Algebra 2 Syllabus

Central Sands Community High School | 2026–27

Extend Algebra 1 through advanced functions, equations, complex numbers, and quantitative modeling.

Course information

Subject: Mathematics Grade placement: 11 and 12 or placement by readiness
Credit:1
Instructor: Thomas Eston Whitfield
Schedule: Semester 1: 1:30–2:30 p.m.
Semester 2: 12:30–1:30 p.m.

Curriculum and materials

Oak Meadow course materials; Algebra 2 by Elayn Martin-Gay. Assigned lessons are selected and sequenced by the teacher to match course targets and student readiness. Bring the assigned text, notebook, pencil, and teacher-approved calculator. Graphing or spreadsheet tools are used when they support the learning target.

Learning outcomes

- Use domain, range, composition, inverse relationships, and transformations; interpret piecewise functions.
- Solve quadratic equations; operate with complex numbers; connect discriminants to solution types.
- Perform polynomial arithmetic and division; connect zeros, factors, multiplicity, and end behavior.
- Simplify rational expressions; analyze restrictions, holes, and asymptotes; solve rational equations.
- Use rational exponents and radicals; solve radical equations; interpret inverse relationships.
- Use logarithms as inverses; apply logarithmic properties; solve and model exponential equations.
- Solve selected nonlinear systems; analyze arithmetic and geometric sequences and finite series.
- Use radians and the unit circle; analyze sine and cosine; model periodic behavior.
- Use counting and conditional probability; evaluate statistical claims; compare competing mathematical models.

Instruction and practice

Students learn through teacher explanation and modeling, guided problem solving, discussion, independent practice, and applications. Placement and grouping reflect readiness. Regular teacher check-ins identify misconceptions and guide reteaching. Cumulative review keeps earlier skills active. Assigned practice includes written reasoning and worked steps; completing pages alone does not demonstrate competency.

Assessment and evidence of learning

- Diagnostic tasks identify starting skills and inform instruction; they do not replace course-level evidence.
- Formative evidence includes exit tickets, observation, notebook review, student explanations, and short skill checks. Feedback identifies a specific next step.
- Summative evidence includes independent unit assessments, application tasks, and a cumulative demonstration. Projects are evaluated for mathematical accuracy, reasoning, representation, and interpretation.
- The teacher maintains a target-by-target record showing the task, date, level of independence, demonstrated proficiency, and next step. Progress is communicated through school reporting procedures.

How competency is measured

Each target is evaluated using four descriptors: Beginning—needs substantial support; Developing—shows partial understanding or inconsistent application; Proficient—independently applies the skill, shows a valid method, and interprets the result; Extending—transfers the skill to a new situation and justifies or compares approaches. These descriptors guide evidence review and do not establish a new school grading policy. Credit and final reporting follow school requirements.

Feedback revision and reassessment

Students review errors, explain corrected reasoning, and complete targeted practice before reassessment. A new comparable task checks independent learning. The teacher considers the most recent consistent evidence while retaining earlier evidence to document growth. Homework completion and participation support learning but are recorded separately from mathematical proficiency.

Expectations and access

- Show mathematical thinking, label units and graphs, and check whether answers make sense. Ask questions and contribute respectfully to shared problem solving.
- Use tools only as authorized for the task. Cite outside assistance; submit individual reasoning for independent assessments.
- Arrange missed instruction and assessment with the teacher. Follow school attendance, academic integrity, and reporting policies.
- IEP and 504 accommodations apply. Supports may include chunked tasks, visual models, accessible text, additional processing time, and alternative ways to explain reasoning. Modified targets follow the student’s individualized plan.

Mathematical practices

Across all units, students make sense of problems, reason quantitatively, explain and critique arguments, model situations, choose tools, attend to precision, use structure, and identify repeated reasoning. The course outline connects these practices to unit tasks and observable evidence.