§112.2. Science, Kindergarten, Adopted 2021

(a) Introduction

(A) Scientific and engineering practices. Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, correlational, comparative, or experimental. The method chosen should be appropriate to the grade level and question being asked. Student learning for different types of investigations include descriptive investigations, which has no hypothesis that tentatively answers the research question and involves collecting data and recording observations without making comparisons; correlational and comparative investigations, which has have a hypothesis that predicts a relationship involve collecting data, with measuring variables relevant to the hypothesis that are manipulated and commar.004 Tc 0.006 f 1 -0.7 (m)-11.3 (m)-2.7 (a)-5..m la

collecting data ~~with~~ measuring variables relevant to the hypothesis that are manipulated and comparing results; and experimental investigations, which involve processes similar to comparative investigations but in which a control hypothesis is identified can be tested by

(A) observations are active acquisition of either qualitative or quantitative information from a primary source through the senses
(B) inferences are

(B) (D)

(i) Scientific practices. Students ask questions, plan and conduct descriptive and correlational...

(B) Matter and energy. Matter and energy. Students investigate matter's measurable properties, including ~~mass~~ weight, volume, states, temperature, magnetism, and relative density.

(C) Force, motion, and energy. Students investigate forces, including friction, gravity, and magnetism, to observe their effects on objects. They differentiate between manifestations of energy including ~~mechanical~~, sound, light, thermal, and electrical circuits ~~energy~~. Students observe the ~~cycle~~ transfer of energy and the parts of a system while exploring circuits that produce light and thermal energy. They will build on their understanding of circuits in Grade 5. As students explore thermal energy and ~~electrical~~ energy transfer, ….

(3) Scientific observations, inferences, hypotheses and theories. Students are expected to know that:

(A) observations are active acquisition of either qualitative or quantitative information from a primary source through the senses

(B) inferences are conclusions reached on the basis of observations or reasoning supported by relevant evidence

(~~A~~) (C) hypotheses are tentative and testable statements that must be capable of being supported…

(~~B~~) (D) scientific theories are based on natural and physical phenomena and are capable of being …

b) Knowledge and skills.

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

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

(2) Scientific and engineering practices. The student analyzes and interprets data to derive meaning, identify features and u4.4 i(n)-0.8 9 pt de(e)4.9B (n)-0.b(d)-0.82(d)-0.9 0 Tdl (o)-6.6 (r)11 (m)-6.3 (at)-2.9 9 (at)-h

(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:

...

(B) identify conductors and insulators of thermal energy and ~~electrical~~ ~~energy~~ electricity; and

(C) demonstrate and describe how ~~electrical energy~~ electricity travels in a closed path that can produce

...

(12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:

(A) investigate and explain how most producers can make their own food using sunlight,

(3) Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(A) develop scientific explanations and propose engineering solutions supported by data and models

...

(4) Scientific and engineering practices. The student knows the contributions of scientists ...

(5) Recurring themes and concepts. ...

(E) identify forms of energy and properties of matter;