

Grade 2 Science

Understands and is able to apply core ideas to make sense of science phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1 & S2	Student demonstrates limited progress towards understanding and applying core ideas related to physical science, life science, and earth/space science to make sense of phenomena.	Student demonstrates progress towards understanding and applying core ideas related to physical science, life science, and earth/space science to make sense of phenomena.	Student demonstrates an understanding and application of core ideas related to physical science, life science, and earth/space science to make sense of phenomena. 3* Student is consistently and independently able to apply their understanding of core ideas in science to demonstrate a deeper understanding of phenomena.
<i>Evidence</i>	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
<i>What to look for</i>	<i>Students' evidence of core ideas (foundational science knowledge) span across three units of study:</i> 2-PS1A.1: Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1) 2-PS1A.2: Different properties are suited to different purposes. (2-PS1-2), (2-PS1-3) 2-PS1A.3: A great variety of objects can be built up from a small set of pieces. (2-PS1-3) 2-PS1B.1: Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4) 2-LS2A.1: Plants depend on water and light to grow. (2-LS2-1) 2-LS2A.2: Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)		

	2-LS4D.1: There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) 2-ESS1C.1: Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1) 2-ESS2A.1: Wind and water can change the shape of the land. (2-ESS2-1) 2-ESS2B.1: Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2) 2-ESS2C.1: Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)
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Understands and is able to apply crosscutting concepts to make sense of science phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1 & S2	Student demonstrates limited progress towards understanding and applying crosscutting concepts to make sense of science phenomena.	Student demonstrates progress towards understanding and applying crosscutting concepts to make sense of science phenomena.	Student demonstrates an understanding and application of crosscutting concepts to make sense of science phenomena. 3* Student is consistently and independently able to apply their understanding of crosscutting concepts to demonstrate a deeper understanding of science phenomena.
<i>Evidence</i>	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
<i>What to look for</i>	<i>Students demonstrate a working knowledge about the following elements of crosscutting concepts:</i> <i>(While these elements are relevant across all units, each unit brings to focus a couple crosscutting concepts.)</i> PATTERNS: Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. CAUSE AND EFFECT: (1) Events have causes that generate observable patterns. (2) Simple tests can be designed to gather evidence to support or refute student ideas about causes. SCALE, PROPORTION AND QUANTITY: (1) Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower). (2) Standard units are used to measure length. SYSTEMS AND SYSTEM MODELS: (1) Objects and organisms can be described in terms of their parts. (2) Systems in the natural and designed world have parts that work together. ENERGY AND MATTER: Objects may break into smaller pieces, be put together into larger pieces, or change shapes. STRUCTURE AND FUNCTION: The shape and stability of structures of natural and designed objects are related to their function(s). STABILITY AND CHANGE: (1) Some things stay the same while other things change. (2) Things may change slowly or rapidly.		

Understands and is able to apply practices to gather data and information about science phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1 & S2	Student demonstrates limited progress towards an understanding and application of asking questions, planning and carrying out investigations, obtaining and evaluating information, analyzing data, and using math to gather data and information about science phenomena.	Student demonstrates progress towards an understanding and application of asking questions, planning and carrying out investigations, obtaining and evaluating information, analyzing data, and using math to gather data and information about science phenomena.	Student demonstrates an understanding and application of asking questions, planning and carrying out investigations, obtaining and evaluating information, analyzing data, and using math to gather data and information about science phenomena. 3* Student is consistently and independently able to apply their understanding of science practices (noted above) to demonstrate a deeper understanding of gathering data and information about phenomena.
Evidence	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
What to look for	Students interact with the elements of the <i>practices</i> in the following ways: -Ask questions based on observations to find more information about the natural world. -Ask and/or identify questions that can be answered by an investigation. -Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. -Evaluate different ways of observing and/or measuring a phenomenon to determine which way can answer a question. -Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural world. -Describe how specific images(e.g., a diagram showing how a machine works) support a scientific idea. -Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a scientific claim. -Record information (observations, thoughts, and ideas). -Use and share pictures, drawings, and/or writings of observations. -Use observations (firsthand or from media) to describe patterns and/or relationships in the natural world in order to answer scientific questions. -Compare predictions (based on prior experiences) to what occurred (observable events). -Use counting and numbers to identify and describe patterns in the natural world. -Describe, measure, and/or compare quantitative attributes of different objects and display the data using simple graphs.		

Understands and is able to apply practices to make sense of science phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1 & S2	Student demonstrates limited progress towards an understanding and application of analyzing data, developing and using models, constructing explanations, and engaging in argument from evidence to make sense of science phenomena.	Student demonstrates progress towards an understanding and application of analyzing data, developing and using models, constructing explanations, and engaging in argument from evidence to make sense of science phenomena.	Student demonstrates an understanding and application of analyzing data, developing and using models, constructing explanations, and engaging in argument from evidence to make sense of science phenomena. 3* Student is consistently and independently able to apply their understanding of science practices (noted above) to demonstrate a deeper understanding of making sense of science phenomena.
Evidence	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
What to look for	Students interact with the elements of the <i>practices</i> in the following ways: -Record information (observations, thoughts, and ideas). -Use and share pictures, drawings, and/or writings of observations. -Use observations (firsthand or from media) to describe patterns and/or relationships in the natural world in order to answer scientific questions. -Compare predictions (based on prior experiences) to what occurred (observable events). -Distinguish between a model and the actual object, process, and/or events the model represents. -Compare models to identify common features and differences. -Develop and/or use a model to represent amounts, relationships, relative scales(bigger, smaller), and/or patterns in the natural world. -Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena. -Identify arguments that are supported by evidence. -Distinguish between explanations that account for all gathered evidence and those that do not. -Analyze why some evidence is relevant to a scientific question and some is not. -Distinguish between opinions and evidence in one's own explanations. -Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument. -Construct an argument with evidence to support a claim.		

Understands and is able to apply practices to communicate explanations of science phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1 & S2	Student demonstrates limited progress towards an understanding and application of communicating information, constructing explanations, using models, and engaging in argument from evidence to communicate explanations of science phenomena.	Student demonstrates progress towards an understanding and application of communicating information, constructing explanations, using models, and engaging in argument from evidence to communicate explanations of science phenomena.	Student demonstrates an understanding and application of communicating information, constructing explanations, using models, and engaging in argument from evidence to communicate explanations of science phenomena. 3* Student is consistently and independently able to apply their understanding of science practices (noted above) to demonstrate a deeper understanding of communicating explanations of phenomena.
Evidence	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
What to look for	Students interact with the elements of the <i>practices</i> in the following ways: -Communicate information or design ideas with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas. -Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena. -Distinguish between a model and the actual object, process, and/or events the model represents. -Compare models to identify common features and differences. -Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural world. -Identify arguments that are supported by evidence. -Distinguish between explanations that account for all gathered evidence and those that do not. -Analyze why some evidence is relevant to a scientific question and some is not. -Distinguish between opinions and evidence in one's own explanations. -Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument. -Construct an argument with evidence to support a claim.		

Understands and is able to define problems and design solutions for engineering phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1 & S2	Student demonstrates limited progress towards defining problems and designing solutions for engineering phenomena.	Student demonstrates progress towards defining problems and designing solutions for engineering phenomena.	Student demonstrates an understanding and application of defining problems and designing solutions for engineering phenomena. 3* Student is consistently and independently able to apply their understanding of defining problems and designing solutions to demonstrate a deeper understanding of engineering phenomena.
Evidence	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
What to look for	These are the engineering design core ideas students should understand and apply: (K-2)-ETS1A.1: A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (K-2-ETS1-1), (secondary to K-PS2-2) (K-2)-ETS1A.2: Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1), (secondary to K-ESS3-2) (K-2)-ETS1A.3: Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1) (K-2)-ETS1B.1: Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-1), (secondary to K-ESS3-3), (secondary to 2-LS2-2) (K-2)-ETS1C.1: Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-1), (secondary to 2-ESS2-1) Students interact with the elements of the practices in the following ways: -Asks questions based on observations to find more information about the designed world. -Define a simple problem that can be solved through the development of a new or improved object or tool. -Use tools and/or materials to design and/or build a device that solves a specific problem or a solution to a specific problem.		

	-Generate and/or compare multiple solutions to a problem. -Develop a simple model based on evidence to represent a proposed object or tool. -Develop and/or use a model to represent amounts, relationships, relative scales(bigger, smaller), and/or patterns in the designed world. -Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons. -Make observations(firsthand or from media) and/or measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal. -Make predictions based on prior experiences. -Analyze data from tests of an object or tool to determine if it works as intended. -Use counting and numbers to identify and describe patterns in the designed world. -Use quantitative data to compare two alternative solutions to a problem. -Use tools and/or materials to design and/or build a device that solves a specific problem or a solution to a specific problem. -Generate and/or compare multiple solutions to a problem. -Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence. -Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the designed world. -Describe how specific images(e.g., a diagram showing how a machine works) support an engineering idea. -Communicate solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.
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*Version B for 26-27

Understands and is able to apply core ideas to make sense of science phenomena			
Semester	Not Yet Meeting 1	Developing 2	Meeting 3
S1	Student demonstrates limited progress towards understanding and applying core ideas related to physical science (unit 1) to make sense of phenomena.	Student demonstrates progress towards understanding and applying core ideas related to physical science (unit 1) to make sense of phenomena.	Student demonstrates an understanding and application of core ideas related to physical science (unit 1) to make sense of phenomena. 3* Student is consistently and independently able to apply their understanding of core ideas in science to demonstrate a deeper understanding of phenomena.
S2	Student demonstrates limited progress towards understanding and applying core ideas related to life science and earth/space science (units 2&3) to make sense of phenomena.	Student demonstrates progress towards understanding and applying core ideas related to life science and earth/space science (units 2&3) to make sense of phenomena.	Student demonstrates an understanding and application of core ideas related to life science and earth/space science (units 2&3) to make sense of phenomena. 3* Student is consistently and independently able to apply their understanding of core ideas in science to demonstrate a deeper understanding of phenomena.
<i>Evidence</i>	Evidence may include ongoing informal assessment of 3D performance tasks provided during instruction (<i>observation of student participation, group work samples</i>), formal 3D assessments at the end of investigations (<i>individual student work samples</i>), and 3D summative assessments at the end of a unit.		
<i>What to look for</i>	Students' evidence of core ideas (foundational science knowledge) span across three units of study: 2-PS1A.1: Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1) (Unit 1) 2-PS1A.2: Different properties are suited to different purposes. (2-PS1-2), (2-PS1-3) (Unit 1)		

2-PS1A.3: A great variety of objects can be built up from a small set of pieces. (2-PS1-3) **(Unit 1)**

2-PS1B.1: Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4) **(Unit 1)**

2-LS2A.1: Plants depend on water and light to grow. (2-LS2-1) **(Unit 3)**

2-LS2A.2: Plants depend on animals for pollination or to move their seeds around. (2-LS2-2) **(Unit 3)**

2-LS4D.1: There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) **(Unit 3)**

2-ESS1C.1: Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1) **(Unit 2)**

2-ESS2A.1: Wind and water can change the shape of the land. (2-ESS2-1) **(Unit 2)**

2-ESS2B.1: Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2) **(Unit 2)**

2-ESS2C.1: Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3) **(Unit 2)**