



Achievement Level Descriptors
for
Biology

Georgia Department of Education
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Achievement Levels and Achievement Level Descriptors

With the implementation of the Georgia Milestones Assessment System, Georgia educators have developed four achievement levels to describe student mastery and command of the knowledge and skills outlined in Georgia's content standards. Most students have at least some knowledge of the content described in the content standards; however, achievement levels succinctly describe how much mastery a student has. Achievement levels give meaning and context to scale scores by describing the knowledge and skills students must demonstrate to achieve each level.

The four achievement levels on Georgia Milestones are *Beginning Learner*, *Developing Learner*, *Proficient Learner*, and *Distinguished Learner*. The general meaning of each of the four levels is provided below:

Beginning Learners do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students **need substantial academic support** to be prepared for the next grade level or course and to be on track for college and career readiness.

Developing Learners demonstrate partial proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students **need additional academic support** to ensure success in the next grade level or course and to be on track for college and career readiness.

Proficient Learners demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students **are prepared** for the next grade level or course and are on track for college and career readiness.

Distinguished Learners demonstrate advanced proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students **are well prepared** for the next grade level or course and are well prepared for college and career readiness.

More detailed and content-specific concepts and skills are provided for each grade, content area, and course in the **Achievement Level Descriptors (ALDs)**. ALDs are narrative descriptions of the knowledge and skills expected at each of the four achievement levels and were developed for each grade level, content area, and course by committees of Georgia educators in March 2015 and July 2015. The ALDs are based on the state-adopted content standards.

ALDs show a progression of knowledge and skills for which students must demonstrate competency across the achievement levels. It is important to understand that a student should demonstrate mastery of the knowledge and skills within his/her achievement level *as well as all content and skills in any achievement levels that precede his/her own, if any*. For example, a Proficient Learner should also possess the knowledge and skills of a Developing Learner *and* a Beginning Learner.

POLICY ALDs			
Beginning Learner	Developing Learner	Proficient Learner	Distinguished Learner
<p>Beginning Learners do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia’s content standards. The students need substantial academic support to be prepared for the next grade level or course and to be on track for <i>college and career readiness</i>.</p>	<p>Developing Learners demonstrate partial proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia’s content standards. The students need additional academic support to ensure success in the next grade level or course and to be on track for <i>college and career readiness</i>.</p>	<p>Proficient Learners demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia’s content standards. The students are prepared for the next grade level or course and are on track for <i>college and career readiness</i>.</p>	<p>Distinguished Learners demonstrate advanced proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia’s content standards. The students are well prepared for the next grade level or course and are well prepared for <i>college and career readiness</i>.</p>
RANGE ALDs			
Beginning Learner	Developing Learner	Proficient Learner	Distinguished Learner
<p>A student who achieves at the Beginning Learner level demonstrates minimal command of the course standards. The pattern exhibited by student responses indicates that students are most likely able to</p> <ul style="list-style-type: none"> recognize that different macromolecules provide organisms with different nutrients; recognize the structure and function of DNA; recognize that organisms can be grouped into six kingdoms based on similarities; recognize that humans affect their environment; recognize that the theory of evolution describes changes in organisms over time; 	<p>A student who achieves at the Developing Learner level demonstrates partial command of the course standards. The pattern exhibited by student responses indicates that students are most likely able to</p> <ul style="list-style-type: none"> identify the function of each of the four major macromolecules (carbohydrates, proteins, lipids, nucleic acids); distinguish between osmosis and diffusion; compare hypertonic, hypotonic, and isotonic solutions; distinguish between DNA and RNA; compare how structures vary between the six kingdoms (archaebacteria, eubacteria, protists, fungi, plants, animals); 	<p>A student who achieves at the Proficient Learner level demonstrates proficiency of the course standards. The pattern exhibited by student responses indicates that students are most likely able to</p> <ul style="list-style-type: none"> explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction; identify enzymes as catalysts; explain the impact of water on life processes (osmosis, diffusion); explain the role of DNA in storing and transmitting cellular information; 	<p>A student who achieves at the Distinguished Learner level demonstrates advanced proficiency of the course standards. The pattern exhibited by student responses indicates that students are most likely able to</p> <ul style="list-style-type: none"> recognize the application of homeostasis given a real-world scenario; describe how changes in the genetic code of an organism can result in the expression of advantageous traits; analyze how genetic manipulation by natural or artificial processes changes the genetic frequency of traits; explain the advantages and disadvantages of sexual and asexual reproduction;

<ul style="list-style-type: none"> • recognize standard laboratory tools; and • recognize that scientific investigators control the conditions of their experiments to produce valuable data. 	<ul style="list-style-type: none"> • assess and explain human activities that influence and modify the environment, such as global warming, population growth, pesticide use, and water and power consumption; • evaluate the role of natural selection in the development of the theory of evolution by tracing the history of the theory; • describe standard laboratory and field investigation safety; • describe the appropriate use of tools and instruments for scientific investigations; • describe how scientific knowledge is developed; • describe characteristics of living things; and • describe characteristics of a virus. 	<ul style="list-style-type: none"> • explain the role of meiosis in reproductive variability using Mendel's law; • describe the relationships between changes in DNA and the potential appearance of new traits, including alterations during replication, insertions, deletions, and substitutions; • compare sexual reproduction and asexual reproduction; • describe the processes of photosynthesis and respiration; • compare how structures and functions vary between the six kingdoms (archaebacteria, eubacteria, protists, fungi, plants, animals); • examine the evolutionary basis of modern classification systems; • compare and contrast viruses with living organisms; • investigate the relationships between organisms, populations, communities, ecosystems, and biomes; • explain the flow of matter and energy through ecosystems by arranging components of a food chain according to energy flow; • compare the amounts of energy in the levels of an energy pyramid; • explain the need for cycling of major nutrients (C, O, H, N, P); 	<ul style="list-style-type: none"> • analyze the relationships between different cellular processes and how some of these processes are complementary; • analyze the need for cycling of essential elements in an environment; • derive conclusions based on data; • explain why biodiversity is essential to the success of an environment and how successful species evolve; • evaluate a scientific process for bias; • predict the amount of energy at a secondary or tertiary level of an energy pyramid; • predict successional change based on evidence; and • predict behavioral adaptations based on real-world scenarios.
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