
Getting Ready to Read: **Extending Vocabulary: The Frayer Model**

MATHEMATICS Grades 10-12

The Frayer Model is a visual organizer that helps students understand key words and concepts. It is a chart with four sections that can hold a definition, some characteristics/facts, examples, and non-examples of the word/concept.

Purpose

- To give students a visual reference for what the word/concept is and is not.

Payoff

Students will:

- draw on prior knowledge to make connections among concepts.
- develop an understanding of key concepts and vocabulary.
- think critically to create examples and non-examples of the concept.

Tips and Resources

- Preview by scanning text. See *Skimming and Scanning To Preview Text*, pg. 32, *Think Literacy: Cross-Curricular Approaches, Grades 7-12*.
- Include targeted vocabulary/concepts on a word wall. See *Extending Vocabulary – Creating a word Wall*.
- Consider using the back of a word wall card for the Frayer Model.
- At the beginning of a unit give the students the vocabulary/concept and have a Home Activity that has them consider examples and non-examples of the concept. If appropriate ask them to bring in pictures of an example and a counter example.
- The Home Activity could help with the 'Minds On' for the lesson on the Frayer Model.
- See Student/Teacher Resource: *The Frayer Model – Samples*.
- See Student/Teacher Resource: *The Frayer Model – Templates for Two Versions*.

Further Support

- Have students use the organizer as a reference tool.
- Consider allowing students to use organizers during assessments.



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Notes

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Identify in advance the key concepts and vocabulary that the students will work with. • Ask for student input to generate a list of key words and concepts. • Reduce the list to the critical concepts. • Have students generate definitions in their own words. Have them state some characteristics that the concept has, and some it does not have. Have them give some examples and non-examples of the concept. • Have them identify the concept/term that is displayed on a completed Frayer model. 	<ul style="list-style-type: none"> • Check their notes for underlined vocabulary words and key concepts. • Work in small groups or alone to generate definitions in their own words, give some characteristics that it has and does not have and give some examples and non-examples. • Determine the concept name.
<p>During</p> <ul style="list-style-type: none"> • Choose an Oral Communication strategy. • Direct students to determine the relationships among the words/symbols they generated at the beginning of the lesson. • Have groups create their own Frayer Models. • Circulate and pose questions to refine understanding of the relationships. • Encourage students to share their Frayer Models with other groups. 	<ul style="list-style-type: none"> • Create the Frayer Models. • Contribute to group discussions. • Actively listen and reflect and respond on learning during sharing.
<p>After</p> <ul style="list-style-type: none"> • Discuss how a concept is better understood when a Frayer Model is used. • Decide the best way to have the Frayer models stored for future reference and study. Ideas include putting them on a bulletin board, keeping them in the students' books, or taping them to the wall. • Later in the lesson or unit, use a different color pen to add new knowledge to the Frayer Model. 	<ul style="list-style-type: none"> • Decide if a personal copy is needed. • Decide if additional notes or pictures could be added as learning expands.

The Frayer Model - Samples

Determine the unknown words in the given Frayer Models.
How does thinking about non-examples clarify your understanding of the word?

<p>Definition:</p> <p>Something we can solve to find the value of a given variable.</p>	<p>Rules/Method</p> <ul style="list-style-type: none"> - Whatever you do to one side you have to do to the other side. - Simplify (e.g., get x by itself). - Isolate x terms on one side of the equation. - Divide both sides by the coefficient of x. - Check if required.
<div style="border: 2px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 40px;">?</div>	
<p>Example:</p> <p>Solve for x: $4x + 3 = 27$ $4x + 3 - 3 = 27 - 3$ $4x = 24$ $4x/4 = 24/4$ $x = 6$ Therefore $x = 6$</p>	<p>Non-examples:</p> <p>$4x < 40$</p> <p>$x + 4$</p>

<p>Definitions:</p> <p>A monomial has one term (e.g., $3x$ or $4y^2$).</p> <p>A binomial has two terms (e.g., $x + 7$).</p> <p>A trinomial has three terms. (e.g., $x + y - 4z$).</p>	<p>Facts:</p> <ol style="list-style-type: none"> 1) You can add like terms. 2) Name the polynomial once you have combined the terms.
<div style="border: 2px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 40px;">?</div>	
<p>Example:</p> <p>$3x + 2x$ is a binomial expression that can be simplified to $5x$ which is a monomial.</p>	<p>Non-example:</p> <p>$3x + 7 = 13$ This is an equation to be solved.</p>

Answers: linear equations, polynomials expressions



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Two Templates

Choose the version whose headings best suit the concept/word. Print the template on card stock. Direct students to complete the template, individually, in small groups or as a whole class. Print the vocabulary word on the reverse side then place the card on a word wall for future reference.

Definition:	Rules/Method:
Example:	Non-examples:

Definition:	Facts/Characteristics:
Examples:	Non-examples: