

Pixton Practices Handout **Math**

For Use With Pixton PowerUp Webinar

Best Practice #1: Math Vocabulary in Action

Prep

To prepare for a Math Vocabulary in Action activity, select math vocabulary words relevant to your lesson (e.g., slope, radius, coefficient). Use Pixton's comic maker to create example comics that personify these terms as characters and demonstrate their definitions and applications. For instance, a character named "Slope" might climb a hill with a labeled incline, while "Radius" measures the distance from the center to the edge of a circle. You can use an uploaded image to include the graphics for slope and radius or any other image that Pixton's comic maker may not be able to format.. Ensure the comics provide a visual and engaging way to introduce the concept of personification and math terminology. Prepare a word bank and guidelines for students, including sentence starters like "I am ______, and I help solve problems by _____."

Activity

Introduce the concept of personifying math vocabulary to your class. Show your example comic in Pixton, explaining how the terms are visualized as characters. Challenge students to create their own comics using Pixton, either individually or in pairs. Each comic should include at least one math term personified as a character and demonstrate its use in a math problem or context (e.g., Slope explains how to calculate a hill's incline in a real-world scenario.). Allow time for students to draft, create, and present their comics. Facilitate a class discussion where students explain their choices and how their character embodies the term's meaning.

PowerUp Variations

Gallery Walk: Display the completed comics around the classroom. Students rotate in groups, viewing and commenting on each other's work and offering feedback on accuracy and creativity.

Comic Add-Ons: After creating the initial comics, have students swap comics with peers. Their peers must add an additional panel that extends the story, introduces new math terms, or presents a real-world problem the character solves.

Differentiation

Adjust Difficulty Levels: Provide story starters with partially completed comics for students who may need additional support, leaving blanks for them to add their own content.

Use Visual Supports: Suggest pre-made character designs for students who struggle with creating visuals from scratch.

Guided Creation Groups: Pair students with varying skill levels, where higher-level students support peers in creating and explaining their comics.

Alternate Outputs: Allow students with writing challenges to use the speech-to-text feature.

Sentence Starters and Prompts: Provide structured prompts to guide storytelling.

Challenge Extensions: For advanced students, ask them to include multiple terms in a single comic and show how the terms interact with each other.

Best Practice #2: Math Error Detective

Prep

To prepare for the Math Error Detective activity, select common math errors related to the topic you are teaching (e.g., misapplying the order of operations, incorrectly simplifying fractions, or making rounding mistakes). Use Pixton's comic maker to create an example comic where one character makes an error, such as solving $3 + 2 \times 4$ as 20 instead of 11. Another character identifies the mistake, explains the correct process, and provides the correct solution. Prepare a list of potential errors and examples for students to choose from, along with guidelines for structuring their comics.

Activity

Introduce the activity by showing your example comic in Pixton and discussing the importance of learning from mistakes in math. Explain how analyzing errors builds critical thinking skills and helps reinforce proper methods. Challenge students to create their own comics. Each comic should feature:

- 1. A character making a common math error
- 2. A second character identifying the error, explaining why it occurred, and providing the correct solution

Encourage students to use dialogue or thought bubbles for the explanation and ensure their comics highlight the learning process. Once completed, have students present their comics and discuss the types of errors they focused on and how to avoid them.

PowerUp Variations

Gallery Walk: Display the completed comics around the classroom. Students rotate in groups identifying and categorizing the types of errors and solutions presented.

Collaborative Comics: Assign students to pairs or small groups. One student creates the error scene while the others create the explanation and correction scene, focusing on collaboration.

Error Chain: After students create their comics, they pass them to a peer. The peer adds a follow-up panel showing how the corrected solution applies to a new problem or scenario.

Differentiation

Scaffolded Comics: Provide story starters with partially completed comics where an error is already illustrated and students focus on creating the explanation and correction frames.

Visual Supports: Suggest pre-made character designs and comic elements for students who struggle with creating visuals, allowing them to focus on the math content.

Guided Groups: Pair students with varying skill levels so high-level students can support their peers in analyzing errors and creating explanations.

Alternative Outputs: Allow students with writing challenges to use the speech-to-text feature

Challenge Extensions: For advanced students, ask them to create a comic that features a more complex error, such as one involving multiple steps in a multi-step equation or misinterpretation of a word problem.

Best Practice #3: Alternative Solutions Pathways

Prep

To prepare for the Alternative Solutions Pathways activity, select a math problem that can be solved using multiple strategies (e.g., solving a system of equations by substitution, elimination, or graphing). Use Pixton's comic maker to create an example comic showing two characters solving the same problem using different methods. For instance, one character solves a system of equations by substitution while another plots the equations on a graph. Include thought bubbles to explain their reasoning. Prepare handouts or a digital guide with step-by-step instructions for each method and examples to scaffold students' understanding.

Activity

Introduce the concept of multiple solution pathways by demonstrating your example comic in Pixton. Explain the importance of flexibility in problem-solving and how different strategies can be more efficient or applicable in various contexts. Assign students to design their own comics using Pixton. Each comic should feature at least two characters, each solving the same problem using a different method. The characters should explain their reasoning and compare their solutions within the comic (e.g., "My way was faster, but yours shows the solution graphically!"). Once completed, students can present their comics and discuss which methods they found most effective and why.

PowerUp Variations

Gallery Walk: Display the comics around the classroom for a peer review session. Students provide feedback on the clarity, creativity, and accuracy of the solution pathways.

Collaborative Comics: Have students work in pairs or groups, with each student responsible for one solution pathway in the comic. This promotes collaboration and discussion of different strategies.

Extend the Problem: After creating the initial comic, challenge students to modify the problem (e.g., changing coefficients or constraints) and explore how different methods adapt to the new scenario.

Differentiation

Scaffolded Comics: Provide story starters with partially completed comics with one solution pathway partially completed. Students complete the second pathway to compare methods.

Visual Supports: Suggest pre-made characters, problem setups, and mathematical reasoning to help students focus on problem-solving rather than design.

Guided Groups: Pair students with different strengths (e.g., algebra vs. graphing) to collaborate on their comics and learn from each other's expertise.

Alternative Outputs: Allow students with writing challenges to use the speech-to-text feature

Challenge Extensions: Ask advanced students to include a third, less common method (e.g., solving by using a table of values or guess-and-check) and evaluate its effectiveness compared to standard methods.

Associated Research

- Cabrera, P.S., Castillo, L., González, P., Quiñonez, A.L., & Ochoa, C.G. (2018). The Impact Of Using Pixton For Teaching Grammar And Vocabulary In The EFL Ecuadorian Context. Teaching English with Technology, 18, 53-76.
- Graham, S., Harris, K. R., & Santangelo, T. (2015). Research-based writing practices and the common core: Meta-analysis and meta-synthesis. The Elementary School Journal, 115(4), 498-522.
- Yarrow, F., & Topping, K. J. (2001). Collaborative writing: The effects of metacognitive prompting and structured peer interaction. British Journal of Educational Psychology, 71(2), 261-282.