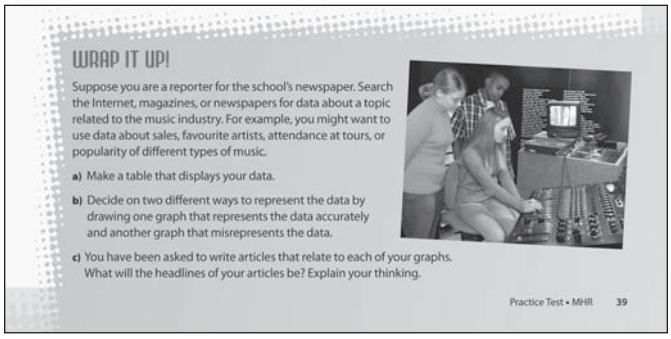
Wrap It Up!


WRAP IT UP!

Suppose you are a reporter for the school's newspaper. Search the Internet, magazines, or newspapers for data about a topic related to the music industry. For example, you might want to use data about sales, favourite artists, attendance at tours, or popularity of different types of music.

a) Make a table that displays your data.

b) Decide on two different ways to represent the data by drawing one graph that represents the data accurately and another graph that misrepresents the data.

c) You have been asked to write articles that relate to each of your graphs. What will the headlines of your articles be? Explain your thinking.

Practice Test • MHR 39

***MathLinks 8*, page 39**

Suggested Timing
40–50 minutes

Materials
- grid paper
- ruler
- coloured pencils
- calculator (optional)
- compass (optional)
- protractor (optional)

Blackline Masters
Master 1 Project Rubric
Master 8 Centimetre Grid Paper
Master 9 0.5 Centimetre Grid Paper
Master 12 Percent Circles
BLM 1–2 Chapter 1 Math Link Introduction
BLM 1–9 Section 1.1 Math Link
BLM 1–11 Section 1.2 Math Link
BLM 1–13 Section 1.3 Math Link
BLM 1–15 Chapter 1 Wrap It Up!

Specific Outcomes
SP1 Critique ways in which data is presented.

Planning Notes

Introduce the problem and clarify the assessment criteria. Encourage students to use any data related to the music industry that they may have researched for the Check Your Understanding questions and the Math Link for section 1.2. Emphasize the importance of producing complete and accurate graphs. Have students present their articles including the graphs, and then consider displaying their work in the classroom.

Meeting Student Needs

- Consider allowing students to use technology to help them complete the Wrap It Up!

Common Errors

- Some students may concentrate more on one aspect of the problem than another.

R_x Discuss the assessment rubric with students before they begin.

WWW Web Link

For information and graphs about music sales using different formats including vinyl, cassettes, CDs, and digital, go to www.mathlinks8.ca and follow the links.

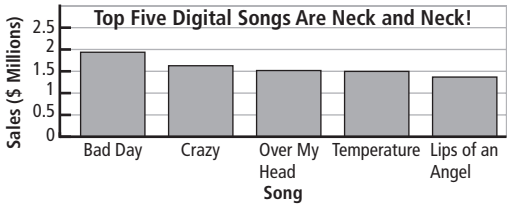
Answers

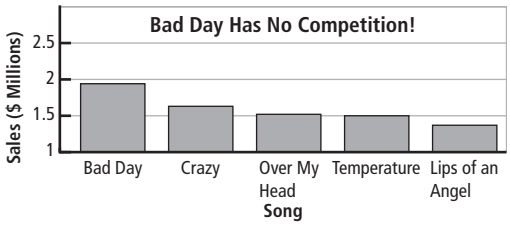
Wrap It Up!

a) Topics and resulting data tables will vary. Example:

Artist	Song	Sales (millions)
Daniel Powter	Bad Day	1.94
Gnarls Barkley	Crazy	1.63
Fray	Over My Head	1.52
Sean Paul	Temperature	1.5
Hinder	Lips of an Angel	1.28

b) Answers will vary. Example:





c) Answers will vary. Examples:
- The headline for the article with the accurate graph could be *Top Five Digital Songs Are Neck and Neck*!
- The headline for the article with the misleading graph could be *Bad Day Has No Competition*!

Assessment	Supporting Learning
Assessment *of* Learning	
Wrap It Up! This chapter problem wrap-up gives students an opportunity to demonstrate their understanding of representing and misrepresenting data on graphs. It is important for students to be able to explain their understanding. **Master 1 Project Rubric** provides a holistic descriptor that will assist you in assessing student work on this Wrap It Up! Page 41 in this TR provides notes on how to use this rubric for the Wrap It Up!	• Emphasize the importance of creating headlines that are informative and support the claim made in the related graph and article. • If students have not completed the Math Links earlier, you may wish to provide them with **BLM 1–2 Chapter 1 Math Link Introduction**, **BLM 1–9 Section 1.1 Math Link**, **BLM 1–11 Section 1.2 Math Link**, and **BLM 1–13 Section 1.3 Math Link**. • You may wish to have students use **BLM 1–15 Chapter 1 Wrap It Up!**, which provides scaffolding for the chapter problem wrap-up.

The chart below shows the **Master 1 Project Rubric** for tasks such as the Wrap It Up! and provides notes that specify how to identify the level of specific answers for the project.

Score/Level	Holistic Descriptor	Specific Question Notes
5 **(Standard of Excellence)**	❑ Applies/develops **thorough** strategies and mathematical processes making **significant** comparisons/connections that demonstrate a **comprehensive** understanding of how to develop a complete solution ❑ Procedures are **efficient and effective** and may contain a **minor mathematical error** that does not affect understanding ❑ Uses **significant** mathematical language to explain their understanding and provides **in-depth** support for their conclusion	• provides a complete and correct solution, which may contain a minor calculation error that does not affect the understanding of the problem
4 **(Above Acceptable)**	❑ Applies/develops **thorough** strategies and mathematical processes for making **reasonable** comparisons/connections that demonstrate a **clear** understanding ❑ Procedures are **reasonable** and may contain a **minor mathematical error** that may hinder the understanding in one part of a complete solution ❑ Uses **appropriate** mathematical language to explain their understanding and provides **clear** support for their conclusion	• provides a complete response but the graphs may be incorrectly or incompletely labelled *or* • provides a complete response with weak justification in part c)
3 **(Meets Acceptable)**	❑ Applies/develops **relevant** strategies and mathematical processes making **some** comparisons/connections that demonstrate a **basic** understanding ❑ Procedures are **basic** and may contain a **major error or omission** ❑ Uses **common** language to explain their understanding and provides **minimal** support for their conclusion	• provides complete and correct parts a) and b) with a minor error in the graphs (e.g., an incorrect value plotted or misused) *or* • provides a complete and correct part a) with a correct partial start to parts b) and c)
2 **(Below Acceptable)**	❑ Applies/develops **some relevant** mathematical processes making **minimal** comparisons/connections that lead to a **partial solution** ❑ Procedures are **basic** and may contain **several major mathematical errors** ❑ Communication is **weak**	• provides a complete and correct part a) and one graph in part b) *or* • provides a correct start to all three parts *or* • provides a complete and correct part b) based on an incorrect part a)
1 **(Beginning)**	❑ Applies/develops an **initial start** that may be **partially correct** or could have led to a correct solution ❑ Communication is **weak or absent**	• provides a correct or initial start to either table in part a), with information presented but not organized *or* • provides one complete and correct graph in part b) based on an incorrect part a)

Math Games

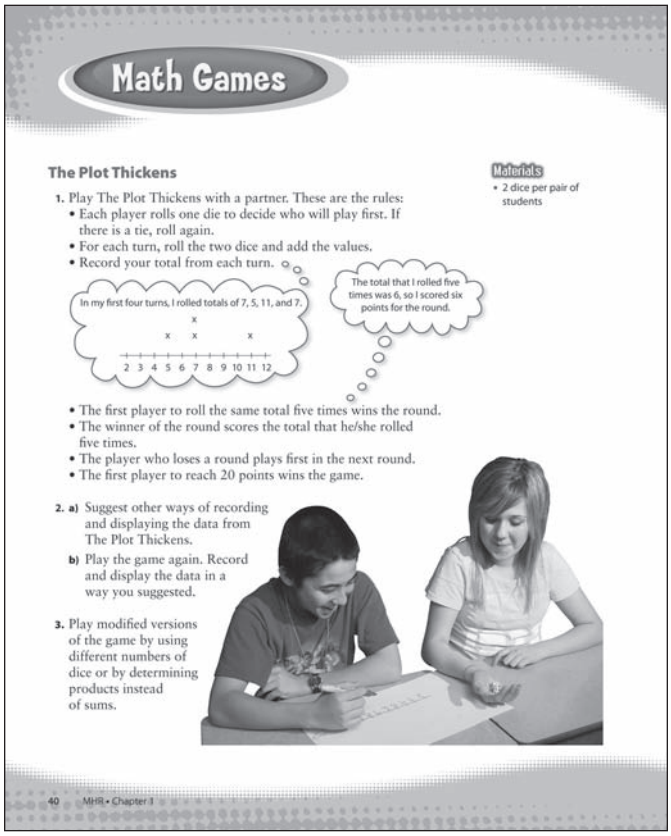
***MathLinks 8*, page 40**

Suggested Timing
30–40 minutes

Materials
- two dice per pair of students
- grid paper

Blackline Masters
Master 8 Centimetre Grid Paper
Master 9 0.5 Centimetre Grid Paper

Specific Outcomes
SP1 Critique ways in which data is presented.


Math Games

The Plot Thickens

Materials
- 2 dice per pair of students

1. Play The Plot Thickens with a partner. These are the rules:
   - Each player rolls one die to decide who will play first. If there is a tie, roll again.
   - For each turn, roll the two dice and add the values.
   - Record your total from each turn.

In my first four turns, I rolled totals of 7, 5, 11, and 7.

2 3 4 5 6 7 8 9 10 11 12

The total that I rolled five times was 6, so I scored six points for the round.

   - The first player to roll the same total five times wins the round.
   - The winner of the round scores the total that he/she rolled five times.
   - The player who loses a round plays first in the next round.
   - The first player to reach 20 points wins the game.

2. a) Suggest other ways of recording and displaying the data from The Plot Thickens.
   b) Play the game again. Record and display the data in a way you suggested.
3. Play modified versions of the game by using different numbers of dice or by determining products instead of sums.

40 MHR • Chapter 1

Planning Notes

In this game, students add numbers quickly. Before having students play the game, you may wish to read the directions as a class and then play a demonstration round. Consider having additional dice on hand for modified versions of the game. Instead of having students play until a player reaches 20 points, you may want to have the player with the highest score in each pair declared the winner after a predetermined time.

Meeting Student Needs

- Allow students with motor difficulties to use spreadsheet software to display the data.

Assessment	Supporting Learning
Assessment *for* Learning	
The Plot Thickens Have students play the game with a partner.	• Students may consider using a tally chart to record the data.

Challenge in Real Life

***MathLinks 8*, page 41**

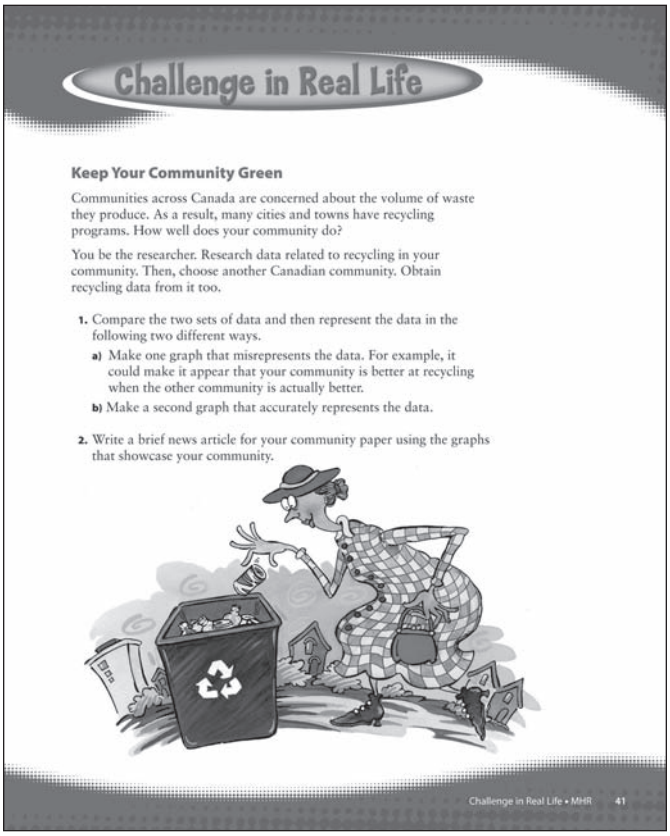
Suggested Timing
40–50 minutes

Materials
- computer with Internet access
- grid paper
- ruler
- coloured pencils
- calculator (optional)
- compass (optional)
- protractor (optional)

Blackline Masters
Master 1 Project Rubric
Master 8 Centimetre Grid Paper
Master 9 0.5 Centimetre Grid Paper
Master 12 Percent Circles (optional)

Mathematical Processes
- ☑ Communication (C)
- ☑ Connections (CN)
- ☐ Mental Mathematics and Estimation (ME)
- ☑ Problem Solving (PS)
- ☑ Reasoning (R)
- ☑ Technology (T)
- ☐ Visualization (V)

Specific Outcomes
SP1 Critique ways in which data is presented.


Challenge in Real Life

Keep Your Community Green

Communities across Canada are concerned about the volume of waste they produce. As a result, many cities and towns have recycling programs. How well does your community do?

You be the researcher. Research data related to recycling in your community. Then, choose another Canadian community. Obtain recycling data from it too.

1. Compare the two sets of data and then represent the data in the following two different ways.
   a) Make one graph that misrepresents the data. For example, it could make it appear that your community is better at recycling when the other community is actually better.
   b) Make a second graph that accurately represents the data.
2. Write a brief news article for your community paper using the graphs that showcase your community.

Challenge in Real Life • MHR 41

Planning Notes

In advance, you may wish to book the computer lab in order for students to research data related to recycling from their community and one other Canadian community.

You may wish to use the following steps to introduce and complete this challenge:

1. Introduce the challenge by exploring as a class the ways that their community recycles.
2. Read through the challenge as a class.
3. Clarify that the task is to
   - research data related to recycling from the student's community and one other Canadian community
   - compare the two sets of community recycling data by representing the data in two different ways:
     – make one graph that misrepresents the data
     – make one graph that accurately represents the data
   - write a news article using the graphs that showcase the student's community

   Note: Students must provide a copy of their data in their article or as a separate piece of information.
4. Review the **Master 1 Project Rubric** with students so that they will know what is expected.

Meeting Student Needs

- Encourage concrete learners to make visual representations of the data. For example, they might use drawings of recycled bottles to represent recycling.

Gifted and Enrichment

- This activity lends itself well to the creative capacity of gifted students. You might ask students to create misleading graphs and articles using data about specific pollutants in their community or a nearby community. The Web Link on this page provides information about one site that will provide relevant information.

Web Link

For information about the National Pollutant Release Inventory, go to www.mathlinks8.ca and follow the links.

This challenge can be used for either Assessment *for* Learning or Assessment *of* Learning.

Assessment	Supporting Learning
Assessment *for* Learning	
Keep Your Community Green Discuss the challenge as a class. Have students provide individual responses.	• Consider allowing students to work with a partner and then write individual responses. • For a second challenge, complete with teaching notes and student exemplars, go to www.mathlinks8.ca, access the online Teacher Centre, go to Assessment, and then follow the links.
Assessment *of* Learning	
Keep Your Community Green Introduce the challenge to the class. Have students provide individual responses.	• **Master 1 Project Rubric** provides a holistic descriptor that will assist you in assessing student work on this challenge. Page 45 provides notes on how to use this rubric for the challenge. • To view student exemplars, go to www.mathlinks8.ca, access the online Teacher Centre, go to Assessment, and then follow the links.

The chart below shows the **Master 1 Project Rubric** for tasks such as the Challenge in Real Life and provides notes that specify how to identify the level of specific answers for this project.

Score/Level	Holistic Descriptor	Specific Question Notes
5 **(Standard of Excellence)**	❑ Applies/develops **thorough** strategies and mathematical processes making **significant** comparisons/connections that demonstrate a **comprehensive** understanding of how to develop a complete solution ❑ Procedures are **efficient and effective** and may contain a **minor mathematical error** that does not affect understanding ❑ Uses **significant** mathematical language to explain their understanding and provides **in-depth** support for their conclusion	• provides a complete and correct solution
4 **(Above Acceptable)**	❑ Applies/develops **thorough** strategies and mathematical processes for making **reasonable** comparisons/connections that demonstrate a **clear** understanding ❑ Procedures are **reasonable** and may contain a **minor mathematical error** that may hinder the understanding in one part of a complete solution ❑ Uses **appropriate** mathematical language to explain their understanding and provides **clear** support for their conclusion	• provides a complete response with at most two graphing errors in labelling or plotting data *or* • provides a complete response with weak communication or the data is not identified in #2 *or* • provides a complete response but one graph has a minor error in interpretation (e.g., does not completely address the accurate representation or misrepresentation of data), which does not affect the conclusion
3 **(Meets Acceptable)**	❑ Applies/develops **relevant** strategies and mathematical processes making **some** comparisons/connections that demonstrate a **basic** understanding ❑ Procedures are **basic** and may contain a **major error or omission** ❑ Uses **common** language to explain their understanding and provides **minimal** support for their conclusion	• provides a complete and correct response to #1 *or* • provides a complete and correct response for one set of data *or* • provides completed graphs with no data identified, and an article that is weak in addressing comparisons and conclusions from the graphs
2 **(Below Acceptable)**	❑ Applies/develops **some relevant** mathematical processes making **minimal** comparisons/connections that lead to a **partial solution** ❑ Procedures are **basic** and may contain **several major mathematical errors** ❑ Communication is **weak**	• presents two sets of data accurately and completes #1 *or* • presents two sets of data accurately and completes #2
1 **(Beginning)**	❑ Applies/develops an **initial start** that may be **partially correct** or could have led to a correct solution ❑ Communication is **weak or absent**	• represents one set of data *or* • identifies two sets of data but does not proceed beyond this point

For student exemplars, go to www.mathlinks8.ca and follow the links.