Appendix E

Cross Content Integration

6-8

LITERACY IN THE CONTENT AREA

In accordance with the Common Core State Standards for content area literacy integration, reading and writing will remain a primary focus of instruction in social studies and science.

Students will keep a "writing log" for science and social studies. This is a composition notebook that is used at the very beginning of each period as part of a very brief "Do Now" in which students may summarize the key points from the previous day's lesson or extend the content beyond the scope of the lesson. These written summaries will be reviewed to assess content knowledge and writing skills.

The ACE Strategy will be taught throughout the middle school grades in language arts and content area classes to provide a consistent reference for students to use in planning and developing open-ended written responses. An open-ended scoring rubric will also be used consistently to formatively assess student achievement toward improvement. Open-ended response prompts will be administered once quarterly, at minimum, in science and social studies to assess content knowledge and writing skills.

Answer the question as written (restate question).
Cite at least three specific examples from the text to support your answer.
Explain how your answer and examples fit together (sum it up).

Science/ELA Companion Standards:

Grade 6 Science

WHST 6-8.2 RST 6-8.1, 6-8.6, 6-8.8 **Gravitational Tides:**
How does gravity impact tides? What effect do the positions of the moon and the sun have during a spring or neap tide? Write an essay that explains the impact of gravity on tides that uses evidence from a variety of credible sources.

WHST 6-8.2 RST 6-8.2, 6-8.5 **Drought-The Dust Bowl:**
The Dust Bowl was an environmental disaster with dire consequences for many Americans at the time. Write an essay that explains The Dust Bowl in the 1930s including characteristics, causes and means by which the event could have been prevented. Use details and evidence from your research to develop the topic. Include text features, such as bold, classification, captions, graphics and headings.

WHST 6-8.1, RST 6-8.3 -8.4,8.7 **Continental Drift vs. Plate Tectonics:**
The theory of continental drift introduced by Alfred Wegener in the early 1900's was not widely accepted until 1960. Wegener's theory was later developed into *The Theory of Plate Tectonics*. Compare and contrast both theories looking at the relationship between the two. Compose an argument in the form of an essay that defends Wegener's claim about continental drift based on your analysis of each theory. What parts of Wegener's theory are also parts of the Theory of Plate Tectonics? Use evidence from your analysis to defend your claim.

WHST 6-8.1-8.2, RST 6-8.1, 6-8.3, 6-8.8, 6-8.9 **Pyramid of Energy:**
What is the process of energy flow from the sun through tertiary consumers? Based on your background knowledge and evidence from your research about the energy pyramid, could an ecosystem survive when inverted? In an essay, explain the flow of energy in the pyramid. Explain the effects of inverting the ecosystem.
Defend your position related to ecosystem survival. Use research and credible evidence to support your claim and opinion.

Grade 7 Science

WHST 6-8.2, RST 6-8.1, 6-8.3, 6-8.8, 6-8.9 **Physics-Force & Motion:**
How does the motion of an object depend on the total sum of forces on the object? Read the personal narrative of the experiment. How do the sum of forces affect the rates at which the

feather and bowling ball fall? Cite examples from the readings to support your claim. Plan an investigation that will provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. Write an explanatory essay using evidence from each text.

WHST 6-8.2, RST 6-8.1, 6-8.4, 6-8.7 **Physics-Kinetic Energy:**
Utilizing the text as your primary source, analyze the information presented on the transfer of kinetic energy and the mass and speed of an object. Interpret various graphical displays of data describing the relationships between kinetic energy to the mass of an object and to the speed of an object. Write an essay that explains kinetic energy and compares and contrasts the relationships between kinetic energy, speed and mass. Cite specific examples from the text and use data from the graphics and charts.

WHST 6-8.2, RST 6-8.2, 6-8.5 **Matter & Synthetic Materials:**
How do materials created from natural resources impact society? Analyze the effects of using these materials. Using research from a variety of credible sources, create an informational brochure that describes synthetic materials that come from natural resources and their ultimate impact on society. Create a well-designed informational brochure on one synthetic material and its impact on the world. Make sure to include positive and negative factors. (Include features of non-fiction text such as: headings, bold, charts, graphics)

WHST 6-8.1, RST 6-8.3, 6-8.5, 6-8.7, 6-8.10 **Populations & Ecosystems:**
Using the text as your primary source, read and analyze factors that affect animal populations. Based on your research, form an opinion on how ecosystems affect the populations that exist within the ecosystem. Construct an argument in the form of an essay that is supported by valid and credible evidence that defends the claim that a change to this physical or biological component of an ecosystem will affect its populations. Make sure to use relevant vocabulary and create a clear and coherent position on which factor is the most important.

Grade 8 Science

WHST 6-8.2, RST 6-8.3, 6-8.4, 6-8.7 **Water on Earth:**
One way in which NJ residents could help control the mosquito population is to eliminate or decrease the amount of standing water around their homes. Using evidence from one or more credible sources, explain why this procedure might be effective to reduce the mosquito population? Be sure to explain how this evidence supports your claim.

WHST 6-8.2, RST 6-8.1, 6-8.2, 6-8.8, 6-8.9 **Weather:**
Explain both the greenhouse effect and the theory of global warming. Do you believe there is a relationship between the greenhouse effect and global warming? Use at least three sources of evidence to support your claim. What impact, if any, does global warming have on your life? Be sure to include at least two relevant examples from your personal experience. What impact do these two things have on your life? Write an explanatory essay that uses fact, details and examples to explain each theory and their relationship to each other.

WHST 6-8.1-8.2, RST 6-8.2, 6-8.8 **Sound & Light:**
A.) What is infrared light? In an explanatory essay that uses facts, details and examples from a variety of credible sources, explain how infrared light can be useful to humans providing at least 3 examples.
B.) Cell phones have become an integral part of daily life for a majority of people. They are very useful but may pose some physical dangers to users. Are cell phones dangerous? Based on your research, compose an argument that defends your opinion on this issue. Use at least

three pieces of evidence collected from your research and the Socratic Seminar to support your claim. Be sure to identify the specific sources for the underlying research.

HIGHER ORDER THINKING
Sample HOT questions

Life Science:

1. Why are cells known as the building blocks of nature?
2. What evidence do we have that all organisms come from common ancestors?
3. How does energy from the sun makes its way to the muscle cells in a person's body?
4. How can we use nature's designs to help us solve humans' problems?
5. How does the genetic code influence the characteristics of living things?

Earth Science:

1. How might you classify a box of mixed rocks into small rock groups?
2. Describe the surface of the Earth if there were no process of erosion.
3. Why is it so difficult to find rocks as old as the Earth?
4. Recall that a system is a combination of interdependent parts. Explain how the parts of our solar system interact and are independent.
5. How does Milltown's location impact its weather?
6. How does human action contribute to global warming?

Physical Science:

1. Describe the process you could use to determine the identity of an unknown substance.
2. Design an experiment to test Newton's 3rd Law of Motion.
3. How does friction impact our daily lives?
4. How do static electricity, gravity and magnetism demonstrate that forces can act on objects at a distance from each other?
5. Explain how an object's density will determine whether or not that object will sink or float in water?
6. How can energy be transferred from one object or system to another?

General Science and Technology:

1. Think of one important tool or object that you use in your daily life and describe your life without that object.
2. Imagine yourself on the team of explorers to Mars. What sort of problems will you have to solve before you can safely live on Mars for an extended period?

How will you develop solutions to those problems and then test your solutions?

3. How would you improve an alarm clock?

4. What is a cell phone a perfect emblem for STEM?

TECHNOLOGY INTEGRATION

Programs below are used in addition to activities outlined at each grade level in the cross-curricular integration tables that follow.

Book Flix, web-based, Scholastic
BrainPOP and *BrainPOP, Jr.*, web-based
Earobics, software, Cognitive Concepts
Google Platform
IXL
Flocabulary
MyON
Noodletools, web-based
Scholastic

CROSS-CURRICULAR INTEGRATION WITH LANGUAGE ARTS Standard 3				
	Math **Standard 4**	**Science** **Standard 5**	**Social Studies** **Standard 6**	**Technology** **Standard 8**
6	Sequence events RR: Reading and sequencing a recipe	Writing prompt about the seasons RR: Stories about magic and chemistry	Writing prompt: "If I were president…" RR: Learn about the Holocaust and *Jacob's Rescue*	Use the computer for researching and publishing RR: Use of computers to type stories
7	Compare and Contrast Analogies Mathematical word problems related to the Holocaust Use problem solving related to optical illusions and solving mysteries RR: Word problems	Study weather patterns based on novel setting Study pros/cons of scientific issues and debate RR: Review key concepts from science instruction and have students explain in writing	Holocaust unit Famous poets and writers from various historical periods Studying pros/cons of historical issues and debate Research time period related to WWII Discuss setting relating to culture and geography RR: Learn about the Holocaust and *Devil's Arithmetic*	Use the internet to compile sources for research Type final drafts of essays Incorporate Prezi, Wordle, and Tagxedo within presentations RR: Use of computers to type stories
8				

RR: Resource Room

CROSS-CURRICULAR INTEGRATION WITH LANGUAGE ARTS Standard 3					
	Music Standard 1	**Art Standard 1**	**Physical Education Standard 2**	**World Language Standard 7**	**Career Education Standard 9**
6	Write poetry and relate to songs RR: Write a rap song	Illustrate personal stories RR: Interpret and analyze a picture and write about it	Conflict resolution prompt RR: Read about sports figures	Compare proper pronouns and possessives in English to other languages RR: Proper nouns of countries	Writing prompt: "Where do you see yourself in 10 years?" RR: Journal entries about careers
7	Pneumonic devices Sing songs related to grammar rules Analyze and interpret song lyrics Compare and contrast song lyrics to poetry Write poetry to music Include music to enhance lessons, i.e. Harlem Renaissance RR: Write a rap song	Interpret art from various time periods Draw pictures of visualizations based on reading descriptions Illustrate chapter titles that are missing Utilize arts forms depicting novel themes RR: Interpret and analyze a picture and write about it	From Cay novel, students ID items in bag without looking to relate to blindness Act out readers' theater plays Write and act out scripts Incorporate presentation skills and exercises for presentations RR: Read about sports figures	Read multicultural short stories with Spanish language integrated and discuss meaning Visualize and research various cultures and significant time periods in the history of various countries RR: Proper nouns of countries	Write journal entries on setting goals and managing time Listening exercises Note-taking skills Organize Career Fair RR: Journal entries about careers

RR: Resource Room

New Jersey Student Learning Standards for English Language Arts Companion Standards		
Astronomy	**Force & Motion**	**Waves and Electromagnetic Radiation**
NJSLS-ELA-RST.6-8.1 NJSLS-ELA-RST.6-8.6 NJSLS-ELA-RST.6-8.8	NJSLS-ELA-RST.6-8.3 NJSLS-ELA-RST.6-8.1 NJSLS-ELA-RST.6-8.9 NJSLS-ELA-RST.6-8.8	NJSLS-ELA-RST.6-8.1 NJSLS-ELA-RST.6-8.2 NJSLS-ELA-RST.6-8.6 NJSLS-ELA-RST.6-8.8
Earth's Surface	**Chemistry**	**Life Science**
NJSLS-ELA-RST.6-8.9 NJSLS-ELA-RST.6-8.10	NJSLS-ELA-RST.6-8.3 NJSLS-ELA-RST.6-8.2 NJSLS-ELA-RST.6-8.4 NJSLS-ELA-RST.6-8.6	NJSLS-ELA-RST.6-8.3 NJSLS-ELA-RST.6-8.4 NJSLS-ELA-RST.6-8.7
Earth's Structure	**Diversity of Life**	**Weather and Climate**
NJSLS-ELA-RST.6-8.3 NJSLS-ELA-RST.6-8.4 NJSLS-ELA-RST.6-8.7	NJSLS-ELA-RST.6-8.3 NJSLS-ELA-RST.6-8.5 NJSLS-ELA-RST.6-8.7 NJSLS-ELA-RST.6-8.10	NJSLS-ELA-RST.6-8.1 NJSLS-ELA-RST.6-8.2 NJSLS-ELA-RST.6-8.8 NJSLS-ELA-RST.6-8.9
Ecology and the Environment		
NJSLS-ELA-RST.6-8.2 NJSLS-ELA-RST.6-8.5		