Assignment #4 notes

Students need to imagine that they are a member of the space colony and to write a journal entry about a typical day. Once again, the main purpose of this assignment is to keep students thinking about and working on their projects. By the time the journal entry is assigned, the students are usually between 3-4 weeks into the project.

Teachers should use their own judgment when grading this assignment, specifically the weighting of different criteria such as creativity, length, grammar, punctuation, spelling and completeness.

Astronomy Project Assignment #4:
Journal Entry

Imagine that you are one of the people living in your space colony. Write a one page journal entry about your day. This may be in the form of a diary entry, a captain’s log or a professional report. It may be handwritten or typed.

Here are some questions to think about as you do this assignment:

• What is a typical day like?
• What did you do today?
• What are your responsibilities at the colony?
• Who are some of the other people there?
• How do you feel about living there?
• What are some of the difficulties you have to put up with because of your unique living situation?

This assignment is due _______________.
Appendix

Standards Addressed

Benchmarks (Grades 3 through 5)

1C – The Scientific Enterprise

Science is an adventure that people everywhere can take part in, as they have for many centuries.

Clear communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world.

Doing science involves many different kinds of work and engages men and women of all ages and backgrounds.

3B – Design and Systems

There is no perfect design. Designs that are best in one respect (safety or ease of use, for example) may be inferior in other ways (cost or appearance). Usually some features must be sacrificed to get others. How such trade-offs are received depends upon which features are emphasized and which are down-played.

Benchmarks (Grades 6 through 8)

1B – Scientific Inquiry

Scientists differ greatly in what phenomena they study and how they go about their work. Although there is no fixed set of steps that all scientists follow, scientific investigations usually involve the collection of relevant evidence, the use of logical reasoning, and the application of imagination in devising hypotheses and explanations to make sense of the collected evidence.

1C – The Scientific Enterprise

Scientists are employed by colleges and universities, business and industry, hospitals, and many government agencies. Their places of work include offices, classrooms, laboratories, farms, factories, and natural field settings ranging from space to the ocean floor.

3A – Technology and Science

Engineers, architects, and others who engage in design and technology use scientific knowledge to solve practical problems. But they usually have to take human values and limitations into account as well.

3B – Design and Systems

All technologies have effects other than those intended by the design, some of which may have been predictable and some not. In either case, these side effects may turn out to be unacceptable to some of the population and therefore lead to conflict between groups.
Almost all control systems have inputs, outputs, and feedback. The essence of control is comparing information about what is happening to what people want to happen and then making appropriate adjustments. This procedure requires sensing information, processing it, and making changes. In almost all modern machines, microprocessors serve as centers of performance control.

3C – Issues in Technology
The human ability to shape the future comes from a capacity for generating knowledge and developing new technologies—and for communicating ideas to others.

New technologies increase some risks and decrease others. Some of the same technologies that have improved the length and quality of life for many people have also brought new risks.

5E – Flow of Matter and Energy
Food provides molecules that serve as fuel and building material for all organisms. Plants use the energy in light to make sugars out of carbon dioxide and water. This food can be used immediately for fuel or materials or it may be stored for later use. Organisms that eat plants break down the plant structures to produce the materials and energy they need to survive. Then they are consumed by other organisms.

8B – Materials and Manufacturing
Automation, including the use of robots, has changed the nature of work in most fields, including manufacturing. As a result, high-skill, high-knowledge jobs in engineering, computer programming, quality control, supervision, and maintenance are replacing many routine, manual-labor jobs. Workers therefore need better learning skills and flexibility to take on new and rapidly changing jobs.

Benchmarks (Grades 9 through 12)
3A – Technology and Science
Mathematics, creativity, logic and originality are all needed to improve technology.

Technology usually affects society more directly than science because it solves practical problems and serves human needs (and may create new problems and needs). In contrast, science affects society mainly by stimulating and satisfying people's curiosity and occasionally by enlarging or challenging their views of what the world is like.

3B – Design and Systems
Complex systems have layers of controls. Some controls operate particular parts of the system and some control other controls. Even fully automatic systems require human control at some point.

3C – Issues in Technology
Human inventiveness has brought new risks as well as improvements to human existence.
National Standards (Grades 5-8)
Understandings about Science and Technology
Many different people in different cultures have made and continue to make contributions to science and technology.

Science and Technology in Society
Technology influences society through its products and processes. Technology influences the quality of life and the ways people act and interact. Technological changes are often accompanied by social, political, and economic changes that can be beneficial or detrimental to individuals and to society. Social needs, attitudes, and values influence the direction of technological development.

Scientists and engineers work in many different settings, including colleges and universities, businesses and industries, specific research institutes, and government agencies.

Science as Human Endeavor
Women and men of various social and ethnic backgrounds--and with diverse interests, talents, qualities, and motivations--engage in the activities of science, engineering, and related fields such as the health professions. Some scientists work in teams, and some work alone, but all communicate extensively with others.

Science requires different abilities, depending on such factors as the field of study and type of inquiry. Science is very much a human endeavor, and the work of science relies on basic human qualities, such as reasoning, insight, energy, skill, and creativity--as well as on scientific habits of mind, such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.

National Standards (Grades 9-12)
Understandings about Scientific Inquiry
Scientists conduct investigations for a wide variety of reasons. For example, they may wish to discover new aspects of the natural world, explain recently observed phenomena, or test the conclusions of prior investigations or the predictions of current theories.

Science as a Human Endeavor
Individuals and teams have contributed and will continue to contribute to the scientific enterprise. Doing science or engineering can be as simple as an individual conducting field studies or as complex as hundreds of people working on a major scientific question or technological problem. Pursuing science as a career or as a hobby can be both fascinating and intellectually rewarding.

Indiana Standards
Grade 5
   English/Language Arts – Writing: Process
5.4.2 – Write stories with multiple paragraphs that develop a situation or plot, describe the setting, and include an ending.
Writing: Applications
5.5.5 – Use varied word choices to make writing interesting.

5.5.6 – Write for different purposes and to a specific audience or person, adjusting tone and style as appropriate.

Science – The Nature of Science and Technology
5.1.3 – Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.

Models and Scale
5.6.2 – Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Grade 6

English/Language Arts – Writing: Process
6.4.3 Write informational pieces of several paragraphs that:
- engage the interest of the reader.
- state a clear purpose.
- develop the topic with supporting details and precise language.
- conclude with a detailed summary linked to the purpose of the composition.

Writing: Writing Applications
6.5.1 – Write narratives that:
- establish and develop a plot and setting and present a point of view that is appropriate to the stories.
- include sensory details and clear language to develop plot and character.
- use a range of narrative devices, such as dialogue or suspense.

6.5.7 – Write for different purposes and to a specific audience or person, adjusting tone and style as necessary.

Science – The Nature of Science and Technology
6.1.5 – Identify places where scientists work, including offices, classrooms, laboratories, farms, factories, and natural field settings ranging from space to the ocean floor.

Grade 7

Writing: Writing Applications
7.5.6 – Use varied word choices to make writing interesting and more precise.

Science – The Nature of Science and Technology
7.1.7 – Explain how engineers, architects, and others who engage in design and technology use scientific knowledge to solve practical problems.

Grade 8

**English/Language Arts** – Writing: Writing Applications

8.5.1 – Write biographies, autobiographies, and short stories that:
- tell about an incident, event, or situation, using well-chosen details.
- reveal the significance of, or the writer’s attitude about, the subject.
- use narrative and descriptive strategies, including relevant dialogue, specific action, physical description, background description, and comparison or contrast of characters.

8.5.6 – Write using precise word choices to make writing interesting and exact.

8.5.7 – Write for different purposes and to a specific audience or person, adjusting tone and style as necessary.

**Science** – The Nature of Science and Technology

8.1.8 – Explain that humans help shape the future by generating knowledge, developing new technologies, and communicating ideas to others.