UBD Unit Design Template

NOTE: Resources used to develop the content of this unit:

Westmoreland, D. (2015, September 1). *Teaching the meaning of "theory" in science*. University of California Press. https://online.ucpress.edu/abt/article/77/7/538/18850/Teaching-the-Meaning-of-Theory-in-Science.

Quinn, V. S. (2015, September 1). Using astrology to confront & discuss pseudoscience in the classroom. University of California Press.

https://online.ucpress.edu/abt/article/77/7/542/18828/Using-Astrology-to-Confront-amp-Discuss.

Time Frame: 6-7 Classes	Unit Title: What is Science? Astronomy vs Astrology	Course Name: Astronomy	
Stage 1: Desired Results			
Established Goal(s)	Transferable Skills		
Enduring Understandings Students can critically evaluate common claims that may present as science but, when tested, turn out to be pseudoscience.	 Students will be able to independently use their learning to Students will be able to understand the difference between science and pseudoscience by exploring claims made by astrologists. Students will understand that scientific understanding is gained through observation of phenomena. And from those observations scientists infer a possible explanation for phenomena by building on prior scientific understanding. Students will also understand that scientific understanding is dynamic and can be altered based on new information, techniques and/or technological advancements. Students will also understand that scientific understanding is collaborative and peer reviewed. 		
	Meaning		
	 Understandings Students will understand that 1. Scientific theories are constructed through a collaborative effort. A theory is an overarching explanation for a set of observations, and sometimes laws, that seem to be related. (Recall the bag of F's logo.) 2. Scientific theories generate new predictions that can be empirically evaluated. Good theories make testable predictions that turn out to be correct, while poor theories make testable predictions that turn out to be wrong. Far from being mere suggestions, theories are overarching explanations that are rigorously tested, and they unify facts that were previously unrelated. They are sometimes described as the fundamental goal of science. 	Essential Questions 1.How is a broad explanatory theory constructed? 2. How can such a broad explanation be tested? Maybe for the sake of student appeal you lump it as "What makes for GOOD science?"	
	Acquisition		

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Students will know	Students will be able to
1. Scientific theories are constructed through a collaborative effort. A theory is an overarching explanation for a set of observations, and	1. Students will be able to design and run a test to evaluate a claim.
sometimes laws, that seem to be related. (Recall the bag of F's logo.)	2. Students will be able to process data they collected to develop results that either
2. Scientific theories generate new predictions that can be empirically evaluated. Good theories make testable predictions that turn out to be correct, while poor theories make testable predictions that turn out to be wrong. Far from being mere	3. Students will be able to present a claim to the class and provide evidence and reasoning supporting or refuting that claim.
suggestions, theories are overarching explanations that are rigorously tested, and they unify facts that were previously unrelated. They are sometimes described as the fundamental goal of science.	4. Students will be able to constructively criticize each other's work.
3. Students will be able to distinguish science from pseudoscience.	