Connections:
Science as Inquiry and the Conceptual Framework for Science Education[i]

		1 Cooperative Learning	2 EEEPs	3 Fuzzy Situations	4 Active Learning	5 Projects	6 Internet	7 Project Ozone	8 Assessment	9 Earth Science Activities	10 Environmental Science Activities	11 Life Science Activities	12 Physical Science Activities
DIMENSION 1: CORE IDEAS													
LIFE SCIENCE													
LS1	Organisms have structures and functions that facilitate their life processes, growth, 4 and reproduction. (From Molecules to Organisms – Structures and Processes)											X	
LS2	Organisms have mechanisms and processes for passing traits and variations of traits from one generation to the next. (Heredity -- Inheritance and Variation of Traits)											X	
LS3	Organisms and populations of											X	

	organisms obtain necessary resources from their environment which includes other organisms and physical factors. (Ecosystems: Interactions, Energy, and Dynamics)												
LS4	Biological evolution explains the unity and diversity of species. (Biological Evolution: Unity and Diversity)											X	
EARTH AND SPACE SCIENCES													
ES1	Humans are a small part of a vast Universe; planet Earth is part of the Solar System, which is part of the Milky Way galaxy, which is one of hundreds of billions of galaxies in the Universe. (The Solar System, Galaxy, and Universe)									X			
ES2	Earth is a complex and dynamic 4.6-billion-year-old system of rock, water, air, and life. (Earth's Planet-sized Structures, Processes	X	X	X						X			

	and History)												
ES3	Earth's surface continually changes from the cycling of water and rock driven by sunlight and gravity. (Earth's Surface Processes and Changes)			X					X	X	X		
ES4	Human activities are constrained by and, in turn, affect all other processes at Earth's surface. (Human Interactions with Earth)	X	X	X						X	X		
PHYSICAL SCIENCES													
PS1	Macroscopic states and characteristic properties of matter depend on the type, arrangement and motion of particles at the molecular and atomic scales. (Structure and Properties of Matter		X										X
PS2	Forces due to fundamental interactions underlie all matter, structures and transformations; balance or imbalance of forces determines stability and change												X

	within all systems. (Interactions, Stability, and Change)												
PS3	Transfers of energy within and between systems never change the total amount of energy, but energy tends to become more dispersed; energy availability regulates what can occur in any process. (Energy and its Transformations)					X				X			X
PS4	Our understanding of wave properties, together with appropriate instrumentation, allows us to use waves, particularly electromagnetic and sound waves, to investigate nature on all scales, far beyond our direct sense perception. (Waves as carriers of energy and information)												X
ENGINEERING AND TECHNOLOGY													
ET1	The study of the designed world is the study of designed					X							X

	systems, processes, materials and products and of the technologies and the scientific principles by which they function. (The Designed World)												
ET2	Engineering design is a creative and iterative process for identifying and solving problems in the face of various constraints. (Engineering Design)		X			X							X
ET3	People are surrounded and supported by technological systems. Effectively using and improving these systems is essential for long-term survival and prosperity. (Technological Systems)	X					X	X					X
ET4	In today's modern world everyone makes technological decisions that affect or are affected by technology on a daily basis. Consequently,		X				X	X					X

	it is essential for all citizens to understand the risks and responsibilities that accompany such decisions. (Technology and Society)												
DIMENSION 2: CROSS CUTTING ELEMENTS													
CROSS-CUTTING SCIENTIFIC CONCEPTS													
1	Patterns, similarity, diversity							X		X	X	X	X
2	Cause and effect	X	X					X		X	X	X	X
3	Scale, proportion, quantity									X	X	X	X
4	Systems and models					X		X		X	X	X	X
5	Energy and mater: flows and cycles		X							X	X	X	X
6	Form and function									X	X	X	X
7	Stability and change									X	X	X	X
TOPICS IN SCIENCE, ENGINEERING, TECHNOLGY AND SOCIETY													
1	History and cultural roles	X		X	X								
2	Impacts of science, engineering and technology on society			X									X
3	Professional responsibilities of scientists							X		X	X	X	X
4	Roles of Scientific and Technical Knowledge in Personal Decisions	X		X				X					
5	Careers							X		X	X	X	X

DIMENSION 3: SCIENTIFIC AND ENGINEERING PRACTICES													
HOW SCIENTISTS AND ENGINEERS WORK													
1	Investigation, hypothesis and coordination	X			X	X		X		X	X	X	X
2	Models	X						X		X	X	X	X
3	Communication and discourse	X		X	X	X				X	X	X	X
PRACTICES FOR SCIENCE CLASSROOM													
1	Asking questions	X						X		X	X	X	X
2	Modeling	X	X		X	X				X	X	X	X
3	Devising testable hypothesis	X	X					X		X	X	X	X
4	Collecting, analyzing and interpreting data	X						X		X	X	X	X
5	Constructing and critiquing arguments	X		X				X		X	X	X	X
6	Communicating and interpreting scientific and technical texts	X						X		X	X	X	X
7	Applying and using scientific knowledge		X					X		X	X	X	X

[i] This chart is an overview of the connections between *Science as Inquiry*, and the *Conceptual Framework for Science Education* which, was published in 2011 by the National Research Council. This chart was based on the Draft version of the Framework. If changes appear in the final version, they will be updated on the Science as Inquiry website at http://www.science-as-inquiry.org/. The final published version of the Conceptual Framework will be the basis for a new set of Science Education Standards which will be developed by Achieve, Inc., the organization that developed the Common Core Standards. Inquiry-oriented teachers are challenged to confront the current trend that advocates a standards-based and high stakes testing paradigm. As can be seen in this analysis, Science as Inquiry is in accord with the Conceptual Framework. However, the author's concern is that the framework will be used to create standards that will lead to high-stakes National testing paradigm. For further information on the Conceptual Framework for Science Education, please consult: http://www7.nationalacademies.org/bose/Science_Standards_Framework_Homepage.html/.