Name: _____ Date: _____

BLM 6–1

Chapter 6 Math Link Introduction

This worksheet will help you with the Math Link introduction on page 209.

A crash stop manoeuvre from "full ahead" to "full reverse" can stop a loaded supertanker in about 15 min within approximately 3 km. The table of values shows the speed of a supertanker during a crash stop.

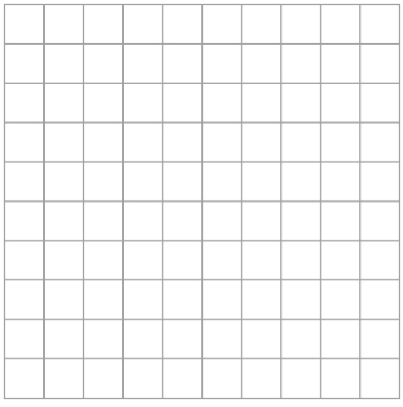
Time, *t* (min)	Speed, *s* (km/h)
0	30
3	24
6	18
9	12
12	6
15	0

1. a) What do you think the speed will be at 4 min? 5 min?

b) What do you notice about how the values change from one set of coordinate pairs to the next?

2. a) Use the grid to plot the coordinate pairs in the table of values.

- Label the *x*-axis Time (min). Decide on a scale.
- Label the *y*-axis Speed (km/h). Decide on a scale.
- Title the graph.
- Plot the coordinate pairs. The first one is (0, 30).



b) Why is time plotted on the *x*-axis?

c) Why is speed plotted on the *y*-axis?

d) Does the graph match the pattern you described in #1b)? YES NO
Explain.

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3. Write an equation to model the data on the graph.

Time, *t* (min)	Speed, *s* (km/h)	Pattern	
		Multiply *t* by _____	Add _____
0	30	0	30
1	28	–2	28
2	26		
3	24		
4	22		
5	20		
6	18		

a) The numerical coefficient is the difference between any two consecutive *s*-values. As *t* increases from 0 to 1, what is the change in the *s*-values ? Write this value in the title of the third column.

b) The constant is the difference between an *s*-value and the product of the corresponding *t*-value and the numerical coefficient. Try this using coordinate pair (0, 30). What is the constant? Write this value in the title of the last column.

c) Complete the two additional columns in the table to help determine the pattern. The first two lines are done for you.

d) Write the equation.

4. A smaller tanker can stop in less time. The equation $s = -3t + 30$, where *s* is speed in km/h and *t* is time in min, models stopping the smaller tanker.

a) What would be the speed of the tanker at 7 min? Show your work.

b) How much time would it take the tanker to slow down to 8 km/h? Show your work.

c) Compare your solutions with those of a classmate. Explain how you arrived at your answers.