Text Complexity Analysis Template

Text complexity analysis			
Created by:	Kristen Record	**Event/Date:**	CT TeachFest Summer Academy
Text and Author	Heat of Fusion and Heat of Vaporization Experiment 19	**Where to Access Text**	Cioffari's Experiments in College Physics 8th ed by Dean S. Edmonds, Jr, D.C. Heath and Co.

Text Description
This text is a portion of the "Theory" section related to Heat of Fusion from Heat of Fusion and Heat of Vaporization Experiment 19 in Cioffari's Experiments in College Physics 8th ed. It includes both general theory related to phase changes and theory specific to conducting the lab experiment.

Quantitative			
Lexile and Grade Level	1490L	**Text Length**	1116 words (approximately 1.75 pages of single spaced, 12-pt font)

Qualitative	
Meaning/Central Ideas	**Text Structure/Organization**
The central ideas of the text are the scientific concepts related to states of matter, phase changes, and conservation of energy.	The text is organized around a description of thermodynamic processes that occur when a solid is heated, becomes a liquid and then a gas. The text then describes the how vaporization and boiling relates to vapor and atmospheric pressure. Concepts related to the laboratory process are then discussed.
Prior Knowledge Demands	**Language Features**
Students should be familiar with the 3 common states of matter and conservation of energy, understand the difference between temperature and energy, and have been exposed to calorimetry.	The text all discipline-specific, with subject specific vocabulary and complex sentence structure

Potential Reader/Task Challenges
The text relies on a moderate level of prior knowledge of phase changes and energy transfer. It has complex language features (overly academic and subject specific vocabulary and complex sentence structure).

Big Takeaway
States of matter and phase changes and be viewed through an understanding of conservation of energy and relationships between temperature and pressure. The text and its corresponding lab address the following AP Physics 2 Essential Knowledge: **5.B.7:** The first law of thermodynamics is a specific case of the law of conservation of energy involving the internal energy of a system and the possible transfer of energy through work and/or heat. **7.A.2:** The temperature of a system characterizes the average kinetic energy of its molecules. **7.B.1:** The approach to thermal equilibrium is a probability process. 1. The amount of thermal energy needed to change the temperature of a system of particles depends both on the mass of the system and on the

temperature change of the system.
2. The details of the energy transfer depend upon interactions at the molecular level.
3. Since higher momentum particles will be involved in more collisions, energy is most likely to be transferred from higher to lower energy particles. The most likely state after many collisions is that both systems of particles have the same temperature.

The text and its corresponding lab address the following CC ELA Standards:
CCSS.ELA-LITERACY.RST.11-12.10
By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.
CCSS.ELA-LITERACY.RST.11-12.2
Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
CCSS.ELA-LITERACY.RST.11-12.3
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
CCSS.ELA-LITERACY.RST.11-12.4
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

Vocabulary Analysis Template

	Words that demand less teaching time (i.e. the definition is singular and concrete)	Words that demand more teaching time (i.e. words with multiple meanings and/or that are part of a word family)
Words that can be determined in context	• vapor (tier 3) • condense (tier 3) • condensation (tier 3) • vaporization (tier 3) • bound (tier 3) • latent heat of fusion (tier 3) • latent heat of vaporization (tier 3) • body (tier 3) • resulting (tier 2) • emerge (tier 2) • opposition (tier 2) • merely (tier 2) • principle (tier 2)	
Words that cannot be determined in context	• heat capacity (tier 3) • atmosphere (tier 3) • intermediate (tier 3) • equilibrium (tier 3) • calorimeter (tier 3) • radiated (tier 3)	• molecular energy (tier 3) • vapor pressure (tier 3) • atmospheric pressure (tier 3) • unit (tier 2) • course (tier 2)