
Alaska 10 Algebra II – Accelerated Path

FREE PREVIEW

Full-Year Teacher Planner, Blank Editable Planner & School-Submission Binder

This preview shows the real structure and a genuine sample of the completed planner. The full product contains 9 units, 36 weekly plans and 180 daily plans, plus blank editable versions of every form.

State	Alaska
Grade	10 (High)
Subject	Algebra II – Accelerated Path
Course category	Mathematics
Standards family	Mathematics
Framework	Alaska Mathematics Standards
Issuing agency	Alaska Department of Education and Early Development
Scope	36 instructional weeks · 180 instructional days · 9 units

This is a statewide standards index, not a local course catalog. Course names, grade placement, electives, and graduation sequences vary by district.

What you get

Folder	Contents
01 START HERE	Read-me, contents, printing and digital instructions, standards verification guide, this preview
02 FILLED FULL YEAR	Completed planner in colour and ink-friendly PDF, plus editable DOCX
03 BLANK EDITABLE	Blank planner in colour, ink-friendly and fillable PDF, plus editable DOCX
04 ASSESSMENTS AND DATA	Baseline observation, quarterly rubrics, anecdotal forms, portfolio checklist
05 SCHOOL SUBMISSION	Submission covers, alignment summary, evidence checklist, observation, reflection, signature page
06 LICENSE AND CREDITS	Terms of use, credits and licences, copyright notice

The pages that follow are reproduced **exactly** as they appear in the full completed planner.

Week 9 — Equations and Inequalities in One Variable

Unit 3: Building Equations From Situations · Month 3 · Quarter 1 · Semester 1 · Instructional Days 41–45

Essential question	How do you turn a situation into something you can solve?
Standards	Equations and Inequalities in One Variable -> A-CED.3, N-CN.1, S-ID.8 — 3 standards; full text in the standards table Practice: Model With Mathematics -> F-LE.1 Alaska Mathematics Standards / Functions (LE) — Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Show that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. S-CP.9 Alaska Mathematics Standards / Statistics and Probability (CP) — (+) Use permutations and combinations to compute probabilities of compound events and solve problems.
Learning target	"I can create an equation or inequality in one variable from a problem and solve it."
Local dates	_____ (enter your school dates)

Measurable objectives

- Students will create equations and inequalities in one variable and use them to solve problems. Extend to equations arising from polynomial, trigonometric (sine and cosine), logarithmic, radical, and general piecewise functions.
- Students will model with mathematics.

Success criteria (student-friendly)

- "I define the variable precisely, with units."
- "I create an equation or inequality that represents the situation."
- "I solve it and interpret the answer back in the situation."

Academic vocabulary

variable, constraint, equation, inequality, piecewise, interpret, feasible, solution set, units

Materials and technology

- Notebooks
- Supplied problem contexts

Differentiation and supports

Support area	This week's plan
Special education / IEP	Reduce group size; pair visual cue cards with all verbal directions; allow gesture or picture response in place of speech; pre-teach the week's target in a 1:1 warm-up.
Section 504	Provide the child's documented accommodations throughout; permit movement breaks and alternative seating at any point in the sequence.

Support area	This week's plan
Multilingual learners	Introduce each vocabulary word with an object or image; accept home-language responses; send the vocabulary list home where a translation is available; pair with a peer who shares the home language.
Advanced / extension	Ask the learner to teach the skill to a peer, extend the task, or record a demonstration for the class reference wall.
Intervention / reteach	Reteach the target in a short small group using the same materials; split the day's check for understanding into two smaller steps.
Enrichment	Extend into an open-ended centre or project connected to the essential question.

Assessment and evidence

Student creates and solves equations from contexts across several function families.

Family communication

Ask your child what their variable stands for, exactly.

Day 41 — Defining the Variable Precisely

Week 9, Day 1 · Unit 3 · Standards: A-CED.3, N-CN.1, S-ID.8, F-LE.1, S-CP.9

Focus	The first step.
Learning target	"I can create an equation or inequality in one variable from a problem and solve it."
Vocabulary in use	variable, constraint, equation, inequality, piecewise, interpret, feasible, solution set, units
Local date	_____

Learning sequence

Connect: 'let x be the number'. Teach: a variable definition must say what quantity, measured in what units, at what moment - 'let t be the time in hours since 8am' rather than 'let t be time'. Almost every modelling error at this level is a vague definition, and the answer then cannot be interpreted. Try: shared repair of supplied vague definitions. Apply: students write precise definitions for five supplied contexts. Reflect: if you cannot state the units, you have not defined the variable.

Check for understanding

Student writes precise variable definitions with units and reference points.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Day 42 — From Words to an Equation

Week 9, Day 2 · Unit 3 · Standards: A-CED.3, N-CN.1, S-ID.8, F-LE.1, S-CP.9

Focus	Creation.
Learning target	"I can create an equation or inequality in one variable from a problem and solve it."
Vocabulary in use	variable, constraint, equation, inequality, piecewise, interpret, feasible, solution set, units
Local date	_____

Learning sequence

Connect: the standard says CREATE. Teach: identify what is equal to what, or what is bounded by what - the relationship in the situation is what the equation records, and reading the sentence for 'is', 'at least', 'no more than' and 'per' is most of the translation. An inequality is used when the situation states a bound rather than an equality. Try: shared translation of supplied contexts. Apply: students create equations or inequalities for six contexts without solving. Reflect: creating is a separate skill from solving, and it is the one being assessed here.

Check for understanding

Student creates equations and inequalities that faithfully represent contexts.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Day 43 — Extending to Harder Function Families

Week 9, Day 3 · Unit 3 · Standards: A-CED.3, N-CN.1, S-ID.8, F-LE.1, S-CP.9

Focus	The standard's extension.
Learning target	"I can create an equation or inequality in one variable from a problem and solve it."
Vocabulary in use	variable, constraint, equation, inequality, piecewise, interpret, feasible, solution set, units
Local date	_____

Learning sequence

Connect: the standard names polynomial, trigonometric, logarithmic, radical and piecewise. Teach: the modelling process does not change with the function family - define, translate, solve, interpret - and what changes is the solving technique, which Unit 2 supplied. Recognising which family a situation calls for is part of the skill: periodic behaviour suggests trigonometric, proportional growth suggests exponential, a rule that changes at a threshold suggests piecewise. Try: shared matching of supplied contexts to families. Apply: students match eight contexts and create the equation for three. Reflect: the shape of the situation names the family.

Check for understanding

Student matches contexts to function families and creates appropriate equations.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Day 44 — Piecewise Situations

Week 9, Day 4 · Unit 3 · Standards: A-CED.3, N-CN.1, S-ID.8, F-LE.1, S-CP.9

Focus	Piecewise functions.
Learning target	"I can create an equation or inequality in one variable from a problem and solve it."
Vocabulary in use	variable, constraint, equation, inequality, piecewise, interpret, feasible, solution set, units
Local date	_____

Learning sequence

Connect: rules that change at a threshold. Teach: piecewise models describe situations where the rule genuinely differs over intervals - a rate that changes above a limit, a charge that applies only past a point - and the critical work is the BOUNDARY: which piece applies exactly at the threshold, and whether the pieces meet. Try: shared construction of a supplied piecewise model, deciding the boundary carefully. Apply: students build two piecewise models and solve a question in each piece. Reflect: the boundary is where the errors and the interesting questions both live.

Check for understanding

Student builds piecewise models and handles boundaries correctly.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Day 45 — Interpreting the Answer Back

Week 9, Day 5 · Unit 3 · Standards: A-CED.3, N-CN.1, S-ID.8, F-LE.1, S-CP.9

Focus	The week's product.
Learning target	"I can create an equation or inequality in one variable from a problem and solve it."
Vocabulary in use	variable, constraint, equation, inequality, piecewise, interpret, feasible, solution set, units
Local date	_____

Learning sequence

Connect: the standard says USE THEM TO SOLVE PROBLEMS. Teach: the solution of the equation is not the answer to the problem until it is interpreted - in units, checked for feasibility (a negative time, a fractional person, a value outside the model's domain), and stated as a sentence. Try: shared interpretation of supplied solutions including one that is mathematically valid and physically impossible. Apply: students solve and fully interpret three problems. Reflect: always ask whether the answer could happen.

Check for understanding

Student interprets solutions in context and checks feasibility.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Important before you buy

- This is a **digital download**. Nothing is shipped.
- The planner is **calendar-neutral**: Month 1–9, Week 1–36, Day 1–180, so it fits any school calendar. You add your own dates.
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This is a statewide standards index, not a local course catalog. Course names, grade placement, electives, and graduation sequences vary by district.

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Source citation

Alaska Department of Education and Early Development. Alaska Mathematics Standards. ALASKA PUBLISHES NO HIGH SCHOOL MATHEMATICS COURSES. Its 2012 standards drop grade levels entirely at high school and organise 148 standards into CONCEPTUAL CATEGORIES -- Number and Quantity, Algebra, Functions, Geometry, and Statistics and Probability. The document says so outright: "These standards do not mandate the sequence of high school courses... IT IS A DISTRICT DECISION HOW TO DESIGN COURSE OFFERINGS covering the mathematics standards. Districts can use the traditional approach of Algebra I, Geometry, and Algebra II or implement an integrated approach." SO THERE IS NO ALASKA GEOMETRY SET AND NO ALASKA ALGEBRA II SET. This row selects the conceptual categories the named course conventionally covers, and THAT SELECTION IS THIS PLAN'S EDITORIAL JUDGEMENT RATHER THAN THE STATE'S. Check it against your own district's course design before buying. THE STANDARD TEXT ITSELF IS TRANSCRIBED VERBATIM and nothing is invented. THIS ROW TAKES NUMBER AND QUANTITY, ALGEBRA, FUNCTIONS AND STATISTICS AND PROBABILITY, which is what an Algebra II course conventionally draws on -- the statistics category is included here and not in the Algebra I row, because that is where it conventionally falls. Some standards are marked (+) in the document as ADDITIONAL STANDARDS FOR ADVANCED COURSES; they are registered as printed. Retrieved 2026-07-27 from https://education.alaska.gov/akstandards/math/adopted_math.pdf