

Kentucky Science Assessment Performance Level Descriptors

Science – Grade 11

Distinguished Performance Level

A student performing at the **Distinguished** performance level for grade 11 science has a comprehensive understanding of the three dimensions of the science and engineering concepts and practices incorporated in the Kentucky Academic Standards for science up through grade 11. The student consistently communicates ideas in a sophisticated and complex manner, using thorough supporting detail and explicit examples. The student reasons and solves problems by using appropriate strategies in an insightful way. Connections between concepts/ideas from different areas of science, when appropriate, are justified and insightful.

The student at the **Distinguished** performance level will demonstrate knowledge, skills, and abilities related to the Kentucky Academic Standards for grade 11 science such as:

1. Can evaluate and revise a sophisticated argument based on evidence to determine causal or correlational relationships.
2. Can make insightful predictions based on patterns evaluated in mathematical representations and computer simulations of phenomena.
3. Can consistently make and defend a claim based on valid information, or construct effective counter arguments.
4. Can predict complex cause and effect relationships from observed patterns within a system.
5. Can develop, evaluate, and revise a complex investigation.
6. Can use detailed models to justify a claim.
7. Can clearly identify non-obvious relationships within complex systems.
8. Can manipulate, evaluate and revise complex or incomplete models, including testing the reliability and merits and limitations of the model.
9. Can identify and evaluate solutions to a problem by constructing insightful explanations based on evidence.

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Proficient Performance Level

A student performing at the **Proficient** performance level for grade 11 science has a broad understanding of the three dimensions of the science and engineering concepts and practices incorporated in the Kentucky Academic Standards for science up through grade 11. The student usually communicates ideas accurately using clear and appropriate examples, supporting or justifying those ideas with relevant details and evidence. Problem-solving and critical thinking skills are used effectively. Connections between concepts/ideas from different areas of science, when present, are reasonable and appropriate.

The student at the **Proficient** performance level will demonstrate knowledge, skills, and abilities related to the Kentucky Academic Standards for grade 11 science, such as:

1. Can construct a relevant argument based on evidence to determine causal or correlational relationships.
2. Can make predictions based on patterns identified in mathematical representations and computer simulations of phenomena.
3. Can make and defend a claim based on valid information, or construct counter arguments.
4. Can predict cause and effect relationships from observed patterns within a system.
5. Can plan and evaluate a complex investigation.
6. Can develop or use models to support a claim.
7. Can identify important relationships within systems.
8. Can manipulate, evaluate and revise models, including testing the reliability and merits and limitations of the model
9. Can identify and evaluate solutions to a problem by constructing appropriate explanations based on evidence.

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Apprentice Performance Level

A student performing at the **Apprentice** performance level for grade 11 science has a basic understanding of the three dimensions of the science and engineering concepts and practices incorporated in the Kentucky Academic Standards for science up through grade 11. The student demonstrates some problem-solving and critical thinking skills, but they are not consistently applied. The student communicates ideas in a basic manner, but explanations, solutions or justifications may be unclear or ineffective.

The student at the **Apprentice** performance level will demonstrate knowledge, skills, and abilities related to the Kentucky Academic Standards for grade 11 science such as:

1. Can identify an argument based on limited evidence demonstrating a basic understanding of relationships.
2. Can identify patterns in mathematical representations and computer simulations of phenomena.
3. Can attempt to make a claim based on valid information.
4. Can select appropriate tools to collect and record data.
5. Can use simplistic or incomplete models to support a claim.
6. Can identify limited or basic relationships within systems.
7. Can perform limited evaluation or manipulation of a model which may include testing the reliability and merits and limitations of the model.
8. Can identify potential solutions to a problem based on evidence.

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Novice Performance Level

A student performing at the **Novice** performance level for grade 11 science has a minimal understanding of the three dimensions of the science and engineering concepts and practices incorporated in the Kentucky Academic Standards for science up through grade 11. The student communicates ideas ineffectively or inaccurately, providing little detail and little or no support. Attempts at problem solving or critical thinking are minimal or inappropriate.

The student at the **Novice** performance level does not demonstrate the knowledge, skills, and abilities to be classified into the Apprentice performance level.