

Knowledge and Skills Statements

(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;

Breakouts

(i) ask questions based on observations or information from

- (D) use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, notebooks, stream tables, soil, sand, gravel, flowering plants, student thermometer, demonstration thermometer, rain gauge, flashlights, ramps, balls, spinning tops, drums, tuning forks, sandpaper, wax paper, items that are flexible, non-flexible items, magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and frog and butterfly life cycle models to observe, measure, test, and compare;

Breakouts

- (i) use tools to observe
- (ii) use tools to measure
- (iii) use tools to test
- (iv) use tools to compare

- (E) collect observations and measurements as evidence;

Breakouts

- (i) collect observations as evidence
- (ii) collect measurements as evidence

- (F) record and organize data using pictures, numbers, words, symbols, and simple graphs; and

Breakouts

- (i) record data using pictures
- (ii) record data using numbers
- (iii) record data using words
- (iv) record data using symbols
- (v) record data using simple graphs
- (vi) organize data using pictures
- (vii) organize data using numbers
- (viii) organize data using words
- (ix) organize data using symbols
- (x) organize data using simple graphs

- (G) develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.

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- (vi) communicate solutions collaboratively in a variety of settings
 - (vii) communicate solutions individually in a variety of formats
 - (viii) communicate solutions collaboratively in a variety of formats
- (C) listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.

Breakouts

- (i) listen actively to others' explanations to identify important evidence
 - (ii) engage respectfully in scientific discussion
- (4) Scientific and engineering practices. The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society. The student is expected to:

- (A) explain how science or an innovation can help others;

Breakouts

- (i) explain how science or an innovation can help others
- (B) identify scientists and engineers such as Alexander Graham Bell, Marie Daly, Mario Molina, and Jane Goodall and explore what different scientists and engineers do.

Breakouts

- (i) identify scientists
- (ii) identify engineers
- (iii) explore what differ16 1.9 (367.6 (pan 402 Tw 1.032.1 (f)-2Tm[(e)8 0 0 10.98 80 0 1id)3 (e)4.7 (n)-2.8 (t)2.3 (if

Breakouts

- (i) conduct a descriptive investigation to explain how physical properties can be changed through processes
- (C) demonstrate that small units such as building blocks can be combined or reassembled to form new objects for different purposes and explain the materials chosen based on their physical properties.

Breakouts

- (i) demonstrate that small units can be combined or reassembled to form new objects for different purposes
 - (ii) explain the materials chosen based on their physical properties
- (7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to:
- (A) explain how objects push on each other and may change shape when they touch or collide; and

Breakouts

- (i) explain how objects push on each other when they touch or collide
 - (ii) explain how objects may change shape when they touch or collide
- (B) plan and conduct a descriptive investigation to demonstrate how the strength of a push and pull changes an object's motion.

Breakouts

- (i) plan a descriptive investigation to demonstrate how the strength of a push changes an object's motion
- (ii) plan a descriptive investigation to demonstrate how the strength of a pull changes an object's motion
- (iii) conduct a descriptive investigation to demonstrate how the strength of a push changes an object's motion
- (iv) conduct a descriptive investigation to demonstrate how the strength of a pull changes an object's motion

- (8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:

- (A) demonstrate and explain that sound is made by vibrating matter and that vibrations can be caused by a variety of means, including sound;

Breakouts

- (i) demonstrate that sound is made by vibrating matter
- (ii) demonstrate that vibrations can be caused is

- (B) explain how different levels of sound are used in everyday life such as a whisper in a classroom or a fire alarm; and

Breakouts

- (i) explain how different levels of sound are used in everyday life

- (C) design and build a device using tools and materials that uses sound to solve the problem of communicating over a distance.

Breakouts

- (i) design a device using tools and materials that use sound to solve the problem of communicating over a distance

- (ii) build a device using tools and materials that use sound to solve the problem of communicating over a distance

- (9) Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

- (A) describe the Sun as a star that provides light and heat and explain that the Moon reflects the Sun's light; and

Breakouts

- (i) describe the Sun as a star that provides light

- (ii) describe the Sun as a star that provides heat

- (iii) explain that the Moon reflects the Sun's light

- (B) observe objects in the sky using tools such as a telescope and compare how objects in the sky are more visible and can appear different with a tool than with an unaided eye.

Breakouts

- (i) observe objects in the sky using tools

- (ii) compare how objects in the sky are more visible with a tool than with an unaided eye

- (iii) compare how objects in the sky can appear different with a tool than with an unaided eye

- (10) Earth and space. The student knows that the natural world includes earth materials that can be observed in systems and processes. The student is expected to:

- (A) investigate and describe how wind and water move soil and rock particles across the Earth's surface such as wind blowing sand into dunes on a beach or a river carrying rocks as it flows;

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- (B) record and compare how the structures and behaviors of animals help them find and take in food, water, and air;

Breakouts

- (i) record how the structures of animals help them find food
 - (ii) record how the structures of animals help them find water
 - (iii) record how the structures of animals help them find air
 - (iv) record how the behaviors of animals help them find food
 - (v) record how the behaviors of animals help them find water
 - (vi) record how the behaviors of animals help them find air
 - (vii) record how the structures of animals help them take in food
 - (viii) record how the structures of animals help them take in water
 - (ix) record how the structures of animals help them take in air
 - (x) record how the behaviors of animals help them take in food
 - (xi) record how the behaviors of animals help them take in water
 - (xii) record how the behaviors of animals help them take in air
 - (xiii) compare how the structures of animals help them find food
 - (xiv) compare how the structures of animals help them find water
 - (xv) compare how the structures of animals help them find air
 - (xvi) compare how the behaviors of animals help them find food
 - (xvii) compare how the behaviors of animals help them find water
 - (xviii) compare how the behaviors of animals help them find air
 - (xix) compare how the structures of animals help them take in food
 - (xx) compare how the structures of animals help them take in water
 - (xxi) compare how the structures of animals help them take in air
 - (xxii) compare how the behaviors of animals help them take in food
 - (xxiii) compare how the behaviors of animals help them take in water
 - (xxiv) compare how the behaviors of animals help them take in air
- (C) record and compare how being part of a group helps animals obtain food, defend themselves, and cope with changes; and

Breakouts

- (i) record how being part of a group helps animals obtain food
- (ii) record how being part of a group helps animals defend themselves
- (iii) record how being part of a group helps animals cope with changes
- (iv) compare how being part of a group helps animals obtain food

