This document includes the following:

- LEAP 2025 Science Assessments Support Key Shifts in Science Instruction
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- Achievement-Level Descriptors

LEAP 2025 Science Assessments Support Key Shifts in Science Instruction

The operational test will assess a student's understanding of the grade 6 LSS for Science reflecting the multiple dimensions of the standards.

Shift: Apply content knowledge and skills (Disciplinary Core Idea, DCI)

In the classroom, students develop skills and content knowledge reflected in the Performance Expectations (PE) and detailed in the Disciplinary Core Ideas (DCI), the key skills and knowledge students are expected to master by the end of the course.

On the test, students answer questions which require content knowledge and skills aligned to PE bundles (groupings of like PEs) and the corresponding DCIs.

Shift: Investigate, evaluate, and reason scientifically (Science and Engineering Practice, SEP)

In the classroom, students do more than learn about science: they "do" science. Simply having content knowledge and scientific skills are not enough; students must investigate and apply content knowledge to scientific phenomena. Phenomena are real world observations that can be explained through scientific knowledge and reasoning (e.g., water droplets form on the outside of a water glass, plants tend to grow toward their light source, different layers of rock can be seen on the side of the road). Science instruction must integrate the practices, or behaviors, of scientists and engineers as students investigate real-world phenomena and design solutions to problems.

On the test, students do more than answer recall questions about science; they apply the practices, or behaviors, of scientists and engineers as students investigate each real-world phenomenon and design solutions to problems.

Shift: Connect ideas across disciplines (Crosscutting Concept, CCC)

In the classroom, students develop a coherent and scientifically-based view of the world, they must make connections across the domains of science (life science, physical science, earth and space science, environmental science, and engineering, technology, and applications of science). These connections are identified as crosscutting concepts (CCC).

On the test, sets of questions assess student application of knowledge across the domains of science for a comprehensive picture of student readiness for their next grade or course in science.

Achievement-Level Definitions

Achievement-level definitions briefly describe the expectations for student performance at each of Louisiana's five achievement levels. The achievement levels are part of Louisiana's cohesive assessment system and indicate a student's ability to demonstrate proficiency on the Louisiana student standards defined for a specific course.

The following list identifies the achievement-level definitions for the LEAP 2025 assessment program.

- **Advanced:** Students performing at this level have **exceeded** college and career readiness expectations and are well prepared for the next level of studies in this content area.
- **Mastery:** Students performing at this level have **met** college and career readiness expectations and are prepared for the next level of studies in this content area.
- **Basic:** Students performing at this level have **nearly met** college and career readiness expectations and may need additional support to be fully prepared for the next level of studies in this content area.
- **Approaching Basic:** Students performing at this level have **partially met** college and career readiness expectations and will need much support to be prepared for the next level of studies in this content area.
- **Unsatisfactory:** Students performing at this level have **not yet met** the college and career readiness expectations and will need extensive support to be prepared for the next level of studies in this content area

Achievement-Level Descriptors

Achievement-level descriptors (ALDs) are content specific and describe the knowledge, skills, and processes that students typically demonstrate at each achievement level. The Achievement-Level Descriptors Table, shown below, is color-coded to highlight the key shifts in science instruction built into the LEAP 2025 science assessments. The codes are: **SEP = blue**; **DCI = orange**; **CCC = green**

Science and Engineering Practices (SEP) are the practices that scientists and engineers use when investigating real world phenomena and designing solutions to problems. There are eight science and engineering practices that apply to all grade levels and content areas.

1. Asking questions (science) and defining problems (engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematical and computational thinking
6. Constructing explanations (science) and designing solutions (engineering)
7. Engaging in argument with evidence
8. Obtaining, evaluating, and communicating information

Crosscutting Concepts (CCC) are common themes that have application across all disciplines of science and allow students to connect learning within and across grade levels or content areas. The seven crosscutting concepts apply to all grade levels and content areas.

1. Patterns (PAT)
2. Cause and effect (C/E)
3. Scale, proportion, and quantity (SPQ)
4. Systems and models (SYS)
5. Energy and matter (E/M)
6. Structure and function (S/F)
7. Stability and change (S/C)

Grade 6 Achievement-Level Descriptors

Performance Expectation	Level 5: Advanced	Level 4: Mastery	Level 3: Basic	Level 2: Approaching Basic
Investigate				
6-MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. CCC: S/C SEP: 3	Evaluate and/or revise an investigation plan to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	Classify variables in an investigation to provide evidence that the change in an object's motion is related to the sum of the forces on the object and the mass of the object.	Put the steps of an investigation plan in order, to collect evidence that the change in an object's motion is related to the forces exerted on the object and the mass of the object.
6-MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. CCC: C/E SEP: 1	Evaluate data to describe a possible change to an investigation and predict an effect of that change on the strength of electric and magnetic forces.	Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.	Identify data that can answer questions about variables that result in changes in electric and magnetic forces.	Identify variables that should be studied to answer a question about factors that cause changes in electric and magnetic forces.
6-MS-PS2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. CCC:C/E SEP: 3	Evaluate and/or revise an investigation plan/experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	Plan an investigation to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	Classify variables in an investigation to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	Put the steps of an investigation plan in order, to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

Performance Expectation	Level 5: Advanced	Level 4: Mastery	Level 3: Basic	Level 2: Approaching Basic
6-MS-LS1-1 Conduct an investigation to provide evidence that living things are made of cells, either one or many different numbers and types. CCC: SPQ SEP: 3	Evaluate or revise an investigation plan to provide evidence that living things are made of cells, either one or many different numbers and types.	Plan an investigation to provide evidence that living things are made of cells, either one or many different numbers and types.	Classify variables in an investigation to provide evidence that living things are made up of one or more cells.	Put the steps of an investigation plan in order, to provide evidence that living things are made up of one or more cells.
Evaluate				
6-MS-PS2-4 Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. CCC: SYS SEP: 7	Construct and present arguments using empirical evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	Support an argument using empirical evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	Describe observations/evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	Identify evidence in simple graphs or diagrams to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
6-MS-PS3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. CCC: SPQ SEP: 4	Construct and interpret data presented in tables, graphs, and diagrams to construct/support explanations about the relationships of kinetic energy to the mass of an object and to the speed of an object.	Construct and interpret graphical displays of data to support explanations about the relationships of kinetic energy to the mass of an object and to the speed of an object.	Interpret qualitative data displays to describe the relationships between kinetic energy and the mass and/or speed of an object.	Use simple data displays to identify the relationships between kinetic energy and the mass and/or speed of an object.

Performance Expectation	Level 5: Advanced	Level 4: Mastery	Level 3: Basic	Level 2: Approaching Basic
6-MS-PS4-1 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave and how the frequency and wavelength change the expression of the wave. CCC: PAT SEP: 5	Use mathematical representations to construct explanations of a model for waves that includes how the amplitude of a wave is related to the energy in a wave and how the frequency and wavelength change the expression of the wave.	Use mathematical representations to support an explanation of a model for waves that includes how the amplitude of a wave is related to the energy in a wave and how the frequency and wavelength change the expression of the wave.	Use graphical representations of mathematical relationships to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave and how changes to the frequency and/or wavelength change the expression of the wave.	Use simple representations of mathematical relationships to identify a simple model for waves that includes how the amplitude of the wave is related to the energy of the wave and the relationship between frequency and wavelength.
6-MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system. CCC: SPQ SEP: 4	Use data presented in tables, graphs, and diagrams to construct explanations about scale properties of objects in the solar system.	Analyze and interpret data presented in tables or graphs to support explanations about scale properties of objects in the solar system.	Interpret qualitative data to compare scale properties of objects in the solar system.	Use simple data displays to identify scale properties of objects in the solar system.
6-MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. CCC: C/E SEP: 7	Construct or revise an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	Support an argument with evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	Describe evidence in simple graphs, diagrams, or text that supports an argument about how increases in human population and per-capita consumption of natural resources impact Earth's systems.	Identify evidence in simple graphs, diagrams, or text that supports an argument about how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Performance Expectation	Level 5: Advanced	Level 4: Mastery	Level 3: Basic	Level 2: Approaching Basic
6-MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. CCC: C/E SEP: 4	Use data presented in tables or graphs to construct a claim describing the effects of resource availability on organisms and populations of organisms in an ecosystem.	Analyze and interpret data presented in tables and graphs to support claims that provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.	Interpret qualitative data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.	Use simple data displays to identify evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
Reason Scientifically				
6-MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures. CCC: SPQ SEP: 2	Develop and/or use a model to construct explanations about the atomic compositions of simple molecules and extended structures.	Develop and/or use a model to describe the similarities and differences in the atomic compositions of simple molecules and extended structures.	Use a model to describe the atomic compositions of simple molecules and extended structures.	Describe why a model can be used to represent the compositions of simple molecules and extended structures.
6-MS-PS2-1 Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. CCC: SYS SEP: 6	Apply Newton's Third Law to revise a solution to a problem or construct an explanation involving the motion of two colliding objects.	Apply Newton's Third Law to design a solution to a problem or support an explanation involving the motion of two colliding objects.	Apply Newton's Third Law to describe the factors in a system or to describe a solution to a problem involving the motion of two colliding objects.	Identify factors of Newton's Third Law in a system involving the motion of two colliding objects.
6-MS-PS3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. CCC: SYS SEP: 2	Develop and/or use a model to construct explanations about when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	Develop and/or use a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	Use a model to compare how the arrangement of objects interacting at a distance changes the amount of potential energy stored in the system.	Use a model to identify that an object or system of objects may contain potential energy, depending on the relative positions of the objects.

Performance Expectation	Level 5: Advanced	Level 4: Mastery	Level 3: Basic	Level 2: Approaching Basic
6-MS-PS4-2 Develop and use a model to describe that waves are refracted, reflected, absorbed, transmitted, or scattered through various materials. CCC: S/F SEP: 2	Develop and/or use a model to construct explanations that describe that waves are refracted, reflected, absorbed, transmitted, or scattered through various materials.	Develop and/or use a model to support explanations that describe how waves are refracted, reflected, absorbed, transmitted, or scattered through various materials.	Use a model to determine if waves are refracted, reflected, absorbed, transmitted, or scattered through various materials.	Use a model to identify properties of waves that can change as they travel through material.
6-MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the reoccurring patterns of lunar phases, eclipses of the sun and moon, and seasons. CCC: PAT SEP: 2	Develop and/or use a model of the Earth-sun-moon system to construct explanations that describe the reoccurring patterns that result in lunar phases, eclipses of the sun and moon, and seasons.	Develop and/or use a model of the Earth-sun-moon system to explain the reoccurring patterns of lunar phases, eclipses of the sun and moon, and seasons.	Use a model to compare patterns in the Earth-sun-moon system during lunar phases, eclipses of the sun and moon, and seasons.	Use a model to identify patterns in the Earth-sun-moon system during lunar phases or seasons.
6-MS-ESS1-2 Use a model to describe the role of gravity in the motions within galaxies and the solar system. CCC: SYS SEP: 2	Develop and/or use a model to construct explanations about the role of gravity in the motions within galaxies and the solar system.	Develop and/or use a model to describe the role of gravity in the motions within galaxies and the solar system.	Use a model to identify the relationship between gravity and the distance between objects in the solar system.	Use a model to identify gravity as the force that holds together the solar system and controls the orbital motions within it.
6-MS-LS1-2 Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. CCC: S/F SEP: 2	Develop and/or use a model to construct explanations about the function of a cell as a whole and ways parts of cells contribute to the function.	Develop and/or use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	Use a model to identify the parts that contribute to the function of a cell as a whole.	Use a model to identify the various functions of a cell.

Performance Expectation	Level 5: Advanced	Level 4: Mastery	Level 3: Basic	Level 2: Approaching Basic
6-MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. CCC: PAT SEP: 6	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	Construct an explanation that identifies patterns of interactions among organisms across multiple ecosystems.	Support an explanation that identifies patterns of interactions among organisms across multiple ecosystems.	Identify an explanation with patterns of interactions among organisms across multiple ecosystems.
6-MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. CCC: E/M SEP: 2	Develop and/or use a model to construct explanations that describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	Develop and/or use a model to support an explanation that describes the cycling of matter and flow of energy among living and nonliving parts of an ecosystem (movement through ecosystem).	Use a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem (movement through ecosystem).	Use a model to identify how matter cycles and energy flows through living and nonliving parts of an ecosystem (food chain).