

Curriculum Management System

PAULSBORO PUBLIC SCHOOLS



ALGEBRA I

UPDATED 2022

For adoption by all regular education programs
as specified and for adoption or adaptation by all
Special Education Programs in accordance with
Board of Education Policy.

Board Approved:

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Mr. Paul Morina, Principal, grades 7-12

Paulsboro Public Schools

Mission Statement

The mission of the Paulsboro School District is to work

with students, parents, educators, and community to develop excellence in education while preparing each student to be viable and productive citizens in society. Our goal is to develop the unique potential of the whole student by creating a challenging and diverse learning climate that prepares students for the 21st Century and is rich in tradition and pride.

PACING CHART

TOPIC	# OF DAYS	DATES	COMMENTS
1 – Modeling with Linear Equations and Inequalities	45	Sept to Mid Nov.	<i>Focus On Algebraic Manipulation</i>
2 – Modeling with Linear Functions, Linear Systems, & Exponential Functions	45	Mid Nov - Jan	<i>Focus on use of calculator for functions (both handheld and online calculator)</i>
3 – Quadratic Equations, Functions, & Polynomials	45	Feb – Mid April	Solving Quadratic Equations using various methods
4 - Modeling with Statistics	45	Mid April - June	Focus on pulling data from Informational Text

Quarter 1

Big Ideas: Modeling with Linear Equations and Inequalities

Standard for Mathematical Content:

N.Q.A.1., N.Q.A.2., N.Q.A.3, A.REI.B.3. , A.REI.A.1., A.REI.D.10., A.REI.D.11, A.SSE.A.1. , A.CED.A.1, A.CED.A.2, A.CED.A.4A.SSE.A.1a

Standards for Mathematical Practice: MP.4 - MP.5

MODIFICATIONS:

- o **Advanced Learner:** Enrichment activities for teachers to utilize when learners are advanced within the given standard/topic.
- o Encourage students to explore concepts in depth and encourage independent studies or investigations.
- o Modeling or independent student led research
- o **Students with Disabilities:** Ongoing Interventions, strategic Interventions and Intensive Interventions that are teacher and/or technologically driven within the curriculum and targeted to standards in need of support.
- o Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.

Critical Knowledge and Skills

Concept(s):

Operations on Real Numbers – Solving Linear Equations – Solving Equations with Variables on Both Sides – Literal Equations and Expressions – Solving Inequalities in One Variable – Compound Inequalities – Absolute Value.

Students are able to:

- Students will be able to solve linear equations and inequalities in one variable
- Students will be able to understand solving equations as a process of reasoning and explain the reasoning
- Students will be able to represent and solve equations graphically

Learning Goal(s):

- How can we use mathematics to model and solve real world scenarios and situations?
- How can students interpret parts of an expression?
- How will students rewrite algebraic expressions by combining like terms?
- How can students reason quantitatively and use units to solve problems?
- How can students write equations and inequalities from a given context?
- How can students solve a linear equation and inequality in one variable?
- How can students solve literal equations for any given variable?

Formative/Summative Assessments

Primary & Supplementary Resources

- o Extended time for revisions or opportunity to identify and develop areas of personal interest

FORMATIVE:

Independent problems during lessons, Lesson Quizzes

*Primary Resource: Savvas Realize
– Savvasrealize.com*

- o **English Language Learners:** Bilingual language glossary for mathematical literacy and vocabulary prior to and during each lesson.
- o English Language Learner support embedded into each lesson for use during the instructional part of the lesson (rephrasing, models, photos, etc.)
- o Targeted support strategies that focus on key areas of language development: listening, speaking, reading, and writing for students at different proficiency levels.
- o Technology supported assignments aligned with standards in students native language.

SUMMATIVE:

Topic Assessments, Performance Assessments, Benchmark and Mid-Course Assessments, End of Course Assessments, LinkIt Assessment

Mid-Topic Checkpoint

- Mid-Topic performance Task
- Lesson Quiz
- Topic Assessment
- Topic Performance Assessment

*Supplementary Resources:
KutaSoftware*

Quarter 2

Big Ideas: Modeling with Linear Functions, Linear Systems, & Exponential Functions

Standard for Mathematical Content:

A.REI.C.5., A.REI.C.6., A.REI.D.12, A.CED.A.3, F.IF.A.1., F.IF.A.2., F.IF.A.3., F.LE.A.1., F.LE.A.1a., F.LE.A.1b., F.LE.A.1c., F.LE.A.2.

Standards for Mathematical Practice: MP.3 MP.4 MP.5

MODIFICATIONS:

Advanced Learner:

- o Enrichment activities for teachers to utilize when learners are advanced within the given standard/topic.
- o Encourage students to explore concepts in depth and encourage independent studies or investigations.
- o Modeling or independent student led research

Students with Disabilities:

- o Ongoing Interventions, strategic Interventions and Intensive Interventions that are teacher and/or technologically driven within the

Critical Knowledge and Skills

Concept(s):

Linear Functions. Systems of Linear Equations. Systems of Linear Inequalities. Piecewise Functions. Exponents and Exponential Functions.

Students are able to:

- Students will be able to solve systems of equations and inequalities graphically and algebraically.
- Students will be able to construct and compare linear and exponential models.
- Students will be able to understand the concept of a function and use function notation. Students will build a function to model the relationship between two quantities.

Learning Goal(s):

- How are the different parts of the expressions represent in the context of the problem?
- How can the graphical model of a system of equations/inequalities be used to reason and draw conclusions?
- How can functions be used to find solutions to real-world problems and predict outcomes?
- How are the differentiating characteristics of linear vs. exponential functions identified?

- o curriculum and targeted to standards in need of support.
- o Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.
- o Extended time for revisions or opportunity to identify and develop areas of personal interest

Formative/Summative Assessments

FORMATIVE:

Independent problems during lessons, Lesson Quizzes

SUMMATIVE:

Topic Assessments, Performance Assessments, Benchmark and Mid-Course LinkIt assessments

Primary & Supplementary Resources

Primary Resource: Savvas Realize – Savvasrealize.com

Supplementary Resources: KutaSoftware

English Language Learners:

- o Bilingual language glossary for mathematical literacy and vocabulary prior to and during each lesson.
- o English Language Learner support embedded into each lesson for use during the instructional part of the lesson (rephrasing, models, photos, etc.)
- o Targeted support strategies that focus on key areas of language development: listening, speaking, reading, and writing for students at different proficiency levels.
- o Technology supported assignments aligned with standards in students native language.

Mid-Topic Checkpoint

- Mid-Topic performance Task
- Lesson Quiz
- Topic Assessment
- Topic Performance Assessment

Quarter 3

Big Idea: Quadratic Equations, Functions, & Polynomials

Standard for Mathematical Content:

A.APR.A.1. , A.APR.B.3., A.CED.A.1., A.REI.B.4., A.REI.B.4a., A.REI.B.4b. , A.REI.D.11., A.SSE.A.2., A.SSE.B.3., A.SSE.B.3a, A.SSE.B.3b., F.IF.B.4., F.IF.B.5., F.IF.B.6., F.IF.C.7., F.IF.C.7a., F.IF.C.8., F.IF.C.8a., F.IF.C.9., F.BF.A.1.F.BF.A.1a, F.BF.B.3., F.LE.A.3., N.RN.B.3.

Standards for Mathematical Practice: MP.3 - MP.5

MODIFICATIONS:

- o **Advanced Learner:** Enrichment activities for teachers to utilize when learners are advanced within the given standard/topic.
- o Encourage students to explore concepts in depth and encourage independent studies or investigations.
- o Modeling or independent student led research
- o **Students with Disabilities:** Ongoing Interventions, strategic Interventions and Intensive Interventions that are teacher and/or technologically driven within the curriculum and targeted to standards in need of support.

Critical Knowledge and Skills

Concept(s): Polynomials and Factoring, Quadratic Functions, Solving Quadratic Equations, Factoring Quadratics, Graphing Quadratics, Vertex Form.

Students are able to:

- Students will be able to perform arithmetic operations on polynomials.
- Students will be able to solve quadratic equations using a method most advantageous to the situation. Students will use quadratic relationships to model and solve real world problems.
- Students will be able to construct and compare linear, exponential and quadratic models.

Learning Goal(s):

- How can students use polynomial operations of addition, subtraction, and multiplication in real-world situations?
- How do you determine which method is best for solving a quadratic equation?
- How are the zeros of a polynomial related to its graph?
- How can quadratic polynomials be written in different forms to find the zeros, vertex and axis/lines of symmetry?
- How are the strategies and methods used to construct and compare linear, quadratic and exponential models and solve problems?
- How do functions change based on transformations? Can students represent vertical and horizontal shifts?

- o Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.
- o Extended time for revisions or opportunity to identify and develop areas of personal interest
- o **English Language Learners:** Bilingual language glossary for mathematical literacy and vocabulary prior to and during each lesson.
- o English Language Learner support embedded into each lesson for use during the instructional part of the lesson (rephrasing, models, photos, etc.)
- o Targeted support strategies that focus on key areas of language development: listening, speaking, reading, and writing for students at different proficiency levels.
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Formative/Summative Assessments

FORMATIVE:

Independent problems during lessons, Lesson Quizzes

SUMMATIVE:

Topic Assessments, Performance Assessments, Benchmark and Mid-Course Assessments, End of Course Assessments, Linkit assessments

Mid-Topic Checkpoint

- *Mid-Topic performance Task*
- *Lesson Quiz*
- *Topic Assessment*
- *Topic Performance Assessment*

Primary & Supplementary Resources

Primary Resource: Savvas Realize – Savvasrealize.com

Supplementary Resources: KutaSoftware

Quarter 4

Big Idea: Modeling with Statistics

Standard for Mathematical Content:

S.ID.A.1, S.ID.A.2., S.ID.A.3., S.ID.B.5., S.ID.B.6., S.ID.B.6a., S.ID.B.6b, F.IF.B.4., F.IF.B.5.

Standards for Mathematical Practice: MP.4 - MP.5

MODIFICATIONS:

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Critical Knowledge and Skills

Concept(s): Working with functions, Statistics, Analyzing Data Displays, Comparing Data Sets, Analyzing the Shape of Data Graphs, Standard Deviation.

Students are able to:

- Students will be able to use probability and statistics to represent real world situations and interpret and communicate results, using technology when needed.
- Students will be able to summarize, represent and interpret data.

Learning Goal(s):

- How can students accurately represent data on a real number line using dot plots, histograms or box plots?
- How can students make determinations based on the shape of the data distribution?
- How can students calculate standard deviation for a set of data?
- How can students use the shape, center, and spread to interpret the differences of the data?
- How are two-way frequency tables used to interpret joint, marginal and conditional relative frequencies of categorical data?

- o technologically driven within the curriculum and targeted to standards in need of support.
- o Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.
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- o **English Language Learners:** Bilingual language glossary for mathematical literacy and vocabulary prior to and during each lesson.
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- How can using technology to fit a function to data help students learn more about functions?

Formative/Summative Assessments

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Supplementary Resources:
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