Performance Level Descriptors

Science
Grade 4

2019

WISCONSIN DEPARTMENT OF
Public Instruction

This publication is available from:
Division of Student and School Success
Office of Educational Accountability
(608) 267-1072
https://dpi.wi.gov/assessment/correspondence
July 2024 Wisconsin Department of Public Instruction

Performance Level Descriptors

The Forward Exam is a summative assessment which provides information about what students know and can do in relation to the Wisconsin Academic Standards at each grade-level. Students receive a score based on their performance in each content area. The Student Performance Level is a categorical score.

Range performance levels are based on predetermined score ranges. The score ranges for each content area are set using a process in which Wisconsin educators carefully consider the academic standards, performance level descriptors, and test questions. There are four performance levels: *Developing*, *Approaching*, *Meeting*, and *Advanced*. The goal for all students is to score at the meeting or advanced level.

More-detailed descriptions of the specific concepts and skills are provided for each indicator in the **Performance Level Descriptors** (PLDs). Range PLDs are descriptions of the knowledge and skills expected at each of the four performance levels. The Range PLDs are based on the approved 2017 state-adopted content standards.

PLDs show a *progression of knowledge and skills* expected across the performance levels. It is important to understand that a student should demonstrate an understanding of the knowledge and skills within a performance level as well as all content and skills in any performance levels that precede it, if any. For example, a student who is meeting expectations should also possess the knowledge and skills described at the developing and approaching performance levels. Not all 4th grade crosscutting concepts, science and engineering practices, and disciplinary core ideas, or combinations thereof, are contained within this document.

Policy Performance Level Descriptors			
Developing	**Approaching**	**Meeting**	**Advanced**
Student is at the beginning stages of developing the knowledge and skills described in the Wisconsin Academic Standards for their grade level needed to be on-track for future learning.	Student is approaching the knowledge and skill expectations described in the Wisconsin Academic Standards for their grade level needed to be on-track for future learning.	Student is meeting the knowledge and skill expectations described in the Wisconsin Academic Standards for their grade level and is on-track for future learning.	Student demonstrates a thorough understanding of the knowledge and skills described in the Wisconsin Academic Standards for their grade level and is on-track for future learning.

Range Performance Level Descriptors			
Life Science: Students use science and engineering practices, crosscutting concepts, and an understanding of **life science** disciplinary core ideas to make sense of phenomena and solve problems.			
Developing	**Approaching**	**Meeting**	**Advanced**
A student at this level Sometimes describes primary functions of main structures in everyday plants and animals.	**A student at this level** Can analyze evidence to determine if it supports a claim about the role of external structures of plants and animals in supporting survival and reproduction.	**A student at this level** Can provide feedback and ask questions about a claim and its supporting evidence about the role of internal and external structures of plants and animals in supporting survival, growth, behavior, and reproductive success.	**A student at this level** Can create, improve, or analyze a model showing different plant or animal structures working together as parts of a system to support survival, growth, behavior, and reproductive success.
Sometimes identifies important sense receptors within a system that supports basic animal behaviors.	Can give evidence of the sequence of events resulting in a given animal behavior (i.e., sensory input, sense receptor, brain processing, behavioral output).	Can develop a model of an animal behavior (phenomenon) showing various components (i.e., sensory input, sense receptor, the brain, behavioral output) working together as a system.	Can create or improve a model of a phenomenon based on evidence to explain how sensory systems and behavioral output function to support animal survival, growth, and reproductive success.
Sometimes uses a model to recognize that a variety of factors in the environment can be sensed by animals (e.g., sound, light, odor, temperature).	Can describe how data shows a cause-and-effect relationship between an environmental stimuli and an animal's behavior.	Can analyze an animal's behavior and describe reasonable, possible initial causes for it based on given evidence.	Can develop a model of sensory systems showing how animals' memories can impact future behavior, survival, and reproduction.
Physical Science: Students use science and engineering practices, crosscutting concepts, and an understanding of **physical science** disciplinary core ideas to make sense of phenomena and solve problems.			
Developing	**Approaching**	**Meeting**	**Advanced**

A student at this level Sometimes uses given evidence to describe the relative speed of an object (e.g., faster vs. slower).	**A student at this level** Can describe that the speed of a given object is related to the energy of the object (e.g., the faster an object is moving, the more energy it possesses).	**A student at this level** Can interpret simple quantitative data to support the idea that the speed of a given object is related to the energy of the object (e.g., the faster an object is moving, the more energy it possesses).	**A student at this level** Can use evidence and reasoning to construct an explanation for how a given phenomenon affects the speed and related energy of an object.
Sometimes identifies examples showing a transfer of energy.	Can describe the purpose of an investigation of a phenomenon related to energy transfer (e.g., moving objects, sound, light, heat, electric currents).	Can plan and conduct an investigation that fairly tests a phenomenon involving the transfer of energy from place to place (e.g., moving objects, sound, light, heat, electric currents).	Can obtain and evaluate evidence from multiple sources to design a solution to a problem related to the transfer of energy.
Sometimes identifies a device that converts energy from one type to another (e.g., a light bulb to convert electrical energy into light energy).	Can identify a possible solution to a given problem involving the conversion of energy from one form to another.	Can design an evidence-based improvement to local systems (e.g., transportation, energy grid) to reduce the environmental impact of the conversion of energy from one form to another.	Can analyze and interpret evidence gathered from testing a device that converts energy from one form to another and use the results of the test to address problems in the design or improve its functioning.
Sometimes identifies a phenomenon in which waves can cause an object to move.	Can compare waves in phenomena in terms of amplitude and wavelength.	Can develop a model of a phenomenon related to wave behavior that describes wave amplitude, wavelength, or motion of objects (e.g., wave models of loud vs soft sound).	Can design a solution to transfer information over a distance, comparing methods using waves (e.g., sound, light) to other methods using patterns in addressing particular criteria and constraints.
Earth and Space Science: Students use science and engineering practices, crosscutting concepts, and an understanding of **earth and space science** disciplinary core ideas to make sense of phenomena and solve problems.			
Developing	**Approaching**	**Meeting**	**Advanced**
A student at this level	**A student at this level**	**A student at this level**	**A student at this level**

Sometimes uses fossil evidence to infer a basic feature of what an environment used to be like (e.g., marine fossils indicate that in the past a landscape was covered in water).	Can ask cause and effect questions about rock layers, fossils, and geological features that could lead to productive investigations about these phenomena.	Can use a diagram of rock layers and fossils, as well as other geological features such as canyons, to help explain how an environment has changed over time.	Can design a solution that addresses particular criteria and constraints, to prevent water, ice, or wind from impacting a particular landscape.
Sometimes recognizes which type of maps can be used to best locate different land and water features on Earth.	Can use evidence from given topographic maps to identify various Earth features (e.g., mountain ranges, ocean trenches, ocean floor structures, fault lines, volcanoes).	Can use patterns in a map as evidence to explain where geologic processes are likely to occur (e.g., earthquakes, erosion, volcanoes).	Can evaluate a map of a fantasy land to describe where it does or does not show reasonable patterns of geologic features.
Sometimes identifies examples of natural resources that humans use for energy.	Can use given evidence to identify cause and effect relationships between the use of a natural resource and its likely impact on the environment.	Can analyze and interpret patterns in evidence to describe that energy and fuels are derived from natural resources (e.g., fossil fuels, solar, wind, water) and their uses can have various effects on the environment.	Can design a solution based on evidence from multiple sources to a problem related to the use of natural resources and their effects on the environment.
Sometimes identifies possible negative impacts to humans from a natural Earth process (e.g., an earthquake, volcano, flood, landslide).	Can use evidence to design a possible solution to reduce the impacts of natural Earth processes on humans.	Can use evidence to describe how one Earth process can have a greater negative impact compared to another Earth process in a given area or region.	Can use evidence to generate multiple possible solutions to reduce the impacts of natural Earth processes on humans and then evaluate which one best addresses criteria and constraints.
Engineering, Technology, and Applications of Science: Students use science and engineering practices, crosscutting concepts, and an understanding of **engineering, technology and applications of science** disciplinary core ideas, to make sense of phenomena and solve problems.			
Developing	**Developing**	**Developing**	**Developing**
A student at this level Sometimes uses scientific understanding to define criteria for a simple design problem that	**A student at this level** Can use scientific understanding to define a problem related to local phenomena that can be solved with the development of a new or	**A student at this level** Can use given scientific information and information about an everyday situation or phenomenon to design a solution to a problem that includes	**A student at this level** Can use scientific and engineering practices and understanding to evaluate multiple possible solutions to a problem and describe how well the solution

includes responding to a human need or want.	improved object, tool, process, or system.	responding to needs or wants of humans.	addresses the constraints within which the problem must be solved.
Sometimes uses scientific understanding to identify which tools and methods could be used to collect data for a given investigation.	Can use scientific understanding to make conclusions related to how well a model works or a prototype performs against given criteria and constraints.	Can conduct fair tests in which variables are controlled and possible failure points are considered when designing a prototype to solve problems related to a particular local phenomenon.	Can use scientific and engineering practices and understanding to evaluate a range of new technologies to determine how they may change how people live and interact with each other.