

EARLY ELEMENTARY INTEGRATION ACROSS THREE DOMAINS:

Inquiry Science, Mathematics, and Language Development

[Grades K-1]

Science & Engineering	Mathematics	Language Development
<ul style="list-style-type: none">❖ TN Academic Standards for Science❖ Disciplinary core ideas (DCI)❖ Science & engineering practices (SEPs)❖ Cross-cutting concepts (CCCs)	<ul style="list-style-type: none">❖ TN Math Standards❖ Considerations for implementation	<ul style="list-style-type: none">❖ Categories of literacy skills for science/math proficiency❖ English language learner focused strategies

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Grade K

Physical Sciences—Matter and Its Interactions

SEPs

Planning and carrying out controlled investigations Students carry out investigations in groups, making decisions about suitable measurements for data collection in order to answer a question. (K.PS1.1 and K.PS1.2)

Constructing explanations and designing solutions Students generate explanations for natural phenomena that incorporate relevant evidence. (K.PS1.3)

CCCs

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (K.PS1.1)

Structure and Function Students begin to track and describe changes in a system using relative scales. (K.PS1.2)

Energy and Matter Students understand that objects can be deconstructed and reassembled in the same or different ways to form a foundation for understanding transformations of energy and matter. (K.PS1.3)

K.PS1.1 Plan and conduct an investigation to describe and classify different kinds of materials including wood, plastic, metal, cloth, and paper by their observable properties (color, texture, hardness, and flexibility) and whether they are natural or human-made.

K.PS1.2 Conduct investigations to understand that matter can exist in different states (solid and liquid) and has properties that can be observed and tested.

K.PS1.3 Construct an evidence-based account of how an object made of a small set of pieces (blocks, snap cubes) can be disassembled and made into a new object.

K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.

K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

K.CC.B.5 Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, a circle, or as many as 10 things in a scattered configuration. Given a number from 1-20, count out that many objects.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has more of/less of the attribute and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

K.MD.C.4 Sort a collection of objects into a given category, with 10 or less in each category. Compare the categories by group size.

Consider: How many objects are...? Which group has more objects? How many cubes are in this object?

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade K

Life Sciences—From Molecules to Organisms: Structure and Process

SEPs

Engaging in argument from evidence Students create and identify evidence-based arguments and consider degree to which an argument is supported by evidence. (K.LS1.1)

Analyzing and interpreting data Students set a foundation for data analysis by recording their thoughts and observations about patterns and events in a manner that can be shared with others. (K.LS1.2)

Obtaining, evaluating, and communicating information (Obtain/Evaluate) Students read and utilize the information, features, and structure of grade-appropriate texts and media to obtain scientific information useful in forming or supporting a scientific claim. (Communicate) Students utilize writing, drawing, and modeling to communicate information. (K.LS1.3)

CCCs

Structure and Function Students investigate how the roles of specific components of a system affect the functioning of the larger system. (K.LS1.1)

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (K.LS1.2 and K.LS1.)

K.LS1.1 Use information from observations to identify differences between plants and animals (locomotion, obtainment of food, and take in air/gasses).

K.LS1.2 Recognize differences between living organisms and non-living materials and sort them into groups by observable physical attributes.

K.LS1.3 Explain how humans use their five senses in making scientific findings.

K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.

K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

K.CC.B.5 Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, a circle, or as many as 10 things in a scattered configuration. Given a number from 1-20, count out that many objects.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

K.MD.C.4 Sort a collection of objects into a given category, with 10 or less in each category. Compare the categories by group size.

Consider: How many animals in this group walk on four legs? Are there more animals in the group that walks on four legs or in the group with wings?

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade K

Life Sciences—Heredity: Inheritance and Variation of Traits

SEPs

Engaging in argument from evidence Students create and identify evidence-based arguments and consider degree to which an argument is supported by evidence. (K.LS3.1)

CCCs

Structure and Function Students investigate how the roles of specific components of a system affect the functioning of the larger system. (K.LS3.1)

K.LS3.1 Make observations to describe that young plants and animals resemble their parents.

No Relevant Mathematics Standards

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
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- ❖ Asking students to repeat back or summarize instructions

Grade K

Earth and Space Sciences—Earth's Systems

SEPs

Using mathematics and computational thinking Students recognize patterns and make comparisons using counting and number lines. (K.ESS2.1)

Developing and using models Students make drawings, displays, and simple representations for events they experience through their senses, incorporating relative scales when appropriate. (K.ESS2.2)

CCCs

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (K.ESS2.1)

Scale, Proportion, and Quantity Students make comparisons using relative scales. (e.g., bigger or smaller, closer or further, sooner or later). (K.ESS2.2)

K.ESS2.1 Analyze and interpret weather data (precipitation, wind, temperature, cloud cover) to describe weather patterns that occur over time (hourly, daily) using simple graphs, pictorial weather symbols, and tools (thermometer, rain gauge).

K.ESS2.2 Develop and use models to predict weather and identify patterns in spring, summer, autumn, and winter.

K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.

K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

K.CC.B.5 Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, a circle, or as many as 10 things in a scattered configuration. Given a number from 1-20, count out that many objects.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

Consider: How many days did it rain last week? Did we have more sunny days or rainy days in September?

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade K

Earth and Space Sciences—Earth and Human Activity

SEPs

Developing and using models Students make drawings, displays, and simple representations for events they experience through their senses, incorporating relative scales when appropriate. (K.ESS3.1 and K.ESS3.2)

Obtaining, evaluating, and communicating information (Obtain/Evaluate) Students read and utilize the information, features, and structure of grade-appropriate texts and media to obtain scientific information useful in forming or supporting a scientific claim. (Communicate) Students utilize writing, drawing, and modeling to communicate information. (K.ESS3.3)

CCCs

Cause and Effect Students identify cause and effect relationships through observable patterns, utilizing simple tests to provide evidence that supports or refutes their ideas. (K.ESS3.1)

Stability and Change Students begin to question causes for stability and change and why some systems do not change. (K.ESS3.2)

Systems and System Models Students identify and describe parts and their roles in the inner workings as part of a larger system/object. (K.ESS3.3)

K.ESS3.1 Use a model to represent the relationship between the basic needs (shelter, food, water) of different plants and animals (including humans) and the places they live.

K.ESS3.2 Explain the purpose of weather forecasting to prepare for, and respond to, severe weather in Tennessee.

K.ESS3.3 Communicate solutions that will reduce the impact from humans on land, water, air, and other living things in the local environment.

No Relevant Mathematics Standards

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
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- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instruction

Grade K

Engineering, Technology, and Applications of Science—Engineering Design

SEPs

Developing and using models Students make drawings, displays, and simple representations for events they experience through their senses, incorporating relative scales when appropriate. (K.ETS1.1)

Developing and using models Students develop a model, plan, or drawing representing a device. (K.ETS1.2)

CCCs

Systems and System Models Students identify and describe parts and their roles in the inner workings as part of a larger system/object. (K.ETS1.1 and K.ETS1.2)

K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.

K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.

No Relevant Mathematics Standards

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade K

Engineering, Technology, and Applications of Science—Links Among Engineering, Technology, Science, and Society

SEPs

Obtaining, evaluating, and communicating information Students use images or diagrams to identify scientific principles utilized in the design of a device. (K.EST2.1)

CCCs

Scale, Proportion, and Quantity Students make comparisons using relative scales. (e.g. bigger or smaller, closer or further, sooner or later). (K.ETS2.1)

K.EST2.1 Use appropriate tools (magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.

K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has more of/less of the attribute and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

Consider: Tools aligned to this standard and grade level should permit relative measurement and activities involving measurement should consider students' math and numeric abilities.

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Physical Sciences—Energy

SEPs

Analyzing and interpreting data Students set a foundation for data analysis by recording their thoughts and observations about patterns and events in a manner that can be shared with others. (1.PS3.1)

CCCs

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (1.PS3.1)

1.PS3.1 Make observations to determine how sunlight warms Earth's surfaces (sand, soil, rocks, and water).

1.MD.C.5 Organize, represent, and interpret data with up to three categories. Ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Consider: Using a table to represent thoughts and observations of Earth's various surfaces, which surfaces are warmer/cooler, are surfaces dark/light colored, etc.

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Physical Sciences—Waves and Their Application in Technologies for Information Transfer

SEPs

Developing and using models Students make drawings, displays, and simple representations for events they experience through their senses, incorporating relative scales when appropriate. (1.PS4.1)

Analyzing and interpreting data Students set a foundation for data analysis by recording their thoughts and observations about patterns and events in a manner that can be shared with others. (1.PS4.2)

CCCs

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (1.PS4.1)

Cause and Effect Students identify cause and effect relationships through observable patterns, utilizing simple tests to provide evidence that supports or refutes their ideas. (1.PS4.2)

1.PS4.1 Use a model to describe how light is required to make objects visible. Summarize how illumination could be from an external light source or by an object giving off its own light.

1.PS4.2 Determine the effect of placing objects made with different materials (transparent, translucent, opaque, and reflective) in the path of a beam of light.

1.MD.C.5 Organize, represent, and interpret data with up to three categories. Ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Consider: Using a table to represent thoughts and observations of different materials and what happens when these objects are placed in the path of a beam of light. How many materials allow light through? How many materials block the light? etc.

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Life Sciences—From Molecules to Organisms: Structure and Process

SEPs

Constructing explanations and designing solutions Students generate explanations for natural phenomena that incorporate relevant evidence. (1.LS1.1)

Developing and using models Students make drawings, displays, and simple representations for events they experience through their senses, incorporating relative scales when appropriate. (1.LS1.2)

Analyzing and interpreting data Students set a foundation for data analysis by recording their thoughts and observations about patterns and events in a manner that can be shared with others. (1.LS1.3)

CCCs

Structure and Function Students investigate how the roles of specific components of a system affect the functioning of the larger system. (1.LS1.1)

Stability and Change Students begin to track and describe changes in a system using relative scales. (1.LS1.2)

Cause and Effect Students identify cause and effect relationships through observable patterns, utilizing simple tests to provide evidence that supports or refutes their ideas. (1.LS1.3)

1.LS1.1 Recognize the structure of plants (roots, stems, leaves, flowers, fruits) and describe the function of the parts (taking in water and air, producing food, making new plants).

1.LS1.2 Illustrate and summarize the life cycle of plants.

1.LS1.3 Analyze and interpret data from observations to describe how changes in the environment cause plants to respond in different ways.

1.MD.A.1 Order three objects by length. Compare the lengths of two objects indirectly by using a third object.

1.MD.A.2 Measure the length of an object using non-standard units and express this length as a whole number of units.

Consider: Comparing different types of plants: which plant is taller at 3 weeks old? This plant is (2 pencils, 8 cubes, etc.) tall at 3 weeks old.

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Life Sciences—Ecosystems: Interactions, Energy, and Dynamics

SEPs

Planning and carrying out controlled investigations Students carry out investigations in groups, making decisions about suitable measurements for data collection in order to answer a question. (1.LS2.1)

Obtaining, evaluating, and communicating information (Obtain/Evaluate) Students read and utilize the information, features, and structure of grade-appropriate texts and media to obtain scientific information useful in forming or supporting a scientific claim. (Communicate) Students utilize writing, drawing, and modeling to communicate information. (1.LS2.2)

Developing and using models Students make drawings, displays, and simple representations for events they experience through their senses, incorporating relative scales when appropriate. (1.LS2.3)

CCCs

Energy and Matter Students understand that objects can be deconstructed and reassembled in the same or different ways to form a foundation for understanding transformations of energy and matter. (1.LS2.1)

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (1.LS2.2)

Structure and Function Students investigate how the roles of specific components of a system affect the functioning of the larger system. (1.LS2.3)

1.LS2.1 Conduct an experiment to show how plants depend on air, water, minerals from soil, and light to grow and thrive.

1.LS2.2 Obtain and communicate information to classify plants by where they grow (water, land) and the plant's physical characteristics.

1.LS2.3 Recognize how plants depend on their surroundings and other living things to meet their needs in the places they live.

1.MD.A.2 Measure the length of an object using non-standard units and express this length as a whole number of units.

Consider: What is the best way to measure our plants to answer the question of how they depend on (air, water, minerals, light) to grow?

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Earth and Space Sciences—Earth's Place in the Universe

SEPs

Analyzing and interpreting data Students set a foundation for data analysis by recording their thoughts and observations about patterns and events in a manner that can be shared with others. (1.ESS1.1 and 1.ESS1.2)

Planning and carrying out controlled investigations Students carry out investigations in groups, making decisions about suitable measurements for data collection in order to answer a question. (1.ESS1.3)

CCCs

Pattern Students recognize, classify, and record the patterns they observe in nature or man-made objects. (1.ESS1.1 and 1.ESS1.3)

Scale, Proportion, and Quantity Students make comparisons using relative scales. (e.g., bigger or smaller, closer or further, sooner or later). (1.ESS1.2)

1.ESS1.1 Use observations or models of the sun, moon, and stars to describe patterns that can be predicted.

1.ESS1.2 Observe natural objects in the sky that can be seen from Earth with the naked eye and recognize that a telescope, used as a tool, can provide greater detail of objects in the sky.

1.ESS1.3 Analyze data to predict patterns between sunrise and sunset, and the change of seasons.

1.MD.C.5 Organize, represent, and interpret data with up to three categories. Ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Consider: Using a chart to represent thoughts and observations of objects (sun, moon, stars) visible during the day/night, the position of the sun in the sky at various times during the day, the position of the moon during various times of the day/night, etc.

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Engineering, Technology, and Applications of Science—Engineering Design

SEPs

Analyzing and interpreting data Students analyze observations and measurements for a device to ensure it satisfies specifications. (1.ETS1.1)

CCCs

Systems and System Models Students identify and describe parts and their roles in the inner workings as part of a larger system/object. (1.ETS1.1)

1.ETS1.1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information.

No Relevant Mathematics Standards

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
- ❖ Engage students in partnered reading

Writing

- ❖ Providing additional time to complete written responses
- ❖ Asking students to use visual representations including drawings and graphic organizers

Speaking/Listening

- ❖ Engage students in partnered discussion
- ❖ Inviting choral or simultaneous group responses
- ❖ Providing opportunities to use different modalities to respond or show understanding

Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions

Grade 1

Engineering, Technology, and Applications of Science—Links Among Engineering, Technology, Science, and Society

SEPs

Obtaining, evaluating, and communicating information Students use images or diagrams to identify scientific principles utilized in the design of a device. (1.ETS2.1)

CCCs

Scale, Proportion, and Quantity Students make comparisons using relative scales. (e.g. bigger or smaller, closer or further, sooner or later). (1.ETS2.1)

1.ETS2.1 Use appropriate tools (magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

1.MD.A.2 Measure the length of an object using non-standard units and express this length as a whole number of units.

Consider: Tools aligned to this standard and grade level should permit relative measurement and activities involving measurement should consider students' math and numeric abilities.

Vocabulary

- ❖ Pre-teaching vocabulary or concepts
- ❖ Provide practice with key vocabulary words, such as word mapping
- ❖ Using cognates to explain words or concepts

Reading

- ❖ Translate materials to/from students' L1's
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Speaking/Listening

- ❖ Engage students in partnered discussion
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Teacher Input/Interactions

- ❖ Use repetition or restatement in explanations
- ❖ Providing wait time for responses
- ❖ Asking leveled questions
- ❖ Asking students to repeat back or summarize instructions