CHILDREN'S MUSEUM HOUSTON

*Constructioneering* is aligned to the Science and Mathematics TEKS for Kindergarten through Grade 5.

## Kindergarten, Reading/Language Arts

- **communicate ideas effectively through speaking and discussion**
  - K.1(A) listen actively and ask questions to understand information and answer questions using multi-word responses
  - K.1(B) restate and follow oral directions that involve a short, related sequence of actions
  - K.1(C) share information and ideas by speaking audibly and clearly using the conventions of language
  - K.1(D) work collaboratively with others by following agreed-upon rules for discussion, including taking turns
  - K.1(E) develop social communication such as introducing himself/herself, using common greetings, and expressing needs and wants

- **use research skills to plan and present in written, oral, or multimodal formats**
  - K.12(A) generate questions for formal and informal inquiry with adult assistance
  - K.12(B) develop and follow a research plan with adult assistance
  - K.12(C) gather information from a variety of sources with adult assistance
  - K.12(D) demonstrate understanding of information gathered with adult assistance
  - K.12(E) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results

## Kindergarten, Science

- **Scientific investigation and reasoning**. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:
  - K.2(A) ask questions about organisms, objects, and events observed in the natural world;
  - K.2(B) plan and conduct simple descriptive investigations;
  - K.2(E) communicate observations about simple descriptive investigations.
- **Scientific investigation and reasoning**. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:
  - K.3(C) explore that scientists investigate different things in the natural world and use tools to help in their investigations.
- **Scientific investigation and reasoning**. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:
  - K.4(B) use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.
- **Matter and energy**. The student knows that objects have properties and patterns. The student is expected to:
  - K.5(A)observe and record properties of objects, including bigger or smaller, heavier or lighter, shape, color, and texture;
- **Force, motion, and energy**. The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:
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- K.6(C) observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside;

## Kindergarten, Mathematics

- **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
  - K.1(A)apply mathematics to problems arising in everyday life, society, and the workplace;
- **Geometry and measurement**. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:
  - K.6(A) identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles;
  - K.6(B) identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world;
  - K.6(C) identify two-dimensional components of three-dimensional objects.

## First Grade, Reading/Language Arts

- **communicate ideas effectively through speaking and discussion**
  - 1.1(A) listen actively, ask relevant questions to clarify information, and answer questions using multi-word responses
  - 1.1(B) follow, restate, and give oral instructions that involve a short, related sequence of actions
  - 1.1(C) share information and ideas about the topic under discussion, speaking clearly at an appropriate pace and using the conventions of language
  - 1.1(D) work collaboratively with others by following agreed-upon rules for discussion, including listening to others, speaking when recognized, and making appropriate
  - contributions
  - 1.1(E) develop social communication such as introducing himself/herself and others, relating experiences to a classmate, and expressing needs and feelings

- **use research skills to plan and present in written, oral, or multimodal formats**
  - 1.13(A) generate questions for formal and informal inquiry with adult assistance
  - 1.13(B) develop and follow a research plan with adult assistance
  - 1.13(C) identify and gather relevant sources and information to answer the questions with adult assistance
  - 1.13(D) demonstrate understanding of information gathered with adult assistance
  - 1.13(E) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results

## First Grade, Science,

- **Scientific investigation and reasoning**. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:
    - 1.2(A) ask questions about organisms, objects, and events observed in the natural world;
    - 1.2(B) plan and conduct simple descriptive investigations;
    - 1.2(C) communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.
- **Scientific investigation and reasoning**. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:
    - 1.3(B) make predictions based on observable patterns;
    - 1.3(C) describe what scientists do.
- **Matter and energy**. The student knows that objects have properties and patterns. The student is expected to:
    - 1.5(A) classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture;
    - 1.5(C) classify objects by the materials from which they are made.

## First Grade, Mathematics

- **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
    - 1.1(A) apply mathematics to problems arising in everyday life, society, and the workplace;
- **Number and operations**. The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems. The student is expected to:
    - 1.3(F) generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20.
- **Algebraic reasoning**. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:
    - 1.5(G) apply properties of operations to add and subtract two or three numbers.

## Second Grade, Reading/Language Arts

- **communicate ideas effectively through speaking and discussion**
    - 2.1(A) listen actively, ask relevant questions to clarify information, and answer questions using multi-word responses
    - 2.1(B) follow, restate, and give oral instructions that involve a short, related sequence of actions
    - 2.1(C) share information and ideas that focus on the topic under discussion, speaking clearly at an appropriate pace and using the conventions of language

  - 2.1(D) work collaboratively with others by following agreed-upon rules for discussion, including listening to others, speaking when recognized, making appropriate contributions, and building on the ideas of others
  - 2.1(E) develop social communication such as conversing politely in all situations

- **use research skills to plan and present in written, oral, or multimodal formats**
  - 2.13(A) generate questions for formal and informal inquiry with adult assistance
  - 2.13(C) identify and gather relevant sources and information to answer the questions
  - 2.13(E) demonstrate understanding of information gathered
  - 2.13(G) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results

## Second Grade, Science

- **Scientific investigation and reasoning**. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:
  - 2.2(B) plan and conduct descriptive investigations;
  - 2.2(F) compare results of investigations with what students and scientists know about the world.
- **Scientific investigation and reasoning**. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:
  - 2.3(A) identify and explain a problem and propose a task and solution for the problem;
  - 2.3(B) make predictions based on observable patterns;
- **Matter and energy**. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:
  - 2.5(D) combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties.
- **Force, motion, and energy**. The student knows that forces cause change and energy exists in many forms. The student is expected to:
  - 2.6(C) trace and compare patterns of movement of objects such as sliding, rolling, and spinning over time.

## Second Grade, Mathematics

- **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
  - 2.1(A) apply mathematics to problems arising in everyday life, society, and the workplace;
- **Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. The student is expected to:

  - 2.4(B) add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations;
  - 2.4(C) solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.
- **Geometry and measurement**. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:
  - compose two-dimensional shapes and three-dimensional solids with given properties or attributes.

## Third Grade, Reading/Language Arts

- **communicate ideas effectively through speaking and discussion**
  - 3.1(A) listen actively, ask relevant questions to clarify information, and make pertinent comments
  - 3.1(B) follow, restate, and give oral instructions that involve a series of related sequences of action
  - 3.1(C) speak coherently about the topic under discussion, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively
  - 3.1(D) work collaboratively with others by following agreed-upon rules, norms, and protocols
  - 3.1(E) develop social communication such as conversing politely in all situations

- **use research skills to plan and present in written, oral, or multimodal formats**
  - 3.13(A) generate questions on a topic for formal and informal inquiry
  - 3.13(C) identify and gather relevant information from a variety of sources
  - 3.13(E) demonstrate understanding of information gathered
  - 3.13(H) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results

## Third Grade, Science

- **Scientific investigation and reasoning**. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:
  - 3.3(C) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
- **Force, motion, and energy**. The student knows that forces cause change and that energy exists in many forms. The student is expected to:
  - 3.6(A) explore different forms of energy, including mechanical, light, sound, and thermal in everyday life;
  - 3.6(B) demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons;

  - 3.6(C) observe forces such as magnetism and gravity acting on objects.
- **Earth and space**. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:
  - 3.7(B) investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.

## Mathematics, Grade 3

- **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
  - 3.1(A) apply mathematics to problems arising in everyday life, society, and the workplace.
- **Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:
  - 3.4(A) solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction;
  - 3.4(F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts;
  - 3.4(G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties.

## Fourth Grade, Reading/Language Arts

- **communicate ideas effectively through speaking and discussion**
  - 4.1(A) listen actively, ask relevant questions to clarify information, and make pertinent comments
  - 4.1(B) follow, restate, and give oral instructions that involve a series of related sequences of action
  - 4.1(C) express an opinion supported by accurate information, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively
  - 4.1(D) work collaboratively with others to develop a plan of shared responsibilities

- **use research skills to plan and present in written, oral, or multimodal formats**
  - 4.13(A) generate and clarify questions on a topic for formal and informal inquiry
  - 4.13(B) develop and follow a research plan with adult assistance
  - 4.13(C) identify and gather relevant information from a variety of sources
  - 4.13(E) demonstrate understanding of information gathered
  - 4.13(H) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results

## Fourth Grade, Science

- **Scientific investigation and reasoning**. The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:
    - 4.2(D) analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured;
- **Scientific investigation and reasoning**. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:
    - 4.3(C) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

- **Force, motion, and energy**. The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:
    - 4.6(A) differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal;
    - 4.6(B)differentiate between conductors and insulators of thermal and electrical energy;
    - 4.6(C) demonstrate that electricity travels in a closed path, creating an electrical circuit;
    - 4.6(D) design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

## Fourth Grade, Mathematics

- **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
    - 4.1(A) apply mathematics to problems arising in everyday life, society, and the workplace;
- **Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy. The student is expected to:
    - 4.4(D) use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties;
    - 4.4(H) solve with fluency one- and two-step problems involving multiplication and division, including interpreting remainders.

## Fifth Grade, Reading/Language Arts

- **communicate ideas effectively through speaking and discussion**
    - 5.1(A) listen actively to interpret verbal and nonverbal messages, ask relevant questions, and make pertinent comments
    - 5.1(B) follow, restate, and give oral instructions that include multiple action steps

- 5.1(C) give an organized presentation employing eye contact, speaking rate, volume, enunciation, natural gestures, and conventions of language to communicate ideas effectively
- 5.1(D) work collaboratively with others to develop a plan of shared responsibilities

- **use research skills to plan and present in written, oral, or multimodal formats**
  - 5.13(A) generate and clarify questions on a topic for formal and informal inquiry
  - 5.13(C) identify and gather relevant information from a variety of sources
  - 5.13(E) demonstrate understanding of information gathered
  - 5.13(H) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results

## Fifth Grade, Science

- **Scientific investigation and reasoning**. The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:
  - 5.2(A) describe, plan, and implement simple experimental investigations testing one variable;
- **Scientific investigation and reasoning**. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:
  - 5.3(C) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
- **Force, motion, and energy**. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:
  - 5.6(A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;
  - 5.6(D) design a simple experimental investigation that tests the effect of force on an object.

## Mathematics, Grade 5

- **Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
  - 5.1(A) apply mathematics to problems arising in everyday life, society, and the workplace;