

Science as Explanation (to build students understanding that science explanations are tentative, evidence-based, subjective due to human inference; scientists use creativity and imagination to interpret their observations and make inferences which are socially & culturally embedded and they ultimately construct laws and theories to explain the world – the key NoS elements internationally understood, [Liederman]). Links to understanding about science, investigating in science and communicating science

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Understand that science explains the world around us	Understand that science uses evidence to explain the world	Understand that science knowledge is tentative	Understand how science knowledge / ideas change over time	Understand why science knowledge / ideas change over time	Understand why science knowledge is tentative and the implications of this for power & limitations of scientific explanations of the world	Understand the function of models, theories and laws in science	Understand the processes and influences that lead to the acceptance of scientific theories and laws
Make observations & suggest explanations Identify differences in other students' observations and explanations	Use observations of their world to develop questions Predict possible answers Carry out tests to establish plausible answers Explain their observations using science language in cause-and-effect statements and/or diagrams	Relate their observations to science ideas Develop testable questions Use a range of types of investigations to test ideas Provide an evidence-based explanations for observations Distinguish between observation and inference	Describe examples of how scientific knowledge is validated by accumulation of evidence and peer review to establish an accepted theory Describe how social & cultural views impact on observations and explanations Engage with a range of texts/media to explain how scientific symbols, conventions and vocabulary are used to communicate scientific ideas differently.	Explain why differing personal social and/or cultural views influence the development of scientific theories Explain how texts/media can both clarify and bring bias to the communication of science	Evaluate the validity of the scientific ideas presented in popular and scientific texts on aspects of science.	Discuss how evidence for theories/laws has been tested and modified over time Discuss the role of texts/media in communicating aspects of science	Discuss the impact and implications of different world views for the ongoing development and communications of science Present a personal view of the place of science in contemporary society