

EiE for Kindergarten

Unit	Employability Skills	Technology Literacy
<p>Raise the Roof: Designing Shelters</p>	<p>21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5</p>	<p>21.K-2.TL.4</p>
<p>Here's the Scoop: Designing Trash Collectors</p>	<p>21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5</p>	<p>21.K-2.TL.4</p>

Units with Life Science Topics

Unit	Engineering and Science Fields	Employability Skills		Technology Literacy	
		K – 2	3 – 5	K – 2	3 – 5
The Best of Bugs: Designing Hand Pollinators	Agricultural Engineering Insects and Plants	21.K-2.ES.1	21.3-5.ES.1	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
		21.K-2.ES.2	21.3-5.ES.2		
		21.K-2.ES.3	21.3-5.ES.3		
		21.K-2.ES.4	21.3-5.ES.4		
		21.K-2.ES.5	21.3-5.ES.5		
Just Passing Through: Designing Model Membranes	Bioengineering Needs of Organisms	21.K-2.ES.1	21.3-5.ES.1	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
		21.K-2.ES.2	21.3-5.ES.2		
		21.K-2.ES.3	21.3-5.ES.3		
		21.K-2.ES.4	21.3-5.ES.4		
		21.K-2.ES.5	21.3-5.ES.5		
No Bones About It: Designing Knee Braces	Biomedical Engineering Skeletal and Muscular Systems	21.K-2.ES.1	21.3-5.ES.1	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
		21.K-2.ES.2	21.3-5.ES.2		
		21.K-2.ES.3	21.3-5.ES.3		
		21.K-2.ES.4	21.3-5.ES.4		
		21.K-2.ES.5	21.3-5.ES.5		
A Slick Solution: Cleaning an Oil Spill <i>Also listed with Earth Science</i>	Environmental Engineering Ecosystems	21.K-2.ES.1	21.3-5.ES.1	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
		21.K-2.ES.2	21.3-5.ES.2		
		21.K-2.ES.3	21.3-5.ES.3		
		21.K-2.ES.4	21.3-5.ES.4		
		21.K-2.ES.5	21.3-5.ES.5		
Thinking Inside the Box: Designing Plant Packages	Package Engineering Plants	21.K-2.ES.1	21.3-5.ES.1	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
		21.K-2.ES.2	21.3-5.ES.2		
		21.K-2.ES.3	21.3-5.ES.3		
		21.K-2.ES.4	21.3-5.ES.4		
		21.K-2.ES.5	21.3-5.ES.5		

Units with Earth Science Topics

Unit	Engineering and Science Fields	Employability Skills		Technology Literacy	
		K – 2	3 – 5	K – 2	3 – 5
Catching the Wind: Designing Windmills <i>Also listed with Physical Science</i>	Mechanical Engineering Weather	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
Now You're Cooking: Designing Solar Ovens <i>Also listed with Physical Science</i>	Green Engineering Energy and Energy Resources	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
A Slick Solution: Cleaning an Oil Spill <i>Also listed with Life Science</i>	Environmental Engineering Ecosystems	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
Solid as a Rock: Replicating an Artifact	Materials Engineering Rocks and Minerals	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
A Stick in the Mud: Evaluating a Landscape	Geotechnical Engineering Landforms and Maps	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
Taking the Plunge: Designing Submersibles <i>Also listed with Physical Science</i>	Ocean Engineering Sinking and Floating	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4

Units with Physical Science Topics

Unit	Engineering and Science Fields	Employability Skills		Technology Literacy	
		K – 2	3 – 5	K – 2	3 – 5
An Alarming Idea: Designing Alarm Circuits	Electrical Engineering Electricity	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
The Attraction Is Obvious: Designing Maglev Systems	Transportation Engineering Magnets	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
Catching the Wind: Designing Windmills <i>Also listed with Earth Science</i>	Mechanical Engineering Weather	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
To Get to the Other Side: Designing Bridges	Civil Engineering Forces	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
Lighten Up: Designing Lighting Systems	Optical Engineering Light	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
A Long Way Down: Designing Parachutes	Aerospace Engineering Solar System	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4

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Units with Physical Science Topics, *continued*

Unit	Engineering and Science Fields	Employability Skills		Technology Literacy	
		K – 2	3 – 5	K – 2	3 – 5
Marvelous Machines: Making Work Easier	Industrial Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
	Simple Machines	21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.4 21.3-5.ES.5		
Now You're Cooking: Designing Solar Ovens <i>Also listed with Earth Science</i>	Green Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
	Energy	21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.4 21.3-5.ES.5		
Sounds Like Fun: Seeing Animal Sounds	Acoustical Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
	Sound	21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.4 21.3-5.ES.5		
A Sticky Situation: Designing Walls	Materials Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
	Earth Materials	21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.4 21.3-5.ES.5		
Taking the Plunge: Designing Submersibles <i>Also listed with Earth Science</i>	Ocean Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
	Sinking and Floating	21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.4 21.3-5.ES.5		
A Work in Process: Improving a Play Dough Process	Chemical Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3	21.K-2.TL.2 21.K-2.TL.4	21.3-5.TL.2 21.3-5.TL.4
	Process Engineering	21.K-2.ES.4 21.K-2.ES.5	21.3-5.ES.4 21.3-5.ES.5		
	Solids and Liquids				

Engineering Essentials Alignment to Iowa CORE 21st Century Skills

Grade	Unit	Engineering Field	Employability Skills	Technology Literacy
1st	Designing Lighting Systems	Optical Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.K-2.TL.2 21.K-2.TL.4
2nd	Designing Hand Pollinators	Agricultural Engineering	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.K-2.TL.2 21.K-2.TL.4
3rd	Designing Maglev Systems	Transportation Engineering	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
4th	Designing Solar Ovens	Green Engineering	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
5th	Cleaning an Oil Spill	Environmental Engineering	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4

Grade	Unit	Concept Tool Type	Employability Skills	Technology Literacy
1st	Programming Robots	Computing Systems Robotics	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.K-2.TL.1 21.K-2.TL.2 21.K-2.TL.3 21.K-2.TL.4 21.K-2.TL.5 21.K-2.TL.6
2nd	Creating Animations	Algorithms & Programming Visual Programming	21.K-2.ES.1 21.K-2.ES.2 21.K-2.ES.3 21.K-2.ES.4 21.K-2.ES.5	21.K-2.TL.1 21.K-2.TL.2 21.K-2.TL.3 21.K-2.TL.4 21.K-2.TL.5 21.K-2.TL.6
3rd	Building Automated Systems	Computing Systems Visual Computing	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.1 21.3-5.TL.2 21.3-5.TL.3 21.3-5.TL.5 21.3-5.TL.6
4th	Designing Computer Games	Impacts of Computing Visual Programming	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.1 21.3-5.TL.2 21.3-5.TL.3 21.3-5.TL.5 21.3-5.TL.6
5th	Analyzing Digital Images	Data & Analysis Visual Programming	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.1 21.3-5.TL.2 21.3-5.TL.3 21.3-5.TL.5 21.3-5.TL.6

Unit	Engineering Fields and Science Connections	Employability Skills 3 – 5	Technology Literacy 3 – 5
Bubble Bonanza: Engineering Bubble Wands	Materials Engineering Matter and Its Interactions	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
Go Green: Engineering Recycled Racers	Green Engineering Energy, Forces	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
In Good Hands: Engineering Space Gloves	Materials Engineering Properties of Materials, Energy Transfer	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
Liftoff: Engineering Rockets and Rovers	Aerospace Engineering Forces and Interactions	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
Light Up the Night: An Electrical Engineering Challenge	Electrical Engineering Electric Circuits, Light	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
Music to My Ears: An Acoustical Engineering Challenge	Acoustical Engineering Sound	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4

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Unit	Engineering Fields and Science Connections	Employability Skills 3 – 5	Technology Literacy 3 – 5
The Sky's the Limit: Engineering Flying Technologies	Aeronautical Engineering Forces and Interactions	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
Shake Things Up: Engineering Earthquake-Resistant Buildings	Earthquake Engineering Earthquakes	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
A Slippery Slope: Engineering an Avalanche Protection System	Avalanche Engineering Forces and Interactions	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
Hop to It: Safe Removal of Invasive Species	Mechanical Engineering Environmental Science	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4
To the Rescue: Engineering Aid Drop Packages	Package Engineering Energy, Forces	21.3-5.ES.1 21.3-5.ES.2 21.3-5.ES.3 21.3-5.ES.4 21.3-5.ES.5	21.3-5.TL.2 21.3-5.TL.4

Unit	Engineering Field and Science Topics	Employability Skills 6 – 8	Technology Literacy 6 – 8
Don't Runoff: Engineering an Urban Landscape	Environmental Engineering Natural Resources Earth and Human Activity	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.1 21.6-8.TL.6
Food for Thought: Engineering Ice Cream	Process Engineering Matter, Energy Transfer	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.6
Go Fish: Engineering Prosthetic Tails	Biomechanical Engineering Structures and Function in Animals	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.6
Growing Up: Engineering Vertical Farms	Agricultural Engineering Light, Photosynthesis, Natural Resources	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.1 21.6-8.TL.6
It's in the Bag: Engineering Bioinspired Gear	Materials Engineering, Bioinspired Engineering Structures and Function in Animals	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.6
Outbreak Alert!: Engineering a Pandemic Response	Biomedical Engineering Cells, Viruses, Public Health	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.1 21.6-8.TL.6
Testing the Waters: Engineering a Water Reuse Process	Process Engineering, Water Resource Engineering Natural Resources	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.1 21.6-8.TL.6

Unit	Engineering Field and Science Topics	Employability Skills 6 – 8	Technology Literacy 6 – 8
Plants to Plastics: Engineering Bioplastics	Chemical Engineering Properties of Matter, Chemical Reactions	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.1 21.6-8.TL.6
It's About Time: Engineering Timers	Mechanical Engineering Physical Science	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.6
Put a Lid on It: Engineering Safety Helmets	Biomechanical Engineering Forces and Motion, Nervous System	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.6
Here Comes the Sun: Engineering Insulated Homes	Green Engineering Thermal Energy Transfer, Properties of Matter, Natural Resources, Earth and Human Activity	21.6-8.ES.1 21.6-8.ES.2 21.6-8.ES.3 21.6-8.ES.4 21.6-8.ES.5	21.6-8.TL.1 21.6-8.TL.6