Alignment of Ring Polymer Module to the Next Generation Science Standards

The Next Generation Science Standards (NGSS) were published in April 2013. They consist of statements that convey the performance expectations for students. Each performance expectation is a single statement that is built from three components: science and engineering practices (Practices), disciplinary core ideas (DCI) and crosscutting concepts. Each lesson was evaluated to determine alignment to (1) Performance Expectations, and (2) alignment to the individual components.

Since the Ring Polymer Module was created prior to the release of these standards one would expect that it aligns most readily to the individual statements that articulate the practices, DCIs, and crosscutting concepts.

Our analysis revealed support for the performance expectation found in Table 1.

TABLE 1: ALIGNMENT TO SPECIFIC PERFORMANCE EXPECTATIONS	ALIGNMENT RATING
HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.	*Partial (see Table 2 for explanation)*

Table 2 clarifies the nature of the alignments by Practice, DCI, and Crosscutting Concept.

TABLE 2. ALIGNED PRACTICES, DISCIPLINARY CORE IDEAS, AND CROSSCUTTING CONCEPTS		
PRACTICE	***DCI***	***CROSSCUTTING CONCEPT***
No alignments	*HS-PS2.B: Types of interactions:* Attraction and repulsion between electric charges at the atomic scale explain the structure, properties, and transformations of matter, as well as the contact forces between material objects. *Strong in teacher and student materials*	*HS. Structure and function:* Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem. *Partial in teacher and student materials*