# Buffer Lessons: Unit Overview

**MTH1W, Grade 9 Mathematics (De-streamed), Buffer Lessons.** Five stand-alone 75-minute lessons for flex days: an assembly-shortened week, the day before a holiday, a catch-up day or a supply teacher.

### The big question

How can one class period still build real math skills, wherever we are in the course?

Each lesson works on its own, needs no earlier lesson and uses only the materials included. A team relay spirals skills from every strand: each answer feeds the next question, and teams debug the chain when it breaks; the teacher picks chains to match what the class has studied. A skill-builder teaches Fermi estimation: breaking a big question into small ones, stating assumptions and testing which one matters most. A real-world lesson uses Ontario's October 2026 minimum wage, overtime, vacation pay and EI rules to calculate a first paycheque, compare two job offers by graph and algebra, and rebuild a budget when hours are cut (check for updates before teaching). A creative lesson has teams encode, decode and crack secret messages written with linear rules, including a short Python program to trace. A supply-teacher lesson is a puzzle pack (magic squares with integers and fractions, shape-sum equations and a number trick proved with algebra) that runs from the handout alone. Every problem is original and comes with worked solutions.

## Lessons

| # | Lesson | Classes | Question | Expectations | What's inside |
|---|---|---|---|---|---|
| 1 | **Chain Reaction Relay** | 1 | Can our team keep a chain of answers unbroken? | B3.4, B3.5, C1.5, C3.3, E1.5, D1.2 | Seven four-link chains (one for any time, one per unit, a grand chain); debug log; points for checking |
| 2 | **Estimate Anything** | 1 | How can we estimate what we can't measure? | B2.1, B3.5, E1.3, D2.1, D2.3 | Heartbeats in a year; counting to a million; six Fermi cards; testing assumptions |
| 3 | **First Job Math** | 1 | What will my first paycheque really be? | B3.5, C3.2, C3.3, F1.4, A2 | October 2026 Ontario rates; gross, vacation pay, EI and net; overtime; two job offers; budget cut |
| 4 | **Code Crackers** | 1 | Can a linear rule keep a secret? | C1.5, C2.1, C2.3, C4.4 | Encode with tables, decode by solving, crack from two clues; Python to trace; team code swap |
| 5 | **The Puzzle Pack** | 1 | Can algebra explain a magic trick? | B3.4, C1.2, C1.4, C1.5 | Supply-ready: magic squares, shape sums, a number trick to prove; no tech; full key |

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## Assessment

| Type | In this unit |
|---|---|
| Assessment for learning | Relay Sheets, the Fermi organizer, My First Paycheque and Two Job Offers, Agent Training and the Puzzle Pack, each with worked answers |
| Assessment as learning | Debug logs, assumption tests, budget rationales, the code swap, self-checks and exit tickets |
| Assessment of learning | None: these lessons are formative and flexible. Use what you see to plan review. |

## Materials

Included:

- **Original problems, puzzles and diagrams:** every question, chain, code, job offer, budget and puzzle was written or drawn for these lessons; all people and employers are fictional
- **Current facts (Lessons 2 and 3):** minimum wage, overtime, vacation pay, minimum working ages and EI rates were checked in November 2026 against ontario.ca and the Government of Canada; check for updates before teaching, because Ontario's minimum wage changes every October 1
- **Supply-ready (Lesson 5):** a script for the supply teacher, a full answer key in the plan, and a deck with no answers that is safe to project

Free tools only: calculators (optional in Lessons 1, 4 and 5) and, optionally, any board-approved Python editor for Lesson 4. When to use them: Lesson 1 fits any unit (pick the chains); Lesson 3 fits best near Units 4 or 6; Lesson 4 fits best from Unit 3 on and previews Unit 4's equations of lines; Lessons 2 and 5 work at any point (Lesson 5's models show the algebra it needs).

## What's in each lesson

- Teacher lesson plan with expectations, timed sequence, differentiation, look-fors and answer guides
- Slides with speaker notes
- Student handouts and organizers
- Editable Word and PowerPoint files, plus PDFs

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