Lesson Plan

TCHATCHI AI Pedagogical Assistant

08 October 2025

INTEGRATION ACTIVITY

PARTIE A : PRÉPARATION DE LA SÉANCE (Pour l'enseignant)

Subject: Mathematics
Class: Form 2
Duration: 50 minutes

Targeted Competency Level
Deploy mathematical reasoning and communicate using mathematical language to solve quadratic equations in a problem-solving situation.

Resources to Mobilize
- *Savoir-faire : Solving quadratic equations using factorization, the quadratic formula, and completing the square.*
- *Savoirs : Understanding the standard form of a quadratic equation, discriminant, and roots of the equation.*

Prerequisite Check
1. *Solve the quadratic equation* $x^2 - 5x + 6 = 0$ *by factorization.*
2. *Find the discriminant of the quadratic equation* $x^2 + 4x + 4 = 0$ *and determine the nature of its roots.*

PARTIE B : DÉROULEMENT DE LA SÉANCE (Pour la classe)

INTEGRATION SITUATION (THE PROBLEM)
In the village of Bamendjou, a farmer is planning to build a rectangular fish pond. The length of the pond is 6 meters longer than its width. The area of the pond must be 55 square meters to fit in the designated space. The farmer needs help determining the dimensions of the pond. Using your knowledge of quadratic equations, determine the width and length of the pond.

RESOLUTION GUIDE FOR THE TEACHER

- Introduction et Présentation (10 min):

The teacher introduces the problem by explaining the farmer's situation in Bamendjou. The teacher ensures that students understand the context and the task at hand. Students are encouraged to ask questions for clarification and write down the problem statement.

- **Recherche en groupe (20 min):**
  The teacher divides the students into groups of 4-5 and explains the group work methodology. Each group will discuss and attempt to solve the problem collaboratively. Students interact and share ideas within their groups, aiming to produce a shared solution.
- **Restitution et Validation (20 min):**
  Each group appoints a spokesperson to present their solution to the class. The teacher facilitates the presentations and leads a class discussion to compare solutions. Errors are addressed collectively, and the teacher helps validate the most accurate approach.

DETAILED PROPOSED SOLUTION

1. *Let the width of the pond be x meters. Therefore, the length will be $x + 6$ meters.*
2. *The area of the pond is given by the equation: $x(x + 6) = 55$.*
3. *This simplifies to the quadratic equation: $x^2 + 6x - 55 = 0$.*
4. *Calculate the discriminant: $\Delta = b^2 - 4ac = 6^2 - 4 \times 1 \times (-55) = 36 + 220 = 256$.*
5. *Since the discriminant is positive, the equation has two distinct real roots.*
6. *Solve the equation using the quadratic formula: $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-6 \pm \sqrt{256}}{2}$.*
7. *This yields $x = \frac{-6 \pm 16}{2}$, giving solutions $x = 5$ and $x = -11$.*
8. *Since the width cannot be negative, the width of the pond is 5 meters, and the length is $5 + 6 = 11$ meters.*
9. *Thus, the dimensions of the pond are 5 meters by 11 meters.*