

# Grades 6, 7, 8

Adopted 2013

## Understandings about the Nature of Science

### 1. Scientific Investigations Use a Variety of Methods AH.1

1. Science investigations use a variety of methods and tools to make measurements and observations. 6-8.AH.1.1
2. Science investigations are guided by a set of values to ensure accuracy of measurements, observations, and objectivity of findings. 6-8.AH.1.2
3. Science depends on evaluating proposed explanations. 6-8.AH.1.3
4. Scientific values function as criteria in distinguishing between science and non-science. 6-8.AH.1.4

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### 2. Scientific Knowledge is Based on Empirical Evidence AH.2

1. Science knowledge is based upon logical and conceptual connections between evidence and explanations. 6-8.AH.2.1
2. Science disciplines share common rules of obtaining and evaluating empirical evidence. 6-8.AH.2.2

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### 3. Scientific Knowledge is Open to Revision in Light of New Evidence AH.3

1. Scientific explanations are subject to revision and improvement in light of new evidence. 6-8.AH.3.1
2. The certainty and durability of science findings varies. 6-8.AH.3.2
3. Science findings are frequently revised and/or reinterpreted based on new evidence. 6-8.AH.3.3

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### 4. Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena AH.4

1. Theories are explanations for observable phenomena. 6-8.AH.4.1
2. Science theories are based on a body of evidence developed over time. 6-8.AH.4.2
3. Laws are regularities or mathematical descriptions of natural phenomena. 6-8.AH.4.3
4. A hypothesis is used by scientists as an idea that may contribute important new knowledge for the evaluation of a scientific theory. 6-8.AH.4.4
5. The term "theory" as used in science is very different from the common use outside of science. 6-8.AH.4.5

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**5. Science is a Way of Knowing** AH.5

1. Science is both a body of knowledge and the processes and practices used to add to that body of knowledge. 6-8.AH.5.1
2. Science knowledge is cumulative and many people, from many generations and nations, have contributed to science knowledge. 6-8.AH.5.2
3. Science is a way of knowing used by many people, not just scientists. 6-8.AH.5.3

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**6. Scientific Knowledge Assumes an Order and Consistency in Natural Systems** AH.6

1. Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. 6-8.AH.6.1
2. Science carefully considers and evaluates anomalies in data and evidence. 6-8.AH.6.2

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**7. Science is a Human Endeavor** AH.7

1. Men and women from different social, cultural, and ethnic backgrounds work as scientists and engineers. 6-8.AH.7.1
2. Scientists and engineers rely on human qualities such as persistence, precision, reasoning, logic, imagination and creativity. 6-8.AH.7.2
3. Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism and openness to new ideas. 6-8.AH.7.3
4. Advances in technology influence the progress of science and science has influenced advances in technology. 6-8.AH.7.4

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**8. Science Addresses Questions About the Natural and Material World.** AH.8

1. Scientific knowledge is constrained by human capacity, technology, and materials. 6-8.AH.8.1
2. Science limits its explanations to systems that lend themselves to observation and empirical evidence. 6-8.AH.8.2
3. Science knowledge can describe consequences of actions but is not responsible for society's decisions. 6-8.AH.8.3