
Reading Different Text Forms: Reading Informational Texts

MATHEMATICS

Informational text forms (such as explanations, reports, news articles, magazine articles, and instructions) are written to communicate information about a specific subject, topic, event, or process. These texts use vocabulary, special design elements, and organizational patterns to express ideas clearly and make them easier to read. Providing students with an approach to reading informational texts helps them to become effective readers.

Purpose

- Become familiar with the elements and features of informational texts used in any course.
- Explore a process for reading informational texts, using a range of strategies for before, during, and after reading.

Payoff

Students will:

- become more efficient at “mining” the text for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- Students often read informational texts as part of their mathematics instruction.
- Some features of informational texts are headings, subheadings, summaries, photos, screen captures of technology, diagrams, calculations, graphs, terminology, symbols, and data tables. Together, these features support readers in accessing meaning in different ways.
- Accompanying diagrams, calculations, and tables are alternate representations of mathematics and are integral to the meaning of the whole text.
- Many informational texts use visual elements (e.g., typeface, size of type, colour, margin notes, photographs, diagrams) to emphasize concepts, terminology, and symbols. The reader can use these visual elements in scanning text for particular information, in understanding the organizational structure of the text, and in relating different information elements of the text to one another. For example, the slope of a line could be explained in a definition, the line segment on a graph could be highlighted and coloured, and then the slope could be shown in a sidebar as a ratio calculation of the rise length to the run length.
- Informational text that contains mathematics often can and should be read in different directions (e.g., left to right, right to left, top to bottom, diagonally), according to the purposes of the reader.
- Recognize that students often need to read text and related visuals concurrently (e.g., a newspaper article with information that is also displayed in a graph).
- See Student Resource, *Tips for Reading Mathematics Informational Texts*.

Further Support

- Refer to the strategy, *Analyzing the Features of a Text*, to help students see the recurring organization of the text. Such predictability of structure helps students to skim and scan text confidently.

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What teachers do

Before

Before reading, students need to connect new content and ideas to their prior knowledge of the topic.

- Have students compare and contrast the organizational structure of the text to previous texts they have read. Identify the purposes of those structural features (e.g., to give an overview, to clarify with a picture).
- Describe prior reading strategies that students used to read mathematics texts with a similar organizational structure.
- Prompt the students to brainstorm and explain mathematical ideas, drawings, and symbols that they already know and that relate to the topic.
- Pose questions to students before they read, to help them determine a purpose for reading.
- Model (using a Think Aloud) how to predict the content based on features of the text, specialized vocabulary, illustrations, introductory information or personal experiences. Skim, scan, and sample the text to make informed predictions about the text's meaning.

During

During reading, prompt students to discuss and connect the information and ideas in the text to what they already know as they monitor their understanding. (*Monitoring their understanding* means recognizing when confusion occurs and identifying strategies that help to regain meaning.)

- Have students model reading strategies they might use, such as predicting, questioning, activating prior knowledge, inferring, monitoring, adjusting, rereading, and decoding.
- Model strategies (e.g., Think Aloud) for pausing and thinking about the text. Encourage students to chunk the text, read, pause, think and ask questions or make notes about the section of the text and explain how the information relates to other parts of the text they have already read.
- Prompt students to visualize the mathematics concepts as they read and then compare with a partner.
- Demonstrate, and then direct the students, how to use a graphic organizer to categorize and record main ideas, important details, and questions while reading. Encourage sharing and comparing of interpretations and representations to check the accuracy of their reading.
- Pose questions as students read to help them focus on particular aspects of the mathematics in the text, such as key concepts, procedures, facts, problem solving strategies, terminology and symbols.

After

After reading, help students to consolidate and extend their understanding of the mathematics in the text.

- Ask partners to restate or paraphrase the mathematical focus of the text.
- Prompt students to identify similarities and differences in their rephrasing. Differences in summaries could show misunderstandings as well as differences in depth of comprehension.
- Have students identify key mathematical terms in the lesson, pointing out where those terms are used.
- Model making connections between prior knowledge and the meaning in the mathematics informational text using a Think Aloud. For example, "When I was reading about circumference of a circle, I was thinking about the linear measure around a circle. This is like the linear measure or perimeter around a rectangle."
- Discuss processes and strategies students used while reading. Prompt students to explain their choices of strategies. For example, "What were you trying to find out when you were reading? How did you find it out?" In sharing processes and strategies, students learn that alternative pathways can be used to read a text.

Notes



Tips for Reading Mathematics Informational Texts

Before Reading

Set a purpose for reading about mathematics. Ask yourself why you are reading this mathematics text.

- Are you reading it to find an explanation of a mathematics concept or terminology?
- Do you want to know different ways to apply a formula?
- Are you stuck on a review question and want to see if there is a similar example in the text?

Get to know the structure of the mathematics text.

- See which elements appear: headings, subheadings, illustrations, highlighted words, and captions,
- Examine the titles, headings, and subheadings, and scan for mathematics words that stand out.
- Look for words and phrases that give hints about how the mathematics information is organized. Also, note the use of colour, font, font style to distinguish certain types of mathematics information.

Make predictions about the meaning of the mathematics in the text.

- Read any overviews (e.g., chapter goals), summaries (e.g., lesson goals), or questions (e.g., homework practice questions) in any part of the text to predict the meaning of the text.
- **Examine each labelled diagram, picture, and photo and read their titles or captions. Think about the mathematics they are showing.**
- Describe what you already know about the topic and how it relates to this new mathematics topic.
- List some questions you might have about the mathematics topic.

During Reading

Chunk the text.

- Skim the sections you think will support your purpose for reading.
- When you find specific mathematics information you want, divide the reading task into smaller chunks, by paragraphs or sections by subheadings
- Read a chunk, slowly, word by word. Pause and think about what you read.

Read and record.

- You may need to reread the passage several times as you jot down your mathematics reading thoughts.
- Write a brief one-sentence summary or brief point form notes to help you remember important and interesting information.
- Use a graphic organizer (e.g., list, word web, table) to record and organize your reading thoughts.

Questions I Have	Main Math Idea	Supporting Details	Math Words and Symbols

After Reading

- Read the selection again to confirm the main idea and supporting details.
- Make connections to what you already know about the topic. How does the information you have read add to or alter what you knew about the topic?
- Continue to record your thinking about and responses to the text. Write a summary; complete a graphic organizer; create a sketch; or retell to yourself or a friend.