SAMANTHA CASTO, Science Education Undergraduate, Glenville State University, Glenville, WV, 26351, & ASHLEY KOOKEN, Dept of Science and Mathematics, Glenville State University, Glenville, WV 26351. 5E Science Learning Cycle Unit Plan – Energized Ecosystems

How can educators use students' critical thinking about scientific questions to design lesson plans that view common misconceptions as a steppingstone towards rich learning experiences rather than obstacles to overcome? Two student thinking interviews were conducted with the intention of gathering real data on how students use sensemaking based on their own observations of the world to explain scientific concepts. That data was then used to create a 5E learning cycle unit plan that incorporates the 3 dimensions of science learning while utilizing students' ideas to deepen their understanding of the content. The final lesson plan is strategically scaffolded to determine what students know in order to meet them where they are and provides multiple opportunities for effective classroom discourse, collaborative work, and authentic tasks and investigations. The interviews and lesson plans were designed with the support of GSU's Assistant Professor of Science Education, Dr. Ashley Kooken. Through this study, it was found that conducting and thoroughly analyzing student thinking interviews provides insight into how students reason through scientific phenomena and allows the educator to leverage that reasoning as a tool for improving instruction. Beginning the lesson planning process through a lens of student sensemaking results in an instruction plan that explicitly addresses and responds to common misconceptions and the ambiguity between scientific and everyday language.