

Algebra 2 | 2026–2027 Syllabus

Cosby High School

Part 1: Course Information

Instructor Information

- **Course:** Algebra 2
- **Instructor:** Makayla Medford
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- **Parent square**

Course Description

Algebra 2 is a challenging and essential high school mathematics course that builds upon the foundational concepts introduced in Algebra 1 and Geometry. This course delves deeper into algebraic structures and functions, preparing students for higher-level mathematics. Emphasis is placed on developing strong problem-solving skills, critical thinking, and the ability to model real-world phenomena using algebraic techniques.

- **Prerequisite:** Algebra 1 and Geometry
- **Pathway Area:** General Education

Textbook & Required Materials

- **Required Text:** *enVision Algebra 2*
- **Graphing Calculator:** TI-84 Plus (or approved digital equivalent like Desmos)

Supplies List

- Binder
- Tab Dividers
- Lined Paper
- Pencils

Part 2: Student Learning Outcomes

By the end of this course, students will be able to:

1. Number & Quantity

- Convert between rational exponents and radicals and simplify using exponent rules.
- Perform operations with $a+bi$ complex numbers using $i^2 = -1$.
- Solve quadratic equations with real coefficients that result in complex roots.
- Select, interpret, and justify realistic units and quantities for descriptive modeling.

2. Algebra & Equations

- Rewrite algebraic, exponential, and rational expressions into equivalent, useful forms using structure and exponent properties.
- Evaluate finite geometric series using the sum formula to solve contextual problems.
- Apply the **Remainder Theorem** and identify real zeros of factored polynomials to sketch rough graphs.
- Solve **rational and radical equations** in one variable, checking for and discarding **extraneous solutions**.
- Solve quadratic equations using multiple strategies and write complex solutions as $a \pm bi$.
- Write and solve linear-linear and linear-quadratic systems both algebraically and graphically.
- Explain why the x-coordinates of the points where graphs intersect are the solutions to $f(x) = g(x)$, using technology to approximate roots.

3. Functions & Modeling

- Identify key features (intercepts, domain/range, end behavior, rate of change) from graphs, tables, and verbal descriptions.
- Graph square root, cube root, piecewise, step, absolute value, polynomial, exponential, and logarithmic functions.
- Identify visual transformations
- Write explicit and recursive equations for sequences and functions, and find inverse functions.
- Solve exponential equations using logarithms with technology.
- Evaluate trigonometric functions using radian measure, the unit circle, and the Pythagorean theorem.

4. Statistics & Probability

- Estimate population percentages for normal distributions using the **Empirical Rule (68–95–99.7)**.
- Fit functions to bivariate scatter plots to describe trends and solve contextual problems.
- Distinguish among sample surveys, experiments, and observational studies, and estimate population parameters using margins of error.
- Describe events using set notation (unions, intersections, complements) and test for independence.
- Calculate conditional probabilities and compound probabilities using the **Addition Rule**.

A complete list of state standards can be found here:

Part 3: Course Structure & Pacing Schedule

Teaching Methods

Lecture, guided notes, class discussion, group work, projects, textbook practice, mastery connect, quizzes, and tests.

Assessment Methods

- **Chapter Tests:** Given at the end of each topic/unit.
- **EOC Exam:** The **Algebra 2** End-of-Course state exam will be given near the end of the second semester.

Predicted Topic Timeline

Dates are approximate and subject to change based on student needs and school closings.

Cumulative benchmark tests will occur on the last day of each topic.

- **Aug 10 – Aug 26:** Topic 1: Linear Functions and Systems
- **Aug 27 – Sep 16:** Topic 2: Quadratic Functions and Equations
- **Sep 17 – Oct 02:** Topic 3: Polynomial Functions
- **Oct 05 – Oct 08:** Fall Project
- **Oct 19 – Nov 05:** Topic 4: Rational Functions
- **Nov 06 – Nov 24:** Topic 5: Rational Exponents and Radical Functions
- **Nov 30 – Dec 14:** Topic 6: Exponential and Logarithmic Functions
- **Dec 15 – Dec 16:** Midterm / Semester Review
- **Dec 17:** Cumulative Benchmark Exam
- **Dec 19 – Jan 04:** *Winter Break*

- **Jan 05 – Jan 22:** Topic 10: Matrices
- **Jan 25 – Feb 11:** Topic 11: Data Analysis and Statistics
- **Feb 16 – Mar 05:** Topic 12: Probability
- **Mar 08 – Mar 19:** Spring Project
- **Mar 29 – EOC Window:** EOC Review & State Testing
- **Post-EOC:** End-of-Year Culminating Project

Part 4: Grading & Course Policies

Grading Scale

- **90–100:** A
- **80–89:** B
- **70–79:** C
- **60–69:** D
- **0–59:** F

Grades for on-time work will generally be entered into ASPEN within 5 school days. Assignments are subject to change.

Category Weights (*Suggested Standard Structure*)

- **Summative Assessments (Tests, Major Projects):** 50%

- **Formative Assessments (Quizzes, Benchmarks):** 30%
- **Daily Work / Homework / Classwork:** 20%

Late Work Policy

Late assignments will lose **10 points per day**. After 5 days of the original assignment due date, late work will not be accepted.

Makeup Work Policy

Students are responsible for requesting and completing missed work due to absences. You have **5 school days** from the date of return to turn in makeup work. Assignments can be retrieved from the designated absent work folder in the classroom.

Final Exam Policy (School Year 2026–2027)

- **Midterm Exams:** December 17 and 18
- **EOC Testing Window:** April 13 – May 5
- **Final Exams:** May 19 and 20 (*Senior exam dates adjusted for graduation calculations*)

The final exam counts as **15% of the overall course average**. For EOC courses, the state EOC quick score is weighted as the final exam score and averaged with the 4th nine-weeks grades. EOC teachers administer a graded quiz/test during final exam blocks.

Exam Exemption Incentive: Students in grades 9–12 may earn exemption from non-EOC final exams or EOC final quizzes/tests if:

1. The student has **3 or fewer absences** (excused or unexcused) during the semester prior to finals week (school-sponsored activities do not count as absences).
2. The student is **passing the class** prior to exams.

Exempt students may choose to take the exam on a "no-harm" basis (the grade will only count if it raises the student's overall average).

Part 5: Classroom Rules & Policies

Classroom Rules and Expectations

1. Be prepared and in your assigned seat before the bell rings (pencil sharpened, calculator ready, binder out).
2. Remain seated until the dismissal bell rings—no gathering near the door.
3. Remain completely silent during intercom announcements.
4. Follow Cosby High School's official hall pass policy.
5. Stay with the class during all safety and emergency drills.
6. Respect others, their property, and classroom equipment (the Smart Board, whiteboard, teacher desk, intercom, phone, and thermostat are off-limits).
7. Sit only at designated student desks/tables.

8. NO CELL PHONE USE IS PERMITTED DURING CLASS TIME.

Part 6: Academic Dishonesty & District Policies

Academic Dishonesty Policy

People learn most effectively and build their strength of character by doing their reading, writing, test-taking, projects, research, and assignments. Students learn most from their education by evaluating, reflecting, and revising their work. Therefore, educating students about academic honesty and clarifying the school's policy on academic dishonesty is essential.

Definitions:

- **Cheating:** The unauthorized possession, giving, sharing, taking, or presentation of information and material benefits to a student. Examples include passing information during an assessment, using unauthorized materials/technology, sharing test details between classes, or submitting work that is not one's own.
- **Plagiarism:** Presenting someone else's ideas, research, or opinions as your own without proper documentation, even if rephrased. This includes copying verbatim, using phrases/illustrations without citation, or paraphrasing without attribution.

Consequences:

Plagiarism is a form of academic fraud. Students found guilty of plagiarism will have the option to redo the assignment within a specified timeframe and accept a letter grade penalty, or accept a zero. Parents will be involved in this decision.

Religion in the Classroom

The Board affirms that it is essential that teaching *about* religion—and not *of* a religion—be conducted in a factual, objective, and respectful manner:

1. Religious themes may be a part of the curriculum provided it is essential to the learning experience and presented objectively.
2. The inclusion of religion shall be for educational purposes only.
3. Studies shall never be used to proselytize, establish, foster, or demean any particular religion or set of beliefs.
4. Student-initiated expressions reflecting their beliefs regarding an assignment shall be accommodated.

Cocke County Board of Education Policy 4.214: Use of Artificial Intelligence Programs

Descriptor Term: Use of Artificial Intelligence Programs | **Descriptor Code:** 4.214 | **Issued Date:** 07/11/24

General

Artificial Intelligence (AI) programs as defined by state law may be used by staff and students in the district.

Only approved AI programs may be utilized in student instruction or in completing student work. The Director of Schools shall develop a procedure for staff to submit additional programs for approval.

District technology staff are tasked with overseeing the implementation of AI programs. These staff members will review artificial intelligence programs to ensure compliance with district policies as well as state and federal student data privacy laws and present recommendations to the Director of Schools for approval. Any approved programs shall be accessible to all students.

Employees shall not place personally identifiable information, financial information, intellectual property, or other confidential information into an AI system.

The Director of Schools shall incorporate training programs on AI into professional development for district staff. This training shall focus on responsible use of AI and best practices for use in school settings and include instruction regarding personally identifiable information and the need to comply with state and federal data privacy laws. Emphasis shall be placed on the importance of securing and properly storing any data that is collected by the district in compliance with state and federal law.

Staff Use

Staff may use AI in the completion of their own work. This may include, but not be limited to, drafting communications, notes, images, and the development of content for instructional or administrative purposes, as well as analyzing data and information. The following requirements shall be adhered to when using AI in the completion of work:

- Employees shall disclose their use of a generative AI tool if failure to do so would:
 - Violate the terms of the use of the AI tool;
 - Would mislead a supervisor or others as to the nature of the work; or
 - Would be inconsistent with the teacher code of ethics.
- Employees shall take all reasonable precautions to ensure the security of private student data when utilizing AI programs;
- Outputs from AI programs shall be verified by reliable sources and reviewed prior to use in order to reduce the risk of errors and inaccuracies; and
- Outputs shall not be incorporated into proprietary content or works.

Student Use

Teachers may allow students to use approved AI programs for instructional purposes. Any such use shall align with approved instructional standards and curriculum. Prior to using AI, teachers shall ensure students are provided with appropriate instruction on the responsible use of AI.

Academic Integrity

Students shall be instructed on responsible use standards including but not limited to the following:

1. Effective use of generative AI;

2. When it is appropriate to use AI in assignments;
3. How to determine whether AI responses are accurate;
4. Users assume responsibility for incorporating AI content responsibly; and
5. The difference between cheating and seeking support.

Notice to Parents

The Director of Schools shall provide notice to parent(s)/guardian(s) about the use of AI programs in the district. An approved list of AI programs will be provided by the technology department.

Reporting

The Director of Schools shall submit a report to the Board of Education each June on how this policy will be enforced in the upcoming school year. The Board shall approve the report and the Director shall submit it to the Department of Education by July 1st.

Legal References: Public Acts of 2024, Chapter No. 550; TCA 49-5-1001

Cross References: Use of the Internet 4.406