

CR Anderson Middle School

7th Grade Advanced Math

CONTACT INFO
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Course Description and Standards

This course advances **mathematical excellence** and deepens cultural understanding, aligning with Montana's dual commitment to academic standards and Indian Education for All.

According to Montana's Mathematics standards, students engage with four major domains, while applying the Standards for Mathematical Practice.

- **Expressions & Equations:** Solve linear equations and systems; manipulate expressions.
- **Functions:** Explore, graph, and interpret functions—identifying relationships between variables.
- **Geometry:** Analyze two- and three-dimensional figures; explore congruence, similarity, and transformations.
- **Statistics & Probability:** Represent data with scatterplots, box plots, dot plots; model associations and variability.

Standards for Mathematical Practice prompt students to:

- Make sense of and persevere in problem-solving.
- Reason abstractly and quantitatively.
- Construct and critique mathematical arguments.
- Model with mathematics in real-world settings.
- Use tools strategically (e.g., graphs, technology).
- Communicate precisely, look for structure, and notice regularity in patterns.

Indian Education for All (IEFA)

Under Montana's Constitution (Article X § 1(2)) and the law MCA 20-1-501, IEFA mandates that all students engage with the distinct cultural heritage of American Indians, and that educators incorporate these perspectives across Montana's Essential Understandings guide this integration: recognizing tribal sovereignty, cultural diversity, oral traditions, and Indigenous worldviews.

In Advanced math, we incorporate rich and engaging lessons for culturally grounded math experiences.

Examples of IEFA activities:

- Geometric Transformations through Montana American Indian Tribal Seals
- Beading Patterns Using Reflections
- Surface Area & Volume of Traditional Homes

These activities allow students to:

Explore **reflection, rotation, and symmetry** within Indigenous artistic themes.

Calculate **surface areas and volumes** of culturally significant structures like tipis or longhouses.

Engage meaningfully with **tribal geometry**, blending spatial reasoning with cultural artistry.

Learning Goals & Objectives

By the end of the 7th Grade Advanced Math, students will be able to:

- **Demonstrate proficiency** in algebraic reasoning: functions, linear equations, and systems.
- **Analyze geometric transformations** and properties of figures with precision.
- **Model and interpret data** using statistical representations, understanding relationships and variability.
- **Apply mathematical practices** effectively: problem-solving, reasoning, modeling, precision, and structural awareness.
- **Connect mathematics to Indigenous cultures:** interpreting geometry and transformations through tribal seals, art, and architectural forms.
- **Respect and incorporate tribal knowledge and worldview** as valid, meaningful lenses for mathematical exploration.
- **Communicate results clearly**, citing Indigenous contexts where appropriate and reflecting on cultural significance.

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Required Materials & Textbooks

This course is divided into three topics. Each topic is divided into the "blocks" outlined below. To access the curricular resources, use the information in the box to the right

- **Linear Equations (5 Blocks)**

- Expressions and Equations
- Sequence and Slope
- Using Linear Equations
- Systems of Equations
- One Variable Statistics

- **Geometry (4 Blocks)**

- Angles and Triangles
- The Pythagorean Theorem
- Transformations
- Exponents and Volume

- **Functions and Data (1 Block)**

- Introduction to Functions

Online Resources

<https://www.corefocusonmath.com>

Username: helena

Password: math

70%

Assessments
(Weekly Quizzes and Block Tests)

Grading Policy

30% **Independent Work**
(Worksheets and Activities)

Students will be graded on assessments (weekly quizzes & end of the block tests) and independent work (worksheets from the Independent Practice Packet and class activities).

Grading Scale

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = Below 60

At the beginning of each block, students will receive a **Guided Practice Packet** (notes) and an **Independent Practice Packet** (worksheets).

The expectation is that the **Guided Practice Packet** and the **Independent Practice Packet** are both kept neatly in a provided blue plastic two-pocket folder and brought to class daily with a pencil.

Classroom Expectations, Communication and Parent Engagement

Students are expected to stay up to date with what is being covered in class. When absent, students are expected to complete the **Guided Practice Packet** and **Independent Practice Packet** as outlined on the monthly calendar that is posted on Dr. Chandler's webpage:

https://staff.helenaschools.org/staff_page/jchandler/

Students may come in any day during lunch for extra support, and parents may contact me anytime using the contact information at the top of this page.

7th Grade Adv Math: Scope Sequence and Pacing Guide

September - December	January - March	April - June
<p>Linear Equations</p> <p>Expressions and Equations</p> <ul style="list-style-type: none">1.1 Order of Operations (7.NS.3)1.2 Evaluating Expressions (6.EE.2/7.EE.1)1.3 Distributive Property (7.EE.1)1.4 Solving One-Step Equations - Skip this Lesson1.5 Solving Two-Step Equations (8.EE.7b)1.6 Solving Multi-Step Equations (8.EE.7b)1.7 Solutions to Linear Equations (8.EE.7a)1.8 Linear Inequalities in One Variable (HS.A-REI.3) <p>Sequences and Slope</p> <ul style="list-style-type: none">2.1 Recursive Routines (8.F.4/ 8.F.5)2.2 Linear Plots (8.F.4/ 8.F.5)2.3 Recursive Routine Applications (8.F.4/ 8.F.5)2.4 Rate of Change (8.F.1-3/ 8.F.4)2.5 Recursive Routines to Equations (8.EE.5/ 8.F.2-3/ 8.F.4-5)2.6 Input-Output Tables from Equations (8.F.2-3/ 8.F.4-5)2.7 Calculating Slope from Graphs (8.EE.5/ 8.EE.6)2.8 The Slope Formula (8.EE.5/ 8.EE.6) <p>Using Linear Equations</p> <ul style="list-style-type: none">3.1 Graphing using Slope-Intercept Form (8.F.2-3/ 8.F.4-5)3.2 Writing Linear Equations for Graphs (8.F.2-3/ 8.F.4-5)3.3 Writing Linear Equations from Key Info (8.F.2-3/ 8.F.4-5)3.4 Different Forms of Linear Equations (8.F.2-3/ 8.F.4-5)3.5 More Graphing Linear Equations (8.F.2-3/ 8.F.4-5)3.6 Graphing Linear Inequalities (HS.A-REI.12)3.7 Introduction to Non-Linear Functions (8.F.3/ 8.F.4-5) <p>Systems of Equations</p> <ul style="list-style-type: none">4.1 Parallel, Intersecting, or the Same Line (8.EE.8a)4.2 Solving Systems by Graphing (8.EE.8)4.3 Solving Systems using Tables (8.EE.8)4.4 Solving Systems by Substitution (8.EE.8)4.5 Solving Systems using Elimination (8.EE.8)4.6 Choosing the Best Method (8.EE.8)4.7 Applications of Systems of Equations (8.EE.8)4.8 Systems of Linear Inequalities (HS.A-REI.12)4.9 Converting Repeating Decimals to Fractions (8.NS.1)	<p>Geometry</p> <p>Angles and Triangles</p> <ul style="list-style-type: none">1.1 Alternate Exterior and Interior Angles (8.G.5)1.2 Corresponding and Same-Side Interior Angles (8.G.5)1.3 Classifying Triangles (8.G.5)1.4 Angle Sum of a Triangle (8.G.5)1.5 Special Triangles (8.G.5)1.6 Congruent and Similar Triangles (8.G.5)1.7 Angle Relationships (2 days) (8.G.5) <p>Pythagorean Theorem</p> <ul style="list-style-type: none">2.1 Perfect Squares (8.EE.2)2.2 Estimating Square Roots (8.NS.1-2/ 8.EE.2)2.3 Pythagorean Theorem (2 days) (8.G.6-7)2.4 Converse of the Pythagorean Theorem (8.G.6-7)2.5 Applying Pythagorean Theorem (8.G.7)2.6 Distance on the Coordinate Plane (8.G.8)2.7 Distance Formula (8.G.8) <p>Transformations</p> <ul style="list-style-type: none">3.1 Reflections (8.G.1/ 8.G.3)3.2 Translations (8.G.1/ 8.G.3)3.3 Rotations (8.G.1/ 8.G.3)3.4 Dilations (8.G.1/ 8.G.3)3.5 Transformations and Congruence (8.G.2/ 8.G.4)3.6 Composition of Transformations (8.G.2/ 8.G.4) <p>Geometry Review</p> <ul style="list-style-type: none">2D Geometry Review: Quadrilaterals and Triangles2D Geometry Review: Circles and Pi3D Geometry Review: Surface Area of Prisms and Pyramids3D Geometry Review: Volume of Prisms and Pyramids3D Geometry Review: Surface Area of Cones and Cylinders <p>To access the online resources use the following information: www.corefocusmath.com username: helena password: math</p>	<p>Geometry</p> <p>Exponents and Volume</p> <ul style="list-style-type: none">4.1 Multiplication Properties of Exponents (8.EE.1)4.2 Division Properties of Exponents (8.EE.1)4.3 Scientific Notation (8.EE.3/ 8.EE.4)4.4 Applications of Scientific Notation (8.EE.3/ 8.EE.4)4.5 Exponents and Roots (8.EE.2)4.6 Volume of Cylinders (8.G.9)4.7 Volume of Cones (8.G.9)4.8 Volume of Spheres (8.G.9)4.6 Volume of Cylinders (8.G.9)4.7 Volume of Cones (8.G.9)4.8 Volume of Spheres (8.G.9)4.9 Volume of Cylinders (8.G.9)4.8 Volume of Spheres (8.G.9) <p>Linear Equations</p> <p>One Variable Statistics</p> <ul style="list-style-type: none">5.1 Scatter Plots and Correlation (8.SP.1-8.SP.3)5.2 Predicting with Lines of Best Fit (8.SP.1-8.SP.3)5.3 Five-Number Summaries of Data (8.SP.4)5.4 Q-Points and Lines of Best Fit (8.SP.1-8.SP.3)5.5 Predicting with Best Fit Equations (8.SP.1-8.SP.3)5.6 Using Data and Graphs to Persuade (8.SP.1-8.SP.3)5.7 Bivariate Data and Frequency Tables (8.SP.4) <p>Functions</p> <p>Introduction to Functions</p> <ul style="list-style-type: none">1.1 Understanding Functions (HS.F-IF.1/ HS.F-IF.5)1.2 Evaluating Functions (HS.A-CED.4/ HS.F-IF.2)1.3 Tables, Graphs and Equations (HS.N-Q.1/ HS.A-CED.1/ HS.F-IF.4/ HS.F-IF.7/ HS.F-IF.9) <p>update 8.18.25</p>