

**Title: Algebra Club – Unlock the Power of Math!**

*Learn, Play, Master Algebra Together!*

**By Jennifer Wolverton**

**Illustrations By: Mercedes Wolverton**

**Home use:** Each family must purchase their own copy.

**Small group classes (microschool, co-op, hybrid schools):** Each family must purchase their own copy.

**Classroom teacher:** Each teacher must purchase their own Teacher’s Guide and one Student Guide per student.

**Edition:** *Fifth Edition, 2025*

### **Copyright Information**

*Copyright © 2025 by Log Cabin Schoolhouse*

*All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form without permission, except as permitted by law.*

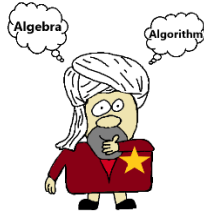
### **Contact Information**

*Email: [Jennifer@LogCabinSchoolhouse.com](mailto:Jennifer@LogCabinSchoolhouse.com)*

*Website: [www.LogCabinSchoolhouse.com](http://www.LogCabinSchoolhouse.com)*

### **Inspiration Quote**

“A mathematician, like a poet or a painter, is a maker of patterns.” – G.H. Hardy



## Algebra Club Syllabus

**Semester Course:** Repetition of this course recommended while student is enrolled in any algebra course.

**Creator:** Jennifer Wolverton

[Jennifer@LogCabinSchoolhouse.com](mailto:Jennifer@LogCabinSchoolhouse.com)

"Algebra Club, a haven for thought,  
Where logic is crafted, and answers are sought.  
Through patterns and numbers, a world takes form,  
Unveiling the beauty in math's quiet storm."

Algebra Club goes beyond teaching equations and formulas; it shapes classical rhetoricians by cultivating the core skills of logic, clarity, and structured reasoning. Just as classical rhetoric seeks to persuade with precision, algebra trains the mind to articulate solutions with confidence and rigor.

Through mastering the "grammar" of math—its vocabulary and rules—students develop a foundation akin to rhetorical fluency. By analyzing problems and constructing step-by-step solutions, they practice the art of arrangement, a hallmark of persuasive argumentation.

Finally, the creativity and strategy involved in solving complex equations mirror the eloquence and inventiveness of rhetorical delivery. Algebra Club, with its integration of memory work, exploration, and discussion, empowers students to think critically, express ideas persuasively, and engage the world with a mathematician's logic and a rhetorician's poise.

**Objective:** To build foundational algebra knowledge by mastering vocabulary, recognizing patterns, and reinforcing memory through interactive and engaging activities.

---

Welcome, Trailblazers, to the Algebra Club—a math-tastic adventure where equations come alive and learning becomes an exhilarating quest! Think of it as Hogwarts for algebra wizards, where your wands are pencils, and your spells are formulas.

Why is learning algebra important, you ask? Great question! Algebra isn't just about solving for  $x$ —it's about unlocking the secrets of patterns, logic, and problem-solving. It's the key to understanding the world around us, from calculating the slope of a skateboard ramp to predicting trends in science and business. Learning algebra empowers you to think critically, tackle challenges creatively, and yes, even ace those pop quizzes!

In the Algebra Club, we've got a syllabus that'll keep your neurons buzzing and your curiosity piqued. From the magic of exponents to the artistry of Cartesian coordinates, every week is packed with fun. You'll engage in games like “Algebra Bingo” and “Battleship” to reinforce memory work, explore real-world math applications, and discover the stories of brilliant mathematicians who changed the world.

So buckle up, grab your calculators, and get ready to conquer the kingdom of numbers. Algebra Club is not just about mastering math—it's about mastering life. Let's make every equation an adventure!

---

## Weekly Structure

- 1. Memory Work:**
    - Learn and recite vocabulary, formulas, and rules from memory charts provided.
    - Complete a worksheet to reinforce concepts.
  - 2. Interactive Learning:**
    - Play algebra-themed games that reinforce the week's memory work.
  - 3. Discussion and Exploration:**
    - Connect algebra concepts to real-world applications and historical contributions.
-

## Topics and Schedule

### Chart A: Foundations of Algebra

- **Memory Chart:** Key Vocabulary (e.g., variables, expressions, terms, coefficients).
- **Worksheet:** Definitions and identifying algebraic components.
- **Game:** "Algebra Bingo" using vocabulary words, Jeopardy A.

### Chart B: Properties

- **Memory Chart:** Properties of operations (commutative, associative, distributive).
- **Worksheet:** Identifying properties in algebraic expressions.
- **Game:** "Memory Match" with properties and examples, Algebra Club Footloose.

### Chart C: Exponents

- **Memory Chart:** Exponents and Logarithms
- **Worksheet:** Exponents, Radicals
- **Game:** Exponent Match Up, Radical Match Up

### Chart D: Cartesian Coordinates

- **Memory Chart:** Definitions and examples of slope, quadrants, and standard form.
- **Worksheet:** Understand slope and cartesian coordinates
- **Game:** Algebra Club Battleship, Cartesian Coordinate Hunt

### Chart E: Absolute Value

- **Memory Chart:** Definitions of absolute value.
- **Worksheet:** Absolute Value
- **Game:** Jeopardy E

### Chart F: Geometry

- **Memory Chart:** Definitions, formulas, and drawings of shapes
- **Worksheet:** Geometry
- **Game:** Geometry Memory Match

### Chart G: System of Equations

- **Memory Chart:** Definition of substitution, elimination, and graphing methods
- **Worksheet:** Solve systems using different methods
- **Game:** Algebra Club Pictionary

### Chart H: Graphs

- **Memory Chart:** Graphs of a line, quadratic, cubic, exponential and more
- **Worksheet:** Graph attributes and transformations
- **Game:**

**Chart I: Statistics** (*New Addition*)

- **Memory Chart:** Definitions (mean, median, mode, range, standard deviation).
- **Worksheet:** Calculate statistics from data sets.
- **Game:** “Data Detective” where students analyze fictional datasets for clues.

**Chart J: Trigonometry** (*New Addition*)

- **Memory Chart:** SOHCAHTOA, unit circle, and basic trigonometric functions (sine, cosine, tangent).
- **Worksheet:** Find missing sides and angles in right triangles.
- **Game:** “Trig Hunt” to solve puzzles with trigonometric ratios.

**Chart K: Functions**

- **Memory Chart:** Matrices, determinants, and abstract algebra basics.
- **Worksheet:** Apply operations on matrices.
- **Game:** “Matrix Mastery” with calculation challenges.

**Chart L: Mathematicians**

- **Videos:** Explore stories of famous mathematicians (e.g., Al-Khwarizmi, Euclid).
- **Game:** “Timeline Trivia” aligning discoveries with mathematicians.

---

**Assessment**

- Weekly quizzes on memory charts.
- Mathematician Timeline Game

## Weekly Schedule

### Day 1: Class Day

- **Objective:** Introduce new concepts, review prior knowledge, and engage in collaborative learning.
    - **Activity 1: Chart Presentation**
      - Introduce the new memory chart for the week, covering key vocabulary, formulas, and examples.
      - Facilitate a discussion on how the concepts connect to prior charts.
    - **Activity 2: Game Time**
      - Play a game based on material from previous charts (e.g., Algebra Bingo, Jeopardy, or Battleship).
      - Emphasize teamwork and application of learned concepts.
    - **Activity 3: Group Worksheet Completion**
      - Work in small groups to complete the worksheet for the new chart.
      - Encourage students to explain solutions to one another for deeper understanding.
- 

### Day 2: Practice and Memory Work

- **Objective:** Reinforce memory and strengthen foundational knowledge.
    - Copy the **new chart** (presented on Day 1) into personal notebooks.
    - Copy **one previous chart** from earlier weeks for review.
    - Begin or continue working on the new worksheet independently, focusing on any incomplete sections.
- 

### Day 3: Continued Practice

- **Objective:** Build familiarity with both new and old material.
    - Copy the **new chart** again for reinforcement.
    - Copy **one previous chart** from earlier weeks to keep older concepts fresh.
    - Complete additional problems or challenges related to the new worksheet.
- 

### Day 4: Wrap-Up and Mastery

- **Objective:** Cement understanding and prepare for the next class.
  - Copy the **new chart** one final time.
  - Copy **one previous chart** for cumulative reinforcement.
  - Finish all remaining work on the new worksheet and check for accuracy.

- Optional: Reflect on the connections between this week's chart and prior charts.

---

This schedule strikes a balance between introducing new content, reinforcing memory, and maintaining proficiency with previously learned material. Each day is designed to foster engagement, practice, and mastery.



## Algebra Club: Chart Mastery Checklist

Use this page to track your progress and celebrate the charts you've mastered! Check off each chart once you've passed it by demonstrating your knowledge and completing the related challenges.

Chart Letter	Chart Name	Passed? (✓)	Date Passed
A	Foundations of Algebra		
B	Properties of Operations		
C	Exponents and Logarithms		
D	Cartesian Coordinates		
E	Absolute Value		
F	Geometry Basics		
G	System of Equations		
H	Graphs and Transformations		
I	Statistics		
J	Trigonometry		
K	Functions and Matrices		
L	Mathematicians and Their Impact		

### Instructions

1. **Chart Letter & Name:** Each chart covers a key algebra topic. Use this list to identify the chart you're mastering.
2. **Passed?:** Check this box once you've demonstrated mastery (e.g., completing worksheets, winning related games, and explaining concepts).
3. **Date Passed:** Record the date to track your progress over time.

Keep this checklist handy as a motivational tool. Every checkmark is a step closer to algebra excellence! 🎉