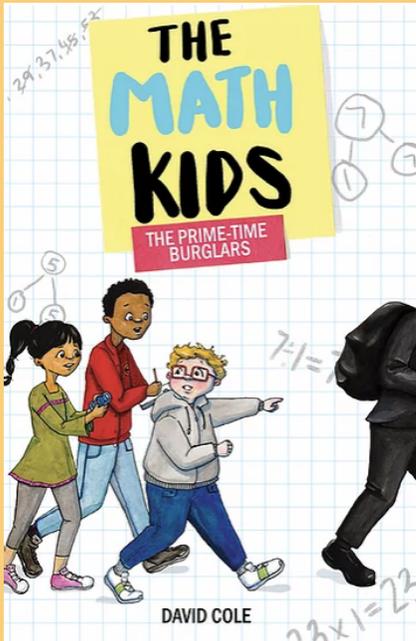


The Prime Time Burglars

Written by David Cole

Illustrated by Shannon O'Toole

Teaching Guide written by Nicole Ruegg



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Grade Level

This teacher guide is recommended for students in grades 4, 5, and 6.

About the Author

David Cole has been interested in math since he was a very young boy. He pursued degrees in math and computer science and has shared this love of math at many levels, including teaching at the college level, coaching elementary math teams, and running a summer math camp. He also has a love of writing and has written a number of plays that have been performed. *The Math Kids* was born of a desire to combine his interests and exercise both sides of his brain at the same time.

About the Illustrator

Shannon O'Toole is a Toronto based illustrator, painter, and elementary school teacher. Her playful illustration work is inspired by the unique and humorous characters in her life. Aside from illustrating books for children, Shannon has exhibited her artwork in galleries across Ontario. When she is not drawing, Shannon can be found curled up with her dog, Edgar, watching old movies.

Book Summary

Jordan and Justin are best friends and the only two kids in their class's advanced math group, so it isn't until Stephanie Lewis marches into their classroom that they meet someone who's as good with numbers as they are. Their shared interest in math quickly draws them together, and the three soon form The Math Kids. Unfortunately, life as math club kids isn't always easy. In addition to extra homework, the three friends have two new problems. First, a string of mysterious burglaries has the whole neighbourhood on edge, including their parents. Then, they manage to earn unwanted attention from Robbie, the class bully. Luckily, Jordan, Justin, and Stephanie soon learn that their new club may give them the skills they need to solve both problems.

How to Use this Teaching Guide

The purpose of this teaching guide to *The Math Kids: The Prime-Time Burglars* is to help teachers take concepts from the book and create lessons and activities that allow students to engage in critical thinking and creative problem-solving.

The content of this book lends itself strongly to the math curriculum but can also be used to develop cross-curriculum lessons. Some of the lessons in this guide connect to specific chapters of *The Prime Time Burglars* but the lessons/activities themselves are more generalized and can be modified to fit the strengths, interests, and needs of students.

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DINNER FOR 8

Grade 5 Math - Mathematical Modelling and SEL Skills

Lesson Summary:

In this lesson, students will work in small teams to solve the logic puzzle from chapter 3 of *The Prime Time Burglars*. Students will then participate in a gallery walk and observe how other groups solved the problem. This lesson has strong ties to the Grade 5 Mathematical Modelling curriculum expectations and can also be used as an opportunity to teach students about Social-Emotional Learning (SEL) skills such as maintaining positive motivation and perseverance and developing effective communication skills.

Instructions:

1. Introduce the problem and the seating requirements to students; could be done immediately after reading chapter 3 of *The Prime Time Burglars*.
2. Hand out reference sheet and divide students into small groups to work on the problem.
3. After students have had an opportunity to work on the problem, have students participate in a gallery walk, allowing them to see the work/answers from other groups.
4. Regroup and discuss possible answers with the class; discussion should reveal that there is more than one way to solve the problem.
5. Discuss that there is more than one way to answer many math problems and read chapter 4 of *The Prime Time Burglars*, which correlates with this discussion.

Expansions and Extensions:

- Students could be asked to find additional seatings that meet all the requirements.
- Challenge students to find the maximum number of seating charts that could be made.
- Have students reflect on the strategies that they used to solve this problem in an exit card that can be used by both the students and the teacher to learn more about their mathematical processing skills.
- Students could continue to practice solving logic problems and then make their own that could be shared with the class.

Technological Integrations:

There are numerous websites that have logic puzzles for students to work on during their free time. Some are words problems while others use a grid. Links to some useful sites are listed on the resources page.

Lesson Summary:

In this lesson, students will be participating in a drama strategy called voice-over narration in order to discuss the topic of bullying, found in the grade 4 physical education curriculum. Voice over narration is a strategy that can be used in order to reach students whose learning intelligence may not be linguistic while teaching Language Arts. The teacher will read the book out loud to the class and the students will draw images based on what they hear in the story. Students can draw anything that they visualize in their minds as they listen to the text being read. After listening, students will share what they drew and discuss examples of bullying, how to deal with bullying, and emotions surrounding bullying with the class.

Instructions:

1. Give students a piece of paper and a writing instrument.
2. Have students draw images based on what they hear in *The Prime Time Burglars* as it is read aloud. These can be pictures of characters, imagery described, emotions, etc.
3. When the chapter is finished, have students discuss what they drew during the chapter.
4. As this chapter focuses specifically on the main characters' relationships with the class bullies, the concept of bullying in connection to the Grade 4 Physical Education curriculum will be discussed.
5. Ask students what emotions they think the characters were feeling during the story. Why do they think the characters would be feeling this way? What examples of bullying did the students see in chapter four? Ask students what advice they would give to the novel's characters for dealing with the bullying situation.

Expansions and Extensions:

- Students could be tasked with writing a letter or paragraph of advice to one of the characters in the story.
- The drawings/illustrations students created while listening to this chapter can be carried over to additional tasks connected to the text such as summarizing or finding the main idea in Language Arts.

Technological Integrations:

- If available, a document camera can be used with a projector to give all students the opportunity to clearly see the drawing being discussed.

Lesson Summary:

In this lesson, students will explore their surroundings and search for examples of shapes and angles using a shape scavenger hunt. Relating to chapter 7 in *The Prime Time Burglars*, students will be given a scavenger hunt sheet and time to find shapes they have previously learned about, in connection with Grade 4 spatial sense expectations. Students can share their findings with each other, search for as many examples as possible, and describe the characteristics of the shapes they find as they go.

Instructions:

1. As a class, brainstorm shapes and angles that can be found in the world based on students' prior learning (discuss shapes and types of angles they have already learned about).
2. After discussion, give students a scavenger hunt page that shows a variety of shapes and angles.
3. Give students time to explore an area (classroom, playground, etc.) and search for examples of each of the shapes on their scavenger hunt pages.
4. Call students back and have them share where they found examples of each shape/angle.

Expansions and Extensions:

- Students who finish quickly can be challenged to find multiple examples of each shape/angle.
- Take students to another location and have them search for shapes without a scavenger hunt guide.
- Give students a take home scavenger hunt to look for shapes in their home. Can they find different shapes and angles in different rooms?

Technological Integrations:

- Students can use Google Earth to search for shapes and angles in their neighbourhood or city.
- Students can then screenshot their findings from Google Earth and upload them to a class document (using Google Slides or Google Jamboard) or to a shared class board using sites like Padlet (<https://padlet.com/>).

Lesson Summary:

In this lesson, students will work on creating and solving repeating, growing, and shrinking patterns. Students will first work to solve the pattern in chapter 10 of *The Prime Time Burglars*. Using that pattern as an example, students will co-create success criteria and then create their own patterns using manipulatives or equations in connection with the Grade 6 Patterns and Relationships curriculum expectations.

Instructions:

1. While reading chapter 10 of *The Prime Time Burglars*, stop and give students the opportunity to try to figure out the burglar's pattern.
2. Once students figure out the pattern, individually or collectively, introduce the activity of creating their own patterns.
3. Have students co-create success criteria for this activity, stressing the importance of creating repeating, growing, or shrinking patterns using a variety of representations.
4. Have each student work individually to create their own patterns using manipulatives, graphs, equations, etc.
5. Once students have created patterns that meet the success criteria, allow students to explore and solve their peers' patterns.
6. Regroup and have a class discussion about the patterns they solved. Ask students which patterns they liked, which they found challenging, and where they can see patterns in everyday life.

Expansions and Extensions:

- Students can be given the opportunity to create more than one pattern; encourage students to create repeating, growing, and shrinking patterns.
- If students are finished creating and solving patterns quickly, challenge them to think about where they can find patterns in everyday life.

Technological Integrations:

Instead of using physical manipulatives, students can utilize a wide variety of websites that have virtual math manipulatives (links can be found on this guide's resource page). Students can use different manipulatives, such as algebra tiles, number tiles, fraction bars/strips, and pattern blocks on these sites to create their patterns.

Lesson Summary:

In this lesson, students will create a fictional news report about the burglars getting caught at the end of *The Prime Time Burglars*. Students will be divided into groups, choose which characters should be involved in the news report, write a short script, rehearse, and deliver their news report to the class. This lesson focuses on the Grade 5 Oral Communication expectations but can also be tied into the drama curriculum.

Instructions:

1. Co-create success criteria for this activity with class. What information should your group's news report include? What characters should be included?
2. Guide students through the activity's stages (choosing characters and roles, writing a short script, rehearsing, etc.).
3. Divide students in to groups, keeping each student's strengths and areas for improvement in mind.
4. Give students time to write their scripts and practice; this activity could be done quickly in one day or stretched over several days as a summative assessment.
5. Have students present their news reports to the class!

Expansions and Extensions:

- Level of difficulty can be increased by determining a certain length that each group's news report needs to be.
- Challenge students to identify differences between different types of oral communication such as language and non-verbal cues used in a news report compared to the language and non-verbal cues used in everyday conversation.

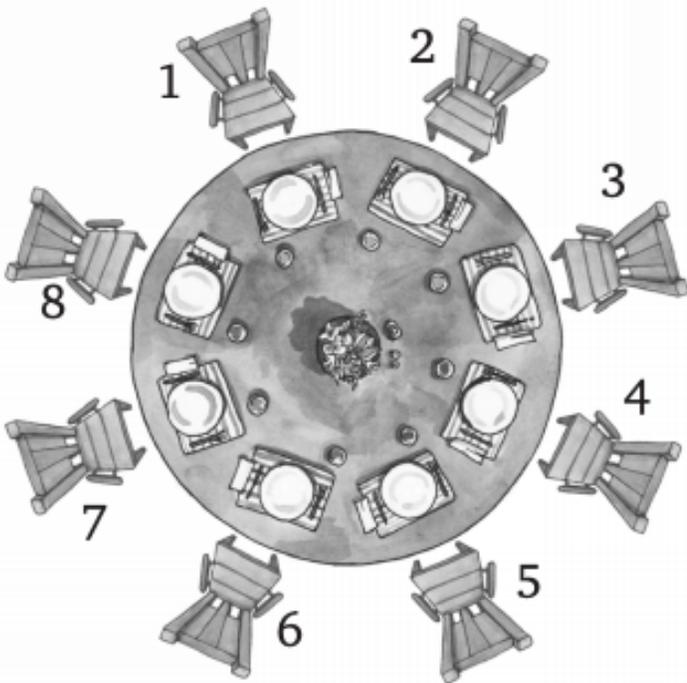
Technological Integrations:

- Students could record their news reports in a variety of formats such as a video recording or a podcast.
- Students could use movie or video editing apps they are familiar with to add graphics or sound effects to their recordings.

DINNER FOR EIGHT HANDOUT

Using the rules and seating picture below, try to find a way to seat all eight people around the table. How many different solutions can you find? What strategies did you use to solve this problem?

Amy and Linda have to sit together
Brad and Beth have to sit together
Charles has to sit by either Debbie or Emily
Frances has to sit by Debbie
Amy and Linda can't sit by Brad or Beth
Charles can't sit by Brad
Frances can't sit by Brad
Debbie and Emily can't sit together
Amy can't sit by Charles



URL Links, Resources, and References:

Manipulatives and Math Resources

Toy Theatre Math Manipulatives: <https://toytheater.com/category/teacher-tools/virtual-manipulatives/>

Mathigon Math Manipulatives: <https://mathigon.org/polypad>

Geogebra: <https://www.geogebra.org/>

Didax Math Manipulatives: <https://www.didax.com/math/virtual-manipulatives.html>

Logic Puzzles

Woo Jr.: <https://www.woojr.com/printable-logic-puzzles-for-kids/>

Brainzilla: https://www.brainzilla.com/logic/logic-grid/?utm_source=logicgrid-pdf&utm_medium=redirect&utm_campaign=short-link

Math is Fun: <https://www.mathsisfun.com/puzzles/logic-puzzles-index.html>

Puzzle Baron: <https://logic.puzzlebaron.com/init.php>

Aha! Puzzles: <https://www.ahapuzzles.com/logic/logic-puzzles/>

Curriculum Documents

Math (2020) Curriculum: <https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics>

Language Arts (2006) Curriculum:

<http://www.edu.gov.on.ca/eng/curriculum/elementary/language18currb.pdf>

Physical Education (2019) Curriculum:

<http://www.edu.gov.on.ca/eng/curriculum/elementary/2019-health-physical-education-grades-1to8.pdf>

Other

Common Deer Press: <https://www.commondeerpress.com/>

The Prime Time Burglars: <https://www.commondeerpress.com/product-page/the-math-kids-the-prime-time-burglars>

Padlet: <https://padlet.com/>

