

# Grade 8

# Roadmap for Success

Key standards and skills in  
Math, Science, English & Spanish



# Math 8

For additional practice opportunities, check out Khan Academy's  
[Get Ready for Algebra 1 challenges](#)

Foundational Concept	Resources	CC Standard
<p><b>Single Variable Equations, Linear Modeling, and Systems of Equations</b></p> <p>Students develop a more complex understanding of solving single variable equations that includes all equality properties, the distributive property and fractions within the equations. Students build on their foundational knowledge of proportional relationships to develop a linear model between two quantities showing a constant rate of change with a starting point other than 0, using similar triangles as proof of this relationship. They use this linear modeling to predict unknown values from graphs tables and equations. Students then extend on this understanding to create systems of linear equations and extract the point at which two linear equations have the same value in graphs, tables and equations, applying that skill to solve problems involving the same variables with different information.</p>	<p><a href="#">Single Variable Equations</a></p> <p><a href="#">Linear Equations</a></p> <p><a href="#">Systems of Equations</a></p>	<p><a href="#">8.F.B.4</a>  <a href="#">8.EE.B.6</a>  <a href="#">8.EE.C.7</a>  <a href="#">8.EE.C.8</a></p>
<p><b>Rational and Irrational Numbers</b></p> <p>Students expand number sense gained in prior years to include irrational numbers with non-ending non-repeating decimals. They investigate radicals and use reasoning from their understanding of square roots to estimate the value of radicals in standard form for both square and cubic roots, and will be able place them on a numberline. Combining that knowledge with their ability to factor, students then begin simplifying radicals with coefficients from the perfect squares found in the factors of a radical.</p>	<p><a href="#">Rational v Irrational Numbers (only first few lessons)</a></p>	<p><a href="#">8.EE.A.2</a></p>
<p><b>Exponential Expressions</b></p> <p>Students use pattern identification to extract properties for simplifying exponential expressions with like base exponents, negative and zero exponents. They then apply these exponent properties and their understanding of the associative property to multiply and divide numerical expressions with exponent numbers, integers and fractions. This will extend into scientific notation operations in later units.</p>	<p><a href="#">Exponent Properties</a></p> <p><a href="#">Exponent Properties 2</a></p> <p><a href="#">Negative Exponents</a></p>	<p><a href="#">8.EE.A.1</a></p>
<p><b>Triangles and Pythagorean Theorem</b></p> <p>Students investigate right triangles and apply understanding of radicals to derive that the square of the legs of a right triangle equal the square of the hypotenuse. They use the pythagorean theorem to find unknown side lengths when solving problems involving right triangles.</p>	<p><a href="#">Geometry (Pythagorean Theorem)</a></p>	<p><a href="#">8.G.B.6</a>  <a href="#">8.G.B.7</a></p>

# Grade 8 Physical Science

Science and Engineering Practices	Performance Expectations	Resources
<p><b>PLANNING AND CARRYING OUT INVESTIGATIONS</b></p> <ul style="list-style-type: none"> <li>- Create a question, identify variables, design an investigation, collect data and analyze data to explain demonstrated scientific phenomena</li> </ul>	<ul style="list-style-type: none"> <li>- Design an investigation to collect data demonstrating Newton's first and second law of motion</li> <li>- Plan an investigation to observe the how thermal energy (average kinetic energy) is affected by mass and type of matter</li> <li>- Design a project to construct and test a devise that uses either endothermic or exothermic reactions.</li> <li>- Apply scientific principles to design a devise to maximize or minimize thermal energy, through friction</li> </ul>	<p><a href="#">Newton's Laws</a></p> <p><a href="#">Endo and exothermic reactions</a></p>
<p><b>USING MATHEMATICS AND COMPUTATIONAL THINKING</b></p> <ul style="list-style-type: none"> <li>- Use mathematical representations to describe and support scientific conclusions</li> </ul>	<ul style="list-style-type: none"> <li>- Use mathematical representations to describe how energy and amplitude of a wave are related</li> <li>- Use graphing and equations to predict the speed of an object in constant motion or acceleration in freefall</li> </ul>	<p><a href="#">Wave model</a></p> <p><a href="#">Speed, Velocity, Distance and Time</a></p>
<p><b>ENGAGING IN ARGUMENTS FROM EVIDENCE</b></p> <ul style="list-style-type: none"> <li>- Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.</li> </ul>	<ul style="list-style-type: none"> <li>-Construct a scientific argument from evidence to explain how gravitational forces in the universe are affected by distance between objects and mass, Newton's third law.</li> <li>- Construct an argument to explain the law of conservation of energy</li> <li>- Analyze properties of a substance before and after an interaction to determine if a chemical reaction has taken place</li> </ul>	<p><a href="#">Newton's Laws</a></p> <p><a href="#">Law of conservation of energy</a></p>
<p><b>OBTAINING, EVALUATING, AND COMMUNICATING INFORMATION</b></p> <ul style="list-style-type: none"> <li>-Critically read scientific texts adapted for classroom use to determine the central ideas and/or obtain scientific and/or technical information to describe patterns in and/or evidence about the natural and designed world(s).</li> </ul>	<ul style="list-style-type: none"> <li>- Evaluate qualitative technical information that supports the claim that digital signals are a more reliable way to encode and transmit information</li> <li>- Gather and evaluate information to determine the impact of synthetic materials and resource extraction on society and the planet</li> </ul>	<p><a href="#">Digital v Analog</a></p>
<p><b>DEVELOPING MODELS</b></p> <ul style="list-style-type: none"> <li>- Develop a model to predict and/or describe phenomena.</li> <li>- Develop a model to describe unobservable mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>- Create a model showing how energy transfers within a system between potential and kinetic</li> <li>- Develop a wave model to explain how light and sound waves behave with different surfaces, transmit, reflect or absorb.</li> <li>- Develop a model explaining how particle motion, density and the state of a pure substance changes with the increase and decrease of thermal energy</li> <li>- Develop models to describe the atomic composition of simple molecules and extended structures.</li> <li>- Develop a model showing how the total amount of atoms does not change after a chemical reaction and mass is conserved</li> </ul>	<p><a href="#">Energy</a></p> <p><a href="#">Law of conservation of matter</a></p> <p><a href="#">Atomic model</a></p> <p><a href="#">Phase change simulation</a></p>

# English 8

To view the Summer Assignment for English 8, go to  
<https://www.asf.edu.mx/learning/middle-school/summer>

# 8th Grade English

Power Standards	Performance Expectations	Links to Resources
Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	<b>Close reading:</b> Students will be able to read and annotate a text carefully, looking for main ideas, supporting details as well as making inferences.	<a href="#">Common Lit Ereadingworksheets</a>
By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.	<b>Independent reading:</b> Students will be able to read a wide variety of fiction and non-fiction texts at or above grade level.	<a href="#">Summer book list</a>
Write arguments to support claims with clear reasons and relevant evidence	<b>CEA Paragraph:</b> Students will be able to write a well-structured CEA paragraph with claim, evidence and analysis.	<a href="#">No Red Ink</a> <a href="#">Learn Your Smart</a>
Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	<b>Active vs. Passive Speech:</b> Students will be able to identify active and passive speech and change passive to active as necessary.	<a href="#">No Red Ink</a>
Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	<b>Punctuation:</b> Students will be able to use commas for clarity.	<a href="#">No Red Ink</a>

# Spanish 8

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# 8th Grade Spanish

Estándar	Objetivos	Recursos
<p><b>Lectura para literatura</b> 4. Determinan el significado de palabras y frases que se utilizan en un texto, incluyendo tanto el sentido figurado como el connotativo; analizan el impacto de la selección de palabras específicas en el significado y el tono, incluyendo analogías o alusiones a otros textos</p>	<p>Establecer el significado denotativo y distinguirlo del connotativo en un texto breve.</p>	<p>Capítulo 1 de <i>El ingenioso hidalgo don Quijote de la Mancha</i>. <a href="http://www.cervantesvirtual.com/obra-visor/el-ingenioso-hidalgo-don-quijote-de-la-mancha-6/html/05f86699-4b53-4d9b-8ab8-b40ab63fb0b3_2.html#l_5">http://www.cervantesvirtual.com/obra-visor/el-ingenioso-hidalgo-don-quijote-de-la-mancha-6/html/05f86699-4b53-4d9b-8ab8-b40ab63fb0b3_2.html#l_5</a></p>
<p><b>Lectura para texto informativo</b> 10. Al final del año escolar, leen y comprenden textos literarios de no ficción de forma independiente y competente, correspondientes al nivel superior de complejidad de textos para los grados 6–8.</p>	<p>Analizar un texto informativo, extraer las ideas principales y resumir el contenido.</p>	<p>1. Leer el texto <a href="#">Accidentes aéreos: ¿quién tiene la culpa</a>. Identificar las ideas principales. Resumir el texto.</p>
<p><b>Escritura y redacción.</b> 2. Escriben textos informativos y explicativos para examinar un asunto y exponer ideas, conceptos e información a través de la selección, organización y análisis de contenidos relevantes.</p>	<p>Leer un artículo de divulgación de la ciencia y escribir una reseña.</p>	<p>“Accidentes aéreos ¿quién tiene la culpa?” <a href="http://www.comoves.unam.mx/assets/revista/269/acidentes-aereos-quien-tiene-la-culpa.pdf">http://www.comoves.unam.mx/assets/revista/269/acidentes-aereos-quien-tiene-la-culpa.pdf</a></p>
<p><b>Audición y expresión oral</b> 3. Identifican y trazan los argumentos y declaraciones específicas presentadas por el hablante, evaluando la solidez del razonamiento y la relevancia y suficiencia de la evidencia; identifican también el momento en que se presentan pruebas irrelevantes</p>	<p>Identificar las ideas principales en un texto oral.</p>	<p>Escuchar este audio: <a href="#">Coronavirus. Esto le pasa a tu cuerpo cuando tomas dióxido de cloro</a>. Identificar la idea principal y los detalles de apoyo.</p>
<p><b>Lenguaje</b> 2. Demuestran dominio de las normas y convenciones del español para el uso de las letras mayúsculas, signos de puntuación y ortografía al escribir, poniendo particular atención a las reglas que difieren del inglés.</p>	<p>Conocer las reglas para el uso de mayúsculas y minúsculas y resolver los ejercicios del libro de Ortografía.</p>	<p>Resolver las lecciones de mayúsculas y minúsculas de su libro de Ortografía.</p>