Developing and Organizing Ideas: Supporting the Main Idea

MATHEMATICS Grades 10 - 12

In this strategy, students learn how to select the better of two possible main ideas to use as a topic sentence in an information paragraph, and then learn how to choose details to support it.

Purpose
- Distinguish main ideas and supporting details for a paragraph.

Payoff
Students will:
- write organized paragraphs on mathematical topics using supporting details.
- demonstrate a clear understanding of the topic.
- improve reading comprehension by spotting main ideas and supporting details.

Tips and Resources
- Select a journal form before beginning to write the sample paragraph.
  See Teacher Resource: *Journal Writing – Forms and Writing Prompts.*
- Definition, list, and instruction journal forms are included. Please see Student/Teacher Resource: *Finding and Supporting the Main Idea: Samples A – C.*
- An answer key to each sample is provided. Please see Student/Teacher Resource: *Finding and Supporting the Main Idea – Answer Key for Samples A – C.*
- Define new terms when introducing the strategy (e.g., "Main Idea": a broad statement that includes a topic that can be expanded). It usually begins a paragraph (e.g., "Studying mathematics organizes the mind").
- Ask students how they know which statement is the best-supported generalization. Point out that if students have more sentences crossed out than they have left to work with, they have probably selected the wrong generalization. See Student Resource: *Finding and Supporting the Main Idea.*
- Demonstrate how to write a concluding sentence. The basic style is to reword the first sentence/generalization.
- This strategy can help students to understand how to do the task on information paragraphs in the Ontario Secondary School Literacy Test.

Further Support
- The accompanying lesson plan is organized for practicing the group journal. For modification ideas please see Teacher Resource: *Journal Writing – Linking Process, Strategies and Developmental Stages*.

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Notes

What teachers do	What students do
Before ▪ Select a journal form and two topics. (See Teacher Resource: *Journal Writing – Forms and Journal Prompts.)* ▪ Create one set of sentences that can be copied, cut up, and inserted into labeled envelopes for each group of students. (See Teacher Resource: *Finding and Supporting the Main Idea: Samples A – C.)* ▪ Copy the second set of sentences for each student. ▪ Copy the Student Resource: *Finding and Supporting the Main Idea.*	▪ Identify the methods they already use to select the main idea and supporting details in reports, journals, and articles.
During ▪ Divide the class into groups of three or four and give each group one set of statements. ▪ Model the strategy on the board or overhead using the first set of sentences that were given to the students. ▪ Teach how to find the main ideas in the statements (see Tips and Resources). ▪ Model how to use the sentences to write a paragraph and a conclusion. See Tips and Resources. ▪ Hand out copies of a second set of sentences to each group member. ▪ Have the students individually organize the sentences on their paper copy. ▪ Have the group members discuss the individual results. ▪ Circulate through the class (see Tips and Resources).	▪ Read through the set of statements with the teacher. ▪ Annotate statements while the teacher models. ▪ Read the second set of sentences. ▪ Use the handout *Finding and Supporting the Main Idea* to organize the sentences. ▪ Alternatively, use scissors to cut up the paragraph. ▪ Join a group to compare solutions.
After ▪ Review and discuss the second set of sentences. If needed, have students move on to a third set of sentences. ▪ Assign a written paragraph using the second set of sentences for homework.	▪ Compare their work with the correct answers. ▪ For homework write sentences into a paragraph, including a conclusion.

Student Resource

Finding and Supporting the Main Idea

1. Look at the scrambled statements in the sample paragraph.

2. Identify two main ideas in the sample paragraph.

3. Choose which main idea is best supported by the other statements given – this will be the main idea for your paragraph.

4. Cross off or remove the statements that do not belong in the paragraph (i.e., do not support the main idea).

5. Order the statements in the paragraph.

6. Share and compare your ideas with others.

7. Write your final paragraph.

Teacher Resource

Finding and Supporting the Main Idea: Samples A and B

Sample A: MPM 2D
Perpendicular lines will have slope angles that are separated by 90 degrees.
When a line lies below a horizontal line, the angle is referred to as the angle of depression.
Architects, engineers, and carpenters refer to slope using rise over run, delta y over delta x, and some use the word "pitch".
Slope angle is the angle that the line makes with any horizontal line.
Slope is studied in many professions and described by many terms.
Two parallel lines will have the same slope angle.
If the line lies below the horizontal line, the slope angle will be negative.
No matter how slope is described, slope will always have a slope angle.

Sample B: MBF 3C
Other expenses include recreation and education which may also be tied to savings.
Lastly, you may want to include donations in your budget.
When finances are accounted for, more money can be saved.
Your long term goals will determine the amount you budget for savings.
Although people have different priorities, there are some large expenses that should be budgeted for first.
Take the amounts in your budget and convert them to a percent.
The largest expense is housing, followed by food, which does not include eating at restaurants.
There is also the cost of transportation and health care coverage.
Everyone should have a budget.

Teacher Resource

Finding and Supporting the Main Idea – Sample C

Sample C: MCB 4U

But before that, you need to know that any logarithm can be written in exponential form.

Since 81 can be written as 3 to the power of 4, you can write $3^{-x} = 3^4$.

Therefore, use the fact that $x = b^y$ is equivalent to $y = \log_b x$.

Remember that the logarithmic form of $y = \log_b x$ is read "y equals the log of x to the base b".

So, b represents the base.

Using a simple example like $\log_{10} 100 = y$, you would write 10 to the power of y equals 100.

Finally, solve for x to get x = -4.

To find the value of a logarithm it is important to have some examples in mind.

Once you rewrite 100 as 10 to the power of 2, you will see that y = 2.

A more challenging example could look like $\log_{\frac{1}{3}} 81 = y$.

That will give you –x = 4.

John Napier was the first person to use logarithms.

Remember to rewrite the equation in exponential form.

That will give you $\left(\dfrac{1}{3}\right)^y = 81$ or $\left(3^{-1}\right)^y = 3^{-y} = 81$.

The bases are the same so you can compare the exponents.

Finding and Supporting the Main Idea – Answer Key for Samples A, B and C

Legend
→ main idea
√ statement belongs in the paragraph
x statement does not belong in the paragraph

Sample A: MPM 2D
→ Slope is studied in many professions and described by many terms.
√ Architects, engineers, and carpenters refer to slope using rise over run, delta y over delta x, and some use the word "pitch".
√ No matter how slope is described, however, slope will always have a slope angle.
√ Slope angle is the angle that the line makes with any horizontal line.
√ Two parallel lines will have the same slope angle.
√ Perpendicular lines will have slope angles that are separated by 90 degrees.
√ If the line lies below the horizontal line, the slope angle will be negative.
x When a line lies below a horizontal line, the angle is referred to as the angle of depression.

Sample B: MBF 3C
→ Everyone should have a budget.
√ When finances are accounted for, more money can be saved.
√ Although people have different priorities, there are some large expenses that should be budgeted for first.
√ The largest expense is housing, followed by food, which does not include eating at restaurants.
√ There is also the cost of transportation and health care coverage.
√ Other expenses include recreation and education which also may be tied to savings.
√ Your long term goals will determine the amount you budget for savings.
√ Lastly, you may want to include donations in your budget.
X Take the amounts in your budget and convert them to a percent.

Sample C: MCB 4U
→To find the value of a logarithm it is important to have some examples in mind.
√ But before that, you need to know that any logarithm can be written in exponential form.
√ Therefore, use the fact that $x = b^y$ is equivalent to $y = \log_b x$.
√ Remember that the logarithmic form of $y = \log_b x$ is read "y equals the log of x to the base b".
√ So, b represents the base.
√ Using a simple example like $\log_{10} 100 = y$, you would write 10 to the power of y equals 100.
√ Once you rewrite 100 as 10 to the power of 2, you will see that y = 2.
√ A more challenging example could look like $\log_{\frac{1}{3}} 81 = y$.
√ Remember to rewrite the equation in exponential form.
√ That will give you $\left(\dfrac{1}{3}\right)^y = 81$ or $\left(3^{-1}\right)^y = 3^{-y} = 81$.
√ Since 81 can be written as 3 to the power of 4, you can write $3^{-x} = 3^4$.
√ The bases are the same so you can compare the exponents.
√ That will give you –x = 4.
√ Finally, solve for x to get x = -4.
X John Napier was the first person to use logarithms.