



Substitute Plan — Unit 1, Lesson 1: What Is a Variable?

Course: Algebra 1 · Unit 1: Expressions · Deck: U1L01_WhatIsAVariable.pptx (23 slides)

✓ You do not need to know algebra to teach this lesson. Read what is written. Follow the slides. Check answers against the key. The learning expectations for today are the same as any other day — this plan gives you the tools to keep the lesson moving. The art of teaching stays with your teacher; the tools are right here.

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1 QUICK START — BEFORE THE BELL (2 MINUTES)

1. [?] Open the slide deck: **U1L01_WhatIsAVariable.pptx**
2. [?] Write the Bell Ringer on the board (see Slide 1 / Answer Key below)
3. [?] Test the projector
4. [?] Write your name on the board
5. [?] Find the answer key — it is printed inside this plan

2 MATERIALS FOR THIS LESSON

1. [?] Whiteboards, markers, erasers (1 set per student)
2. [?] Direct Instruction slide deck (Navy 1C2950 headings, Arial body)
3. [?] Guided Practice handout (3 examples + GEMDAS reminder box)
4. [?] Tiered Independent Worksheet (T1/T2/T3 versions)

5. Prime Time: Translation Match card sets (laminated, zero-device)
6. Exit Ticket slips
7. Visual vocabulary anchor chart

If anything is missing, check the teacher's desk or ask the front office.

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PACING AT A GLANCE

Slide	By minute	Phase
1	0–4	Bell Ringer
7	15–16	End of Direct Instruction / Culture & Career
19	42	End of Practice (worksheet + game)
23	50	Exit Ticket & Wrap-Up

Pacing tip: Phase: Activate • Activity: Bell Ringer & Share Out • Time: 7 min • Notes: Focus on “unknowns” before introducing notation. Phase: Explore • Activity: Direct Instruction & Vocabulary • Time: 12 min • Notes: Define variable, coefficient, constant. Model identification. Phase: Practice • Activity: Guided Practice (Worksheet A-B) • Time: 15 min • Notes: Circulate; check for coefficient/constant confu

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SUBSTITUTE SCRIPT (SLIDE BY SLIDE)

Slide 1 — Bell Ringer of 23

On screen: Bell Ringer: Whiteboards Ready! Review, Intro, Challenge Preview WHITEBOARDS READY! REVIEW $12 + 8 = 5$ INTRO Write $3 + x$. What could x be? STATE FAIR CHALLENGE PREVIEW If $n + 5 = 12$, what is n ?

Say: “Whiteboards ready — three problems, four minutes. Work silently, show your steps, and hold your board up when the timer hits zero.”

Do: Walk the room as they work; cue “3... 2... 1 — boards up” and glance for accuracy.

Answer key: Focus: Arithmetic fluency, pattern recognition, and solving for unknowns without formal variable notation. Problem Set: 1. $+ 6 = 14$ 2. Pattern: 5, 10, 15, 20, ... What is the next term? Describe the rule. 3. Context: “A basket holds some apples. If you add 4 more apples, there are 9 apples total. How many apples were in the basket originally?” Answers & Teacher Talk: - Q1 Answer: 8. - Check: Does $8 + 6 = 14$? Yes. The blank represents a fixed unknown value. - Q2 Answer:

Next term is 25. Rule: “Add 5” or “Multiply the position by 5.” - Bridge to Variables: Ask students, “If I wanted to write a rule for any position number n , how could we show that?” Preview: $5 + n$ or $5 \cdot n$ depending on interpretation. Clarify that patterns help us predict unknown values. - Q3 Answer: 5. - Reasoning: Start with 9, subtract 4 to find the original amount. $9 - 4 = 5$. - Bridge: “We just solved for an unknown quantity using logic. In Algebra, we use a symbol called a variable to represent that unknown.” —

Slide 2 — Title of 23

On screen: Algebra 1: Unit 1 • Lesson 1 What Is a Variable? 9.3.5.7 Create and identify equivalent algebraic expressions. 9.3.5.8 Write expressions in equivalent forms to reveal and explain their properties. MEG MERIT EDUCATION GROUP MINNESOTA STATE FAIR

Say: “Welcome. Today’s lesson is Unit 1, Lesson 1: What Is a Variable?. Everything you need is on these slides — follow along and write when I ask.”

Do: Read the lesson title aloud. Pause for students to find a pencil.

Slide 3 — Ican of 23

On screen: I CAN Statements I can write and identify algebraic expressions with variables. I can evaluate algebraic expressions by substituting values for variables. I can recognize and create equivalent expressions using the same value. MINNESOTA STATE FAIR

Say: “Here’s what we’ll be able to do by the end of the lesson. Read them silently; we’ll come back to these at the end.”

Do: Give 15 seconds, then continue.

Slide 4 — Success of 23

On screen: Success Criteria • I can measure my progress by... I can measure my progress by identifying variables and constants in expressions. I can measure my progress by writing equivalent expressions using different forms. I can measure my progress by evaluating expressions

Say: “These are the success criteria — how we’ll know we’ve got it. You’ll check yourself against these at the end.”

Do: Read the bullets aloud. Continue.

Slide 5 — Vocab of 23

On screen: Vocabulary VARIABLES $2x + 3$ EXPRESSIONS = EQUATIONS RELATIONSHIPS PROPERTIES $2x + 3x + 5 = 12 \rightarrow a(b + c)$ Variable Algebraic Expression Equation Equivalent Expressions Like Terms Distributive Property A letter that represents a number that can change. A combination of

Say: “Quick vocabulary check. These are the words for today — I’ll read them, you repeat. [Read each term aloud.] We’ll use them all lesson.”

Do: Point to each term as you read it.

Slide 6 — Career of 23

On screen: MAYO CLINIC WHERE CAREERS MEET ALGEBRA CAREER SPOTLIGHT Medical Technologist - Mayo Clinic, Rochester MN Bachelor’s Degree MAYO CLINIC Rochester, Minnesota 63,150/yr (MN DEED OES 2025) MATH CONNECTION: Algebra helps medical technologists work with formulas, such as

Say: “A real career uses this math every day. [Read the career spotlight aloud.] The math we’re learning today is the math people use at work.”

Do: Read confidently; the salary and role are on the slide.

Slide 7 — Career Problem of 23

On screen: WORD PROBLEM - Mayo Clinic MAYO CLINIC LABORATORIES MAYO CLINIC MAYO CLINIC SOLVE LIKE A PRO! Sarah Chen is a medical technologist at Mayo Clinic. She processes s samples per hour and works h hours each shift. She performs 5 quality checks per shift. Write an

Say: “Here’s the career problem. Read it to yourself — we’ll solve it together later in the lesson.”

Do: Give 30 seconds. Do NOT solve it now — it comes back in Practice.

Slide 8 — Culture of 23

On screen: CULTURE: Ojibwe Cultural Spotlight OJIBWE FLAG OJIBWE TERRITORY CIRCLE • UNDERLINE BOX • WRITE CULTURAL CONNECTION Canada MN WI MI Honors land, water, wildlife, and the seven grandfather teachings. Traditional territory spans Minnesota, Wisconsin, Michigan, and

Say: “A quick cultural connection. [Read the caption aloud.] Notice how math shows up in everyday life and community traditions.”

Do: If the slide shows an image only, describe what students see; no math required.

Slide 9 — Summary of 23

On screen: Direct Instruction: Key Concepts and Color-coded Examples $3x + 2$ KEY CONCEPTS VARIABLE - A letter used to represent a number. Examples: x , y , a , n , m ALGEBRAIC EXPRESSION - A combination of variables, numbers, and operations. Examples: $3x + 2$, $n - 5$, $4(y + 1)$ E

Say: “Three big takeaways from today. [Read them aloud.] This is what you should remember tomorrow.”

Do: Read each takeaway; pause between them.

Slide 10 — Worked Example of 23

On screen: Worked Example: Step-by-step Problem Solving Example: Write and simplify an algebraic expression. Problem: The sum of three times a number and nine, minus twice the number. Step 1: Write the expression. $3x + 9 - 2x$ Step 2: Identify like terms. $3x - 2x + 9$ Step

Say: “A worked example — watch how it’s done step by step. The slide shows every step; I’ll read them as they appear.”

Do: Read each step aloud as it is revealed. Answer questions by pointing back to the slide.

Slide 11 — Think Pair of 23

On screen: Engagement: Think-Pair-Share Activity We’re applying what we learned about variables! MINNESOTA STATE FAIR 1. THINK Think alone about the prompt. What does the variable represent? 2. PAIR Discuss your thinking with a partner. Explain your reasoning and listen

Say: “Think-pair-share. THINK silently for 30 seconds, then PAIR with your neighbor and compare, then we’ll SHARE out.”

Do: Time 30s think, 45s pair, then take 2–3 volunteers.

Slide 12 — Go Practice of 23

On screen: Go Practice: Independent Student Problem YOUR TURN! At the State Fair, admission tickets cost c dollars each. A group buys t tickets and also pays a \$6 parking fee. Write an expression for the total cost. Evaluate your expression when $c = 15$ and $t = 4$. CIRCLE

Say: “Your turn — a problem just like the one we did. Work it on your whiteboard (or paper). Two minutes.”

Do: Circulate. Cue boards up at 2 minutes.

Answer key: Example 1 (Identification): Given $7k - 4$, identify the variable, constant, and coefficient. Solution: Variable: k | Constant: -4 | Coefficient: 7 Example 2 (Translation to Expression): Write an expression for “5 less than three times a number.” Solution: Let n represent the unknown number. Three times a number is $3n$. 5 less than $3n$ is $3n - 5$.

Slide 13 — Go Answer of 23

On screen: Go Answer: Solution Reveal PROBLEM RECAP: Sarah processes s samples per hour, works h hours, and completes 5 quality checks per shift. Write an expression and evaluate when $s = 4$ and $h = 8$. STEP-BY-STEP SOLUTION: WRITE THE EXPRESSION: Total outputs = samples + checks

Say: “Let’s check it. The slide walks through the solution step by step — I’ll read each step. Check your work against it; fix anything you missed.”

Do: Read the solution steps aloud. Answer questions by re-reading the relevant step.

Slide 14 — Set Practice of 23

On screen: SET PRACTICE: TWO PRACTICE PROBLEMS TRY THESE TWO PROBLEMS TO DEEPEN YOUR UNDERSTANDING. 1 Evaluate the expression $2x + 7$ when $x = 5$. The expression $3(m - 2) + 4$ represents the total cost for m movie tickets. Evaluate when $m = 6$. THINK: Substitute 5 for x and 6 for m

Say: “Two practice problems to deepen your understanding. Work them on paper or whiteboard. You have 5 minutes; I’ll be walking around.”

Do: Circulate and support. Cue time at 3 and 1 minutes.

Slide 15 — Summary of 23

On screen: Set Answers: Step-by-step Solutions 1 Evaluate the expression $2a + 7$ when $a = 5$. SOLUTION: Substitute $a = 5$ into the expression. $2a + 7 \rightarrow 2(5) + 7$ 2 Multiply. $2(5) + 7 = 10 + 7$ 3 Add. $10 + 7 = 17$ MINNESOTA STATE FAIR ANSWER: 17 2 If $x - 3 = 11$, what is the value of x ? SOLUTION: Add 3 to both sides. $x - 3 + 3 = 11 + 3$ $x = 14$

Say: “Three big takeaways from today. [Read them aloud.] This is what you should remember tomorrow.”

Do: Read each takeaway; pause between them.

Slide 16 — Extra Practice of 23

On screen: EXTRA PRACTICE: CHALLENGE PROBLEM More advanced problem for extension! CHALLENGE PROBLEM A state fair vendor earns 6 per ticket sold plus a \$40 setup fee. Their goal is to earn at least \$1,000 in a day. 2 Write an inequality using t for the number of tickets sold

Say: “Challenge problem — for anyone who wants a stretch. Try it on your own paper. We’ll go over it in a moment.”

Do: Encourage all to attempt; it is optional.

Slide 17 — Summary of 23

On screen: Extra Answers: Reasoned Solution Challenge: If $n + 5 = 12$, what is n ? Step-by-Step Solution: 1 Start with the equation. $n + 5 = 12$ 2 Subtract 5 from both sides to isolate n . $n + 5 - 5 = 12 - 5$ 3 Simplify both sides. NESOTA $n = 7$ SINE FAi 4 Check the solution.

Say: “Three big takeaways from today. [Read them aloud.] This is what you should remember tomorrow.”

Do: Read each takeaway; pause between them.

Slide 18 — Game of 23

On screen: Game Intro: Prime Time Game - Translation Match ZERO-DEVICE • WHOLE-CLASS GAME Work as a team. Communicate quietly and listen to everyone. No talking across teams or calling out answers. Raise your hand for all submissions and questions. First correct team ear

Say: “Quick whole-class game — we do this as a team, quietly. I’ll read the rules from the slide.”

Do: Read the rules; run the game as the slide directs; keep it positive.

Game from lesson plan: Prime Time: Translation Match (Zero-device) Students work in pairs to match verbal phrase cards to algebraic expression cards containing variables. Emphasis on precise terminology (“product of,” “sum of,” “decreased by”). Teacher facilitates rapid round-robin verification and corrects common syntactic errors aloud.

Slide 19 — Game of 23

On screen: Game Play: Problem Grid for Translation Match MINNESOTA STATE FAIR 1 2 3 TEAMS: Work SILENTLY to match each word phrase to its algebraic expression. Write your answers. FIRST TEAM DONE? Raise your hand! A. WORD PHRASES Five more than a number $n \rightarrow A$ Twice a num

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Slide 20 — Game of 23

On screen: Game Wrap-Up: Review and Strategy Discussion 1. REVIEW CORRECT ANSWERS Let’s reveal and confirm every match. Check answers as a class for accuracy. Celebrate strong teamwork and participation! 2. DISCUSS TEAM STRATEGIES What strategies helped your team succeed

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Slide 21 — Summary of 23

On screen: Summary: Three Key Takeaways 1 Variables Represent Unknowns. A variable stands for a number we don't know yet. $3 + x$ 2 Expressions Show Relationships. We use operations and variables to describe real-world situations. $sh + 5$ 3 Evaluate by Substituting Values.

Say: “Three big takeaways from today. [Read them aloud.] This is what you should remember tomorrow.”

Do: Read each takeaway; pause between them.

Slide 22 — Exit Ticket of 23

On screen: Exit Ticket: Instructions and Problems 1. Go to Schoology 2. Complete the Exit Ticket 3. Answer Questions Below 1 SHOW YOUR WORK FOR FULL CREDIT! Write an algebraic expression for: 2 The total cost of t tickets at 12 each Evaluate the expression for $x = 7$ when

Say: “Exit ticket time — it's how your teacher knows what stuck. Complete it on your own; it is not graded for accuracy, it's a check-in.”

Do: Distribute or direct to the online form. Collect as students finish.

Exit ticket from lesson plan: 1. Define a variable in your own words using precise mathematical language. 2. Write an algebraic expression for: “Twice a number decreased by 9.” Let n represent the unknown number.

Answer key: Collect to assess mastery of objectives. Q1. Identify the parts: In the expression $9a - 4$, identify the variable, coefficient, and constant. - Answer: Variable = a ; Coefficient = 9; Constant = -4 . - Rubric: 1 pt per correct identification. Ensure student recognizes negative constant. Q2. Write an expression: “The product of a number and 8.” - Answer: $8n$ (or $8x$, etc.) - Rubric: Must show multiplication

Slide 23 — Today Tomorrow of 23

On screen: Today and Tomorrow: Lesson Recap and Preview TODAY WE LEARNED Variables represent unknown or changing values. $3 + x$ Algebraic expressions use variables and operations. TICKETS! Equivalent expressions have the same value for any input. TOMORROW WE WILL LEARN Tra

Say: “Today we learned [read the ‘today’ summary]. Tomorrow we’ll [read the ‘tomorrow’ preview]. Great work today.”

Do: Read both lines. Thank the class; collect any remaining work.

5 IF A STUDENT ASKS...

“Why are we doing this?” — “This is today's learning expectation for What Is a Variable?. It builds toward what's next in the unit, and your teacher will pick up right here tomorrow.” **Redirects (from the lesson plan):**

Misconception	Redirect Question	Corrective Strategy
Confuses variable with constant	“Which part of the expression changes depending on the situation?”	Use color-coding: variables in blue, constants in black.

Misconception	Redirect Question	Corrective Strategy
Writes $5 \times n$ instead of $5n$	"How do mathematicians abbreviate multiplication between a number and a letter?"	Model implicit multiplication notation; emphasize coefficient placement.
Translates "3 less than x" as $3 - x$	"Read the phrase carefully: what is being decreased, and by how much?"	Use arrow diagrams or sentence frames to reverse operation order.

6 IF A STUDENT FINISHES EARLY

1. Students who finish early do the **Challenge** side of the worksheet — do not invent extra work.
2. If the whole class is ahead: re-read the Summary slide and ask students to explain one takeaway in their own words.
3. **Do not** move ahead in the curriculum.

7 IF THE PROJECTOR DIES

1. Write the Bell Ringer problems on the board (from the Answer Key).
2. Read the worksheet directions aloud; students work in pairs.
3. Use the printed answer key to check as a class.
4. The lesson still runs — the script lives in this plan, not the projector.

8 WITH A PARAPROFESSIONAL OR CO-TEACHER

If an adult is in the room supporting students, they know the students best — **follow their lead** on individual support. Check the roster for accommodations; extended time on the Exit Ticket is fine if indicated.

9 SUB REPORT (LEAVE FOR THE TEACHER)

1. What did we complete? (bell ringer / DI / practice / game / exit ticket)
2. Who struggled or needed extra support?
3. Behavior notes (positive first, then concerns)
4. Anything tech-related that went wrong

10 TEACHER'S OWN NOTES

(The regular teacher may add specifics here — their timer, signals, roster quirks.)

Generated by the MEG Substitute Plan pipeline from the Lesson Plan + Teacher Edition.