

The Ontario Curriculum: Mathematics

Challenge P12

T

Counting Back

Expectations

2m1 - represent whole numbers using concrete materials, drawings, numerals, and number words;

2m11 - count backwards by 1's from 20;

Teaching Strategies

1. Review counting to 20 forwards, with the class, using a variety of visual aides; *e.g.*, hundreds chart, number lines, rulers , *etc.*
2. Have students track numbers with their fingers as they count backwards from 20. This will require much practice and repetition.
3. Once they are more independent in counting backwards, remove visual aides and work from memory.
4. Have students place number flashcards, from 20-0, in order.
5. Provide the group with opportunities for written practice. See *Appendix 3*, page 2 - 29.
6. Assess individual students orally (without aides) for mastery.

Suggested Resources

- *Appendix 3*
- hundreds chart
- number flashcards, 0 – 20, from lessons P1 and P10
- number line
- rulers

Catholic School Commentary

(2) *An effective communicator* who speaks, writes and listens honestly and sensitively, responding critically in light of gospel values. (b) Reads, understands and uses written materials effectively.

(4) *A self-directed, responsible, lifelong learner* who develops and demonstrates their God-given potential. (b) Demonstrates flexibility and adaptability. (OCSGE)

Assessment

- Use a checklist or anecdotal observation log to record student progress.
- Check for accuracy of written/oral work.



Number Sense and Numeration

Challenge P12

S

Counting Back

Materials

- *Appendix 3*
- hundreds chart
- number flashcards 0 – 20
- pencil
- ruler

Procedures

1. With a friend, practice counting backward from 20 – 0.
2. When you are ready, try counting back without looking at your chart.
3. With a friend, put the number flashcards in order, starting with 20 and working back to 0.
4. Complete the worksheet, *Appendix 3*, provided by your teacher.

Further Challenges

- Try counting back from 30 to 0.
- Using the number flashcards, put them in order from 20 to 0. Remove several cards. See if your partner can figure out which cards are missing.
- Mix up the flashcards. Put them in order from 20 – 0.

The Ontario Curriculum: Mathematics

Appendix 3

Numbers From 20 - 0

Name - _____

20

									0

Fill in the missing numbers. Count backwards without looking.

19 _____ 16 _____ 13 _____ 10.

6 _____ 10 _____ 14.

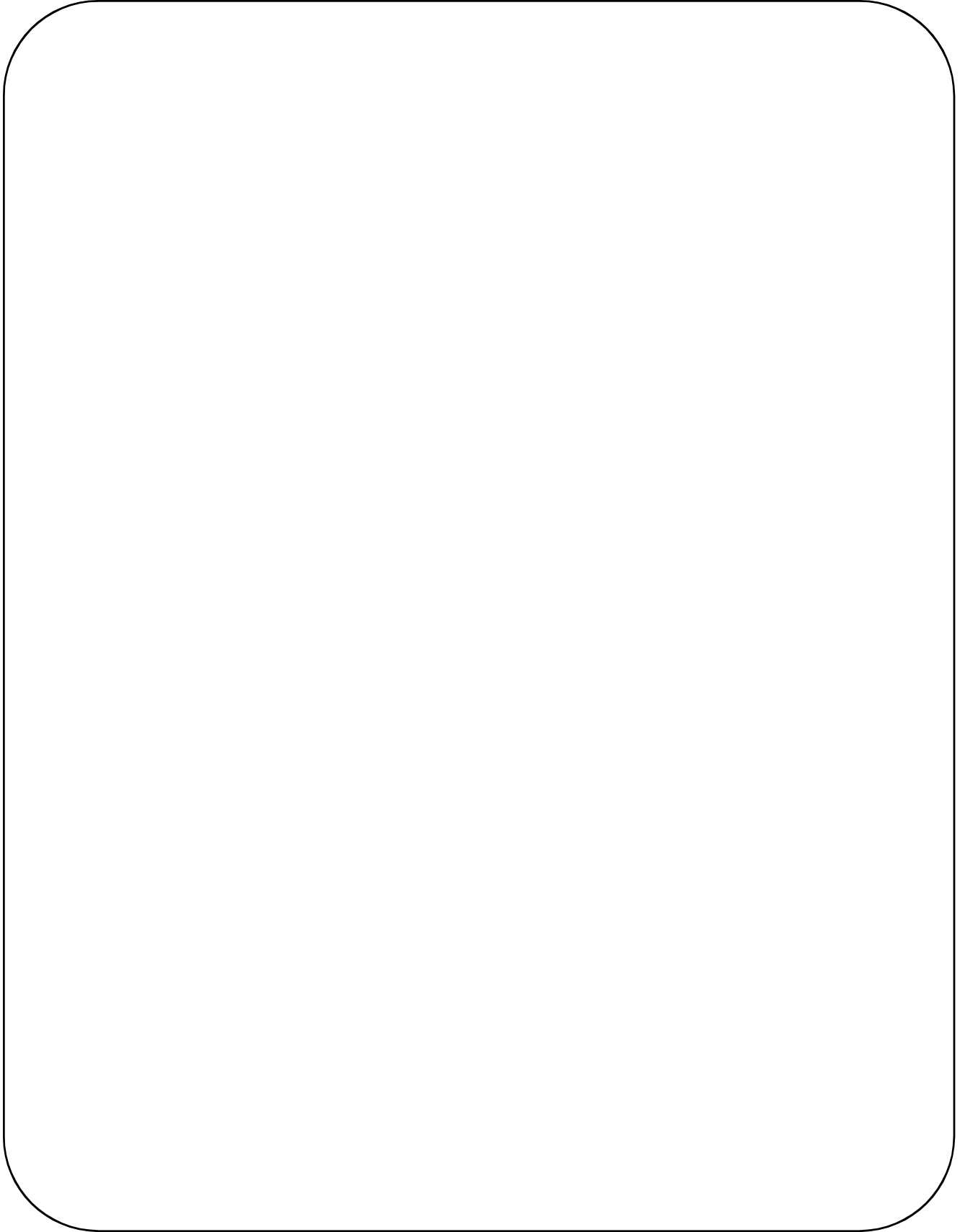
_____ 15 _____ 18 _____ 20.

10 _____ 6 _____ 2 _____.

13 _____ 11 _____ 6 _____.



Number Sense and Numeration



The Ontario Curriculum: Mathematics

Challenge P13

T

The Value of Numbers

Expectations

2m1 - represent whole numbers using concrete materials, drawings, numerals, and number words;

2m2 - compare and order whole numbers using concrete materials, drawings, numerals, and number words to develop an understanding of place value;

2m14 - compare, order, and represent whole numbers to 100 using concrete materials and drawings;

2m17 - identify place-value patterns (e.g., trading 10 ones for 1 ten) and use zero as a place holder;

Teaching Strategies

1. Using place value manipulatives, have students show various numbers to 99. You may wish to distribute flashcards with a number to 99 printed on it, for students to create.
2. Once students are comfortable reading and showing numbers to 99, create number flashcards to 999.
3. Students can choose a flashcards and create the number using manipulatives.
4. Once the students develop independence, creating and reading numbers to 999, using recording sheets, students can record the numbers made. See *Appendix 4*. **Note:** Students must practice filling out the recording sheet.

Suggested Resources

- computer program **Mathville Jungleyway**, *Con-scene-tration*, *Jungle Seesaw*
- number flashcards with various numbers from 0-99 and from 100-999
- place value manipulatives - hundreds, tens and ones
- recording sheets, *Appendix 4*

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. Works effectively as an interdependent team member. (e) Respects the rights, responsibilities and contributions of self and others. (g) Achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others. (OCSGE)
- **Proverbs 3:15**

Assessment

- Have students complete *Appendix 4* in order to demonstrate their mastery of drawing numbers in the ones, tens and one hundreds.
- Can students create numbers, using manipulatives, and transfer the results to a recording sheet. Use a checklist or anecdotal observation to record student progress to concept mastery.



The Ontario Curriculum: Mathematics

Challenge P13

T

The Value of Numbers

Expectations


2m1 - represent whole numbers using concrete materials, drawings, numerals, and number words;


2m2 - compare and order whole numbers using concrete materials, drawings, numerals, and number words to develop an understanding of place value;


2m14 - compare, order, and represent whole numbers to 100 using concrete materials and drawings;

2m17 - identify place-value patterns (e.g., trading 10 ones for 1 ten) and use zero as a place holder;

Teaching Strategies

 = 100

 = 10

 = 1

5. Give each student 3 flashcards. Have them represent these numbers with drawings, first using concrete materials independently.

Suggested Resources

Catholic School Commentary

Assessment



Number Sense and Numeration

Challenge P13

S

The Value of Numbers

Materials

- number flashcards with various numbers from 0-99 and from 100-999
- pencil
- place value manipulatives - hundreds, tens and ones
- recording sheets, *Appendix 4*

Procedures

1. Pick a flashcard. Using place value manipulatives, create the number which you picked. Have a friend check your work.
2. Choose another card. Use manipulatives to show the number on it. Record the result on your recording sheet.

Remember: Write the numbers in how many 100's, 10's and 1's

$$\square = 100 \quad \text{I} = 10 \quad \square = 1$$

3. Choose two more cards. Draw the numbers chosen. Use manipulatives if you wish.

Further Challenges

- Choose three more cards. Put them in order from least to greatest.
- Choose six more cards. Put them in order from greatest to least.

The Ontario Curriculum: Mathematics

Challenge P13

T

The Value of Numbers (Cont'd)

Expectations


2m1 - represent whole numbers using concrete materials, drawings, numerals, and number words;


2m2 - compare and order whole numbers using concrete materials, drawings, numerals, and number words to develop an understanding of place value;


2m14 - compare, order, and represent whole numbers to 100 using concrete materials and drawings;

2m17 - identify place-value patterns (e.g., trading 10 ones for 1 ten) and use zero as a place holder;

Teaching Strategies

 = 100

 = 10

 = 1

5. Give each student 3 flashcards. Have them represent these numbers with drawings, first using concrete materials independently.

Suggested Resources

Catholic School Commentary

Assessment



Number Sense and Numeration

Appendix 4

Recording Sheet

Hundreds, Tens and Ones

Name: _____

Number	Hundreds	Tens	Ones

Draw the number.

Number	Hundreds	Tens	Ones

Draw the number.

Number	Hundreds	Tens	Ones

Draw the number.

The Ontario Curriculum: Mathematics

Appendix 4

Recording Sheet

Hundreds, Tens and Ones

Name: _____

Number	Hundreds	Tens	Ones
342			

Draw the number.

Number	Hundreds	Tens	Ones
203			

Draw the number.

Number	Hundreds	Tens	Ones
430			

Draw the number.



Number Sense and Numeration

Appendix 4

Recording Sheet

Hundreds, Tens and Ones

Name: _____

Number	Hundreds	Tens	Ones
625			

Draw the number.

Number	Hundreds	Tens	Ones
522			

Draw the number.

Number	Hundreds	Tens	Ones
600			

Draw the number.

The Ontario Curriculum: Mathematics

Challenge P14

T

Pizza Pieces

Expectations

2m3 - compare proper fractions using concrete materials;

2m15 - use mathematical language to identify and describe numbers to 100 in the world around them;

2m16 - discuss the use of number and arrangement in their community (e.g., cans on a grocery store shelf, cost of 5 candies);

2m19 - represent and explain halves, thirds, and quarters as part of a whole and part of a set using concrete materials and drawings (e.g., colour 2 out of 4 circles);

Teaching Strategies

1. Have the students fold a sheet of paper in half, lengthwise. Discuss the number of pieces which this creates and identify it as a fraction of the whole.
2. Ask “If we folded this widthwise, as well, how many pieces would there be?” Try it. Discuss the number of pieces and identify the fraction.
3. Repeat this procedure with various shapes; e.g., circle, square, *etc.*
4. Label each piece using a fraction; e.g.,

$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{4}$	$\frac{1}{4}$

 Cut off $\frac{1}{4}$. Have students determine how many quarters are left? Discuss other possibilities; e.g., 2 quarters = $\frac{1}{2}$.

Suggested Resources

- computer program **Mathville Jungleyway**, *Pete’s Treats*
- fraction pieces
- Hershey’s Milk Chocolate Fractions Book
- pattern blocks
- shape templates reproduced on cardstock, *Appendix 5*

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. (e) Adopts a holistic approach to life by integrating learning from various subject areas and experience.
- (4) *A self-directed, responsible, lifelong learner* who develops and demonstrates their God-

Assessment

- Can the student identify halves, thirds and quarters?
- Does the student solve the problem appropriately? Is he/she able to use numbers, pictures and words in the solution?
- See problem solving rubric; *Appendix 9 b*, page 2 - 65.



Number Sense and Numeration

Challenge P14

S

Pizza Pieces

Materials

- large piece of paper on which to answer the problems
- shape templates, *Appendix 5*
- scissors

Procedures

1. Solve the following problem:

Your class is having a pizza lunch. The pizzeria has asked whether you want the pizza cut into thirds or quarters. Which fraction will you choose? Explain your answer using pictures, numbers and words.

Further Challenges

- If you have decided that you want the pizza cut into thirds, how many pizzas will you need if there are 21 children in the class and each child will eat 1 piece of pizza? Solve the problem using numbers, pictures and words.

The Ontario Curriculum: Mathematics

Challenge P14

T

Pizza Pieces

Expectations

2m20 - compare two proper fractions using concrete materials (e.g., use pattern blocks to show that the relationship of 3 triangles to 6 triangles is the same as that of 1 trapezoid to 2 trapezoids because both represent half of a hexagon);

2m24 - demonstrate division as sharing (e.g., sharing 12 carrot sticks among 4 friends means each person gets 3);

2m33 - select and use appropriate strategies (e.g., pencil and paper, calculator, estimation, concrete materials) to solve number problems involving addition and subtraction.

Teaching Strategies

- Using the circle, rectangle and triangle templates, have the students cut each shape along the lines into thirds. Repeat step four.
- Have the students complete the problem found on the task card. Encourage the students to use the manipulatives which they have created above. They may wish to use them to paste on to their response to the problem.

Suggested Resources

Catholic School Commentary

given potential. (f) Applies effective communication, decision-making, problem-solving, time and resource management skills. (OCSGE)

- Luke 9:10-17** *Jesus feeds 5,000 men*

Assessment



Number Sense and Numeration

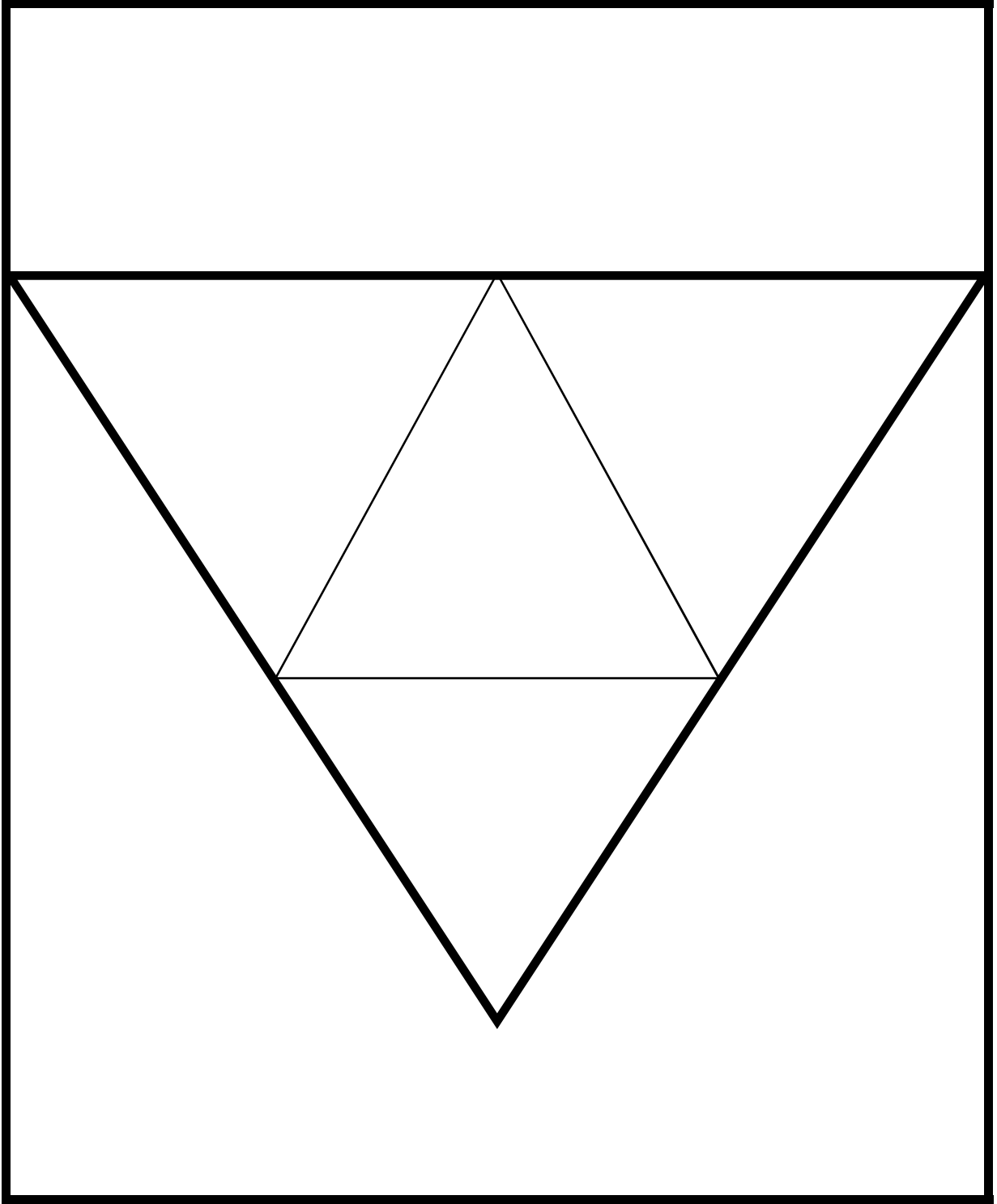
Appendix 5

Appendix 5 a

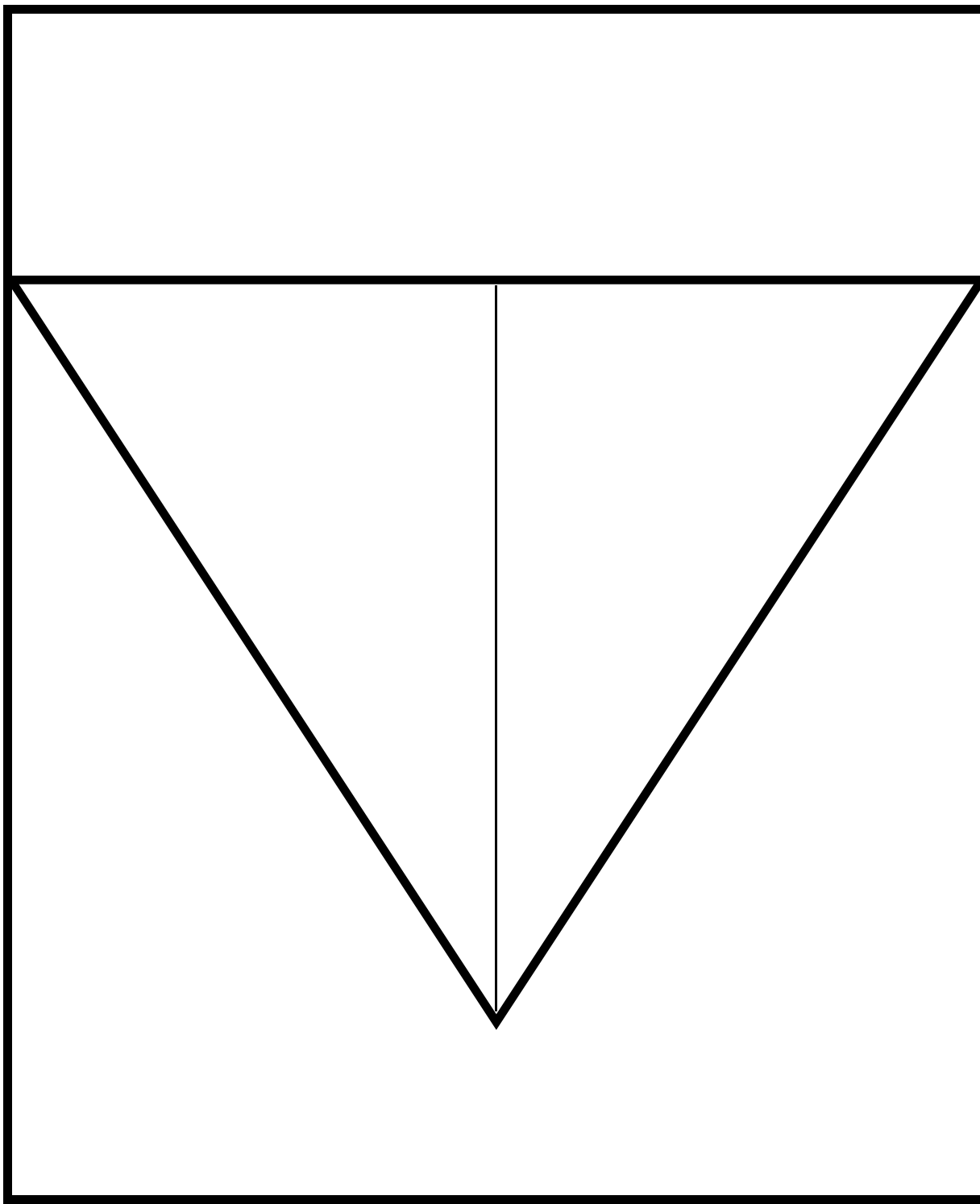


Number Sense and Numeration

Appendix 5 b



Appendix 5 c



Number Sense and Numeration

Appendix 5 d

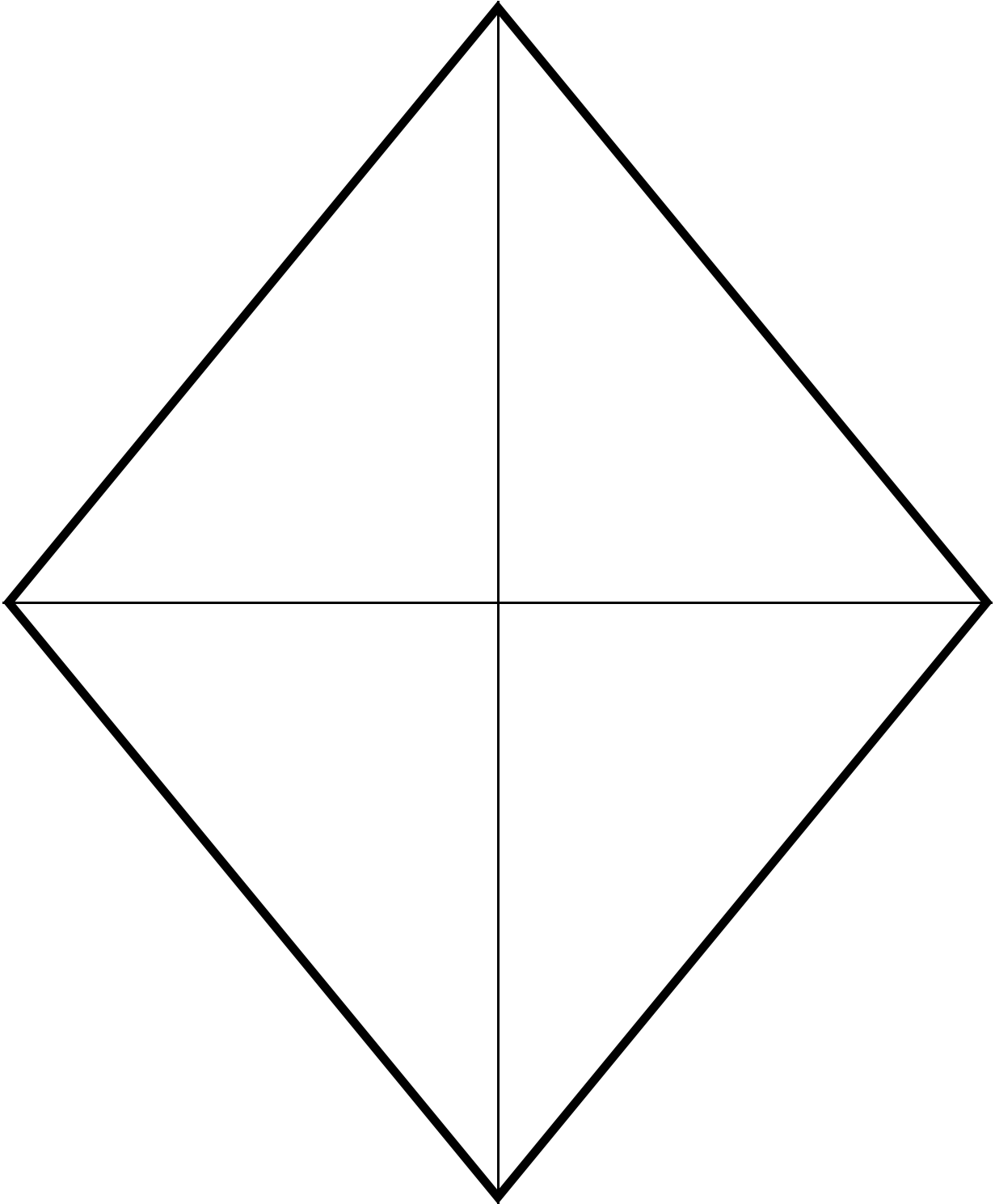
Appendix 5 e

--	--	--

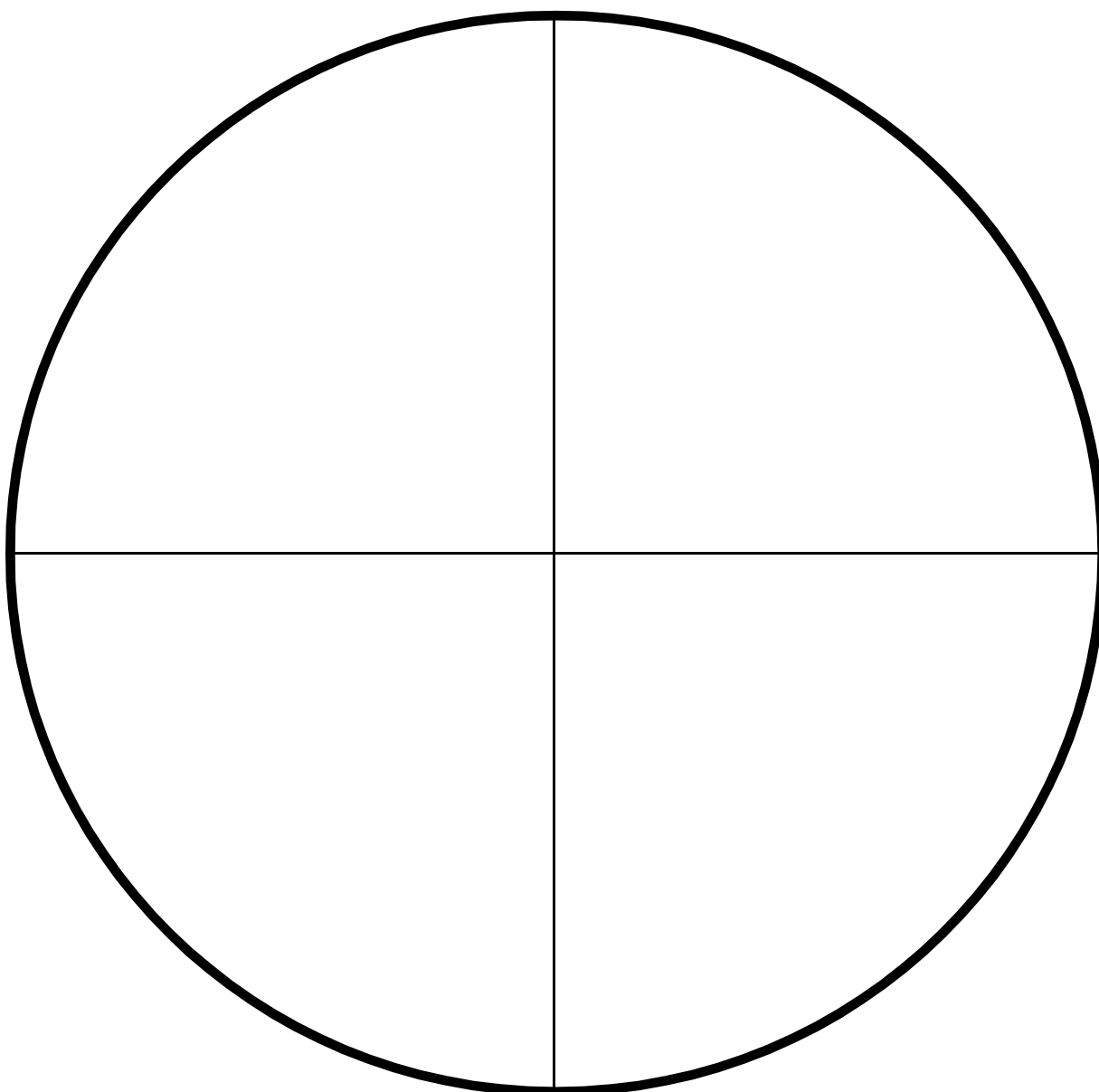


Number Sense and Numeration

Appendix 5 f



Appendix 5 g



Number Sense and Numeration

Appendix 5 h

