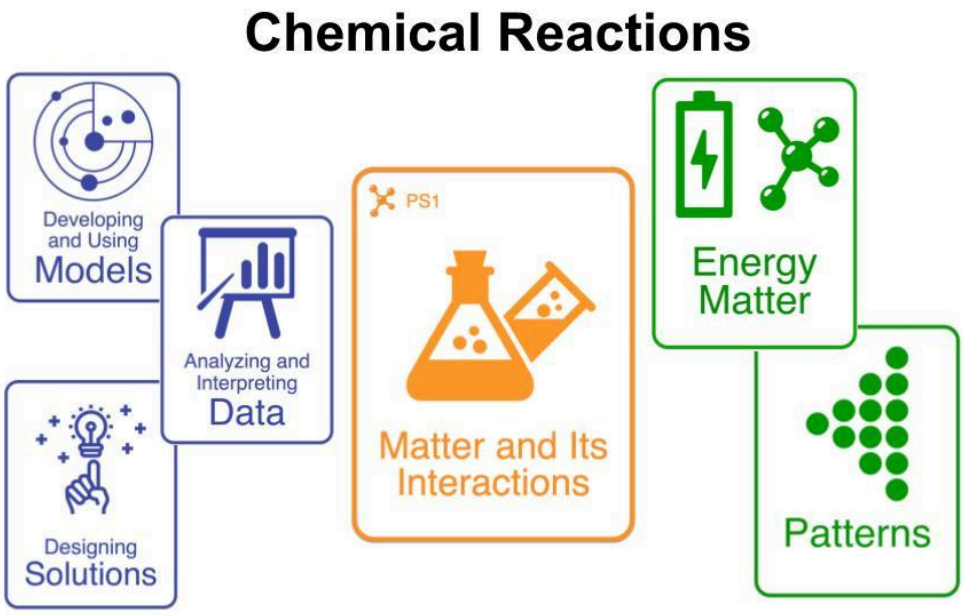
Storyline Unit Design

Understanding by Design (UbD) Template*

Unit		Course(s)	
Designed by		Time Frame	

Anchor Model



*UbD Unit Planner is from Wiggins, Grant and McTighe, Jay. Understanding by Design Guide to Creating High-Quality Units. Alexandria, VA: Association for Supervision and Curriculum Development. 2011.

Stage 1: Desired Results

Performance Expectations

MS-PS1-2: Chemical Properties and Reactions
Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (Patterns)

MS-PS1-5: Conservation of Atoms in Reactions
Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (Energy and Matter)

MS-PS1-6: Thermal Energy Design Project
Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. (Energy and Matter)

Anchoring Phenomenon

Anchoring Phenomenon Worksheet

Enduring Understandings	Essential Questions

Stage 2: Assessments

MS-PS1-2 - Burning Marshmallows
MS-PS1-5 - The Underwater Battery
MS-PS1-6 - Johnson & Johnson Back-Up Device

Assessment Screening Tool Slides

Backward Design Elements

What new skills (practices) will students need to learn?	What thinking concepts will students need to learn?	What science concepts will students need to learn?

Stage 3: Learning Plan			
Phenomenon or Problem	Learning Performance - What will they do? The three dimensions woven together into a single learning performance.	Why is this important? How does this activity help build understanding of the anchoring phenomenon.	Learning Experience - How will they do it? Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
Chemistry in a bag	Students will Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.	Analysis of qualitative data of before and after the reaction Interpret the data to identify if there is a chemical reaction.	Mini lesson with graphic organizer or anchor that shows the properties of a chemical reaction. Conducting various labs that show physical and chemical changes - students identify the change.
Formative Assessment - What information are you collecting to know that they met the target?			
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Summative Assessment What information are you collecting to know that they met the target?	

Materials / Resources

Vocabulary

MS-PS1-2
Substances
Properties
- Physical (density, melting point, boiling point, odor)
- Chemical (flammability, reactivity)

Interactions
Chemical reaction (e.g. burning sugar or steel wool, zinc and hydrogen chloride, etc.)
Patterns

MS-PS1-5
Atoms
Molecules
Chemical reaction
Reactants
Products
Conservation of matter

MS-PS1-6
Chemical reaction
Thermal energy
- Releasing “exothermic” reaction (e.g. dissolving calcium chloride)
- Absorbing “endothermic” reaction (e.g. dissolving ammonium chloride)

Design solution
Energy and Matter

Mini Lessons
Patterns Level 5 - Patterns Level 5 - Patterns at Varying Scale Mini-Lesson
Patterns Level 5 Thinking Slides - Patterns Level 5 - Patterns at Varying Scale Thinking Slides

Graphic Organizers
Phenomena Observation Graphic Organizer
Questioning Graphic Organizer
Modeling Graphic Organizer
Planning an Investigation Organizer - Experimental
Planning an Investigation Organizer - Observational
Investigation Evidence Organizer
Engaging in Argumentation Organizer

Differentiation / Modifications