

2010–2011 Early Elementary Mathematical Literacy Assessment (EEMLA) Common Errors



Students in grade three were less successful with questions concerning the following types of skills, concepts, and problem solving. These areas will need continued emphasis, focus and practice.

NUMBER

1. Counting in a variety of ways, by 1's, 2's, 5's, 10's, 25's...including counting money
2. Determining how many tens or hundreds in a number represented by base ten blocks (Representing how many tens in a hundred or hundreds in a thousand, and other similar relationships in our place value system using models)
3. Interpreting place value, using regrouping correctly and working with multiple representations of number in mental math, computation and problem solving
4. Placing numbers on a number line using the benchmarks provided (estimating placement of numbers on a number line when key reference points are given)
5. Reading/writing and representing decimal tenths (This is introduced in grade 3.)
6. Reading/writing a number word involving a fraction
7. Identifying what fraction is represented by parts of a whole or parts of a set (The concept of parts of a set is especially challenging and needs to be an increased focus of instruction.)
8. Comparing two fractional amounts using the symbols less than ($<$), greater than ($>$), or equal to ($=$) (Students must compare the first amount to the second amount. The use of correct terminology will support student understanding. For example, $4 < 5$ is read as four is less than 5.)
9. Solving multi-step problems using number clues, which can include even/odd numbers, concepts of smallest/largest/between and place value concepts

OPERATION

10. Knowing basic subtraction facts is more challenging than basic addition facts in mental computation
11. Finding one more/one less, two more/two less especially at transitions to the next ten or hundred or thousand in mental math (using the strategy of make 10, make 100, make 1000)
12. Using 'think addition'/fact families to find the answer to a subtraction and making the connection as to how addition and subtraction are related
13. Finding 100 more/less or 10 more/less than a given number mentally
14. Subtracting using compensation strategies mentally
15. Rounding to estimate a sum or a difference
16. Applying estimation skills in daily life situations such as shopping
17. Interpreting pictorial models for the operations of addition, subtraction, multiplication and division
18. Calculating a subtraction with regrouping involving two and/or three digit numbers (When subtracting involves regrouping students often subtract the smaller digit from the larger digit regardless of its position.)

PATTERN

19. Counting patterns and place value patterns especially if descending through a transition over the next ten or hundred or thousand (Orally stating the pattern can sometimes help with these concepts. Example: 248, 238, 228, ____, 208, ____)
20. Finding a pattern rule using a table

21. Extending a given pattern (When students are asked to identify and extend a pattern they may be using inefficient strategies such as extending the pattern by drawing each term to continue the pattern. They should be using the regularity to predict what the pattern should be at a particular point in time.)

MEASUREMENT

22. Using a ruler correctly to measure a length in centimetres (cm)
23. Comparing centimetres (cm) and decimetres (dm)
24. Telling time to the nearest 5 minutes
25. Reading time beyond the hour or half hour on an analog clock
26. Calculating elapsed time
27. Choosing the best estimate using a visual or measurement benchmark
28. Estimating the mass of an object in grams (g) or kilograms (kg)
29. Estimating capacity (mL and L)
30. Choosing appropriate units of capacity (mL and L)
31. Knowing measurement benchmarks such as one base-ten rod is the length of one decimetre, a small paper clip is approximately one gram, ...

GEOMETRY

32. Using transformational geometry (slides, flips and turns)
33. Cutting and re-assembling a shape to make a new shape
34. Visualizing 3-D figures and correctly identifying faces and edges (particularly edges)

DATA MANAGEMENT/PROBABILITY

35. Interpreting graphs that use a scale (This is introduced in grade 3.)
36. Determining whether an event is likely /unlikely or more likely/less likely
(Example: I have 5 yellow marbles and 2 blue marbles in a bag. If I pick out a marble, it is more likely to be yellow than blue.)

GENERAL OBSERVATIONS

- Students need to have more opportunities to work with problem solving that involves multi-concepts and multi-step questions
- More emphasis is needed on the conceptual development when teaching the meaning of fractions. It is important to use a variety of contexts and representations (especially as parts of a set)
- Interpretation of visual models for the operations need to be reinforced and connected to the symbolic representations
- Continue to use a variety of story structures when creating and solving word problems

For additional information and elaboration concerning the areas that have been identified in this document, please refer to the following resources:

<http://plans.ednet.ns.ca/files/eemla/documents/teachers/2009-10%20EEMLA%20WHAT%20WE%20HAVE%20LEARNED.pdf>

http://foundationsfornumeracy.cllrnet.ca/pdf/SY_NumeracyKit09_ENG.pdf

<http://plans.ednet.ns.ca/files/EEMLA/elemmathassessment.pdf>