

### 5E Instructional Cycle

Stage	Teacher Does Learning Experience ... strategies/activities	Student Does
<p><b>ENGAGE</b> Initiates the learning task. The activity should make connections between past and present learning experience and anticipate activities and organize students' thinking toward the learning outcomes and current activities.</p>	<ul style="list-style-type: none"> <li>• creates interest</li> <li>• generates curiosity</li> <li>• raises questions and problems</li> <li>• Elicits responses that uncover students' current knowledge about the concept/topic</li> </ul>	<p>Asks questions such as, Why did this happen? What do I already know about this? What can I find out about this? How can this problem be solved?</p> <p>Shows interest in the topic.</p>
<p><b>EXPLORE</b> Provides students with a common base of experiences within which current concepts, processes, and skills are identified and developed.</p>	<ul style="list-style-type: none"> <li>• encourages students to work together without direct instruction from the teacher.</li> <li>• observes and listens to students as they interact.</li> <li>• asks probing questions to redirect students' investigations when necessary.</li> <li>• provides time for students to puzzle through problems.</li> <li>• acts as a consultant for students</li> </ul>	<ul style="list-style-type: none"> <li>• thinks creatively within the limits of the activity</li> <li>• tests predictions and hypotheses</li> <li>• forms new predictions and hypotheses</li> <li>• tries alternatives to solve a problem and discusses them with others</li> <li>• records observations and ideas</li> <li>• suspends judgment</li> <li>• tests ideas</li> </ul>
<p><b>EXPLAIN</b> Focuses students' attention on a particular aspect of their engagement and exploration experiences; provides opportunities to demonstrate their conceptual understanding, process skills, or behaviors. This phase also provides opportunities for teachers to introduce a concept, process, or skill.</p>	<ul style="list-style-type: none"> <li>• encourages students to explain concepts and definitions in their own words.</li> <li>• asks for justification (evidence) and clarification from students</li> <li>• formally provides definitions, explanations, and new vocabulary</li> <li>• uses students' previous experiences as the basis for explaining concepts</li> </ul>	<ul style="list-style-type: none"> <li>• explains possible solutions or answers to other students</li> <li>• listens critically to other students' explanations</li> <li>• questions other students' explanations</li> <li>• listens to and tries to comprehend explanations offered by the teacher</li> <li>• refers to previous activities</li> </ul>

<p><b>ELABORATE</b> Challenges and extends students' conceptual understanding and skills. Through new experiences, the students develop deeper and broader understanding, more information, and adequate skills.</p>	<ul style="list-style-type: none"> <li>• expects students to use vocabulary, definitions, and explanations provided previously in new context</li> <li>• encourages students to apply the concepts and skills in new situations</li> <li>• reminds students of alternative explanations</li> <li>• refers students to alternative explanations</li> </ul>	<ul style="list-style-type: none"> <li>• applies new labels, definitions, explanations, and skills in new, but similar, situations</li> <li>• uses previous information to ask questions, propose solutions, make decisions, and design experiments</li> <li>• draws reasonable conclusions from evidence</li> <li>• records observations and explanations</li> </ul>
<p><b>EVALUATE</b> Encourages students to assess their understanding and abilities and provide opportunities for teachers to evaluate student progress.</p>	<ul style="list-style-type: none"> <li>• refers students to existing data and evidence and asks, "What do you already know?" Why do you think ...?</li> <li>• observes students as they apply new concepts and skills</li> <li>• assesses students' knowledge and/or skills</li> <li>• looks for evidence that students have changed their thinking</li> <li>• allows students to assess their learning and group process skills</li> <li>• asks open-ended questions such as, Why do you think...? What evidence do you have? What do you know about the problem? How would you answer the question?</li> </ul>	<ul style="list-style-type: none"> <li>• checks for understanding among peers</li> <li>• answers open-ended questions by using observations, evidence, and previously accepted explanations</li> <li>• demonstrates an understanding or knowledge of the concept or skill</li> <li>• evaluates his or her own progress and knowledge</li> <li>• asks related questions that would encourage future investigations</li> </ul>

Bybee, R. W. (1997). *Achieving scientific literacy from purposes to practices*. Portsmouth, NH: Heinemann.

Bybee, R. W., Taylor, J., Gardner, A., Van Scotter, P., Powell, J., Westbrook, A., & Landes, N. (2006). *The BSCS 5E instructional model: Origins and effectiveness*. A report prepared for the Office of Science Education National Institutes of Health. Colorado Springs, CO: BSCS

# How to Read Arkansas K-12 Science Standards

An asterisk indicates an engineering connection to a practice or disciplinary core idea.

GRADE TWO

Topic

Assessable Component

## Interdependent Relationships in Ecosystems

Students who demonstrate understanding can:

- 2-LS2-1 Plan and conduct an investigation that provides evidence to support an explanation (if plants need sunlight and water to grow. [Assessment boundary: Assessment does not include specific animal and plant names in specific habitats.])
- 2-LS2-2 Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2)
- 2-LS4-1 Make observations to provide evidence to support an explanation (plants and animals have different needs in a variety of habitats.) [Assessment boundary: Assessment does not include specific animal and plant names in specific habitats.]

**Performance Expectations (PEs)**

... if plants need sunlight and water to grow. [Assessment boundary: Assessment does not include specific animal and plant names in specific habitats.]

... of an animal in dispersing seeds or pollinating plants to compare the diversity of life in different habitats. [Clarification: ... things in a variety of habitats.] [Assessment boundary: Assessment does not include specific animal and plant names in specific habitats.]

\*

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Foundation Boxes

### Science and Engineering Practices

#### Developing and Using Models

Modeling in K-2 builds on prior experiences and progresses to including developing models (physical replica, diorama, storyboard) that represent design solutions.

- Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2)

#### Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1)
- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (2-LS4-1)

#### Connections to Nature of Science

#### Scientific Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world. (2-LS4-1)

### Disciplinary Core Ideas

#### LS2.A: Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow. (2-LS2-1)
- Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)

#### LS4.D: Biodiversity and Humans

- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

#### ETS1.B: Developing Possible Solutions

- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (2-LS2-2)

### Crosscutting Concepts

#### Cause and Effect

- Events have causes that generate observable patterns. (2-LS2-1)

#### Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2)

Designates which PE uses this practice

Designates which PE incorporates this disciplinary core idea (DCI)

Designates which PE incorporates this crosscutting concept (CC)

Connections to the Nature of Science

Connection Boxes

Connections to other DCIs in second grade: N/A

Connections to other DCIs across grade levels: K.LS1.C (2-LS2-1); K.ESS3.A (2-LS2-1); K-2.ETS1.A (2-LS2-2); 3.LS4.C (2-LS4-1); 3.LS4.D (2-LS4-1); 5.LS1.C (2-LS2-1); 5.LS2.A (2-LS2-2); 5.LS2.B (2-LS2-2)

Common Core State Standards Connections:

ELA/Literacy –

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1, 2-LS4-1)

W.2.8 Recall information from experiences or gather information from provided sources. (2-LS2-1, 2-LS4-1)

SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2)

Mathematics –

MP.2 Reason abstractly and quantitatively. (2-LS2-1, 2-LS4-1)

MP.4 Model with mathematics. (2-LS2-1, 2-LS2-2, 2-LS4-1)

MP.5 Use appropriate tools strategically. (2-LS2-1)

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems. (2-LS2-2, 2-LS4-1)

DCI codes from *A Framework for K-12 Science Education* in boldface type.

## GRADE THREE

Forces and Interactions	
Students who demonstrate understanding can:	
<b>3-PS2-1</b>	<b>Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</b> [AR Clarification Statement: Examples could include an unbalanced force on one side of a box can make it start moving or balanced forces pushing on a box from both sides will not produce any motion at all.] [Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.]
<b>3-PS2-2</b>	<b>Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.</b> [Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.]
<b>3-PS2-3</b>	<b>Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.</b> [Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon or the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force or how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.]
<b>3-PS2-4</b>	<b>Define a simple design problem that can be solved by applying scientific ideas about magnets.*</b> [Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.]

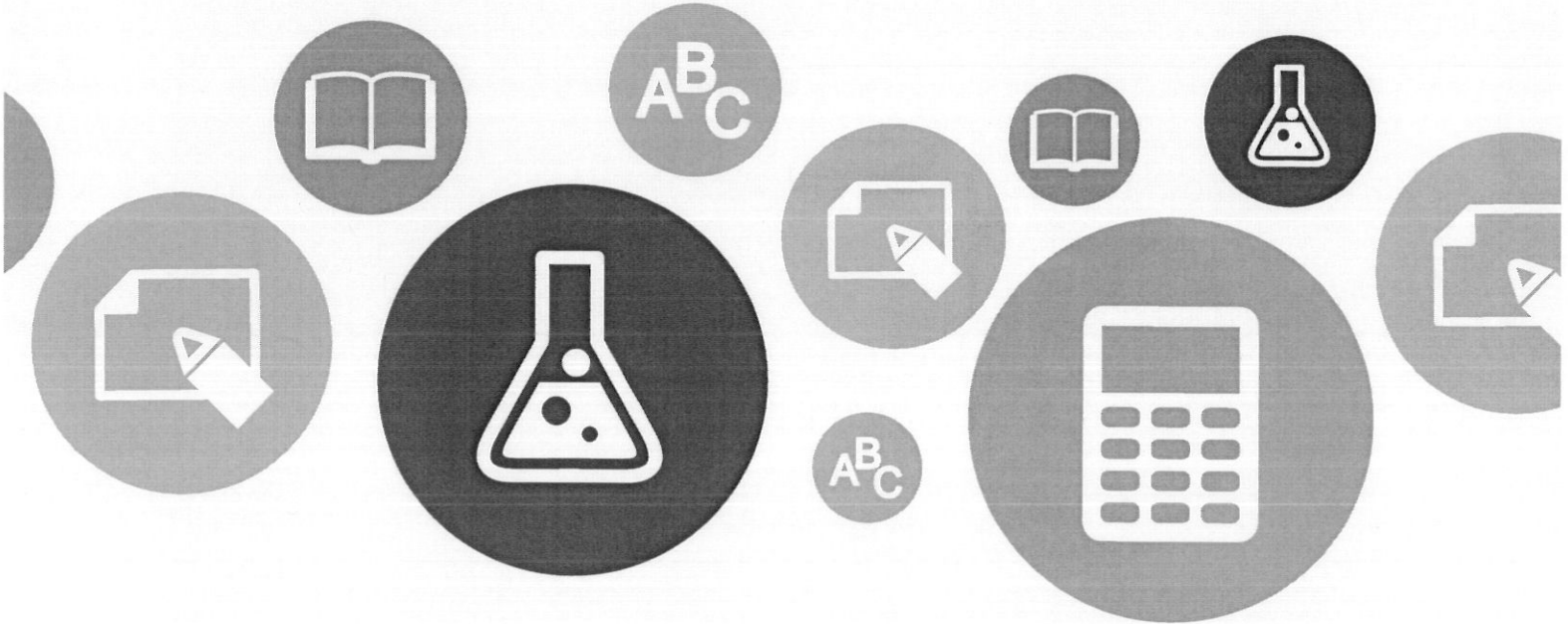
The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

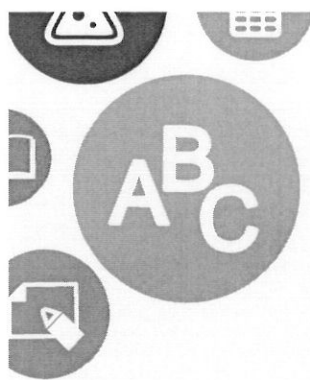
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.</p> <ul style="list-style-type: none"> <li>Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3)</li> <li>Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)</li> </ul> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions 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.</p> <ul style="list-style-type: none"> <li>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. (3-PS2-1)</li> <li>Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2)</li> </ul>	<p><b>PS2.A: Forces and Motion</b></p> <ul style="list-style-type: none"> <li>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. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS2-1)</li> <li>The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.) (3-PS2-2)</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns of change can be used to make predictions. (3-PS2-2)</li> </ul> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified. (3-PS2-1)</li> <li>Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3)</li> </ul>

<p style="text-align: center;"><b>Connections to Nature of Science</b></p> <p><b>Science Knowledge is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Science findings are based on recognizing patterns. (3-PS2-2)</li> </ul> <p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Science investigations use a variety of methods, tools, and techniques. (3-PS2-1)</li> </ul>	<p><b>PS2.B: Types of Interactions</b></p> <ul style="list-style-type: none"> <li>Objects in contact exert forces on each other. (3-PS2-1)</li> <li>Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. (3-PS2-3, 3-PS2-4)</li> </ul>	<p style="text-align: center;"><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Interdependence of Science, Engineering, and Technology</b></p> <ul style="list-style-type: none"> <li>Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3-PS2-4)</li> </ul>
<p><i>Connections to other DCIs in third grade: N/A</i></p>		
<p><i>Connections to other DCIs across grade levels: K.PS2.A (3-PS2-1); K.PS2.B (3-PS2-1); K.PS3.C (3-PS2-1); K-2.ETS1.A (3-PS2-4); 1.ESS1.A (3-PS2-2); 4.PS4.A (3-PS2-2); 3-5.ETS1.A (3-PS2-4); 5.PS2.B (3-PS2-1); 7.ESS2.C (3-PS2-1); 8.PS2.A (3-PS2-1, 3-PS2-2); 8.PS2.B (3-PS2-3, 3-PS2-4); 8.ESS1.B (3-PS2-1, 3-PS2-2)</i></p>		
<p><i>Common Core State Standards Connections:</i></p> <p><i>ELA/Literacy –</i></p> <p><b>RI.3.1</b> Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-PS2-1, 3-PS2-3)</p> <p><b>RI.3.3</b> Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-PS2-3)</p> <p><b>RI.3.8</b> Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence). (3-PS2-3)</p> <p><b>W.3.7</b> Conduct short research projects that build knowledge about a topic. (3-PS2-1, 3-PS2-2)</p> <p><b>W.3.8</b> Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-PS2-1, 3-PS2-2)</p> <p><b>SL.3.3</b> Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. (3-PS2-3)</p> <p><i>Mathematics –</i></p> <p><b>MP.2</b> Reason abstractly and quantitatively. (3-PS2-1)</p> <p><b>MP.5</b> Use appropriate tools strategically. (3-PS2-1)</p> <p><b>3.MD.A.2</b> Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3-PS2-1)</p>		



# ACT Aspire<sup>®</sup> Summative Assessments Overview





# English

ACT Aspire® English tests assess students' developed ability to revise and edit texts. A typical English test contains several stimuli, or texts, and a series of selected-response and technology-enhanced questions. Texts used in the assessments represent various content areas (including English language arts, the humanities, and the social and natural sciences), and, considered collectively, reflect a range of text complexity levels from simple to complex, as appropriate for students' age and educational attainment.

**Roughly 1/3**  
 of each English test is  
 assessing at  
**DOK Level 3.**  
 See related videos for details by grade.  
[act.org/learning-at-act/training/aspire.html](http://act.org/learning-at-act/training/aspire.html)

## 3

### Reporting Categories

#### Production of Writing (POW)

- Topic Development
- Organization, Unity, and Cohesion




#### Conventions of Standard English (CSE)

- Punctuation and Usage Conventions
- Sentence Structure and Formation

#### Knowledge of Language (KLA)\*

\*Knowledge of Language is not reported in Grade 3.

**Table 1.** Points and Percentage of Points by Content Category for the ACT Aspire English Assessments

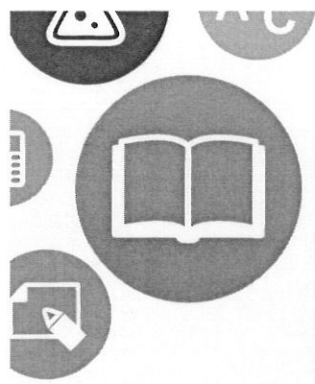
	Grade 3 		Grades 4–5		Grade 6 		Grades 7–8		EHS 	
	Points	% of Pts	Points	% of Pts	Points	% of Pts	Points	% of Pts	Points	% of Pts
POW	9–11	36–44	6–8	24–32	11–13	31–37	9–11	26–31	12–14	24–28
CSE	14–16	56–64	14–16	56–64	19–21	54–60	19–21	54–60	29–31	58–62
KLA			2–4	8–16	2–4	6–11	4–6	11–17	6–8	12–16
<b>Total</b>	<b>25</b>	<b>100</b>	<b>25</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>50</b>	<b>100</b>

**Notes.** POW = Production of Writing; KLA = Knowledge of Language; CSE = Conventions of Standard English.

**Table 2.** Points and Percentage of Points by Item Type for ACT Aspire English Assessments

	Grades 3–5		Grades 6–7		Grade 8		EHS	
	Points	% of Pts	Points	% of Pts	Points	% of Pts	Points	% of Pts
MC	21–22	84–88	31–33	89–94	33–35	94–100	48–50	96–100
TE	3–4	12–16	2–4	6–11	0–2	0–6	0–2	0–4
<b>Total</b>	<b>25</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>50</b>	<b>100</b>

**Notes.** EHS = Early High School (Grades 9 and 10); MC = Multiple-Choice; TE = Technology-Enhanced. Paper-and-pencil tests do not have TE items. MC items are used in their place.



# Reading

Each ACT Aspire Reading assessment contains several passages, including literary narratives (prose fiction, memoirs, personal essays) and informational text (social science, natural science). Within and across grade levels, the passages span a range of complexity levels in order to provide students, teachers, and parents with information about how well students understand texts of increasing difficulty. Students answer questions that assess their abilities to recognize meaning in, reason logically about, and make connections between and among texts.

Between  
**25–48%**  
 of each Reading test  
 is assessing at  
**DOK Level 3.**  
 See related videos for details by grade.  
[act.org/learning-at-act/training/aspire.html](http://act.org/learning-at-act/training/aspire.html)

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**Passage Types**

Students will encounter a variety of reading passages on ACT Aspire Reading tests. In Grades 3–5, half the MC/TE items (10–11) will pertain to literary narratives and the rest divided evenly between social science and natural science informational texts. In Grades 6–EHS, items will be distributed evenly across the three passage types (i.e. 7 items each).

See related videos for details by grade.  
[act.org/learning-at-act/training/aspire.html](http://act.org/learning-at-act/training/aspire.html)

# 3

## Reporting Categories

### Key Ideas and Details:

reading texts closely; determine central ideas and themes and summarize information and ideas accurately; understand sequential, comparative, and cause-effect relationships

### Craft and Structure:

determine word and phrase meaning and analyze an author's word choice rhetorically; analyze text structure; understand purpose and point of view

### Integration of Knowledge and Ideas:

understand how arguments are constructed; make connections to prior knowledge and between and among texts

**Table 3.** Points and Percentage of Points by Content Category for the ACT Aspire Reading Assessments

**Notes.** KID = Key Ideas and Details; CS = Craft and Structure; IKI = Integration of Knowledge and Ideas.

	Grades 3–7		Grade 8–EHS	
	Points	% of Pts	Points	% of Pts
KID	13–18	45–62	13–20	42–65
CS	6–11	21–38	6–12	19–39
IKI	3–6	10–21	4–8	13–26
<b>Total</b>	<b>29</b>	<b>100</b>	<b>31</b>	<b>100</b>

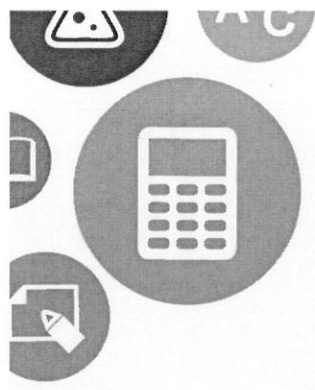


**Table 4.** Points and Percentage of Points by Item Type for the ACT Aspire Reading Assessments

**Notes.** EHS = Early High School (Grades 9 and 10); MC = Multiple-Choice; TE = Technology-Enhanced. Paper-and-pencil tests do not have TE items. MC items are used in their place.

	Grades 3–7		Grade 8–EHS	
	Points	% of Pts	Points	% of Pts
MC	18–19	62–66	20–21	65–68
TE	2–3	7–10	0–1	0–3
CR	8	28	10	32
<b>Total</b>	<b>29</b>	<b>100</b>	<b>31</b>	<b>100</b>





# Mathematics

ACT Aspire Mathematics tests provide a picture of the whole of a student's mathematical development, including a look at the concepts and skills new to the grade level as well as whether the student has continued to strengthen, integrate, and apply mathematics from earlier grades. These components are important in judging how a student is progressing and what next steps are appropriate. If administered on computers, ACT Aspire Mathematics tests include questions in three formats: selected response/multiple choice (MC), constructed response/Justification and Explanation (JE), and technology enhanced (TE). For paper administration, TE questions are replaced with additional MC items.

**More than  
50%**  
of each Mathematics test  
is assessing at  
**DOK Level 3.**  
See related videos for details by grade.  
[act.org/learning-at-act/training/aspire.html](http://act.org/learning-at-act/training/aspire.html)

# 9




## Reporting Categories

Grades 3–5	Grades 6–7	Grade 8	EHS
Numbers and Operations in Base 10	The Number System		Number and Quantity
Number and Operations—Fractions	Expressions & Equations		Algebra
Operations and Algebraic Thinking	Ratios and Proportional Relationships	Functions	
Geometry	Geometry		
Measurement and Data	Statistics & Probability		

### Four Additional Reporting Categories

- **Grade-Level Progress:** reporting how well students are doing with the topics (across the five content domains) new to their grade
- **Foundation:** reporting grade-level success at using content acquired in earlier years; these questions have greater cognitive complexity than those in Grade-Level Progress
- **Modeling:** reporting on those items in Grade-Level Progress and Foundation that provide information about how students can apply mathematics in real-world situations
- **Justification and Explanation:** designation of constructed-response items in Grade-Level Progress and Foundation which provide evidence of a student's ability to support and explain his or her mathematical reasoning

**Table 5.** Number of Items, Points and Percentage of Points by Item Type for ACT Aspire Mathematics Assessments

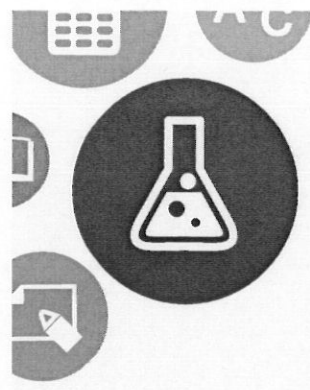
	 <b>Grades 3–5</b>			 <b>Grades 6–7</b>			 <b>Grade 8–EHS</b>		
Grade–Level Progress	#	Points	% of Pts	#	Points	% of Pts	#	Points	% of Pts
MC/TE	15	15	41	20	20	43	21	21	39
JE	2	8	21.5	2	8	17	3	12	23
<b>Foundation</b>									
MC/TE	6	6	16	10	10	22	12	12	23
JE	2	8	21.5	2	8	17	2	8	15
<b>Total</b>	<b>25</b>	<b>37</b>	<b>100</b>	<b>34</b>	<b>46</b>	<b>100</b>	<b>38</b>	<b>53</b>	<b>100</b>

**Notes.** EHS = Early High School (Grades 9 and 10); MC = Multiple-Choice; TE = Technology-Enhanced; JE = Justification and Explanation (Constructed-Response). Paper-and-pencil tests do not have TE items. MC items are used in their place.

**Table 6.** Points by Content Category for the ACT Aspire Mathematics Assessments

Content Category	Grade Level						
	3	4	5	6	7	8	EHS
<b>Total</b>	<b>37</b>	<b>37</b>	<b>37</b>	<b>46</b>	<b>46</b>	<b>53</b>	<b>53</b>
Number & Operations in Base 10	5–7	3–5	3–5	1–3	1–3	1–3	0–2
Number & Operations—Fractions	2–4	4–6	4–6	1–3	1–3	1–3	0–2
The Number System				3–5	3–5	2–4	1–3
Number & Quantity							1–3
Operations & Algebraic Thinking	3–5	3–5	3–5	1–3	1–3	0–2	0–2
Expressions & Equations				3–5	3–5	5–7	2–4
Ratios & Proportional Relationships				3–5	3–5	0–2	1–3
Algebra							2–4
Functions						3–5	3–5
Measurement & Data (Measurement)			0–2	0–2	1–3	1–3	
Geometry	3–5	3–5	3–5	5–7	4–6	6–8	5–7
Measurement & Data	3–5	3–5	3–5				
Measurement & Data (Data)				0–2	1–3	1–3	1–3
Statistics & Probability				3–5	3–5	4–6	4–7
Justification and Explanation	16	16	16	16	16	20	20

**Notes.** If points are listed in a category that is not a reporting category for a particular grade level, those points represent questions included in the Foundation reporting category for that grade.



# Science

ACT Aspire Science tests focus on the assessment of science practices using real-world scientific scenarios. The content of the tests includes materials from biology (life sciences at the earlier grades), chemistry and physics (physical science at the earlier grades), and Earth/space sciences (such as geology, astronomy, and meteorology). Advanced knowledge in these areas is not required, but background knowledge acquired in general, introductory science courses may be needed to answer some of the questions in the upper grade assessments. The ACT Aspire tests stress science practices over recall of scientific content, complex mathematics skills, and reading ability.

**Between 25–40%**  
of each ACT Aspire Science test is assessing at  
**DOK Level 3.**  
See related videos for details by grade.  
[act.org/learning-at-act/training/aspire.html](http://act.org/learning-at-act/training/aspire.html)

# 3

## Reporting Categories

- Interpretation of Data (IOD)
- Scientific Investigation (SIN)
- Evaluation of Models, Inferences, and Experimental Results (EMI)

**Table 7.** Points and Percentage of Points by Domain for the ACT Aspire Science Assessments

	Grades 3–5		Grades 6–7		Grade 8		EHS	
	Points	% of Pts	Points	% of Pts	Points	% of Pts	Points	% of Pts
IOD	18–22	50–60	20–22	50–55	18–20	45–50	16–18	40–45
SIN	7–9	20–25	6–10	15–25	8–10	20–25	8–10	10–12
EMI	7–9	20–25	10–12	25–30	12–14	30–35	12–14	30–35
<b>Total</b>	<b>36</b>	<b>100</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>



**Notes.** IOD: Interpretation of Data; SIN: Scientific Investigation; EMI: Evaluation of Models, Inferences, and Experimental Results. Scores in Mathematics and Science will be used to provide a STEM score.

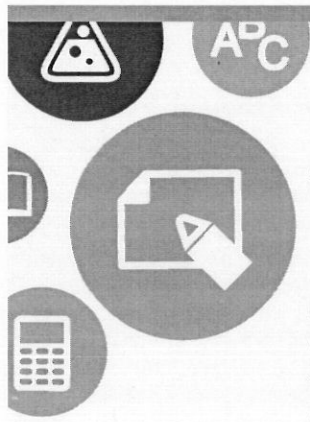
**Table 8.** Points and Percentage of Points by Item Type for ACT Aspire Science Assessments

	Grades 3–5		Grades 6–7		Grade 8–EHS	
	Points	% of Pts	Points	% of Pts	Points	% of Pts
MC	18–19	50–53	22–23	55–58	23–24	58–60
TE	3–4	8–11	3–4	8–10	3–4	8–10
CR	14	39	14	35	13	33
<b>Total</b>	<b>36</b>	<b>100</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Notes.** EHS = Early High School (Grades 9 and 10); MC = Multiple-Choice; TE = Technology-Enhanced; CR = Constructed-Response. Paper-and-pencil tests do not have TE items. MC items are used in their place.

**Table 9.** Passage Formats for ACT Aspire Science Assessments

Passage Format	Grade Level						
	3	4	5	6	7	8	EHS
Data Representation				1	1	2	2
Research Summaries					1	2	2
Conflicting Viewpoints						1	1
Data Presentation	2	2	2				
Scientific Investigation	2	2	2	2	1		
Student Viewpoints				1	1		



## Writing

ACT Aspire Writing assessments consist of 30-minute summative writing tasks for grades 3 through 8 and early high school. They ask students at each grade level to respond in essay form to a single writing stimulus. The assessments are designed to provide a strong indication of whether students have the writing skills they will need to succeed as they begin work at their next grade level. Student responses are evaluated according to analytic rubrics that assess the generation, development, organization, and communication of ideas in standard written English.

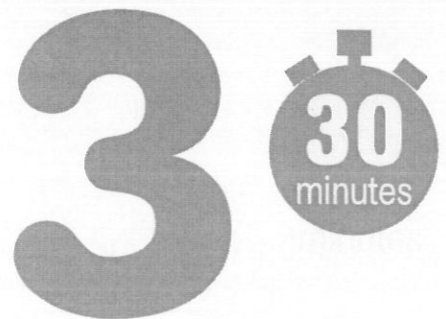
# 4

## Content Domains

- **Ideas and Analysis**  
(Rubric description specific to mode)
- **Development and Support**
- **Organization**
- **Language Use and Conventions**

See related videos online for more information on rubrics and scoring.  
[act.org/learning-at-act/training/aspire.html](http://act.org/learning-at-act/training/aspire.html)

**All** ACT Aspire Writing prompts are assigned **DOK Level 3.**



## Writing Modes

- **Reflective Narrative**  
(Grades 3, 6)
- **Analytical Expository**  
(Grades 4, 7, EHS)
- **Persuasive Argumentative**  
(Grades 5, 8)