



Alberta Math Education Curriculum Component: NUMBER Unit

Chapter 3: Number Relationships

General Outcome:

→ Develop number sense.

Students will able to:

- identify prime numbers, composite numbers, factors, and multiples
- determine the factors of a composite number
- use an organized list to solve problems
- represent, order, and compare integers
- explain and apply the order of operations with whole numbers

Alberta Math Education Specific Concept (learning outcome): 3, 7 and 9.

Classroom assessment is generally divided into three types: *assessment for learning* (Diagnostic Assessment: D), *assessment of learning* (Summative Assessment: S), *assessment as learning* (F).

→ For lesson **extra practice**, please visit:

<http://www.nelson.com/mathfocus/grade6/student/tryout.html>

Lesson Outline:

Lesson	Textbook Lesson Title	Learning Goals	Task **	Done
1	3.1- Identifying Factors	Identify factors to solve problems. → Materials: counters and linking cubes	Scaffolding for Getting Started (D) <input type="checkbox"/> HW: Workbook (pg. 17) (F) → On line: Extra Practice	
2	3.2- Identifying Multiples	Identify multiples to solve problems. → Materials: rulers and counters	<input type="checkbox"/> HW: Workbook (pg. 18) (F) → On line: Extra Practice	
3	3.3- Prime and Composite Numbers	Identify prime and composite numbers. → Materials: counters	<input type="checkbox"/> HW: Workbook (pg. 19) (F) → On line: Extra Practice	
4	3.4- Identifying Factors by Dividing	Identify factors by dividing composite numbers by primes. → Materials: number cards 40 to 50	<input type="checkbox"/> HW: Workbook (pg. 20) (F) → On line: Extra Practice	
5	3.5- Creating Composite Numbers	Multiply combinations of factors to create composite numbers. → Materials: chart paper and markers	<input type="checkbox"/> HW: Workbook (pg. 21) (F) → On line: Extra Practice	
6	Mid-Chapter Review	Preparation for the quiz: Quiz Date: __/__/__(mm/dd/yyyy)	<input type="checkbox"/> Textbook: Pg. 87 # 1-7 (DOSO on letter) (F)	
7	3.6- Solving Problems Using an Organized List	Use an organized list to solve problems that involve number relationships. → Materials: 100 Chart	<input type="checkbox"/> HW: Workbook (pg. 22) (F) → On line: Extra Practice	
8	3.7- Representing Integers	Use integers to describe situations. → Materials: number lines	<input type="checkbox"/> HW: Workbook (pg. 23) (F) → On line: Extra Practice	
9	3.8- Comparing and Ordering Integers	Use a number line to compare and order integers. → Materials: number lines	<input type="checkbox"/> HW: Workbook (pg. 24) (F) → On line: Extra Practice	
10	3.9- Order of Operations	Apply the rules for order of operations with whole numbers. → Materials: a calculator	<input type="checkbox"/> HW: Workbook (pg. 25) (F) → On line: Extra Practice	
11	Chapter Review	Preparation for the test: Test Date: __/__/__(mm/dd/yyyy)	<input type="checkbox"/> Textbook: (F) → Pg. 103-104 (Q1 to Q14: DOSO on letter) → Workbook (pg. 16) <input type="checkbox"/> Handout: (S) → Chapter 3: Journal Questions → Unit Project (Textbook Pg. 105): A Block Dropping Game → Chapter 3: Self-Assessment: Lesson Goals → Review of Essential Skills: Chapter 3	

Here are some of the *Key Words* that are being used in this chapter:

*product *multiple *prime number *composite number *integer *opposite integers *rules for order of operations

** If the class work is not completed during class time, must be done for homework.

I have read and went over this "Number -Unit 1 Plan (Chapter 3)" with my child. JazakAllahu khayran

Parent/Guardian name (print)

Parent/Guardian signature

__/__/__(dd/mm/yyyy)



Address: 14525 127 ST, Edmonton, AB T6V 0B3 Phone: (780) 454-4573

RE: Chapter 3: Number Relationships Information Letter

As-salaamu Alaikum Wa Rahmatu Allahi Wa Barakaatuhu, ("Peace be unto you and so may the mercy of Allah and His blessings"),

Dear Respected Parents and Guardians of Grade 6:

Over the next three weeks, your child will be learning about identifying factors and multiples of numbers and how to determine whether a number is prime or composite. Your child will also learn how to represent, compare, and order integers, and will perform a series of calculations using the rules for order of operations. Your child will have many opportunities to apply knowledge of factors, multiples, and integers in solving realistic problems.

To reinforce the concepts your child is learning at school, you and your child can work on some at-home activities such as these:

- Have your child model factors of numbers less than 100 by putting numbers of items in equal groups. Your child can also calculate multiples of smaller numbers they encounter, such as the number of snack packages in three or four boxes.
- Your child can measure and record the daily high and low temperatures during the week and then place the temperatures on a number line. Have your child order the temperatures from coldest to warmest or warmest to coldest. Your child can also compare temperatures from different cities.
- Have your child solve any skill-testing questions found on cereal boxes or other contest entry forms, and have your child explain how he/she applied the rules for order of operations to arrive at the correct answer.

You may want to visit the Nelson website at

<http://www.mathk8.nelson.com/math6/studentcentre/studtryout.html>

for more suggestions to help your child learn mathematics and develop a positive attitude toward learning mathematics. As well, you can check the Nelson website for links to other websites that provide online tutorials, math problems, brainteasers, and challenges.

Sincerely,

Mustafizur Rahman, **ATA, OPC, OCT**
Ed.D (candidate), **MEd, BEd, BSc**
Grade 6 Math

Name: _____ Date: _____

Scaffolding for Getting Started Page 1

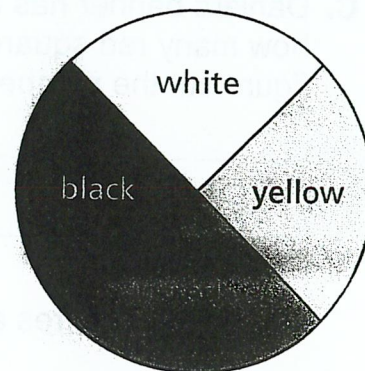
STUDENT BOOK PAGES 68-69

Banner Designs

Daniel is making a banner for Heritage Day. It has 30 squares.

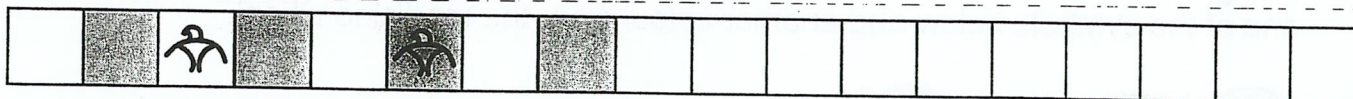
He coloured every second square red to represent one of the colours on an Aboriginal medicine wheel.

He drew a symbol to represent an eagle in every third square.



? How can you predict how many coloured squares will have a symbol on them?

- A.** Continue Daniel's banner to 18 squares.
Colour every second square red.
Sketch an eagle symbol in every third square.



- B.** Circle the red squares that have an eagle.
Why does the pattern 6, 12, 18, ... represent the red squares with an eagle?

How can you use a number pattern to predict the next red square with an eagle?

Name: _____ Date: _____

Scaffolding for Getting Started Page 2

STUDENT BOOK PAGES 68–69

- C. Daniel's banner has 30 squares. Suppose you want to figure out how many red squares have an eagle. How could you skip count to figure out the number of red squares with an eagle?

How many squares are there altogether? _____

Use your answers above to write a multiplication equation you could use to figure out how many red squares have an eagle.

How many red squares on Daniel's banner have an eagle symbol? _____

Explain what you did.

- D. Design a banner with a different number of squares on grid paper. Use one of the symbols below and another colour from the medicine wheel.



bear



drum

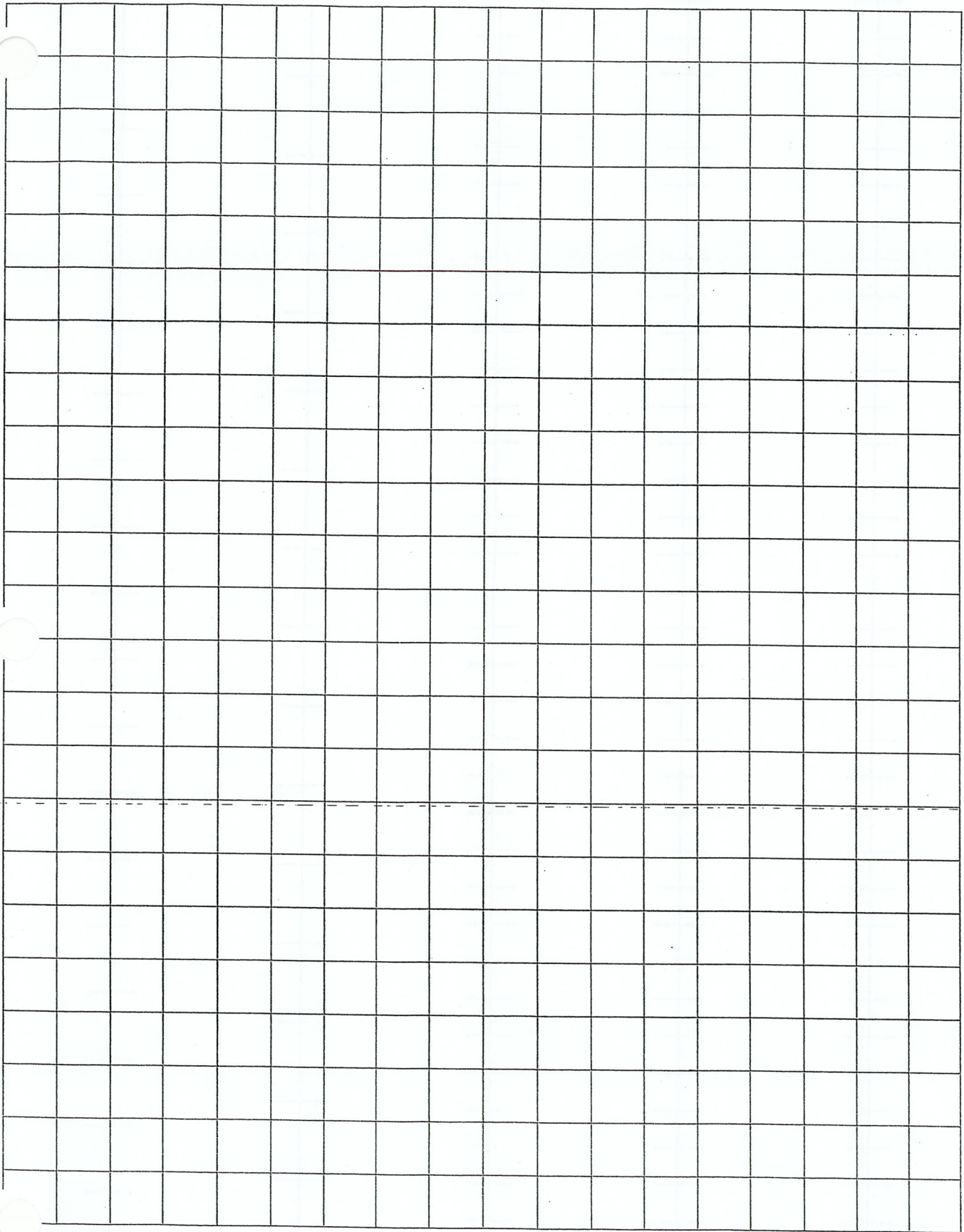


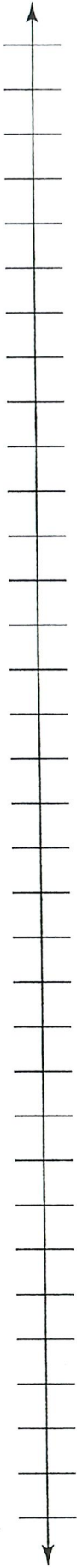
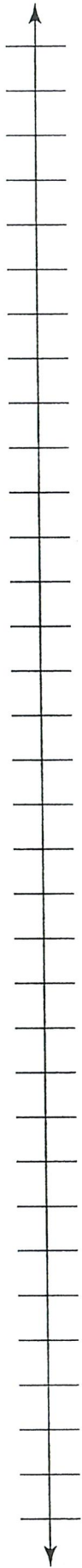
horse



fish

How can you predict the number of coloured squares that have a symbol on them?





Name: _____ Date: _____

Mid-Chapter Review—Frequently Asked Questions

STUDENT BOOK PAGES 86–87

Q: What are some ways to identify factors?

A: _____

Q: What are some ways to identify multiples?

A: _____

Q: How are prime and composite numbers different?

A: _____

Name: _____ Date: _____

Chapter Review—Frequently Asked Questions

STUDENT BOOK PAGE 102

Q: How can you represent and compare integers?

A: _____

Q: What are the rules for order of operations?

A: _____



Unit: Number
Chapter 3: Number Relationships

Journal Questions (Hint: Make sure to show all your work.):

1. Which list of numbers includes all the factors of 27?

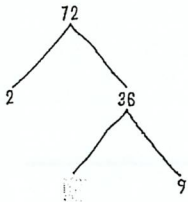
- A. 1, 2, 7, 27 B. 1, 3, 9, 27 C. 1, 2, 3, 9, 27 D. 3, 9

2. What are the first five multiples of 8?

- A. 16, 24, 32, 40, 48 B. 8, 10, 12, 14, 16 C. 8, 18, 28, 38, 48 D. 8, 16, 24, 32, 40

3. Which number is a prime number?

- A. 31 B. 28 C. 51 D. 42



4. Which number is missing in the factor tree at the left?

- A. 8 B. 4 C. 7 D. 6

5. Which statement is true?

- A. $+6 < +4$ B. $-3 < -7$ C. $-2 > +4$ D. $-6 < -4$

6. Calculate $15 + 5 \times 2 - 4$.

- A. 21 B. 36 C. 25 D. 32

Chapter 3: Number Relationships

Multiplication

The answer when you multiply is the **product**. The numbers you multiply are **factors**.

$$3 \times 6 = 18$$

\nwarrow \nearrow \uparrow
 factors product

1. Calculate each product.

a) $6 \times 5 =$ _____

g) $9 \times 7 =$ _____

m) $5 \times 9 =$ _____

b) $6 \times 9 =$ _____

h) $4 \times 6 =$ _____

n) $8 \times 0 =$ _____

c) $8 \times 7 =$ _____

i) $9 \times 3 =$ _____

o) $7 \times 8 =$ _____

d) $5 \times 4 =$ _____

j) $8 \times 8 =$ _____

p) $4 \times 9 =$ _____

e) $3 \times 8 =$ _____

k) $9 \times 9 =$ _____

q) $6 \times 6 =$ _____

f) $3 \times 9 =$ _____

l) $4 \times 7 =$ _____

r) $3 \times 6 =$ _____

Division

The answer in a division sentence is the **quotient**.

2. Calculate each quotient.

a) $64 \div 8 =$ _____

g) $35 \div 7 =$ _____

m) $33 \div 1 =$ _____

b) $56 \div 7 =$ _____

h) $45 \div 9 =$ _____

n) $40 \div 8 =$ _____

c) $81 \div 9 =$ _____

i) $72 \div 8 =$ _____

o) $56 \div 8 =$ _____

d) $54 \div 6 =$ _____

j) $49 \div 7 =$ _____

p) $27 \div 9 =$ _____

e) $28 \div 4 =$ _____

k) $63 \div 7 =$ _____

q) $48 \div 8 =$ _____

f) $32 \div 8 =$ _____

l) $36 \div 6 =$ _____

r) $36 \div 4 =$ _____

3. a) $2 \times 6 = 12$

b) $3 \times 5 = 15$

c) $4 \times 8 = 32$

$3 \times 6 =$ _____

$4 \times 5 =$ _____

$5 \times 8 =$ _____

$4 \times 6 =$ _____

$5 \times 5 =$ _____

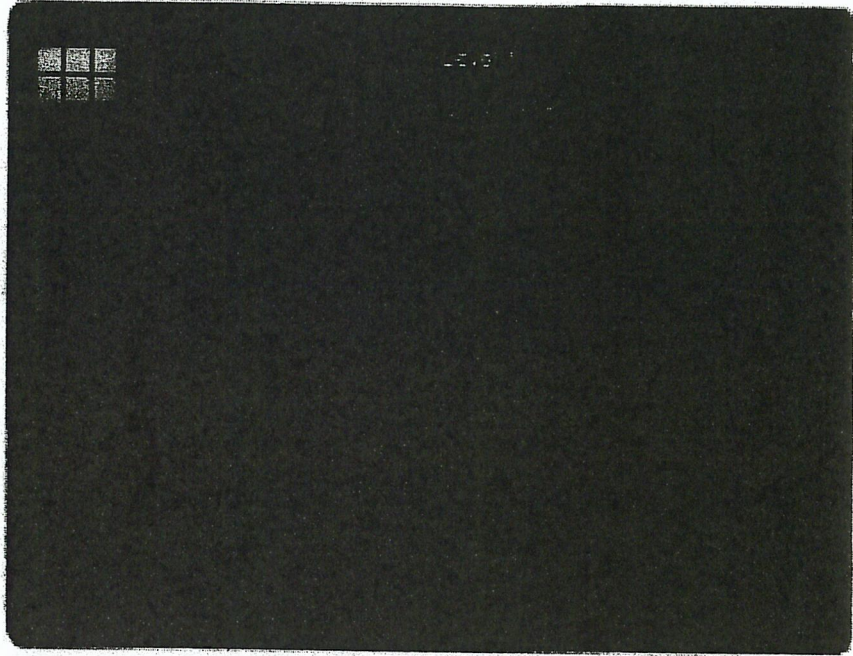
$6 \times 8 =$ _____

Chapter 3 Task Page 1

A Block Dropping Game

STUDENT BOOK PAGE 105

In a video game, blocks shaped like rectangles drop from the top of the screen. You grab blocks that you think could form a square. The computer copies the blocks you grab and tries to make the square.



Task Checklist

- Did you use factors or multiples to help solve the problem?
- Did you check your calculations?
- Did you include diagrams?
- Did you explain your thinking clearly?

? Which blocks should you grab to make the square?

Read the Task Checklist above before you begin.

A. How do you know copies of the 2-by-3 block can be used to make the 12-by-12 square? Use a diagram to explain.

Name: _____

Date: _____

Chapter 3 Task Page 2

B. Which of these blocks can be used to make the square?

- 3-by-4
- 2-by-5
- 1-by-2

C. Suppose that square blocks drop from the top of the screen. Which blocks would you grab? Explain.

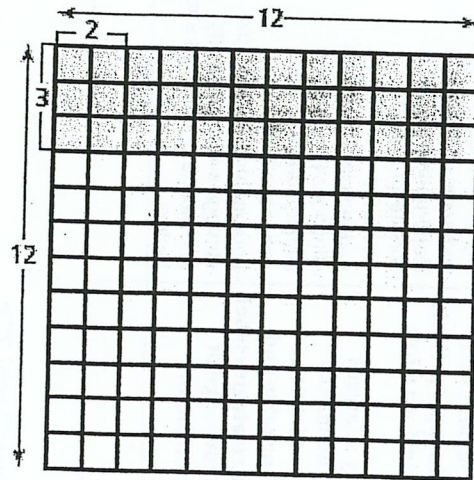
D. Design a similar video game with rectangular blocks and square blocks dropping from the top of the screen. How can a player decide which block to grab?



Chapter 3: Number Relationships

Chapter Task: A Block Dropping Game

A. I can use six copies of the 2-by-3 block to form the top row of the 12-by-12 square because 2 is a factor of 12. Then I can make three more rows like the first row to have a total of four rows, because 3 is also a factor of 12.





Chapter 3: A Block Dropping Game

Date: ___/___/___ (dd/mm/yyyy)

Term: H 1 H 2

Overall: Mark//Level: ___//___; Class Average: ___; Parent Signature: _____

Assessment type: H D H F H S

Name: _____

Criteria	Level	Excellent Level 4	Proficient Level 3 79% 65%	Adequate Level 2	Limited* Level 1	Insufficient/ Blank*
N3. Demonstrate an understanding of factors and multiples by		<ul style="list-style-type: none"> often draws insightful and logical conclusions and recognizes inappropriately drawn conclusions without prompting comprehensively analyzes situations and makes insightful generalizations chooses efficient and effective strategies when applying knowledge of multiples and factors 	<ul style="list-style-type: none"> in many situations, draws logical conclusions and recognizes inappropriately drawn conclusions when prompted completely analyzes situations and makes logical generalizations chooses workable and reasonable strategies when applying knowledge of multiples and factors 	<ul style="list-style-type: none"> sometimes draws simple, logical conclusions and sometimes recognizes inappropriately drawn conclusions when prompted superficially analyzes situations and makes simple generalizations chooses partially appropriate and workable strategies when applying knowledge of multiples and factors 	<ul style="list-style-type: none"> rarely draws conclusions from a mathematical situation and usually does not recognize inappropriately drawn conclusions is unable to analyze situations and make generalizations chooses inappropriate and/or unworkable strategies when applying knowledge of multiples and factors 	No score is awarded because there is insufficient evidence of student performance based on the requirements of the assessment task.
Days Late		0	1	2	3++	--Not Hand In
		(_/4)	(_/4)	(_/4)	(_/4)	

Teacher's Comments - Area for Growth and Action Plans (if below "level 2"):

please use the given time in the classroom wisely by asking questions to further clarify the assignment or focus on the task at hand. Also, you need to follow the sample work shown in the class (if applicable) as a guideline to achieve level 3 in this rubric.

Name: _____ Date: _____

Chapter 3 Self-Assessment: Lesson Goals

Place a check mark in the box that best describes your work.

Lesson Goals	Yes, on my own	Yes, with help	Sometimes/ Not sure	Not yet
I can identify factors to solve problems.				
I can identify multiples to solve problems.				
I can identify prime and composite numbers.				
I can identify factors by dividing composite numbers by primes.				
I can multiply combinations of factors to create composite numbers.				
I can use an organized list to solve problems that involve number relationships.				
I can use integers to describe situations.				
I can use a number line to compare and order integers.				
I can apply the rules for order of operations with whole numbers.				
<p>Choose one of your answers from above. Give your evidence.</p> <p>My evidence for _____ is</p> <p>_____</p> <p>_____</p> <p>_____</p>				

