PhD Science® Module Structure

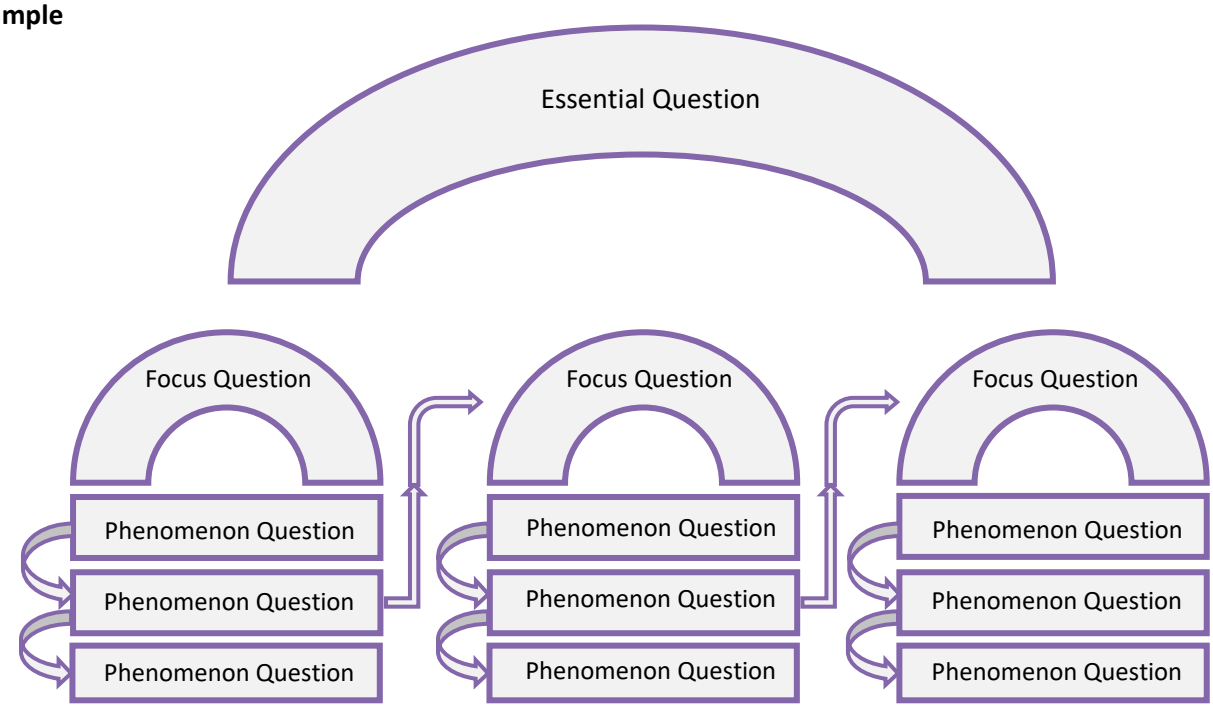
The module structure graphic below can be used in multiple ways to visually organize information within a module. The Module Map includes information about the categories below to provide context for the module's scope and sequence and to demonstrate how the module's structure helps students build coherent scientific knowledge. The Implementation Guide contains additional information about each category.

Questions

Throughout each *PhD Science* module, three types of overarching questions play important roles in student learning. Lessons include suggestions about ways teachers can facilitate discussions to help students develop these questions.

- The **Essential Question** inspires student learning throughout the module. In the graphic below, the Essential Question appears in the top arc.
- **Focus Questions** anchor each concept sequence. By exploring each Focus Question, students build understanding related to the Essential Question. In the graphic below, the Focus Questions appear in the smaller arcs below the Essential Question arc.
- **Phenomenon Questions** highlight students' exploration of phenomena, framing the purpose of each lesson set and connecting learning across lessons. Building knowledge by exploring one Phenomenon Question leads students to ask questions related to the next Phenomenon Question. In the graphic below, each lesson set's Phenomenon Question appears in a rectangular box below the arc of the Focus Question for which it builds supporting knowledge.

Example



Phenomena

Each *PhD Science* module includes a web of interrelated phenomena. Phenomena play various roles in instruction, including the following:

- The **anchor phenomenon** aligns with the Essential Question and is a rich, authentic, multilayered scientific phenomenon that motivates instruction throughout the module. In the graphic below, the anchor phenomenon appears in the top arc.
- **Phenomenon-driven assessments**, including ongoing embedded formative assessments, focus on explaining phenomena or solving problems that arise from phenomena. These assessments are present in the Conceptual Checkpoint for each concept and correlate with the concept's Focus Question. In the graphic below, the phenomenon-driven assessments appear in the smaller arcs below the Anchor Phenomenon arc.
- Lessons throughout each module focus on **supporting phenomena**, also known as investigative phenomena. These phenomena, present in each lesson set, relate to an aspect of the module anchor phenomenon. In the graphic below, each supporting phenomenon appears in a rectangular box below the arc of the phenomenon-driven assessment for which it builds supporting knowledge.

Example