



INTRODUCTION

Diocese of Baton Rouge Learning Standards for Science

The Diocese of Baton Rouge Learning Standards for Science provide appropriate content for all grades or courses, maintain high expectations and create a logical connection of content across and within grades.

The Diocese of Baton Rouge Learning Standards for Science represent the knowledge and skills needed for students to successfully transition to postsecondary educations and the workplace. The standards call for students to:

- Apply content knowledge
- Investigate, evaluate, and reason scientifically
- Connect ideas across disciplines

The Diocese of Baton Rouge Learning Standards do not dictate curriculum or teaching methods. Decisions about how to teach these expectations are left to local districts, schools, and teachers.

Structure and Components of the Standards

The Diocese of Baton Rouge Learning Standards for Science are arranged by grade levels for kindergarten through grade 8 and content areas for high school. The standards include:

- **Performance expectations** define what students should be able to do by the end of the year.
- **Science and engineering practices** 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
- **Disciplinary Core Ideas** describe the most essential ideas (content) in the major science disciplines that students will learn. Disciplinary Core Ideas are grouped into five science domains.
 1. Physical Science (PS)
 2. Life Science (LS)
 3. Earth and Space Science (ESS)
 4. Environmental Science (EVS)
 5. Engineering, Technology, and Applications of Science (ETS)
- **Crosscutting Concepts** 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
 2. Cause and effect
 3. Scale, proportion, and quantity
 4. Systems and models
 5. Energy and matter
 6. Structure and function
 7. Stability and change
- **Clarification statements** provide examples or additional explanation to the performance expectation.

INTRODUCTION

Interpreting Standard Codes

Each performance expectation is identified by a code and descriptor. The coding is derived by the following formula: DBR- Grade level- Domain and Topic Number- Performance Expectation Number

DBR-3-PS2-1 Motion and Stability: Forces and Interactions	The grade level is 3, the domain is Physical Science, the topic number is 2, and the performance expectation number is 1. The descriptor is, "Motion and Stability: Forces and Interactions."
DBR-7-MS-ESS2-4 Earth's Systems	The grade level is 7, the standard is middle school, the domain is Earth and Space Science, the topic number is 2, and the performance expectation is 4. The descriptor is, "Earth's Systems."
DBR-HS-LS1-1 From Molecules to Organisms: Structures and Processes	The standard is high school, the domain is Life Science, the topic number is 1, and the performance expectation number is 1. The descriptor is, "From Molecules to Organisms: Structures and Processes."

Diagram illustrating the components of a standard code and the structure of a standard document:

Standard Code Breakdown:

- Grade Level:** 3
- Domain:** PS2
- Topic Number:** 2
- Performance Expectation:** 1
- Descriptor:** MOTION AND STABILITY: FORCES AND INTERACTIONS

Standard Document Structure:

MOTION AND STABILITY: FORCES AND INTERACTIONS		
Performance Expectation	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	
Clarification Statement	Examples could include an unbalanced force on one side of an object that can make it start moving, or balanced forces pushing on an object from opposite sides will not produce any motion at all. Investigations include one variable at a time: number, size, or direction of forces.	
Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations: Planning and carrying out investigations to answer questions (science) or test solutions (engineering) to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. 4. Analyzing and interpreting data	FORCES AND MOTION Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it but they add to give zero net force on the object. (3-5.PS2A.a) Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-5.PS2A.b) TYPES OF INTERACTIONS Objects in contact exert forces on each other. (3-5.PS2B.a)	CAUSE AND EFFECT Cause and effect relationships are routinely identified, tested, and used to explain change.