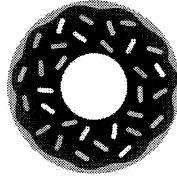


## Unit 2 - Task #1

### Part 1:

Terry bought 5 boxes of doughnuts with 6 in each box. How many doughnuts did Terry buy? Solve and explain this problem in at least two ways.



Terry bought a total of 30 doughnuts. I can multiply ( $5 \times 6 = 30$ ) or use repeated addition to solve the problem ( $6 + 6 + 6 + 6 + 6 = 30$ ).

I Can Statements:

1. I can understand the meaning of products of whole numbers.
2. I can solve word problems involving equal groups.

## Unit 2 - Task #1

### Part 2:

#### Math Task: Egg Tower – Student Recording Sheet

##### Part 1:

What do you notice in the picture?

I notice that there are 16 rows in the egg tower. Each row is made up of 3 egg cartons.

What questions come to your mind?

How many eggs are in each row?

How many cartons are there altogether?

##### Main Question:

How many eggs are in the egg tower?

What is your 1<sup>st</sup> estimate and why? (Answers may vary.)

On an empty number line, record an estimate that is too low and an estimate that is too high.



##### Part 2:

What information would you like to know or need to solve the MAIN question.

- 12 eggs per carton
- 3 cartons per layer
- 16 layers of cartons

Use this area to record your work, tables, calculations, sketches and final solution. Be able to explain how you came up with your solution.

There are 12 eggs per carton and 3 cartons per layer;  $12 \times 3 = 36$  eggs per layer. Next, multiply 36 eggs times the number of layers;  $36 \times 16$ . I can decompose 16 into  $10 + 6$  to make it easier to solve:

$$\begin{array}{r} 36 \times 16 \\ \quad \quad \quad \uparrow \\ \quad \quad \quad 10+6 \end{array}$$

##### Part 3:

What was the result?

There are 576 eggs in the tower.

$$36 \times 10 = 360$$

$$36 \times 6 = 216$$

$$36 \times 16 = 576$$

##### I Can Statements:

1. I can understand the meaning of products of whole numbers.

## Unit 2 - Task #2

### Part 1:

a) Starting with 9, list the first 10 multiples of 9.

9, 18, 27, 36, 45, 54, 63, 72, 81, 90

b) In the list in part (a) what patterns do you see with the digits in the 10's place? What patterns do you see with the digits in the 1's place?

The digits in the 10's place are increasing by 1.  
In the 1's place, the digits decrease by 1 each time.

c) Using pictures, words, or equations, explain the patterns you observed in part (b).

### Part 2:

a) Make a list of the first ten multiples of 3.

3, 6, 9, 12, 15, 18, 21, 24, 27, 30

b) Which of the numbers in your list are multiples of 6? What pattern do you see in where the multiples of 6 appear in the list?

The multiples of 6 are: 6, 12, 18, 24, and 30. The pattern is that every other multiple of 3 is also a multiple of 6.

c) Which numbers in the list are multiples of 7? Can you predict when multiples of 7 will appear in the list of multiples of 3? Explain your reasoning.

21 is a multiple of 7. In order to be a multiple of both 3 and 7, the number must be a multiple of 21: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42  
Multiples of 7 will appear in every 7th multiple.

### I Can Statements:

1. I can create a pattern that follows a given rule.
2. I can identify the other features of the pattern that are not stated in the rule.
3. I can explain the other features of the pattern that are not stated in the rule.

## Unit 2 - Task #3

### Valid Inequalities?

Decide if the equations are TRUE or FALSE. Explain your reasoning using pictures, numbers or words. If the equation is false, what changes can you make to make it true?

a)  $4 \times 5 = 20$  TRUE



b)  $34 = 7 \times 5$  FALSE

$35 = 7 \times 5$



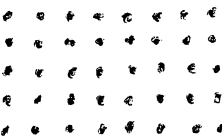
c)  $2 \times 2 \times 2 = 4 \times 2$  TRUE



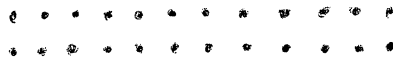
d)  $3 \times 6 = 6 \times 3$  TRUE



e)  $5 \times 8 = 10 \times 4$  TRUE



f)  $2 \times (3 \times 4) = (2 \times 3) \times 4$  TRUE



g)  $3 \times 7 = 7 \times 2$  FALSE

$3 \times 7 = 7 \times 3$



h)  $8 \times 6 = 7 \times 6 + 6$  TRUE

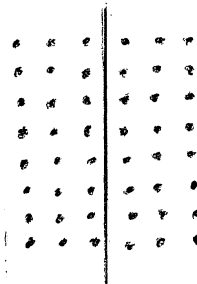


i)  $7 \times 7 = (5 \times 7) + (1 \times 7)$  FALSE

$7 \times 7 = (5 \times 7) + (2 \times 7)$



j)  $8 \times 6 = (8 \times 3) + (8 \times 3)$  TRUE



I Can Statements:

1. I can apply properties of operations to multiply whole numbers.

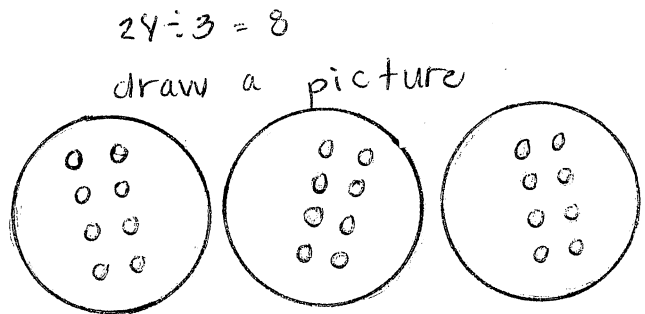
## Unit 2 - Task #4

### Part 1:

Samantha had 24 dolls. She wanted to put them equally on 3 shelves. How many dolls will be on each shelf? Solve and explain this problem in at least two different ways.

$$\begin{array}{r}
 24 \\
 -3 \\
 \hline
 21 \\
 -3 \\
 \hline
 18 \\
 -3 \\
 \hline
 15 \\
 -3 \\
 \hline
 12 \\
 -3 \\
 \hline
 9 \\
 -3 \\
 \hline
 6 \\
 -3 \\
 \hline
 3 \\
 -3 \\
 \hline
 0
 \end{array}$$

$24 \div 3 = 8$   
repeated subtraction



### Part 2:

Lia knows that  $4 \times 8 = 32$ . How can she use that fact to find the answer to the following problem?

32 crayons are divided into 4 packets. How many crayons are in each packet? 8

a) Write a division equation and explain your reasoning.

$$32 \div 4 = 8$$

Since I know that multiplication and division have an inverse relationship, if  $4 \times 8 = 32$  then  $32 \div 4 = 8$ .

b) Lia claims, "All division problems are missing factor problems." Is her claim true? Provide examples to support your answer.

Lia's claim is true if the missing factor and product are known.

I Can Statements:

1. I can understand the meaning of quotients of whole numbers.
2. I can understand the relationship between multiplication and division.

## Unit 2 - Task #5

### Part 1:

Part A: Jill picked 6 apples. Mark picked 4 times as many apples as Jill. How many apples did Mark pick? Write an equation (number sentence) to model this problem and solve.

$$6 \times 4 = n \quad (\text{multiplication problem})$$

$$n = 24$$

Mark picked 24 apples.

Part B: Mark picked 24 apples. He picked 4 times as many apples as Jill. How many apples did Jill pick? Write an equation (number sentence) to model this problem and solve.

$$24 \div 4 = n \quad (\text{partition division, group size is unknown})$$

$$n = 6$$

Jill picked 6 apples.

Part C: Mark picked 24 apples, and Jill picked only 6. How many times as many apples did Mark pick as Jill did? Write an equation (number sentence) to model this problem and solve.

$$24 \div 6 = n \quad (\text{measurement division, number of groups unknown})$$

$$n = 4$$

Mark picked 4 times as many apples as Jill.

Part D: What do you notice about the relationship between the equations from parts A, B, and C?

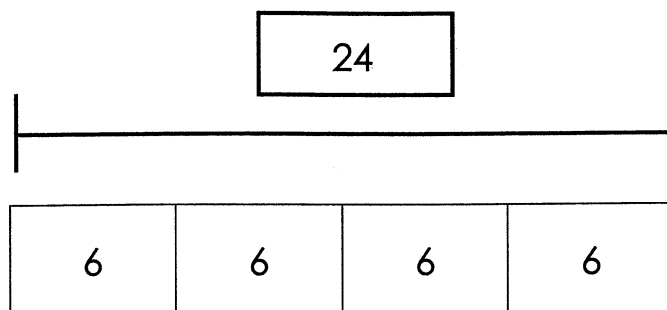
I Can Statements:

1. I can represent multiplication word problems using an equation with a variable.
2. I can represent division word problems using an equation with a variable.

## Unit 2 - Task #5

### Part 2:

Ava used the following model to solve a problem.



a) What equation does the model represent?

$$4 \times 6 = 24$$

b) Write a story problem to go with the model and equation. (Answers will vary.)

The new classroom has 4 tables with 6 chairs at each table. How many students can sit at the tables?

$$4 \times 6 = 24$$

24 students can sit at the tables.

I Can Statements:

1. I can represent multiplication word problems using an equation with a variable.
2. I can represent multiplication word problems using drawings.

## Unit 2 - Task #6

Use the following equation to create your own set of story problems. Your problems must show multiplication being used as a comparison. (Answers will vary.)

$$7 \times 3 = 21$$

1. Write a multiplicative story problem with a missing product.

Mary had 7 pages in her scrapbook with 3 pictures on each page. How many pictures did Mary have in her scrapbook?

$$7 \times 3 = n$$

$$n = 21$$

Mary had 21 pictures in her scrapbook.

2. Write a multiplicative story problem with the group size unknown.

Ann gave herself and six of her friends some candy. She had 21 pieces of candy to share equally. How many pieces of candy did each person get?

$$7 \times n = 21$$

$$n = 3$$

Each person received 3 pieces of candy.

3. Write a multiplicative story problem with the number of groups unknown.

Stacey has 21 stickers to put in her sticker book. She put 3 stickers on each of the remaining pages. How many pages does Stacey have left in her sticker book?

$$n \times 3 = 21$$

$$n = 7$$

Stacey has 7 pages left in her sticker book?

I Can Statements:

1. I can understand multiplication equation as a comparison.



## Unit 2 - Task #7

### Part 1:

Stacey gets two math problems on her homework.

Problem #1: George has 2 cats and his neighbor has 6 more cats than he has. How many cats does the neighbor have?

The neighbor has 8 cats,  $2 + 6 = 8$  (addition problem).

Problem #2: Matt has 2 fish and his friend has 6 times as many fish. How many fish does his friend have?

Matt's friend has 12 fish,  $2 \times 6 = 12$  (multiplication problem).

Stacey believes that these two problems will have the same solution. Do you agree or disagree? Explain your answer.

Stacey is incorrect. The problems will have different solutions because one is an addition problem and the other is a multiplication problem.

I Can Statements:

1. I can tell the difference between different comparison problems.

## Unit 2 - Task #7

### Part 2:

How are the equations for <sup>①</sup>4 is 2 more than 2 and <sup>②</sup>4 is 2 times as many as 2 different? Write an equation for each statement and explain your thinking.

①  $4 = 2 + 2$

This is an addition problem because you start with 2 and then you add 2 more to get a sum of 4.

②  $4 = 2 \times 2$

This is a multiplication comparison because you start with 2 but you are solving for 'two times as many' or 'twice as many' which means you multiply.

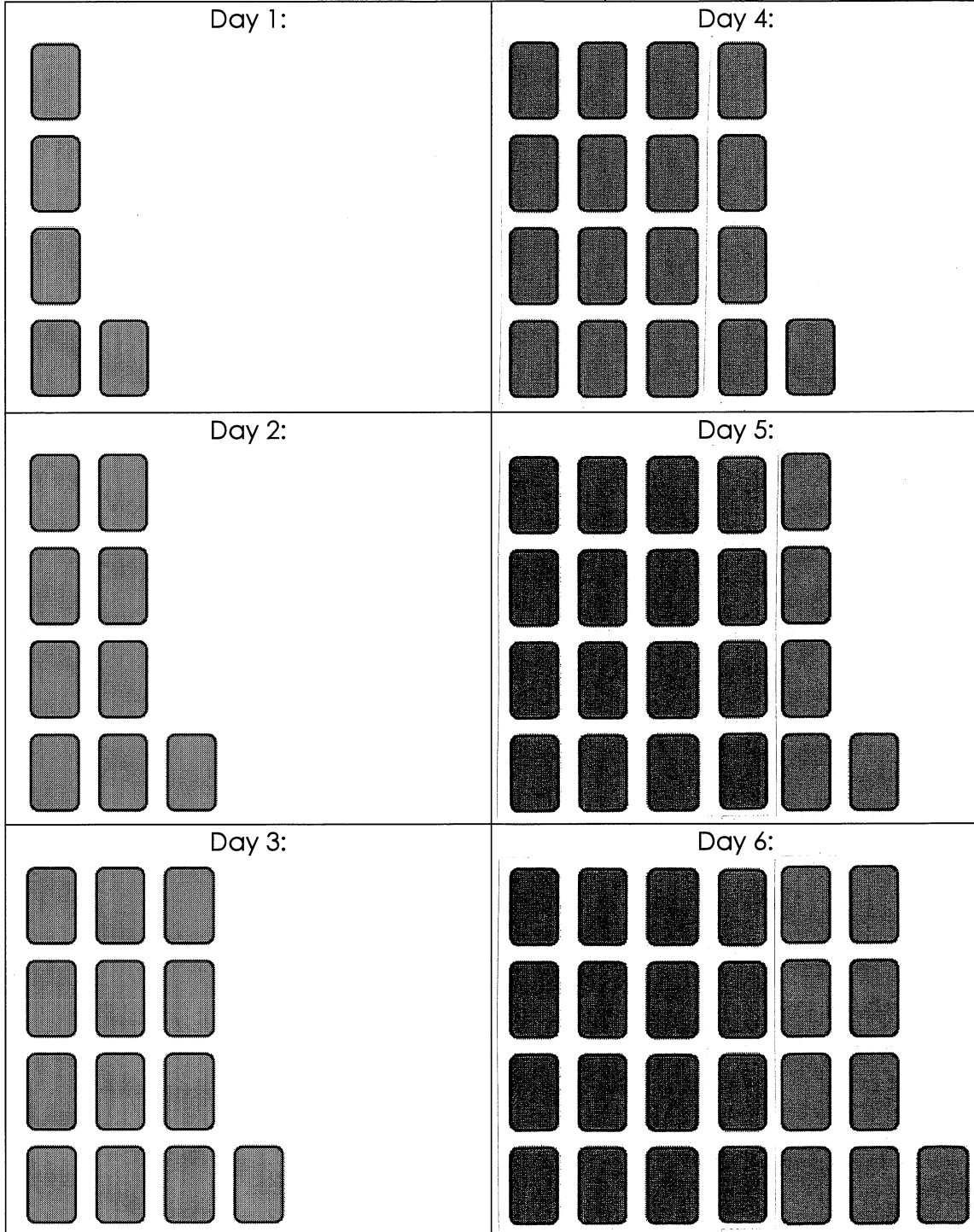
I Can Statements:

1. I can tell the difference between different comparison problems.

## Unit 2 - Task #8

### Earth Day Project

Fourth graders in Ms. Smith's class have decided to start a recycling project for Earth Day. They put a bin in the cafeteria to collect used aluminum cans. At the end of each school day, they take the bin back to their classroom and count the cans collected for the day. Ms. Smith's class is keeping notes about how many cans are being collected. It seems the number of cans collected each day follows a pattern. If the pattern continues, sketch the number of cans collected on days 4-6 in the boxes below.



I Can Statements:

1. I can create a pattern that follows a given rule.
2. I can identify the other features of the pattern that are not stated in the rule.
3. I can explain the other features of the pattern that are not stated in the rule.

## Unit 2 - Task #8

### Earth Day Project

The students recorded the number of cans they collected each day in the table below. When they collect one hundred cans, the students can turn them in to the recycling center and earn money to be used for an upcoming field trip. If the pattern continues how many days will it take to collect at least 100 cans?

It will take 25 days to collect at least 100 cans.

Day	Cans
1	5
2	9
3	13
4	17
5	21
6	25
7	29
8	33
9	37
10	41
20	81
100	401

1. Use what you know about the cans collected in the first five days to make a prediction about how many days it will take to collect at least 100 cans. Show your work and explain in words why you predicted the number of days that you chose.

Based on the data collected for the first five days, I predict that it will take 25 days to collect at least 100 cans. Since I know the pattern  $(n \times 4 + 1)$ , I can replace  $n$  with 25 ;  $(25 \times 4) + 1 = 101$ .

2. Continue the pattern in the table. Fill in the missing values. Explain how you found the missing values in the table.

I used the pattern  $n$  (number of days)  $\times 4 + 1$  to find the missing values.

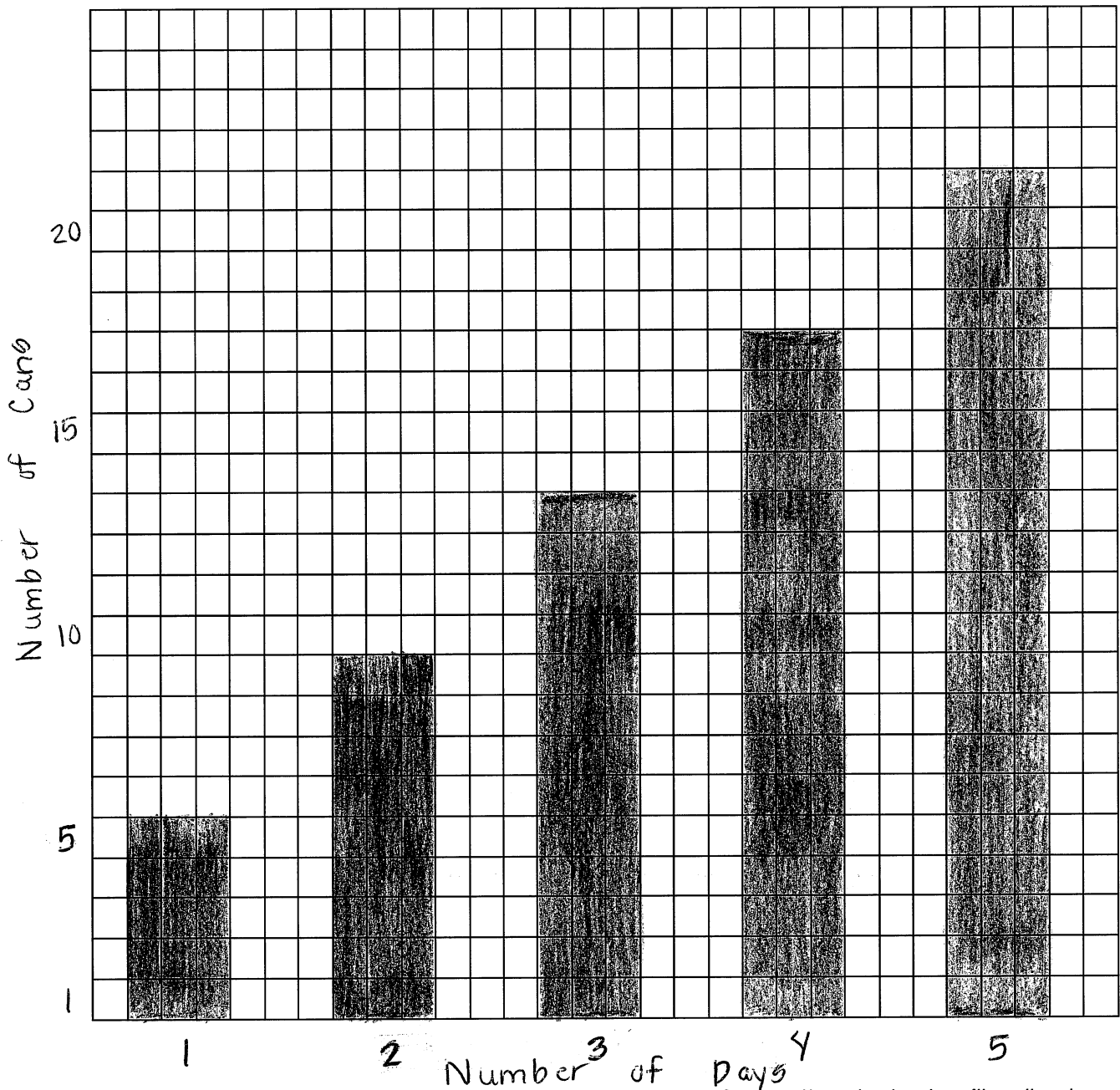
I Can Statements:

1. I can create a pattern that follows a given rule.
2. I can identify the other features of the pattern that are not stated in the rule.
3. I can explain the other features of the pattern that are not stated in the rule.

## Unit 2 - Task #8

### Earth Day Project

On the graph paper below, label the horizontal axis "Number of Days," label the vertical axis "Number of Cans." Create a bar graph of the number of cans collected each day for days 1-5.



If the pattern continues, use the graph to predict the number of cans the students will collect on the 25<sup>th</sup> day.

On the 25<sup>th</sup> day, students should collect 101 cans.

The pattern is the number of days times 4 plus 1.

Therefore  $(25 \times 4) + 1 = 101$  cans.

I Can Statements:

1. I can create a pattern that follows a given rule.
2. I can identify the other features of the pattern that are not stated in the rule.
3. I can explain the other features of the pattern that are not stated in the rule.