Place Value Gr. 7 N-1a.b

Materials: Ghetto Blaster

Cassette "NUMBERS" Student Recording Cassette

answer sheet

### 1. On your answer sheet write the following as numbers:

#### Whole numbers:

- a) eight hundred ninety nine
- b) one million
- c) sixty thousand five hundred sixty
- d) eight hundred nine million five hundred thousand
- e) one billion
- f) fifteen million one

#### Decimal numbers

- a) nine hundredths
- b)  $\frac{3}{10\,000}$
- c) six hundred and three thousandths
- d) one billion and three tenths
- e) thirty seven and four hundred sixty one thousandths
- f) one ten thousandths
- 2. a) Find the Ghetto Blaster and the cassette labelled "NUMBERS". Rewind if necessary.
  - b) Listen to the cassette as you write the numbers on the answer sheet.
  - Place the student recording cassette in the ghetto blaster. Find the spot where the last student ended his or her recording. You will need to record your name and then read the numbers on the other side of this card. Read clearly and slowly. After you are finished number 10 say slowly "finished". Leave the cassette as is.

DO NOT REWIND!

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

Clean up the work area and be kind and rewind the first cassette only!!! Please do not rewind the student recording cassette.

Place Value Gr.7 N-3, N-7a

Materials: calculator

answer sheet

three envelopes labelled "Station # 2

blank cards recycled envelopes

- 1. Using a calculator, find the value of:
  - a) 0 ones, 6 tens, 60 thousands, 8 hundreds
  - b) 40 ten thousands, 3 tens, 7 ones, 6 thousands
  - c) 6 thousands, 5 hundreds, 3 ones, 4 ten thousands, 7 tens,
  - d) 3 hundreds, 5 thousands, 23 millions, 8 tens, 7 ones
- 2. Without using a calculator, find the value of:
  - a) 3 hundreds, 5 thousands, 6 millions, 4 hundred millions, 8 tens and 7 ones.
  - b) 10 thousands, 8 hundred thousands, 7 ones, and 4 tens.
  - c) 8 tens, 1 billion, 6 ones, 7 hundreds and 0 thousands.
  - d) 506 millions, 6 tens, 4 hundreds 3 ones and 8 ten thousands
- 3. Make up a similar question as above for the following numbers:
  - a) 100 178 482
- b) 979 003
- c) 381 504 128
- 4. Find three envelopes labelled station # 2
  Read the number on the envelope in your head.
  In the envelope you will find some cards, one of which is missing. Write the number of the missing card on your answer sheet.
- 5. Use the blank cards to create a question as in 4). Write a large number on the envelope.

Fill in the blank cards to represent your number. Remember to leave one out.

On one card write: "The Missing number is:\_\_\_\_ "

When you have completed this station, place your answer sheet and your recycled envelope in your portfolio.

Do not forget to label your entry.

Please tidy up the station and turn off the calculator!

Place Value Gr.7 N-1, N-7

Materials: calculator

answer sheet

three envelopes labelled "Station # 3

blank cards recycled envelopes

- 1. Using a calculator, find the value of:
  - a) 6 ten thousandths, 6 ones, 3 thousandths, 1 hundredth
  - b) 62 thousands, 9 hundredths, 0 ones, 5 tens
  - c) 4 hundred thousands, 3 tenths, 4 hundreds, 7 hundredths, 6 ten thousands, 8 tens
  - d) 4 tenths, 5 hundredths, 8 thousands, 5 thousandths, 0 tens and 3 ones
- 2. Without a calculator, find the value of:
  - a) 7 ones, 6 tenths, 4 millions, 3 billions, 8 hundred thousands, 3 hundreds, 3 ten thousandths
  - b) 7 tens, 3 hundredths, 7 tenths, 1 ten thousandth, 6 hundreds
  - c) 6 thousandths, 2 ten thousandths, 3 hundreds, 6 ones, 2 millions, 2 tenths, 4 ten thousands, 5 tens, 2 hundredths
  - d) 4 billions, 5 ten thousandths
- 3. Make up a similar question as the one above for the following numbers:
  - a) 789.23
- b) 300 300 300.300
- c) 9 103 223. 1178
- 4. Find three envelopes labelled station # 3
  Read the number on the envelope in your head.
  In the envelope you will find some cards, one of which is missing. Write the number of the missing card on your answer sheet.
- 5. Use the blank cards and create a question as above in 4). Write a large number on the envelope.

Fill in the blank cards to represent your number. Remember to leave one out.

On one card write: "The Missing number is:\_\_\_\_ "

When you have completed this station, place your answer sheet and your recycled envelope in your portfolio.

Do not forget to label your entry.

Please tidy up the station and turn off the calculator!

Place Value Gr. 7

N-1

Materials: cheque books

envelope of bills

1. You are the secretary treasurer for your gymnastics club. Your school has just had a social event and you need to write the cheques for the bills that have been handed in to you. Look at the six bills in the envelope and write the cheques in a cheque book.

When you have completed this station, place your cheque book in your portfolio.

Do not forget to label your entry.

Please tidy up the station. Return the bills into the envelope.

### 5. Numbers & Operations

Place Value 7

N-4

Real-World Applications

**Materials:** Statistics Canada publications

Atlases encyclopedia

- 1. Look through the materials that are provided and find:
  - a) 5 situations in which large numbers are used
  - b) 5 situations where decimal numbers are used
- 2. Write the numbers you have found and write a few sentences to explain the context in which they were used.
- 3. List the ten numbers that you found from the largest to the smallest. Explain your strategy.

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

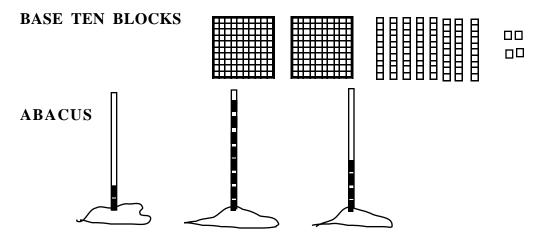
Place Value Gr.7 N-1, N-7

Materials: abacus (drinking straws and plasticine)

Base ten rubber stamps (optional)

place value mat recording sheet paper money

- 1. Construct the following numbers on the abacus and record your work on the recording sheet. Use proper metric notation.
- a) 632 307
- b) 231 534.0302
- c) sixty five thousand seven hundred six
- d) three thousand six hundred eighty and nine ten thousandths
- e) 7 thousands, 9 ones, 0 hundreds, 9 hundredths
- f) 7 hundredths, 4 hundreds, 2 tenths, 9 tens, 6 ten thousands, 3 ten thousandths, 4 ones, 0 thousandths, 2 thousands
- 2. We can represent "284" using several models.



- 3. Represent seven hundred thirty six using base ten blocks and using an abacus. Record by drawing or using rubber stamps.
  - a) Represent this number as money by cutting and gluing the paper money on a piece of paper.
  - b) Does your money model look more like the Base ten blocks or more like the abacus. Explain your answer.
  - c) Give the advantages and disadvantages of each model.

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

Place Value Gr. 7 N-1

Materials: calculator

calendar computer

pennies (100 to 1000)

balance scale eye dropper graduated cylinder

1. Choose one of the following projects. Gather your data and record your findings using the scientific method.

Problem Materials Procedure Observation Conclusion

- a) Calculate the number of seconds you will have been alive up till midnight tonight. (Hint: use the calenders to calculate the leap years and the days for the year you were born and the days you have lived this year.
- b) i. How high would a pile of one million two dollar bills be?.
  - ii. How high would a pile of one billion two dollar bills be?
- c) Keep track of the time it takes for a computer to count to 1 000 000 000. After it has counted to 100 or 1000, estimate how long it will take to complete the job.

On a computer enter a simple BASIC program such as the one below to count to 1 000 000 000.

- 10 FOR I = 1 TO 1 000 000 000
- 20 :: PRINT I
- 30 NEXT I
- **40** END
- d) What is the mass of 1 000 000 000 pennies?
- e) What is the capacity of 1 000 000 drops of water?

When you have completed this station, place your experiment write-up in your portfolio.

Do not forget to label your entry.

Place Value Gr. 7 N-4

Materials: Internet (optional)

encyclopedia library resources

activity sheet with blank charts

- 1. a. List any ten countries. Find a recent record of their population and fill a chart to record your findings.
  - b. Make a second chart to arrange the countries in order from the one with the largest population to the one with the smallest population.
- 2. a. Find the name of ten unicellular (one-cell) organisms. Find each of their average length in centimetres and fill the chart to record your findings.
  - b. Make a second chart to arrange the organisms in order from the smallest to the largest.

When you have completed this station, place your charts in your portfolio.

Do not forget to label your entry.

### 9. Numbers & Operations Place Value Gr. 7 N-11 **Materials:** tiles linking cubes ready built models of linking cubes grid paper 1. Use the tiles to build the following: the product of $5 \times 5$ a) **b**) six squared 32 c) 2. Use the grid paper to record your constructions. **3**. In your own words, explain what it means to "square" a a) number. In the expression 3<sup>2</sup> the 3 is called the \_\_\_\_\_ **b**) and the 2 is called the \_\_\_\_\_\_. It means \_ 4. Use the cubes to build the following: the product of 3 x 3 x 3 a) **b**) five cubed 43 **c**) **3**. Use a sketch to record your constructions. 4. In your own words, explain what it means to "cube" a a) number. In the expression $4^3$ the 4 is called the \_\_\_\_\_ **b**) and the 3 is called the \_\_\_\_\_. It means

When you have completed this station, place your sketches in your portfolio.

Do not forget to label your entry.

Place Value Gr. 7 N-7

Materials: number tents

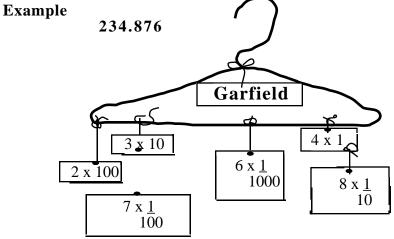
hanger or sticks

cards string

1. Use the number tents to record the numbers as an expanded numerals using powers of ten. Record on a sheet of looseleaf.

number	expanded form
1257	1 x 1000 + 2 x 100 + 5 x 10 + 7 x 1

- 2. Write the following numbers in expanded form using powers of ten:
  - a) 23.256
- b) 0.173
- c) 1 382 254 904.02
- 3. Write a number that has 6 digits with 3 digits on each side of a decimal point. Use seven cards. On each of six cards write one part of the number in expanded form. Make a mobile to attach your cards. On the seventh card, write your name.



When you have completed this station, show your mobile to your teacher and place your work in your portfolio.

Do not forget to label your entry.

Integers Gr. 7 N-34, N-35, N-36

**Materials:** relief map of Little Islands ruler

- 1. a) Use the relief map to list 10 different integers.
  - b) What does "0" represent on the map?
  - c) Make up your own relief map which has a range from -1000 to +2500.
- 2. Draw a line that measures 18 cm. Make a mark at each centimetre. Find the midpoint and label it "0". Label the following points on the line:
  - a) 2
- **b)** -4
- c) -8

d) the opposite of -5

- e) the opposite of 3
- 3. a) Arrange in order from least to greatest: +8, -3, -2, 0, +5, -7, +9, -6
  - b) Draw a number line and circle the integers listed in a).
  - c) Explain how the number line helps you order integers or how it can serve as a check to see if you have ordered a list of integers correctly.
  - d) Explain why +4 > +2 while -2 > -4.
  - e) Using a variety of integers make up 4 different "<" less than and 4 different ">" greater than statements.
- 4. a) Draw a number line and mark -4 and its opposite.
  - b) What can you say about the distances of these opposites from zero?

When you have completed this station, place your work in your portfolio.

Do not forget to label your entry.

Integers Gr. 7 N-34

Materials: old magazines

references etc.

1. Make a mural or poster to show at least six different uses of integers in the real world. Photocopy or draw those pictures that cannot be cut from certain reference books.

When you have completed this station, pin your mural or poster on the bulletin board.

Do not forget to label your entry.

Please tidy up the station.

## 13. Numbers & Operations

Integers Gr. 7 N-34, N-35

Materials: old magazines

references etc.

1. When you watch television you have noticed that in the United States the weather is reported in degrees Fahrenheit while in Canada we use degrees Celsius. Research to find what certain key temperatures are in both systems. Draw and label a large thermometer to indicate both systems. Indicate your source of information.

#### **Key temperatures:**

- \* Freezing point of water
- \* Boiling point of water
- \* Comfortable room temperature
- \* Comfortable summer temperature
- \* Coldest winter temperature ever reported
- \* Hottest summer temperature ever reported
- \* Body temperature
- \* High fever
- \* etc.

When you have completed this station, place your work in your portfolio.

Do not forget to label your entry.

Integers Gr. 7 N-35, N-36

**Materials:** Deck of cards (no face cards and aces = 1)

- 1. a. Shuffle the cards and place the pile in front of you.
  - b. Black cards are positive and red cards are negative.
  - c. Flip two cards over and record them on the activity sheet as integers.Circle the one that is greater than the other.

Ex: -6 and (-3)

Repeat 10 times.

- 2. a. Shuffle the cards and place the pile in front of you. Remember that black cards are positive and red cards are negative.
  - b. Flip five cards, place them in ascending (least to greatest) in front of you. Record them as integers.
  - c. Repeat five times.
- 3. Complete the activity sheet.

When you have completed this station, place your activity sheet in your portfolio.

Do not forget to label your entry.

Fractions Gr. 7 N-42, N-43, N-45b&c, D-9c R-13

**Materials:** container or plastic bag of 48 colored blocks

sheet of paper crayons

- 1. Find the colored blocks labelled for this activity.
- 2. Sort according to color.
- 3. Place the blocks on the sheet of paper to make a circle. Be sure to keep the same colors together.
- 4. Draw a circle just outside the ring of blocks.
- 5. Leaving the blocks in place, make a dot as close to the middle of the circle as possible.
- 6. Next draw a line between each color from the point you drew at the centre of the circle to the circle you have drawn around the blocks.
- 7. a) Knowing that you started with 48 blocks, give the fraction of each of the colors of blocks.
  - b) Explain why the total of all the blocks can be represented as  $\frac{48}{48}$ .
  - c) What is the fraction that represents the———blocks and the ——blocks? Explain your strategy.
  - d) What is the fraction that represents the \_\_\_\_\_blocks the and the \_\_\_\_blocks? Explain your strategy.
- 8. a) What is the ratio of \_\_\_\_\_ blocks to \_\_\_\_ blocks?
  - b) What is the ratio of \_\_\_\_\_ blocks to \_\_\_\_ blocks?
  - c) What is the ratio of \_\_\_\_\_ blocks to \_\_\_\_ blocks?
- 9. Next, color each section of the circle to represent the color of blocks it contains. Remove the blocks and label your circle graph.
- 10. Estimate what percentage of the total circle is represented by each color. Explain your strategies.

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

Please tidy up the station.

Fractions Gr. 7 N-43

Materials: mat

activity sheet

- 1. Consider the following fractions: 5/6, 2/3, 3/8, 1/5, 8/10 and 1/6.
- 2. On the activity sheet the rectangles that represent rectangular cakes. Use a one of the rectangles to represent each of the above fractions by shading in each fractional part. Cut the colored area from each rectangle
- 3. Glue the "cakes" in the appropriate section on the mat.
- 4. How could you use this chart to help you estimate to order these fractions from smallest to largest?
- 5. Write six more proper fractions.
- 6. Place these into order of increasing size and explain how you estimated to find your answer?
- 7. a) Write six fractions that are in between 0 and  $\frac{1}{2}$ ?
  - b) Write 6 fractions that are in between 1 and 1?

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

Fractions Gr. 7 N-44, N-45a, N-1, GM-80

**Materials:** 1 litre measuring cup

rice beans

- 1. a. Fill the 1 litre measuring cup to the level of 1/2.
  - b. Name two things that have a capacity of 1/2 a litre.
- 2. a. Fill the 1 litre measuring cup to the level of 3/10.
  - b. Name two things that have a capacity of 3/10 a litre.
- 3. a. Fill the 1 litre measuring cup to the level of 1/10.
  - b. Name two things that have a capacity of 1/10 a litre.
- 4. a. Use the measuring spoons and the beans to help you estimate how many beans are in 1/2 litre.
  - b. How many litres would you need to hold 1 million beans?

When you have completed this station, put the beans and the rice back in their containers. place your answer sheet in your portfolio.

Do not forget to label your entry.

Fractions N-45a Gr. 7

**Materials:** measuring tape

string

1. Measure and cut a piece of string equal to your height.

2. Compare your height with different body parts and record what fraction of your heights these measurements represent.

parts of the body

fraction of your height

circumference of your head

circumference of your wrist

circumference of your upper arm

circumference of your neck

circumference of your calf

circumference of your finger

length of your foot

length of your elbow to your fingertips

length from fingertip to fingertip of each hand when held straight out

other

- 3. Compare your fractions with a those of a few classmates. How do they compare?
- 4. Leonardo de Vinci was intrigued with proportions of body parts and many artists use his discoveries to this day. Look in an encyclopedia (print or computer) or in other resources to learn about what he discovered about body proportions. Write a short essay to report your findings.

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

Fractions N-45b

Gr. 7

**Materials:** pattern blocks egg cartons

- 1. Find the pattern blocks. Suppose that a hexagon is worth one half.
- a) Which blocks show what happens when you divide the hexagon into two equal pieces.

  Use a diagram to record this on your worksheet.
- b) Which blocks show what happens when you divide the hexagon into three equal pieces.

  Use a diagram to record this on your worksheet.
- c) Which blocks show what happens when you divide the hexagon into six equal pieces.

  Use a diagram to record this on your worksheet.
- 2. a) Use the egg cartons to show
  - 1) 12 ÷ 2 Which fraction does this represent?
  - 2) 12 ÷ 3 Which fraction does this represent?
  - 3) 12 ÷ 4 Which fraction does this represent?
  - 4) 12 ÷ 6 Which fraction does this represent?
  - 5) 12 ÷ 12 Which fraction does this represent?
- 3. Find and draw the pieces of egg carton that represent
  - a. 3/4
- b. 2/3
- c. 5/6
- 3. In your own words explain the concept of fractions as division using pizzas or other circular objects.

When you have completed this station, place your answer sheet in your portfolio.

Do not forget to label your entry.

Fractions Gr. 7 N-44

Materials: library

music books music teacher classmate

- 1. Research to find out how fractions are used in musical notes.
- 2. Draw the notes and their fractional value.
- 3. Show four different sets of notes that are equivalent to a whole.
- 4. Make up your own few bars of music and explain how the notes are used to keep time.

4

$$\frac{4}{4} = 1$$
  $\frac{1}{4}$   $\frac{1}{4}$   $\frac{1}{4}$   $\frac{1}{4}$   $\frac{1}{4}$   $\frac{1}{4}$   $\frac{1}{4}$   $\frac{2}{4}$   $= \frac{4}{4}$ 

When you have completed this station, place your answer sheet in your portfolio.

Label your portfolio entry.

Fractions Gr. 7 N-46b, N-47b

Materials: pattern blocks

egg cartons fraction strips

- 1. Explain how you can use pattern blocks to reduce the fraction 4/12 to its simplest form? (Use diagrams in your explanation.)
- 2. Explain how you can use the egg cartons to reduce the fraction 10/12 to its simplest form? (Use diagrams in your explanation.)
- 3. Explain how you could use the fraction strips to reduce 6/8 and 8/10 to their simplest form.
- 3. a) Find all the fraction strips that are equivalent to 1/2.
  - b) Record these fractions and draw them to show how they are equivalent.
  - c) Explain why we say that 1/2 is the simplest for all these fractions.
  - d) Write in your own words what a simplified fraction is?
- 4. a) Explain how we know that 13/17 is in simplest form.
  - b) Explain how we know that 13/14 is in simplest form.

When you have completed this station, place your answer sheet in your portfolio.

Label your portfolio entry.

### **Numbers & Operations** 22. **Fractions** Gr. 7 N-46c **Materials:** cardboard fraction pieces pattern blocks 1. Find 17 trapezoids. If a hexagon represents a whole, **a**) write 17 trapezoids as an improper fraction. Place the halves so that they make whole pieces. Are **b**) there any pieces left over? c) How many wholes do you have all together? Represent this as a mixed number. d) e) Explain how this is related to division. f) Use the blue rhombi and the green triangles to find ten

improper fractions mixed number

different improper fractions. Record as improper fractions and mixed numbers by using drawings:

 $\frac{7}{6}$  1  $\frac{1}{6}$ 

2. In your own words write what improper fractions and mixed numbers are.

When you have completed this station, place your answer sheet in your portfolio.

Label your portfolio entry.

Fractions Gr. 7 N-48, N-46a , N-47

Materials: 20 cm paper strips: pink, blue, yellow, green, white

metric ruler scissors glue stick

- 1. a) Take one pink strip and fold it in half.
  - b) Take a second pink strip and fold it in half two times.
  - c) Take a third <u>pink</u> strip and fold it in half three times
  - d) Take a <u>blue</u> strip and carefully fold it in three equal pieces.
  - e) Take a <u>blue</u> strip and carefully fold it in three equal pieces and then in half.
  - f) Take a yellow strip and fold it in half then use a ruler to mark your strip at each 2 cm interval. Fold on these marks.
  - g) Take second yellow strip and mark it at 4 cm intervals. Fold.
  - h) Take a green strip and leave it as is.
  - i) Open your strips and place them on a piece of white paper in order from the longest segments to shortest segments being careful to line them up at the left. They should also line up at the right because they are all the same length. Glue them in place.
  - j) Label the segments  $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{4}$   $\frac{2}{4}$   $\frac{3}{4}$  etc.
- 2. Looking at your strips find at least 5 sets of equivalent fractions. Record these on a sheet of looseleaf.
- 3. Explain how could you use this model to find the fraction that is written in lowest terms in each case.

When you have completed this station, place your fraction strips sheet and answer sheet in your portfolio.

Label your portfolio entry.

Please tidy up the station.

Fractions Gr. 6 N-48, N-50

**Materials:** cardboard fraction strips (See Station 21) white paper strips

1. a) With the help of the fraction strips you made in activity 21, cut and label pieces of the white paper strips to represent the following fractions:

 $\frac{1}{2}$   $\frac{5}{6}$   $\frac{3}{8}$   $\frac{7}{10}$   $\frac{3}{5}$ 

- b) Glue them on a piece of paper in order of increasing size.
- 2. a) Cut four other strips of white paper to represent 4 other fractions. Cut them and label them.
  - b) This time glue them in order of decreasing size.
- 3. Explain other strategies that you could use to order fractions in either increasing or decreasing order.

When you have completed this station, place your fraction strips and answer sheet in your portfolio.

Label your portfolio entry.

**Fractions Gr. 6 N-56, N-76** 

**Materials:** fraction calculator

- 1. Explain, step by step, how you can use your integer divide function to convert an improper fraction such as 8/3 into a mixed number.
- 2. Use the calculator to convert the following improper fractions into mixed numbers.

 $\frac{6}{4}$   $\frac{9}{5}$   $\frac{15}{11}$   $\frac{100}{13}$   $\frac{420}{7}$   $\frac{83}{81}$ 

- 3. Look on your calculator for a function key that automatically converts proper fractions into mixed numbers. Write four improper fractions and use the calculator to convert these into mixed numbers. Record these as the calculator displays them and also as you would write them.
- 4. Explain, step by step, how you can use your calculator to convert an improper fraction such as  $\frac{8}{3}$  into a mixed number.
- 4. Use the calculator to convert the following mixed numbers into improper fractions.

5. Does the calculator have a special function to convert mixed numbers into improper fractions? Explain your answer.

When you have completed this station, place your fraction strips and answer sheet in your portfolio.

Label your portfolio entry.

Fractions Gr. 6 N-56, N-76

**Materials:** fraction calculator

1. Write the sequence of keys you need to use to calculate the following:

$$\frac{2}{5}$$
 +  $\frac{1}{5}$ 

Explain what needs to happen inside the calculator in order to get the correct answer.

2. Explain what needs to happen inside the calculator in order to get the correct answer.

$$\frac{3}{8} = \frac{1}{4}$$

- 3. a) Randomly list 10 pairs of proper fractions.
  - b) Use the calculator to add to find the sum of each pair.

When you have completed this station, place your fraction strips and answer sheet in your portfolio.

Label your portfolio entry.