

GRADES 9-12
1a

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.

GRADES 9-12

1b

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will identify and communicate sources of unavoidable experimental error.

GRADES 9-12

1C

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.

GRADES 9-12

1d

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will formulate explanations
by using logic and evidence.

GRADES 9-12

1e

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.

GRADES 9-12

1f

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will distinguish between hypothesis and theory as scientific terms.

GRADES 9-12

1g

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will recognize the usefulness and limitations of models and theories as scientific representations of reality.

GRADES 9-12

1h

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will read and interpret topographic and geologic maps.

GRADES 9-12

1i

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).

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1j

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will recognize the issues of statistical variability and the need for controlled tests.

GRADES 9-12

1k

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will recognize the cumulative nature of scientific evidence.

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11

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will analyze situations and solve problems that require combining and applying concepts from more than one area of science.

GRADES 9-12

1m

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.

GRADES 9-12

1h

INVESTIGATION & EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e. g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).