E D M O N T O N P U B L I C S C H O O L S

May 21, 2002

TO: Board of Trustees

FROM: A. McBeath, Superintendent of Schools

SUBJECT: Report on the Numeracy Initiative

ORIGINATOR: M. de Man, Department Head

RESOURCE STAFF: Deb Colvin-MacDormand; Sandy Forster, Brad Gibson, Dale Griffiths, Sheryll MacIntosh, Nancy Perris, Sheila Shortt, Natasha Tonkonogy-Davidson, Stuart Wachowicz

INFORMATION

Background: An initiative was brought forward by trustees to examine and enhance student numeracy in district classrooms. The goal of this initiative is to promote and ensure that Edmonton Public students have functional arithmetic skills and related mathematical reasoning, with a view to enabling them to perform higher mathematical tasks in the secondary and post-secondary years.

Since June of last year a core committee of educators (teachers, consultants and program managers) has worked to put together materials to support the Numeracy Initiative. The Numeracy committee has focused its attention on the mathematics curriculum for Kindergarten to grade 9. This group identified three primary goals for this project: to facilitate improvement in students' functional arithmetic skills and related mathematical reasoning; to enhance proficiency with operations on whole numbers and fractions, without aid; to enable students to communicate the connections and reasoning of mathematical processes related to numeracy, in precise and accurate mathematical terminology.

The following materials have been created as a result of the collaborative process:

- a checklist of these same expectations, in a format similar to the EPS resource, *Planning for Success*
- Illustrative Examples (Appendix I) of each of the identified numeracy expectations
- a Glossary of mathematical terms related to the numeracy expectations (Appendix II)
- an Instructional Design (Appendix III), tying the grade level numeracy expectations to the specific outcomes in the Mathematics Program of Studies. This element also identifies mathematical vocabulary necessary for discussions of the concepts

Actions to be taken: Proposed resources to support this initiative include:

- an index of tasks in *Math to the Max*, that relates a math activity in the existing resource to a numeracy expectation
- additional student material, supplementary to *Math to the Max*, to address the several numeracy expectations that are not already addressed in *Math to the Max*, grades 1-6

- sample tasks which address the numeracy expectations for grades 7-9 and for Kindergarten; in writing the Kindergarten level of *Math to the Max,* the numeracy expectations and created sample tasks could be incorporated in the book

Resourcing the numeracy expectations for Kindergarten is co-dependant on the production of the Kindergarten *Math to the Max*. For grades 1 to 6 a small complimentary resource to *Math to the Max*, specifically addressing the numeracy expectations, will be produced. A resource providing junior high teachers with illustrative examples of each numeracy expectation, to use with their students, will also be produced. The numeracy materials for grades 1-6, and junior high will be available in the fall.

SW: dh

APPENDIX I: Sample of Illustrative Examples for Division 1 and 3
APPENDIX II: Numeracy Skills: Alphabetized Glossary Of Terms Sample Page
APPENDIX III: Sample of Instructional Designs for Division 1, 2 and 3

APPENDIX I

SAMPLE OF ILLUSTRATIVE EXAMPLES FOR DIVISION 1 AND 3

Tell whether this is an adding story or a subtracting story.

Two children were working at the table and one more child came to work with them. How many children were at the table then?

A; This is an adding story because the one child was joining the others.

Q: Use the blocks to show subtraction:

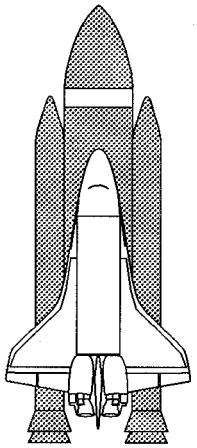
A; Starts with

Removes 2 paper clips and says, " I have five paper clips and I move 2 away."

9.2 Apply a formula to solve a problem.

Q: The distance travelled by a spaceship is given by the formula d = 40 000 t
where "d" is the distance in km and "t" is the time in hours.
How far does a spaceship travel in 16.5 h?

A: d= 40 000t
d= 40 000 x 16.5
d = 660 000 km



APPENDIX II

NUMERACY SKILLS: ALPHABETIZED GLOSSARY OF TERMS SAMPLE PAGE

** Roman numerals indicate the division at which the term is introduced. Ongoing practice with these terms is assumed from that point onward*

- **abbreviation** (I) a shortened form to represent something
- **actual count** (I) the exact total
- **add** (I) (+) combine
- **addend** (I) one of the numbers to be added to another
- **addition** (I) the process of combining 2 or more numbers or amounts, in order to calculate the total value
- **additive inverse** (III) two numbers whose sum is zero
- **algorithm** (III) a process or method used for calculations or to solve problems
- **amount** (I) the total number, size, value or extent of something; quantity

  (III) (related to interest): the total of the principal and the interest for a deposit or loan
- **approximate (number)** (I) a number or a quantity that is close to but not exactly another number or amount. eg. 20 is an approximate number for 19.
- **area** (I) the region;

  (II) the measure, in square units, of the interior region of a 2-dimensional figure or the surface of a 3-dimensional figure eg. the area of the rectangle is 8 square units
- **array** (I) an arrangement of objects in equal rows and columns
- **ascending** (II) increasing; going up
- **base (of a power)** (III) the number used as a factor for repeated