

New Mexico Science Content Standards, Benchmarks, and Performance Standards
Science Standards

Kindergarten – 4th Grade

Strand I: Scientific Thinking

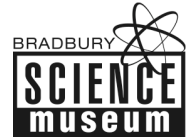
Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

K-4 Benchmark 1: Use scientific methods to observe, collect, record, analyze, predict, interpret, and determine reasonableness of data.

Grade	Performance Standard
K	Use observation and questioning skills in science inquiry (e.g., What happens when something is pushed or pulled?). Ask and answer questions about surroundings and share findings with classmates.
1	Make observations, develop simple questions, and make comparisons of familiar situations (e.g., What does the seed look like when it starts to grow?). Describe relationships between objects (e.g., above, next to, below) and predict the results of changing the relationships (e.g., When that block moves, what will happen to the one next to it?).
2	Conduct simple investigations (e.g., measure the sizes of plants of the same kind that are grown in sunlight and in shade). Make predictions based on observed patterns as opposed to random guessing. Follow simple instructions for a scientific investigation.
3	Collect data in an investigation and analyze those data. Know that the same scientific laws govern investigations in different times and places (e.g., gravity, growing plants).
4	Conduct multiple trials to test a prediction, draw logical conclusions, and construct and interpret graphs from measurements.

K-4 Benchmark 2: Use scientific thinking and knowledge and communicate findings.

Grade	Performance Standard
K	Communicate observations and answer questions about surroundings.
1	Know that simple investigations do not always turn out as planned.
2	Understand that in doing science it is often helpful to work with a team and share findings. Make accurate observations and communicate findings about investigations.
3	Understand that predictions are based on observations, measurements, and cause-and-effect relationships.
4	Communicate ideas and present findings about scientific investigations that are open to critique from others.



**New Mexico Science Content Standards, Benchmarks, and Performance Standards
Science Standards**

Strand II: Content of Science

Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.

K-4 Benchmark 3: Identify forces and describe the motion of objects.

Grade	Performance Standard
K	Observe that things move in many different ways (e.g., straight line, vibration, circular). Know that the position and motion of an object (direction or speed) are changed by pushing or pulling it.
1	Describe ways to make things move, what causes them to stop, and what causes a change of speed, or change of direction. Observe that gravity makes things fall to the ground unless something holds them up.
2	Describe how the strength of a push or pull affects the change in an object's motion (e.g., how a big or small push affects how high a swing rises).
4	Know that energy can be carried from one place to another by waves (e.g., water waves, sound waves), by electric currents, and by moving objects. Describe the motion of an object by measuring its change of position over a period of time. Describe how some forces act on contact and other forces act at a distance (e.g., a person pushing a rock versus gravity acting on a rock).

Strand III: Science and Society

Standard 1: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

K-4 Benchmark 1: Describe how science influences decisions made by individuals and societies.

Grade	Performance Standard
1	Know that men and women of all ethnic and social backgrounds practice science and technology.
2	Understand that everybody can do science, invent things, and formulate ideas. Know that science has discovered many things about objects, events, and nature and that there are many more questions to be answered.
4	Know that both men and women of all races and social backgrounds choose science as a career.



New Mexico Science Content Standards, Benchmarks, and Performance Standards
Science Standards

5th – 8th Grade

Strand I: Scientific Thinking

Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

5-8 Benchmark 1: Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.
Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate finding.

Grade Performance Standard

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| 5 | Plan and conduct investigations, including formulating testable questions, making systematic observations, developing logical conclusions, and communicating findings. |
| 6 | Justify predictions and conclusions based on data. |
| 8 | Evaluate the accuracy and reproducibility of data and observations. |

5-8 Benchmark 2: Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.

Grade Performance Standard

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| 7 | Critique procedures used to investigate a hypothesis. |
| 8 | Know that scientific knowledge is built on questions posed as testable hypotheses, which are tested until the results are accepted by peers. |

Strand II: Content of Science

Standard 1 (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.

5-8 Benchmark 1: Know the forms and properties of matter and how matter interacts.

Grade Performance Standard

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| 7 | Identify characteristics of radioactivity, including: <ul style="list-style-type: none">• release of energy• damage to cells |
| 8 | Identify the protons, neutrons, and electrons within an atom and describe their locations (i.e., in the nucleus or in motion outside the nucleus). |

5-8 Benchmark 3: Describe and explain forces that produce motion in objects.

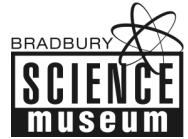
Grade Performance Standard

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| 5 | Understand how the rate of change of position is the velocity of an object.
Recognize that acceleration is the change in velocity with time.
Identify forces in nature (e.g. gravity).
Understand that when a force (e.g. gravity, friction) acts on an object, the object speeds up, slows down, or goes in a different direction. |
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**New Mexico Science Content Standards, Benchmarks, and Performance Standards
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Strand III: Science and Society

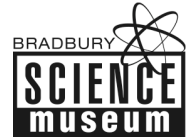
Standard 1: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

5-8 Benchmark 1: Explain how scientific discoveries and inventions have changed individuals and societies.

Grade

Performance Standards

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



New Mexico Science Content Standards, Benchmarks, and Performance Standards
Science Standards

9th – 12th Grade

Strand I: Scientific Thinking

Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

9-12 Benchmark 1: Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.

Grade Performance Standard

- 9-12** Design and conduct scientific investigations that include:
- testable hypothesis
 - results that address hypothesis being investigated
 - predictions based on results
 - re-evaluation of hypothesis and additional experimentation as necessary
- Use scientific reasoning and valid logic to recognize:
- faulty logic
 - cause and effect
 - the difference between observation and unsubstantial inferences and conclusions

Strand I: Content of Science

Standard I (Physical Science): Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

9-12 Benchmark 1: Understand the properties, underlying structure, and reactions of matter.

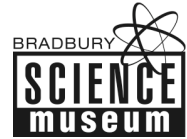
Grade Performance Standard

- 9-12** Understand that matter is made of atoms and that atoms are made of subatomic particles.
Understand atomic structure, including:
- most space occupied by electrons
 - nucleus made of protons and neutrons
 - isotopes of an element
- Know that some atomic nuclei can change, including:
- spontaneous decay
 - fission

9-12 Benchmark 3: Understand the motion of objects and waves, and the forces that cause them.

Grade Performance Standard

- 9-12 Forces**
- Know that there are four fundamental forces in nature: gravitation, electromagnetism, weak nuclear force, and strong nuclear force.
Understand the relationship between force and pressure, and how the pressure of a volume of gas depends on the temperature and the amount of gas.



**New Mexico Science Content Standards, Benchmarks, and Performance Standards
Science Standards**

Strand III: Science and Society

Standard 1: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

9-12 Benchmark 1: Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.

**Grade 9-12 Performance Standard
Science and Technology**

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

Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them.

Know that societal factors can promote or constrain scientific discovery (e.g., government funding, laws and regulations about human cloning and genetically modified organisms, gender and ethnic bias, AIDS research, alternative-energy research).

Describe New Mexico 's role in nuclear science (e.g., Manhattan Project, WIPP, national laboratories).

Understand that scientists have characteristics in common with other individuals (e.g., employment and career needs, curiosity, desire to perform public service, greed, preconceptions and biases, temptation to be unethical, core values including honesty and openness).