Overview

Changes in Matter

by Lisa Holloway, Mandee Bowling, Bernadette Carpenter, Stacy Noah, and Michelle Watkins

Students will discover:

- *Ways that substances can change.*
- *How to describe and classify chemical reactions.*
- *How we can use chemistry to separate substances.*
- *How chemical technology improves our lives.*

Grades: *5*

Discipline: *Science*

Teaching Task: *Task Template 28 (Narrative and Procedural-Sequential)*

Course: *Science*

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Section 1: What Task?

TEACHING TASK

Task Template 28 — [3 Levels] *Narrative & Procedural*

L1: After researching Changes in Matter on chemical reactions , write a narrative that telling how each actions that you have done today involved one or more chemical reactions or chemical technologies that relates to Changes in Matter and the events that involve chemical reaction .

STUDENT BACKGROUND

After learning about the structure of Physical Science of the Earth, students will study changes in matter.

EXTENSION

Rubric

Scoring Elements	Not Yet		Approaches Expectations		Meets Expectations		Advanced
	1	1.5	2	2.5	3	3.5	4
Focus	Attempts to address prompt, but lacks focus or is off-task.		Addresses prompt appropriately and establishes a position, but focus is uneven.		Addresses prompt appropriately and maintains a clear, steady focus. Provides a generally convincing position.		Addresses all aspects of prompt appropriately with a consistently strong focus and convincing position.
Controlling Idea	Attempts to establish a claim, but lacks a clear purpose. (L2) Makes no mention of counter claims.		Establishes a claim. (L2) Makes note of counter claims.		Establishes a credible claim. (L2) Develops claim and counter claims fairly.		Establishes and maintains a substantive and credible claim or proposal. (L2) Develops claims and counter claims fairly and thoroughly.
Reading/Research	Attempts to reference reading materials to develop response, but lacks connections or relevance to the purpose of the prompt.		Presents information from reading materials relevant to the purpose of the prompt with minor lapses in accuracy or completeness.		Accurately presents details from reading materials relevant to the purpose of the prompt to develop argument or claim.		Accurately and effectively presents important details from reading materials to develop argument or claim.
Development	Attempts to provide details in response to the prompt, but lacks sufficient development or relevance to the purpose of the prompt. (L3) Makes no connections or a connection that is irrelevant to argument or claim.		Presents appropriate details to support and develop the focus, controlling idea, or claim, with minor lapses in the reasoning, examples, or explanations. (L3) Makes a connection with a weak or unclear relationship to argument or claim.		Presents appropriate and sufficient details to support and develop the focus, controlling idea, or claim. (L3) Makes a relevant connection to clarify argument or claim.		Presents thorough and detailed information to effectively support and develop the focus, controlling idea, or claim. (L3) Makes a clarifying connection(s) that illuminates argument and adds depth to reasoning.
Organization	Attempts to organize ideas, but lacks control of structure.		Uses an appropriate organizational structure for development of reasoning and logic, with minor lapses in structure and/or coherence.		Maintains an appropriate organizational structure to address specific requirements of the prompt. Structure reveals the reasoning and logic of the argument.		Maintains an organizational structure that intentionally and effectively enhances the presentation of information as required by the specific prompt. Structure enhances development of the reasoning and logic of the argument.
							Demonstrates

Conventions	Attempts to demonstrate standard English conventions, but lacks cohesion and control of grammar, usage, and mechanics. Sources are used without citation.		Demonstrates an uneven command of standard English conventions and cohesion. Uses language and tone with some inaccurate, inappropriate, or uneven features. Inconsistently cites sources.		Demonstrates a command of standard English conventions and cohesion, with few errors. Response includes language and tone appropriate to the audience, purpose, and specific requirements of the prompt. Cites sources using appropriate format with only minor errors.		and maintains a well-developed command of standard English conventions and cohesion, with few errors. Response includes language and tone consistently appropriate to the audience, purpose, and specific requirements of the prompt. Consistently cites sources using appropriate format.
Content Understanding	Attempts to include disciplinary content in argument, but understanding of content is weak; content is irrelevant, inappropriate, or inaccurate.		Briefly notes disciplinary content relevant to the prompt; shows basic or uneven understanding of content; minor errors in explanation.		Accurately presents disciplinary content relevant to the prompt with sufficient explanations that demonstrate understanding.		Integrates relevant and accurate disciplinary content with thorough explanations that demonstrate in-depth understanding.

STANDARDS

Kentucky — Physical Science

SC-05-1.1.1: Students will describe the physical properties of substances (e.g., boiling point, solubility, density).

SC-05-1.2.1: Students will interpret data in order to make qualitative (e.g., fast, slow, forward, backward) and quantitative descriptions and predictions about the straight-line motion of an object.

SC-05-1.2.2: Students will understand that forces are pushes and pulls, and that these pushes and pulls may be invisible (e.g., gravity, magnetism) or visible (e.g., friction, collisions).

Common Core Anchor Standards — Reading

R.CCR.1: 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.

R.CCR.2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

R.CCR.4: 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.

R.CCR.6: Assess how point of view or purpose shapes the content and style of a text.

R.CCR.10: Read and comprehend complex literary and informational texts independently and proficiently.

Common Core Anchor Standards — Writing

W.CCR.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

W.CCR.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

W.CCR.5: Develop and strengthen writing as needed by planning, revising, editing,

rewriting, or trying a new approach.

W.CCR.7: Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

W.CCR.8: Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

W.CCR.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

W.CCR.10: 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.

Common Core Anchor Standards — Language

L.CCR.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.CCR.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.CCR.3: 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.

L.CCR.4: 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.

Custom Standards

Section 2: What Skills?

Selected Skills

Preparing for the Task

TASK ANALYSIS: Ability to understand and explain the task's prompt and rubric and build connections to the task and content to existing knowledge, skills, experiences, interests, and concerns.

Reading Process

BIBLIOGRAPHY OF SELECTED TEXT: (If appropriate)

ACTIVE READING: Ability to identify the central point and main supporting elements of a text. L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions.

ESSENTIAL VOCABULARY: Ability to identify and master terms essential to understanding a text.

NOTE-TAKING AND ANNOTATION: Ability to select important facts and passages relevant to the task for use in one's own writing.

Transition to Writing

BRIDGING CONVERSATION: Ability to begin linking reading results to writing task.

Writing Process

THESIS: Ability to establish a thesis statement.

PLANNING: Ability to develop a line of thought and text structure appropriate to an informational task.

DEVELOPMENT: Ability to construct an initial draft with an emerging line of thought and structure. (L2) identifies credible sources. (L3) Identifies a relevant gap/unanswered question.

REVISION: Ability to refine text, including line of thought, language usage, and tone as appropriate to audience and purpose.

EDITING: Ability to proofread and format a piece to make it more effective.

COMPLETION: Ability to submit final piece that meets expectations.

Section 3: What Instruction?

MiniTasks

Preparing for the Task

TASK ANALYSIS: Ability to understand and explain the task's prompt and rubric and build connections to the task and content to existing knowledge, skills, experiences, interests, and concerns.

LIST

Bulleted List:

"In your science journal, what are the important things physical science and changing matter?"

Pacing: 1 class period

Scoring Guide: work meets expectations if:

No Scoring

Teaching Strategies:

• Share examples of type of text students will produce (either from past students or from professional writers).
• Identify or invite students to identify key features of examples.
• Pair students to share and improve their individual bullets.
• Create a classroom list: Choose one student to share a few ideas on the board, and ask others to add to it.

Reading Process

BIBLIOGRAPHY OF SELECTED TEXT: (If appropriate)

LIST

Bibliography:

"For each text, create a bibliography that explains why this work is credible, valid, and relevant to the task."

Scoring Guide: work meets expectations if:

• Identifies author, title, publisher, date, and any other needed information (for example, the volume for a periodical or the editor for an anthology).
• Includes reasonable evidence that work is credible and/or worthy of study.

Teaching Strategies:

• Provide citation guide and discuss why each element of citation is needed.

• Ask students to brainstorm what makes an author credible, valid, and/or worthy of study. (Do these articles pass the CRAAP test, Currency, Relevance/coverage, Authority, Accuracy, Purpose/Objectivity)

ACTIVE READING: Ability to identify the central point and main supporting elements of a text. L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions.

SHORT CONSTRUCTED RESPONSE

Short reflective entry for each text:

“Use what you learned about flame tests to explain how compounds that contain strontium and barium could be used in fireworks.

L2 In your discussion, address the credibility and origin of sources in view of your research topic.

L3 Identify any gaps or unanswered questions.

Pacing: 1 class period

Scoring Guide: work meets expectations if:

• Answers questions with credible response.

Teaching Strategies:

• Invite students to share and discuss their answers for each text. (ex. Students post research notes for other students read)

• After the discussion, allow them to add to their entries.

• With Complex articles you might model with students how you approach reading complex articles and making sense of them.

• Have students mark the text with sticky notes (different colors, for example Yellow means you have a question, start these with “I wonder…”; Blue means you don’t understand, start these with “I don’t understand…” ; Green you make a connection, start these with “This reminds me of…”; Red can be a conclusion, start these with “I think…”)

ESSENTIAL VOCABULARY: Ability to identify and master terms essential to understanding a text.

LIST

“In your notebook, list and describe/define words, phrases, and/or diagrams that

challenge your understanding of the texts."

Pacing: 1 class period

Scoring Guide: work meets expectations if:
• Completes mini-task.
• Provides accurate definitions and/or explanations or graphic representations.

Teaching Strategies:
• Make pictorial representations or use graphic organizers to illustrate vocabulary terms (e.g. word mapping).
• Write definitions in their own words.

Notes:
Essential Vocabulary:
• Physical change
• Chemical change
• Combustion
• Reactant
• Product
• Chemical equation
• Polymer

NOTE-TAKING AND ANNOTATION: Ability to select important facts and passages relevant to the task for use in one's own writing.

NOTES
Notes and Annotation:
"For each scientific article and text on physical science, take notes and/or annotate elements relevant to changes in matter. Make sure you have the information to do a citation when needed to avoid plagiarism."

Pacing: 1 class period

Scoring Guide: work meets expectations if:
• Identifies relevant elements of changing states of matter.
• Includes necessary citation information to support facts, questions, etc. (for example, page numbers for a long text, clear indication when quoting directly.

Teaching Strategies:
• Teach strategies for note taking and/or annotation.

• Check that early student work is in the assigned format (or in another format that gathers the needed information effectively).

Transition to Writing

BRIDGING CONVERSATION: Ability to begin linking reading results to writing task.

LONG CONSTRUCTED RESPONSE

Students will write a long constructed response to a an persuasive prompt. After students are asked to think about the overuse of antibiotics and how it can cause them to stop working to cure diseases, prompt them to think about how many of today's soaps have antibiotics added to them. Students will write a short editorial on whether they think soaps that you use every day should or should not contain antibiotics. Students will explain their reasoning.

Pacing: 1 class period

Scoring Guide: work meets expectations if:

• Creates an outline or organizer
• Supports the opinion to use or not use antibiotic soaps.
• uses evidence from text read earlier.

Teaching Strategies:

• Review the task and discussion-based strategies, such as seminar.
• Small group discussion using question.

Writing Process

THESIS: Ability to establish a thesis statement.

SHORT CONSTRUCTED RESPONSE

Thesis statement:
Write 1-3 sentence thesis to establish the focus and purpose of your work.

Scoring Guide: work meets expectations if:

• Writes a concise summary statement or draft opening.
• Provides direct answer to main prompt requirements.
• Establishes a thesis (focusing idea).
• Identifies key points that support development of argument.

Teaching Strategies:
• Ask class to discuss what makes their thesis strong or weak.
• Offer examples of thesis statements.

PLANNING: Ability to develop a line of thought and text structure appropriate to an informational task.

OUTLINE
Outline/organizer:
“Create an outline or organizer based on your notes and reading in which you state your claim, sequence your points, and note your supporting evidence.”
(L2) identifies credible sources.
(L3) Identifies a relevant gap/unanswered question.

Scoring Guide: work meets expectations if:
• Creates an outline or organizer.
• Supports thesis.
• Uses evidence from texts analyzed earlier.
• Addresses L2 or L3 when appropriate.

Teaching Strategies:
• Provide and teach one or more examples of outlines or organizers.
• Invite students to review each other’s organizers to make sure points are accurate and sequenced logically.

DEVELOPMENT: Ability to construct an initial draft with an emerging line of thought and structure. (L2) identifies credible sources. (L3) Identifies a relevant gap/unanswered question.

LONG CONSTRUCTED RESPONSE
Initial Draft:
“Write an initial draft complete with opening, development, and closing; insert and cite textual evidence.”
(L2) identifies credible sources.
(L3) Identifies a relevant gap/unanswered question.

Scoring Guide: work meets expectations if:
• Provides complete draft with all parts.
• Thesis is supported in the later sections with evidence and citations.

Teaching Strategies:

• Encourage students to re-read prompt partway through writing, to check that they are on-track.

• Work with students on a logical, reasoned organization of the paper.

• Provide students with an opportunity to do peer review on each other's work.

REVISION: Ability to refine text, including line of thought, language usage, and tone as appropriate to audience and purpose.

LONG CONSTRUCTED RESPONSE

Multiple Drafts:

Use strategies which refine the work's logic, reasoning, and organization of ideas/points. Use textual evidence carefully, with accurate citations. Decide what to include and what not to include.

Scoring Guide: work meets expectations if:

• Provides complete draft with all parts.

• Supports the opening in the later sections with evidence and citations.

• Improves earlier edition.

Teaching Strategies:

• Timely feedback and conferencing.

• Feedback that balances support for strengths and clarity about weaknesses.

• Peer review to provide each other with feedback on those issues.

• Use of technology-based resources.

EDITING: Ability to proofread and format a piece to make it more effective.

LONG CONSTRUCTED RESPONSE

Correct Draft:

Revise draft to have sound spelling, capitalization, punctuation and grammar. Adjust formatting as needed to provide clear, appealing text.

Scoring Guide: work meets expectations if:

• Provides draft free from distracting surface errors.

• Uses format that supports purpose.

Teaching Strategies:

• Briefly review selected skills that many students need to improve.

• Teach a short list of proofreading marks.
• Assign students to proofread each other's texts a second time, using the rubric as a guide.

COMPLETION: Ability to submit final piece that meets expectations.

LONG CONSTRUCTED RESPONSE

Turn in your complete set of drafts, plus the final version of your work.

Scoring Guide: work meets expectations if:

• Submits final work for evaluation on time.

Resources

Selected Articles

Chemical reaction.

(http://modulecreator.com/ModuleCreator/#page=login&moduleId=19159&scrollTo=articles)
Columbia Electronic Encyclopedia, 6th Edition (11/1/2011)—
Chemical reaction, process by which one or more substances may be transformed into one or more new substances. Energy is released or is absorbed, but no loss in total molecular weight occurs. When, for example, water is decomposed, its molecules, each of which consists of one atom of oxygen and two of hydrogen, are broken down; the hydrogen atoms then combine in pairs to form hydrogen molecules and the oxygen atoms to form oxygen molecules. In a chemical reaction, substances lose their characteristic properties. Water, for example, a liquid which neither burns nor supports combustion, is decomposed to yield flammable hydrogen and combustion-supporting oxygen. In some reactions heat is given off (exothermic reactions), and in others heat is absorbed (endothermic reactions). Furthermore, the new substances formed differ from the original substances in the energy they contain. Chemical reactions are classified according to the kind of change that takes place. When a compound, which consists of two or more elements or groups of elements, is broken down into its constituents, the reaction is called simple decomposition. When two compounds react with one another to form two new compounds, the reaction is called double decomposition. In so-called replacement reactions the place of one of the elements in a compound is taken by another element reacting with the compound. When elements combine to form a compound, the reaction is termed chemical combination. Oxidation and reduction reactions are extremely important. Reversible reactions are those in which the chemical change taking place may be paralleled by another change back to the original substances. The rates at which chemical reactions proceed depend upon various factors, e.g., upon temperature, pressure, and the concentration of the substances involved and, sometimes, upon the use of a chemical called a catalyst. In some chemical reactions, such as that of photographic film, light is an important factor. The changes taking place in a chemical reaction are represented by a chemical equation. An element's activity, i.e., its tendency to enter into compounds, varies from one element to another.

1210L

Uploaded Files

WIDA_DefiningFeatures_AcademicLanguage[1].pdf

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/19159/1766512302_Mar_14_2012_13165778.pdf)

Defining features of Academic Language document.

Keywords

*Links**

Colorado Academic Standards (N/A)
(http://www.cde.state.co.us/cdeassess/UAS/CoAcademicStandards.html)
This link includes a printable version of the standards as well as an online searchable version.

CDE Standards Implementation Toolkit (1410L)
(http://www.cde.state.co.us/sitoolkit/index.htm)
This page includes the Discipline Concept Maps, the Vertical Progressions, and the Elementary Concept Connections.

Academic Language (1290L)
(http://www.wida.us/aboutUs/AcademicLanguage/)
Document that features Academic Language to be used in your module

Academic Language Standards (1210L)
(http://www.wida.us/standards/elp.aspx)

* These Lexile measures were computed automatically and did not undergo human review. They are not certified measures and should not be published or recorded in any way.

Other Resources

Scott Foresman Science "The Diamon Edition"
This is a 5th grade text book.

DiscoveryEducation.com
This site has assessment, videos, resources, handouts, and more information about Physical Sciencescience

Section 4: What Results?

Classroom Assessment Rubric

Classroom Assessment Task

No Classroom Assessment Task for this module

Exemplar Work

Uploaded Files

Comments

Author Notes

Other Comments