

Washington Comprehensive Assessment Program

Performance Level Descriptors

Performance Level Descriptors give teachers, parents/guardians and students more information about a student's strengths and areas for improvement after taking our state assessments. Performance Level Descriptors are broken down by grade and by the score levels students can earn: Basic (Level 2), Proficient (Level 3) and Advanced (Level 4). There are no descriptors for Below Basic (Level 1).



Science Performance Descriptors

High School

Basic

Students demonstrate an emerging scientific understanding of systems, inquiry, and applying science to design solutions to human problems.

EALR 1: Properties, Structure, and Changes in Systems

Students use scientific concepts and principles to describe systems. Students are able to describe the properties and characteristics of the parts of a system. Students are able to use the properties and characteristics of the parts of a system to describe how those parts function in the system. Students are able to describe the input, output, and transfer of matter, energy, and information within a system. Students are able to describe the effect of changes within a system.

For Example: Describe matter and energy transfers within a system such as:

- Describe a ball's potential energy and kinetic energy as it rolls down a ramp.
- Why are cloudy winter nights usually warmer than clear winter nights?
- Describe how a plant uses sunlight and carbon dioxide (CO₂).

EALR 2: Inquiry in Science

Students can do scientific inquiry while exhibiting an understanding of the nature of science. Students are able to identify variables and write conclusions from model scientific investigations. Students are able to identify how the nature of science affects investigations.

For Example: Write a conclusion to the investigation described in the scenario.

In your conclusion, be sure to:

- Include supporting data from the table
- Explain how the data supports your conclusion

EALR 3: Application of Science

Students demonstrate their ability to scientifically plan solutions to human problems in societal contexts. Students demonstrate an understanding of the effects of a solution. Students are able to meet technological design challenges using the skills of science. Students demonstrate knowledge that science and technology are human endeavors, interrelated to each other, to society, and to the workplace.

For Example:

- Which design change would solve the problem?
- Describe an effect of human activities on an ecosystem.
- Describe technologies that enable scientists to safely measure events.

Science Performance Descriptors

High School

Proficient

Students demonstrate a scientific understanding of systems, inquiry, and applying science to design solutions to human problems.

EALR 1: Properties, Structure, and Changes in Systems

Students understand and use scientific concepts and principles to analyze systems. Students are able to examine the basis for the properties and characteristics of the parts of a system. Students are able to use the properties and characteristics of the parts of a system to describe how those parts function in the system. Students are able to describe the input, output, and transfer of matter, energy, and information within and among systems. Students are able to describe the effect of changes within and among systems.

For Example: What is the effect of changing an input to a system? Such as:

- How does doubling the flow of water in a stream affect erosion?
- How does doubling the amount of fertilizer for a plant affect the plant growth?
- How does doubling the force acting on an object affect the motion of the object?

EALR 2: Inquiry in Science

Students understand and can do scientific inquiry while exhibiting an understanding of the nature of science. Students demonstrate that they have developed the knowledge and skills necessary to do systematic and complex scientific investigations. Students show an understanding of how the nature of science affects inquiry.

For Example: Plan a controlled investigation that includes:

- Investigative Question
- Hypothesis
- Materials
- Procedure that includes two controlled variables, one manipulated variable, one responding (dependent) variable, an experimental control condition (when appropriate), a description of how often measurements are taken and recorded, and the logical steps to perform the investigation.

EALR 3: Application of Science

Students demonstrate their ability to scientifically plan solutions to human problems in societal contexts. Students apply design process to plan solutions to human problems. Students are able to meet technological design challenges using the skills of science. Students demonstrate an understanding that science and technology are human endeavors, interrelated to each other, to society, and to the workplace.

For Example: What scientific concept is used in the solution to a problem?

Science Performance Descriptors

High School

Advanced

Students demonstrate a highly developed level of scientific understanding of systems, inquiry, and applying science when designing solutions to human problems.

EALR 1: Properties, Structure, and Changes in Systems

Students understand and use scientific concepts and principles to analyze systems and subsystems. Students are able to examine the basis for the properties and characteristics of a system and the parts of a system. Students are able to use the properties and characteristics of the parts of a system to describe how those parts function in the system. Students are able to describe and predict the input, output, and transfer of matter, energy, and information within and among systems. Students are able to predict the effect of changes within and among systems.

For Example: What is the effect of changing a component within a system? Such as:

- How would removing a planet from the Solar System affect the Earth?
- How would adding an organism to an ecosystem affect the ecosystem?
- Explain why the stopping distance of a car is four times greater when traveling twice as fast?

EALR 2: Inquiry in Science

Students demonstrate a deep understanding of scientific inquiry and the nature of science. Students develop scientific inquiries to answer their own questions. Students use their extensive knowledge and well-developed skills when performing systematic, complex scientific investigations. Students apply their understanding of the nature of science to improve the validity of scientific inquiry and deal with controversies.

For Example: Plan a controlled investigation that includes:

- An experimental control condition (when appropriate)
- Additional validity measures to insure the manipulated variable is causing the changes in the responding variable

EALR 3: Application of Science

Students apply their deep understanding of systems and inquiry to scientifically plan solutions to human problems in societal contexts. Students document their design process while planning scientific solutions to human problems. Students are able to solve technological design challenges using the concepts and processes of science and technology. Students demonstrate understanding that science and technology are human endeavors, interrelated to each other, to society, and to the workplace.

For Example: Design a new plan to solve a problem using scientific understandings and tests.