



**EXPLORATION ACADEMY**  
**PATHWAY TO GRADUATION**

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# OVERVIEW

## PERSONALIZED LEARNING PLANS

All students in Exploration Academy have Personalized Learning Plans. PLPs guide students along their path to graduation and their future career. PLPs are created and maintained by both students and their advisors. They require input from many people, including the student, parents, and the advisor. PLPs are not a single document but a combination of 4 separate but connected documents:

1. Electronic Portfolio (maintained by student)
2. Learner Profile (maintained by advisor)
3. Pathway to Graduation Phase (maintained by advisor)
4. Exploration Academy Transcript (maintained by advisor)

## FRAMEWORK FOR LEARNING

There are five main areas in the Framework for Learning: Communication (English), Empirical Reasoning (science), Leadership and Life Skills (21st Century Skills, health, physical education), Quantitative Reasoning (math), and Social Reasoning (social studies).

All areas in the Framework for Learning have a few **Essential Skills**. Students work on Essential Skills every year to demonstrate growth. They should strive to become proficient or better in Essential Skills. Advisors evaluate students' ability level in Essential Skills using rubrics and guidelines.

All areas of the Framework for Learning also have **Learning Targets**. Some Learning Targets are required; others are chosen by students. Students may work on Learning Targets one or more times. Students should also strive to be proficient or better in Learning Targets. Many Learning Targets have guidelines. Advisors evaluate students' ability level in Learning Targets using these criteria:

- Exceeds or repeatedly meets all of the guidelines = Expert
- Meets all of the guidelines = Proficient
- Meets most of the guidelines = Basic
- Meets some of the guidelines = Minimal

To graduate, students should strive to be proficient or better in 18 Essential Skills, 73 Learning Targets, and 3 years of mathematics. *Students who plan to go to a four-year college should strive to be proficient or better in even more Learning Targets.*

COMMUNICATION	EMPIRICAL REASONING	LEADERSHIP AND LIFE SKILLS	QUANTITATIVE REASONING	SOCIAL REASONING
<ul style="list-style-type: none"><li>• 3 Essential Skills</li><li>• 24 Learning Targets</li></ul>	<ul style="list-style-type: none"><li>• 3 Essential Skills</li><li>• 18 Learning Targets</li></ul>	<ul style="list-style-type: none"><li>• 6 Essential Skills</li><li>• 11 Learning Targets</li></ul>	<ul style="list-style-type: none"><li>• 3 Essential Skills</li><li>• 3 years of mathematics</li></ul>	<ul style="list-style-type: none"><li>• 3 Essential Skills</li><li>• 20 Learning Targets</li></ul>

## THE FOUR PHASES

To help students and their parents know if they are on track to graduate, there are four Phases. Complete Phase 1 to be a quarter of the way to graduating, Phase 2 to be halfway, and so on. The four Phases can be thought of as four years of work, but they could be completed in less than or more than four years. It depends on the student. Everything in the four Phases should be connected to Essential Skills and Learning Targets.

# COMMUNICATION

## INTRODUCTION

Communicating effectively is important in all subjects in school. So it is natural -- and an efficient use of your time -- to combine Communication requirements with those for other subjects in the projects that you do in Exploration Academy.

## COMMUNICATION ESSENTIAL SKILLS

Every year in Exploration Academy, students do projects to demonstrate growth in the Communication Essential Skills.

1. COMMUNICATION: Reading - Read informational and literary texts, comprehend them, and analyze them.
2. COMMUNICATION: Writing - Produce writing with strong ideas, support, organization, transitions, voice, word choice, and sentence fluency, as well as appropriate conventions and format.
3. COMMUNICATION: Speaking and Listening - Participate effectively in one-on-one conversations and group discussions, and give engaging presentations.

Strive to become proficient in the Communication Essential Skills. Use the rubrics to guide you.

1. COMMUNICATION: Reading - Read informational and literary texts, comprehend them, and analyze them

	EXPERT	PROFICIENT	BASIC	MINIMAL
Comprehension	<ul style="list-style-type: none"> <li>Artifacts demonstrate accurate comprehension of texts from a wide variety of disciplines and formats.</li> </ul>	<ul style="list-style-type: none"> <li>Artifacts demonstrate accurate comprehension of texts of various disciplines and formats.</li> </ul>	<ul style="list-style-type: none"> <li>Artifacts demonstrate somewhat accurate comprehension of texts.</li> <li>Artifacts represent texts from a narrow window of disciplines and formats.</li> </ul>	<ul style="list-style-type: none"> <li>Artifacts do not demonstrate accurate comprehension of texts and/or do not represent texts of various disciplines and/or formats.</li> </ul>
Analysis	<ul style="list-style-type: none"> <li>Artifacts demonstrate analysis that critically examines the structure and elements of texts from a wide variety of disciplines and formats.</li> <li>Analysis details reader's interpretation of text and cites evidence from the text to support interpretation.</li> </ul>	<ul style="list-style-type: none"> <li>Artifacts demonstrate analysis that examines the structure and elements of texts of various disciplines and formats.</li> <li>Analysis details reader's interpretation of text and cites evidence from the text to support interpretation.</li> </ul>	<ul style="list-style-type: none"> <li>Artifacts demonstrate analysis that examines the structure or elements of texts of various disciplines and formats.</li> <li>Analysis details reader's interpretation of text.</li> </ul>	<ul style="list-style-type: none"> <li>Artifacts do not demonstrate analysis of texts.</li> <li>Artifacts are focused on a narrow band of disciplines and/or formats.</li> <li>Analysis does not detail reader's interpretation of text or cite evidence from the text to support interpretation.</li> </ul>

2. COMMUNICATION: Writing - Produce writing with strong ideas, support, organization, transitions, voice, word choice, and sentence fluency, as well as appropriate conventions and format.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Ideas	<ul style="list-style-type: none"> <li>Main idea is clear, supported, and enriched by relevant evidence, anecdotes, and/or details.</li> </ul>	<ul style="list-style-type: none"> <li>Main idea is well-marked by detail but could benefit from additional information.</li> </ul>	<ul style="list-style-type: none"> <li>Main idea is present; may be broad or simplistic.</li> </ul>	<ul style="list-style-type: none"> <li>Main idea is missing, though possible topic/theme is emerging.</li> </ul>

Organization	<ul style="list-style-type: none"> <li>• Writing has a beginning, middle and end.</li> <li>• The beginning entices and invites the reader into the text. It introduces the main focus of the writing.</li> <li>• The middle logically and thoughtfully organizes the main points.</li> <li>• The ending provides closure to the writing. It leaves the reader with a memorable thought, question or anecdote.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing has a beginning, middle and end.</li> <li>• The beginning entices the reader and introduces the main focus of the writing.</li> <li>• The middle logically organizes the main points.</li> <li>• The ending leaves the reader with a memorable thought, question or anecdote.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing has a beginning, middle and end.</li> <li>• The beginning introduces the main focus of the writing.</li> <li>• The middle organizes the main points.</li> <li>• The ending provides closure.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing has no distinguishable beginning, middle or end.</li> </ul>
Transitions	<ul style="list-style-type: none"> <li>• Transitions are used thoughtfully and creatively to make the writer's points easy to follow.</li> </ul>	<ul style="list-style-type: none"> <li>• Transitions are used thoughtfully to make the writer's points easy to follow.</li> </ul>	<ul style="list-style-type: none"> <li>• Transitions are present in writing.</li> </ul>	<ul style="list-style-type: none"> <li>• Transitions are not present in writing.</li> </ul>
Voice	<ul style="list-style-type: none"> <li>• Writing speaks to the reader in a voice that is individual, compelling, and engaging.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing speaks to the reader in a voice that is individual and engaging.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing possesses an identifiable voice.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing lacks voice and sounds anonymous.</li> </ul>
Word choice	<ul style="list-style-type: none"> <li>• Word choice is thoughtful and descriptive.</li> <li>• Words flow naturally and enhance the meaning of the text.</li> </ul>	<ul style="list-style-type: none"> <li>• Word choice is thoughtful, descriptive, and natural.</li> </ul>	<ul style="list-style-type: none"> <li>• Word choice is accurate and sufficiently conveys meaning.</li> </ul>	<ul style="list-style-type: none"> <li>• Word choice is basic, inaccurate, and/or unnatural.</li> </ul>
Sentence fluency	<ul style="list-style-type: none"> <li>• Sentence structure enhances meaning of text.</li> <li>• They vary in length and structure.</li> </ul>	<ul style="list-style-type: none"> <li>• Sentences support meaning.</li> <li>• They vary in length and structure.</li> </ul>	<ul style="list-style-type: none"> <li>• Sentences are written so that reader can understand meaning.</li> </ul>	<ul style="list-style-type: none"> <li>• Sentences are awkward and/or similar in length and structure.</li> <li>• Sentences structure distracts meaning of text.</li> </ul>
Conventions	<ul style="list-style-type: none"> <li>• Errors in spelling, grammar, and punctuation are nonexistent.</li> </ul>	<ul style="list-style-type: none"> <li>• Errors in spelling, grammar, and punctuation do not inhibit understanding of text.</li> </ul>	<ul style="list-style-type: none"> <li>• Errors in spelling, grammar, and punctuation minimally inhibit understanding of text.</li> </ul>	<ul style="list-style-type: none"> <li>• Errors in spelling, grammar, and punctuation inhibit understanding of text.</li> </ul>
Format	<ul style="list-style-type: none"> <li>• The format of the writing aligns with the purpose and audience.</li> <li>• Format enhances the reader's understanding of text.</li> </ul>	<ul style="list-style-type: none"> <li>• The format of the writing aligns with the purpose and audience and aids the reader in understanding.</li> </ul>	<ul style="list-style-type: none"> <li>• The format of the writing aligns with the purpose and audience.</li> </ul>	<ul style="list-style-type: none"> <li>• The format of the writing does not align with the purpose or audience.</li> </ul>

3. COMMUNICATION: Speaking and Listening - Participate effectively in one-on-one conversations and group discussions, and give engaging presentations.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Initiating one-on-one conversations	<ul style="list-style-type: none"> <li>Participant shows evidence of ability to start one-on-one conversations with a variety of people.</li> <li>Participant starts conversations naturally and with ease.</li> </ul>	<ul style="list-style-type: none"> <li>Participant shows evidence of ability to start one-on-one conversations with a variety of people.</li> </ul>	<ul style="list-style-type: none"> <li>Participant shows sporadic evidence of ability to start one-on-one conversations with a variety of people.</li> </ul>	<ul style="list-style-type: none"> <li>Participant cannot start one-on-one conversations with a variety of people.</li> </ul>
Appropriate communication	<ul style="list-style-type: none"> <li>Participant uses appropriate and effective communication strategies given the context and content of the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant uses appropriate communication strategies given the context and content of the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant occasionally uses appropriate communication strategies given the context and content of the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant does not use appropriate communication strategies given the context and content of the discussion.</li> </ul>
Non-verbal communication	<ul style="list-style-type: none"> <li>Participant sits appropriately, makes eye contact when speaking and listening, and uses gestures/movements appropriate to discussion.</li> <li>Participant's nonverbal communication enhances their verbal communication.</li> </ul>	<ul style="list-style-type: none"> <li>Participant sits appropriately, makes eye contact when speaking and listening, and uses gestures and movements appropriate to discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant shows evidence of some but not all of the following: sitting appropriately, making eye contact when speaking and listening, and using gestures and movements appropriate to discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant does not sit appropriately, and/or does not make eye contact when speaking and listening.</li> <li>Participant does not use gestures or movements appropriate to discussion.</li> </ul>
Questions	<ul style="list-style-type: none"> <li>Participant uses clarifying or follow-up questions to understand the comments or questions of the speaker.</li> <li>Participant's questions enhance understanding for the speaker.</li> </ul>	<ul style="list-style-type: none"> <li>Participant consistently uses clarifying or follow-up questions to understand the comments or questions of the speaker.</li> </ul>	<ul style="list-style-type: none"> <li>Participant sporadically uses clarifying or follow-up questions to understand the comments or questions of the speaker.</li> </ul>	<ul style="list-style-type: none"> <li>Participant does not use clarifying or follow-up questions to understand the comments or questions of the speaker.</li> </ul>

	EXPERT	PROFICIENT	BASIC	MINIMAL
Initiating group discussions	<ul style="list-style-type: none"> <li>Participant shows evidence of ability to consistently start group conversations naturally and with ease.</li> </ul>	<ul style="list-style-type: none"> <li>Participant shows evidence of ability to consistently start group conversations.</li> </ul>	<ul style="list-style-type: none"> <li>Participant shows evidence of ability to start group conversations.</li> </ul>	<ul style="list-style-type: none"> <li>Participant is unable to start group conversations.</li> </ul>
Appropriate communication	<ul style="list-style-type: none"> <li>Participant uses appropriate and effective communication strategies given the context and content of the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant uses appropriate communication strategies given the context and content of the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant occasionally uses appropriate communication strategies given the context and content of the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Participant does not use appropriate communication strategies given the context and content of the discussion.</li> </ul>

Non-verbal communication	<ul style="list-style-type: none"> <li>• Participant sits appropriately, makes eye contact when speaking and listening, and uses gestures and movements appropriate to discussion.</li> <li>• Participant's nonverbal communication enhances their verbal communication.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant sits appropriately, makes eye contact when speaking and listening, and uses gestures and movements appropriate to discussion.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant shows evidence of some but not all of the following: sitting appropriately, making eye contact when speaking and listening, and using gestures and movements appropriate to discussion.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant does not sit appropriately, and/or does not make eye contact when speaking and listening.</li> <li>• Participant does not use gestures or movements appropriate to discussion.</li> </ul>
Questions	<ul style="list-style-type: none"> <li>• Participant uses clarifying or follow-up questions to understand the comments or questions of others.</li> <li>• Participant's questions enhance understanding for others.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant consistently uses clarifying or follow-up questions to understand the comments or questions of others.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant sporadically uses clarifying or follow-up questions to understand the comments or questions of others.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant does not use clarifying or follow-up questions to understand the comments or questions of others.</li> </ul>
Evidence	<ul style="list-style-type: none"> <li>• Participant cites accurate and relevant evidence when making an argument.</li> <li>• Argument and evidence enhances understanding for other participants.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant cites accurate and relevant evidence when making an argument.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant cites accurate evidence when making an argument.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant does not cite accurate evidence when making an argument or cites inaccurate or irrelevant evidence.</li> </ul>
Helping others participate	<ul style="list-style-type: none"> <li>• Participant naturally invites others into the discussion.</li> <li>• He/she makes other participants comfortable to talk and ask questions.</li> <li>• He/she does not talk over or interrupt others.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant invites others into the discussion.</li> <li>• He/she does not talk over or interrupt others.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant periodically invites others into the discussion.</li> <li>• He/she sometimes talks over or interrupts others.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant does not invite others into the discussion.</li> <li>• He/she talks over or interrupts others.</li> </ul>
Listening	<ul style="list-style-type: none"> <li>• Participant demonstrates ability to effectively listen to group members and learn from their contributions.</li> <li>• Participant's listening skills enhance their learning experience.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant demonstrates ability to effectively listen to group members and learn from their contributions.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant demonstrates ability to listen to group members.</li> </ul>	<ul style="list-style-type: none"> <li>• Participant does not effectively listen to others.</li> </ul>

	EXPERT	PROFICIENT	BASIC	MINIMAL
Presentation process	<ul style="list-style-type: none"> <li>• Writing shows evidence of the following public speaking process activities: Determine task, purpose, and audience; planning; drafting outline and/or manuscript; revisions, editing; rewriting; practicing delivery; seeking feedback; adjusting presentation based on feedback; presenting.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing shows sufficient evidence of the following public speaking process activities: Determine task, purpose, and audience; planning; drafting outline and/or manuscript; revisions, editing; rewriting; practicing delivery; seeking feedback; adjusting presentation based on feedback; presenting.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing shows some, but not all evidence of the following public speaking process activities: Determine task, purpose, and audience; planning; drafting outline and/or manuscript; revisions, editing; rewriting; practicing delivery; seeking feedback; adjusting presentation based on feedback; presenting.</li> </ul>	<ul style="list-style-type: none"> <li>• Presentation shows no or incomplete evidence of the following public speaking process activities: Determine task, purpose, and audience; planning; drafting outline and/or manuscript; revisions, editing; rewriting; practicing delivery; seeking feedback; adjusting presentation based on feedback; presenting.</li> </ul>
Purpose	<ul style="list-style-type: none"> <li>• Purpose of presentation is easily identified and clearly understood by audience.</li> </ul>	<ul style="list-style-type: none"> <li>• Purpose of presentation is easily identified and understood by audience.</li> </ul>	<ul style="list-style-type: none"> <li>• Purpose of presentation is clear to the audience.</li> </ul>	<ul style="list-style-type: none"> <li>• Purpose of presentation is unclear to audience.</li> </ul>
Non-verbal communication	<ul style="list-style-type: none"> <li>• Speaker uses effective and appropriate eye contact, gestures and body language.</li> <li>• Eye contact, gestures and body language enhance meaning of presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker consistently uses effective and appropriate eye contact, gestures and body language.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker sporadically uses effective and appropriate eye contact, gestures and body language.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker does not use effective or appropriate eye contact, gestures and body language.</li> </ul>
Verbal communication	<ul style="list-style-type: none"> <li>• Speaker uses effective and appropriate rate, volume, articulation and pronunciation.</li> <li>• Rate, volume and pronunciation enhance meaning of presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker consistently uses effective and appropriate rate, volume, articulation and pronunciation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker sporadically uses effective and appropriate rate, volume, articulation and pronunciation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker does not use effective and appropriate rate, volume, articulation or pronunciation.</li> </ul>
Visual aids	<ul style="list-style-type: none"> <li>• Speaker uses a visual aid to supplement and enhance meaning of presentation.</li> <li>• The visual aid underscores and enhances meaning of presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker uses a visual aid to supplement presentation.</li> <li>• The visual aid enhances without detracting from overall presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker uses a visual aid to supplement presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Speaker does not use a visual aid to supplement presentation, or the visual aid detracts from overall presentation.</li> </ul>



## COMMUNICATION LEARNING TARGETS

Strive to be proficient or better in 24 Communication Learning Targets. The ten **bold** Learning Targets are required. (The Communication Learning Targets come from the English Language Arts Common Core State Standards.)

1. **LANGUAGE: Grammar - Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.**
  - a. Use parallel structure.
  - b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
  - c. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
  - d. Resolve issues of complex or contested usage, consulting references (e.g., *Merriam-Webster's Dictionary of English Usage*, *Garner's Modern American Usage*) as needed.

*Vocabulary: block quotation, citation, clause, compound-complex sentence, compound sentence, conjunctive adverb, coordinating conjunction, direct quotation, indirect quotation, paraphrase, phrase, pronoun-antecedent agreement, simple sentence, speaker/dialogue tag, split quotation, subject-verb agreement, subordinating conjunction, parallelism*

2. **LANGUAGE: Capitalization, Punctuation, and Spelling - Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing.**
  - a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
  - b. Use a colon to introduce a list or quotation.
  - c. Spell correctly.
  - d. Observe hyphenation conventions.

*Vocabulary: academic English, acronym, bolding, brackets, dash, colon, comma splice, common noun, direct address, ellipsis, hyphen, Modern Language Association, proper noun, run-on, semicolon, standard English*

3. **LANGUAGE: Application - Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.**
  - a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, *Turabian's Manual for Writers*) appropriate for the discipline and writing type.
  - b. Vary syntax for effect, consulting references (e.g., *Tufte's Artful Sentences*) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

*Vocabulary: articulation, delivery, audience, enunciation, gesture, idiom, inflection, job application, job interview, marketing, medium, memorandum, modulation, poise, proposition of fact speech, proposition of policy speech, proposition of problem speech, proposition of value speech, projection, pronunciation, questionnaire, resume, survey, visual text*

4. **LANGUAGE: Word Meaning - Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.**
  - a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
  - b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *conceive, conception, conceivable*).
  - c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
  - d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

*Vocabulary: affix, context, dictionary, etymology, glossary, index, prefix, root, suffix, thesaurus, word families*

5. **LANGUAGE: Diction** - Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
  - Analyze nuances in the meaning of words with similar denotations.
- Vocabulary: alliteration, allusion, analogy, anaphora, assonance, cognate, connotation, consonance, couplet, denotation, hyperbole, imagery, incongruity, irony, line breaks, literary device, nuance, onomatopoeia, overstatement, personification, repetition, rhyme, rhythm, sarcasm, satire, stanza, symbol, synonym, tone, understatement, paradox*
6. **LANGUAGE: Vocabulary** - Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.
- Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level.
  - Demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
- Vocabulary: affix, context, dictionary, etymology, glossary, index, prefix, root, suffix, thesaurus, word families*
7. **READING INFORMATIONAL TEXTS: Inference** - 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.
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
  - Determine where the text leaves matters uncertain.
- Vocabulary: close reading, inference, explicit, implicit, textual evidence*
8. **READING INFORMATIONAL TEXTS: Central Ideas** - Determine central ideas of a text and analyze their development; summarize the key supporting details and ideas.
- Determine a central idea of a text.
  - Analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details.
  - Provide an objective summary of the text.
  - Determine two or more central ideas of a text.
  - Analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis.
  - Provide an objective summary of the text with two or more central ideas.
- Vocabulary: author's purpose, cause/effect order, chronological order, compare/contrast order, conceptual map, central idea, fact, objective, opinion, sequence, subjective, supporting detail/idea, summary, text features, textual evidence, topical order*
9. **READING INFORMATIONAL TEXTS: Analysis** - Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
- Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
  - Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
- Vocabulary: author's purpose, cause/effect order, central idea, chronological order, compare/contrast order, credibility, currency, deductive, exposition, fact, inductive, objective, opinion, perspective, purpose, relevancy, sequence, subjective, supporting details, text features, textual evidence, topical order*
10. **READING INFORMATIONAL TEXTS: Word Meaning** - 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.
- Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
  - Analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

- c. Analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10).

*Vocabulary: context, connotation, denotation, diction, figurative, literal, technical, symbol, syntax, tone*

11. **READING INFORMATIONAL TEXTS: Organization** - 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.

- a. Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
- b. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

*Vocabulary: audience, authority, author's purpose, cause/effect order, central idea, chronological order, claim, compare/contrast order, credibility, currency, deductive, exposition, fact, inductive, objective, opinion, perspective, purpose, relevancy, sequence, subjective, supporting details/evidence, stanza, text features, textual evidence, topical order*

12. **READING INFORMATIONAL TEXTS: Point of View** - Assess how point of view or purpose shapes the content and style of a text.

- a. Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
- b. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.

*Vocabulary: bias, credibility, cultural influence, currency, diction, ethics, ethos, logos, pathos, perspective, point of view, prejudice, purpose, relevancy, rhetoric, slant, style, syntax, sociocultural context, tone*

13. **READING INFORMATIONAL TEXTS: Integration** - Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

- a. Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
- b. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

*Vocabulary: medium, multimedia, perspective, point of view, quantitative, visual appeal, visual text*

14. **READING INFORMATIONAL TEXTS: Evaluation** - 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.

- a. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
- b. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., *The Federalist*, presidential addresses).

*Vocabulary: appeal to authority, appeal to emotion, appeal to logic, attack ad hominem, authority, bandwagon, belief system, bias, claim, circumlocution, credibility, currency, emotional appeal, endorsement, ethos, exaggerated claim, false causality, logical fallacy, logos, over generalization, pathos, perspective, point of view, premise, propaganda, purpose, red herring, relevance, slant, testimonial, transparency, validity*

15. **READING INFORMATIONAL TEXTS: Comparing and Contrasting** - Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

- a. Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
- b. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.

*Vocabulary: authority, bias, claim, compare, contrast, credibility, currency, ethos, logos, Monroe's Motivated Sequence, pathos, perspective, point of view, premise, relevance, slant, rhetoric, testimonial*

16. **READING INFORMATIONAL TEXTS: Complex Texts** - Read and comprehend complex literary and informational texts independently and proficiently.
- By the end of Phase 1, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.
  - By the end of Phase 2, read and comprehend literary nonfiction at the high end of the grades 9–10 text complexity band independently and proficiently.
  - By the end of Phase 3, read and comprehend literary nonfiction in the grades 11–12 CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.
  - By the end of Phase 4, read and comprehend literary nonfiction at the high end of the grades 11–12 CCR text complexity band independently and proficiently.

*Vocabulary: literary nonfiction*

17. **READING LITERATURE: Inference** - 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.
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
  - Determine where the text leaves matters uncertain.

*Vocabulary: inference, implicit, explicit, supporting ideas, textual evidence, thesis*

18. **READING LITERATURE: Themes - Determine themes of a text and analyze their development; summarize the key supporting details and ideas.**

- Determine a theme of a text.**
- Analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details.**
- Provide an objective summary of the text.**
- Determine two or more themes of a text.**
- Analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis.**
- Provide an objective summary of the text with two or more themes.**

*Vocabulary: allegory, ambiguity, universal theme, supporting detail, objective, subjective, summary, theme*

19. **READING LITERATURE: Analysis** - Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
- Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
  - Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).

*Vocabulary: character development [what the character says, does, thinks; what others say about him, what others think about him] climax, close reading, deconstruct, denouement (falling action), external conflict, exposition, internal conflict, mood, narration [first person, third person, limited, objective, omniscient], plot development, resolution, rising action, setting, structural analysis, symbolism, theme*

20. **READING LITERATURE: Word Meaning** - 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.

- Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings.
- Analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
- Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)

*Vocabulary: alliteration, assonance, consonance, connotation, denotation, diction, figurative, hyperbole, imagery, irony, literal, metaphor, mood, onomatopoeia, satire, simile, symbolism, syntax, technical, tone*

21. **READING LITERATURE: Organization** - 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.

- Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.

- b. Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.

*Vocabulary: act, comedy, character development, climax, denouement (falling action), dramatic tension, exposition, external conflict, falling action, flashback, flash forward, foreshadow, history, internal conflict, narrator, parallel plots, plot development, resolution, rising action, scene, setting, stanza, suspense, symbolism, text structure, tragedy*

22. **READING LITERATURE: Point of View** - Assess how point of view or purpose shapes the content and style of a text.
  - a. Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
  - b. Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).

*Vocabulary: bias, class structures, diction, ethnic, explicit, gender, genre, implicit, ideology, irony, narration [first person, third person, limited, objective, omniscient], norm, parody, perspective, satire, sarcasm, syntax, understatement*

23. **READING LITERATURE: Integration** - Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
  - a. Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's *Landscape with the Fall of Icarus*).
  - b. Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)

*Vocabulary: abstract, emphasis, genre, medium, objective, perspective, point of view, realistic, subjective*

24. **READING LITERATURE: Comparing and Contrasting** - Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
  - a. Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
  - b. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.

*Vocabulary: archetype, eras [Puritanism (1600-1800), Rationalism (1750-1800), Romanticism (1800-1860), Transcendentalism (1840-1860), Realism (1850-1900), Modernism (1900-1950), Harlem Renaissance (1920-1940)], genre, motif, theme*

25. **READING LITERATURE: Complex Texts** - Read and comprehend complex literary and informational texts independently and proficiently.
  - a. By the end of Phase 1, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.
  - b. By the end of Phase 2, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9–10 text complexity band independently and proficiently.
  - c. By the end of Phase 3, read and comprehend literature, including stories, dramas, and poems, in the grades 11–12 CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.
  - d. By the end of Phase 4, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–12 CCR text complexity band independently and proficiently.

*Vocabulary: American literature, ancient literature, archetype, ballad, Bible, blank verse, British literature, canon, comedy, criteria, critical standard, elegy, epic, epitaph, farce, genre, history, Homeric Greek literature, imagery, lyric poem, medieval literature, modern literature, melodrama, mythology, narrative, neoclassic literature, ode, romantic period literature, sonnet, tragedy, tragic flaw*

26. **WRITING: Argumentative** - Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
  - a. **Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.**
  - b. **Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.**

- c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
- d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- e. Provide a concluding statement or section that follows from and supports the argument presented.

**Vocabulary:** *audience, bias, claim, conclusion, counter argument, counterclaim, debate, evidence, film review, formal style, informal style, literary criticism, literature review, objective, reason, relevant, rhetorical device, rhetorical question, subjective, thesis, thesis statement, transitions*

- 27. WRITING: Informative** - Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
  - b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
  - c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
  - d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
  - e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
  - f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

**Vocabulary:** *analogy, audience, clarify, cohesion, concise, concrete detail, conventions, explanatory, expository, extended definition, formal style, formatting, graphics, informal style, metaphor, multimedia, objective tone, overview, relevant, simile, syntax, transitions, text feature*

- 28. WRITING: Narrative** - Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
  - b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
  - c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
  - d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
  - e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

**Vocabulary:** *audience, anecdote, autobiographical narrative, biographical narrative, climax, dramatic dialogue, expressive writing, external conflict, feature article, fictional narrative, interior conflict, memoir, monologue, mood, mystery, narrator, pacing, parable, parody, pastoral, persona, plot line, resolution, sensory language, soap opera, soliloquy, stream of consciousness, suspense, tone*

- 29. WRITING: Coherence** - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- a. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

**Vocabulary:** *audience, clarify, clincher/conclusion sentence, coherence, cohesion, emphasis, purpose, readability, sentence fluency, sentence variety, style, task, thesis, transitions, voice*

- 30. WRITING: Process** - Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

- a. **Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.**

**Vocabulary:** *audience, clarify, convention/mechanics, edit, organization, presentation, redraft, revise, sentence variety, thesis, transitions, voice*

**31. WRITING: Technology** - Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

- a. **Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.**
- b. **Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.**

**Vocabulary:** *apps, blog, citation, collaboration, copyright law, database, electronic portfolio, electronic text, graphics, marketing, paraphrase, plagiarism, portfolio, software, style sheet format (e.g. MLA or APA), text editing, virus, word processing*

**32. WRITING: Research** - Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

- a. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem.
- b. Narrow or broaden the inquiry when appropriate.
- c. Synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

**Vocabulary:** *annotated bibliography, bibliography, central or essential question, citation, database, MLA, primary source, secondary source*

**33. WRITING: Integration** - Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

- a. Gather relevant information from multiple authoritative print and digital sources.
- b. Use advanced searches effectively.
- c. Assess the strengths and limitations of each source in terms of the task, purpose, and audience.
- d. Integrate information into the text selectively to maintain the flow of ideas.
- e. Avoid plagiarism and overreliance on any one source.
- f. Follow a standard format for citation.

**Vocabulary:** *accuracy, blended quotation, block quotation, bias, credibility, currency, digital source, direct quotation, indirect quotation, MLA, perspective, plagiarism, relevance, search engine, split quotation*

**34. WRITING: Evidence** - Draw evidence from literary or informational texts to support analysis, reflection, and research.

- a. Apply READING INFORMATIONAL TEXTS Learning Target to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., *The Federalist*, presidential addresses]").
- b. Apply READING LITERATURE Learning Target to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").

**Vocabulary:** *blended quotation, block quotation, citation, direct quotation, excerpt, indirect quotation, MLA, paraphrase, plagiarism, relevance, rhetorical structure, thesis*

**35. WRITING: Routine Writing** - Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

- a. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

**Vocabulary:** *audience, conventions/mechanics, organization, presentation, purpose, revision, task, thesis, sentence fluency, voice*

## EMPIRICAL REASONING

## INTRODUCTION

Exploration Academy's Empirical Reasoning Learning Targets are directly linked to the Next Generation Science Standards (<http://www.nextgenscience.org>). The NGSS are designed to prepare students for college, help them become employable, and make them understand what it takes to thrive in today's society. Students will face obstacles that require scientific knowledge and be forced to increasingly make decisions in the future regarding their bodies (exercise, nutrition, mental health, etc.), health care, energy shortages, fresh water shortages, severe weather events, and climate change. The Learning Targets outlined are grouped into four domains: the physical sciences (physics and chemistry), life sciences, and earth and space sciences. Embedded within each domain are engineering, technology, and applications of science skills. Students should be able to relate the Learning Targets to their interests and life experiences and/or make connections to societal or personal concerns that require scientific knowledge.

## EMPIRICAL REASONING ESSENTIAL SKILLS

All students in Exploration Academy will be required to demonstrate the following skills multiple **(4)** times throughout their high school career in order to graduate. Over time, students should show growth in their understanding and application of the skills. These skills are the foundation for any study of life, earth, chemistry, or physics related sciences.

1. **EMPIRICAL REASONING: Analysis - Analyze, interpret and transfer knowledge across a variety of data displays (articles, diagrams, models, graphs, data tables, etc.).**
2. **EMPIRICAL REASONING: Plan an investigation - Recognize opportunities for measurable scientific data and know how to obtain these measurements and plan an investigation (e.g., selecting an instrument that measures the desired quantity -- length, volume, weight, time interval, temperature -- with the appropriate level of precision).**
3. **EMPIRICAL REASONING: Explain and Improve - Construct explanations/models and propose improvements (solutions) or additional exploration within a scientific process or phenomenon.**

Strive to become proficient in the Empirical Reasoning Essential Skills. Students who intend to attend a four-year college should aim for being experts at these skills. Use the rubrics to guide you.

1. **EMPIRICAL REASONING: Analysis - Analyze, interpret and transfer knowledge across a variety of data displays (articles, diagrams, models, graphs, data tables, etc.).**

	EXPERT	PROFICIENT	BASIC	MINIMAL
Analyze, interpret, and transfer knowledge across data displays.	<ul style="list-style-type: none"> <li>Analyze a variety of data displays that include complex graphs, tables, charts, visual presentations, and illustrations.</li> <li>Interpret appropriate meaning from the displays.</li> <li>Draw conclusions and make generalizations.</li> <li>Support your conclusions using the displays.</li> <li>Compare, contrast, and transfer meaning across a variety of resources to identify trends and discrepancies.</li> </ul>	<ul style="list-style-type: none"> <li>Analyze a variety of data displays that include complex graphs, tables, charts, visual presentations, and illustrations.</li> <li>Interpret appropriate meaning from the displays.</li> <li>Draw conclusions and make generalizations.</li> <li>Support your conclusions using the displays.</li> </ul>	<ul style="list-style-type: none"> <li>Analyze a variety of data displays that should include complex graphs, tables, charts, visual presentations, and illustrations.</li> <li>Interpret appropriate meaning from the displays.</li> <li>Draw weak conclusions or oversimplified generalizations.</li> <li>Provide little support for your conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>Analyze a variety of data displays that include complex graphs, tables, charts, visual presentations, and illustrations.</li> <li>Interpret incorrect or partial meaning from the displays.</li> <li>No conclusions or generalizations reached.</li> </ul>



2. EMPIRICAL REASONING: Plan an investigation - Recognize opportunities for measurable scientific data and know how to obtain these measurements and plan an investigation (e.g., selecting an instrument that measures the desired quantity -- length, volume, weight, time interval, temperature -- with the appropriate level of precision).

	EXPERT	PROFICIENT	BASIC	MINIMAL
Obtain measurable data and plan an investigation. (Rubric devised from <a href="http://www.education.ne.gov/science/">http://www.education.ne.gov/science/</a> )	<ul style="list-style-type: none"> <li>● Selects and safely uses lab equipment.</li> <li>● Effectively chooses/uses appropriate technology and mathematical concepts.</li> <li>● Data is collected and recorded in a systematic, accurate, and objective manner.</li> <li>● Designs and conducts a scientific investigation related directly to the hypothesis.</li> <li>● Variables and constants are identified and managed objectively.</li> <li>● Repeated trials are sufficient to validate results.</li> </ul>	<ul style="list-style-type: none"> <li>● Selects and safely uses lab equipment.</li> <li>● Generally chooses/uses appropriate technology and mathematical concepts.</li> <li>● Minor inaccuracies and some subjectivity in data collection and some inconsistencies in reporting data.</li> <li>● Designs and conducts a scientific investigation related directly to the hypothesis.</li> <li>● Minor inaccuracies in identifying variables and constants significantly affect overall results.</li> <li>● Evidence of repeated trials.</li> </ul>	<ul style="list-style-type: none"> <li>● Incorrectly uses equipment and techniques (unsafe).</li> <li>● Ineffective use of technology and mathematical concepts.</li> <li>● Errors present in collected data.</li> <li>● Relationship between the hypothesis and the scientific investigation lacks clarity.</li> <li>● Variables and constants are not correctly identified and/or mismanaged and significantly affect overall results.</li> <li>● Trials are insufficient to test hypothesis.</li> </ul>	<ul style="list-style-type: none"> <li>● Selects inappropriate equipment and techniques; unsafe).</li> <li>● Ineffective use of technology and mathematical concepts.</li> <li>● Significant errors and gaps present in collected data.</li> <li>● Designs and conducts a scientific investigation unrelated to the hypothesis.</li> <li>● Variables and constants are missing.</li> <li>● No repeated trials.</li> </ul>

3. EMPIRICAL REASONING: Explain and Improve - Construct explanations/models and propose improvements (solutions) or additional exploration within a scientific process or phenomenon.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Explain, Model, and Improve. (Rubric devised from <a href="http://www.education.ne.gov/science/">http://www.education.ne.gov/science/</a> )	<ul style="list-style-type: none"> <li>● Explanations/models reflect evidence from investigation and are based on accurate science.</li> <li>● Uses results to verify or refute hypothesis.</li> <li>● Formulates possible revisions and alternative explanations.</li> </ul>	<ul style="list-style-type: none"> <li>● Explanations/models partially reflect evidence from investigation and are based on accurate science.</li> <li>● Uses results to verify or refute the hypothesis.</li> <li>● Formulates possible revisions</li> </ul>	<ul style="list-style-type: none"> <li>● Explanations/models are based on flawed analysis of data and misconceptions of science.</li> <li>● Formulates limited revisions</li> </ul>	<ul style="list-style-type: none"> <li>● Explanations/models are not based on analysis of data or accurate science</li> <li>● data which refutes the hypothesis is discounted.</li> <li>● Connections are not present between results and hypothesis.</li> <li>● No evidence of possible revision and alternative explanations.</li> </ul>

## EMPIRICAL REASONING LEARNING TARGETS

The following are the content specific learning targets that Exploration Academy students will use to guide their learning. Students will be expected to have learning experiences in at least **(18)** of these learning targets at a basic level or higher in order to graduate from high school. Students who plan to take an AP science course should complete all learning targets in

that area of study. Students who plan on attending a four-year college should aim for being proficient in at least **(22)** learning targets.

Strive to be proficient or better in the 22 Empirical Reasoning Learning Targets. The Empirical Reasoning Learning Targets in **bold** are highly recommended.

- CHEMISTRY: Conservation of matter in biogeochemical cycles - Develop and use a quantitative model to support the explanation of the fixed amount of each element as it moves through biogeochemical cycles as an opportunity to examine the interactions between the hydrosphere, atmosphere, geosphere, and biosphere.**
  - Define a biogeochemical cycle.**
  - In addition to hydrogen and oxygen (water), choose an element such as carbon, nitrogen and/or phosphorus and model how and in what forms it cycles through Earth (hydrosphere, atmosphere, geosphere and biosphere).**
  - Create a model (google sketch, Infogram, video, painting, drawing) showing the biogeochemical cycle in action.**
  - Include quantitative data of how these cycles are disrupted by humans (too much input of an element in a system and the cycle can't keep up, e.g. carbon dioxide, phosphorus in our lakes, etc.).**

**Vocabulary: evaporation, condensation, transpiration, precipitation, respiration, CO<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>**

- CHEMISTRY: Chemical Properties and Reactions - Construct an explanation to support predictions about the outcome of simple chemical reactions, using the structure of atoms and trends in the periodic table.  
*Vocabulary: synthesis, combustion, double displacement, single displacement, decomposition, reactants, products)*
- CHEMISTRY: Atomic Structure and Properties of Matter - Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.  
*Vocabulary: protons, neutrons, electrons, density, volume, polymer, monomer, attractive and repulsive forces (electric, magnetic, etc.), receptors, malleability, force, strength*
- CHEMISTRY: The Periodic Table - Use the Periodic Table as a model to predict the physical and chemical properties of elements based on the patterns of electrons in the outermost energy level of atoms.**
  - Interpret the data presented in the periodic table (each atom is composed of a defined number of protons, neutrons, and electrons of an element). This will require reading and research.**
  - Predict the physical and chemical properties of an element based on its placement in the periodic table. (Demonstrate that elements in the same group will have similar properties.)**
  - Use the periodic table to determine the number of valence electrons in an atom.**
  - Draw Bohr models of atoms and simple compounds.**
  - Indicate that isotopes are alternate forms of an atom with a differing number of neutrons and give real world examples and their uses (radioactive dating, carbon dating, etc.).**

**Vocabulary: periods, groups, valence electrons, protons, neutrons, elements, families (metals, non-metals, noble gases, etc.), chemical symbols**
- CHEMISTRY: Physical Properties of Matter - Conduct an investigation in order to determine (and sometimes categorize) matter by its density, temperature (melting and boiling points, solubility, mass, volume, length and phase change) by mathematical expression.  
*Vocabulary: solute, solvent, solubility, mass (g), volume (L), length (m), polarity, density, texture, color, odor, melting point and boiling point*
- CHEMISTRY: Molecules & Compounds - Use chemical principles to understand the nature, naming and expected behavior of molecules and compounds.
  - Understand the nature and naming principles of chemical molecules, compounds and polyatomic ions.
  - Identify and differentiate between atomic elements, molecular elements, molecular compounds or ionic compounds.
  - Express the arrangement of valence electrons in atoms using Lewis electron dot structures.
  - Assign oxidation numbers to elements in chemical compounds.
- CHEMISTRY: The Mole - Understand the concepts and applications of the mole and molar mass.
  - Define the quantity called the *mole*.

- b. Learn *Avogadro's number*.
  - c. Understand how the *molar mass* is related to the formula mass of a substance.
  - d. Calculate the molar mass of atoms and molecules.
  - e. Perform calculations using the mole.
    - i. Determine percent composition by mass.
    - ii. Determine moles of element given moles of compound.
    - iii. Calculate Empirical Formula from percent composition
  - f. Convert from moles of substance to grams of substance.
  - g. Convert from grams of substance to moles of substance.
  - h. Calculate the number of molecules in a given mass of substance.
8. CHEMISTRY: Stoichiometry/Unit Conversion - Understand and apply unit conversion strategies in chemistry and beyond.
- a. Interconvert of moles, mass, representative particles (atoms, molecules, formula units), molar mass, and Avogadro's number.
  - b. utilize molar masses and molar ratios appropriately within the factor-labeling dimensional analysis framework.
  - c. (dimensional analysis) framework
  - d. Calculate amount of product formed for a given mass of reactant.
  - e. calculate the amount(s) of reactants which need to be used in a chemical reaction in order to produce a specified amount of product.
  - f. identify a limiting reagent and calculate the amount of product formed from a non-stoichiometric mixture of reactants.
  - g. Calculate the molarity of a solution.
  - h. Given the molarity and the volume of the reactants, calculate the amount of product produced or the amount of reactant required to react.
  - i. Be able to use density as a conversion factor to start from liquids in stoichiometry problems.
9. EARTH: Natural Resources & the Impact of Human Pollution - Provide mathematical relationships between natural resource production and consumption (ex: solar, coal, oil, wind, geothermal, etc). Evaluate or refine a technological solution that reduces impacts of human pollution.
- a. Identify Earth's natural resources and describe ways we are dependent on natural resources.
  - b. Classify/organize resources into renewable and nonrenewable.
  - c. Focus on one or two (solar, coal, wind, oil, geothermal, etc.) natural resource(s).
  - d. Provide mathematical relationships between human production and consumption of the resource you choose (Do humans produce as much as we consume?).
  - e. Describe and discuss what is helpful and harmful to the environment.
  - f. Research how people protect, extend, and restore resources and/or develop your own solution.
- Vocabulary: geosphere, pollution, production, consumption, renewable natural resources, fossil fuels, nonrenewable natural resources, alternative energy*
10. EARTH: Stars and the Universe - Analyze data to support the Big Bang Theory, the life cycle of stars, including our sun, and the production of elements in the universe. Include astronomical evidence based on the light spectra of stars.
- Vocabulary: Big Bang Theory, universe, galaxy, solar system, spectrum, red shift, blue shift, satellite, star, planetary object*
11. EARTH: Characteristics of Earth's Surface - Construct explanations about Earth's geologic history based on data of the past and current movement of continental and oceanic crust and the theory of plate tectonics.
- Vocabulary: Theory of Plate Tectonics, continental drift, divergent boundary, convergent boundary, subduction zone, transform boundary, plate boundary, convection, lithosphere, asthenosphere, volcano, earthquake*
12. EARTH: Freshwater and Ocean Systems - Analyze the physical and chemical properties of water and its role in Earth surface processes (oceans, rivers, lakes, wetlands, watersheds, etc.).
- Vocabulary: density, polarity, hydrogen bonds, surface tension, heat capacity, universal solvent, current, tides, deposition, watershed, tributary*
13. EARTH: Climate and Atmospheric Changes - Develop and use models to explain the source and distribution of the sun's heat and how the sun's energy is transferred to Earth (greenhouse effect). Use

**data, scientific literature, and models to make evidence-based predictions of extreme weather events and climate change.**

- a. **Use or create a model to explain climate change. (What is it? Why is it happening? Model should include an explanation or illustration of the greenhouse effect.)**
- b. **Choose your local area or somewhere else in the world and research the social, economic, atmospheric (major weather events) and environmental impacts of climate change. Include your sources (models, charts, graphs, scientific literature, etc.) in your final project display.**
- c. **What is being done in the area you chose about climate change or what should be done?**
- d. **Based on scientific evidence predict future events related to climate change.**

**Vocabulary: greenhouse gases, CO<sub>2</sub>, H<sub>2</sub>O, weather, climate, global warming, climate change, atmosphere, hydrosphere, biosphere**

14. ENGINEERING: Applied Mathematics - Apply mathematical concepts and principles to model and/or solve real-world problems.
  - a. Apply mathematical concepts and principles to perform computations
  - b. Apply mathematics to solve problems
  - c. Create, use and analyze graphical representations of mathematical relationships
  - d. An ability to design mathematical models, apply mathematical analysis and problem-solving skills in a broad range of intellectual domains (e.g., biological, physical, or social sciences and engineering) in public or private service.
  - e. Recognize the relationships between different areas of mathematics and the connections between mathematics and other disciplines.
  - f. Give clear and organized written and verbal explanations of mathematical ideas to a variety of audiences.
  - g. Model real-world problems mathematically and analyze those models using their mastery of the core concepts.
15. ENGINEERING: Data Analysis - Answer an original question by collecting and analyzing data.
16. ENGINEERING: Small Engines - Demonstrate understanding of basic engine construction and principles of operation.
  - a. Identify the functional relationships among small engine components and systems.
  - b. Apply basic principles of testing, diagnosis, and servicing of small engines, outdoor power equipment, recreational power equipment, and power sport equipment.
  - c. Select specialized tools and equipment for small engine maintenance, diagnostic and repair.
  - d. Identify, diagnose, and solve mechanical equipment/engine problems.
  - e. Troubleshoot and repair small engines found in home, garden, and recreational applications.
  - f. Apply electronic and other test equipment in practical settings.
  - g. Interpret service manuals and schematics.
  - h. Explain work, force, torque and power concepts.
  - i. Explain, the differences between four and two stroke engines, and the theories of carburetion, ignition, lubrication and cooling systems.
17. ENGINEERING: Structural Engineering - Design a structure for stability, strength and serviceability.
  - a. Clarify objectives, establish user requirements, identify constraints, and establish functions of product by providing a list of attributes
  - b. Establish design specifications and generate alternatives.
  - c. Create model of design and test and evaluate the conceptual design by creating morphological charts or decision matrices
  - d. Refine and optimize the chosen design
  - e. Document and communicate the fabrication specifications and the justifications for the final design.
18. ENGINEERING: Home and Appliance Repair - Research, analyze and complete a repair project.
  - a. Analyze a potential situation in which you can repair and maintain a residential structure or appliance within.
  - b. Investigate the skills and techniques necessary to complete the project, including a personal conversation with a professional.
  - c. Apply concepts and techniques to safely complete the project.
  - d. Demonstrate the ability to problem solve and actively seek outside support.

19. **ENGINEERING: Robotics** - Construct a digital sensor that can interact with/and or control a physical device in order to perform a specified task.
- Configure a microcontroller to communicate with the physical hardware.
  - Use the microcontroller to load, compile, download and execute (provided samples and user-written) programs.
  - Evaluate final solutions and communicate observation, processes, and results of the entire design process, using verbal, graphic, quantitative, virtual, and written means, in addition to three-dimensional models.
  - Develop and demonstrate an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.
  - Analyze and interpret prior knowledge of tools, materials and processes to create a plan of action.
  - Use tools to evaluate and select materials and processes for the design cycle
20. **LIFE: Heredity (Genetics)** - Obtain information about the role of DNA and chromosomes in coding the instructions for forming the characteristic traits of species passed from parents to offspring.
- Explain how DNA, chromosomes, genes and alleles are related. Develop a model.
  - State the difference between a dominant allele and a recessive allele.
  - Explain how a person's genotype makes up its phenotype.
  - Explore ways that the genetic condition of a fetus can be determined (CVS, amniocentesis, etc.).
  - Construct a karyotype and predict a genetic outcomes using a Punnett Square.
  - Determine how a person inherits a genetic disorder (nondisjunction, dominant or recessive).
  - Identify how mutations during sex-cell production can alter phenotypes and cellular functions.
  - Explore a genetic disorder (how its inherited, physical symptoms, can the condition be treated, life expectancy, prevalence in certain populations, etc.) and create an informational piece (brochure, flier, Infogram, video, etc.).
- Vocabulary: heredity, genetics, inheritance, DNA, genes, alleles, chromosomes, traits, genotype, phenotype, homozygous, heterozygous, dominant, recessive, nondisjunction, karyotype, Punnett Square, probability, meiosis, mutations*
21. **LIFE: Protein Synthesis (Cell Structure and Function)** - Present how DNA replication and sequences determine the structure and function of proteins, which carry out most of the work of your cells and are essential to life.
- Create a model of the structure of DNA (include its building blocks) and describe its function in genetic inheritance.
  - Describe how DNA is responsible for storing, copying and transmitting information.
  - Provide or create a model of information flow from DNA to RNA to direct the synthesis of proteins. (Please watch through Internet Explorer the following animation on protein synthesis, <https://www.wisc-online.com/learn/natural-science/life-science/ap1302/protein-synthesis>)
  - Proteins are necessary for almost every activity in your body. Focus on a particular protein and its importance in living things (understand that living things are made up of the same building blocks, but in a different arrangement).
  - Explain how DNA mutations can affect proteins and protein synthesis.
- Vocabulary: protein, synthesis, amino acids, transcription, translation, DNA, mRNA, tRNA, codon, anticodon, ribosomes*
22. **LIFE: Biotechnology** - Relating cell differentiation concepts to potential solutions in biomedical engineering, genetically modified organisms and related research.
- Vocabulary: biotechnology, genetically modified organisms (GMO), transgenic, DNA fingerprint, recombinant DNA, gene therapy, cloning, genetic engineering*
23. **LIFE: Biodiversity and Natural Selection (Evolution)** - Demonstrate the Theory of Evolution, natural selection, and biological classification as it relates to species adaptation and distribution of traits.
- Vocabulary: evolution, natural selection, adaptation, reproduce, survival, homologous structures, allele frequency, vestigial structures, speciation*
24. **LIFE: Populations and Ecosystems** - Generate mathematical comparisons of factors that affect populations and biodiversity within ecosystems (including how energy is conserved through a system).
- Describe common patterns of relationships among populations (competition, parasitism, symbiosis, predator/prey) and how that can lead to interdependency.
  - Model how different organisms get the energy they need to survive (and how this is directly related to solar energy). Represent and interpret information in graphic form.

- c. **Predict how changes in one population might affect other populations based upon their relationships in the food web.**
- d. **Explain the concept of bioaccumulation (bioconcentration or biomagnification) and its effects on food webs and food chains. Represent and interpret information in graphic form.**

**Vocabulary: ecology, interdependence, habitat, biotic, abiotic, producer, consumer, photosynthesis, organism, specie, community, population, ecosystem, carrying capacity, limiting factors (competition for food and space, predator/prey, floods, fires), decomposers, food web, biological accumulation, symbiosis**

25. LIFE: Homeostasis and Feedback Mechanisms - Investigate major body systems and develop/use a model of how they interact to maintain balance and equilibrium (homeostasis) within the body by “communicating” across systems (feedback mechanisms).  
*Vocabulary: homeostasis, cell, tissue, organ, organ system, organism, metabolism, cellular respiration, enzyme, \*Additional vocabulary depending on the major body system focus (respiratory, circulatory, digestive, nervous, integumentary, skeletal, endocrine, muscular, lymphatic, urinary, reproductive*
26. LIFE: Photosynthesis & Plant Adaptations - Develop a model to support explanations for how photosynthesis transforms light energy into stored chemical energy and how this stored energy provides the building blocks for carbohydrates and proteins; compare plant variations and the adaptations that allow plants to survive in various climates and environments.  
*Vocabulary: photosynthesis, chloroplast, glucose, carbon dioxide, cell wall, stomata, oxygen, adaptation, variation, carbohydrate, climate, environment*
27. LIFE: Comparative Anatomy & Physiology - Demonstrate fundamental knowledge of comparative vertebrate animal physiology and anatomy.
- a. Analyze the relationship between structure and function in living systems at a variety of organizational levels.
  - b. Understand and apply anatomical terminology related to position, direction, movement, and planes.
  - c. Describe and be able to use tools related to investigation of anatomy and physiology
  - d. Perform dissection in a safe and respectful manner, choosing proper tools.
  - e. Understand and describe interrelations between organ systems.
  - f. Identify and discuss specific structures and functions of the skeletal, muscular, circulatory, digestive, integumentary and respiratory systems.
  - g. Discuss how two or more body systems interact to promote health for the whole organism.
28. LIFE: Plant Structure & Function - Demonstrate understanding of the functions of plant structures, processes of plant physiology and the mechanisms of plant growth and development.
- a. Explain the structure of plants, including their tissues and organs, and the functions of each.
  - b. Explain the mechanisms by which plants regulate growth and development.
  - c. Demonstrate your understanding of the way in which genetic information is transferred in flowering plants.
  - d. Identify the essential elements necessary for plant growth, rank their relative abundance in plant tissues, and describe their general roles in plant function.
  - e. Identify the reproductive parts of a flower and describe the function of each part.
  - f. Diagram and describe the development of male and female gametophytes and the development of the sporophyte of flowering plants.
  - g. Label seed structure and describe germination and dispersal.
- Vocabulary: life cycle types eg ephemeral, annual, biennial, perennial; process and stages of germination; types of germination eg epigeal, hypogeal; types of reproduction (sexual reproduction eg flower structures, pollination and fertilisation, seed production, dispersal; asexual reproduction eg vegetative propagation, parthenogenesis); primary growth of shoots and roots (cell division, cell expansion, cell differentiation, apical meristems, lateral meristems).*
29. LIFE: Macronutrient Metabolism in Health and Nutrition.
- a. Identify the chemical structures of the three macronutrients in our diets and how their chemical properties are related to their function.
  - b. Understand how calories relate to stored energy.
  - c. Understand the relationship of macronutrients and calories, including comprehending food labels.
  - d. Demonstrate understanding of the mechanisms of digestion, storage and mobilization of macronutrients, including the role of exocrine and endocrine systems.
  - e. Understand how the composition of macronutrients in the diet can impact health and disease.

30. LIFE: Human Pathology - The causes, mechanisms and morphologies of human diseases.
- Investigate, in detail, the pathology of a human disease at the tissue and cellular levels.
  - Describe how events at the level of the cell affect the patient as a whole.
  - Include specific genetic factors and disrupted protein signalling pathways, as well as the interaction of cellular and tissue systems.
31. LIFE: Developmental Biology- The cellular and molecular pathways that control development of vertebrate organisms.
- Investigate questions in developmental biology such as; How does a single cell, the fertilized egg, give rise to a complex organism that contains many different cell types, tissues and organs?, or How do the organs develop to the right size and in the right place to give rise to a functional animal? Or, how does the teenage brain develop?
32. PHYSICS: Conservation of Energy - Model the Law of Conservation of Energy (Identify Potential and Kinetic Energy in the system); Design, build and refine a device/model that works within given constraints to convert one form of energy into another form of energy (Examples of devices include roller coasters, Rube Goldberg devices, wind turbines, Mousetrap Car, skiing, skateboarding, etc.)
- Understand that the total mass and energy of the universe is a conserved (constant) quantity that can neither be created nor destroyed, only transformed.
  - Design a device that models energy transfer (see examples above).
  - Identify where the energy comes from and where it ultimately goes (heat, light, sound, etc.).
  - Work is the transfer of energy between two objects accomplished by applying a force over a displacement. Label the force in your model.
  - Describe how energy is classified into two broad categories; stored energy (potential) or energy due to motion (kinetic). Label the kinetic and potential energy in your model.
  - Using your device, organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs. ( $V=d/t$ ,  $PE=mgh$ ,  $KE=1/2mv^2$ ,  $W=Fd$ , etc.) (Guidelines developed with the help of [www.physicsclassroom.com](http://www.physicsclassroom.com))

*Vocabulary: Law of Conservation of Energy, potential energy, kinetic energy, mass, transfer/transform, Joules, gravity, velocity*

33. PHYSICS: Types of Forces - Design and conduct an investigation to demonstrate contact forces (applied, friction, tension) and action-at-a-distance forces (magnetism and electricity).
- Identify the basic forces in everyday interactions.
  - Identify the magnitude and direction of everyday forces (e.g., wind, tension in ropes, pushes and pulls, weight) using a free-body diagrams. Understand that an unbalanced force pushes or pulls something (Newton's Second Law) and a balanced force keeps an object in place (Newton's Third Law).
  - Design and conduct an investigation modeling types of forces.
  - \* Predict how the electric force between charged objects varies when the distance between them and/or the magnitude of charges change.
  - \* Investigate how a magnetic fields accompany magnets and are related to the strength and direction of the magnetic force.
  - \* Explain how the interaction of electric and magnetic forces is the basis for electric motors, generators, and the production of electromagnetic waves.
  - \* Only one asterisk target is required within project. (Guidelines developed from [www.michigan.gov](http://www.michigan.gov))

*Vocabulary: force types; applied, tension, gravitational, frictional, air, spring, electromagnetic, free-body-diagram, Newton (N)*

34. PHYSICS: Laws of Motion and Newtonian Forces - Investigate Newton's three laws of motion; Produce and analyze data mathematically and graphically to support Newton's second law.
- Vocabulary: force, net force, motion, speed, acceleration, velocity, mass, weight, gravity, friction, Newton (N),  $m/s^2$*

35. PHYSICS: Waves and Electromagnetic Radiation - Create models of differences in waves (sound, heat, light, radio), the medium in which they travel (a vacuum, water, solids, Earth's crust, etc.), and their speed and wavelength by quantitative means ( $v = f \lambda$ ).

- a. Model the different properties of compression waves (sound) and transverse waves (heat, light, radio, etc.) and identify the mediums in which they travel (see above).
- b. Create a model representing the electromagnetic spectrum and explain the differences between types of electromagnetic radiation and describe uses for them.
- c. Investigate the visible light spectrum within the electromagnetic spectrum and that this narrow band of wavelengths stimulates the retina of our eye. Note that other animals can see different frequencies of the electromagnetic spectrum.
- d. Calculate wavelength, velocity and frequency using mathematical formulas.
- e. (Guidelines developed from [www.bbc.co.uk](http://www.bbc.co.uk) and [www.physicsclassroom.com](http://www.physicsclassroom.com))

**Vocabulary:** *electromagnetic spectrum, wave, medium, transverse, longitudinal (compression), radiation, frequency, wavelength, amplitude, velocity*

36. PHYSICS: Nuclear Reactions - Develop representations of the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion and radioactive decay.

**Vocabulary:** *fission, fusion, radioactive decay, half-life, nuclear (chain) reaction, alpha particle, beta particle, gamma rays, nuclear force, radiation*

## LEADERSHIP AND LIFE SKILLS

### INTRODUCTION

Leadership and Life Skills consist of 21st Century Essential Skills and Health and Physical Education Learning Targets.



## 21ST CENTURY ESSENTIAL SKILLS

Every year in Exploration Academy, students do projects to demonstrate growth in the 21st Century Essential Skills. (The 21st Century Essential Skills come from the Partnership for 21st Century Skills.)

Strive to become proficient in the 21st Century Essential Skills.

1. **21ST CENTURY ESSENTIAL SKILLS: Creativity and Innovation - Think creatively, work creatively with others, and implement innovations.**
  - a. Use a wide range of idea creation techniques (such as brainstorming).
  - b. Create new and worthwhile ideas (both incremental and radical concepts).
  - c. Elaborate, refine, analyze, and evaluate their own ideas in order to improve and maximize creative efforts.
  - d. Develop, implement, and communicate new ideas to others effectively.
  - e. Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work.
  - f. Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas.
  - g. View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes.
  - h. Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur.
  
2. **21ST CENTURY ESSENTIAL SKILLS: Flexibility and Adaptability - Adapt to change and be flexible.**
  - a. Adapt to varied roles, jobs responsibilities, schedules, and contexts.
  - b. Work effectively in a climate of ambiguity and changing priorities.
  - c. Incorporate feedback effectively.
  - d. Deal positively with praise, setbacks, and criticism.
  - e. Understand, negotiate, and balance diverse views and beliefs to reach workable solutions, particularly in multicultural environments.
  
3. **21ST CENTURY ESSENTIAL SKILLS: Initiative and Self-Direction - Manage goals and time, work independently, and be a self-directed learner.**
  - a. Set goals with tangible and intangible success criteria
  - b. Balance tactical (short-term) and strategic (long-term) goals.
  - c. Utilize time and manage workload efficiently.
  - d. Monitor, define, prioritize, and complete tasks without direct oversight.
  - e. Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise.
  - f. Demonstrate initiative to advance skill levels towards a professional level.
  - g. Demonstrate commitment to learning as a lifelong process.
  - h. Reflect critically on past experiences in order to inform future progress.
  
4. **21ST CENTURY ESSENTIAL SKILLS: Social and Cross-Cultural Skills - Interact effectively with others and work effectively in diverse teams.**
  - a. Know when it is appropriate to listen and when to speak.
  - b. Conduct themselves in a respectable, professional manner.
  - c. Respect cultural differences and work effectively with people from a range of social and cultural backgrounds.
  - d. Respond open-mindedly to different ideas and values.
  - e. Leverage social and cultural differences to create new ideas and increase both innovation and quality of work.
  
5. **21ST CENTURY ESSENTIAL SKILLS: Productivity and Accountability - Manage projects and produce results.**
  - a. Set and meet goals, even in the face of obstacles and competing pressures.
  - b. Prioritize, plan, and manage work to achieve the intended result.
  - c. Demonstrate additional attributes associated with producing high quality products including the abilities to:
    - Work positively and ethically.
    - Manage time and projects effectively.
    - Multi-task.
    - Participate actively, as well as be reliable and punctual.

- Present oneself professionally and with proper etiquette.
  - Collaborate and cooperate effectively with teams.
  - Respect and appreciate team diversity.
  - Be accountable for results.
6. 21ST CENTURY ESSENTIAL SKILLS: Leadership and Responsibility - Guide and lead others and be responsible to others.
- a. Use interpersonal and problem-solving skills to influence and guide others toward a goal.
  - b. Leverage strengths of others to accomplish a common goal.
  - c. Inspire others to reach their very best via example and selflessness.
  - d. Demonstrate integrity and ethical behavior in using influence and power.
  - e. Act responsibly with the interests of the larger community in mind.

## HEALTH AND PHYSICAL EDUCATION LEARNING TARGETS

Strive to be proficient or better in all of the Health and Physical Education Learning Targets. (The Health Learning Targets come from the Wisconsin Standards for Health Education, and the Physical Education Learning Targets come from the Wisconsin Standards for Physical Education.) Students must cover the following topics in Health: Nutrition, Alcohol and other Drugs, Mental Health, Relationships, and Sexually Transmitted Diseases and Infections. Students must complete a total of 120 hours of documented physical exercise to meet the graduation requirement for Physical Education.

1. **HEALTH: Promotion - Students will comprehend concepts related to health promotion and disease prevention to enhance health.**
  - a. Analyze how genetics and family history can affect personal health.
  - b. Examine the interrelationships of various dimensions of health (e.g., emotional, mental, physical, social, environmental, and occupational).
  - c. Analyze the impact of unhealthy behavior on various dimensions of health (e.g., emotional, mental, physical, social, environmental, and occupational).
  - d. Predict how personal behaviors and access to appropriate health care can affect health.
  - e. Analyze how environment and personal health are interrelated.
  - f. Investigate the relationship between access to health care and health status.
  - g. Compare the benefits of and barriers to practicing a variety of health behaviors. These may include but are not limited to: refraining from alcohol, tobacco, and other drug use; physical activity; healthy eating; social behaviors to prevent or reduce violence; safety and related behaviors.
  - h. Examine susceptibility to and severity of injury and illness if engaging in unhealthy behaviors.

*Vocabulary: genetics, disease, susceptibility, symptom, drug abuse, OTC drugs, nonprescription drug, prescription drug, poison, public health clinic, alcohol abuse, community health, cultural belief, drug-seeking behavior, drug dependency, drunk and drugged driving, emotional abuse, health care provider, health fad, health risk, mental health clinic, personal health assessment, personal hygiene, prevention, risk factor, safety hazard, self-examination, short-term consequence, long-term consequence, tolerance level, lifestyle, neighborhood safety, communicable disease, consumer health service, family intervention, genetic inheritability*
2. **HEALTH: Culture, Media and Technology - Students will analyze the influence of family, peers, culture, media, technology, and other factors on health.**
  - a. Analyze how external influences, individually and in combination with others, can influence individuals' health behaviors and that of certain populations.
  - b. Analyze how internal influences, including perception of social norms among peers, can influence individuals' health behaviors and that of certain populations.
  - c. Examine how social policies can influence health behaviors.
  - d. Estimate the impact of internal and external influences on one's own personal health behavior.
  - e. Predict how various external and internal influences will interact and impact the health behavior of populations.

*Vocabulary: public health clinic, community health, cultural belief, social norm, health policies, health care provider, health risk, personal health assessment, FDA, health insurance, inhalants, needle sharing, nutrition plan, OSHA, perinatal care, prenatal care, psychotherapy, rehabilitation, Right to Know law, state agency, tobacco dependency*

3. **HEALTH: Communication** - Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
  - a. Analyze communication strategies for effective interaction among family, peers, and others to enhance health.
  - b. Reflect on the impact of communication on enhancing health.
  - c. Demonstrate how to ask for and offer assistance to enhance the health of self and others.
  - d. Demonstrate refusal, negotiation, and collaboration skills to enhance health and avoid or reduce health risks.
  - e. Demonstrate strategies to prevent interpersonal conflicts.
  - f. Demonstrate ways, such as restorative justice practices, to manage or resolve interpersonal conflicts without harming self or others.

*Vocabulary: circle time, circle leader, respect of circle, circle safety, re-entering community, self-advocacy, peer engagement, working together, resolve conflict, understand differences, respect respect the talking piece, community health, group therapy, environmental health, communicable disease, family intervention, self-injury-prevention strategy, abuse, bullying, conflict, communication styles, feelings of others, listening skill, name calling, precaution, early detection and treatment, healthy relationships, social pressure, nonviolent conflict resolution, interpersonal conflict, peer-pressure, parenthood, stress-management, responsibility, discrimination, domestic violence, coping strategies, dating relationships, emotional health, emergency plan*

4. **HEALTH: Goal Setting and Decision Making** - Students will demonstrate the ability to use decision-making and goal setting skills to enhance health.
  - a. Identify situations in which using a thoughtful decision-making process would be health-enhancing.
  - b. Justify when individual or collaborative decision making is appropriate.
  - c. Demonstrate effective decision-making processes related to various complex and relevant health-related situations. These may include but are not limited to: decisions about personal behaviors, decisions related to social behaviors, and use of the health care system.
  - d. Generate alternatives for health-related issues or problems.
  - e. Assess personal health practices and their impact on overall health status.
  - f. Evaluate potential barriers or setbacks that may impede one's ability to reach his/her health goal.
  - g. Identify strategies that might be utilized to overcome barriers or setbacks.
  - h. Formulate an effective long-term personal health goal.
  - i. Develop a plan to reach a personal health goal that addresses strengths, needs, and risks.
  - j. Implement a plan and monitor progress in achieving a personal health goal.

*Vocabulary: lose it app, food log, monitoring blood sugar levels, blood pressure, sodium, sugar, carbohydrates, serving per container, serving size, total fat, saturated fat*

5. **HEALTH: Healthy Behaviors** - Students will demonstrate the ability to use health-enhancing behaviors and avoid or reduce health risks.
  - a. Determine behaviors that will protect and promote health in high risk situations. These may include but are not limited to: refraining from risky sexual behaviors; refraining from alcohol, tobacco, and other drug use; engaging in various forms of physical activity appropriate to current and future life stages; making complex food choices in various food environments to support healthy eating; applying social behaviors to prevent or reduce violence in settings relevant to one's culture; practicing safety-related behaviors in high risk situations; and appropriately accessing health care services for routine preventive care and for illnesses and injuries.
  - b. Analyze the roles of individual responsibility and the health care system in enhancing health.
  - c. Demonstrate a variety of health practices and behaviors that will maintain or improve the health of self and others. These include, but are not limited to: personal behaviors such as regular and health-enhancing physical activity, healthy eating, and accessing appropriate preventive health care services.
  - d. Demonstrate a variety of behaviors that avoid or reduce health risks to self and others. These include, but are not limited to: various complex safety-related behaviors, appropriately accessing mental and physical health care services, and carefully following medical advice and instructions.

*Vocabulary: addiction, alcohol abuse, heroin, nicotine, NIDA, prescription, substance abuse, withdrawal symptoms, preventive care, wellness, consumer skills, mental disorder, psychiatric social worker, psychiatrist, clinical psychologist*

6. **PHYSICAL EDUCATION: Skill Development and Application - Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.**
- Demonstrates proper mechanics needed for success in target sports such as archery, casting/fishing, golf, and Frisbee® golf.
  - Demonstrates balance and body control while moving at different speeds while manipulating a ball of different sizes.
  - Demonstrates mature form while striking objects in a variety of racquet sports.
  - Operates a bike, kayak, or canoe safely and skillfully in a natural environment.
  - Demonstrates proficiency in two movement forms in individual and lifetime activities.
  - Demonstrates skills for starting, stopping, falling, and turning while participating in lifetime activities such as inline skating, cross-country skiing, biking, etc.
  - Plays modified team sports using all the basic skills and strategies of the sport and some advanced skills.
  - Acquires skills to participate in a lifetime activity outside of school.
  - Demonstrates proficient skills to participate in advanced play of some activities.

*Vocabulary: body awareness, agility, balance, stability, body type, coordination, flexibility, ground based, posture, speed, static stretch, dynamic stretch, intensity*

7. **PHYSICAL EDUCATION: Cognitive Understanding and Scientific Principles of Physical Activity - Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.**
- Develops an appropriate conditioning program for a sport or lifetime fitness activity.
  - Plans a summer or after school personal conditioning program.
  - Examines the physical, emotional, cognitive, and scientific factors that affect performance and explains the relationship between those factors.
  - Identifies the differences and benefits of both functional fitness training and traditional weight training.

*Vocabulary: injury-prevention strategy, deadlift, free weights, lunges, squats, isolations, body weight*

8. **PHYSICAL EDUCATION: Physical Activity and Lifestyle - Participates regularly in physical activity.**
- Participates willingly in a variety of physical activities appropriate for maintaining or enhancing a healthy, active lifestyle.
  - Accumulates a recommended number of minutes of moderate to vigorous physical activity outside of physical education on five or more days per week.
  - Participates in health-enhancing lifetime activities that can be pursued in the community as well as the school.
  - Monitors physical activity through the use of available technology: pedometers, heart rate monitors, activity logs, Tri-Fit, etc.
  - Recognizes and adjusts their personal effort level to achieve health-enhancing benefits during a variety of activities.

*Vocabulary: Fitbit, MyPlate, Loselt, MyFitnessPal, Pedometer, journal, logs, progression, growth*

9. **PHYSICAL EDUCATION: Physical Fitness - Achieves and maintains a health-enhancing level of physical fitness.**
- Develops an appropriate health-related physical fitness exercise program based on fitness assessment results and classroom activities.
  - Applies the principles of exercise (FITT, overload, specificity, and progression) in implementing a personal fitness program.
  - Achieves personal fitness goals after a period of training.
  - Demonstrates the ability to monitor and adjust a personal fitness program to meet needs and goals.
  - Self-assesses the five health-related fitness components (aerobic capacity, muscular endurance, muscular strength, flexibility, and body composition).
  - Meets the age- and gender-specific health-related fitness standards defined by an evidence-based fitness test.
  - Identifies a variety of activities and how often they should be done to improve all health-related fitness components.
  - Identifies major muscle groups of the body and correctly identifies and performs at least two weight training exercises for each muscle group.
  - Participates in fitness activities based on resources available in the local community.

- j. Self-assesses heart rate before, during, and after various physical activities.
- k. Maintains appropriate levels of aerobic capacity, muscular strength and endurance, flexibility, and body composition necessary for a healthy and productive life.

*Vocabulary: speed, posture, coordination, flexibility, ground based, static stretch, lactic acid, overload, muscular endurance, aerobic capacity, progression, body composition, deadlift, squats, bench press, heart rate, F.I.T.T, metabolism, muscle endurance, muscular strength, overload, resting heart rate, specificity, cool down*

10. **PHYSICAL EDUCATION: Responsible Behavior** - Exhibits responsible personal and social behavior that respects self and others in physical activity settings.
- a. Solves conflicts agreeable to both parties.
  - b. Adjusts participation level and personal behavior to make activities inclusive for everyone.
  - c. Works with peers willingly, regardless of skill level and individual differences in partner and small group situations.
  - d. Demonstrates responsible decisions about using time, applying rules, and following through with decisions made.
  - e. Demonstrates consistent decisions to ensure the safety of self and others.
  - f. Exhibits respectful and mature behavior to contribute to a positive learning environment.
  - g. Identifies positive and negative peer influences.

*Vocabulary: active listening, advocate, assertive, body language, child abuse, clique, communication*

11. **PHYSICAL EDUCATION: Healthy Lifestyle, Self-Expression, and Social Interaction** - Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.
- a. Participates in activity outside of school for self-enjoyment.
  - b. Identifies reasons to participate in physical activity in the local community.
  - c. Displays a willingness to experiment with new activities and sports of our and other cultures.
  - d. Demonstrates strategies for including people of diverse backgrounds and abilities in physical activity.
  - e. Describes the correlation that being physically active leads to a higher quality of life.

*Vocabulary: social pressure, well-being, counseling, community agency, life-long fitness, group health, social-emotional health, positive play*

## QUANTITATIVE REASONING

### INTRODUCTION

Quantitative reasoning is essential in the areas of science, technology, engineering, and mathematics. It's also used in the social sciences and in the arts. In fact, it's used everywhere, all the time.

## QUANTITATIVE REASONING ESSENTIAL SKILLS

Every year in Exploration Academy, students do projects to demonstrate growth in the Quantitative Reasoning Essential Skills.

1. **QUANTITATIVE REASONING:** Quantitative Reasoning - Reason quantitatively, understand scale and proportion, and use units to solve problems.
2. **QUANTITATIVE REASONING:** Mathematical Modeling - Apply mathematical models to understand ideas.
3. **QUANTITATIVE REASONING:** Understanding Probability - Understand probability and how it impacts decisions.

Strive to become proficient in the Quantitative Reasoning Essential Skills. Use the rubrics to guide you. The skills for each level of ability include the skills for lower levels of ability.

1. **QUANTITATIVE REASONING:** Quantitative Reasoning - Reason quantitatively, understand scale and proportion, and use units to solve problems.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Reason quantitatively.	<ul style="list-style-type: none"> <li>● Independently conceptualize relevant attributes and create or choose suitable measures for them.</li> </ul>	<ul style="list-style-type: none"> <li>● Explore novel situations and identify the attributes of interest. For example, to find a good measure of overall highway safety, propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle mile traveled.</li> <li>● Create a coherent table, graph, equation, diagram or other representation of a real problem that explains, not just computes, units involved and meaning of quantities.</li> <li>● Specify units of measure.</li> </ul>	<ul style="list-style-type: none"> <li>● Choose appropriate units of measure (rates, 2d and 3d attributes).</li> </ul>	<ul style="list-style-type: none"> <li>● Measure commonly used attributes such as length, area, and volume.</li> <li>● Identify units of measure appropriate for length, area, volume.</li> </ul>
Understand scale and proportion.	<ul style="list-style-type: none"> <li>● Abstract a given situation, represent it symbolically and manipulate the symbols and contextualize.</li> </ul>	<ul style="list-style-type: none"> <li>● Explain and expand use of ratios and proportions in a real problem or context.</li> </ul>	<ul style="list-style-type: none"> <li>● Use ratios and proportions in a real problem or context.</li> </ul>	<ul style="list-style-type: none"> <li>● Recognize correspondence of quantities in a problem.</li> </ul>
Use units to solve problems.	<ul style="list-style-type: none"> <li>● Continually evaluate the reasonableness of intermediate results and make adjustments.</li> </ul>	<ul style="list-style-type: none"> <li>● Calculate accurately and efficiently and express numerical answers with a degree of precision appropriate for the problem context.</li> <li>● Convert units from what is easily attainable to what is meaningful for analysis, for example, in making a purchasing decision.</li> </ul>	<ul style="list-style-type: none"> <li>● Compute and use a wide variety of units in modeling (e.g., acceleration, currency conversions, derived quantities such as person hours and heating degree days, social science rates such as per capita income, and rates in everyday life such as points scored per</li> </ul>	<ul style="list-style-type: none"> <li>● Calculate numerical answers and recognize a degree of precision appropriate for the problem context.</li> <li>● Convert units from what is given to what is asked with guidance.</li> </ul>

			<p>game or batting averages).</p> <ul style="list-style-type: none"> <li>• Calculate numerical answers and explain the degree of precision appropriate for the problem context.</li> <li>• Convert units from what is given to what is asked.</li> </ul>	
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2. QUANTITATIVE REASONING: Mathematical Modeling - Apply mathematical models to understand ideas.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Apply mathematical models to understand ideas.	<ul style="list-style-type: none"> <li>• Use the mathematical modeling process to choose and use appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the mathematical modeling process to create analytical models of empirical situations.</li> <li>• Improve them through multiple revisions in order to understand them better and make better decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the mathematical modeling process to create descriptive models of empirical situations to understand them better and make decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• Construct functions to model relationships between two quantities.</li> <li>• Use tables and graphs to interpret and analyze relationships in terms of the situation they model.</li> </ul>

3. QUANTITATIVE REASONING: Understanding Probability - Understand probability and how it impacts decisions.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Understand probability and how it impacts decisions.	<ul style="list-style-type: none"> <li>• Use understanding of probability to interpret statistical significance of published studies.</li> <li>• Describe variability in data and make informed decisions that take it into account.</li> <li>• Calculate expected values and use them to make decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate probabilities and communicate understanding of independence and conditional probability and use them to interpret data and decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify possible outcomes (sample space) for a given situation.</li> <li>• Compute probabilities of events by applying the Addition and Multiplication Rules.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the role of random processes for statistical significance.</li> </ul>

### QUANTITATIVE REASONING LEARNING TARGETS

Strive to be proficient or better in the Learning Targets for **3** years (6 semesters) of mathematics during high school. (The Quantitative Reasoning Learning Targets are from the Mathematics Common Core State Standards.)

1. **GENERAL MATH S1:** Data Estimation-Using data to do estimates
2. **GENERAL MATH S1:** Equations and Formulas-Equations with Addition, Subtraction, Multiplication and Division
3. **GENERAL MATH S1:** Measurement-Measuring lengths, Metric system, Weights and Temperature
4. **GENERAL MATH S1:** Ratio, Proportion, Percent-Understanding Proportions, Scale drawings and Percent

5. **GENERAL MATH S1:** Using Graphs-Reading Graphs: Tables, Pictographs, Circles and Bar Graphs
6. **GENERAL MATH S2:** Earning Money-Understanding Overtime, Piecework, Commission, Net Pay, Social Security and Income Tax
7. **GENERAL MATH S2:** Managing Money-Understanding Personal Finance, Budgets, Interest and Credit Cards
8. **GENERAL MATH S2:** Perimeter, Area, Volume-Understanding Perimeter, Area, Pi, Triangles, Circumference and Volume
9. **GENERAL MATH S2:** Probability and Computer Literacy-Understanding Probability, Predicting, and BASIC
10. **GENERAL MATH S2:** Using Money-Understanding Renting an Apartment, Buying a Car, Health Insurance and Car Insurance
11. **PRE-ALGEBRA S1:** Proportion, Percent, Data- Understand and use proportion, percent, and data
12. **PRE-ALGEBRA S1:** Rational Numbers - Understand and use rational numbers.
13. **PRE-ALGEBRA S1:** Whole Numbers and Integers - Perform operations using whole numbers and integers.
14. **PRE-ALGEBRA S1:** Arithmetic Readiness - Perform operations demonstrating arithmetic readiness
15. **PRE-ALGEBRA S1:** Measurement and Probability -Understand and use measurement and probability.
16. **PRE-ALGEBRA S2:** Exponents and Polynomials - Understand and solve exponents and polynomials.
17. **PRE-ALGEBRA S2:** Functions and Graphs - Evaluate and compare functions and graphs.
18. **PRE-ALGEBRA S2:** Geometry - Understand and apply properties in geometry.
19. **PRE-ALGEBRA S2:** Proportion, Percent, Data, Probability - Understand and use proportion, percent, data and probability.
20. **PRE-ALGEBRA S2:** Variable Expressions and Equations - Analyze and solve variable expressions and equations.
21. **FOUNDATIONS OF HS MATH S1:** Geometry- Understand and apply properties in geometry.
22. **FOUNDATIONS OF HS MATH S1:** Measurement, Proportion, Percents and Probability-Understand and use measurement, proportion, percents and probability.
23. **FOUNDATIONS OF HS MATH S1:** Rational Numbers-Understand and use rational numbers
24. **FOUNDATIONS OF HS MATH S1:** Variable Expressions and Equations-Analyze and solve variable expressions and equations.
25. **FOUNDATIONS OF HS MATH S1:** Whole Numbers and Integers-Solve problems involving whole numbers and integers
26. **FOUNDATIONS OF HS MATH S2:** Functions and Graphs-Evaluate and compare functions and graphs.
27. **FOUNDATIONS OF HS MATH S2:** Geometry- Understand and apply properties in geometry.
28. **FOUNDATIONS OF HS MATH S2:** Measurement, Proportion, Percents and Probability-Understand and use measurement, proportion, percents and probability.
29. **FOUNDATIONS OF HS MATH S2:** Rational Numbers-Understand and use rational numbers
30. **FOUNDATIONS OF HS MATH S2:** Variable Expressions and Equations-Analyze and solve variable expressions and equations.
31. **ALGEBRA 1 S1:** Arithmetic Readiness - Perform operations demonstrating arithmetic readiness.
32. **ALGEBRA 1 S1:** Exponents and Square Roots - Solve problems involving exponents and square roots.
33. **ALGEBRA 1 S1:** Functions and Systems of Equations - Evaluate and compare functions and systems of equations.
34. **ALGEBRA 1 S1:** Rational Expressions and Proportions - Understand and use rational expressions and proportions.
35. **ALGEBRA 1 S1:** Real Numbers and Linear Equations - Solve problems involving real numbers and linear equations.
36. **ALGEBRA 1 S2:** Data Analysis and Probability - Understand and use data analysis and probability.
37. **ALGEBRA 1 S2:** Exponents and Square Roots - Solve problems involving exponents and square roots.
38. **ALGEBRA 1 S2:** Functions and Systems of Equations - Evaluate and compare functions and systems of equations.
39. **ALGEBRA 1 S2:** Geometry and Trigonometry - Understand and use geometry and trigonometry.
40. **ALGEBRA 1 S2:** Rational Expressions and Proportions - Understand and use rational expressions and proportions.
41. **GEOMETRY S1:** Algebra and Deductive Reasoning - Solve problems involving algebra and deductive reasoning.
42. **GEOMETRY S1:** Coordinate Geometry - Solve problems involving coordinate geometry.
43. **GEOMETRY S1:** Lines and Angles - Solve problems involving lines and angles.
44. **GEOMETRY S1:** Polygons and Circles - Solve problems involving polygons and circles.
45. **GEOMETRY S1:** Triangles - Solve problems involving triangles.
46. **GEOMETRY S2:** Coordinate Geometry - Solve problems involving coordinate geometry.
47. **GEOMETRY S2:** Polygons and Circles - Solve problems involving polygons and circles.
48. **GEOMETRY S2:** Similarities and Transformations - Solve problems involving similarities and transformations.
49. **GEOMETRY S2:** Triangles - Solve problems involving triangles.
50. **GEOMETRY S2:** Volumes and Surface Areas - Solve problems involving volumes and surface areas.
51. **ALGEBRA 2 S1:** Exponents and Polynomial Expressions - Solve problems involving exponents and polynomial expressions.
52. **ALGEBRA 2 S1:** Lines and Functions - Solve problems involving lines and functions.
53. **ALGEBRA 2 S1:** Quadratic and Polynomial Functions - Evaluate and compare quadratic and polynomial functions.



54. **ALGEBRA 2 S1:** Real Numbers and Linear Equations - Solve problems involving real numbers and linear equations.
55. **ALGEBRA 2 S1:** Sequences and Probability - Analyze and solve sequences and probability.
56. **ALGEBRA 2 S1:** Systems of Linear Equations and Matrices - Understand and use systems of linear equations and matrices.
57. **ALGEBRA 2 S2:** Conic Sections and Sequences - Solve problems involving conic sections and sequences.
58. **ALGEBRA 2 S2:** Functions and Logarithms - Understand and use functions and logarithms.
59. **ALGEBRA 2 S2:** Radicals and Quadratic Equations - Analyze and solve radicals and quadratic equations.
60. **ALGEBRA 2 S2:** Rational Expressions and Functions - Evaluate and compare rational expressions and functions.
61. **BUSINESS MATH:** Business Finance-Understand and solve problems related to business finance
62. **BUSINESS MATH:** Interest-Understand and solve problems related to interest
63. **BUSINESS MATH:** Mathematic Foundations-Solve problems involving mathematics foundations
64. **BUSINESS MATH:** Percents and Applications-Understand and use percents and their applications
65. **BUSINESS MATH:** Personal Finance-Understand and solve problems related to personal finance
66. **PRECALCULUS S1:** Hyperbolic Functions-Demonstrate understandings of a basic introduction to hyperbolic functions.
67. **PRECALCULUS S1:** Imaginary and Complex Numbers-Demonstrate understandings of imaginary unit  $i$ , factoring using imaginary numbers, multiplying and dividing complex numbers, the complex plane, and exponential form of complex numbers.
68. **PRECALCULUS S1:** Matrices-Demonstrate understanding of basic matrix operations, matrix multiplication, properties of matrix multiplication, zero and identity matrices, geometric transformation with matrices, inverted matrices, and matrix equations.
69. **PRECALCULUS S1:** Parametric Equations and Polar Coordinates-Demonstrate understanding of parametric equations and polar coordinates.
70. **PRECALCULUS S1:** Sequences, Series and Induction-Demonstrate understandings of induction, basic and advanced sequence and series, geometric sequences, finite and infinite geometric series, and recursive functions.
71. **PRECALCULUS S2:** Hyperbolic Functions-Demonstrate understandings of a basic introduction to hyperbolic functions.
72. **PRECALCULUS S2:** Imaginary and Complex Numbers-Demonstrate understandings of imaginary unit  $i$ , factoring using imaginary numbers, multiplying and dividing complex numbers, the complex plane, and exponential form of complex numbers.
73. **PRECALCULUS S2:** Parametric Equations and Polar Coordinates-Demonstrate understanding of parametric equations and polar coordinates.
74. **PRECALCULUS S2:** Probability and Combinatorics-Demonstrate understandings of basic probability, compound and independent events, dependent events, permutations, combinations, and probability using combinatorics.
75. **PRECALCULUS S2:** Vectors-Demonstrate understanding of vector basics, vectors in regular form, and vectors in magnitude and direction form
76. **AP CALCULUS AB S1:** Analysis of Graphs, Limits and Continuity-Predict and to explain the observed local and global behavior of a function, Estimating limits from graphs or tables of data, Understanding continuity in terms of limits
77. **AP CALCULUS AB S1:** Application and Computation of Derivatives-Analysis of curves, including the notions of monotonicity and concavity, Knowledge of derivatives of basic functions
78. **AP CALCULUS AB S1:** Asymptotic and Unbounded Behavior-Describing asymptotic behavior in terms of limits involving infinity and Comparing relative magnitudes of functions and their rates of change
79. **AP CALCULUS AB S1:** Concept of the Derivative, Derivative at a Point-Derivative presented graphically, numerically, and analytically and Relationship between differentiability and continuity and Tangent line to a curve at a point and local linear approximation
80. **AP CALCULUS AB S1:** Second Derivatives-Corresponding characteristics of the graphs of  $f$ ,  $f'$ , and  $f''$
81. **AP CALCULUS AB S2:** Application of Antiderivative-Solving separable differential equations and using them in modeling
82. **AP CALCULUS AB S2:** Derivative as a Function-The Mean Value Theorem and its geometric interpretation
83. **AP CALCULUS AB S2:** Fundamental Theorem of Calculus-Use of the Fundamental Theorem to represent a particular antiderivative, and the analytical and graphical analysis of functions;
84. **AP CALCULUS AB S2:** Interpret, Prop, Applic Number Approx Definite Integ-Definite integral of the rate of change of a quantity over an interval interpreted as the change of the quantity over the interval:  $\int_a^b f(x) dx = f(b) - f(a)$ ; Finding the area of a region, the volume of a solid with known cross sections, the average value of a function, the distance traveled by a particle along a line, and accumulated change from a rate of change; Use of Riemann sums
85. **AP CALCULUS AB S2:** Techniques of Antiderivative-Antiderivatives by substitution of variables

86. **AP CALCULUS BC S1:** Analysis of Graphs, Limits and Continuity-Predict and to explain the observed local and global behavior of a function, Estimating limits from graphs or tables of data, Understanding continuity in terms of limits
87. **AP CALCULUS BC S1:** Asymptotic and Unbounded Behavior-Describing asymptotic behavior in terms of limits involving infinity and Comparing relative magnitudes of functions and their rates of change
88. **AP CALCULUS BC S1:** Continuity as Property of Functions-Understanding continuity in terms of limits and Geometric understanding of graphs of continuous functions
89. **AP CALCULUS BC S1:** Limits of Functions-Estimating limits from graphs or tables of data
90. **AP CALCULUS BC S1:** Parametric, Polar and Vector Functions-The analysis of planar curves includes those given in parametric form, polar form, and vector form
91. **AP CALCULUS BC S2:** Computation of Derivatives-Knowledge of derivatives of basic functions, including power, exponential, logarithmic, trigonometric, and inverse trigonometric functions
92. **AP CALCULUS BC S2:** Concept of Series-Define a sequence of partial sums and convergence
93. **AP CALCULUS BC S2:** Series of Constants-Harmonic series, Terms of series as areas of rectangles and their relationship to improper integrals, including the integral test and its use in testing the convergence of p-series
94. **AP CALCULUS BC S2:** Taylor Series-Taylor polynomial approximation with graphical demonstration of convergence, Maclaurin series for the functions  $e^x$ ,  $\sin x$ ,  $\cos x$ , and  $1/1-x$ , the general Taylor series centered at  $x = a$ , Lagrange error bound for Taylor polynomials
95. **AP CALCULUS BC S2:** Parametric, Polar and Vector Functions-The analysis of planar curves includes those given in parametric form, polar form, and vector form

## SOCIAL REASONING

### INTRODUCTION

Through work within the Social Reasoning Essential Skills and Learning Targets, students will understand and work to solve the challenges facing our diverse nation in an increasingly interdependent world. Students will work to see diverse perspectives, to understand social issues, to explore ethics, and to look at issues historically to help formulate understanding of current issues and the implications for our future. The purpose of learning to reason socially is to be able to examine issues from multiple perspectives, to understand how other people think and live, and to be able to decide matters of importance when faced with problems in life.

### SOCIAL REASONING ESSENTIAL SKILLS

All students in Exploration Academy are required to demonstrate the following skills every year in order to graduate. Over time students should show growth in their understanding and application of the skills. These skills are the foundation for any study of history, geography, economics, political science, or the behavioral sciences.

1. **SOCIAL REASONING: Researching** - Students will be able to locate a variety of sources and use research skills to gather, synthesize, and report information.
2. **SOCIAL REASONING: Using Resources** - Students will be able to analyze, interpret, and use a variety of resources and materials (charts, graphs, editorials, pictures, political cartoons, maps).
3. **SOCIAL REASONING: Problem-Solving** - Students will be able to apply decision-making and problem-solving technique to historic and contemporary issues.

Strive to become proficient in the Social Reasoning Essential Skills. Use the rubrics to guide you.

1. **SOCIAL REASONING: Researching** - Students will be able to locate a variety of sources and use research skills to gather, synthesize, and report information.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Locate a variety of relevant sources.	<ul style="list-style-type: none"> <li>• Use a multitude of appropriate sources of information.</li> <li>• Determine adequacy and/or relevancy of information.</li> <li>• Use both print and non-print materials.</li> <li>• Use community related resources.</li> <li>• Identify and use both primary and secondary sources.</li> </ul>	<ul style="list-style-type: none"> <li>• Uses appropriate sources of information.</li> <li>• Determines adequacy and/or relevancy of information.</li> <li>• Use both print and non-print materials.</li> <li>• Use community related resources.</li> <li>• Identify and use both primary and secondary sources.</li> </ul>	<ul style="list-style-type: none"> <li>• Uses appropriate sources of information.</li> <li>• Uses print or nonprint materials.</li> <li>• Identify and use primary or secondary sources.</li> </ul>	<ul style="list-style-type: none"> <li>• Limit sources used.</li> <li>• No variety in the type of source material.</li> </ul>
Gather, synthesize, and report information.	<ul style="list-style-type: none"> <li>• Evaluate sources for validity and credibility and to detect propaganda, censorship, and bias.</li> <li>• Use that evaluation to support your learning.</li> <li>• Identify main idea, detail, sequence of events, and cause and effect in a social studies context and check for consistency of information across sources.</li> <li>• Combine and transfer multiple sources of information from various mediums.</li> <li>• Appropriately credit sources.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate sources for validity and credibility and to detect propaganda, censorship, and bias.</li> <li>• Identify main idea, detail, sequence of events, and cause and effect in a social studies context.</li> <li>• Properly transfer information from one medium to another such as written to visual and statistical to written.</li> <li>• Appropriately credit sources.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify propaganda, bias, and censorship.</li> <li>• Identify main ideas and details.</li> <li>• Properly transfer information from one medium to a similar medium.</li> <li>• Credit sources.</li> </ul>	<ul style="list-style-type: none"> <li>• Sources are not credible and/or contain unidentified bias or propaganda.</li> <li>• Details scattered and unconnected.</li> <li>• Section of work directly plagiarized.</li> <li>• No credit given to sources.</li> </ul>

2. SOCIAL REASONING: Using Resources - Students will be able to analyze, interpret, and use a variety of resources and materials (charts, graphs, editorials, pictures, political cartoons, maps).

	EXPERT	PROFICIENT	BASIC	MINIMAL
Analyze, interpret, and use a variety of resources and materials.	<ul style="list-style-type: none"> <li>• Use a variety of source materials that should include maps or atlases, charts and graphs, editorials, pictures, political cartoons, artifacts, and art.</li> <li>• Interpret appropriate meaning from the resources and materials.</li> <li>• Draw conclusions and make generalizations.</li> <li>• Support your conclusions with source information.</li> <li>• Compare and contrast a variety of resources</li> </ul>	<ul style="list-style-type: none"> <li>• Use a variety of source materials that should include maps or atlases, charts and graphs, editorials, pictures, political cartoons, artifacts, and art.</li> <li>• Interpret appropriate meaning from the resources and materials.</li> <li>• Draw conclusions and make generalizations.</li> <li>• Support your conclusions with source information.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a variety of source materials that should include maps or atlases, charts and graphs, editorials, pictures, political cartoons, artifacts, and art.</li> <li>• Interpret appropriate meaning from the resources and materials.</li> <li>• Draw weak conclusions or oversimplified generalizations.</li> <li>• Provide little support for your conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a variety of source materials that should include maps or atlases, charts and graphs, editorials, pictures, political cartoons, artifacts, and art.</li> <li>• Interpret incorrect or partial meaning from the resources and materials.</li> <li>• No conclusions or generalizations reached.</li> </ul>

	to identify trends and discrepancies.			
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3. SOCIAL REASONING: Problem-Solving - Students will be able to apply decision-making and problem-solving technique to historic and contemporary issues.

	EXPERT	PROFICIENT	BASIC	MINIMAL
Apply decision-making and problem-solving techniques.	<ul style="list-style-type: none"> <li>Identify current or historical issues and/or problems and alternative solutions.</li> <li>Formulate appropriate research questions.</li> <li>Identify areas of extended background knowledge development required. <i>Then</i> examine, understand and evaluate conflicting viewpoints.</li> <li>Take a position on an issue and support it with evidence, reasoning, and analysis.</li> <li>Offer solutions recognizing the cultural values upon which decisions are made, <i>or</i> compare present and past events to evaluate the consequences of past decisions.</li> <li>Apply lessons learned from past events to current issues.</li> <li>Predict outcomes and future actions based on these lessons, <i>or</i> analyze how change occurs through time due to shifting values and beliefs as well as technological advancements and changes in the political and economic landscape.</li> <li>Explain the reasons for the change and support yourself with evidence, reasoning, and analysis.</li> <li>Assess the impact of that change on society, culture, or the world.</li> </ul>	<ul style="list-style-type: none"> <li>Identify current or historical issues and/or problems and alternative solutions.</li> <li>Formulate appropriate research questions. <i>Then</i> examine, understand, and evaluate conflicting viewpoints.</li> <li>Take a position on an issue and support it with evidence, reasoning, and analysis.</li> <li>Offer solutions, <i>or</i> compare present and past events to evaluate the consequences of past decisions</li> <li>Apply lessons learned from past events to current issues, <i>or</i> analyze how change occurs through time due to shifting values and beliefs as well as technological advancements and changes in the political and economic landscape.</li> <li>Explain the reasons for the change and support yourself with evidence, reasoning, and analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Identify current or historical issues and/or problems.</li> <li>Formulate research questions. <i>Then</i> examine and understand conflicting viewpoints.</li> <li>Take a position on an issue and support it with some evidence.</li> <li>Offer a solution, <i>or</i> compare present and past events.</li> <li>Apply lessons learned from past events to current issues, <i>or</i> identify a change that has occurred throughout time.</li> <li>Explain the reasons for the change and support yourself with some evidence.</li> </ul>	<ul style="list-style-type: none"> <li>Identify current or historical issues and/or problems. <i>Then</i> examine conflicting viewpoints.</li> <li>Take a position on an issue and support it with little or no evidence, <i>or</i> compare present and past events.</li> <li>Identify differences between the two events, <i>or</i> identify a change that has occurred throughout time.</li> <li>Explain the reasons for the change and support it with little or no evidence.</li> </ul>

**SOCIAL REASONING LEARNING TARGETS**

The following are the content specific learning targets that Exploration Academy students will use to guide their learning. Students should strive to be proficient in at least **20** of these learning targets. Students who plan to take an AP social sciences course should complete all learning targets in that area of study. Required learning targets are in **bold**. (The Social Reasoning Learning Targets come from the Wisconsin Model Academic State Standards.) Students must satisfactorily complete the state-required civics test with a score of 60% or higher, which is required by students for a high school diploma. The civics test is required by section 118.33(1m)(a) of the state statutes.

1. **GEOGRAPHY: Using Atlases - Use various types of atlases and appropriate vocabulary to describe the physical attributes of a place or region, employing such concepts as climate, plate tectonics, volcanism, and landforms, and to describe the human attributes, employing such concepts as demographics, birth and death rates, doubling time, emigration, and immigration.**
  - a. Use a various types of atlases to examine a location.
  - b. Use appropriate academic language to describe in detail the physical characteristics of that place; this should include the climate and landscape.
  - c. Use appropriate academic language to describe in detail the human characteristics should include demographics and immigration patterns.

*Vocabulary: cartograms, climate, plate tectonics, volcanism, landforms, landscape, demographics, birth and death rates, doubling time, emigration, and immigration*

2. **GEOGRAPHY: Construct Maps - Analyze information generated from a computer about a place, including statistical sources, aerial and satellite images, and three-dimensional models. Construct mental maps of the world and the world's regions and draw maps from memory showing major physical and human features.**

*Vocabulary: topography, thematic map, satellite map, map projection, map grid*

3. **GEOGRAPHY: Changes in Population - Analyze the short-term and long-term effects that major changes in population in various parts of the world have had or might have on the environment.**

*Vocabulary: bilingual, population pyramid, carrying capacity, birth rate, death rate, demographics, fertility rate, natural population increase/decrease, pull/push factors*

4. **GEOGRAPHY: Resource Distribution and Trade - Use a variety of geographic information and resources to analyze and illustrate the ways in which the unequal global distribution of natural resources influences trade and shapes economic patterns.**

- a. Use a variety of geographic information on global resource distribution.
- b. Identify examples of global resource distribution is unequal.
- c. Analyze how resource distribution shapes economics and trade of nations.
- d. Illustrate and explain the impact of resources distribution on a nation.

*Vocabulary: natural resources, trade, import, export, global distribution, scarcity, commodity flow, economic development, relocation strategy*

5. **GEOGRAPHY: Environmental Change - Collect and analyze geographic information to examine the effects that a geographic or environmental change in one part of the world, such as volcanic activity, river diversion, ozone depletion, air pollution, deforestation, or desertification, may have on other parts of the world.**

- a. Collect and use a variety of geographic information on geographic or environmental change.
- b. Identify, and explain the effects of the geographic or environmental change on the immediate area.
- c. Analyze that change to identify impacts on other parts of the world.
- d. Clearly illustrate the connection and impact of that change on other parts of the world.

*Vocabulary: climate change, atmosphere, erosion, acid rain, deforestation, desertification, ozone depletion, air pollution, greenhouse effect, soil acidification, soil creep, soil salinization*

6. **GEOGRAPHY: Movement of People - Collect relevant data to analyze the distribution of products among global markets and the movement of people among regions of the world.**

*Vocabulary:*

7. **GEOGRAPHY: World Ecosystems - Identify the world's major ecosystems and analyze how different economic, social, political, religious, and cultural systems have adapted to them.**

*Vocabulary:*

8. **GEOGRAPHY: Cultural Factors Influence** - Identify and analyze cultural factors, such as human needs, values, ideals, and public policies, that influence the design of places, such as an urban center, an industrial park, a public project, or a planned neighborhood.  
*Vocabulary: cultural traits, indigenous, acculturation, assimilation, urbanization*
9. **GEOGRAPHY: Cultural Ethics Influence** - Analyze the effect of cultural ethics and values in various parts of the world on scientific and technological development.  
*Vocabulary: ethics, mores, values*
10. **GEOGRAPHY: Technologies Effect on Environment** - Describe scientific and technological development in various regions of the world and analyze the ways in which development affects environment and culture.  
*Vocabulary: greenhouse effect, groundwater quality, hazardous waste, hybridization of crops, petroleum consumption*
11. **GEOGRAPHY: Land Use Policies - Assess the advantages and disadvantages of selected land use policies in the local community, Wisconsin, the United States, and the world.**
- Identify a local, national, or world land use issue.
  - Gather a variety of geography and economic data.
  - Explain arguments on each side of the land use issue.
  - Assess the advantages and disadvantages of each land use option.
- Vocabulary: hybridization of crops, groundwater quality, industrialization, zoning regulation, land survey system, planned city, subsistence farming*
12. **GEOGRAPHY: Conflict and Cooperation of Boundaries** - Give examples and analyze conflict and cooperation in the establishment of cultural regions and political boundaries.  
*Vocabulary: unification, regionalization, ethnic elitism, ethnic enclave, ethnic minority, ethnicity, ethnocentrism*
13. **HISTORY: Point of View - Explain different points of view on the same historical event, using data gathered from various sources, such as letters, journals, diaries, newspapers, government documents, and speeches and assess the validity of different interpretations of significant historical events.**
- Identify a significant historical event.
  - Gather a variety of primary sources from the event.
  - Identify and explain at least two varying perspectives or conclusion that could be drawn from the event.
  - Determine which conclusion is most valid based on your primary sources.
- Vocabulary:*
14. **HISTORY: Primary and Secondary Sources** - Analyze primary and secondary sources related to a historical question to evaluate their relevance, make comparisons, integrate new information with prior knowledge, and come to a reasoned conclusion.  
*Vocabulary: primary source, secondary source*
15. **HISTORY: Historical Periods** - Recall, select, and analyze significant historical periods and the relationships among them.  
*Vocabulary:*
16. **HISTORY: Historical Arguments** - Gather various types of historical evidence, including visual and quantitative data, to analyze issues of freedom and equality, liberty and order, region and nation, individual and community, law and conscience, diversity and civic duty; form a reasoned conclusion in the light of other possible conclusions; and develop a coherent argument in the light of other possible arguments.  
*Vocabulary:*
17. **HISTORY: Constitutional Documents** - Select and analyze various documents that have influenced the legal, political, and constitutional heritage of the United States.  
*Vocabulary: primary source*
18. **HISTORY: Works of Art and Literature** - Identify major works of art and literature produced in the United States and elsewhere in the world and explain how they reflect the era in which they were created.  
*Vocabulary:*

19. HISTORY: Important People - Recall, select, and explain the significance of important people, their work, and their ideas in the areas of political and intellectual leadership, inventions, discoveries, and the arts, within each major era of Wisconsin, United States, and world history.  
*Vocabulary:*
20. HISTORY: Technological Change - Select significant changes caused by technology, industrialization, urbanization, and population growth, and analyze the effects of these changes in the United States and the world.  
*Vocabulary: industrialization, technology, urbanization*
21. HISTORY: Religious and Scientific Change - Select instances of scientific, intellectual, and religious change in various regions of the world at different times in history and discuss the impact those changes had on beliefs and values.  
*Vocabulary: religious fundamentalism, enlightenment, social Darwinism, Renaissance*
22. HISTORY: American Indians - Analyze the history, culture, tribal sovereignty, and current status of the American Indian tribes and bands in Wisconsin.  
*Vocabulary: tribal system, reservation*
23. HISTORY: Institutional Change - Analyze examples of ongoing change within and across cultures, such as the development of ancient civilizations; the rise of nation-states; and social, economic, and political revolutions.  
*Vocabulary: river valley civilization, hunter-gatherer, civilization*
24. HISTORY: Religion - Explain the origins, central ideas, and global influence of religions, such as Buddhism, Islam, Hinduism, Judaism, and Christianity.  
*Vocabulary: Shintoism, Judaism, Islam, Buddhism, Christianity, Taoism, atheism, monotheism, polytheism*
- 25. HISTORY: Ethical Decision Making - Identify a historical or contemporary event in which a person was forced to take an ethical position, such as a decision to go to war, the impeachment of a president, or a presidential pardon, and explain the issues involved.**
- Identify a historical or contemporary event where someone took an ethical stand.**
  - Collect a variety of primary and secondary sources.**
  - Summarize the issues involved in the event.**
  - Explain the decisions made by the individual.**
- Vocabulary:*
26. HISTORY: Global Treaties and Organizations - Describe the purpose and effects of treaties, alliances, and international organizations that characterize today's interconnected world.  
*Vocabulary: treaty, alliance*
27. HISTORY: Slavery and Discrimination - Explain the history of slavery, racial and ethnic discrimination, and efforts to eliminate discrimination in the United States and elsewhere in the world.  
*Vocabulary: desegregation, Civil Rights Movement, discrimination, civil disobedience, boycott, segregation, apartheid, affirmative action*
28. CIVICS: Rights and Responsibilities - Identify the sources, evaluate the justification, and analyze the implications of certain rights and responsibilities of citizens.  
*Vocabulary: civic duty*
29. CIVICS: Political Systems - Describe how different political systems define and protect individual human rights.  
*Vocabulary: theocracy, absolute monarchy, democracy, oligarchy, dictatorship*
30. CIVICS: Legal Interpretations - Trace how legal interpretations of liberty, equality, justice, and power, as identified in the Constitution, the Bill of Rights, and other Constitutional Amendments, have changed and evolved over time.  
*Vocabulary: constitutional amendments, constitutional law*
31. CIVICS: Purpose of Democratic Government - Explain the multiple purposes of democratic government, analyze historical and contemporary examples of the tensions between those purposes, and illustrate how governmental powers can be acquired, used, abused, or legitimized.  
*Vocabulary: constitution, democracy, republic*



32. CIVICS: Theories of Governmental Power - Analyze different theories of how governmental powers might be used to help promote or hinder liberty, equality, and justice, and develop a reasoned conclusion.  
*Vocabulary: theocracy, absolute monarchy, democracy, oligarchy, dictatorship*
33. CIVICS: Federalism and Separation of Powers - Identify and analyze significant political benefits, problems, and solutions to problems related to federalism and the separation of powers.  
*Vocabulary: bicameral, elastic clause, executive, expressed powers, reserved powers*
34. CIVICS: Political Parties and Interest Groups - Describe how past and present American political parties and interest groups have gained or lost influence on political decision-making and voting behavior.  
*Vocabulary: campaigning, gerrymandering, political spectrum, politics, polling, republican, democrat, platform*
- 35. CIVICS: Issues of Public Concern - Locate, organize, analyze, and use information from various sources to understand an issue of public concern, take a position, and communicate the position.**
- Locate and organize a variety of information about an issue of public concern.**
  - Identify, and explain the various sides of the issue.**
  - Take a precise, knowledgeable, and significant position.**
  - Clearly support and defend your position using relevant evidence.**
- Vocabulary: constitutional rights, debate, evidence, evaluate, validity*
36. CIVICS: Public Policy - Identify and evaluate the means through which advocates influence public policy.  
*Vocabulary: lobbyist*
- 37. CIVICS: Political Participation- Identify ways people may participate effectively in community affairs and the political process and evaluate the ways in which public opinion can be used to influence and shape public policy.**
- Identify a variety of ways in ways in which people participate in community affairs and the political process.**
  - Explain the impact of public opinion on public policy.**
  - Participate in community affairs or the political process.**
  - Summarize your participation and assess its effectiveness.**
- Vocabulary: civic duty*
38. CIVICS: Global Relationship - Explain the United States' relationship to other nations and its role in international organizations, such as the United Nations, North Atlantic Treaty Organization, World Bank, International Monetary Fund, and North American Free Trade Agreement.  
*Vocabulary: free trade, embargo, import, export*
39. CIVICS: Political Organization - Describe and evaluate ideas of how society should be organized and political power should be exercised, including the ideas of monarchism, anarchism, socialism, fascism, and communism; compare these ideas to those of representative democracy; and assess how such ideas have worked in practice.  
*Vocabulary: theocracy, absolute monarchy, communism, socialism, democracy*
40. CIVICS: Political and Social Movements - Explain and analyze how different political and social movements have sought to mobilize public opinion and obtain governmental support in order to achieve their goals.  
*Vocabulary: labor unions, Civil Rights Movement, desegregation, civil liberties*
41. CIVICS: Persecution - Describe and analyze the origins and consequences of slavery, genocide, and other forms of persecution, including the Holocaust.  
*Vocabulary: genocide, ethnic cleansing, anti-semitism*
42. CIVICS: Rights of Minority Groups - Describe the evolution of movements to assert rights by people with disabilities, ethnic and racial groups, minorities, and women.  
*Vocabulary: Civil Rights Movement, discrimination, affirmative action, civil liberties, equality, racism, ethnic group, prejudice, stereotype*
43. ECONOMICS: Economic Decisions affect National Economy - Explain how decisions about spending and production made by households, businesses, and governments determine the nation's levels of income, employment, and prices.  
*Vocabulary: unemployment, tax reform, minimum wage, labor force*



- 44. ECONOMICS: Basic Economic Concepts** - Use basic economic concepts (such as supply and demand; production, distribution, and consumption; labor, wages, and capital; inflation and deflation; market economy and command economy) to compare and contrast local, regional, and national economies across time and at the present time.
- Define basic economic concepts listed below.
  - Gather a variety of economic data on multiple local, regional, or national economies.
  - Use the basic economic concepts to describe the economies.
  - Compare and contrast the economies today.
  - Compare and contrast the economies change over time.
  - Explain the similarities and differences between the economic regions.
- Vocabulary:** *supply and demand, production, distribution, and consumption, labor, wages, and capital, inflation and deflation, market economy and command economy, capitalism, socialism*
- 45. ECONOMICS: Local Economy and the World** - Analyze and evaluate the role of Wisconsin and the United States in the world economy.
- Vocabulary:** *economic interdependence, free trade, globalization*
- 46. ECONOMICS: Technology and Global Interdependence** - Explain and evaluate the effects of new technology, global economic interdependence, and competition on the development of national policies and on the lives of individuals and families in the United States and the world, using examples to illustrate their influence on national and international policies.
- Define technology, global economic interdependence, and economic competition.
  - Explain the effects of new technology, global economic interdependence, and competition on individuals, national policies, and the world.
  - Identify examples then examine and describe their influence.
  - Assess the impact these policies have on the world, use evidence to support yourself.
- Vocabulary:** *economic interdependence, free trade, globalization*
- 47. ECONOMICS: Federal Monetary Policies** - Explain how federal budgetary policy and the Federal Reserve System's monetary policies influence overall levels of employment, interest rates, production, and prices.
- Vocabulary:** *deficit, entitlements, surplus, inflation, fiscal policy, gross domestic product, national debt*
- 48. ECONOMICS: Economics and History** - Use economic concepts to analyze historical and contemporary questions about economic development in the United States and the world.
- Vocabulary:** *capitalism, socialism, communism*
- 49. ECONOMICS: Types of Economies** - Compare, contrast, and evaluate different types of economies (traditional, command, market, and mixed) and analyze how they have been affected in the past by specific social and political systems and important historical events.
- Vocabulary:** *capitalism, socialism, communism*
- 50. ECONOMICS: International Trade** - Explain the basic characteristics of international trade, including absolute and comparative advantage, barriers to trade, exchange rates, and balance of trade.
- Vocabulary:** *mercantilism, import, export, embargo, tariff*
- 51. ECONOMICS: Financial Instruments and Institutions** - Explain the operations of common financial instruments (such as stocks and bonds) and financial institutions (such as credit companies, banks, and insurance companies).
- Vocabulary:** *stocks, bonds, stock market, bull market, bear market, speculation*
- 52. ECONOMICS: Competitive Market System** - Analyze the ways in which supply and demand, competition, prices, incentives, and profits influence what is produced and distributed in a competitive market system.
- Vocabulary:** *supply and demand, competition, incentives, profit, product, distribution, market system, wages, capital, overhead, goods, service, opportunity cost, income*
- 53. ECONOMICS: Interest Rates** - Explain how interest rates are determined by market forces that influence the amount of borrowing and saving done by investors, consumers, and government officials.
- Vocabulary:**

54. ECONOMICS: Values influence Economic Systems - Compare and contrast how values and beliefs, such as economic freedom, economic efficiency, equity, full employment, price stability, security, and growth, influence decisions in different economic systems.  
*Vocabulary:*
55. ECONOMICS: Economic Institutions - Analyze the economic roles of institutions, such as corporations and businesses, banks, labor unions, and the Federal Reserve System.  
*Vocabulary:*
56. BEHAVIORAL SCIENCES: Brain Structure and Function - Summarize research that helps explain how the brain's structure and function influence learning and behavior.  
*Vocabulary:*
57. BEHAVIORAL SCIENCES: Individual Identity - Explain how such factors as physical endowment and capabilities, family, gender, ethnicity, religion, socioeconomic status, attitudes, beliefs, work, and motivation contribute to individual identity and development.  
*Vocabulary:*
58. BEHAVIORAL SCIENCES: Cultural Defined Rights and Responsibilities - Compare and describe similarities and differences in the ways various cultures define individual rights and responsibilities, including the use of rules, folkways, mores, and taboos.  
*Vocabulary:*
59. BEHAVIORAL SCIENCES: Institutions as Agents of Change - Analyze the role of economic, political, educational, familial, and religious institutions as agents of both continuity and change, citing current and past examples.  
*Vocabulary:*
60. BEHAVIORAL SCIENCES: Social and Cultural Groups - Describe the ways cultural and social groups are defined and how they have changed over time.  
*Vocabulary:*
61. BEHAVIORAL SCIENCES: Institutional Influence - Analyze the means by which and extent to which groups and institutions can influence people, events, and cultures in both historical and contemporary settings.  
*Vocabulary:*
62. BEHAVIORAL SCIENCES: Influence of Media - Use scientific methods to assess the influence of media on people's behavior and decisions.  
*Vocabulary:*
63. BEHAVIORAL SCIENCES: Issues of Cultural Assimilation - Analyze issues of cultural assimilation and cultural preservation among ethnic and racial groups in Wisconsin, the United States, and the world.  
*Vocabulary:*
64. BEHAVIORAL SCIENCES: Ethical Issues - Defend a point of view related to an ethical issue such as genetic engineering, declaring conscientious objector status, or restricting immigration.  
*Vocabulary:*
65. BEHAVIORAL SCIENCES: Describe Culture - Describe a particular culture as an integrated whole and use that understanding to explain its language, literature, arts, traditions, beliefs, values, and behaviors.  
*Vocabulary:*
66. BEHAVIORAL SCIENCES: Resolving Conflicting Beliefs - Illustrate and evaluate ways in which cultures resolve conflicting beliefs and practices.  
*Vocabulary:*
67. BEHAVIORAL SCIENCES: Efforts to Eliminate Prejudice - Explain current and past efforts of groups and institutions to eliminate prejudice and discrimination against racial, ethnic, religious, and social groups such as women, children, the elderly, and individuals who are disabled.  
*Vocabulary:*

68. BEHAVIORAL SCIENCES: Universal Themes - Compare the ways in which a universal theme is expressed artistically in three different world cultures.  
*Vocabulary:*
69. BEHAVIORAL SCIENCES: Research Procedures - Use the research procedures and skills of the behavioral sciences (such as gathering, organizing, and interpreting data from several sources) to develop an informed position on an issue.  
*Vocabulary:*
70. BEHAVIORAL SCIENCES: Work Skills - Identify the skills needed to work effectively alone, in groups, and in institutions.  
*Vocabulary:*
71. BEHAVIORAL SCIENCES: Mental Health - Identify and analyze factors that influence a person's mental health.  
*Vocabulary:*
72. BEHAVIORAL SCIENCES: Belief Systems - Examine and describe various belief systems that exist in the world, such as democracy, socialism, and capitalism.  
*Vocabulary:*

## PHASE 1

E = Expert, P = Proficient, B = Basic, M = Minimal

### ESSENTIAL TASKS

- Create and maintain Weebly portfolio.
- Take the STAR Reading and Math Assessments in the fall, winter, and spring.
- Take the Achieve3000 Level Set in the fall and spring.
- Exhibit projects in the Fall and Spring EA Showcases.

### COMMUNICATION

Read **two** nonfiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		

Read **six** fiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		
6.		

Do **forty** articles in Achieve3000.

LEXILE MEASURE	DATE COMPLETED

Participate in **two** one-on-one conversations and **two** group discussions, and give **two** presentations.

TYPE	PROJECT TITLE	DATE COMPLETED
One-on-one conversation		
One-on-one conversation		
Group discussion		
Group discussion		
Presentation		
Presentation		

Demonstrate growth in the Communication Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Reading		
Writing		
Speaking and Listening		

Strive to be proficient or better in at least **six** Communication Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. WRITING: Argumentative		
2. WRITING: Informative		
3. WRITING: Narrative		
4.		
5.		
6.		

### EMPIRICAL REASONING

Demonstrate growth in the Empirical Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Interpreting and analyzing		
Planning investigations		
Explain and improve		

Strive to be proficient or better in at least **four** Empirical Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. LIFE SCIENCE		
2. LIFE SCIENCE		
3. LIFE SCIENCE		
4. LIFE SCIENCE		

### LEADERSHIP AND LIFE SKILLS

Demonstrate growth in the 21ST CENTURY ESSENTIAL SKILLS.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Creativity and Innovation		
Flexibility and Adaptability		
Initiative and Self-Direction		
Social and Cross-Cultural Skills		
Productivity and Accountability		

Leadership and Responsibility		
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Strive to be **minimal (40 hours total=Minimal)** in all **six** PHYSICAL EDUCATION Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. Skill Development and Application		
2. Cognitive Understanding and Scientific Principles of Physical Activity		
3. Physical Activity and Lifestyle		
4. Physical Fitness		
5. Responsible Behavior		
6. Healthy Lifestyle, Self-Expression, and Social Interaction		

### QUANTITATIVE REASONING

Complete **two** semesters of ALEKS Math or the equivalent.

COURSE	DATE COMPLETED
1.	
2.	

### SOCIAL REASONING

Demonstrate growth in the Social Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Researching		
Interpreting and Analyzing Resources		
Applying Decision-Making Techniques		

Strive to be proficient or better in at least **five** Social Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
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1.	HISTORY: Point of View		
2.	CIVICS: Issue of Public Concern		
3.			
4.			
5.			

Do projects related to the following content areas.

CONTENT AREA	PROJECT TITLE	DATE COMPLETED
Great Depression and New Deal		
World War II, the Cold War, the Korean War, and the Vietnam War		

Great Depression and New Deal Vocabulary Terms and Events

(Must complete vocabulary worksheet from advisor prior to project start.)

- |                                   |                   |
|-----------------------------------|-------------------|
| Income Distribution in 1929       | Wagner Act        |
| Credit Buying                     | CCC               |
| Speculation                       | TVA               |
| Buying on Margin                  | FDIC              |
| Overproduction                    | PWA               |
| Black Thursday                    | FHA               |
| Black Tuesday/Great Crash         | SEC               |
| Business Cycle (Economic Concept) | Glass-Steagal Act |
| Great Depression                  | Okies             |
| Gross National Product (GNP)      |                   |
| Unemployment Rates                |                   |
| Bank Closures                     |                   |
| Hooverilles                       |                   |
| Dust Bowl                         |                   |
| 21st Amendment                    |                   |
| Alphabet Soup Programs            |                   |

World War II, the Cold War, the Korean War, and the Vietnam War Vocabulary Terms and Events

(Must complete vocabulary worksheet from advisor prior to project start.)

- |                   |               |
|-------------------|---------------|
| Imperialism       | NATO          |
| Alliance          | Marshall Plan |
| Axis Powers       | Cold War      |
| Allied Powers     | Vietnam       |
| SEATO             | Lend Lease    |
| Containment       |               |
| Pacifist          |               |
| Armistice         |               |
| Isolationist      |               |
| Appeasement       |               |
| League of Nations |               |
| Fascism           |               |
| Blitzkrieg        |               |
| Internment        |               |

Trench warfare  
Infamy  
Iron Curtain  
Propaganda  
Domino Theory  
Cuban Missile Crisis  
Rationing  
Blackout

## PHASE 2

E = Expert, P = Proficient, B = Basic, M = Minimal

### ESSENTIAL TASKS

- Create and/or maintain Weebly portfolio.
- Take the STAR Reading and Math Assessments in the fall, winter, and spring.
- Take the Achieve3000 Level Set in the fall and spring.
- Exhibit projects in the Fall and Spring EA Showcases.
- Create or update resume.

### COMMUNICATION



Read **three** nonfiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		
3.		

Read **five** fiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		

Do **forty** articles in Achieve3000.

LEXILE MEASURE	DATE COMPLETED

Participate in **two** one-on-one conversations and **two** group discussions, and give **two** presentations.

TYPE	PROJECT TITLE	DATE COMPLETED
One-on-one conversation		
One-on-one conversation		
Group discussion		
Group discussion		
Presentation		
Presentation		

Demonstrate growth in the Communication Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Reading		
Writing		
Speaking and Listening		

Strive to be proficient or better in at least **six** Communication Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. WRITING: Argumentative		
2. WRITING: Informative		
3.		
4.		
5.		
6.		

### EMPIRICAL REASONING

Demonstrate growth in the Empirical Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Interpreting and analyzing		
Planning investigations		
Explain and improve		

Strive to be proficient or better in at least **five** Empirical Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		

### LEADERSHIP AND LIFE SKILLS

Demonstrate growth in the 21ST CENTURY ESSENTIAL SKILLS.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Creativity and Innovation		
Flexibility and Adaptability		
Initiative and Self-Direction		

Social and Cross-Cultural Skills		
Productivity and Accountability		
Leadership and Responsibility		

Strive to be **basic (80 hours total=Basic)** in all **six** PHYSICAL EDUCATION Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. Skill Development and Application		
2. Cognitive Understanding and Scientific Principles of Physical Activity		
3. Physical Activity and Lifestyle		
4. Physical Fitness		
5. Responsible Behavior		
6. Healthy Lifestyle, Self-Expression, and Social Interaction		

### QUANTITATIVE REASONING

Complete **two** semesters of ALEKS Math or the equivalent.

COURSE	DATE COMPLETED
1.	
2.	

### SOCIAL REASONING

Demonstrate growth in the Social Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Researching		
Interpreting and Analyzing Resources		
Applying Decision-Making Techniques		

Strive to be proficient or better in at least **five** Social Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. GEOGRAPHY: Using Atlases		
2. ECONOMICS: Technology and Global Interdependence		
3.		
4.		
5.		

Do a project related to the following content area.

CONTENT AREA	PROJECT TITLE	DATE COMPLETED
Global Interdependence and the Contemporary World		

### PHASE 3

E = Expert, P = Proficient, B = Basic, M = Minimal

#### ESSENTIAL TASKS

- Create or maintain Weebly portfolio.
- Take the STAR Reading and Math Assessments in the fall, winter, and spring.
- Take the Achieve3000 Level Set in the fall and spring.
- Exhibit projects in the Fall and Spring EA Showcases.
- Create or update resume.

- Complete ACT preparation and take ACT.
- Do at least **one** job shadow.
- Visit at least **one** college.

**COMMUNICATION**

Read **five** nonfiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		

Read **three** fiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		
3.		

Do **forty** articles in Achieve3000.

LEXILE MEASURE	DATE COMPLETED

Participate in **two** one-on-one conversations and **two** group discussions, and give **two** presentations.

TYPE	PROJECT TITLE	DATE COMPLETED
One-on-one conversation		
One-on-one conversation		
Group discussion		
Group discussion		
Presentation		

Presentation		
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Demonstrate growth in the Communication Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Reading		
Writing		
Speaking and Listening		

Strive to be proficient or better in at least **six** Communication Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. WRITING: Argumentative		
2. WRITING: Informative		
3.		
4.		
5.		
6.		

## EMPIRICAL REASONING

Demonstrate growth in the Empirical Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Interpreting and analyzing		
Planning investigations		
Explain and improve		

Strive to be proficient or better in at least **five** Empirical Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		

## LEADERSHIP AND LIFE SKILLS

Demonstrate growth in the 21ST CENTURY ESSENTIAL SKILLS.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Creativity and Innovation		
Flexibility and Adaptability		
Initiative and Self-Direction		
Social and Cross-Cultural Skills		
Productivity and Accountability		
Leadership and Responsibility		

Strive to be proficient or better **all five** HEALTH Learning Targets. Students must cover the following topics in Health: Nutrition, Alcohol and other Drugs, Mental Health, Relationships, and Sexually Transmitted Diseases and Infections.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. Communication		
2. Culture, Media, Technology		
3. Goal Setting and Decision Making		
4. Health Promotion		
5. Healthy Behaviors		

Strive to be **proficient (120 hours total=Proficient)** in all **six** PHYSICAL EDUCATION Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. Skill Development and Application		
2. Cognitive Understanding and Scientific Principles of Physical Activity		
3. Physical Activity and Lifestyle		
4. Physical Fitness		
5. Responsible Behavior		
6. Healthy Lifestyle, Self-Expression, and Social Interaction		

## QUANTITATIVE REASONING

Complete **two** semesters of ALEKS Math or the equivalent.

COURSE	DATE COMPLETED
1.	
2.	

## SOCIAL REASONING

Demonstrate growth in the Social Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Researching		
Interpreting and Analyzing Resources		
Applying Decision-Making Techniques		

Strive to be proficient or better in at least **five** Social Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		

## PHASE 4

E = Expert, P = Proficient, B = Basic, M = Minimal

### ESSENTIAL TASKS

- Create or maintain Weebly portfolio.
- Take the STAR Reading and Math Assessments in the fall, winter, and spring.
- Take the Achieve3000 Level Set in the fall and spring.
- Exhibit projects in the Fall and Spring EA Showcases.
- Complete college applications and attend financial aid meeting.
- Visit at least **one** college.



- Present Senior Defense for graduation.

## COMMUNICATION

Read **six** nonfiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		
6.		

Read **two** fiction books.

TITLE AND AUTHOR	EVIDENCE OF READING	DATE COMPLETED
1.		
2.		

Do **forty** articles in Achieve3000.

LEXILE MEASURE	DATE COMPLETED

Participate in **two** one-on-one conversations and **two** group discussions, and give **two** presentations.

TYPE	PROJECT TITLE	DATE COMPLETED
One-on-one conversation		
One-on-one conversation		
Group discussion		
Group discussion		
Presentation		

Presentation		
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Demonstrate growth in the Communication Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Reading		
Writing		
Speaking and Listening		

Strive to be proficient or better in at least **six** Communication Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1. WRITING: Argumentative		
2. WRITING: Informative		
3.		
4.		
5.		
6.		

## EMPIRICAL REASONING

Demonstrate growth in the Empirical Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Interpreting and analyzing		
Planning investigations		
Explain and improve		

Strive to be proficient or better in at least **four** Empirical Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1.		
2.		
3.		
4.		

## LEADERSHIP AND LIFE SKILLS

Demonstrate growth in the 21ST CENTURY ESSENTIAL SKILLS.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
1. Creativity and Innovation		
2. Flexibility and Adaptability		
3. Initiative and Self-Direction		
4. Social and Cross-Cultural Skills		
5. Productivity and Accountability		
6. Leadership and Responsibility		

## SOCIAL REASONING

Demonstrate growth in the Social Reasoning Essential Skills.

ESSENTIAL SKILL	PROJECT TITLE	DATE COMPLETED
Researching		
Interpreting and Analyzing Resources		
Applying Decision-Making Techniques		

Strive to be proficient or better in at least **five** Social Reasoning Learning Targets.

LEARNING TARGET	PROJECT TITLE	DATE COMPLETED
1.		
2.		
3.		
4.		
5.		

## GRADUATION PREPARATION

Complete the following requirements in preparation for graduation:

	POST SECONDARY SCHOOL	DATE COMPLETED
Weebly Portfolio		
Transcripts Submitted- <i>Parchment</i>		

College Counselor Visit		
FAFSA		
College Admissions Application		
Madison College-COMPASS test		