



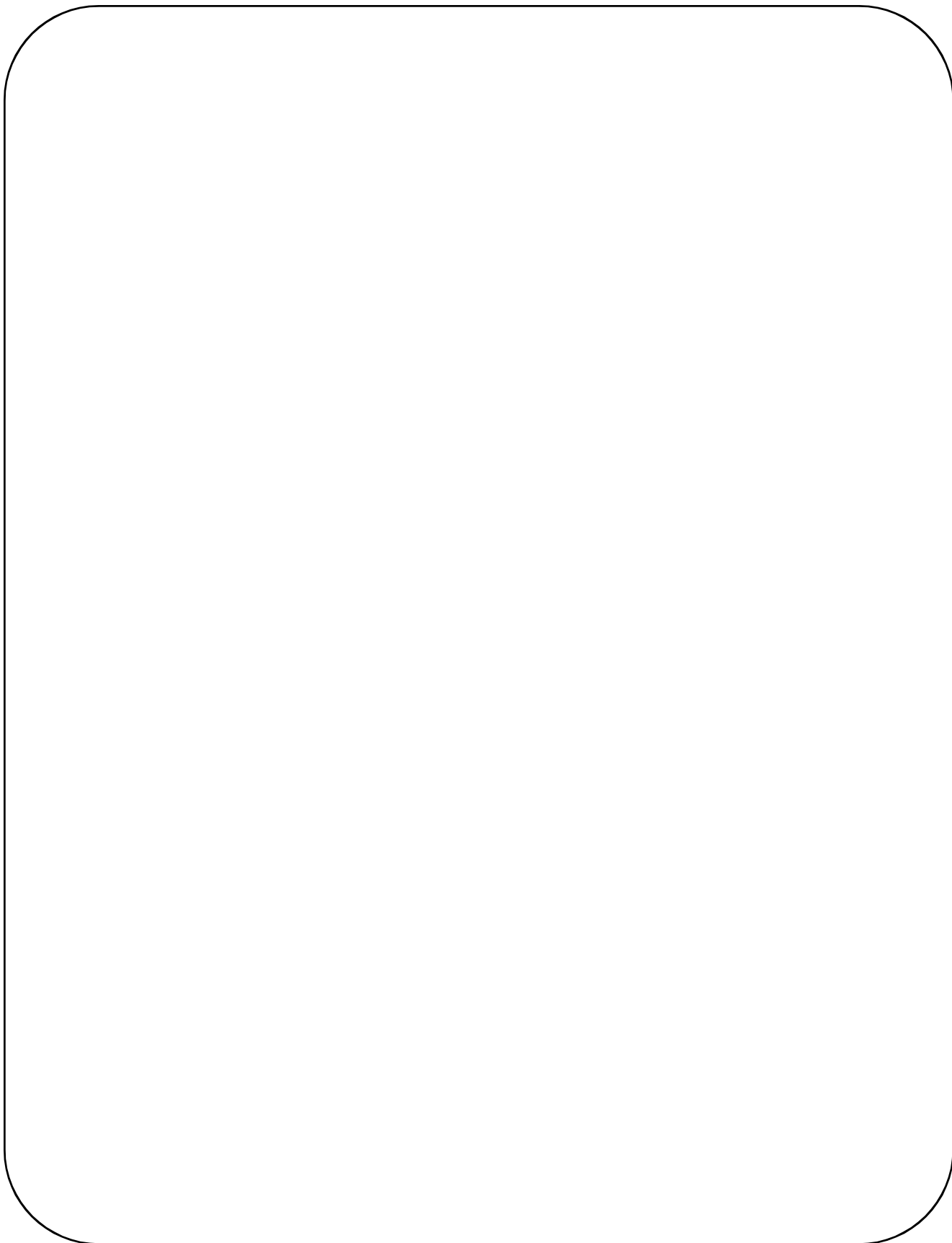
# Mathematics:

## Grade 3



*Number Sense and Numeration*

# The Ontario Curriculum: Mathematics



# Number Sense and Numeration

## Grade 3 Terms

- addition
- backwards
- divisible
- division
- estimate
- first
- forwards
- least expensive
- mental calculations
- most expensive
- multiplication
- numberline
- one half
- ordinals
- patterns
- place value
- second
- third
- three digit number
- whole

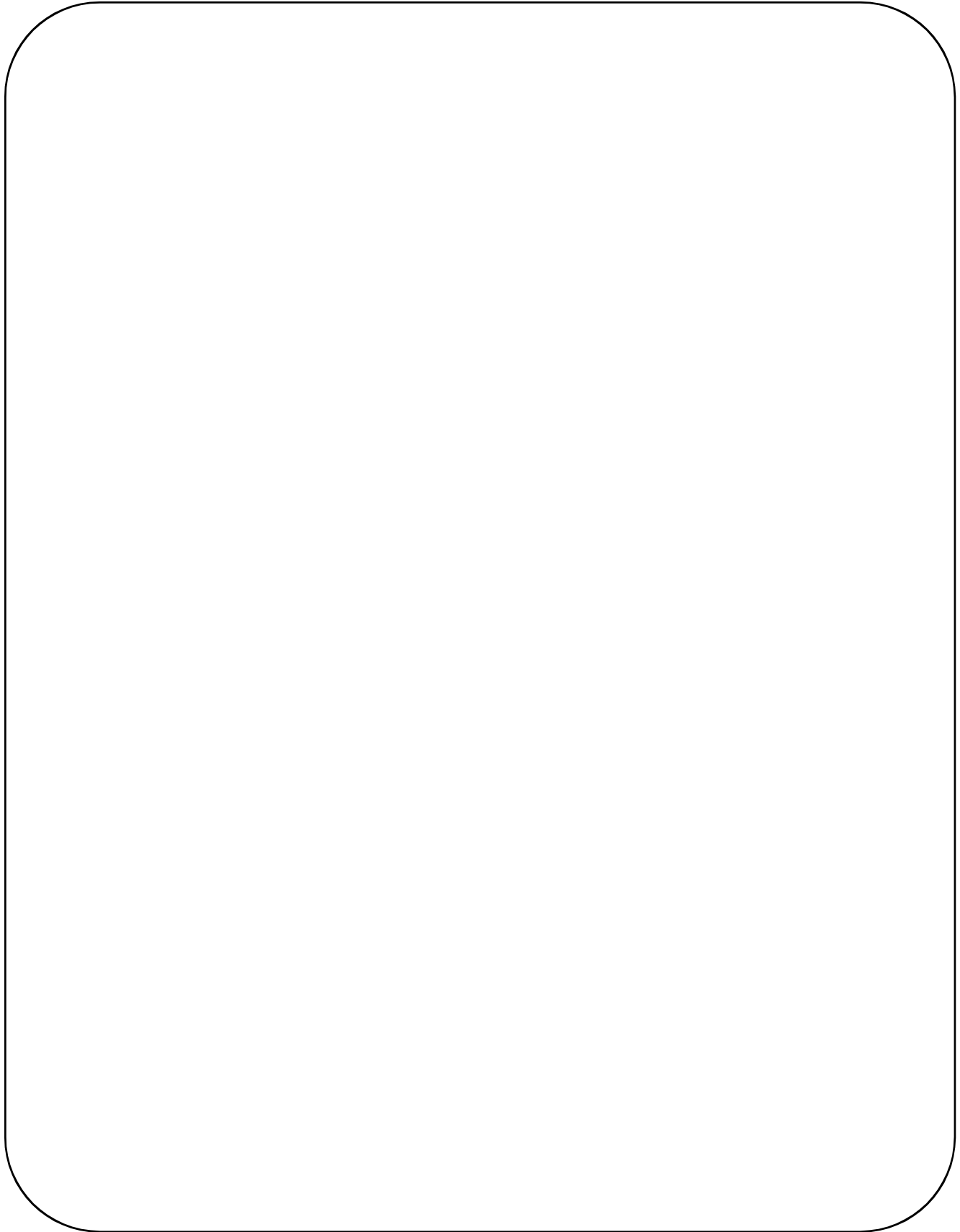
# The Ontario Curriculum: Mathematics

## Grade 3 Materials

- *baggies*
- *base ten* blocks
- blocks
- buttons
- calculators
- centicubes
- chart paper
- crayons
- dice
- empty containers
- glue
- licorice
- magazines
- markers
- meter stick
- paper
- pencils
- popsicle sticks
- rulers
- scissors
- *sticky notes*
- string
- yarn



# **Number Sense and Numeration**



# The Ontario Curriculum: Mathematics

## Challenge P20

T

### Are You In The Right Place?

#### Expectations

**3m1** - represent whole numbers using concrete materials, drawings, numerals, and number words;

**3m11** - read and print numerals from 0 to 1000.

#### Teaching Strategies

- With the class, count to 100 and then to 1000 by 100's; *i.e.*, 100, 200, 300,...1000.
- On an overhead, project the place value chart from *Appendix 1*, page 3 - 7.
- Identify and name each place value; *i.e.*, 1's, 10's, 100's,...1000's.
- Have numbers cut out and ready to demonstrate the activity.
- Invite a student to select a number, from 1 to 9, at random.
- Have the student place the number in the one's column and then say the number.
- Repeat this procedure with a student choosing

#### Suggested Resources

- Appendix 1, page 3 - 7
- *baggies* for each student
- glue
- pencils
- scissors

#### Catholic School Commentary

(4) *A self-directed, responsible, lifelong learner* who develops and demonstrates their God-given potential. (c) Takes initiative and demonstrates Christian leadership. (OCSGE)

#### Assessment

- Can the student accurately read and understand one, two and three digit numbers?



# Number Sense and Numeration

## Challenge P 20

S

### Are You In The Right Place?

#### Materials

- *Appendix 1*, page 3 - 7
- *baggies* for each student
- glue
- pencils
- scissors

#### Procedures

- Cut out the numbers from *Appendix 1* and place them in a *baggie*.
- Select a number from the *baggie*. Glue it on the one's column. Say the number aloud.
- Select a second number. Glue it into the ten's column. Read your new number.
- Select a third number. Glue it in the hundred's column. Say the new number.
- Write your three digit number beside the chart.

#### Further Challenges

- Have the students exchange their completed *Appendix 1* and read the numbers to each other.

# The Ontario Curriculum: Mathematics

## Challenge P 20

T

### Are You In The Right Place?

#### Expectations

**3m1** - represent whole numbers using concrete materials, drawings, numerals, and number words;

**3m11** - read and print numerals from 0 to 1000.

#### Teaching Strategies

2 numbers for the one's and ten's columns, then 3 numbers for the one's, ten's and thousand's columns, saying the final number each time.

- Explain to the students that this is the procedure which they will follow in completing *Appendix 1*.

#### Suggested Resources

#### Catholic School Commentary

#### Assessment



# Number Sense and Numeration

## Appendix 1

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Place Value Chart

Hundreds	Tens	Ones	Number
			_____

# The Ontario Curriculum: Mathematics

## Challenge P 21

T

### Name That Number

#### Expectations

**3m1** - represent whole numbers using concrete materials, drawings, numerals, and number words;

**3m2** - compare and order whole numbers using concrete materials, drawings, and ordinals;

**3m12** - read and print number words to one hundred.

#### Teaching Strategies

- On chart paper, write out number words for one to twenty, and then by 10's to one hundred; *i.e.*, thirty, forty... Display the chart in the classroom for future reference.
- Each student will be asked to give their favourite number orally. The teacher records the numbers on the board.
- The teacher will then ask the students to select ten numbers and to write the numerals, in words, in their notebook or on paper.

#### Suggested Resources

- chart paper
- markers
- notebooks/paper
- pencils

#### Catholic School Commentary

- (2) *An effective communicator* who speaks, writes and listens honestly and sensitively, responding critically in light of gospel values. (a) Listens actively and critically to understand and learn in light of gospel values. (OCSGE)

#### Assessment

- Can students accurately read and print number words from one to one hundred.



# Number Sense and Numeration

## Challenge P 21

S

### Name That Number

#### Materials

- notebooks/paper
- pencils

#### Procedures

- Select a favourite number from one to one hundred.
- Choose ten numbers from those written on the board by the teacher.
- Write the number in your notebook, in words, using the number word chart to make sure that the spelling is correct.

#### Further Challenges

- The teacher says the numbers out loud. The student records it in numerals and in words.

# The Ontario Curriculum: Mathematics

## Challenge P22

T

### Going Up! Going Down!

#### Expectations

**3m1** - represent whole numbers using concrete materials, drawings, numerals, and number words;

**3m2** - compare and order whole numbers using concrete materials, drawings, and ordinals;

**3m13** - count by 1's, 2's, 5's, 10's, and 100's to 1000 using various starting points and by 25's to 1000 using multiples of 25 as starting points;

**3m14** - count backwards by 2's, 5's, and 10's from 100 using multiples of 2, 5, and 10 as starting points and by 100's from any number less than 1001.

#### Teaching Strategies

- Give the students some manipulatives; *e.g.*, buttons, popsicle sticks, centicubes, *etc.*
- Have the students group the materials in two's. Then they count together, orally, by two's, to any given number.
- Instruct the pupils to repeat the above procedure this time using five's.
- Once the students understand counting by groups, have them work with a partner to count forwards and backwards by 2's, 5's, 10's, 25's and 100's up to 1000, for about five minutes. The students may need to use the numbers chart.
- The teacher will then select different starting points; *e.g.*, 35, and count forwards and backwards, with the whole class, using different number groups.

#### Suggested Resources

- manipulatives; *e.g.*, buttons, popsicle sticks, centicubes, *etc.*
- numbers chart, *Appendix 2*, page 3 - 13.

#### Catholic School Commentary

- (5) *A collaborative contributor* who finds meaning, dignity and vocation in work which respects the rights of all and contributes to the common good. (a) Works effectively as an interdependent team member. (g) Achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others.

#### Assessment

- Can students group and count manipulatives by 2's, 5's, 10's, 25's, and 100's up to 1000, forwards and backwards.



# Number Sense and Numeration

## Challenge P22

S

### Going Up! Going Down!

#### Materials

- 100 manipulatives; e.g., buttons, popsicle sticks, centicubes, etc.
- numbers chart, *Appendix 2*, page 3 - 13.

#### Procedures

##### On Your Own

- Using manipulatives, group the manipulatives, by two's, and count by two's, to 100.
- Group the manipulatives, by 10's, and count the groups to 100.

##### With A Partner

- Using the numbers chart, if needed, count forwards and backwards by 2's, 5's, 10's, 25's to 100. Then count by 100's to 1000.

#### Further Challenges

- Without using the numbers chart, count forwards and backwards by 3's and 4's to 60.
- Type out the numbers, on the computer, by 2's, 5's, 10's, 25's, and 100's.

# The Ontario Curriculum: Mathematics

3 - 12



**Northern Ontario Catholic Curriculum Cooperative**

# Number Sense and Numeration

## Appendix 2

Going Up! Going Down!

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

# The Ontario Curriculum: Mathematics

## Challenge P23

T

### *Hop With Freddie*

#### Expectations

- 3m1** - represent whole numbers using concrete materials, drawings, numerals, and number words;
- 3m2** - compare and order whole numbers using concrete materials, drawings, and ordinals;
- 3m15** - locate whole numbers to 100 on a number line and partial number line (e.g., from 79 to 84);
- 3m16** - show counting by 2's, 5's, and 10's to 50 on a number line and extrapolate to tell what goes before or after the given sequence;

#### Teaching Strategies

- The teacher draws a number line, on the board, and explains to students how numbers can be represented, on the line, by counting by one's.
- Using *Freddie Frog*, from *Appendix 3b*, page 18, the teacher demonstrates how *Freddie* can hop along the number line, by 2's, to 50, while marking each place that he lands with an *x*.
- The teacher then invites the students to help *Freddie* hop by 5's and 10's to 50.
- Have the students then complete *Appendix 3a*, page 17

#### Suggested Resources

- Appendix 3a and b
- metre stick
- pencils
- rulers

#### Catholic School Commentary

- (3) *A reflective, creative and holistic thinker* who solves problems and makes responsible decisions with an informed moral conscience for the common good. (c) Thinks reflectively and creatively to evaluate situations and solve problems.

#### Assessment

- Can the student locate numbers, on a number line, by 1's, 2's, 5's, and 10's?
- Can the student complete *Appendix 3a*, with accuracy?



# Number Sense and Numeration

## Challenge P23

S

### *Hop With Freddie*

#### Materials

- *Appendix 3a and b*
- pencils
- rulers

#### Procedures

- Complete *Appendix 3a*.

#### Further Challenges

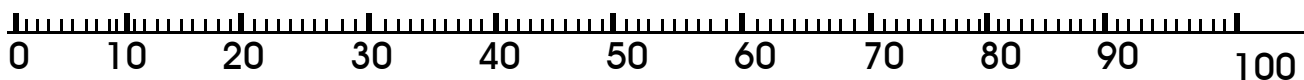
- Brainstorm important events in your life.
- On a number line from 0 to 10, show these important events using pictures at the appropriate places.

# The Ontario Curriculum: Mathematics

## Appendix 3a

### *Hop With Freddie*

1. Mark the ages of all your family members on the number line.



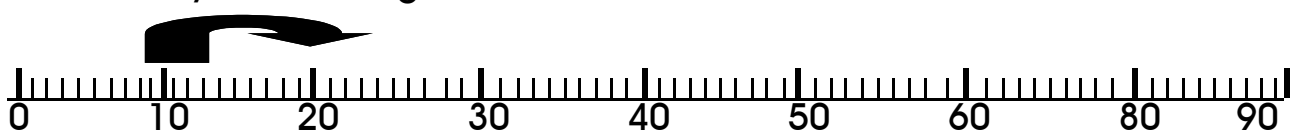
2. Count by 2's starting at 8. Mark an x on 46.



3. Count by 5's starting with 10. Mark an x at 35.



4. Count by 10's starting at 10. Mark an x at 70.



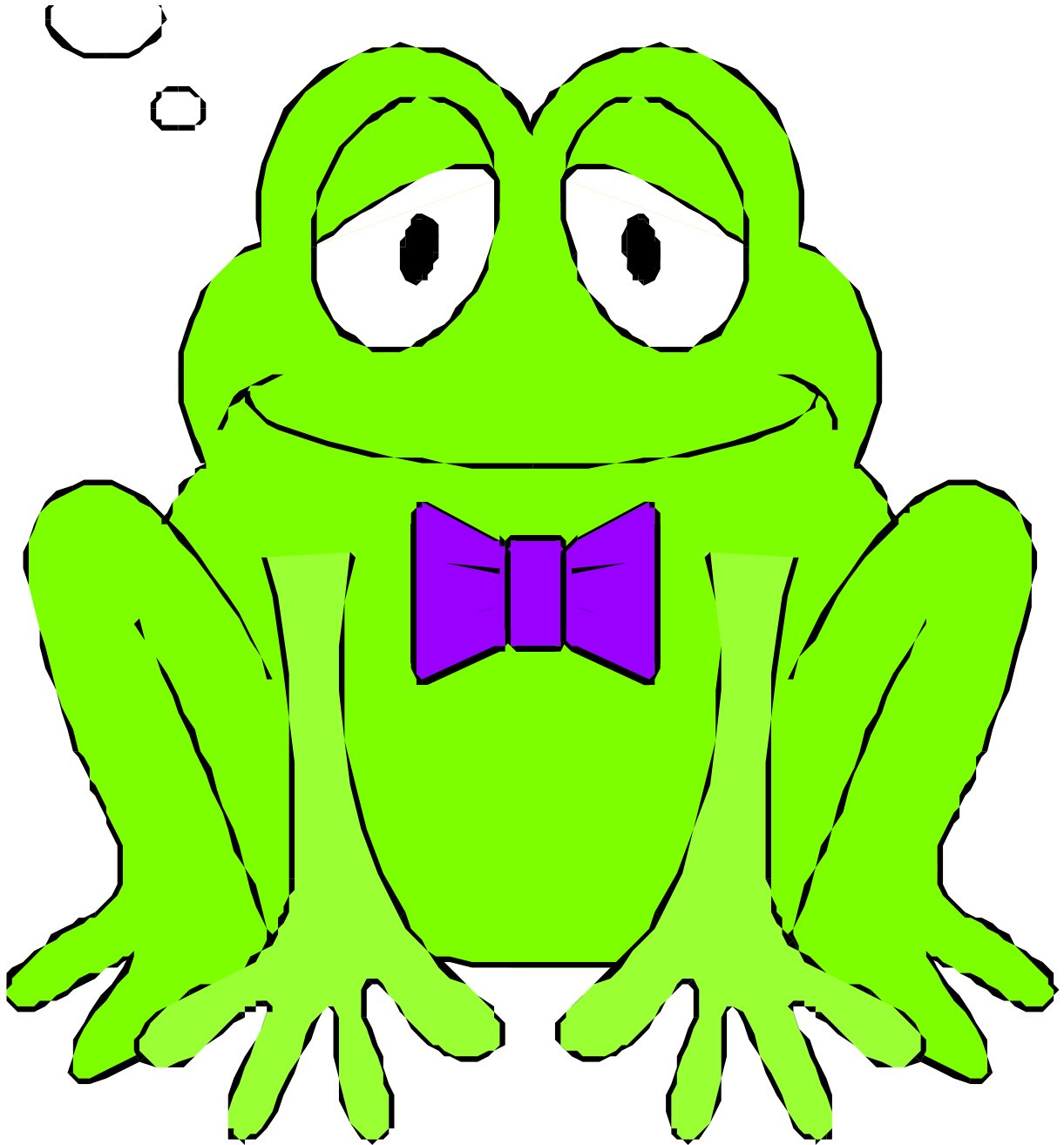
5. Using a ruler, draw your own numbers line from 0 to 31. On it, circle the day of the month that you were born.



# Number Sense and Numeration

## Appendix 3b

*Freddie the Frog*



# The Ontario Curriculum: Mathematics

## Challenge P24

T

### *A Life Time of Numbers*

#### Expectations

**3m2** - compare and order whole numbers using concrete materials, drawings, and ordinals;

**3m17** - identify and describe numbers to 1000 in real-life situations to develop a sense of number (e.g., tell how high a stack of 1000 pennies would be);

#### Teaching Strategies

- Ask the students a series of questions about numbers; *e.g.*,
  - How many students are there in the school?
  - How many Pokémon characters are there?
  - How far is it from your town to an out of town destination?
- Divide the students in groups of 3 or 4. Have them brainstorm real-life situations in which numbers play a part. Have the groups share ideas with the class and record the results on chart paper. Display the chart.
- Ask the students to watch TV for fifteen minutes and to record all of the way numbers appear.

#### Suggested Resources

- chart paper
- markers

#### Catholic School Commentary

(1) *A discerning believer* formed in the Catholic Faith community who celebrates the signs and sacred mystery of God's presence through word, sacrament, prayer, forgiveness, reflection and moral living. (i) Integrates faith with life.

(5) *A collaborative contributor* who finds meaning, dignity and vocation in work which respects the rights of all and contributes to the common good. (g) Achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others. (OCSGE)

#### Assessment

- Can the student identify and describe numbers to 1000 in real-life situations?
- Can students use television programs to find the different uses of numbers?



# Number Sense and Numeration

## Challenge P24

S

### *A Life Time of Numbers*

#### Materials

- chart paper
- markers

#### Procedures

- With your work group, brainstorm ideas of real-life situations, where numbers are found. List those ideas on chart paper so that you can share them with the rest of the class.
- Tonight, watch TV for 15 minutes. Record all of the ways that numbers are used in real-life situations.

#### Further Challenges

- Draw a circle and divide it into 6 equal sections.
- Using numbers, pictures and words, identify situations in your own life where numbers are used.

# The Ontario Curriculum: Mathematics

## Challenge P25

T

### Stack Them Up!

#### Expectations

**3m2** - compare and order whole numbers using concrete materials, drawings, and ordinals;

**3m18** - model numbers grouped in 100's, 10's, and 1's and use zero as a place holder.

#### Teaching Strategies

- Cut out numbers from *Appendix 4*, page 3 - 23, and place them in a container.
- Using *base 10* blocks, review the value of each piece; *i.e.*, 10's, 100's, *etc.*
- Demonstrate the activity by picking a number from the container and selecting appropriate blocks to represent the number.
- Ask the students to chose a number also and to represent it with the *base 10* blocks.
- Have the students trade numbers with each other and repeat the activity.

#### Suggested Resources

- *Appendix 4*, page 3 - 23
- *base 10* blocks
- container

#### Catholic School Commentary

(4) *A self-directed, responsible, lifelong learner* who develops and demonstrates their God-given potential. (f) Applies effective communication, decision-making, problem-solving, time and resource management skills. (OCSGE)

#### Assessment

- Can the pupil accurately represent whole numbers using *base 10* blocks?



# Number Sense and Numeration

## Challenge P25

S

### Stack Them Up!

#### Materials

- *Appendix 4*, page 3 - 23
- *base 10* blocks
- pencil and paper

#### Procedures

- With a partner, select a number from the container.
- Using *base 10* blocks, show the number which you have picked.
- Exchange your number with a classmate. Repeat the activity.
- Exchange numbers as many times as possible. Repeat the activity for each exchange.

#### Further Challenges

- Take a handful of base 10 blocks. Group them in 10's and 100's. Draw a picture of your blocks . Print the numbers which they represent.

# The Ontario Curriculum: Mathematics



# Number Sense and Numeration

## Appendix 4

246	62	931	10	936	701
57	586	5	636	712	306
125	47	878	333	901	999
58	256	826	7	95	59
712	20	555	637	462	48
812	372	213	491	863	600