

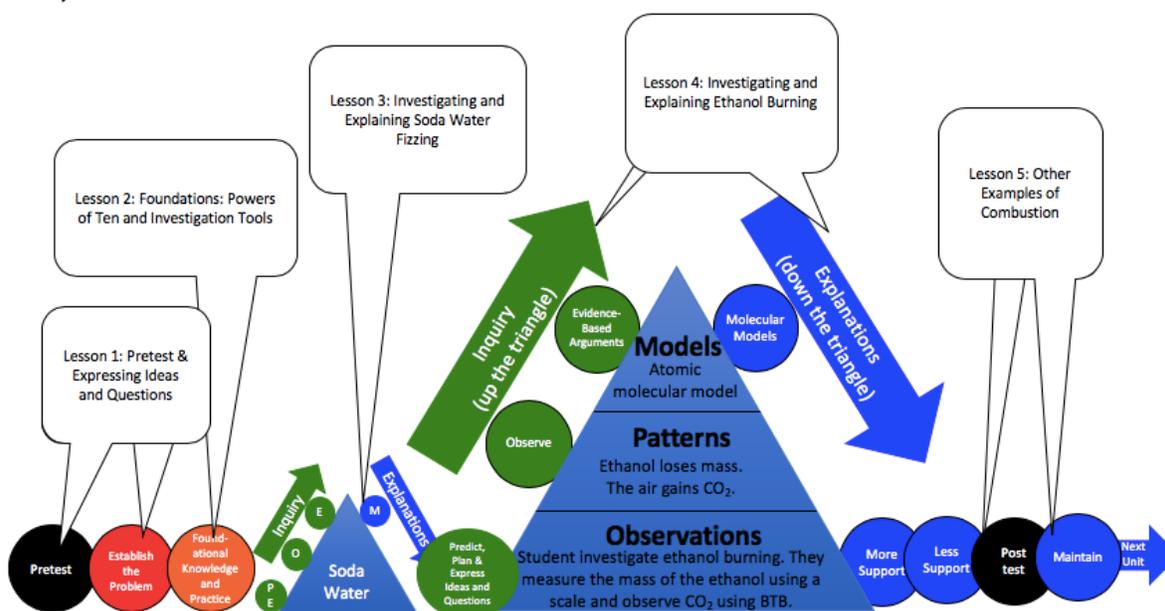
## Systems & Scale Instructional Model & Storyline Chart

Here, we present two ways to think about how lessons are sequenced in the *Systems and Scale Unit*. The Instructional Model, immediately below, emphasizes how students take on roles of questioner, investigator, and explainer to learn and apply scientific models they can use to answer the driving question. Further below, the Unit Storyline Chart highlights the central question, activity, and answer that students engage with in each lesson of the *Systems and Scale Unit*.

### Instructional Model

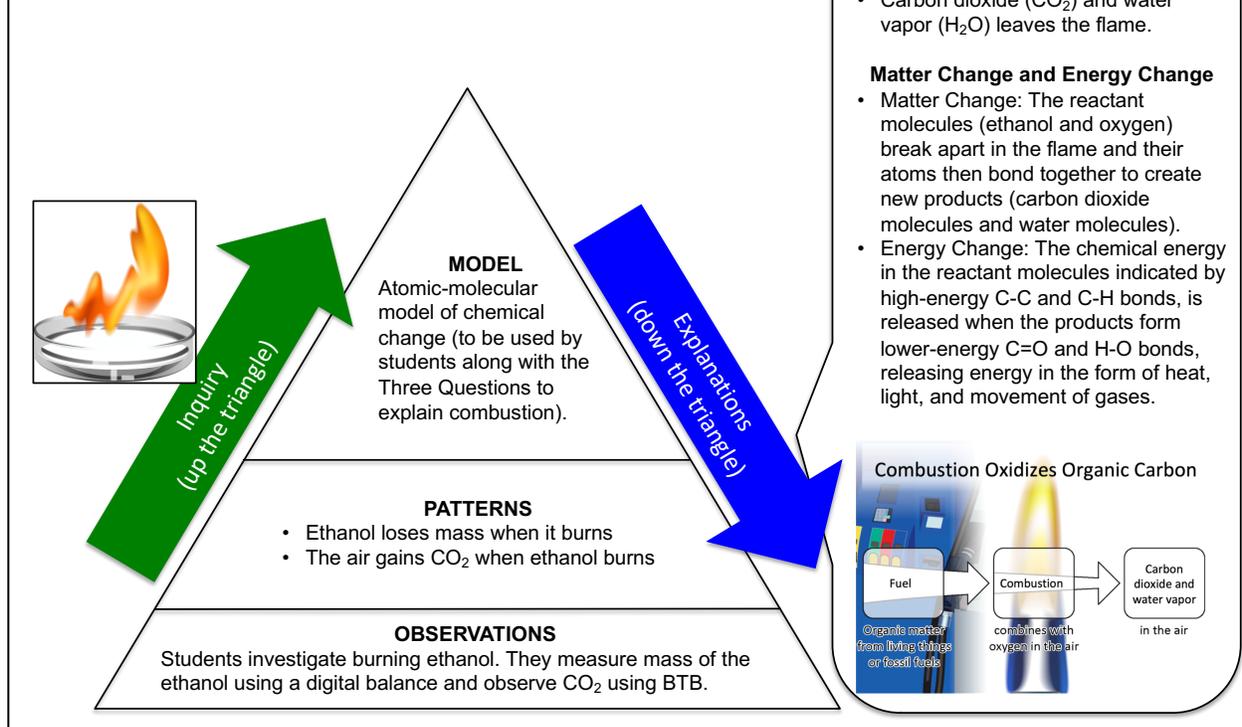
Like all *Carbon TIME* units, this unit follows an instructional model (IM) designed to support teaching that helps students achieve mastery at answering the driving question through use of disciplinary content, science practices, and crosscutting concepts. To learn more about this design, see the *Carbon TIME* Instructional Model.

### Systems & Scale



The core of the *Carbon TIME* IM is the Observation, Patterns, Models (OPM) triangle, which summarizes key aspects to be attended to as the class engages in unit inquiry and explanation. The OPM triangle for the *Systems and Scale Unit*, shown below, articulates the key observations students make during the unit investigation, the key patterns they identify through analyzing their investigation data, and the central scientific model that can be used to answer the unit's driving question. During the inquiry portions of the unit (Lessons 3 and 4), the class moves from making observations to identifying patterns, eventually using these patterns to make evidence-based arguments. During the explanation portion of the unit (Lessons 4 and 5), the class learns the atomic-molecular model, makes connections across scales, and uses atomic-molecular model to explain combustion. Across the unit, classroom discourse is a necessary part of 3-dimensional *Carbon TIME* learning. The *Carbon TIME* Discourse Routine document provides guidance for scaffolding this discourse in lessons.

## Observations, Patterns, & Models in the *Systems and Scale Unit*



### Unit Storyline Chart

Another way to familiarize yourself with the sequence of lessons in the *Systems and Scale Unit* is with the Unit Storyline Chart depicted below. The Unit Storyline Chart summarizes a unit phenomenon-based driving question associated with each lesson, what classes will do in each lesson to address the question, what conclusions they will come to, and how they will transition to a subsequent lesson.

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of Unit  
Storyline Chart

