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Course Revision

Revisions are required when a school:

- Changes the course title, transcript abbreviation or course code/number
- Changes grade level
- Reduces course length (i.e. from year to semester)
- Eliminates honors status

Revisions are NOT required when a school:

- Updates course materials
- Makes minor shifts in course content

› Begin revision

Integrated Math 1A / 1B

CORE Butte Charter School (054171)

Basic Course Information

Abbreviations:

Abbreviation	Course code
Mathematics 1A	
Mathematics 1B	
a-g Mathematics 1A	
a-g Mathematics 1B	

Length of course:

Two Years (4 semesters; 6 trimesters, 8 quarters)

Subject area:

Subject area	Discipline
Mathematics ("c")	Mathematics I

UC honors designation:

None

Grade levels:

9th	10th	11th	12th
✔	✔		

Course learning environment:

Classroom	Online
✔	

Is this course an integrated course?

No

Course Description

Overview:

The fundamental purpose of Mathematics IA / IB is to formalize a students' understanding of linear functions and their applications. The critical topics of study include understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend.

The purpose of Math IA/IB is to expand upon the mathematical content and techniques of a Math 8 course. This course will emphasize skills necessary for problem-solving and will continue growth in mathematics. Students will apply concepts of numbers and operations, algebraic relationships, geometric and spatial relationships, measurement, and data analysis and probability. The integrated math program is an alternative approach to achieve mathematical understanding. The content provides the foundation for future work in mathematics and science. An understanding of integrated mathematics is essential in preparation for careers that utilize or depend on mathematics. It provides students with the tools to represent and solve problems in a variety of ways. Students will better understand the language and abstract symbols of mathematics and how to use that language in real-life applications.

Throughout this course, common core standards are applied through Mathematical Practice Standards to ensure students experience mathematics as useful, logical, and coherent. Math IA/IB provides opportunity for students to discover means of making sense of their world through their application of subject matter to real-world problems as well as making sense of the subject matter through its application to real-world encounters, while practicing and improving fluency in computation and communication. Students will look for and discover examples in their world where the ideas and methods of the course can be applied. They will look for and discover patterns, test conjectures and try multiple representations and approaches to analyze examples, discover solutions and verify the validity of their solutions. They will communicate their finding with precision and accuracy.

Prerequisites:

Prerequisite	Required / Recommended

Grade of C or better in Pre-Algebra or Math 8	Required

Co-requisites:

None

Course content:

Unit 1: Solving Equations/Systems of Equations/Inequalities: Covers Chapters 1, and 4:

- Topics to be addressed: Students will be learning how to solve linear equations in one variable, how to solve a system of equations in two variables, and how to solve linear inequalities in one variable. They will be looking at real world situations that involve linear equations and apply them to solve problems. They will also learn how to graph each of the above topics in order to predict future outcomes. At the end of each unit, students will complete a “Put it All Together” assignment where they apply the concepts they have learned to a real life situation.
- One assignment that will be used during this unit is planning for a fundraiser. Students will be selling two items and will be given the unit cost of each item along with the price the item will sell for. The students will be using the concepts used in this unit to determine the following: How much money they want to spend on the items, how much money they want to make, and how much of the item they wish to sell to reach their money goals. The outcome is that students will be able to write equations and inequalities to represent this situation and then use those equations and inequalities to answer their questions.

Unit 2: Linear and Exponential Functions: Covers Chapters 2, 3, and 5:

- Topics to be addressed: Students will be introduced to linear and exponential functions. They will be graphing linear/exponential functions, writing linear/exponential functions from patterns, writing linear/exponential functions from real world situations, and learning the different ways to represent a linear/exponential function. Students will be learning how linear/exponential functions are used in everyday life. They will be challenged to look at multiple linear and exponential functions and analyze them to see similarities/differences.
- One assignment that will be used during this unit is comparing/contrasting linear and exponential functions by looking at investment opportunities. Students will be looking at investment opportunities from two different companies (one linear and one exponential). They will be asked to write a function rule for both to determine which one would be the smarter option to choose to maximize their money. The outcome is that the students will learn that in the short run, that the linear model will produce the larger amount of money, but in the long run, the exponential model will produce the larger amount of money.

Unit 3: Data Analysis: Covers Chapter 6:

- Topics to be addressed: Students will be learning the many different ways to represent data which include histograms, frequency tables, box-and-whisker plots, scatter plots, and two-way frequency tables. Students will be learning how to collect and analyze data from each of the tables/plots listed above in order to help them make decisions or predictions. They will be asked to interpret different representations of data and determine the conclusions they can make from each.
- One assignment that will be used during this unit is choosing an ideal location to have a baseball tournament. Students will be presented with a situation where they have to look at data that includes temperature and rainfall for two different locations, and determine which location is ideal to hold a tournament. Not only will they be looking at data that is already presented to them and analyzing it, but they will also be asked to make scatter plots to predict future weather patterns for each location.

Unit 4: Tools of Geometry Connected to Algebra: Covers Chapters 7, 8, and 9:

- Topics to be addressed: In the first part of this unit, students will be learning the essential tools of Geometry. They will be learning about 3D objects, points, lines, planes, line segments, and angles. The second part of the unit is where students apply the basics of Geometry and how they relate to Algebra. They will be exploring area and perimeter and how to use coordinate Geometry to prove general relationships. This unit will focus a lot on the vocabulary that needs to be mastered in order apply concepts.
- One assignment that will be used during this unit is finding the area of a plot of land. The assignment presents the students with a situation where a traveling carnival is looking for a plot of land with a specific area. Students will be given a coordinate plane with an area mapped out and they will have to determine if the space given to them will be large enough. Throughout the assignment, students will have to determine the shape of the land presented and how to find the area in order to determine if the land is large enough for the carnival.

Unit 5: Reasoning and Proof: Covers Chapters 10, 11, 12, 13, and 14:

- Topics to be addressed: In this unit, students will be learning about reasoning and proofs that are used in not only math, but in real life. Students will be making conjectures, determining truth values, and making predictions. They will be using reasoning in Algebra and Geometry to prove the following: theorems about lines and angles, congruent triangles, theorems about triangles, and theorems about quadrilaterals. The purpose of the unit is to get students to use inductive and deductive reasoning and understand that this reasoning is used in everyday life.
- One assignment that will be used during this unit is planning paths for a city park. Students will be given a blueprint for a park that a city is developing. The blueprint only provides a few angle measures and students will need to add additional angle measures to make it easier for the builders to create the correct paths through the park. Students will need to know the postulates and theorems associated with angle measures and parallel/perpendicular lines to help them find the missing angle measures.

Course Materials

Textbooks

Title	Author	Publisher	Edition	Website	Primary
Pearson Integrated Math I	Dr. Randall I. Charles et al.	Pearson Learning	CA	PearsonSuccessNet.com	Yes
Integrated Math I: A Common Core Program	Carnegie Learning	Carnegie Learning	2013	https://2013.carnegielearning.com/2013.07.40/auth/login2013.html	No

Supplemental Materials

Title	Content
Supplemental Materials	Solutions Manuel- A complete solution for each problem in the Student Edition lessons. Khan Academy- www.khanacademy.org- Videos and extra practice to ensure student comprehension. LearnZillion- www.learnzillion.com- Videos and extra practice to ensure student comprehension. CSI Algebra I and CSI Geometry- 21st Century Math Projects- Group unit projects to help students connect concepts to the real-world.

