1	Not at all	*- Students are not attending to the task at hand. They are distracted and off-task.* *- There is a lot of disruption and movement not related to the activity.* *- The teacher cannot get the children to remain on task.*
2	Occasionally	*- Students occasionally attend to the given task.* *- There is occasional disruption and movement not related to the activity.* *-Occasionally, when the students are off task the teacher is able to refocus the group with some effort.*
3	Somewhat	*- Some students are attending to the given task.* *- There is little off task behaviour.* *- The teacher is able to guide students through the lesson with minimal diversions from the task.*
4	Mostly	*- Most students are attending to the given task.* *- There is minimal or no off-task behaviour* *- The teacher is able to guide students through activities effectively.*
5	Adequately	*- All students are involved in the given task.* *- There is no off task behaviour.* *- The children are discussing the task on their own with little or no prompting from the teacher.* *- The students are providing the teacher with new directions in which to go by actively participating in the discussions and are providing the teacher with feedback.*

Other comments: _____

_____

_____

Inter-rater reliability: How often did my colleague and I score or note similar activities while watching the same lesson?
0-20% of the time ☐ 20-40% ☐ 40-60% ☐ 60-80% ☐ 80-100% ☐

Colleague's name: _____ Signature: _____

Date:_____

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