

Del Rio Middle School

Scope and Sequence

Lunar Travel Interdisciplinary Project

SCIENCE SCOPE AND SEQUENCE

3RD 6 WEEKS

Duration 4 weeks

Week 1: Introduce Newton's Laws of Motion.

Week 2: Build and launch paper rockets. Analyze and graph data (Write up).

Week 3: Discuss Space exploration and future plans and obstacles for lunar travel.

Week 4: Review essay question.

LANGUAGE ARTS SCOPE AND SEQUENCE

3RD 6 WEEKS

Duration 4 weeks

Week 1: Introduce background on Isaac Newton, Law of Motion, and Space Program/Vision for the future

Week 2: Research and present background information of different astronauts and the missions they completed.

Week 3: Research why we need to explore space, moon, Mars.

Have debates over why we need to go (purpose of the mission), what we should/should not take, how many go, duration of flight, necessary materials to sustain life during flight and lunar colonization

Week 4: Introduce essay question, pre-write, rough draft, edit, final copy (two week time period)

MATHEMATICS SCOPE AND SEQUENCE

3RD 6 WEEKS

Duration 4 weeks

Week 1: Irrational Numbers (square roots and perfect squares). Solving one and two-step equations.

Week 2: Pythagorean Theorem (explain how theorem relates to distance calculations)

Week 3: Mean, Median, and Mode. Utilize box and whisker graphs and bar graphs

Week 4: Integrate science data to explain and design graphs.

SOCIAL STUDIES SCOPE AND SEQUENCE

3rd Six WEEKS

Duration: 3 weeks

Week 1: Review reasons for colonization of the original 13 colonies

Week 2: Identify reasons why it was difficult to colonize America. Compare and Contrast colonizing America and the Moon.

Week 3: Students will show in graphic format the similarities and differences of colonizing Moon/America. Will show proficiency on test to be given

RESOURCES:

ROCETS AN EDUCATOR'S GUIDE

1,2,3, LIFTOFF

EXPLORING THE MOON

LIVING IN SPACE 1,2

OCTOBER SKY (VIDEO)

APOLLO 13 (VIDEO)

WHAT MAKES A WORLD HABITABLE?

WHAT CAN LIFE TOLERATE?

ALKA-SELTZER ROCKETS

SODA STRAW ROCKETS

APPLICABLE TEKS

SCIENCE:

8.2 Scientific processes. The student uses scientific inquiry methods during field and laboratory investigations. The student is expected to:

(A) plan and implement investigative procedures

(B) collect data by observing and measuring.

(C) organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence.

(D) communicate valid conclusions.

(E) construct graphs, tables, maps and charts using tools including computers to organize, examine, and evaluate data.

8.4 Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry.

(A) collect, record, and analyze information using tools....

8.7 Science concepts. The student knows that there is a relationship between force and motion.

(A) demonstrate how unbalanced forces cause changes in the speed and direction of an object's motion.

8.13 Science concepts. The student knows characteristics of the universe.

(A) describe characteristics of the universe such as stars and galaxies

MATH:

8.2: Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions.

(C) evaluate a solution for reasonableness.

8.4: Patterns, relationships, and algebraic thinking. The student makes connections among various representations of numerical relationships.

8.5: Patterns, relationships and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems.

(A) predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.

8.7: Geometry and spatial reasoning.

(C) use pictures or models to demonstrate the Pythagorean Theorem

8.9: Measurement. the student uses indirect measurement to solve problems.

(A) use the Pythagorean Theorem to solve real-life problems.

8.12: Probability and statistics. The student uses statistical procedures to describe data.

(A) select the appropriate measure of central tendency or range to describe a set of data and justify the choice for a particular situation.

(C) select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology.

LANGUAGE ARTS:

(1) Listening/speaking/purposes. The student listens actively and purposefully in a variety of settings. The student is expected to:

(A) determine the purposes for listening such as to gain information, to solve problems, or to enjoy and appreciate (4-8);

(B) eliminate barriers to effective listening (4-8);

(C) understand the major ideas and supporting evidence in spoken messages (4-8); and

(D) listen to learn by taking notes, organizing, and summarizing spoken ideas (6-8).

(2) Listening/speaking/critical listening. The student listens critically to analyze and evaluate a speaker's message(s). The student is expected to:

(A) interpret speakers' messages (both verbal and nonverbal), purposes, and perspectives (4-8);

(B) analyze a speaker's persuasive techniques and credibility (7-8);

(C) distinguish between the speaker's opinion and verifiable fact (4-8);

(D) monitor his/her own understanding of the spoken message and seek clarification as needed (4-8);

(E) compare his/her own perception of a spoken message with the perception of others (6-8); and

(F) evaluate a spoken message in terms of its content, credibility, and delivery (6-8).

3) Listening/speaking/appreciation. The student listens to enjoy and appreciate spoken language. The student is expected to:

(A) listen to proficient, fluent models of oral reading, including selections from classic and contemporary Works (4-8);

(B) analyze oral interpretations of literature for effects on the listener (6-8); and

(C) analyze the use of aesthetic language for its effects (6-8).

(4) Listening/speaking/culture. The student listens and speaks to gain and share knowledge of his/her own culture, the culture of others, and the common elements of cultures. The student is expected to:

(A) connect his/her own experiences, information, insights, and ideas with the experiences of others through speaking and listening (4-8);

(B) compare oral traditions across regions and cultures (4-8); and

(C) identify how language use such as labels and sayings reflects regions and cultures (4-8).

(5) Listening/speaking/audiences. The student speaks clearly and appropriately to different audiences for different purposes and occasions. The student is expected to:

(A) adapt spoken language such as word choice, diction, and usage to the audience, purpose, and occasion (4-8);

(B) demonstrate effective communications skills that reflect such demands as interviewing, reporting, requesting, and providing information (4-8);

(D) generate criteria to evaluate his/her own oral presentations and the presentations of others (6-8);

(E) use effective rate, volume, pitch, and tone for the audience and setting (4-8); and

(F) clarify and support spoken ideas with evidence, elaborations, and examples (4-8).

6) Reading/word identification. The student uses a variety of word recognition strategies. The student is expected to:

(A) apply knowledge of letter-sound correspondences, language structure, and context to recognize words (4-8);

(B) use structural analysis to identify words, including knowledge of Greek and Latin roots and prefixes/suffixes (7-8); and

(C) locate the meanings, pronunciations, and derivations of unfamiliar words using dictionaries, glossaries, and other sources (4-8).

(7) Reading/fluency. The student reads with fluency and understanding in texts at appropriate difficulty levels. The student is expected to:

(A) read regularly in independent-level materials (texts in which approximately no more than 1 in 20 words is difficult for the reader) (8);

(B) read regularly in instructional-level materials that are challenging but manageable (texts in which no more than approximately 1 in 10 words is difficult for the reader) (8);

(C) adjust reading rate based on purposes for reading (4-8);

(D) read aloud in selected texts in ways that both reflect understanding of the text and engage the listeners (4-8); and

(E) read silently with increasing ease for longer periods (4-8).

(8) Reading/variety of texts. The student reads widely for different purposes in varied sources. The student is expected to:

(B) select varied sources such as plays, anthologies, novels, textbooks, poetry, newspapers, manuals, and electronic texts when reading for information or pleasure (6-8);

(C) read for varied purposes such as to be informed, to be entertained, to appreciate the writer's craft, and to discover models for his/her own writing (4-8); and

(D) read to take action such as to complete forms, to make informed recommendations, and write a response (6-8).

(9) Reading/vocabulary development. The student acquires an extensive vocabulary through reading and systematic word study. The student is expected to:

(A) develop vocabulary by listening to selections read aloud (4-8);

(B) draw on experiences to bring meanings to words in context such as interpreting idioms, multiple-meaning words, and analogies (6-8);

(C) use multiple reference aids, including a thesaurus, a synonym finder, a dictionary, and software, to clarify meanings and usage (4-8);

(D) determine meanings of derivatives by applying knowledge of the meanings of root words such as like, pay, or happy and affixes such as dis-, pre-, or un- (4-8);

(E) study word meanings systematically such as across curricular content areas and through current events (4-8);

(F) distinguish denotative and connotative meanings (6-8); and

(G) use word origins as an aid to understanding historical influences on English word meanings (6-8).

(10) Reading/comprehension. The student comprehends selections using a variety of strategies. The student is expected to:

(A) use his/her own knowledge and experience to comprehend (4-8);

(B) establish and adjust purposes for reading such as reading to find out, to understand, to interpret, to enjoy, and to solve problems (4-8);

(C) monitor his/her own comprehension and make modifications when understanding breaks down such as by rereading a portion aloud, using reference aids, searching for clues, and asking questions (4-8);

(E) use the text's structure or progression of ideas such as cause and effect or chronology to locate and recall information (4-8);

(F) determine a text's main (or major) ideas and how those ideas are supported with details (4-8);

(G) paraphrase and summarize text to recall, inform, or organize ideas (4-8);

(H) draw inferences such as conclusions or generalizations and support them with text evidence and experience (4-8);

(I) find similarities and differences across texts such as in treatment, scope, or organization (4-8);

(J) distinguish fact and opinion in various texts (4-8);

(K) answer different types and levels of questions such as open-ended, literal, and interpretive as well as test-like questions such as multiple choice, true-false, and short answer (4-8);

(L) represent text information in different ways such as in outline, timeline, or graphic organizer (4-8); and

(M) use study strategies to learn and recall important ideas from texts such as preview, question, reread, and record (6-8).

(11) Reading/literary response. The student expresses and supports responses to various types of texts. The student is expected to:

(A) offer observations, make connections, react, speculate, interpret, and raise questions in response to texts (4-8);

(B) interpret text ideas through such varied means as journal writing, discussion, enactment, and media (4-8);

(C) support responses by referring to relevant aspects of text and his/her own experiences (4-8); and

(D) connect, compare, and contrast ideas, themes, and issues across text (4-8).

(12) Reading/text structure/literary concepts. The student analyzes the characteristics of various types of texts (genres). The student is expected to:

(A) identify the purposes of different types of texts such as to inform, influence, express, or entertain (4-8);

(13) Reading/inquiry/research. The student inquires and conducts research using a variety of sources. The student is expected to:

(A) form and revise questions for investigations, including questions arising from readings, assignments, and units of study (6-8);

(B) use text organizers, including headings, graphic features, and tables of contents, to locate and organize information (4-8);

(C) use multiple sources, including electronic texts, experts, and print resources, to locate information relevant to research questions (4-8);

(D) interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions (4-8);

(E) summarize record and organize information from multiple sources by taking notes, outlining ideas, and making charts (4-8);

(F) produce research projects and reports in effective formats for various audiences (6-8);

(G) draw conclusions from information gathered from multiple sources (4-8);

(H) use compiled information and knowledge to raise additional, unanswered questions (3-8); and

(I) present organized statements, reports, and speeches using visuals or media to support meaning (6-8).

(15) Writing/purposes. The student writes for a variety of audiences and purposes and in a variety of forms. The student is expected to:

(A) write to express, discover record, develop, reflect on ideas, and to problem solve (4-8);

(B) write to influence such as to persuade, argue, and request (4-8);

(C) write to inform such as to explain, describe, report, and narrate (4-8);

(E) select and use voice and style appropriate to audience and purpose (6-8);

(F) choose the appropriate form for his/her own purpose for writing, including journals, letters, editorials, reviews, poems, memoirs, narratives, and instructions (7-8);

(H) produce cohesive and coherent written texts by organizing ideas, using effective transitions, and choosing precise wording (6-8).

(16) Writing/penmanship/capitalization/punctuation/spelling. The student composes original texts, applying the conventions of written language such as capitalization, punctuation, penmanship, and spelling to communicate clearly. The student is expected to:

(A) write legibly by selecting cursive or manuscript as appropriate (4-8);

(B) capitalize and punctuate correctly to clarify and enhance meaning such as capitalizing titles, using hyphens, semicolons, colons, possessives, and sentence punctuation (6-8);

- (C) spell derivatives correctly by applying the spellings of bases and affixes (7-8);**
- (D) spell frequently misspelled words correctly such as their, they're, and there (7-8);**
- (E) use resources to find correct spellings (4-8);**
- (F) spell accurately in final drafts (4-8); and**
- (G) understand the influence of other languages and cultures on the spelling of English words (6-8).**

(17) Writing/grammar/usage. The student applies standard grammar and usage to communicate clearly and effectively in writing. The student is expected to:

- (A) write in complete sentences, varying the types such as compound and complex sentences, and use appropriately punctuated independent and dependent clauses (7-8);**
- (B) use conjunctions to connect ideas meaningfully (4-8);**
- (C) employ standard English usage in writing for audiences, including subject-verb agreement, pronoun referents, and parts of speech (4-8);**
- (D) use adjectives (comparatives and superlative forms) and adverbs appropriately to make writing vivid or precise (4-8);**
- (E) use prepositional phrases to elaborate written ideas (4-8);**
- (F) use verb tenses appropriately and consistently such as present, past, future, perfect, and progressive (6-8);**
- (G) write with increasing accuracy when using apostrophes in contractions such as doesn't and possessives such as Texas's (4-8); and**
- (H) write with increasing accuracy when using pronoun case such as "She stepped between them and us." (6-8).**

(18) Writing/processes. The student selects and uses writing processes for self-initiated and assigned writing. The student is expected to:

- (A) generate ideas and plans for writing by using prewriting strategies such as brainstorming, graphic organizers, notes, and logs (4-8);**
- (B) develop drafts by categorizing ideas, organizing them into paragraphs, and blending paragraphs within larger units of text (4-8);**
- (C) revise selected drafts by adding, elaborating, deleting, combining, and rearranging text (4-8);**
- (D) revise drafts for coherence, progression, and logical support of ideas (4-8);**

(E) edit drafts for specific purposes such as to ensure standard usage, varied sentence structure, and appropriate word choice (4-8);

(F) use available technology to support aspects of creating, revising, editing, and publishing texts (4-8);

(G) refine selected pieces frequently to "publish" for general and specific audiences (4-8);

(H) proofread his/her own writing and that of others (4-8); and

(I) select and use reference materials and resources as needed for writing, revising, and editing final drafts (4-8).

(19) Writing/evaluation. The student evaluates his/her own writing and the writings of others. The student is expected to:

(A) apply criteria to evaluate writing (4-8);

(B) respond in constructive ways to others' writings (4-8);

(C) evaluate how well his/her own writing achieves its purposes (4-8);

(D) analyze published examples as models for writing (4-8); and

(E) review a collection of written works to determine its strengths and weaknesses and to set goals as a writer (4-8).

(20) Writing/inquiry/research. The student uses writing as a tool for learning and research. The student is expected to:

(A) frame questions to direct research (4-8);

(B) organize prior knowledge about a topic in a variety of ways such as by producing a graphic organizer (4-8);

(C) take notes from relevant and authoritative sources such as guest speakers, periodicals, and on-line searches (4-8);

(D) summarize and organize ideas gained from multiple sources in useful ways such as outlines, conceptual maps, learning logs, and timelines (4-8);

(E) present information in various forms using available technology (4-8);

(F) evaluate his/her own research and frame new questions for further investigation (4-8); and

(G) follow accepted formats for writing research, including documenting sources (6-8).

(22) Viewing/representing/interpretation. The student understands and interprets visual images, messages, and meanings. The student is expected to:

(A) describe how illustrators' choice of style, elements, and media help to represent or extend the text's meanings (4-8);

(B) interpret important events and ideas gathered from maps, charts, graphics, video segments, or technology presentations (4-8); and

(C) use media to compare ideas and points of view (4-8).

SOCIAL STUDIES:

8.2) History. The student understands the causes of exploration and colonization eras. The student is expected to:

(A) identify reasons for European exploration and colonization of North America; and

(B) compare political, economic, and social reasons for establishment of the 13 colonies.

(8.6)History. The student understands westward expansion and its effects on the political, economic, and social development of the nation. The

(B) explain the political, economic, and social roots of Manifest Destiny.

(C) analyze the relationship between the concept of Manifest Destiny and the westward growth of the nation;

(8.10) Geography. The student uses geographic tool to collect, analyze, and interpret data. The

(A) create thematic maps, graphs, charts, models and databases representing various aspects of the United States; and

(B) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, models, and databases.

(8.11) Geography. The student understands the location and characteristics of places and regions of the United States, past and present. The student

(B) compare places and regions of the United States in terms of physical and human characteristics; and

(8.28) Science, technology, and society. The student understands the impact of science and technology of the economic development of the United States. The

(B) analyze the impact of transportation systems on the growth, development, and urbanization of the United States;

(C) analyze how technological innovations change the way goods were manufactured and marketed, nationally and internationally; and

(D) explain how technological innovations led to rapid industrialization.

(8.29) Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on daily life in the

(A) compare the effects of scientific discoveries and technological innovations that have influenced daily life in different periods in U.S. history;

(B) describe how scientific ideas influenced technological developments during different periods in U.S. history; and

(C) identify examples of how industrialization changed life in the United States.