

Unit	Science Concept Connections	Alabama Science Standards
		Kindergarten
<b>Raise the Roof: Designing Shelters</b>	<ul style="list-style-type: none"> <li>• light and shadow</li> <li>• the warming effect of the Sun</li> <li>• animals and animal needs</li> </ul>	SCI.K.7.2 SCI.K.8.1 SCI.K.8.2 SCI.K.8.3
<b>Here's the Scoop: Designing Trash Collectors</b>	<ul style="list-style-type: none"> <li>• the basic needs of living things</li> <li>• animal habitats and ecosystems</li> <li>• human impact on the environment</li> <li>• recycling and environmental stewardship</li> </ul>	SCI.K.5.1 SCI.K.5.2 SCI.K.6.2 SCI.K.6.3

### Units with Life Science Topics

Unit	Engineering and Science Fields	Alabama Science Content Standards					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>The Best of Bugs: Designing Hand Pollinators</b>	Agricultural Engineering Insects and Plants	SCI.K.3.2	SCI.1.5.1 SCI.1.5.3	SCI.2.2.2 SCI.2.6.1 SCI.2.6.2	SCI.3.6.1 SCI.3.6.2 SCI.3.7.4 SCI.3.12.1 SCI.3.12.3	SCI.4.9.1 SCI.4.9.2	
<b>Just Passing Through: Designing Model Membranes</b>	Bioengineering Needs of Organisms	SCI.K.3.2 SCI.K.5.2	SCI.1.5.1 SCI.1.5.3	SCI.2.7.1 SCI.2.7.3	SCI.3.5.2 SCI.3.11.2 SCI.3.11.3	SCI.4.9.2	SCI.5.8.7
<b>No Bones About It: Designing Knee Braces</b>	Biomedical Engineering Skeletal and Muscular Systems			SCI.2.2.2	SCI.3.2.3	SCI.4.10.2 SCI.4.10.3	
<b>A Slick Solution: Cleaning an Oil Spill</b> <i>Also listed with Earth Science</i>	Environmental Engineering Ecosystems			SCI.2.2.2 SCI.2.7.1 SCI.2.7.2	SCI.3.10.1 SCI.3.11 SCI.3.12.1 SCI.3.12.2 SCI.3.12.3		SCI.5.8.2 SCI.5.8.4 SCI.5.8.6 SCI.5.8.7 SCI.5.11.1 SCI.5.11.2 SCI.5.14.1 SCI.5.14.2 SCI.5.15.1 SCI.5.15.2 SCI.5.15.3
<b>Thinking Inside the Box: Designing Plant Packages</b>	Package Engineering Plants	SCI.K.3.2		SCI.2.5.2 SCI.2.5.3	SCI.3.5.1 SCI.3.5.2	SCI.4.9.1	SCI.5.8.3 SCI.5.8.6 SCI.5.8.7 SCI.5.12.2 SCI.5.13.3

### Units with Earth Science Topics

Unit	Engineering and Science Fields	Alabama Science Content Standards					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>Catching the Wind: Designing Windmills</b>  <i>Also listed with Physical Science</i>	Mechanical Engineering  Weather	SCI.K.1.1 SCI.K.1.2 SCI.K.1.4 SCI.K.1.5 SCI.K.2.4		SCI.2.2.2	SCI.3.1.1 SCI.3.1.2 SCI.3.1.3 SCI.3.2.3 SCI.3.13.1	SCI.4.4.1 SCI.4.4.2	
<b>Now You're Cooking: Designing Solar Ovens</b>  <i>Also listed with Physical Science</i>	Green Engineering  Energy and Energy Resources	SCI.K.6.1 SCI.K.7.1 SCI.K.7.2				SCI.4.2.1 SCI.4.2.2 SCI.4.4.1 SCI.4.4.2 SCI.4.5.1 SCI.4.5.2 SCI.4.5.3 SCI.4.5.4	SCI.5.3.1 SCI.5.3.2 SCI.5.3.3 SCI.5.10.1 SCI.5.10.2
<b>A Slick Solution: Cleaning an Oil Spill</b>  <i>Also listed with Life Science</i>	Environmental Engineering  Ecosystems			SCI.2.2.2 SCI.2.7.1 SCI.2.7.2	SCI.3.10.1 SCI.3.11 SCI.3.12.1 SCI.3.12.2 SCI.3.12.3		SCI.5.8.2 SCI.5.8.4 SCI.5.8.6 SCI.5.8.7 SCI.5.11.1 SCI.5.11.2 SCI.5.14.1 SCI.5.14.2 SCI.5.15.1 SCI.5.15.2 SCI.5.15.3
<b>Solid as a Rock: Replicating an Artifact</b>	Materials Engineering  Rocks and Minerals			SCI.2.2.2 SCI.2.8.1 SCI.2.8.2		SCI.4.12 SCI.4.14.1 SCI.4.14.3	SCI.5.3.2

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**Units with Earth Science Topics, *continued***

Unit	Engineering and Science Fields	Alabama Science Content Standards					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>A Stick in the Mud: Evaluating a Landscape</b>	Geotechnical Engineering  Landforms and Maps	SCI.K.9.1		SCI.2.2.2 SCI.2.8.1 SCI.2.8.2 SCI.2.11.1 SCI.2.11.2 SCI.2.11.3	SCI.3.12.1 SCI.3.12.2 SCI.3.12.3	SCI.4.13.2 SCI.4.13.3 SCI.4.14.1 SCI.4.14.3 SCI.4.15.1 SCI.4.15.5 SCI.4.17.1 SCI.4.17.2	
<b>Taking the Plunge: Designing Submersibles</b> <i>Also listed with Physical Science</i>	Ocean Engineering  Sinking and Floating			SCI.2.1.2 SCI.2.9.1 SCI.2.9.2		SCI.4.16.1	SCI.5.3.1 SCI.5.3.2 SCI.5.5.1 SCI.5.5.2 SCI.5.5.4
<b>Water, Water Everywhere: Designing Water Filters</b>	Environmental Engineering  Water	SCI.K.4.3		SCI.2.1.1 SCI.2.1.3 SCI.2.2.2 SCI.2.7.1 SCI.2.7.2 SCI.2.10.1 SCI.2.10.2 SCI.2.10.3			SCI.5.1.1 SCI.5.1.3 SCI.5.8.6 SCI.5.11.1 SCI.5.11.2

### Units with Physical Science Topics

Unit	Engineering and Science Fields	Alabama Science Content Standards					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>An Alarming Idea: Designing Alarm Circuits</b>	Electrical Engineering  Electricity		SCI.1.4.1 SCI.1.4.3 SCI.1.4.4		SCI.3.3.1	SCI.4.2.1 SCI.4.4.1 SCI.4.4.2	SCI.5.3.1 SCI.5.3.2 SCI.5.3.3
<b>The Attraction Is Obvious: Designing Maglev Systems</b>	Transportation Engineering  Magnets				SCI.3.1.1 SCI.3.1.3 SCI.3.2.3 SCI.3.3.1 SCI.3.3.2 SCI.3.3.3 SCI.3.3.5 SCI.3.4.1 SCI.3.4.2 SCI.3.4.3 SCI.3.4.4 SCI.3.4.6		
<b>Catching the Wind: Designing Windmills</b>  <i>Also listed with Earth Science</i>	Mechanical Engineering  Weather	SCI.K.1.1 SCI.K.1.2 SCI.K.1.4 SCI.K.1.5 SCI.K.2.4		SCI.2.2.2	SCI.3.1.1 SCI.3.1.2 SCI.3.1.3 SCI.3.2.3 SCI.3.13.1	SCI.4.4.1 SCI.4.4.2	
<b>To Get to the Other Side: Designing Bridges</b>	Civil Engineering  Forces	SCI.K.1.1 SCI.K.1.2 SCI.K.1.4		SCI.2.2.2	SCI.3.1.1 SCI.3.1.2 SCI.3.1.3 SCI.3.1.5		
<b>Lighten Up: Designing Lighting Systems</b>	Optical Engineering  Light		SCI.1.2.1 SCI.1.2.2 SCI.1.2.4 SCI.1.3.1 SCI.1.3.2 SCI.1.3.3 SCI.1.4.2			SCI.4.2.1 SCI.4.8.1 SCI.4.8.3	SCI.5.3.1 SCI.5.3.2

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**Units with Physical Science Topics, *continued***

Unit	Engineering and Science Fields	Alabama Science Content Standards					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>A Long Way Down: Designing Parachutes</b>	Aerospace Engineering  Solar System	SCI.K.1.1 SCI.K.1.2 SCI.K.1.4 SCI.K.1.5 SCI.K.2.4	SCI.1.8.4	SCI.2.2.2	SCI.3.1.1 SCI.3.1.2 SCI.3.1.3		SCI.5.6.1 SCI.5.6.4 SCI.5.7.1 SCI.5.7.2 SCI.5.7.3 SCI.5.7.4 SCI.5.7.5 SCI.5.16.4
<b>Marvelous Machines: Making Work Easier</b>	Industrial Engineering  Simple Machines	SCI.K.1.1 SCI.K.1.2 SCI.K.1.3 SCI.K.1.4 SCI.K.1.5 SCI.K.2.2 SCI.K.2.3 SCI.K.2.4 SCI.K.2.5			SCI.3.1.1 SCI.3.1.2 SCI.3.1.3 SCI.3.1.5 SCI.3.2.1 SCI.3.2.3		
<b>Now You're Cooking: Designing Solar Ovens</b>  <i>Also listed with Earth Science</i>	Green Engineering  Energy	SCI.K.6.1 SCI.K.7.1 SCI.K.7.2				SCI.4.2.1 SCI.4.2.2 SCI.4.4.1 SCI.4.4.2 SCI.4.5.1 SCI.4.5.2 SCI.4.5.3 SCI.4.5.4	SCI.5.3.1 SCI.5.3.2 SCI.5.3.3 SCI.5.10.1 SCI.5.10.2
<b>Sounds Like Fun: Seeing Animal Sounds</b>	Acoustical Engineering  Sound		SCI.1.1.1 SCI.1.1.2			SCI.4.6.1 SCI.4.6.2 SCI.4.6.3 SCI.4.7.1 SCI.4.7.2	

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**Units with Physical Science Topics, *continued***

Unit	Engineering and Science Fields	Alabama Science Content Standards					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>A Sticky Situation: Designing Walls</b>	Materials Engineering Earth Materials			SCI.2.2.2		SCI.4.13	
<b>Taking the Plunge: Designing Submersibles</b>  <i>Also listed with Earth Science</i>	Ocean Engineering Sinking and Floating			SCI.2.1.2 SCI.2.9.1 SCI.2.9.2		SCI.4.16.1	SCI.5.3.1 SCI.5.3.2 SCI.5.5.1 SCI.5.5.2 SCI.5.5.4
<b>A Work in Process: Improving a Play Dough Process</b>	Chemical Engineering Process Engineering  Solids and Liquids			SCI.2.1.1 SCI.2.1.2			SCI.5.2.4 SCI.5.3.1 SCI.5.4.1 SCI.5.4.3

<b>Unit / Engineering Field</b>	<b>Suggested Grade</b>	<b>Alabama Content Standards, Science</b>	
<i>Designing Lighting Systems</i> Optical Engineering	1st	SCI.1.2.1 SCI.1.2.2 SCI.1.2.4 SCI.1.3.1	SCI.1.3.2 SCI.1.3.3 SCI.1.4.2
<i>Designing Hand Pollinators</i> Agricultural Engineering	2nd	SCI.2.2.2 SCI.2.6.1 SCI.2.6.2	
<i>Designing Maglev Systems</i> Transportation Engineering	3rd	SCI.3.1.1 SCI.3.1.3 SCI.3.2.3 SCI.3.3.1 SCI.3.3.2 SCI.3.3.3	SCI.3.3.5 SCI.3.4.1 SCI.3.4.2 SCI.3.4.3 SCI.3.4.4 SCI.3.4.6
<i>Designing Solar Ovens</i> Green Engineering	4th	SCI.4.2.1 SCI.4.2.2 SCI.4.4.1 SCI.4.4.2	SCI.4.5.1 SCI.4.5.2 SCI.4.5.3 SCI.4.5.4
<i>Cleaning an Oil Spill</i> Environmental Engineering	5th	SCI.5.8.2 SCI.5.8.4 SCI.5.8.6 SCI.5.8.7 SCI.5.11.1 SCI.5.11.2	SCI.5.14.1 SCI.5.14.2 SCI.5.15.1 SCI.5.15.2 SCI.5.15.3



# EiE® Computer Science Essentials Alignment to Alabama Course of Study, Digital Literacy and Computer Science, 2017–2018

Unit Title Concept / Tool Type	Suggested Grades	Digital Literacy and Computer Science Standards					
		Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>Programming Robots</b> Computing Systems / Robotics	K–2	DLCS.K.1 DLCS.K.5 DLCS.K.6 DLCS.K.13	DLCS.1.2 DLCS.1.3 DLCS.1.19	DLCS.2.2 DLCS.2.3 DLCS.2.4 DLCS.2.18			
<b>Creating Animations</b> Algorithms & Programming / Visual Programming	K–3	DLCS.K.1 DLCS.K.2 DLCS.K.5 DLCS.K.6 DLCS.K.7 DLCS.K.13	DLCS.1.2 DLCS.1.3 DLCS.1.16 DLCS.1.18 DLCS.1.19	DLCS.2.2 DLCS.2.3 DLCS.2.4 DLCS.2.15 DLCS.2.17 DLCS.2.18	DLCS.3.2 DLCS.3.3 DLCS.3.4 DLCS.3.5 DLCS.3.7 DLCS.3.20 DLCS.3.22 DLCS.3.23		
<b>Building Automated Systems</b> Computing Systems / Visual Computing	2–4			DLCS.2.2 DLCS.2.3 DLCS.2.4 DLCS.2.15 DLCS.2.17 DLCS.2.18	DLCS.3.2 DLCS.3.3 DLCS.3.4 DLCS.3.5 DLCS.3.7 DLCS.3.20 DLCS.3.22 DLCS.3.23	DLCS.4.2 DLCS.4.3 DLCS.4.4 DLCS.4.7 DLCS.4.12 DLCS.4.21	
<b>Designing Computer Games</b> Impacts of Computing / Visual Programming	3–5				DLCS.3.2 DLCS.3.3 DLCS.3.4 DLCS.3.5 DLCS.3.7 DLCS.3.20 DLCS.3.22 DLCS.3.23	DLCS.4.2 DLCS.4.3 DLCS.4.4 DLCS.4.7 DLCS.4.12 DLCS.4.21	DLCS.5.2 DLCS.5.6 DLCS.5.7 DLCS.5.8 DLCS.5.28
<b>Analyzing Digital Images</b> Data & Analysis / Visual Programming	4–5					DLCS.4.1 DLCS.4.2 DLCS.4.3 DLCS.4.4 DLCS.4.7 DLCS.4.12 DLCS.4.16 DLCS.4.18 DLCS.4.21	DLCS.5.1 DLCS.5.2 DLCS.5.6 DLCS.5.7 DLCS.5.8 DLCS.5.21 DLCS.5.25 DLCS.5.26 DLCS.5.28

Unit	Engineering Fields and Science Connections	Alabama Science Content Standards		
		Grade 3	Grade 4	Grade 5
<b>Bubble Bonanza: Engineering Bubble Wands</b>	Materials Engineering Matter and Its Interactions			SCI.5.4
<b>Go Green: Engineering Recycled Racers</b>	Green Engineering Energy, Forces	SCI.3.1 SCI.3.2 SCI.3.3.4	SCI.4.1.1 SCI.4.1.2 SCI.4.3	SCI.5.7.1
<b>In Good Hands: Engineering Space Gloves</b>	Materials Engineering Properties of Materials, Energy Transfer		SCI.4.2.1 SCI.4.3.2 SCI.4.3.3	SCI.5.3.2
<b>Liftoff: Engineering Rockets and Rovers</b>	Aerospace Engineering Forces and Interactions	SCI.3.1.1 SCI.3.1.2 SCI.3.1.5 SCI.3.2.1 SCI.3.2.2	SCI.4.1.1 SCI.4.1.2	SCI.5.6.4 SCI.5.7.1
<b>Light Up the Night: An Electrical Engineering Challenge</b>	Electrical Engineering Electric Circuits, Light	SCI.3.3.1	SCI.4.2.1 SCI.4.4 SCI.4.8	
<b>Music to My Ears: An Acoustical Engineering Challenge</b>	Acoustical Engineering Sound		SCI.4.2 SCI.4.4 SCI.4.6	
<b>The Sky's the Limit: Engineering Flying Technologies</b>	Aeronautical Engineering Forces and Interactions	SCI.3.1	SCI.4.1	SCI.5.6.1 SCI.5.6.2 SCI.5.6.3 SCI.5.6.4 SCI.5.7.1 SCI.5.7.2 SCI.5.7.4 SCI.5.7.5

Unit	Engineering Fields and Science Connections	Alabama Science Standards		
		Grade 3	Grade 4	Grade 5
<b>Shake Things Up: Engineering Earthquake-Resistant Buildings</b>	Earthquake Engineering Earthquakes	SCI.3.1.1 SCI.3.1.2 SCI.3.1.5 SCI.3.2.1 SCI.3.2.2 SCI.3.2.3	SCI.4.6 SCI.4.17.1 SCI.4.17.2 SCI.4.17.3	
<b>A Slippery Slope: Engineering an Avalanche Protection System</b>	Avalanche Engineering Forces and Interactions	SCI.3.1.1 SCI.3.1.2 SCI.3.1.5 SCI.3.2.1 SCI.3.2.2 SCI.3.2.3 SCI.3.15	SCI.4.17.1 SCI.4.17.2 SCI.4.17.3	SCI.5.6 SCI.5.7.1 SCI.5.7.2 SCI.5.7.4 SCI.5.7.5
<b>Hop to It: Safe Removal of Invasive Species</b>	Mechanical Engineering Environmental Science	SCI.3.5.2 SCI.3.7.3 SCI.3.7.4 SCI.3.10 SCI.3.11 SCI.3.12	SCI.4.9.2	SCI.5.14.1 SCI.5.14.2 SCI.5.15.2
<b>To the Rescue: Engineering Aid Drop Packages</b>	Package Engineering Energy, Forces		SCI.4.1 SCI.4.3.1 SCI.4.3.2 SCI.4.3.3 SCI.4.17	SCI.5.6.1 SCI.5.6.2 SCI.5.6.3 SCI.5.6.4 SCI.5.7.1 SCI.5.7.2 SCI.5.7.3 SCI.5.7.4 SCI.5.7.5

Unit	Engineering Field	Science Topics	Alabama Science Content Standards		
			Grade 6	Grade 7	Grade 8
<b>Don't Runoff: Engineering an Urban Landscape</b>	Environmental Engineering	Natural Resources Earth and Human Activity	SCI.6.7.3 SCI.6.15.1 SCI.6.15.2 SCI.6.15.3 SCI.6.15.4 SCI.6.16	SCI.7.7 SCI.7.9.3	
<b>Food for Thought: Engineering Ice Cream</b>	Process Engineering	Matter Energy Transfer			SCI.8.3.1 SCI.8.3.6 SCI.8.5 SCI.8.15.2 SCI.8.15.3 SCI.8.15.5
<b>Go Fish: Engineering Prosthetic Tails</b>	Biomechanical Engineering	Structures and Function in Animals		SCI.7.4.1 SCI.7.4.2	
<b>Growing Up: Engineering Vertical Farms</b>	Agricultural Engineering	Light Photosynthesis Natural Resources	SCI.6.15.1 SCI.6.15.4	SCI.7.5.1 SCI.7.5.2 SCI.7.5.3 SCI.7.5.5 SCI.7.9	
<b>It's in the Bag: Engineering Bioinspired Gear</b>	Materials Engineering Bioinspired Engineering	Structures and Function in Animals		SCI.7.6.3	
<b>Outbreak Alert!: Engineering a Pandemic Response</b>	Biomedical Engineering	Cells, Viruses Public Health		SCI.7.2.1 SCI.7.2.2 SCI.7.2.3 SCI.7.2.4 SCI.7.2.5	

Unit	Engineering Field	Science Topics	Alabama Science Content Standards		
			Grade 6	Grade 7	Grade 8
<b>Testing the Waters: Engineering a Water Reuse Process</b>	Process Engineering Water Resource Engineering	Natural Resources	SCI.6.7.3 SCI.6.15 SCI.6.16.2 SCI.6.16.3 SCI.6.16.6	SCI.7.9	
<b>Worlds Apart: Engineering Remote Sensing Devices</b>	Remote Sensing Engineering	Light Solar System	SCI.6.3		SCI.8.17 SCI.8.18 SCI.8.19
<b>Plants to Plastics: Engineering Bioplastics</b>	Chemical Engineering	Properties of Matter Chemical Reactions			SCI.8.3.1 SCI.8.3.2 SCI.8.3.3 SCI.8.3.4 SCI.8.3.5 SCI.8.3.6
<b>It's About Time: Engineering Timers</b>	Mechanical Engineering	Physical Science			SCI.8.14.3
<b>Put a Lid on It: Engineering Safety Helmets</b>	Biomechanical Engineering	Forces and Motion Nervous System		SCI.7.4.1 SCI.7.4.2 SCI.7.4.3 SCI.7.4.4	SCI.8.10.1
<b>Here Comes the Sun: Engineering Insulated Homes</b>	Green Engineering	Thermal Energy Transfer Properties of Matter Natural Resources Earth and Human Activity	SCI.6.12.1 SCI.6.12.7 SCI.6.13		SCI.8.15.2 SCI.8.15.3 SCI.8.15.5