



BlueAppleTeacher.org

Blue Apple Standards Correlation Grade 8

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<p>Math COMPARE FUNCTIONS</p> <p>Lesson 2: Using the Million Dollar Challenge game, have students write expressions for each scenario and then graph their results.</p> <p>CCSS.MATH.CONTENT.8.F.A.2</p>	<p>English Language Arts PUBLISH WITH TECHNOLOGY</p> <p>Lesson 9: Have students turn their lesson plans and resources into a book and publish on a platform such as Kindle Direct Publishing, Create Space, or Book Baby.</p> <p>CCSS.ELA-LITERACY.W.8.6</p>
<p>Life Science CYCLING OF MATTER</p> <p>Lesson 4: Connect the movement of money through financial systems (producers, consumers, etc.) to the movement of matter and flow of energy through ecological systems (plants, animals, decomposers).</p> <p>NGSS MS-LS2-3</p>	<p>Economics INTEREST RATES</p> <p>Lesson 3: As students explore the Donut Cost Calculator and Money Multiplying game, discuss the influence of changes in interest rates on borrowing and investing.</p> <p>D2.Eco.10.6-8</p>
<p>Earth and Space Science HUMAN POPULATION GROWTH</p> <p>Lesson 4: Have students discuss how an increase in human population influences the economic climate in both local and distant places. Then, have them connect that to the impact on resource consumption and Earth’s systems.</p> <p>NGSS MS-ESS3-4</p>	<p>Geography ECONOMIC INFLUENCE</p> <p>Lesson 3: As students learn about borrowing and investing, broaden the discussion to include how economic decisions influence environments in local and distant places.</p> <p>D2.Geo.4.6-8</p>
<p>Physical Science CHEMICAL REACTIONS</p> <p>Lesson 1: Before the Elephant Toothpaste demonstration, have students identify the physical and chemical properties of the substances involved. After the demonstration, have students identify any changes in physical and chemical properties to determine whether a chemical reaction has occurred.</p> <p>NGSS MS-PS1-2</p>	<p>Civics MUTUAL FUNDS</p> <p>Lesson 4: As students learn about the power of investing, discuss the concept of mutual funds and its influence on investing.</p> <p>D2.Civ.6.6-8</p>



GRADE 8

<p>Math PATTERNS OF ASSOCIATION</p> <p>Lesson 1: After playing <i>Your Heart or Mine</i>, have students construct functions to model the linear relationship between the number of students in a class and the expected number of people who would draw each color of card. For instance, in a class of x students, one-fourth will die of heart disease; the function $f(x) = x \div 4$ describes the relationship. Write the functions in the form $y = mx + b$ and explore why none of the functions included a nonzero value for b. CCSS.MATH.CONTENT.8.F.B.4</p>	<p>English Language Arts WRITING INFORMATIVE/EXPLANATORY TEXTS</p> <p>Lesson 5: Have students write an informational text explaining how their recipe meets nutritional recommendations. They should include relevant facts, definitions, details, transitions, and nutritional vocabulary. CCSS.ELA-LITERACY.W.8.2</p>
<p>Life Science ENERGY FLOW</p> <p>Lesson 4: As students learn how to read nutrition labels, explore the energy flow in organisms. Have students develop a model in which they identify the relevant components for describing how food molecules are rearranged as matter moves through an organism. NGSS.MS-LS1-7</p>	<p>Civics ROLE OF SCIENCE AND TECHNOLOGY</p> <p>Lesson 3: Students discuss and debate the role of science and technology in our lives as they explore the controversial topic of GMOs. NCSS.D2.CIV.10.6-8</p>
<p>Earth and Space Science EARTH AND HUMAN ACTIVITY</p> <p>Lesson 8: As students finalize their class cookbook, explore the idea of how these recipes depend on resources from the earth. Investigate how increases in human population (and the population's need to eat) impact Earth's systems. NGSS.MS-ESS3-4</p>	<p>Geography GLOBAL INTERCONNECTIONS</p> <p>Lesson 7: Assign students different countries and challenge them to revise their recipe to reflect the culinary culture of that part of the world. NCSS.D2.GEO.10.6-8</p>
<p>Physical Science THERMAL ENERGY</p> <p>Lesson 6: Some recipes require heat (cooking or baking.) Use that opportunity to investigate how adding or removing thermal energy can cause changes in the state of matter. NGSS.MS-PS1-4</p>	<p>Economics ECONOMIC DECISION MAKING</p> <p>Lesson 8: Turn the Friends and Family Feast into a restaurant simulation. Have students calculate the cost of their recipes and determine prices that will yield a positive economic result for the class. Guests can earn fake currency and spend it on recipes. NCSS.D2.ECO.1.6-8</p>





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<p>Math FUNCTIONS</p> <p>Lesson 4: After conducting your investigation of the energy efficiency of different types of light bulbs, construct functions describing the relationship between the usage of different numbers of each type of bulb and the associated energy utilization. Additionally, construct a function demonstrating the energy savings associated with exchanging different numbers of less-efficient bulbs for more-efficient ones. CCSS.MATH.CONTENT.8.F.A.1</p>	<p>English Language Arts REASONS AND EVIDENCE</p> <p>Lesson 6: As students construct their presentations to key decision-makers, have them revise their writing to improve the clarity and relevance of the evidence they present. For instance, as they cite their sources, have them discuss the credibility of each source. CCSS.ELA-LITERACY.W.8.1</p>
<p>Life Science ENERGY FLOW THROUGH SYSTEMS</p> <p>Lesson 2: Explore the flow of matter and energy through ecosystems, then compare and contrast with the flow of energy through an electrical circuit. NGSS MS-LS2-3</p>	<p>History INFLUENCES ON PERSPECTIVE</p> <p>Lesson 4: As you prepare for the audit of your school, discuss the ways in which technology changes the educational experience, and explore what education would have been like prior to the advent of various technologies. Discuss how this might have influenced not only student experiences, but student perspectives. D2.HIS.4.6-8</p>
<p>Earth and Space Science IMPACTS OF ENERGY CONSUMPTION</p> <p>Lesson 3: As you examine energy consumption, explore the ways in which increasing energy usage puts stress on the natural environment. NGSS MS-ESS3-4</p>	<p>Geography MAPPING SPATIAL PATTERNS</p> <p>Lesson 4: Have students explore the maps at NightEarth.com to identify geographic, economic, and cultural features which contribute to the prevalence of electrical lights across the world. D2.GEO.3.6-8</p>
<p>Physical Science EFFECT OF FIELDS BETWEEN OBJECTS</p> <p>Lesson 1: When learning about electricity, construct an electromagnet and evaluate the nature of the forces exerted using different methods of construction. NGSS MS-PS2-5</p>	<p>Economics IMPACT OF ECONOMIC DECISIONS</p> <p>Lesson 6: As students analyze the results of their audit, explore the idea of well-being through different lenses: physical, environmental, psychological, etc. Have students explain how economic decisions affect individual, business, and social well-being. D2.ECO.1.6-8</p>





GRADE 8

Math

POWERS OF TEN

Lesson 4: Examine the crowd-funding power of KIVA using scientific notation. In 2019, KIVA facilitated more than 1.6 million loans worth a total of 1.33 billion dollars. Have students express these figures using scientific notation and calculate the average loan amount.

[CCSS.MATH.CONTENT.8.EE.A.4](#)

English Language Arts

WORD CHOICE AND TONE

Lesson 3: As students present their puppet plays, have the audience record words and phrases that most powerfully convey tone. Then discuss how different word choices could have produced different tones.

[CCSS.ELA-LITERACY.RI.8.4](#)

Life Science

PATTERNS OF ORGANISM INTERACTION

Lesson 4: As students consider potential loan recipients, reflect on the way in which their economic success may be beneficial or detrimental to the local ecosystem.

[NGSS.MS-LS2-2](#)

Civics

ROLES OF ORGANIZATIONS

Lesson 4: While considering potential loan recipients, examine the ways in which the political structures in which they live have contributed to or detract from their economic opportunities.

[NCSS.D2.Civ.6.6-8](#)

Earth and Space Science

DISTRIBUTION OF RESOURCES

Lesson 1: As students reflect on Earth's natural resources, explore the ways in which past and current geoscientific processes have contributed to the distribution of these resources.

[NGSS.MS-ESS3-1](#)

History

HISTORICAL CAUSES AND EFFECTS

Lesson 5: After selecting a loan recipient, examine multiple historical events that have had an impact on this individual's life, and examine both the causes and the effects of these events for both individuals and society.

[NCSS.D2.His.14.6-8](#)

Physical Science

SYNTHETIC MATERIALS

Lesson 1: While learning about capital goods and natural resources, explore the nature of synthetic materials, as well as their impact on society.

[NGSS.MS-PS-1-3](#)

Economics

TYPES OF MARKETS

Lesson 1: Expand your study of key economic terms to include an exploration of the role of capital goods and natural resources in product, labor, and financial markets.

[NCSS.D2.Eco.3.6-8](#)



<p>Math FUNCTIONS</p> <p>Lesson 7: As students reflect on the lives of your senior friends, examine the relationship between their birth year and their age by creating a graph and constructing a line of best fit. What equation of the form $y = mx + b$ most closely matches your data points? CCSS.MATH.CONTENT.8.E.B.4</p>	<p>English Language Arts THEME</p> <p>Lesson 5: As students explore the exemplar biographies, discuss the theme of each; pay close attention to the way in which the theme interacts with the development of each of the primary characters. Discuss how the authors depict their themes and how you could learn from their example to include powerful themes in the biographies of your senior friends. Explore how the authors depict their themes and use this knowledge to include powerful themes in the biographies of their senior friends. CCSS.ELA-LITERACY.RL.8.2</p>
<p>Life Science BIOLOGY OF MEMORY</p> <p>Lesson 1: While exploring aging, investigate the biological basis for memory. Examine current research on the cause of memory disorders, as well as the methods scientists are using in order to find cures for diseases like Alzheimer’s and dementia. NGSS MS-LS1-8</p>	<p>Economics INTEREST RATES</p> <p>Lesson 2: During the class investigation of different eras of American history, discuss fluctuation of interest rates and examine the ways in which that impacted the lives of individuals. For example, explore how the higher interest rates of the 1970s influenced how difficult it was to purchase a new home. NCSS D2.ECO.10.6-8</p>
<p>Earth and Space Science EFFECTS OF POPULATION GROWTH</p> <p>Lesson 3: After meeting your senior friends, discuss the ways in which the human population has changed over the course of their lifetimes, as well as the way in which human resource consumption has changed. Extrapolate to examine what might happen to our resource consumption if these trends continue unabated, as well as ways people are working to mitigate against the potential damage that may result from overpopulation and excessive resource consumption. NGSS MS-ESS3-4</p>	<p>Civics POLICY CONSEQUENCES</p> <p>Lesson 3: As students explore the lives of their senior friends, discuss how different public policies impacted their lives. For example, discuss how it felt to live through the Vietnam draft or the Watergate scandal. NCSS D2.CIV.13.6-8</p>
<p>Physical Science SYNTHETIC MATERIALS</p> <p>Lesson 2: As students investigate modern American history, examine the way in which our use of synthetic materials has changed over time, as well as the ways in which this increase has impacted society for better and for worse. NGSS MS-PS1-3</p>	<p>History FACTORS INFLUENCING PERSPECTIVES</p> <p>Lesson 3: During interviews with senior friends, have students analyze the factors which contributed to the development of their perspectives by exploring the question, “What in your life has made you see things that way?” NCSS D2.HIS.4.6-8</p>



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<p>Math APPROXIMATING WITH IRRATIONAL NUMBERS</p> <p>Lesson 4: After students approximate the area of each dish that is covered in bacteria, have them approximate what fraction of the dish is covered by using the area formula for circles to calculate the total area of the dish.</p> <p>CCSS.MATH.CONTENT.8.NS.A.2</p>	<p>English Language Arts USING MULTIMEDIA COMPONENTS</p> <p>Lesson 6: As students craft their Public Service Announcements, have them consider and incorporate appropriate multimedia elements to enhance the clarity of their work, to emphasize salient points, and to add interest.</p> <p>CCSS.ELA-LITERACY.SL.8.5</p>
<p>Life Science FACTORS AFFECTING GROWTH</p> <p>Lesson 4: Explore how the presence or absence of sanitizer acts as an environmental condition that either inhibits or permits for the successful reproduction of bacteria.</p> <p>NGSS.MS-LS1-5</p>	<p>Civics CIVIC VIRTUES</p> <p>Lesson 5: As students learn about Public Service Announcements, discuss civic virtues by debating our responsibilities to others with regard to public health.</p> <p>NCSS.D2.Civ.7.6-8</p>
<p>Earth and Space Science ENERGY FLOW</p> <p>Lesson 2: As you begin your bacteria investigation, discuss the role of bacteria in the flow of energy on Earth.</p> <p>NGSS.MS-ESS2-1</p>	<p>Geography MAPS AND DISEASE</p> <p>Lesson 2: Explore how epidemiologists use maps to study the spread of disease and to identify potential causes. Research both historical and modern uses of maps in epidemiology.</p> <p>NCSS.D2.Geo.1.6-8</p>
<p>Physical Science ATOMS, MOLECULES, AND CELLS</p> <p>Lesson 2: When starting your investigation of bacteria, contextualize how bacteria, though small, are composed of much smaller molecules and atoms.</p> <p>NGSS.PS1-1</p>	<p>History PERSPECTIVES ON DISEASE</p> <p>Lesson 4: After your bacteria investigation, explore the way in which bacteria and viruses cause disease, and the way in which human perspective on the origin of disease has evolved over time.</p> <p>NCSS.D2.His.5.6-8</p>



<p>Math FUNCTIONS</p> <p>Lesson 1: Explore functions that describe the growth of the fish population in different scenarios. Have students create graphs depicting the change in fish population over time; explore how the graph is a function because each input corresponds to exactly one output. CCSS.MATH.CONTENT.8.F.A.1</p>	<p>English Language Arts INFORMATIONAL TEXTS</p> <p>Lesson 6: As students write their pages of your class state book, have them focus on organizing ideas using strategies such as definition, classification, compare/contrast, and cause/effect. Include an emphasis on formatting, graphics, and multimedia to enhance reader understanding. CCSS.ELA-LITERACY.W.8.2.A</p>
<p>Life Science ANIMAL ADAPTATIONS</p> <p>Lesson 1: Extend your <i>Fish On!</i> investigation to create a model for exploring natural selection. Have some fish be camouflaged and other fish lack camouflage. In each subsequent generation, catch only fish who lack camouflage. Have baby fish demonstrate camouflage if BOTH parents are camouflaged. Explore how the ratio of camouflaged to uncamouflaged fish changes, given different parameters. NGSS MS-LS4-6</p>	<p>Economics EXTERNALITIES</p> <p>Lesson 4: While students explore sustainability in your state, examine the effect of economic incentives on the decisions of individuals and groups. Discuss ways in which our society mitigates the impact that decisions have on people and groups not involved directly in the decision-making process. NCSS D2.ECO.2.6-8</p>
<p>Earth and Space Science MINIMIZING ENVIRONMENTAL IMPACT</p> <p>Lesson 4: As your students explore ways to improve sustainability in your state, have them put their ideas to the test by designing and conducting an investigation into how well a solution they are considering actually reduces environmental harm. For instance, have students conduct a test on the efficacy of replacing old appliances with energy-efficient ones. NGSS MS-ESS3-3</p>	<p>Civics BALANCING INTERESTS</p> <p>Lesson 6: As students create their state book pages, have them consider reasons why individuals or groups might be reluctant to move toward greater sustainability. Examine the relevance of these interests and perspectives and the way in which they interact with civic virtues, and how we resolve these conflicts while adhering to democratic principles. NCSS D2.CIV.10.6-8</p>
<p>Physical Science INSULATION</p> <p>Lesson 4: Examine the way in which energy efficiency contributes to environmental sustainability by designing and testing a mechanism of reducing thermal energy transfer in a given situation. For example, explore ways to reduce heating costs by improving the building insulation. NGSS MS-PS3-3</p>	<p>Geography SUSTAINABILITY AND CONFLICT</p> <p>Lesson 7: As students broaden their understanding of sustainability in your state, have them explore ways in which human-induced environmental change have contributed to conflicts throughout history, and explore the ways in which additional environmental degradation could exacerbate future conflicts. NCSS D2.GEO.9.6-8</p>



GRADE 8

<p>Math COMPARING FUNCTIONS</p> <p>Lesson 6: Discuss how different ways of sharing the podcast could result in different numbers of users engaging with it. Explore how one person telling ten people each day would result in $10x$ people knowing about it each day, where x is the number of days. If each person who hears the podcast tells two others, however, the number of people who have heard about the podcast, cumulatively, would be $2^x - 1$. Examine and compare the shape of the two curves and discover the power of exponential growth. CCSS.MATH.CONTENT.8.F.A.2</p>	<p>English Language Arts PRESENTATIONS</p> <p>Lesson 5: As students plan their podcasts, explore how to sequence ideas in the most logical and effective fashion. Work to incorporate relevant facts and appropriate details to support a theme and to use appropriate volume and clear pronunciation. CCSS.ELA-LITERACY.SL.8.4</p>
<p>Life Science BENEFITS OF DIVERSITY</p> <p>Lesson 2: As you explore how different perspectives can help communities to see issues more deeply and clearly, draw a connection between the benefit of diversity in the world of ideas and the benefits of biodiversity. NGSS MS-LS2-5</p>	<p>Economics Costs and Benefits</p> <p>Lesson 3: A cost-benefit analysis is a great way to see both sides of an issue. As your students prepare for their debate, have them identify some costs and benefits that would result if their positions were widely adopted. Help them explore how wise decisions are the ones which maximize the benefits while minimizing the costs, and that people can disagree about the relative value of the different costs and benefits. NCSS D2.Eco.2.6-8</p>
<p>Earth and Space Science ENVIRONMENTAL IMPACTS</p> <p>Lesson 8: As you present your podcasts, explore how technological media can help ideas and information spread in a far more efficient way than could be done prior to the advent of electronic media. Discuss the benefits and costs of cheap information transfer. NGSS MS-ESS3-3</p>	<p>Geography PERSPECTIVES AROUND THE WORLD</p> <p>Lesson 5: As students plan their podcasts, have them explore the ways in which people from different areas view their issue differently. For instance, people who live in wooded areas might fight more vigorously to defend against deforestation because they value trees more highly. Explore how people can resolve issues when two sides have different value structures. NCSS D2.Geo.6.6-8</p>
<p>Physical Science WAVES OF ENERGY</p> <p>Lesson 5: Explore the ways in which information has been transmitted throughout history, paying particular attention to the ways in which digitized signals are a more reliable way to encode and transmit information than analog signals. NGSS MS-PS4-3</p>	<p>Civics APPLYING CIVIC VIRTUES</p> <p>Lesson 8: As students demonstrate the ability to stand up for what they believe in without becoming intolerant or belligerent, explore the example they are setting for how all people can apply civic virtues in school and community settings. NCSS D2.Civ.7.6-8</p>





GRADE 8

<p>Math BIVARIATE DATA</p> <p>Lesson 7: Create a class data set from Team Blue and Team Red results and have each group construct a scatter plot and describe patterns (clustering, outliers, linear/nonlinear association). CCSS.MATH.CONTENT.8.SPA.1</p>	<p>English Language Arts CONSTRUCT CLAIMS FROM EVIDENCE</p> <p>Lesson 7: Have students construct claims from their radish investigation and support their claims through evidence (analyzed data) and reasoning. CCSS.ELA-LITERACY.W.8.1</p>
<p>Life Science ECOSYSTEMS</p> <p>Lesson 5: As students are researching the best fertilizers to use for their soil, have them expand their research to food webs. Have them develop a model of a food web in their environment and a “model” of a food web on Mars. Then have them compare and contrast components (living, non-living, energy) of each. NGSS.MS-LS-2-3</p>	<p>Civics ANALYZE PUBLIC POLICIES</p> <p>Lesson 1: When discussing the problems facing planet Earth, analyze the purposes, implementation, and public policies related to environmental issues. NCSS.D2.CIV.13.6-8</p>
<p>Earth and Space Science GRAVITY AND MOTION</p> <p>Lesson 2: Discuss how Mars, Earth, and other planets stay in elliptical orbits around the sun. By understanding Mars’ orbit, its motion in relation to Earth, scientists can determine optimal times to travel to the Red Planet. NGSS.MS-ESS1-2</p>	<p>Geography LOCATION AND ENVIRONMENT</p> <p>Lesson 1: Use maps, satellite images, photographs and other resources to compare 3 locations (above, below, and on the equator) on Earth with 3 similar locations on Mars. Discuss how location affects environmental characteristics. NCSS.D2.GEO.2.6-8</p>
<p>Physical Science GRAVITY AND MASS</p> <p>Lesson 2: Discuss how mass remains constant as weight varies due to gravitational attraction. Have students discover how gravitational forces are dependent on mass by determining their weight on Mars and on other planets in our solar system. NGSS.MS-PS2-4</p>	<p>History EVOLUTION OF COMMERCIALS</p> <p>Lesson 5: As students research the best practices for creating their commercials, discuss how media has changed over time. Topics may include modalities, perspectives, targeted demographics, laws (FCC), etc. NCSS.D2.HIS.4.6-8</p>





GRADE 8

<p>Math FUNCTIONS AND RELATIONSHIPS</p> <p>Lesson 4: Have students sample water at various locations at a water source (upstream v. downstream) and construct a function to model the relationship between location and the contaminants present. CCSS.MATH.CONTENT.8.F.B.4</p>	<p>English Language Arts VISUAL DISPLAY</p> <p>Lesson 2: As students create their rap to be shared at their fundraiser, challenge them to incorporate visual appeal and multimedia into their performance, whether recorded or live. CCSS.ELA-LITERACY.SL.8.5</p>
<p>Life Science ECOSYSTEMS</p> <p>Lesson 5: Have students research and share out other water issues (i.e. Garbage Islands, ocean acidification, dead zones) that affect organisms and populations of organisms in an ecosystem. NGSS MS-LS2-1</p>	<p>Economics ECONOMIC DECISIONS</p> <p>Lesson 4: Before visiting your local body of water, discuss the sources of some possible contaminants students may discover. Explain that items we purchase and use can make our lives more enjoyable or convenient. However, sometimes there are environmental and societal tradeoffs. Discuss as a class how to evaluate when the benefits of an item outweigh its costs. D2.ECO.1.6-8</p>
<p>Earth and Space Science MINIMIZING HUMAN IMPACT</p> <p>Lesson 3: As students learn about watersheds, discuss how usable water makes up a very small portion of our hydrosphere and human water usage impacts that amount. Have students explore various ways water is used by humans and design possible solutions to minimize human impact. NGSS MS-ESS3-3</p>	<p>Geography CONSTRUCTING MAPS</p> <p>Lesson 5: Have students construct maps of local, national, and international bodies of water representing environmental and cultural characteristics. D2.GEO.1.6-8</p>
<p>Physical Science THERMAL ENERGY</p> <p>Lesson 5: One way to clean unsafe water is to boil it. Challenge students to use their understanding of thermal energy to design, build, and test a solar water heater to maximize thermal energy transfer. NGSS MS-PS3-3</p>	<p>History CHANGING PERSPECTIVES</p> <p>Lesson 4: As students analyze and reflect on their water testing results, discuss how new information changes perspectives. Explore human perception of water and how activities surrounding water usage and pollution have changed over time (i.e. plastic straws to metal straws). D2.HIS.5.6-8</p>

