

Wallingford Public Schools

K-12 Enduring Understandings and Essential Questions for Science

Approved by Science Management Team January 2004

Enduring Understandings	Essential Questions
1. Science is the method of observation and investigation used to understand our world.	<ul style="list-style-type: none"> • How are sciences interrelated and interconnected with other disciplines? • How does science use inquiry to further understanding? • How and where do scientists gain information for a further understanding? (i.e. experimentation, current research, variety of print and non-print resources, etc.) • How do we classify things around us through the use of evidence?
2. Inquiry is the integration of process skills, the application of scientific content, and critical thinking to solve problems.	<ul style="list-style-type: none"> • How is inquiry used to investigate our environment? • How do prior knowledge, bias, and opinion affect inquiry? • How does new knowledge gained create new questions?
3. Science ideas evolve as new information is uncovered.	<ul style="list-style-type: none"> • How does science advance technology? • How have technological advances impacted societies? • How has scientific theory changed over time in the light of new discoveries? • How is it that today's answers may not be our best answers tomorrow?
4. Matter can be described, organized, and classified for understanding. (Including living things)	<ul style="list-style-type: none"> • How can matter be described? • What is matter composed of? • Why do we classify things? • How do we use classification systems? • How are elements, compounds, and mixtures different? Alike? • What do all living things have in common? How are living things different? (structure, functions, genetic make-up, cell processes, relationships, adaptations, behavior, etc.) • How do living things use energy? • What chemical processes occur in living things? How do they happen?

<p>5. Energy drives systems and cycles of our universe, solar system, Earth, and life.</p>	<ul style="list-style-type: none"> • How can energy be described and classified? (i.e. sound, light, thermal, electrical, mechanical, etc.) • How does energy influence different cycles /systems? (i.e. weather and atmospheric systems, rock cycle, life cycle, water cycle, carbon cycle, biological systems, ecosystems, etc.)
<p>6. Energy provides the ability to do work.</p>	<ul style="list-style-type: none"> • What forms of energy are present in every day life? • What are the forms of energy that do work for us? • How can we use energy to do work? • How do forces govern motion? How are they used to predict motion?
<p>7. The environment is a complex assemblage of interacting and evolving chemical, physical, and biological processes.</p>	<ul style="list-style-type: none"> • What causes living and nonliving things to change? • How do changes in nonliving things affect living things? How do changes in living things affect nonliving things? • How are living things linked to each other and their environment? (i.e. diseases, food pyramid, food webs, predator and prey relationships, etc.) • How does matter cycle through our environment? (water cycle, rock cycle, nitrogen cycle, etc) • How does energy change matter? (change of states) • How do matter and energy interact in nuclear processes such as fusion and fission?
<p>8. The current state of any environment is maintained by the dynamic exchange of the processes that dictate its nature. Changes in any of the interacting processes will impact the current state (for better or worse).</p>	<ul style="list-style-type: none"> • What evidence do we have of change? • How do human activities impact and alter the environment? • What are the effects or results of change? • How do changes in nonliving things affect living things? How do changes in living things affect nonliving things? • How can we conserve and protect our natural resources? • Why are we running out of non-renewable resources?