

Wind Energy Challenge Standards and Benchmarks, Grades 6-12:

Primary Subject(s)

Content of Science

Standard 1

Content of Science Standard 1 5-8 2

Content of Science Standard 1 5-8 2 i (6th Grade)

identify various types of energy (e.g., heat, light, mechanical, electrical, chemical, nuclear);

Content of Science Standard 1 5-8 2 iii (6th Grade)

know that there are many forms of energy transfer, but the total amount of energy is conserved (i.e., that energy is neither created nor destroyed);

Content of Science Standard 1 5-8 2 iii (8th Grade)

distinguish between renewable and non-renewable sources of energy;

Content of Science Standard 1 5-8 3

Content of Science Standard 1 5-8 3 viii (8th Grade)

understand and apply Newton's laws of motion: objects in motion will continue in motion, and objects at rest will remain at rest, unless acted upon by an unbalanced force (inertia). If a greater force is applied to an object, a proportionally greater acceleration will occur; if an object has more mass, the effect of an applied force is proportionally less.

Content of Science Standard 1 9-12 2

Content of Science Standard 1 9-12 2 i (9th-12th Grade)

identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear and electromagnetic;

Content of Science Standard 1 9-12 2 iii (9th-12th Grade)

understand that energy can change from one form to another (e.g., changes in kinetic and potential energy in a gravitational field, heats of reaction, hydroelectric dams) and know that energy is conserved in these changes;

Content of Science Standard 1 9-12 2 vi (9th-12th Grade)

understand that the ability of energy to do something useful (work) tends to decrease (and never increases) as energy is converted from one form to another;

Science and Society

Standard 1

Science and Society Standard 1 5-8 1

Science and Society Standard 1 5-8 1 iii (8th Grade)

describe how technological revolutions have significantly influenced societies (e.g., energy production, warfare, space exploration);

Science and Society Standard 1 5-8 1 iv (8th Grade)

critically analyze risks and benefits associated with technologies related to energy production.

Science and Society Standard 1 9-12 1

Science and Society Standard 1 9-12 1 i (11th-12th Grade)

know how science enables technology but also constrains it, and describe the difference between real technology and science fiction (e.g., rockets vs. antigravity machines; nuclear reactors vs. perpetual-motion machines; medical x-rays vs. Star-Trek tricorders);

Science and Society Standard 1 9-12 1 iii (9th-12th Grade)

evaluate the influences of technology on society (e.g., communications, petroleum, transportation, nuclear energy, computers, medicine, genetic engineering) including both desired and undesired effects and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod);

Science and Society Standard 1 9-12 1 ix (9th-12th Grade)

describe how scientific knowledge helps decision makers with local, national and global challenges (e.g., the waste isolation pilot project -WIPP, mining, drought, population growth, alternative energy, climate change);

Science and Society Standard 1 9-12 1 xiii (9th-12th Grade)

describe how environmental, economic and political interests impact resource management and use in New Mexico;

Scientific Thinking and Practice

Standard 1

Scientific Thinking and Practice Standard 1 5-8 1

Scientific Thinking and Practice Standard 1 9-12 1