

Grade 4 Task Summaries

Grade 4 Science Unit

Enigmas

Enigmas is a science unit that allows students to study a naturally occurring enigma—an unsolved mystery—using scientific research methods. Each student will have an opportunity to explore in depth an enigma and develop a hypothesis as to the solution of his/her chosen mystery.

Phase I. Learning Experiences

Students will use a scientific research process in their exploration:

- Develop the essential skills of logical thinking, creative problem solving, intellectual risk taking, and communicating
- Make connections across disciplines
- Identify an enigma and how it manifests itself
- Investigate theories about the cause of the enigma
- Hypothesize the cause of the enigma
- Design an experiment to test the hypothesis
- Carry out the experiment
- Keep records and document progress
- Draw conclusions and refine hypotheses
- Share results

Phase II. Final Product

Each student will develop a final product to illustrate his/her learning about the enigma. The student develops either a board game or a learning center for younger students and presents the product to the class.

The student's completed project will consist of various components:

- a. The cover sheet
- b. Attachment #4—Enigmas Proposal
- c. Evidence of research (log, note cards, and/or resource process sheets)
- d. Attachment #6—Experiment Organizer
- e. Attachment #7 or #8, including references
- f. Videotape or audiotape of presentation, including the Q&A session

Grade 4 English Language Arts Unit

The Gift of Age

The Gift of Age is an English language arts unit that allows students to explore the reality of the process of aging, using research and interviewing methods. This project generates an understanding of older persons in our communities. It promotes mutual understanding among young and old individuals as they interact to learn more about themselves and others.

Phase I. Learning Experiences

Students will meet these goals in their exploration:

- Gain an awareness of the similarities and differences between generations
- Use research methods to investigate various historical periods and analyze the events of those periods
- Become familiar with resources within the community—local libraries; the historical society; museums; town hall; and archival resources, such as back issues of local newspapers and city directories—and what these resources offer
- Read a variety of genres to acquire information and understanding of past events
- Identify issues and problems related to an aging society
- Produce innovative products that reflect their findings

Phase II. Final Product

Each student will develop a written or visual product, such as an essay, scrapbook, biography, photograph album, bio poem, a timeline of historical events as they apply to their interviewee's life, fashions and fads of the person's lifetime, or a museum exhibit of the times during which their interviewee(s) lived. Each student will present the product to the class, sharing key learning and insights gained.

The student's completed project will consist of various components:

- a. The cover sheet
- b. Research proposal
- c. Research log, note cards, and/or resource process sheets
- d. The product, including references or works cited
- e. A videotape or audiotape of the class presentation, including the Q&A session

Grade 4 Social Studies/Science Unit

Innovation Celebration

Innovation Celebration is an interdisciplinary unit that allows students to investigate the process of innovative thinking and to examine why society calls for certain inventions at certain times. Students will gain an understanding of the process of innovation. An innovation is something new that can be tangible, like an invention, or intangible, like an idea. Students will develop an understanding of contributions individuals have made to society and of the impact of these contributions over time. By studying and “interacting” with famous inventors, scientists, thinkers, and philosophers, students will celebrate the spirit of innovation. They will also learn scientific and historical research and development processes. Students will see that the following elements are essential to innovation: a persistent and curious individual, a need or wish for the innovation, research processes, and a creative idea.

Phase I. Learning Experiences

Students will meet these goals in their exploration:

- Develop the essential skills of logical thinking, creative problem solving, intellectual risk taking, and communication
- Make connections across disciplines
- Identify a need
- Create an original idea or object that satisfies a need or addresses a problem
- Investigate whether or not the innovation already exists
- Test the innovation, make modifications, and draw conclusions
- Keep records and document progress
- Relate scientific methods to real life, including ethics
- Identify criteria for an innovation and tell how the innovation meets them
- Generalize about innovators and the creative process

Phase II. Final Product

Each student will complete either the design brief on his/her own invention or a description of his/her innovation. Then, each student will present to the class an advertisement for his/her invention or a formal proposal for an innovation. The class may hold an Innovation Celebration in which each student demonstrates his/her invention/innovation to others in the school or community.

The student’s completed project will consist of various components:

- a. The cover sheet
- b. Attachment #6—Innovator’s Journal, with five entries
- c. Attachment #7 or #8—Invention Design Brief or Innovation Description
- d. Videotape or audiotape of advertisement or proposal, including the Q&A session

Grade 4 Mathematics Unit

Math Around Town

Math Around Town is a mathematics unit that allows students to discover the uses of math in the real world, using interviews with professionals who need math skills for their jobs.

Phase I. Learning Experiences

Using the book, *The Math Curse*, by Jon Scieszka and Lane Smith, as a basis, students will meet these goals:

- Create a set of examples of ways in which math is used in students' lives in and outside of school
- Investigate ways in which professionals use math in their work
- Create problems that illustrate how professionals use math concepts in real problem situations

Phase II. Final Product

Each student will conduct and audiotape or videotape a job interview that includes the role of mathematics in the career they studied. The student must also create a board game or a learning center for another grade level that shows how at least five mathematical skill areas are used in a particular career.

The student's completed project will consist of various components:

- a. The cover sheet
- b. Attachment #7—Interview Questions & Answers
- c. Attachment #8—Job-related Math Skills
- d. Attachment #9—Interview Math Problems
- e. Product—Attachment #13 or #14
- f. Audiotape or videotape of job interview, including the Q&A session

Grade 4 Social Studies Unit

We Are Texans

We Are Texans is a social studies unit that allows students to study the differences between their own communities and other communities, researching what it would be like to live in other places. This project generates a deeper understanding of population groups that settled Texas.

Phase 1. Learning Experiences

In this study, students will meet these goals in their explorations:

- Demonstrate deep knowledge of regional, physical, cultural, and political geography
- Analyze how landforms contributed to settlement patterns in Texas
- Make generalizations about how culture is affected by its geography and immigration patterns
- Conduct research and draw conclusions

Phase II. Final Product.

Each student will create a museum display illustrating the contributions of the group of immigrants to Texas. The museum display should have at least ten items in it, including, but not limited to, photographs, symbolic objects, audiotapes, videotapes, documents. The student will assume the role of a docent who is explaining the display to a group of fourth graders who are visiting the museum.

The student's completed project will consist of various components:

- a. The cover sheet
- b. A research proposal, including guiding questions
- c. A research log, notes, or resource process sheets
- d. Final Product: Museum Display, including references
- e. A videotape or audiotape of the docent's talk, including the Q&A session

Fourth Grade Open-ended Unit
Opening Doors

In this task, teachers provide TEKS connections and learning experiences. Additionally, teachers and students should work together to ensure that the research process, final product, and oral communication are designed to provide students with the breadth and depth necessary to demonstrate the dimensions assessed in the scoring guide.

The student's completed project will consist of various components:

- a. The cover sheet
- b. A research proposal, including guiding questions
- c. A research log, notes, or resources process sheets
- d. The product
- e. A works-cited page with at least ten references
- f. Notes for the presentation
- g. A videotape or audiotape of the oral presentation, of no more than fifteen minutes, including the Q&A session