

**Strand**Measurement and  
Trigonometry

Modelling Linear Relations

Quadratic Relations of the  
Form  $y = ax^2 + bx + c$ **Student Text Pages**

410–411

**Suggested Timing**

80–160 min

**Tools**

- Bristol board
- scissors
- tape
- coloured pencils or markers
- index cards
- grid paper
- calculators
- graphing calculators

**Related Resources**

BLM 9.T.1 Task: Design a Game  
Rubric  
BLM G1 Grid Paper

**Specific Expectations****Solving Problems Involving Surface Area and Volume, Using the Imperial and Metric Systems of Measurement\***

In this Task, students will

- Solve problems involving the surface areas of prisms, pyramids, and cylinders, and the volumes of prisms, pyramids, cylinders, cones, and spheres, including problems involving the combinations of these figures, using the metric system or the imperial system, as appropriate
- This is the only expectation addressed directly, however, since students write and answer questions from each chapter, any or all expectations are ultimately addressed

**Teaching Suggestions**

- Have supplies such as graphing calculators, Bristol board, scissors, tape, coloured pencils or markers, and index cards available for students to use.
- You may wish to distribute three copies of **BLM G1 Grid Paper**.
- Have students work in groups of three to complete the task.
- As a class, discuss how to approach the task. Discuss strategies on how the work can be divided within the group. For example:
  - One person designs the board, pieces, and spinner
  - One person develops the rules of play and instructions for the game
  - One person designs the game packaging, including the design of the box and calculations of surface area and volume of the box
  - All three group members are to develop the questions and answers to the game by assigning three chapters of the text to each person in the group

**Prompts for Getting Started**

- Have students clearly outline their duties for the task. You may wish to assess each individual as well as the group.
- Explain to students that the questions they create should be varied both in type (multiple choice, true/false, fill in the blank, short answer, full solution) and in level of difficulty.
- Ensure students understand that a complete solution is to be provided for each question.

**Hints for Evaluating a Response**

- Student work is being assessed for the level of mathematical understanding it represents. As you assess each group's work, consider the following questions:
  - How much assistance did students need to get started with the task?
  - How much assistance did students need to complete the task?
  - Did each group develop a variety of types of questions with different levels of difficulty?
  - Did the questions address the key concepts from the entire course?

**Level 3 Notes**

Look for the following:

- Uses concepts from all chapters to develop game questions
- Creates a variety of question styles with no assistance
- Creates questions with a variety of levels of difficulty with no assistance
- Demonstrates an understanding of material by supplying detailed and correct solutions to questions with no assistance
- Demonstrates proficiency in completing individual task in the project

### Ongoing Assessment

- Use **BLM 9.T.1 Task: Design a Game Rubric** to assess student achievement.

### Accommodations

**Language**—Pair students with weak language skills with other students with stronger language skills. Students with weak language skills may wish to design the game board or packaging.

**Motor**—Have students with motor difficulties prepare the instructions for the game or work with another student to design the game board or packaging.

### What Distinguishes Level 2

At this level, look for the following:

- Limited use of concepts from all chapters to develop game questions
- Creates a limited variety of questions styles with some assistance
- Creates questions with a limited variety of levels of difficulty with some assistance
- Demonstrates a limited understanding of material by supplying correct solutions to questions with some assistance
- Demonstrates a limited degree of proficiency in completing individual task in the project

### What Distinguishes Level 4

At this level, look for the following:

- Uses concepts from all chapters to develop game questions with no assistance
- Creates a wide variety of questions styles with no assistance
- Creates questions with a wide variety of levels of difficulty with no assistance
- Demonstrates a strong understanding of material by supplying detailed and correct solutions to questions with no assistance
- Demonstrates a high degree of proficiency in completing individual task in the project