

- (C) Force, motion, and energy. Students investigate equal and unequal forces and the effects these forces have on objects (motion and direction). Additionally, students investigate energy, including mechanical, light, thermal, electrical, and sound. They uncover cycles (e.g., movement of the Earth around the Sun).

- (D) scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well established and highly

- (v) use engineering practices to design solutions to problems
- (C) demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards;

Breakouts

- (i) demonstrate safe practices during classroom investigations as outlined in Texas Education Agency-approved safety standards
- (ii) demonstrate the use of safety equipment during classroom investigations as outlined in Texas Education Agency-approved safety standards

- (iii) construct appropriate graphic organizers used to collect data, including line graphs
 - (iv) construct appropriate graphic organizers used to collect data, including tree maps
 - (v) construct appropriate graphic organizers used to collect data, including concept maps
 - (vi) construct appropriate graphic organizers used to collect data, including Venn diagrams
 - (vii) construct appropriate graphic organizers used to collect data, including flow charts or sequence maps
 - (viii) construct appropriate graphic organizers used to collect data, including input-output tables that show cause and effect
- (G) develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.

Breakouts

- (i) develop models to represent phenomena or design a prototype for a solution to a problem
 - (ii) develop models to represent objects or design a prototype for a solution to a problem
 - (iii) develop models to represent processes or design a prototype for a solution to a problem
 - (iv) use models to represent phenomena or design a prototype for a solution to a problem
 - (v) use models to represent objects or design a prototype for a solution to a problem
 - (vi) use models to represent processes or design a prototype for a solution to a problem
- (2) Scientific and engineering practices. The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:

- (A) identify advantages and limitations of models such as their size, scale, properties, and materials;

Breakouts

- (i) identify advantages of models
 - (ii) identify limitations of models
- (B) analyze data by identifying any rBT0.00b

(iii) examine [the parts of a system's] interdependence in the function of the system

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- (vi) explain how unequal forces acting on an object cause patterns of motion
- (vii) explain how equal forces acting on an object cause transfer of energy
- (viii) explain how unequal forces acting on an object cause transfer of energy
- (B) design a simple experimental investigation that tests the effect of force on an object in a system such as a car on a ramp or a balloon rocket on a string.

Breakouts

- (i) design a simple experimental investigation that tests the effect of force on an object in a system
- (8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:

- (A) investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy;

Breakouts

- (i) investigate the transformation of energy in systems
- (ii) describe the transformation of energy in systems

- (B) describe the transformation of energy in systems

- (A) demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how thnd

(13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments. The student is expected to:

(A) analyze the structures and functions of different species to identify how organisms survive in the same environment; and

Breakouts

(i) analyze the structures of different species to identify how organisms survive in the same environment

(ii) analyze the functions of different species to identify how organisms survive in the same environment

(B) explain how instinctual behavioral traits such as turtle hatchlings returning to the sea and learned behavioral traits such as orcas hunting in packs increase chances of survival.

Breakouts

(i) explain how instinctual behavioral traits increase chances of survival

(ii) explain how learned behavioral traits increase chances of survival