2024-2025

K-8th Grade Course Catalog

PTAA Mission:

Pioneer Technology & Arts Academy's (PTAA) mission is to empower and engage students to reach their full potential as global leaders who will enhance their communities and the world through creativity, collaboration and innovation.

PTAA Vision:

The vision of PTAA is to be a leader in global education within 10 years. We will be respected and admired by our peers. Our instructional model will be sought after and shared, and we will have pride in ourselves. The best teachers will seek to work with us, and people who work at PTAA will love what they do and work hard because they want to. Our students will be admitted to and excel at top universities and colleges within the United States and abroad. Staff, students and the community will feel we have contributed to their lives in a positive way.

English Language Arts

Kindergarten-5th Grade

To View CDE ELA Standards: https://www.cde.state.co.us/coreadingwriting/2020cas-rw-3-5

Key Features of the Standards

Reading: Text complexity and the growth of comprehension	The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Whatever they are reading, students and must also show a steadily growing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.
Writing: Text types, responding to reading, and research	The Standards acknowledge the fact that whereas some writing skills, such as the ability to plan, revise, edit, and publish, are applicable to many types of writing; other skills are more properly defined in terms of specific writing types: arguments, informative/explanatory texts, and narratives. There is great importance of the writing-reading connection that require students to draw upon and write about evidence from literary and informational texts. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand, though skills important to research are infused throughout the document.
Speaking and Listening: Flexible communication and collaboration	Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to work together, express and listen carefully to ideas, integrate information from oral, visual quantitative, and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.
Language: Conventions, effective use, and vocabular	Language standards include the essential "rules" of standard written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases.

Kindergarten-5th Grade standards define what students should understand and be able to do by the end of each grade. PTAA also corresponds to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade specific standards are necessary complements – the former providing broad standards and the latter providing additional specificity – that together define the skills and understandings that all students must demonstrate.

Key Ideas and Details:

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Craft and Structure:

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Access how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas:

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range and Reading and Level of Text Complexity:

10. Read and comprehend complex literary and informational texts independently and proficiently.

Kindergarten:

In kindergarten, students will learn the alphabet and the basic features of letters and words. They will break down spoken and written words into syllables and letters and identify the sounds each letter makes. These important skills will enable students to learn new words and to read and understand simple books and stories.

Students will also learn to write and share information in a variety of ways, including drawing, writing letters and words, listening to others, and speaking aloud.

Activities in these areas will include:

- Naming and writing upper and lowercase letters
- Matching letters to sounds and using other methods to figure out unfamiliar words when reading and writing
- Learning and using new words
- Identifying words that rhyme
- Reading common words such as the, of, you, are, she, and my
- Asking and answering questions about a story the teacher reads out loud
- Identifying characters, settings, and major events in a story
- Recognizing the person, place, thing, or idea that an illustration shows
- Participating in discussions by listening and taking turns speaking
- Using a combination of drawing, speaking, and writing to describe an event, give information about a topic, or share an opinion
- Taking part in shared reading, writing, and research projects
- Expressing thoughts, feelings, and ideas clearly

Course Number	**Name of Course**	**Alternate Course Number**
1EN01K	Reading, Writing, Communicating, K	1028
Course Credit: 1.0		

1st Grade:

In Grade 1, students will build important reading, writing, speaking, and listening skills. Students will continue to learn the letters and sounds that make up words. They will think, talk, and write about what they read in stories, articles, and other sources of information. In their writing, students will work on putting together clear sentences on a range of topics using a growing vocabulary.

Activities in these areas will include:

- Reading stories and showing they understand the lesson or moral of the story
- Examining a story, including characters, settings, and major events
- Comparing and contrasting the experiences of different characters
- Identifying the reasons an author gives to support a point
- Explaining differences between texts that tell stories and texts that provide information
- Learning and using new words
- Participating in class discussions by listening, responding to what others are saying, and asking questions
- Describing people, places, things, and events, expressing feelings and ideas clearly
- Learning basic rules of spoken and written English
- Working with others to gather facts and information on a topic
- Writing to describe an event, provide information on a topic, or share an opinion

Course Number	**Name of Course**	**Alternate Course Number**
1EN011	Reading, Writing, Communicating, 1	1029
Course Credit: 1.0		

2nd Grade:

In Grade 2, students will continue to build important reading, writing, speaking and listening skills. They will think, talk, and write about what they read in a variety

of texts, such as stories, books, articles, and other sources of information including the Internet.

In their writing, students will learn how to develop a topic and strengthen their skills by editing and revising.

Activities in these areas will include:

- Reading stories, including fables and folktales from different cultures, and identifying the lesson or the moral of the story
- Reading texts about history, social studies, or science and identifying the main idea
- Answering who, what, where, when, why, and how questions about stories and books
- Describing the reasons that an author gives to support a point
- Learning and using new words
- Learning the rules of spoken and written English
- Participating in class discussions by listening and building on what others are saying
- Describing in their own words information learned from articles or books read aloud
- Working together to gather facts and information on a topic
- Writing about a short series of events and describing actions, thoughts, and feelings
- Writing about opinions on books and using important details and examples to support a position

Course Number	**Name of Course**	**Alternate Course Number**
1EN012	**Reading, Writing, Communicating, 2**	**1030**
Course Credit: 1.0		

3rd Grade:

In Grade 3, students will build important reading, writing, speaking, and listening skills. They will think, talk and write about what they read in a variety of articles, books, and other texts. In their writing, students will pay more attention to organizing information, developing ideas and supporting these ideas with facts, details and reasons.

Activities in these areas will include:

- Reading a wide range of stories and describing how a story teaches a lesson
- Describing characters in a story and how their actions contributed to events
- Reading texts and answering questions about what they learned
- Referring to information from illustrations such as maps or pictures as well as the words in a text to support their answers
- Learning and using new words, including words related to specific ideas, and building on the ideas of others
- Giving a class presentation on a topic or telling a story using relevant facts and details and speaking clearly.
- Writing stories with dialogue and descriptions of character's actions, thoughts, and feelings.
- Gathering information form books, articles, and online sources to build understanding of a topic and writing research or opinion papers over extended periods of time.

Course Number	**Name of Course**	**Alternate Course Number**
1EN013	Reading, Writing, Communicating, 3	1031
Course Credit: 1.0		

4th Grade:

In Grade 4, students will continue to build important reading, writing, speaking, and listening skills. They will read challenging literature, articles, and other sources of information and continue to grow their vocabulary. They will also be expected to clearly explain in detail what they have read by referring to details or information from the text. In writing, students will organize their ideas and develop topics with reasons, facts and details.

Activities in these areas will include:

- Identifying the theme or main idea of a story, play, or poem.
- Comparing stories from different cultures.
- Explaining how an author uses fact, details, and evidence to support their points.
- Reading and understanding information present in charts, graphs, timelines, and other illustrations.
- Learning and using new words, including words related to specific subjects (such as science words).
- Participating in class discussions by listening, asking questions, sharing ideas, and building on the ideas of others.
- Giving a class presentation on a topic or telling a story, introducing relevant facts and details in a clear, logical order.
- Writing research or opinion papers over extended periods of time.
- Taking notes and organizing information from books, articles, and online sources to learn more about a topic.

Course Number	**Name of Course**	**Alternate Course Number**
1EN014	Reading, Writing, Communicating, 4	1032
Course Credit: 1.0		

5th Grade:

In Grade 5, students will continue to build important reading, writing, speaking and listening skills. They will read more challenging literature, articles and other sources of information and continue to grow their vocabulary. Students will also be expected to understand and clearly summarize what they have learned from readings and classroom discussions, referring to

specific evidence and details from the text. Students will write regularly and continue to develop their ability to gather, organize, interpret and present information.

Activities in these areas will include:

- Determining the theme of a story, play, or poem, including how characters respond to challenges.
- Comparing and contrasting stories that deal with similar themes or topics.
- Explaining how authors use reasons and evidence to support their points or ideas.
- Drawing on information from multiple books, articles, or online sources to locate an answer or to solve a problem quickly.
- Learning the rules of spoken and written English.
- Learning and using new words, including words related to specific subjects (such as science words).
- Understanding figurative language.
- Participating in class discussions by listening, asking questions, sharing ideas, and building on the ideas of others.
- Giving a class presentation on a topic or telling a story, introducing relevant facts and details in a clear, logical order.
- Writing research opinion papers over extended periods of time.

Course Number	**Name of Course**	**Alternate Course Number**
1EN015	Reading, Writing, Communicating, 5	1033
Course Credit: 1.0		

English Language Arts

6th-8th Grade

To View CDE ELA Standards: https://www.cde.state.co.us/coreadingwriting/2020cas-rw-6-8

Key Features of the Standards

Reading: Text complexity and the growth of comprehension	The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Whatever they are reading, students must also show a steadily growing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.
Writing: Text types, responding to reading, and research	The Standards acknowledge the fact that whereas some writing skills, such as the ability to plan, revise, edit and publish, are applicable to many types of writing; other skills are more properly defined in terms of specific writing types: arguments, informative/explanatory texts, and narratives. This Standard stresses the importance of the writing-reading connection by requiring students to draw upon and write about evidence from literary and informational texts. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand, though skills important to research are infused throughout the document.
Speaking and Listening: Flexible communication and collaboration	Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to work together, express and listen carefully to ideas, integrate information from oral, visual, quantitative, and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.
Language: Conventions, effective use, and vocabulary	Then Language Standards include the essential "rules" of standard written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases.

The 6th-8th Standards define what students should understand and be able to do by the end of each grade. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade specific standards are necessary complements – the former providing broad standards and the latter providing additional specificity, that together define the skills and understandings that all students must demonstrate.

Key Ideas and Details:

1. Read closely and determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Craft and Structure:

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas:

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the approaches the authors take.

Range of Reading and Level of Text Complexity:

10. Read and comprehend complex literary and informational texts independently and proficiently.

6th Grade:

In Grade 6, students will read a range of challenging books, articles, and texts, and will be expected to demonstrate their understanding of the materials by answering questions and contributing to class discussions. In writing, students will continue to work on their use of language, sentence structure, and organization of ideas. They will also be expected to integrate information from different sources and respond to challenging content through written interpretation and analysis.

Activities in these areas will include:

- Providing detailed summaries of texts.
- Determining the theme of a text and how it is conveyed.
- Describing how a story or play unfolds and how characters respond to conflicts.
- Using reading strategies to determine the meaning and context of unknown words.
- Comparing and contrasting various texts.
- Understanding the figurative and (implied) meaning of words and phrases.
- Identifying and evaluating specific claims or arguments in a text.
- Supporting written claims or arguments with clear reasons and relevant evidence.
- Producing clear and coherent writing appropriate to the task, purpose, and audience.
- Participating in class discussions about various texts and topics.
- Conducting short research projects to answer a question, drawing on several sources.

Course Number	**Reading, Writing, Communicating 6**	**Alternate Course Number**
2EN2026	Reading, 6	1046
Course Credit: 1.0		

7th Grade:

In Grade 7, students will continue to develop the ability to cite relevant evidence when interpreting or analyzing a text or supporting their points in speaking and writing. Your child will also build academic vocabulary as he or she reads more complex texts, including stories, plays, historical novels, poems and informational books and articles.

Activities in these areas will include:

- Analyzing how the form or structure of a play or poem contributes to its meaning.
- Analyzing how particular elements of a story or play interacts.
- Determining how an author develops and contrasts the points of view of different characters or narrators in a text.
- Conducting short research projects, drawing on several sources and identifying related questions for further research and investigation.
- Engaging in a range of classroom discussions on topics and texts, expressing ideas clearly and building on the ideas of others.
- Identifying a speaker's argument and specific claims and evaluating the reasoning and evidence behind these claims.
- Using clues such as word roots to a word to determine the meaning of a word.
- Interpreting figures of speech or references to literature or mythology in a text.
- Writing for a range of purposes and audiences.

Course Number	Name of Course	Alternate Course Number
2EN2027	Reading, 7	1047
Course Credit: 1.0		

8th Grade:

In Grade 8, students will read major works of fiction and nonfiction from all over the world and from different time periods. They will continue to learn how to understand what they read and evaluate an author's assumptions and claims. They will also conduct research that will require the analysis of resources and accurate interpretation of literary and informational text. Activities in these areas will include:

- Identifying what a reading selection explicitly says and drawing inferences based on evidence from the text.
- Analyzing the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
- Evaluating the argument and specific claims in a text, assessing whether the reasoning is sound, and the evidence is relevant and sufficient.
- Connecting information and ideas efficiently and effectively in writing.
- Analyzing the purpose of information presented in diverse media formats, such as video clips or interactive maps.
- Participating in class discussions on various topics, texts, and issues by expressing ideas and building on the ideas of others.
- Developing a large vocabulary of multi-use academic words and phrases.
- Interpreting figures of speech, such as puns or verbal irony, in context.

Course Number	Name of Course	Alternate Course Number
2EN2028	Reading, 8	1048
Course Credit: 1.0		

Mathematics

Kindergarten – 5th Grade

To View CDE Math Standards: (PK-2): https://www.cde.state.co.us/comath/2020cas-ma-p-2

(3-5): https://www.cde.state.co.us/comath/2020cas-ma-3-5

Key Features of the Standards

Domain Progression

Kindergarten	**1**	**2**	**3**	**4**	**5**
Counting & Cardinality					
Numbers & Operations in Base Ten					

	Numbers & Operations - Fractions
Operations and Algebraic Thinking	
Geometry	
Measurement and Data	

Kindergarten:

In Kindergarten, instructional time will focus on two critical areas: (1) representing, relating and operating on whole numbers, initially with sets of objects; (2) describing shapes and space. Your child will focus primarily on two important areas. The first is learning numbers and what numbers represent. The second is addition and subtraction. Students will also learn to identify and work with shapes.

Activities in these areas include:

- Counting how many objects are in a group and comparing the quantities of two groups of objects.
- Comparing two numbers to identify which is greater or less than the other.
- Understanding addition as putting together and subtraction as take away from.
- Adding and subtracting very small numbers quickly and accurately.
- Breaking up numbers less than or equal to 10 in more than one way (for example, 9=6+3, 9=5+4.
- For any number from 1 to 9 finding the missing quantity that is needed to reach 10.
- Representing addition and subtraction word problems using objects or by drawing pictures.
- Solving addition and subtraction word problems involving numbers that add up to 10 or less or by subtracting from a number 10 or less.

Course Number	**Name of Course**	**Alternate Course Number**
1MA060	Math, K	2030
Course Credit: 1.0		

1st Grade:

In Grade 1, instructional time will focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as expressing length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes. Students will also use charts, tables, and diagrams to solve problems.

Activities in these areas will include:

- Quickly and accurately adding and subtracting numbers together up to 10.
- Understanding the rules of addition and subtraction (for example, 5+2=2+5).
- Solving word problems that involve adding or subtracting numbers up to 20.
- Understanding what the different digits mean in two-digit numbers (place value).
- Comparing two-digit numbers using the comparison symbols.
- Understanding the meaning of the equal sign (=) and determining if statements involving addition and subtraction are true or false.
- Measuring the lengths of objects using shorter objects as a unit of length.
- Organizing objects into categories and comparing the number of objects in each.
- Dividing circles and rectangles into halves and quarters.

Course Number	Name of Course	Alternate Course Number
1MA061	Math, 1	2031
Course Credit: 1.0		

2nd Grade:

In Grade 2, Instructional time will focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

Students will extend their understanding of place value to the hundreds place and use this knowledge to solve words problems, including those involving length and other units of measure. Students will continue to work on their addition and subtraction skills, quickly and accurately adding and subtracting numbers up to 100 and they will build a foundation for understanding fractions by working with shapes and geometry.

Activities in these areas will include:

- Quickly and accurately adding numbers together that total up to 20 or less or subtracting from numbers up through 20.
- Solving one or two step word problems by adding or subtracting.
- Understanding what the different digits mean in a three-digit number.
- Adding and subtracting three-digit numbers.
- Measuring lengths of objects in standard units such as inches and centimeters.
- Solving addition and subtraction word problems involving length.
- Solving word problems involving money.
- Breaking up a rectangle into same-size squares.
- Dividing circles and rectangles into halves, thirds or fourths.
- Solving addition, subtraction, and comparison word problems using information presented in a bar graph.
- Writing equations to represent addition of equal numbers.

Course Number	Name of Course	Alternate Course Number
1MA062	Math, 2	2032
Course Credit: 1.		

3rd Grade:

In Grade 3, instructional time will focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays of area; and (4) describing and analyzing two-dimensional shapes. Students will continue to build their concepts of numbers, developing an understanding of fractions as numbers. They will learn the concepts behind multiplication and dividing numbers up through 100 to solve word problems. Students will also make connections between the concept of the area of a rectangle and multiplication and addition of whole numbers.

Activities in these areas will include:

- Understanding and explaining what it means to multiply or divide numbers.
- Multiplying all one-digit numbers from memory (knowing their times table).
- Multiplying one digit numbers by multiplies of 10 (such as 20, 30, 40).
- Solving two-step word problems using addition, subtraction, multiplication, and division.
- Understanding the concept of area.
- Relating the measurement of area to multiplication and division.
- Understanding fractions as numbers.
- Understanding and identifying a fraction as a number on the number line.
- Comparing the size of two fractions.
- Expressing whole numbers as fractions and identifying fractions that are equal to whole numbers (for example, recognizing that 3/1 and 3 are the same number).
- Measuring weights and volumes and solving word problems involving these measurements.
- Representing and interpreting data.

Course Number	Name of Course	Alternate Course Number
1MA063	Math, 3	2033
Course Credit: 1.0		

4th Grade:

In Grade 4, instructional time will focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

In grade 4, your child will use addition, subtraction, multiplication and division to solve word problems, including problems involving the measurement of volume, mass and time. Students will continue to build their understanding of fractions – creating equal fractions, comparing the size of fractions, adding and subtracting fractions, and multiplying fractions by whole numbers. They will also start to understand the relationship between fractions and decimals.

Activities in these area will include:

- Adding and subtracting whole numbers up to 1 million quickly and accurately.
- Solving multi-step word problems, including problems involving measurement and converting measurements from larger to smaller units.
- Multiplying and dividing multi-digit numbers.
- Extending understanding of fractions by comparing the size of two fractions.
- Creating equal fractions (3/4 = 3x2/4x2=6/8).
- Adding and subtracting fractions with the same denominator.
- Building fractions from smaller fractions (3/8 = 1/8 +/1 8+/1 8)

- Connecting addition and subtraction of whole numbers to multiplying fractions by whole numbers.
- Connecting addition of fractions to the concept of angle measurements.
- Representing and interpreting data.
- Converting fractions with denominators of 10 or 100 into decimals.
- Locating decimals on a number line.
- Comparing decimals and fractions using the symbols > (more than), = (equal to), and < (less than).

Course Number	Name of Course	Alternate Course Number
1MA064	Math 4	2034
Course Credit: 1.0		

5th Grade:

In Grade 5, instructional time will focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions in to the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

In Grade 5, students will build their understanding of the place value system by working with decimals up to the hundredth place. Students will also add, subtract and multiply fractions, including fractions with unlike denominators. They will continue to expand their geometry and measurement skills, learning the concept of volume and measuring the volume of a solid figure.

Activities in these areas will include:

- Quickly and accurately multiplying multi-digit whole numbers.
- Dividing numbers with up to four digits by two-digit numbers.
- Using exponents to express powers of 10.
- Reading, writing and comparing decimals to the thousandth place.
- Adding, subtracting, multiplying, and dividing decimals to the hundredths place.
- Writing and interpreting mathematical expressions using symbols such as parentheses. For example, (add 8 and 7, then multiply by 2" can be written 2 x(8+7).
- Adding and subtracting fractions with unlike denominators (bottom numbers) by converting them to fractions with matching denominators.
- Multiplying fractions by whole numbers and other fractions.
- Dividing fractions by whole numbers and whole numbers by fractions.
- Analyzing and determining relationships between numerical patterns.
- Measuring volume using multiplication and addition.

Course Number	Name of Course	Alternate Course Number
1MA065	Math 5	2035
Course Credit: 1.0		

Mathematics

6th-8th Grade

To View CDE Math Standards: (6-8): https://www.cde.state.co.us/comath/2020cas-ma-6-8

Key Features of the Standards

Domain Progressions

6	7	8
Ratios and Proportional Relationships		
The Number System		
Expressions and Equations		
Functions		
Geometry		
Statistics and Probability		

6th Grade:

In Grade 6, instructional time will focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

In Grade 6, your child will learn the concept of rates and ratios and use these tools to solve word problems, Students will work on quickly and accurately dividing multi-digit whole numbers and adding, subtracting, multiplying and dividing multi digit decimals. Students will extend their previous work with fractions and decimals to understand the concept of rational numbers – any number that can be made by dividing one integer by another, such as ½, 0.75, or 2. Students will also learn how to write and solve equations – mathematical statements using symbols, such as 20+x=35 – and apply these skills in solving multi-step word problems.

Activities in these areas will include:

- Understanding and applying the concepts of ratios and unit rates, and using the correct language to describe them (for example, the ratio of wings to beaks in a flock of birds is 2 to 1, because for every 2 wings there is 1 beak).
- Building on knowledge of multiplication and division to divide fractions by fractions.
- Understanding that positive and negative numbers are located on opposite sides of 0 on a number line.
- Using pairs of numbers, including negative numbers, as coordinates for locating or placing a point on a graph.
- Writing and determining the value of expressions with whole-number exponents (such as 15+32).
- Identifying and writing equivalent mathematical expressions by applying the properties of operations. For example, recognizing that 2 (3+x) is the same as 6+2x.
- Understanding that solving an equation such as 2+x=12 means answering the questions, “What number does x have to be to make this statement true?”
- Representing and analyzing the relationships between independent and dependent variables.
- Solving problems involving area and volume.

Course Number	Name of Course	Alternate Course Number
2MA1006	Math 6	2002
Course Credit: 1.0		

Honors 6th Grade Mathematics:

Compacted 6th/7th Grade Mathematics is a course that teaches the topics in 6th Grade Mathematics and 7th Grade Mathematics in one year. This course is an acceleration option to prepare students for the 8th Grade Mathematics and Algebra I in middle school. Students will cover number operations, introductory probability and statistics, coordinate geometry and rate of change through linear algebra.

Course Number	Name of Course	Alternate Course Number
	Honors Mathematics, 6	02999
Course Credit: 1.0		

7th Grade:

In Grade 7, instructional time will focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

In Grade 7, students will further develop their understanding of rates and ratios, using tables, graphs and equations to solve real-world problems involving proportional relationships. Students will also work on quickly and accurately solving multi-step problems involving positive and negative rational numbers.

Additionally, students will expand their knowledge of geometry and apply the properties of operations to solve real world problems involving the measurement of multi-dimensional objects.

Activities in these areas will include:

- Determining whether two quantities are in a proportional relationship and using knowledge of rates, ratios, proportions, and percentages to solve multi-step problems.
- Identifying the unit rate of change (the constant rate at which the value of a variable changes) in tables, graphs, equations, and verbal descriptions.
- Calculating the unit rates associated with ratios, fractions, including quantities measured in different units (for example, the ratio of ½ a mile for every ¼ of an hour means that you travel 2 miles in an hour).
- Solving problems using equations to find the value of one missing variable.
- Applying the properties of operations to generate equivalent mathematical expressions.
- Solving multi-step word problems by adding, subtracting, multiplying and dividing positive and negative rational numbers in any form (including whole numbers, fractions, or decimals).
- Understanding that numbers cannot be divided by 0.
- Converting rational numbers to decimals using long division.
- Describing situations in which positive and negative quantities combine to make 0.
- Finding the area of two-dimensional objects and the volume and surface area of thre-dimensional objects.

Course Number	Name of Course	Alternate Course Number
2MA1007	Math 7	2002
Course Credit: 1.0		

Honors 7th Grade Math:

This is a course that teaches the topics covered in 7th grade Mathematics and 8th Grade Mathematics in one year. This course is an acceleration option to prepare students to take Algebra I in middle school. M24, Compacted 7th/8th Grade Mathematics, focuses on the following areas: (1) understanding and applying proportional relationships; (2) writing and solving variable expressions/inequalities and multi-step linear equations/inequalities with rational numbers; (3) solving given systems of linear equations; (4) understanding the concept of a function and using functions to describe quantitative relationships; (5) two and three-dimensional geometry and applying the Pythagorean Theorem; (6) drawing inferences about populations based on samples.

Course Number	Name of Course	Alternate Course Number
MA24	Honors 7th Grade Mathematics	02999
Course Credit: 1.0		

Grade 8:

In Grade 8, instructional time will focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity and congruence and understanding and applying the Pythagorean Theorem.

Students take their understanding of unit rates and proportional relationships to a new level, connecting these concepts to points on a line and ultimately using them to solve linear equations that require them to apply algebraic reasoning as well as knowledge of the properties of operations.

Students will also expand their understanding of numbers beyond rational numbers to include numbers that are irrational – meaning that they cannot be written as a simple fraction.

Activities in these areas will include:

- Understanding that every rational number (such as ½, 0.3, 2, or -2) can be written as a decimal, but that the decimal form of an irrational number is both non-repeating and infinite.
- Applying the properties of exponents to generate equivalent numerical expressions.
- Determining the value of square roots of small perfect squares and cube roots of small perfect cubes.
- Graphing proportional relationships and interpreting the unit rate as the slope (how steep or flat a line is).
- Solving and graphing one- and two- variable linear equations.
- Understanding that a function is a rule that assigns to each value of x exactly one value of y, such as y=2x, a rule that would yield such ordered pairs as (-2, -4), (3,6), and (4,8).
- Comparing the properties of two functions represented in different ways (in a table, graph, equation, or description).
- Determining congruence (when shapes are of equal size and shape) and similarity (same shape but different sizes).
- Learning and applying the Pythagorean Theorem (an equation relating the lengths of the sides of a right triangle.)
- Solving problems involving the volume of cylinders, cones and spheres.

Course Number	Name of Course	Alternate Course Number
2MA1008	Math 8	2002
Course Credit: 1.0		

Algebra I:

Algebra I course includes the study of properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first-degree equations and inequalities; translating word problems into equations; operations with the factoring of polynomials; and solving simple quadratic equations.

Course Number	Name of Course	Alternate Course Number
	Algebra I	02999
Course Credit: 1.0		

Science

Kindergarten – 5th Grade

To View CDE Science Standards: (P-2): https://www.cde.state.co.us/coscience/2020cas-sc-p-2

CDE Science Standards: (3-5): https://www.cde.state.co.us/coscience/2020cas-sc-3-5

Science instruction involves students actively using scientific processes to understand course content and make connections to real life and related areas of study. The state standards present a vision of what it means to be scientifically literate, and college and career ready. These standards outline what all students need to know, understand, and be able to do by the end of high school and reflect the following shifts for science education:

- Organize standards around core ideas and develop learning progressions to coherently and logically build scientific literacy from kindergarten through high school.
- Connect core ideas, crosscutting concepts, and science and engineering practices to make sense of the natural world and understand how science and engineering are practiced and experienced.
- Focus on few, broader standards that allow for greater depth, more connections, deeper understanding, and more applications of content.

Cross Cutting Concepts

1. Patterns. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.

2. Cause and effect: Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.

3. Scale, proportion, and quantity. In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affects a system's structure or performance.

4. Systems and system models. Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.

5. Energy and matter: Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.

6. Structure and function. The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.

7. Stability and change. For natural and built systems alike, conditions of stability and determinants of

rates of change or evolution of a system are critical elements of study.

Kindergarten:

In Kindergarten, students will learn to observe objects using the different senses and ask questions about their observations. They will explore and participate in guided investigations and discovery-based projects. Students will apply concepts learning in reading and math to organize data based on similar and different characteristics and communicate their findings. Using tools responsibly and safely is also discussed.

Activities in these areas will include:

- Observe common objects using multiple senses.
- Ask questions based on experiences with objects, organisms, and events in the environment.
- Demonstrate safe behavior and appropriate procedures.
- Perform simple measurements using non-standard units of measure to collect data.
- Organize, compare, classify and sequence objects, organisms and events according to various characteristics.
- Communicate observations with diagrams, pictures, charts, and words.
- Give examples of how people use science in their everyday lives.
- Identify how diverse people/cultures have contributed to the field of science.
- Distinguish between living and nonliving things.
- Know the names of body parts and the senses.
- Understand the relationship between organisms and their environment.
- Investigate different forms of energy, spatial relationships, and the way objects move.

Cours Number	**Name of Course**	**Alternate Course Number**
1SC080	Science K	3230
Course Credit: 1.0		

1st Grade:

In Grade 1, students will build upon the skills and knowledge they acquire in kindergarten. Many of the concepts are similar, but on a more complex level to encourage discovery and exploration on deeper levels.

Activities in these areas will include:

- Demonstrate safe behavior and appropriate procedures.
- Record data from guided investigations in an organized and appropriate format.
- Compare the results of the investigation to predictions made prior to the investigation.
- Communicate the results of an investigation using pictures, graphs, modes, and/or words.
- Identify various technologies (e.g., automobiles, radios, refrigerators) that people use.
- Describe how suitable tools help make better observations and measurements.
- Identify the characteristics of living things, including growth and development, reproduction, and response to stimulus.
- Identify stages of human life from infancy to adulthood.
- Compare habitats (e.g., desert, forest, prairie, water, underground) in which plants and animals live.
- Classify objects by observable properties (shape, texture, size, color, weight…).
- Understand the Earth and our Environment.

Course Number	**Name of Course**	**Alternate Course Number**
1SC081	Science 1	3231
Course Credit: 1.0		

2nd Grade:

In Grade 2, students will participate in planning and conducting investigations. Students will explore the relationship between curiosity and discovery as they learn to formulate questions from observation and experiences.

Students will apply concepts learning in reading and math to organize data based on similar and different characteristics and communicate their findings. Using tools responsibly and safely is also discussed.

Activities in these areas will include:

- Predict the results of an investigation.
- Construct reasonable explanations of observations on the basis of data obtained (e.g., based, does this make sense? Could this really happen?)
- Generate questions for possible future investigations based on the conclusions of the investigation.
- Identify parts of a system too small to be seen (e.g., plant and animal cells).
- Analyze how various technologies impact aspects of people's lives (e.g., entertainment, medicine, transportation, communication.)
- Identify a simple problem that could be solved by using a suitable tool. Describe the basic functions of the digestive, respiratory, and circulatory system.
- Describe the life cycle of various insects, mammals and organisms.
- Classify objects and materials in terms of measurable properties using scientific tools.
- Demonstrate the water cycle and that water can be found in the form of a gas, liquid and solid.

Course Number	Name of Course	Alternate Course Number
1SC082	Science 2	3232
Course Credit: 1.0		

3rd Grade:

In Grade 3, students will build upon the skills and knowledge they have already acquired. Many of the concepts are similar, but on a more complex level to encourage discovery and exploration on deeper levels. Students will begin to formulate questions and recognize the value in asking questions as a problem solving strategy. The students will incorporate more and more concepts from reading and math with more of an emphasis on math as the two subject begin to align.

Activities in these areas will include:

- Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge.
- Predict the results of an investigation based on observed patterns.
- Plan a simple investigation.
- Use metric and US customary units to measure objects.
- Organize data using the different methods (bar graphs, pictographs and tally charts.)
- Construct reasonable interpretations of the collected data based on questions.
- Communicate investigations and explanations using evidence and appropriate terminology.
- Describe an investigation in ways that enable others to repeat it.
- Understand changes in environment.
- Identify the ways we use tools and technology and how that has impacted our culture.

Course Number	Name of Course	Alternate Course Number
1SC083	Science 3	3233
Course Credit: 1.0		

4th Grade:

In Grade 4, students will participate in planning and conducting investigations with an emphasis on recording data. Students will explore the relationship between curiosity and discovery as they learn to formulate questions from observation and experiences. They will begin to understand the differences between a fun experiment and a scientific experiment that can be repeated to prove a theory.

Students will apply concepts learned in reading and math to organize data based on similar and different characteristics and communicate their findings. Using tools responsibly and safely is also discussed.

Activities in these areas include:

- Locate information (e.g., book, article, website) related to an investigation.
- Conduct controlled investigations (e.g., related to erosion, plant life cycles, weather, magnetism) in life, physical, and Earth and space sciences.
- Communicate with other groups or individuals to compare the results of a common investigation.
- Explain various ways scientists generate ideas.
- Describe how natural events and human activities have positive and negative impacts on environments.
- Compare structures in plants and animals that serve different functions in growth and survival.
- Differentiate renewable resources from nonrenewable resources.
- Recognize the characteristics that make an animal successful in its environment.

Course Number	**Name of Course**	**Alternate Course Number**
1SC084	Science 4	3234
Course Credit: 1.0		

5th Grade:

In Grade 5, students will build upon the skills and knowledge they have already acquired. Many of the concepts are similar, but on a more complex level to encourage discovery and exploration on deeper levels. Students will begin to formulate questions and recognize the value in asking questions as a problem-solving strategy. The students will incorporate more and more concepts from reading and math with more of an emphasis on math as the two subjects begin to align.

Activities in these areas will include:

- Conduct simple investigations.
- Analyze data obtained in a scientific investigation to identify trends and form conclusions.
- Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object.)
- Provide examples that support the premise that science is an ongoing process that changes in response to new information and discoveries.
- Describe qualities of the scientists' habits of mind (e.g., openness, skepticism, integrity and tolerance.)
- Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.
- Identify the relationship between structures and functions of organisms.
- Understand the physical and chemical properties of matter.

Course Number	**Name of Course**	**Alternate Course Number**
1SC085	Science 5	3235
Course Credit: 1.0		

Science

6th-8th Grade

To View CDE Science Standards: (6-8th): https://www.cde.state.co.us/coscience/2020cas-sc-ms

Science instruction involve students actively using scientific processes to understand the course content and make connections to real life and related areas of study. These science standards present a vision of what it means to be scientifically literate and college and career ready. These standards outline what all students need to know, understand and be able to do by the end of high school and reflect the following shifts for science education.

Standards in Science

Standards are the topical organization of an academic content area. The three standards of science,

including the disciplinary core ideas, are:

1. Physical Science

Students know and understand common properties, forms, and changes in matter and energy.

PS1 Matter and Its Interactions

PS2 Motion and Stability: Forces and Interactions

PS3 Energy

PS4 Waves and Their Applications in Technologies for Information Transfer

2. Life Science

Students know and understand the characteristics and structure of living things, the processes of life,

and how living things interact with each other and their environment.

LS1 From Molecules to Organisms: Structures and Processes

LS2 Ecosystems: Interactions, Energy, and Dynamics

LS3 Heredity: Inheritance and Variation of Traits

LS4 Biological Evolution: Unity and Diversity

3. Earth and Space Science

Students know and understand the processes and interactions of Earth's systems and the structure and

dynamics of Earth and other objects in space.

ESS1 Earth's Place in the Universe

ESS2 Earth's Systems

ESS3 Earth ad Human Activity

Science and Engineering Practices

1. Asking questions (for science) and defining problems (for engineering)

2. Developing and using models

3. Planning and carrying out investigations

4. Analyzing and interpreting data

5. Using mathematics and computational thinking

6. Constructing explanations (for science) and designing solutions (for engineering)

7. Engaging in argument from evidence

8. Obtaining, evaluating, and communicating information

Preparing Graduates in Science:

- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how energy is transferred and conserved.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how waves are used to transfer energy and information.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how individual organisms are configured and how these structures function to support life, growth, behavior and reproduction.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how living systems interact with the biotic and abiotic environment.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how genetic and environmental factors influence variation of organisms across generations.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how natural selection drives biological evolution accounting for the unity and diversity of organisms.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding the universe and Earth's place in it.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how and why Earth is constantly changing.
- Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how human activities and the Earth’s surface processes interact.

6th Grade:

In Grade 6, students will be able to differentiate between questions, predictions and hypothesis. They will begin to see the relationship between science, reading and math as they research, and collect and organize data. Students will begin to use varied forms of data collection, so they are better able to analyze the results and draw conclusions from their investigations. The systematic approach of the scientific method lends itself to complex problem-solving skills, and the writing process for its thorough and structured approach.

Activities in these areas will include:

- Locate research information, not limited to a single source, for use in the design of a controlled investigation.
- Conduct a controlled investigation using scientific processes.
- Keep a record of observations, notes, sketches, questions and ideas using tools such as written and/or computer logs.
- Communicate the results of an investigation with appropriate use of qualitative and quantitative information.

- Create a list of instructions that others can follow in carrying out a procedure (without the use of personal pronouns.)
- Describe how a major milestone in science and technology has revolutionized the thinking of the time (e.g., Cell Theory, sonar, SCUBA, underwater robotics.)
- Apply the following scientific processes to other problem solving or decision-making situations.
- Evaluate the interactions between human populations, natural hazards, and the environment.
- Analyze the relationship between various organisms and their environment.

Course Number	Name of Course	Alternate Course Number
2SC1006	Science 6	3236
Course Credit: 1.0		

7th Grade:

In Grade 7, students will build upon the skills and knowledge they have already acquired.

The students will incorporate more and more concepts from reading and math with more of an emphasis on math as the two subjects begin to align. Math is no longer a component of science that helps with collection of data, but because a scientific tool that can be utilized to analyze the data and ensure accurate results.

Science requires a lot of research, vocabulary and writing of notes, reports, and data analysis. There is an emphasis on writing with proper conventions, structure, organization and editing skills.

Activities in these areas will include:

- Writing clear, step by step instructions for following procedures (without the use of personal pronouns.)
- Conduct controlled investigations, utilizing multiple trials, to test a hypothesis using scientific processes.
- Analyze environmental benefits of the following human interactions with biological or geological systems.
- How organisms obtain and use resources to develop and thrive.
- Analyze the interactions of living organisms with their ecosystems.
- Describe the composition and interactions between the structure of the Earth and its atmosphere.
- Understand the processes acting on the Earth and their interaction with the Earth systems.
- Understand the relationships of the Earth and other objects in the solar system.

Course Number	Name of Course	Alternate Course Number
2SC1007	Science 7	3237
Course Credit: 1.0		

8th Grade:

In Grade 8, students will build upon the skills and knowledge they have already acquired. Many of the concepts are similar, but a more complex level to encourage discover and explore on deeper levels.

The students will begin to formulate questions and recognize the value in asking questions as a problem-solving strategy. The students will incorporate more and more concepts from reading and math with more of an emphasis on math as the two subjects begin to align. Math is no longer a component of science that helps with collection of data, but because a scientific tool that can be utilized to analyze the data and ensure accurate results.

Science requires a lot of research, vocabulary and writing of notes, reports, and data analysis. There is an emphasis on writing with proper conventions, structure, organization and editing skills.

Activities in these areas will include:

- Formulate predictions, questions, or hypotheses based on observations.
- Locate appropriate resources.

- Design and conduct controlled investigations.
- Communicate results of investigations.
- Analyze and interpret data to explain correlations and results; formulate new questions.
- Develop viable solutions to a need or problem.
- Describe the interactions between human populations, natural hazards, and the environment.
- Understand how science is a process for generating knowledge.
- Identify individual, cultural, and technological contributions to scientific knowledge.
- Understand the basic principles of heredity.
- Identify structural and behavioral adaptations.
- Understand the physical and chemical properties of matter.
- Understand the relationship between force and motion.

Course Number	**Name of Course**	**Alternate Course Number**
2SC1008	Science 8	3238
Course Credit: 1.0		

Social Studies

Kindergarten – 5th Grade

To View Colorado Social Studies State Standards (K-5th): https://www.cde.state.co.us/cosocialstudies/cas-ss-p12-2022

Standards in Social Studies:

The Colorado Academic Standards in social studies are organized by content area. The five standards of social studies are:

1. History:

History prepares students to develop critical thinking skills to explain the human experience through events of the past. History develops an understanding of perspectives, defines identity and creates insight into how social, political, and economic factors can change, while building inquiry, judgment and decision-making skills. History enhances the ability to read varied sources and develop the skills necessary to analyze, interpret, evaluate, and communicate.

2. Geography

The study of geography creates an informed person with an understanding of spatial perspective and technologies for spatial analysis; and an awareness of the interdependence of the world regions and resources, and how places are connected at the local, national, and global scales. Students understand the complexity and interrelatedness of people, places, and environments. Geography helps students appreciate the dynamic relationships and complexity of the world.

3. Economics

Economics teaches how people allocate scarce resources for production, distribution, and consumption, both individually and collectively; how people make decisions, how people interact in the domestic and international markets, and how forces and trends affect the economy as a whole. The two branches of economics are microeconomics and macroeconomics. Gross Domestic Product (GDP) and the Consumer Price Index (CPI) are widely used economic indicators.

4. Civics

Civics teaches students the complexity of the origins, structure, and functions of governments; the rights, roles, and responsibilities of citizenship; the importance of law; and the skills necessary to participate in all levels of government. Civics is a foundational component of the educational experience and critical to the continued success of our society. A democratic and free society relies on the skills, knowledge, engagement and virtue of its citizens.

5. Personal Financial Literacy

Personal financial literacy applies the economic way of thinking to help individuals understand how to manage their own scarce resources using a logical decision-making process of prioritization based on analysis of the costs and benefits of every choice. Personal financial literacy teaches students an understanding of concepts like saving, investing, and debt that leads to an overall sense of financial wellbeing. Skills such as budgeting, paying for college, setting short- and long-term financial goals, and money management are integral to the financial health of all students.

Social Studies:

- Prepares the nation's young people for college, careers, and civic life.
- Inquiry is at the heart of Social Studies.
- Involves interdisciplinary applications and welcomes integration of the arts and humanities.
- Is composed of deep and enduring understandings, concepts and skills from disciplines.

- Emphasizes skills and practices as preparation for democratic decision-making.
- Education should have direct and explicit connections to the state standards for English Language Arts.

Kindergarten (Children as Citizens):

Through an introduction to civics, geography, economics and history, Kindergarten students will understand their roles and responsibilities as citizens within their own context. Students will also learn about their own culture and how it impacts understanding of oneself and others as well as be introduced to aspects of our national culture.

- Importance of rules and responsibilities
- Individual roles in a community
- Personal decision-making
- Familiarity with geographic models
- Culture in the home, school and community
- American symbols, holidays and traditions

Course Number	Name of Course	Alternate Course Number
1SO07KK	Social Studies, K	4430
Course Credit: 1.0		

1st Grade (Communities: Living and Working Together):

Through the study of civics, geography, economics and history, first grade students will understand how a community functions and how each member contributes to the community for the common good. Students will study their local community and learn about characteristics that define urban, suburban, and rural communities. Democratic principles and participation in government are introduced. Community resources, environment, change over time, and cause/effect are examined.

- Understanding perspectives of others
- Effects of human movement
- School and community functions of government
- Cooperation and compromise
- Earning, spending, and saving money
- American symbols and traditions
- Using geographic models

Course Number	Name of Course	Alternate Course Number
1SO071	Social Studies, 1	4431
Course Credit: 1.0		

2nd Grade (The World Around Me):

Through the study of geography and economics, the students' lenses expand to learn how their world is interconnected globally. Students will develop a special understanding of the world around them so they can understand how other cultures and civilizations are interconnected and have influenced who we are as a community, state and nation.

- Working together to solve problems
- Influence of weather and climate
- Individual and leadership roles
- Development and change of civilizations and cultures
- Identifying regions using geographic models
- Societal institutions and their belief systems
- Earning, spending, and saving money in a global community

Course Number	Name of Course	Alternate Course Number
1SO072	Social Studies, 2	4432
Course Credit: 1.0		

3rd Grade:

Grade 3 students will:

- Compare primary and secondary sources when explaining the past.
- Identify how people in the past influence the development and interaction of different communities or regions.
- Use geographic tools to develop spatial thinking skills.
- Define the concept of region through an examination of similarities and differences in places and communities
- Explain how producers and consumers exchange goods and services in different ways.
- Respect the views and rights of others.
- Describe the origins, structures, and functions of local government.
- Create a plan to meet a financial goal.

Course Number	Name of Course	Alternate Course Number
1SO073	Social Studies, 3	4433
Course Credit: 1.0		

4th Grade:

Grade 4 students will:

- Analyze primary and secondary sources from multiple points of view to develop an understanding of the history of Colorado.
- Describe the historical eras, individuals, groups, ideas, and themes in Colorado history and their relationship to key events in the United States within the same historical period.
- Use geographic tools to research and answer questions about Colorado geography.
- Examine the relationship between the physical environment and its effect on human activity.
- Explain how people respond to positive and negative incentives.
- Investigate multiple perspectives on civic issues.
- Describe the origins, structures, and functions of the Colorado government.
- Determine the opportunity cost when making a choice.

Course Number	Name of Course	Alternate Course Number
1SO074	Social Studies, 4	4434
Course Credit: 1.0		

5th Grade:

Grade 5 students will:

- Analyze primary and secondary sources from multiple points of view to develop an understanding of early United States history.
- Examine the historical eras, individuals, groups, ideas, and themes in North America from early Indigenous Peoples through the European Age of Exploration/post-Columbian colonization and the establishment of the United States Government.
- Use geographic tools and sources to research and answer questions about United States geography.
- Explain how patterns of trade shaped the development of Early America.
- Construct an understanding of the foundations, rights, and responsibilities of citizenship in the United States.
- Investigate the origins, structures, and functions of the United States government.

- Examine how individuals use financial institutions to manage personal finances.

Course Number	Name of Course	Alternate Course Number
1SO075	Social Studies, 5	4435
Course Credit: 1.0		

Social Studies

6th-8th Grade

Prepared Graduates:

1. Apply the process of inquiry to examine and analyze how historical knowledge is viewed, constructed, and interpreted.
2. Analyze historical time periods and patterns of continuity and change, through multiple perspectives, within and among cultures and societies.
3. Apply geographic representations and perspectives to analyze human movement, spatial patterns, systems, and the connections and relationships among them.
4. Examine the characteristics of places and regions, and the changing nature among geographic and human interactions.
5. Evaluate how scarce resources are allocated in societies through the analysis of individual choice, market interaction, and public policy.
6. Express an understanding of how civic participation affects policy by applying the rights and responsibilities of a citizen.
7. Analyze the origins, structures, and functions of governments to evaluate the impact on citizens and the global society.
8. Apply economic reasoning skills to make informed personal financial decisions.

Students Will:

- Identify ways different cultures record history in the Western Hemisphere through written and oral sources.
- Analyze multiple primary and secondary sources while formulating historical questions about the Western Hemisphere. For example: Oral histories, art, artifacts, eyewitness accounts, letters, and diaries, real or simulated historical sites, charts, graphs, diagrams, and written texts.
- Gather, organize, synthesize, and critique information, from multiple and diverse perspectives, to determine if it is sufficient to answer historical questions about the Western Hemisphere.
- Explain how people, cultures, and ideas interact and are interconnected in the Western Hemisphere and how they have impacted modern times. For example: The “Great Dying” of Indigenous Peoples in the Americas and its consequences; rapid deforestation of the Amazon; anti-colonial and nationalist movements, the Columbian Exchange, and revolutions in energy.
- Determine and explain the historical context of key people, events, cause and effect relationships, and ideas over time including the examination of different
  perspectives from people involved. For example: The complex interactions between majority and minority groups and individuals involved in European colonization
  in the Western hemisphere.
- Identify examples of the social, political, cultural, and economic development in the Western Hemisphere. For example: The extension of networks of communication, colonial empires, patterns of migration over time, and international trade.
- Explain the interdependence and uniqueness among Indigenous Peoples in the Western Hemisphere including the existing conflict and power dynamics between Indigenous Peoples and those in power.
- Use geographic tools and sources to research and make geographic inferences and predictions about the Western Hemisphere.
- Evaluate how regional differences and perspectives in the Western Hemisphere impact human and environmental interactions.
- Investigate how different economic systems developed based on access to resources, societal values, and human experiences, in order to address the problem of scarcity.

- Examine civic participation within different governmental systems of the Western Hemisphere.
- Explain how the development and features of systems of government in the Western Hemisphere relate to their citizens.
- Investigate the role of consumers and businesses within the Western Hemisphere.

Course Number	Name of Course	Alternate Course Number
2SO1006	Social Studies, 6	4305
Course Credit: 1.0		

7th Grade:

Prepared Graduates:

1. Apply the process of inquiry to examine and analyze how historical knowledge is viewed, constructed, and interpreted.
2. Analyze historical time periods and patterns of continuity and change, through multiple perspectives, within and among cultures and societies.
3. Apply geographic representations and perspectives to analyze human movement, spatial patterns, systems, and the connections and relationships among them.
4. Examine the characteristics of places and regions, and the changing nature among geographic and human interactions.
5. Evaluate how scarce resources are allocated in societies through the analysis of individual choice, market interaction, and public policy.
6. Express an understanding of how civic participation affects policy by applying the rights and responsibilities of a citizen.
7. Analyze the origins, structures, and functions of governments to evaluate the impact on citizens and the global society.
8. Apply economic reasoning skills to make informed personal financial decisions.

Students Will:

- Analyze and interpret a variety of primary and secondary sources from multiple perspectives in the Eastern Hemisphere to formulate an appropriate thesis supported by relevant evidence.
- Apply an understanding of the historical context of significant current events, individuals, groups, ideas, and themes within regions of the Eastern Hemisphere and their relationships with one another, to draw conclusions, and solve problems.
- Use geographic tools and sources to research and make geographic inferences and predictions about the Eastern Hemisphere.
- Evaluate regional differences and perspectives in the Eastern Hemisphere and how they impact human and environmental interactions.
- Describe how economic systems in the Eastern Hemisphere developed based on access to resources, societal values, and human experiences in order to address the problem of scarcity.
- Investigate similarities and differences of civic participation within different governmental systems of the Eastern Hemisphere.
- Analyze how nations in various regions of the Eastern Hemisphere interact with international organizations, govern, organize, and impact their societies in different ways.
- Investigate the role of consumers and businesses within the Eastern Hemisphere.

Course Number	Name of Course	Alternate Course Number
2SO1007	Social Studies, 7	4305
Course Credit: 1.0		

8th Grade:

Prepared Graduates:

1. Apply the process of inquiry to examine and analyze how historical knowledge is viewed, constructed, and interpreted.
2. Analyze historical time periods and patterns of continuity and change, through multiple perspectives, within and among cultures and societies.
3. Apply geographic representations and perspectives to analyze human movement, spatial patterns, systems, and the connections and relationships among them.
4. Examine the characteristics of places and regions, and the changing nature among geographic and human interactions.
5. Evaluate how scarce resources are allocated in societies through the analysis of individual choice, market interaction, and public policy.
6. Express an understanding of how civic participation affects policy by applying the rights and responsibilities of a citizen.
7. Analyze the origins, structures, and functions of governments to evaluate the impact on citizens and the global society.
8. Apply economic reasoning skills to make informed personal financial decisions.

Students Will:

- Investigate and evaluate primary and secondary sources from multiple diverse perspectives about United States history from the American Revolution through Reconstruction to formulate and defend claims with textual evidence and logical reasoning.
- Develop a contextual understanding of the historical eras, individuals, groups, ideas, and themes from the origins of the American Revolution through Reconstruction.
- Use geographic tools to research and analyze patterns in human and physical systems in the United States.
- Recognize the imp.act of the competition for control of land and resources in early American history.
- Investigate how economic freedom, including free trade, was important for economic growth in early American history.
- Construct an understanding of the changing definition of citizenship and the expansion of rights of citizens in the United States.
- Investigate and evaluate the purpose and place of rule of law in a constitutional system.
- Examine the role of consumer decisions and taxes within the market economies of early American history.

Course Number	**Name of Course**	**Alternate Course Number**
2SO1008	Social Studies, 8	4305
Course Credit: 1.0		

STEM (Elective)

Kindergarten – 5th Grade

To vie CDE Computer Science state standards adopted 2024: https://www.cde.state.co.us/computerscience/standards

PLTW (Launch)/Robotics (K-5):

Project Lead the Way (PLTW) Students Learn Through Exploration and Discovery. Young learners are naturally wired for discovery. PLTW Launch is designed with activities that let them see what they can be and build skills to discover what they can do.

Students are immersed in hands-on activities, projects, and problems that build upon each other and relate to the real world. They experience integrated learning that blends computer science, engineering, biomedical science, and more. Throughout the modules, even the youngest learners apply their math and English Language Arts (ELA) skills, learn science to standards, and adopt skills that are foundational across disciplines.

K-2 Technology:

K-2 Technology is an introduction to the fundamentals of how to use personal computers and includes Colorado Computer Science standards. The primary focus is beginning keyboarding skills with a goal of touch-typing, word-processing skills, internet safety, "netiquette," and foundational coding skills.

3-5th Grades Technology:

This program series is an introduction to the basics of coding, technology and design using Java, Game Design and/or Minecraft. Internet safety, "netiquette" and Cybersecurity will be covered.

Course Number	Name of Course	Alternate Course Number
1ELE18	STEM, K	1238
Course Credit: .25		
1ELE19	STEM, 1	1239
Course Credit: .25		
1ELE20	STEM, 2	1240
Course Credit: .50		
1ELE21	STEM, 3	1241
Course Credit: .50		
1ELE22	STEM, 4	1242
Course Credit: .50		
1ELE23	STEM, 5	1243
Course Credit: 1.0		

STEM (Elective)

6th- 8th Grade

To View Colorado Computer Science Standards:
https://go.boarddocs.com/co/cde/Board.nsf/files/D3U2NE02F6DA/$file/Clean%20Copy%20K-12%20CS%20Standards%20Final%20Recommendations%20April%202024_Final.pdf

PLTW (Gateway) (6-8):

Career Awareness Starting in Middle School: Through explorations of coding and robotics, flight and space, human body systems, and more, PLTW Gateway fuels students' passion for discovery. As they engage in hands-on, collaborative problem solving focused on real-world challenges, students use and stretch their imaginations in brand-new ways and connect their learning to life. All the while, students step into roles spanning the career landscape – a crucial experience during this transitional time in their lives.

- **Design and Modeling:** Students discover the design process and develop an understanding of the influence of creativity and innovation in their lives. They are then challenged and empowered to use and apply what they've learned throughout the unit to design a therapeutic toy for a child who has cerebral palsy.
- **Automation and Robotics:** Students are given the opportunity to combine mechanisms with input and output devices to automate the mechanisms. Construction and programming skills are layered, and projects and the problem provide students the opportunity to connect their learning throughout the lessons in the unit. Students take on the role of interns, and work in teams to identify design requirements and create prototypes to meet the needs of clients. They also explore different aspects of automation and robotics, and experience how solving real-life problems involves the teamwork of mechanical engineers, software developers, and electrical engineers.
- **App Creators:** This unit will expose students to computer science by computationally analyzing and developing solutions to authentic problems through mobile app development and will convey the positive impact of the application of computer science to other disciplines and to society. Students will customize their experience by choosing a problem that interests them from the areas of health, environment, emergency preparedness, education, community service, and school culture. Because problems in the real world involve more than one discipline, the unit will introduce students to biomedical science concepts as they work on solutions for the specific problems they choose to tackle.
- **Computer Science for Innovators and Makers**: This unit will allow students to discover computer science concepts and skills by creating personally relevant, tangible, and shareable projects. Throughout the unit, students will learn about programming for the physical world by blending hardware design and software development. They will design and develop a physical computing device, interactive art installation, or wearable, and plan and develop code for microcontrollers that bring their physical designs to life. Physical computing projects will promote student awareness of interactive systems, including Internet of Things (IoT) devices, and broaden their understanding of abstract computer science concepts through meaningful and authentic applications.

6-8th Technology:

- Microsoft Word Processing. Students will use word processing software to create, name and manage files, edit and format different texts, and apply themes.
- Desktop Presentations Powerpoint: Students will use Powerpoint to produce quality presentations visuals with animation and sound.

- Microsoft Publisher: Introduction to publishing and design. Students will learn to create publications using a template or from scratch, using building blocks such as Page parts to create pages, using Backstage View to manage information about files, add text and images to a publication, and create a layout.
- AI and Machine Learning: Explore how computers learn from data to make decisions, then develop projects around real-world data and design an app to solve a personally relevant problem.
- Coding with AI: This unit empowers students to become confident, ethical coders. Students learn how to leverage generative AI tools to help explain code, tackle problems, and even generate code.

Course Number	**Name of Course**	**Alternate Course Number**
2ELE24	STEM, 6	1244
Course Credit: 1.0		
2ELE25	STEM, 7	1245
Course Credit: 1.0		
2ELE26	STEM, 8	1246
Course Credit: 1.0		

Arts & Athletics

Kindergarten – 8th Grade

The Arts and Athletics program is an important part of Pioneer Technology & Arts Academy mission. These programs offer an integrated performance and visual arts education, aligned to the Colorado Standards and National Standards, as well as National Standards for Arts Education.

Pioneer Technology & Arts Academy will offer a comprehensive athletic program that establishes a strong relationship between success on and off the court or playing field.

In the Arts, the courses offered range within the disciplines of Performing and visual arts. Students in K-8 experience and create as they progress through the program of music, theater arts, dance, multi-medium and multi-dimensional art, graphics and beyond. Students create, relate and evaluate from beginning through advanced levels by practical, written and performance-based assessment. Arts and athletics are integrated into the weekly schedule. Years of research show that Arts and athletics are closely linked to almost everything that we as a nation say we want for our children and demand from our schools: academic achievement, social and emotional development, civic engagement, and equitable opportunity (Smith, Edutopia.org).

*Performing Arts, Storytelling and Theatrical performances are embedded in the Social Studies and Language Arts content areas.

K-8th Courses:

Athletics:

K-2 Physical Education – athletic fundamentals. This course offers students a foundation in physical education and kinesthetics. Topics include safety, stretching, increasing endurance, developing leadership qualities, building self-esteem, working as a team, and having fun. The students will explore a variety of team sports, with an emphasis on promoting and encouraging a lifetime of physical fitness participation.

3-8th Physical Education- Athletic Development. This course offers students an opportunity to develop specific skills that will enhance participation in sports. Topics include safety, strength conditioning, building speed and stamina, developing leadership qualities, building self-esteem, working as a team, and having fun. Students will explore a variety of sports with an emphasis on promoting and encouraging a lifetime of participating in physical fitness.

Visual Arts:

This course offers an opportunity for students to learn about the world in a different way than other academic disciplines. Students will have hands on experience creating art with a variety of media such as drawing, painting, clay, textiles, and other 3-D materials. Through these projects, this course will incorporate art history, learning about other cultures and social topics, as well as a sense of identity and self-expression. Students will learn presentation skills as well as responding to their own and others' artwork.

Performing Arts:

Music:

K-6th Grade:

In this course, students develop skills in melody, rhythm, reading and writing, part work and perform. Each child will develop their singing voice. Students will learn steady beat, simple rhythm, melody through song and percussion. Performance will occur throughout the school year.

Creative Movement:

Introduction of basic concepts of rhythm and movement using creative games that expand individual creativity. The students will learn spatial awareness, listening skills, group socialization, and structure. Students will strengthen their bodies and learn coordination to ready themselves for the next level in dance. Our goal is to strive to build an appreciation of dance in each child, nurturing their natural creativity in a fun and loving atmosphere. Additionally, our goal is to awaken interest, enthusiasm and self-confidence through dance.

Course Number	Name of Course	Alternate Course Number
1PE15K	Physical Education, K	8030
Course Credit: .50		
1PE151	Physical Education, 1	8031
Course Credit: .50		
1PE152	Physical Education, 2	8032
Course Credit: .50		
1PE153	Physical Education, 3	8033
Course Credit: .50		
1PE154	Physical Education, 4	8034
Course Credit: .50		
1PE155	Physical Education, 5	8035
Course Credit: .50		
2PE106	Physical Education, 6	8036
Course Credit: .50		
2PE107	PE 7	8036
Course Credit: .50		
2PE108	PE 8	8036
Course Credit: .50		
1AR13K	Art, K	5180
Course Credit: .50		
1AR131	Art, 1	5180
Course Credit: .50		
1AR132	Art, 2	5181
Course Credit: .50		
1AR133	Art, 3	5182
Course Credit: .50		
1AR134	Art, 4	5183
Course Credit: .50		
1AR135	Art, 5	5184
Course Credit: .50		
2AR106A	Art, 6	5185
Course Credit: .50		
2AR107A	Art, 7	5186
Course Credit: .50		

2AR108A	Art, 8	5187
Course Credit: .50		
1VM120	Music K	5188
Course Credit: .50		
1VM121	Music 1	5138
Course Credit: .50		
1VM122	Music 2	5139
Course Credit: .50		
1VM123	Music 3	5132
Course Credit: .50		
1MV124	Music 4	5133
Course Credit: .50		
1MV125	Music 5	5135
Course Credit: .50		
2MV126	Music 6	5136
Course Credit: .50		
2MV127	Music 7	5137
Course Credit: .50		
2MV128	Music 8	5138
Course Credit: .50		

Electives

Kindergarten – 8th Grade

Mandarin (Conversational Language and Culture):

Course Number	Name of Course	Alternate Course Number
1PSMK11	Mandarin, K	2160
Course Credit: .50		
1PSM111	Mandarin, 1	2161
Course Credit: .50		
1PSM112	Mandarin, 2	2162
Course Credit: .50		
1PSM113	Mandarin, 3	2163
Course Credit: .50		
1PSM114	Mandarin, 4	2164
Course Credit: .50		
1PSM115	Mandarin, 5	2165
Course Credit: .50		
2PSM611	Mandarin, 6	5166
Course Credit: .50		
2PSM711	Mandarin, 7	5167
Course Credit: .50		
2PSM811	Mandarin, 8	5168
Course Credit: .50		

Spanish (Conversational Language and Culture):

Course Number	Name of Course	Alternate Course Number
	Spanish, K	
Course Credit: .50		
	Spanish, 1	
Course Credit: .50		
	Spanish, 2	
Course Credit: .50		
	Spanish, 3	
Course Credit: .50		
	Spanish, 4	
Course Credit: .50		
	Spanish, 5	
Course Credit: .50		
	Spanish, 6	
Course Credit: .50		
	Spanish, 7	
Course Credit: .50		
	Spanish, 8	
Course Credit: .50		

2024-2025 PTAA Alternative Instruction Plan

In the event Alternative Instruction is required for Homebound or Expulsion for K-8th Grade students, PTAA will utilize a program designed using Classroom Assignments through Google Classroom and Assigned Synchronous instruction provided by PTAA Teachers.