Colorado Teacher-Authored Instructional Unit Sample

Social Studies
High School - Geography

# Unit Title: Whose Earth Is It … Anyway?


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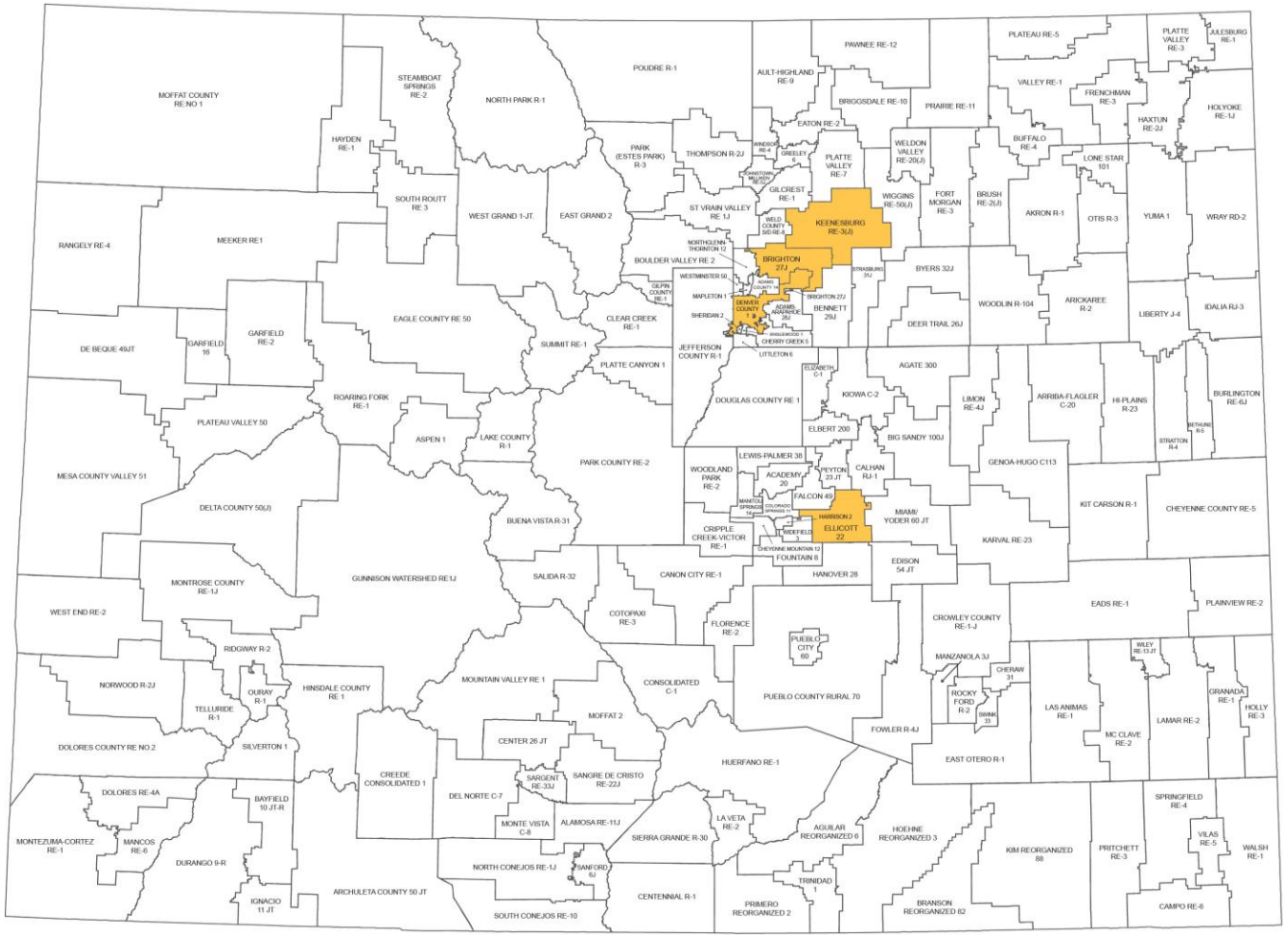


*This unit was authored by a team of Colorado educators. The template provided one example of unit design that enabled teacher-authors to organize possible learning experiences, resources, differentiation, and assessments. The unit is intended to support teachers, schools, and districts as they make their own local decisions around the best instructional plans and practices for all students.*


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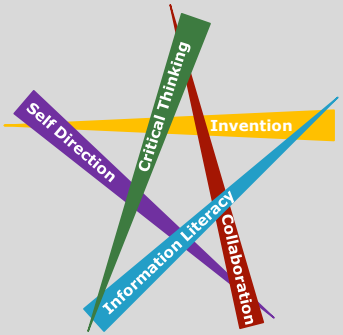
**Colorado Teacher-Authored Sample Instructional Unit**

| Content Area | Social Studies | Grade Level | High School |
|---|---|---|---|
| Course Name/Course Code | Geography | | |

| Standard | Grade Level Expectations (GLE) | GLE Code |
|---|---|---|
| 1. History | 2. Analyze the key concepts of continuity and change, cause and effect, complexity, unity and diversity over time | SS09-GR.HS-S.1-GLE.2 |
| 2. Geography | 1. Use different types of maps and geographic tools to analyze features on Earth to investigate and solve geographic questions | SS09-GR.HS-S.2-GLE.1 |
| | 2. Explain and interpret geographic variables that influence the interaction of people, places, and environments | SS09-GR.HS-S.2-GLE.2 |
| | 3. The interconnected nature of the world, its people and places | SS09-GR.HS-S.2-GLE.3 |
| 3. Economics | 1. Productive resources - natural, human, capital - are scarce; therefore choices are made about how individuals, businesses, governments, and societies allocate these resources | SS09-GR.HS-S.3-GLE.1 |
| | 2. Economic policies impact markets | SS09-GR.HS-S.3-GLE.2 |
| | 3. Government and competition impact markets | SS09-GR.HS-S.3-GLE.3 |
| 4. Civics | 2. Purposes of and limitations on the foundations, structures and functions of government | SS09-GR.HS-S.4-GLE.2 |
| | 3. Analyze how public policy - domestic and foreign - is developed at the local, state, and national levels and compare how policy-making occurs in other forms of government | SS09-GR.HS-S.4-GLE.3 |

## Colorado 21st Century Skills




**Critical Thinking and Reasoning:** *Thinking Deeply, Thinking Differently*

**Information Literacy:** *Untangling the Web*

**Collaboration:** *Working Together, Learning Together*

**Self-Direction:** *Own Your Learning*

**Invention:** *Creating Solutions*

## Reading & Writing Standards for Literacy in History/Social Studies 6 - 12

**Reading Standards**

- Key Ideas & Details
- Craft And Structure
- Integration of Knowledge and Ideas
- Range of Reading and Levels of Text Complexity

**Writing Standards**

- Text Types & Purposes
- Production and Distribution of Writing
- Research to Construct and Present Knowledge
- Range of Writing

| Unit Titles | Length of Unit/Contact Hours | Unit Number/Sequence |
|---|---|---|
| Whose Earth Is It … Anyway? | 5 - 6 weeks | 2 |

**Colorado Teacher-Authored Sample Instructional Unit**

| **Unit Title** | Whose Earth Is It ... Anyway? | | **Length of Unit** | 5 weeks | |
|---|---|---|---|---|---|
| **Focusing Lens(es)** | Sustainability | **Standards and Grade Level Expectations Addressed in this Unit** | SS09-GR.HS-S.2-GLE.1<br>SS09-GR.HS-S.2-GLE.2<br>SS09-GR.HS-S.2-GLE.3 | | SS09-GR.HS-S.3-GLE.1<br>SS09-GR.HS-S.4-GLE.2<br>SS09-GR.HS-S.4-GLE.3 |
| **CCSS Reading Standards for Literacy in History/ Social Studies 9-12** | **Grades 9-10**<br>CCSS.RH.9-10.7<br>CCSS.RH.9-10.9 | **Grades 11-12**<br>CCSS.RH.11-12.7<br>CCSS.RH.11-12.9 | **CCSS Writing Standards for Literacy in History/ Social Studies 9-12** | **Grades 9-10**<br>CCSS.WHST.9-10.1<br>CCSS.WHST.9-10.6<br>CCSS.WHST.9-10.7<br>CCSS.WHST.9-10.8 | **Grades 11-12**<br>CCSS.WHST.11-12.1<br>CCSS.WHST.11-12.6<br>CCSS.WHST.11-12.7<br>CCSS.WHST.11-12.8 |
| **Inquiry Questions (Engaging- Debatable):** | • What is the appropriate balance between sustainability and economic development?<br>• Should communities limit their populations based upon available resources and environmental limitations?<br>• Should governments restrict where people live based on environmental factors? (SS09-GR.HS-S.2-GLE.2-EO.c) and (SS09-GR.HS-S.4-GLE.2-EO.c) | | | | |
| **Unit Strands** | Geography, Economics, Civics | | | | |
| **Foundational Geographic Concepts** | Hypothesis, physical/human/natural resources, social/political/national boundaries, cultural spaces, human interactions, absolute and relative location, maps, visual/geographic representations, resource distribution, sustainability | | | | |
| **Concepts** | Human/natural resources, allocation, geographic tools, interdependence, policy, environment, opportunity cost, conservation, economic development/policy, population density, social/political/national boundaries, foreign policy, physical resources/boundaries/environment, societal values, national, international, community | | | | |

| **Generalizations**<br>**My students will Understand that…** | **Guiding Questions**<br>**Factual** | **Conceptual** |
|---|---|---|
| Maps, charts, and tables, can visually denote physical and human resources (globally and locally) to facilitate understanding of past and current resource distribution and planning for future usage and sustainability (SS09-GR.HS-S.2-GLE.2-EO.a,c) | How have maps illustrated the increase in population density and the interdependence of human and natural resources? | How can geographic tools help us determine the fair and equitable allocation of global resources? (SS09-GR.HS-S.3-GLE.1-EO.a) |
| Geographic representations (across time) of the locations of social, political, and cultural spaces/boundaries can illuminate national and international cooperation/conflict and the results of shifting priorities, values, and beliefs (SS09-GR.HS-S.2-GLE.1-EO.b,d) | How can maps illuminate national and international energy resources and usage?) | How do maps document political, cultural and/or social priorities? |

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| Information and changing perceptions and values of places and environment influence personal actions and sustainability (SS09-GR.HS-S.2-GLE.2-EO.e,f) | What are some key factors of energy sustainability?<br>What energy-conservation strategies can you do at home to help sustain the environment? | How do social class and individual perceptions affect the definition of sustainability? |
| Humans can adapt to and alter the environment which may bring about prosperity to some places but may also create environmental dilemmas for others (SS09-GR.HS-S.2-GLE.2-EO.b,c) | How does the construction of hydroelectric plants (dams) differentially impact populations (e.g. in China and Egypt)? | How does where you live affect how you live? |
| Geographic tools and data reveal interactions between society and environment which may shape policy decisions and inform programs for resource use (SS09-GR.HS-S.2-GLE.1-EO.d) and (SS09-GR.HS-S.2-GLE.2-EO.a) | How do experts use geographic tools to document coal reserves and inform debates about clean coal?<br>How can geographic data inform/support policy incentives for sustainable energy? | What kinds of data should drive environmental policy decisions? |
| Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs (SS09-GR.HS-S.3-GLE.1-EO.b) | What are examples of opportunity costs weighed in decisions to pursue hydraulic fracturing and/or hydroelectric power? | What are the most important factors in weighing the opportunity costs of fossil fuels, hydroelectric power, and sustainable forms of energy? |
| The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation (SS09-GR.HS-S.2-GLE.3-EO.a,b) | How does a dependence on oil affect state, national and foreign policies? (SS09-GR.HS-S.4-GLE.3-EO.d) | In what ways does the uneven distribution of resources limit economic and political opportunities? |

| **Critical Content:**<br>**My students will Know…** | **Key Skills:**<br>**My students will be able to (Do)…** |
|---|---|
| • The definition of sustainability and how an individual's actions influence sustainability (SS09-GR.HS-S.2-GLE.2-EO.f)<br>• How to apply geography skills to help investigate issues and justify possible resolutions involving people, places, and environments (SS09-GR.HS-S.2-GLE.2-EO.a)<br>• Technology can support invention and influence how humans modify the environment in both positive and negative ways (SS09-GR.HS-S.2-GLE.2-RA.2)<br>• The issues affecting the appropriate balance between sustainability and economic development (SS09-GR.HS-S.2-GLE.2-EO.c) and (SS09-GR.HS-S.3-GLE.1-EO.a,c)<br>• The location of resources, physical boundaries, and natural hazards that affect human interaction such as water rights (SS09-GR.HS-S.2-GLE.1-RA.2)<br>• The physical environment is modified by human activities, societal values, and natural resource use (SS09-GR.HS-S.2-GLE.2-N.2) | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts (SS09-GR.HS-S.2-GLE.2-EO.a)<br>• Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment (SS09-GR.HS-S.2-GLE.2-EO.b)<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use (SS09-GR.HS-S.2-GLE.2-EO.d) |

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| **Critical Language:** includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline.<br>EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: *"Mark Twain exposes the hypocrisy of slavery through the use of satire."* | |
| **A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):** | *The sustainability of human and natural resources is managed through a society's response to its environmental constraints.* |
| **Academic Vocabulary:** | Interdependence, resources, location, place, society, environment, physical resources/boundaries/environment, sustainability |
| **Technical Vocabulary:** | Cultural spaces, human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, population, population density, allocation, social/political/national boundaries, human/natural resources, foreign policy, Middle East, cartographer, societal values, national, international, community |

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| **Unit Description:** | This unit focuses on energy resources and energy production at state, national, and global levels and considers the policies and implications of both non-renewable and sustainable forms of energy. The unit begins with a focus on individual energy uses and fuel source usage; asking students to consider what, where, and how (much) energy they use. During the 6-8 weeks of the unit, students will then examine state, national, and international efforts to develop, maintain, and sustain the dominant existing sources of energy (i.e., fossil and hydroelectric); examining both the economic and environmental factors and concerns connected with these efforts. From there, the unit then moves on to parallel state, national and global policies and programs that incentivize the development of sustainable/renewable forms of energy; looking at both the conflicts and opportunities for cooperation inherent in these efforts. The learning experiences build to a performance assessment that asks students to take a position on a particular energy source in Colorado and to present that position/perspective to a U.S. Senate subcommittee hearing; making a compelling case for the development of and investment in this resource. |
| **Considerations:** | The authors of this unit decided on energy resources, maintenance/conservation and sustainability, as the focus of this unit. Thus, while the teacher and student resources included herein are energy/fuel specific, all resources related to survival/existence that humans work on local, national, and global levels to maintain/manage and sustain are absolutely appropriate to the generalizations at the heart of the unit. Additionally, teachers could choose to integrate the examination of other resources into this unit's energy focus. Concerns and conflicts about water and air quality would fit nicely within this unit. |
| **Unit Generalizations** | |
| **Key Generalization:** | The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation |
| **Supporting Generalizations:** | Information and changing perceptions and values of places and environment influence personal actions and sustainability |
| | Humans can adapt to and alter the environment which may bring about prosperity to some places but may also create environmental dilemmas for others |
| | Geographic tools and data reveal interactions between society and environment which may shape policy decisions and inform programs for resource use |
| | Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs |

| **Performance Assessment:** *The capstone/summative assessment for this unit.* | |
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| **Claims:**<br>(Key generalization(s) to be mastered and demonstrated through the capstone assessment.) | The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation |
| **Stimulus Material:**<br>(Engaging scenario that includes role, audience, goal/outcome and explicitly connects the key generalization) | The U.S. Senate Committee on Energy and Natural Resources is convening a hearing to explore the national implications of Colorado's energy resources (e.g., wind, solar, fossil fuels). As a concerned Coloradoan (energy worker, CEO, environmentalist, land owner, citizen, etc.) you have a particular interest in this discussion. Given the increasingly interdependent nature of our global community, your goal is to persuade the Committee that pursuit of a given energy source is ultimately either beneficial or detrimental. Therefore, in making your case you will highlight either the inherent conflicts OR the cooperative opportunities associated with developing/extracting the resource.<br>*Students will take on particular roles. Teacher can assign, randomly assign, or allow students to choose these roles. Teachers will, however, want to ensure that (conflict and cooperation) perspectives are equally represented. |

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| **Product/Evidence:**<br>(Expected product from students) | Students will construct an argument that represents their perspective. Their argument should outline/justify their position (based on sources), make the case for the national benefits of pursuing this resource, and anticipate questions from the Committee. Students will present (verbally) their position at the Committee hearing and respond to senators' inquiries.<br>*Teachers may want to invoke the help of high school students enrolled in civics courses as members of the "Senate" to whom these position statements will be directed. |
| **Differentiation:**<br>(Multiple modes for student expression) | In the place of in-person presentations, the verbal arguments may take the form of:<br>• Video presentations (moviemaker, iMovie)<br>• Voicethread<br>In the place of individual presentations, students may form like-minded coalitions for group presentations. Roles could include:<br>• Presenter<br>• Researcher<br>• Videographer/technician<br>• Graphics/Visual artist |

## Texts for independent reading or for class read aloud to support the content

| Informational/Non-Fiction | Fiction |
|---|---|
| *Dams and Hydropower (Development or Destruction?)*- Louise Spilsbury<br>*What Is the Future of Hydropower?* - Stephen Currie (Lexile level 900+)<br>*Fuel and the Environment* - Denise Walker (Lexile level 800+)<br>*Understanding Fossil Fuels* - Polly Goodman Polly (Lexile level 730+)<br>*Can Renewable Energy Replace Fossil Fuels?* - Hal Marcovitz (Lexile level 1370)<br>*Fuel and the Environment (Core Chemistry)* - Denise Walker (Lexile level 800+)<br>*Understanding Fossil Fuels* - Polly Goodman (Lexile level 730+)<br>*Fossil Fuels* - Wendy Meshbesher (Lexile level 900)<br>*Alternative Energy: Beyond Fossil Fuels* - Dana Meachen Rau (Lexile level 930)<br>*You Can Save the Planet: 50 Ways You Can Make a Difference* - Jacquie Wines (Lexile level 1020)<br>*Energy Island: How one community harnessed the wind and changed their world* - Allan Drummond (Lexile level 920)<br>*Onion Juice, Poop, and Other Surprising Sources of Alternative Energy (Fact Finders: Nasty (But Useful!)* - Mark Weakland (Lexile level 600+) | *Empty*- Suzanne Weyn (Lexile level 450+)<br>*Saving the Planet and Stuff*- Gail Gauthier (Lexile level 600+) |

| Ongoing Discipline-Specific Learning Experiences | | | | |
|---|---|---|---|---|
| 1. | Description: | Think/work like a geographer: Mapping physical resources | Teacher Resources: | http://upload.wikimedia.org/wikipedia/commons/thumb/c/cf/A_large_blank_world_map_with_oceans_marked_in_blue.PNG/800px-A_large_blank_world_map_with_oceans_marked_in_blue.PNG (Blank world map)<br>http://www.docstoc.com/docs/2386312/Blank-US-Map (Blank US map)<br>http://thumbs.dreamstime.com/z/energy-development-sources-icons-7688734.jpg (Natural resource icons) |
| | | | Student Resources: | http://thumbs.dreamstime.com/z/energy-development-sources-icons-7688734.jpg (Natural resource icons) |
| | Skills: | Visually denote physical and human resources (globally and locally) to denote current resource distribution and planning for future usage and sustainability | Assessment: | Classroom U.S. and World resource map<br>Students will add natural and renewable resources (using icons) onto a world and U.S. map (e.g., week one, add coal; week two, add hydraulic fracturing/ fracking sites, etc). |
| 2. | Description: | Think/work like a geographer: Mapping human interactions (cooperation and conflict) related to the physical environment | Teacher Resources: | See above for maps |
| | | | Student Resources: | N/A |
| | Skills: | Locate social, political, and cultural spaces/boundaries that illuminate national and international cooperation/conflict and the results of shifting priorities, values and beliefs | Assessment: | Add to classroom US and World resource map<br>Students will add to the resource maps they are creating in class by identifying areas of conflict and cooperation regarding resources. Students may use icons (smiley and sad faces) to designate areas of cooperation and conflict. |
| 3. | Description: | Think/work like a social scientist: Examining claims, counter claims, evidence, and sources | Teacher Resources: | https://www.teachingchannel.org/videos/analyzing-text-lesson (A short video on the Teaching Channel showing how to analyze texts)<br>http://www.edu.gov.on.ca/eng/studentsuccess/thinkliteracy/files/reading.pdf (Reading Strategies)<br>http://www.wisconsinhistory.org/turningpoints/primarysources.asp#read (Using Primary Sources in the Classrooms) |
| | | | Student Resources: | http://www.loc.gov/teachers/usingprimarysources/resources/Analyzing_Books_and_Other_Printed_Texts.pdf (Library of Congress: Analyzing Books and Other Printed Texts Worksheet)<br>http://www.wisconsinhistory.org/turningpoints/pdfs/documentanalysisworksheet.pdf (Document Analysis Worksheet) |

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| | Skills: | Reading in the discipline (CCSS.RH.9-10.7 CCSS.RH.9-10.9) | Assessment: | Across the unit, wherever students work with argumentative/persuasive and research texts, students will:<br>• analyze claims/counterclaims and evidence<br>• consider how authors use (quantitative) charts and data<br>• highlight persuasive forms of speech<br>• compare authors' use of primary and secondary sources<br>• identify author perspective/bias (objective/subjective tone)<br>• determine thesis statement(s) |

## Prior Knowledge and Experiences

The performance assessment presumes students have a basic understanding of the purpose of Senate committee hearings (e.g., who participates, statement and question format, etc.). Additionally, students should have basic understandings of the elements of a successful persuasive speech. Teachers may, however, wish to revisit some or all of these understandings prior to (or during) the teaching of the unit.

## Learning Experiences # 1 – 14
## Instructional Timeframe: Teacher Determined

**Learning Experience # 1**

The teacher may engage students in a discussion of Colorado's (dominant) energy sources and usage (possibly utilizing personal energy use examples) so that students can examine and document how they use energy in their lives.

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|---|---|
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability |
| **Teacher Resources:** | http://www.instituteforenergyresearch.org/2013/09/10/colorado-an-energy-and-economic-analysis/ (Colorado rank for specific resources)<br>http://www.eia.gov/state/?sid=CO (Colorado State Profile and Energy Estimates)<br>http://www.eia.gov/state/?sid=CO#tabs-1 (Colorado Energy Consumption)<br>http://www.ehow.com/about_5374489_fuels-used-daily-life.html (Background on different fuel sources and their usage) |
| **Student Resources:** | http://www.ehow.com/about_5374489_fuels-used-daily-life.html (Background on different fuel sources and their usage)<br>http://www.presentationmagazine.com/weekly-calendar-template-605.htm (Blank journal page for student energy log)<br>http://www.cpi.coop/my-account/online-usage-calculator/ (Online energy usage calculator) |
| **Assessment:** | Students will complete a week-long "energy use" journal. Students will document everything they use in one week that requires some type of power or energy.<br>**OR**<br>Students will estimate and document the number of appliances/pieces of equipment in their home, in the online usage calculator, to determine the amount of energy used and cost associated with that energy usage for one month. |

| | | |
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| **Differentiation:** (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | http://www.presentationmagazine.com/weekly-calendar-template-605.htm (Blank journal page for student energy log-with teacher-added sentence stems) | Students may create a list of ways in which they used energy each day<br>Students may complete journal entries (using sentence stems) |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | http://www.ei.lehigh.edu/learners/energy/ (Personal energy use templates) | Students may create a personal plan for decreasing their energy consumption by (___%) over a 30 day period |
| **Critical Content:** | • Fossil fuels, hydro-electric power, propane, natural gas, solar energy, electricity, personal energy use | |
| **Key Skills:** | • Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use<br>• Gather data, interpret, and draw conclusions maps, graphs, tables, and charts<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |
| **Critical Language:** | Resources, location, place, society, environment, physical resources, consumption, energy source/fuel source, dominant, energy use calculator, natural resources, community | |

| **Learning Experience # 2** | | |
|---|---|---|
| The teacher may bring in guest speakers (principal) and/or documents (school policies) around school energy use-lights, heat/AC so that students can analyze the need for these policies and for corresponding/similar energy "policies" in their personal/home lives. | | |
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability | |
| **Teacher Resources:** | https://louisville.edu/kppc/files/keeps/keeps-toolkit-documents/TK4-Fayette%20Co.%20Public%20Schools%20Sustainability%20Plan-FINAL.pdf (Sample school district energy plan) | |
| **Student Resources:** | http://www.eduplace.com/graphicorganizer/pdf/tchart_eng.pdf (T-chart: « Subject » in left column to be named « energy waste », « Subject » in right column to be named « behavior change to conserve ») | |
| **Assessment:** | Students will create an "energy policy" for their personal/home usage that documents the need for the policy and the ways in which the policy could help them monitor/conserve fuel and energy usage. | |
| **Differentiation:** (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | http://www.eduplace.com/graphicorganizer/pdf/tchart_eng.pdf (T-chart)<br>Students may have some sort of technology to capture (in picture or video) energy waste at home | Students may complete a T-chart documenting actual energy use and possible behavior changes to conserve energy<br>Student may create a home video/photo of energy waste |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | http://www.cpi.coop/my-account/online-usage-calculator/ (Online energy use calculator)<br>Students may revisit online energy calculator from learning experience #1 | Students may evaluate the personal energy plan created after learning experience #1. |

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|---|---|
| **Critical Content:** | • Policy, fossil fuels, hydro-electric power, propane, natural gas, solar energy, electricity, personal energy use/school energy use, energy waste, energy conservation |
| **Key Skills:** | • Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use<br>• Gather data, interpret, and draw conclusions maps, graphs, tables, and charts<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use |
| **Critical Language:** | Resources, environment, natural resources, energy/sustainability plan/policy, conserve, consumption, energy source/fuel source, energy use calculator |

| **Learning Experience # 3** | | |
|---|---|---|
| The teacher may utilize energy efficiency policies (e.g., Colorado's SB13-279, Energy Star policies, auto efficiency standards) so that students can examine the steps the state and the nation are taking toward conserving existing resources. | | |
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability | |
| **Teacher Resources:** | http://www.leg.state.co.us/clics/clics2013a/csl.nsf/billcontainers/119A8136123F7F8187257AEE0057C13C/$FILE/279_01.pdf (PDF Description of SB13-279)<br>http://www.energystar.gov/buildings/about-us/how-can-we-help-you/energy-star-action/programs-and-policies-using-energy-star (Open ended program for energy star policies )<br>http://www.foxnews.com/tech/2013/12/31/end-road-for-incandescent-light-bulb/ (Light bulb policy)<br>http://auto.howstuffworks.com/fuel-efficiency (Open ended program for auto efficiency) | |
| **Student Resources:** | http://www.readwritethink.org/files/resources/lesson_images/lesson275/compcon_chart.pdf (Graphic organizer for compare and contrast) | |
| **Assessment:** | The students will compare and contrast energy efficiency practices/features of new and old buildings (in district or locally). | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Student may work in pairs with one writer<br>Students may work in pairs and focus on new OR old buildings and share information with another group working on the opposing new or old building.<br>http://www.readwritethink.org/files/resources/lesson_images/lesson275/compcon_chart.pdf (Graphic organizer for compare and contrast) | Students may dictate (to partners) their documentation of building comparisons |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may compare and contrast utilities usage between their building and older/newer less/more efficient buildings in the district. (Teachers will need to supply usage bills) | Students may present their findings to the school administration and/or the school board |

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| | Students may observe energy uses in their building and create a policy for the building to reduce energy usage.<br>http://www.eduplace.com/graphicorganizer/pdf/4column.pdf (Basic "four column" chart) | |
| **Critical Content:** | • The state policy SB13-279<br>• Energy Efficiency policies (e.g. Energy Star, auto efficiency)<br>• The definition of sustainability and how an individual's actions influence sustainability<br>• The issues affecting the appropriate balance between sustainability and economic development<br>• The physical environment is modified by human activities, societal values, and natural resource use | |
| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts<br>• Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |
| **Critical Language:** | Human interactions, economic development/policy, opportunity cost, human/natural resources, foreign policy, societal values, national, international, community, Interdependence, resources, location, place, society, environment, physical resources/ boundaries/environment, sustainability | |

| **Learning Experience # 4** | | |
|---|---|---|
| The teacher may utilize video clips, media reports, and articles about hydraulic fracturing (fracking) in Colorado so that students can understand fracking practices and processes and explain its necessity (in relation to natural gas/fossil fuel extraction). | | |
| **Generalization Connection(s):** | Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs<br>Humans can adapt to and alter the environment which may bring about prosperity to some places but may also create environmental dilemmas for others | |
| **Teacher Resources:** | http://www.dangersoffracking.com/ (Short interactive video describing the process of fracking as well as the harms)<br>http://www.youtube.com/watch?v=Uti2niW2BRA (YouTube video on the fracking process)<br>http://www.cnbc.com/id/47278369 (Article about the necessity of fossil fuel)<br>http://www.studyfracking.com (FAQ about fracking, potentially useful for the assessment) | |
| **Student Resources:** | http://www.dangersoffracking.com/ (Short interactive video describing the process of fracking as well as the harm) | |
| **Assessment:** | The students will respond to teacher-provided interview questions about the fracking industry from the perspective of a man or woman in the fracking industry. (Students' response could be in writing or produced orally in an interview format) | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may be provided with fewer questions | Students may use bullets instead of complete sentences with their interview responses<br>Students may give an oral presentation of the questions to the teacher |

| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
|---|---|---|
| | N/A | Students may formulate additional questions that they would ask members of the fracking industry |
| **Critical Content:** | • The fracking process and the purpose of it<br>• The definition of sustainability<br>• Technology can support invention and influence how humans modify the environment in both positive and negative ways<br>• The issues affecting the appropriate balance between sustainability and economic development<br>• The location of resources, physical boundaries, and natural hazards that affect human interaction such as water rights<br>• The physical environment is modified by human activities, societal values, and natural resource use | |
| **Key Skills:** | • Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |
| **Critical Language:** | Human interactions, economic development/policy, opportunity cost, allocation, human/natural resources, societal values, national, international, community, resources, location, place, society, environment, physical resources/boundaries/environment, sustainability, hydraulic fracturing (fracking) | |

| **Learning Experience # 5** | |
|---|---|
| The teacher may provide sources (e.g., primary, secondary, maps) related to fracking and/or fracking policies at the national level so that students can consider the conflicts (advantages and disadvantages) surrounding fracking. | |
| **Generalization Connection(s):** | The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation<br>Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs |
| **Teacher Resources:** | http://www.dangersoffracking.com/ (3 – 5 min. video about the dangers of Fracking)<br>http://earthjustice.org/features/campaigns/fracking-across-the-united-states?gclid=CMXi0dCQg7wCFecRMwodBiAABw (Map of fracking across the U.S.)<br>http://www.dailykos.com/story/2013/11/15/1255811/-Fracking-Conflict-Heats-up-in-NM (Current article to depict dispute in New Mexico)<br>http://www.breezejmu.org/news/article_e9ec02f6-7e63-11e3-b0c4-001a4bcf6878.html (Virginia conflict with fracking)<br>http://www.forbes.com/sites/halahtouryalai/2012/05/21/fracking-is-midunderstood-its-the-key-to-energy-self-sufficiency/ (Article supporting fracking)<br>http://www.huffingtonpost.com/peter-h-gleick/the-real-story-behind-the_1_b_1719554.html (Documenting the fracking debate) |
| **Student Resources:** | http://www.dangersoffracking.com/ (3 – 5 min. video about the dangers of Fracking) |
| **Assessment:** | Students will organize advantages and disadvantages into a graphic organizer and construct a thesis statement supporting one side. |

| **Differentiation:** (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
|---|---|---|
| | http://www.eduplace.com/graphicorganizer/pdf/tchart_eng.pdf (Graphic organizer for writing a thesis)<br>Students may work in pairs to organize thoughts, ideas and opinions | Students may complete the graphic organizer<br>Students may orally present his/her ideas to the teacher |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | N/A | Students may write an additional thesis taking the other stance |
| **Critical Content:** | • Fracking process, necessity and detriments<br>• Opportunity cost<br>• The definition of sustainability and how an individual's actions influence sustainability<br>• Technology can support invention and influence how humans modify the environment in both positive and negative ways<br>• The issues affecting the appropriate balance between sustainability and economic development<br>• The location of resources, physical boundaries, and natural hazards that affect human interaction such as water rights<br>• The physical environment is modified by human activities, societal values, and natural resource use | |
| **Key Skills:** | • Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |
| **Critical Language:** | Interdependence, resources, location, place, society, environment, physical resources/boundaries/environment, sustainability, natural disasters, deforestation, natural hazards, human interactions, maps, visual/geographic representations, geographic tools, opportunity cost, population, allocation, social/political/national boundaries, human/natural resources, societal values, national, community, hydraulic fracturing (fracking) | |

| **Learning Experience # 6** | |
|---|---|
| The teacher may provide documents about national environmental standards concerning coal usage and how the coal industry has attempted to address the standards (e.g., clean coal) so that students can decipher how government and industry are cooperating in order to utilize this fossil fuel. | |
| **Generalization Connection(s):** | The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation<br>Information and changing perceptions and values of places and environment influence personal actions and sustainability |
| **Teacher Resources:** | http://pubs.usgs.gov/pp/1625f/downloads/ChapterD.pdf (US geological survey per coal usage)<br>http://www.eia.gov/coal/reserves/ (Possible student handout for US coal reserves)<br>http://teeic.anl.gov/er/coal/restech/uses/index.cfm (Student handout concerning purpose and amount of coal in the US)<br>http://teeic.anl.gov/er/coal/restech/dist/ (Information on U.S coal reserves and uses)<br>http://teeic.anl.gov/lr/dsp_popstatute.cfm?statute=91&LinkURL(Clean Air Act)<br>http://science.howstuffworks.com/environmental/green-science/clean-coal.htm (Clean coal technology) |

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| **Student Resources:** | http://www.eia.gov/coal/reserves/ (Possible student handout for US coal reserves)<br>http://teeic.anl.gov/er/coal/restech/uses/index.cfm (Student handout concerning purpose and amount of coal in the US)<br>http://teeic.anl.gov/er/coal/restech/dist/ (Information on U.S coal reserves and uses)<br>http://teeic.anl.gov/lr/dsp_popstatute.cfm?statute=91&LinkURL (Clean Air Act)<br>http://science.howstuffworks.com/environmental/green-science/clean-coal.htm (Clean coal technology) | |
| **Assessment:** | Students will complete an exit slip to express how the coal industry has cooperated with the government to meet the standards. | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | N/A | Students may provide teachers with a verbal "exit slip" |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | N/A | Students may formulate a question to a member of the coal industry regarding clean coal |
| **Critical Content:** | • Dirty and clean coal burning technology<br>• Clean Air Act policy<br>• The definition of sustainability and how an individual's actions influence sustainability<br>• How to apply geography skills to help investigate issues and justify possible resolutions involving people, places, and environments<br>• Technology can support invention and influence how humans modify the environment in both positive and negative ways<br>• The issues affecting the appropriate balance between sustainability and economic development<br>• The physical environment is modified by human activities, societal values, and natural resource use | |
| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts<br>• Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |
| **Critical Language:** | Resources, location, place, society, environment, physical resources/boundaries/environment, sustainability, human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, allocation, human/natural resources, foreign policy, societal values, national, international, community, clean coal | |

| **Learning Experience # 7** | |
|---|---|
| The teacher may bring in diverse (and conflicting) perspectives regarding clean coal so that students can critically consider the environmental and economic claims made by both sides. | |
| **Generalization Connection(s):** | The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation<br>Information and changing perceptions and values of places and environment influence personal actions and sustainability |

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| **Teacher Resources:** | http://teeic.indianaffairs.gov/lr/Wc51ede084d515.htm (Clean Air Act)<br>http://science.howstuffworks.com/environmental/green-science/clean-coal.htm (Clean coal technology) | |
| **Student Resources:** | http://teeic.anl.gov/er/coal/restech/uses/index.cfm (Student handout concerning purpose and amount of coal in the US)<br>http://teeic.indianaffairs.gov/lr/Wc51ede084d515.htm (Clean Air Act)<br>http://science.howstuffworks.com/environmental/green-science/clean-coal.htm (Clean coal technology)<br>http://content.time.com/time/health/article/0,8599,1870599,00.html (Article on the "myths" of clean coal)<br>http://www.nytimes.com/2009/01/23/opinion/23fri3.html?_r=0 (Collapsing arguments around clean coal) | |
| **Assessment:** | Students will write a position paper; taking a stand on clean coal and documenting (with text-based evidence) the basis for their position http://www.sfu.ca/cmns/130d1/WritingaPositionPaper.htm (Excellent and brief overview of writing-and citing within-a position paper) | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | www.oecd.org/dataoecd/15/16/45602882.pdf (Position paper outline in 18 sentences) | Students may complete template that provides structure for their position statement |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | http://www.sfu.ca/cmns/130d1/WritingaPositionPaper.htm (Excellent and brief overview of writing-and citing within-a position paper) | Students may either respond to the position paper they already constructed-as a constituent with an opposing view- or construct a position paper from the "other side" |
| **Critical Content:** | • Dirty and clean coal burning technology<br>• Clean Air Act policy<br>• Technology can support invention and influence how humans modify the environment in both positive and negative ways<br>• The issues affecting the appropriate balance between sustainability and economic development | |
| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts<br>• Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |
| **Critical Language:** | Resources, location, place, society, environment, physical resources/boundaries/environment, sustainability, human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, allocation, human/natural resources, foreign policy, societal values, national, international, community, clean coal | |

| **Learning Experience # 8** | | |
|---|---|---|
| The teacher may provide fact sheets about the work to create/improve hydroelectric energy output (e.g., the Aswan Dam in Egypt and the Three Gorges Dam in China) so that students can understand and begin to assess the opportunity costs of dam building across the globe. | | |
| **Generalization Connection(s):** | Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs<br>Humans can adapt to and alter the environment which may bring about prosperity to some places but may also create environmental dilemmas for others | |
| **Teacher Resources:** | http://www.pbs.org/itvs/greatwall/dam.html (Three Gorges Dam facts)<br>http://primaryfacts.com/1355/aswan-dam-facts-and-information/ (Aswan Dam facts)<br>http://www.pbs.org/wgbh/buildingbig/wonder/structure/aswan_high.html (Aswan Dam facts)<br>http://www.cnn.com/SPECIALS/1999/china.50/asian.superpower/three.gorges/ (Three Gorges Dam facts) | |
| **Student Resources:** | http://www.pbs.org/itvs/greatwall/dam.html (Three Gorges Dam facts)<br>http://primaryfacts.com/1355/aswan-dam-facts-and-information/ (Aswan Dam facts)<br>http://www.pbs.org/wgbh/buildingbig/wonder/structure/aswan_high.html (Aswan Dam facts)<br>http://www.cnn.com/SPECIALS/1999/china.50/asian.superpower/three.gorges/ (Three Gorges Dam facts) | |
| **Assessment:** | Students will write a paragraph in response to the following prompt: Explain which dam has a preferable opportunity cost and give 3 examples from the sources in your response. | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may work in pairs to write their responses<br>http://my.hrw.com/nsmedia/intgos/html/PDFs/Venn_Diagram.pdf (Web-based Venn diagram) | Students may create a Venn Diagram to compare and contrast the 2 dams |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may research another global dam with beneficial/preferable opportunity costs | Students may write an additional paragraph to respond to the above prompt |
| **Critical Content:** | • Hydroelectricity as a source of energy<br>• Definition of opportunity cost<br>• Basic geography surrounding the Nile and Yangtze river<br>• Technology can support invention and influence how humans modify the environment in both positive and negative ways<br>• The issues affecting the appropriate balance between sustainability and economic development<br>• The location of resources, physical boundaries, and natural hazards that affect human interaction such as water rights<br>• The physical environment is modified by human activities, societal values, and natural resource use | |
| **Key Skills:** | • Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use | |

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|---|---|
| **Critical Language:** | Resources, location, place, society, environment, physical resources/boundaries/environment, sustainability, human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, population, allocation, social/political/national boundaries, human/natural resources, societal values, national, international, community |

| **Learning Experience # 9** | | |
|---|---|---|
| The teacher may provide students with world (fossil fuel) resource availability and consumption maps so that students can comprehend the finite nature of some physical resources and begin to consider the necessity for renewable energy sources. | | |
| **Generalization Connection(s):** | Geographic tools and data reveal interactions between society and environment which may shape policy decisions and inform programs for resource use. | |
| **Teacher Resources:** | http://philebersole.wordpress.com/2012/03/23/the-worlds-resources-whos-got-what/ (Resource availability and consumption maps)<br>http://www.pfsd.com/uploads/GraphicOrganizers.pdf (Making inferences graphic organizer (page 5)<br>http://www.revisionenergy.com/graphics/energy-resources-renewables-fossil-fuel-uranium-sm.jpg (Resource use graphic)<br>http://www.energyrealities.org/chapter/our-resources/item/proved-reserves-of-fossil-fuels/erp6F0E6DFD5D4365155 (Fossil fuel reserves, by country) | |
| **Student Resources:** | http://philebersole.wordpress.com/2012/03/23/the-worlds-resources-whos-got-what/ (Resource availability and consumption maps)<br>http://www.pfsd.com/uploads/GraphicOrganizers.pdf (Making inferences graphic organizer (page 5)<br>http://www.revisionenergy.com/graphics/energy-resources-renewables-fossil-fuel-uranium-sm.jpg (Resource use graphic)<br>http://www.energyrealities.org/chapter/our-resources/item/proved-reserves-of-fossil-fuels/erp6F0E6DFD5D4365155 (Fossil fuel reserves, by country) | |
| **Assessment:** | Students will generate inferences (regarding energy use, resource depletion, country-by-country dependency on fossil fuels) on a graphic organizer based on the maps. | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may work on their inferences with provided "evidence" clues from the teacher | Students may complete an inference with at least 1 given "evidence" |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | www.research.unm.edu/frss/templates/TEMPLATE SimpleProposalFormat.doc (Proposal template) | Students may construct a proposal concerning how the United States, individual countries or the global community will respond to the inferences you made |
| **Critical Content:** | • The location of resources, physical boundaries, and natural hazards that affect human interaction such as water rights<br>• The physical environment is modified by human activities, societal values, and natural resource use<br>• How to apply geography skills to help investigate issues and justify possible resolutions involving people, places, and environments. | |

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|---|---|
| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts<br>• Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use |
| **Critical Language:** | Human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, allocation, social/political/national boundaries, human/natural resources, foreign policy, societal values, national, international, community, Interdependence, resources, location, place, society, environment, physical resources/boundaries/environment, sustainability, consumption, fossil fuels |

| **Learning Experience # 10** | | |
|---|---|---|
| The teacher may provide examples of Colorado incentives (e.g., tax credits/deductions, rebates, tax relief, implementation grants, loans) for individuals/corporations so that students can identify/categorize the benefits associated with utilizing renewable energy resources (wind, solar, hydro, geothermal, etc.). | | |
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability | |
| **Teacher Resources:** | http://dsireusa.org/incentives/index.cfm?re=0&ee=0&spv=0&st=0&srp=1&state=CO (Financial incentives for Colorado) | |
| **Student Resources:** | http://dsireusa.org/incentives/index.cfm?re=0&ee=0&spv=0&st=0&srp=1&state=CO (Financial incentives for Colorado) | |
| **Assessment:** | Students will complete a comparison chart linking the incentives with the energy source. (Teachers can create a 6 by 6 comparison chart, place renewable resources across the top and policies across the bottom, and then have students check the boxes that apply.) | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may receive a list of energy sources or a list of the incentives<br>Students may work in pairs to complete the 6 by 6 comparison chart<br>Students may be given a 3 by 3 chart | Students may complete the comparison chart (either filling in the resources or the incentives) |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may receive a list of energy sources from an additional state (or they can choose their own)<br>http://dsireusa.org/ (Database of State Incentives for Renewables and Efficiency)<br>http://my.hrw.com/nsmedia/intgos/html/PDFs/Venn_Diagram.pdf (Web-based program to complete Venn diagram) | Students may complete a Venn diagram and an explanation why the state's incentive(s) vary from Colorado |
| **Critical Content:** | • Examples of Colorado policies<br>• Relevant Colorado laws<br>• Definition of renewable energy<br>• Examples of renewable energy<br>• The definition of sustainability and how an individual's actions influence sustainability | |

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| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts |
| **Critical Language:** | Resources, location, environment, physical resources/boundaries/environment, sustainability, human interactions, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, allocation, human/natural resources, societal values, incentives |

| **Learning Experience # 11** | | |
|---|---|---|
| The teacher may bring in information regarding opposition to some Colorado incentives (e.g., from Xcel and Black Hills energy) so that students can analyze the conflicts that can surround policies for increasing the usage of renewable energy resources. | | |
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability<br>The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation<br>Humans can adapt to and alter the environment which may bring about prosperity to some places but may also create environmental dilemmas for others<br>Geographic tools and data reveal interactions between society and environment which may shape policy decisions and inform programs for resource use | |
| **Teacher Resources:** | http://www.cres-energy.org/policyalerts.html (Article explain the need for renewable energy in CO)<br>http://www.denverpost.com/breakingnews/ci_24412625/solar-advocates-and-xcel-spar-over-future-rooftop (Article concerning Xcel's opposition)<br>http://www.huffingtonpost.com/2013/12/11/xcel-energy-anti-rooftop-proposal-colorado-solar-power_n_4428042.html (Article about Xcel anti- rooftop proposal)<br>http://www.denverpost.com/ci_21386888/black-hills-energy-pulling-plug-solar-program-southern (Article about Black Hills ending incentives)<br>http://buildawebsitetonight.com/uploads/images/press-release/press-release-template-tips.jpg (Press release template) | |
| **Student Resources:** | http://www.denverpost.com/breakingnews/ci_24412625/solar-advocates-and-xcel-spar-over-future-rooftop (Article concerning Xcel's opposition)<br>http://www.huffingtonpost.com/2013/12/11/xcel-energy-anti-rooftop-proposal-colorado-solar-power_n_4428042.html (Article about Xcel anti- rooftop proposal)<br>http://www.denverpost.com/ci_21386888/black-hills-energy-pulling-plug-solar-program-southern (Article about Black Hills ending incentives)<br>http://buildawebsitetonight.com/uploads/images/press-release/press-release-template-tips.jpg (Press release template) | |
| **Assessment:** | Students will create a press release emphasizing the negative or positive impact of incentives on either individuals or businesses in order to increase public awareness and present it to the class. | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | https://voicethread.com/ (Voice thread)<br>Students may work with a partner | Students may do a voice thread of the press release and then present it to the class |

| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
|---|---|---|
| | Students may contact and interview a local individual or business who has participated in the incentive program http://pv.pequannock.org/ourpages/auto/2013/9/4/58567557/Interview%20Graphic%20Organizer%201.doc (interview graphic organizer) | Students may present his/her findings to the class (video, PowerPoint, etc.) |
| **Critical Content:** | • Financial impact and sustainability of incentives<br>• The issues affecting the appropriate balance between sustainability and economic development | |
| **Key Skills:** | • Research and interpret multiple viewpoints on issues that shaped the current policies and programs for resources use<br>• Gather data, interpret, and draw conclusions maps, graphs, tables, and charts | |
| **Critical Language:** | Resources, location, society, physical resources, sustainability, human interactions, economic development/policy, opportunity cost, allocation, human/natural resources, societal values, community, conflict, incentives, rebate | |

| **Learning Experience # 12** | |
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| The teacher may present and discuss national level programs/policies (e.g., Leadership in Energy and Environmental Design (LEED)) aimed at encouraging renewable energy sources to help students discern national goals and analyze the commitment towards renewable energy. | |
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability<br>Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs<br>The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation |
| **Teacher Resources:** | http://www.usgbc.org/leed/rating-systemshttp://www.usgbc.org/leed/rating-systems (LEED certifications defined)<br>http://usgbccolorado.org/resources/leed-project-archives.html (Colorado based LEED projects)<br>http://www.coloradospringstogether.org/resources1/index_939.cfm (Colorado Springs based LEED projects)<br>http://www.laurendcollier.com/blog/leed-building-tour-colorado-school-for-the-deaf-and-blind-2/ (Deaf and Blind school LEED building)<br>http://www.usgbc.org/projects (LEED Projects across the nation) |
| **Student Resources:** | N/A |
| **Assessment:** | Students will review/evaluate a Leadership in Energy & Environmental Design (LEED) certified building in their community. Students will also map out LEED projects across the nation and analyze why they would be located in those areas.<br>http://www.laurendcollier.com/blog/leed-building-tour-colorado-school-for-the-deaf-and-blind-2/ (Deaf and Blind school LEED building)<br>http://www.usgbc.org/projects (LEED Projects across the nation) |

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| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may focus solely on a local building | Students may create a diorama of a LEED building or community.<br>Students may create a list of attributes to create a LEED building and/or community |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may design a LEED building or community http://softwaresolution.informer.com/Free-Building-Design-Software/ (Provides suggestions of software that provides students with 3D virtual building capabilities) | Students may create a virtual model/written report of his/her design and describe its significance with relation to LEED standards |
| **Critical Content:** | • LEED program and policies<br>• The definition of sustainability and how an individual's actions influence sustainability<br>• How to apply geography skills to help investigate issues and justify possible resolutions involving people, places, and environment<br>• The issues affecting the appropriate balance between sustainability and economic development. | |
| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts | |
| **Critical Language:** | Interdependence, resources, location, society, environment, physical resources/boundaries/environment, sustainability, Cultural spaces, human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, allocation, social/political/national boundaries, human/natural resources, societal values, national, international, community | |

| **Learning Experience # 13** | |
|---|---|
| The teacher may bring in resources and information regarding cooperative international efforts to increase the use of sustainable forms of energy (e.g., the European Union's (EU) efforts to move towards renewable resources) so that students can analyze why and how countries are working together for sustainable energy. | |
| **Generalization Connection(s):** | Information and changing perceptions and values of places and environment influence personal actions and sustainability<br>Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs<br>The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation<br>Geographic tools and data reveal interactions between society and environment which may shape policy decisions and inform programs for resource use |
| **Teacher Resources:** | http://ec.europa.eu/energy/renewables/index_en.htm (Detailed home site of EU)<br>http://europa.eu/legislation_summaries/energy/renewable_energy/en0009_en.htm (Description of framework for using renewable resources)<br>http://ec.europa.eu/ireland/education/education-resources/secondary_level/index1_en.htm (Open ended program resources for lesson plans) |

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| **Student Resources:** | http://www.eduplace.com/ss/maps/europe.html (Labeled and blank maps of European Union) | |
| **Assessment:** | Students will construct a map of participating European Union's EU nations and document the renewable energy sources they want to increase.<br>http://www.eduplace.com/ss/maps/europe.html (Labeled and blank maps of European Union) | |
| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may be provided a list of expected renewable energy sources (which teacher will need to create) with a symbol to complete the map<br>Students may work with a partner to construct the map and symbols | Students may complete the map |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | N/A | Students may add percentages of currently used renewable resources as well as projected uses on the map |
| **Critical Content:** | • Identify who is part of the European Union (EU) and individual country's framework<br>• The definition of sustainability and how an individual's actions influence sustainability<br>• The location of resources, physical boundaries, and natural hazards that affect human interaction (e.g., water/mineral rights) | |
| **Key Skills:** | • Gather data, interpret, and draw conclusions maps, graphs, tables, and charts | |
| **Critical Language:** | Interdependence, resources, location, environment, physical resources/boundaries/environment, sustainability, human interactions, maps, visual/geographic representations, geographic tools, economic development/policy, opportunity cost, allocation, social/political/national boundaries, human/natural resources, foreign policy, societal values, national, international, community, European Union. | |

| **Learning Experience # 14** | |
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| The teacher may revisit efforts to utilize existing and find sustainable future resources so that students can critically reflect on how people around the world are attempting to sustain/improve quality of life factors while balancing the environmental and economic issues around energy production. | |
| **Generalization Connection(s):** | Availability and access to natural and human resources necessitate economic choices/decisions which incur opportunity costs<br>Information and changing perceptions and values of places and environment influence personal actions and sustainability<br>The increasingly interdependent nature of human existence as well as the persistent reality of uneven distribution of resources can create conflict and facilitate cooperation |
| **Teacher Resources:** | https://www.teachervision.com/graphic-organizers/printable/48390.html (Double journal entry template with explanations) |
| **Student Resources:** | https://www.teachervision.com/graphic-organizers/printable/48390.html (Double journal entry template) |
| **Assessment:** | Students will choose quotes from readings, videos, speakers, etc. to complete a double entry journal, reflecting on the significance of the quotes chosen in relation to their understandings of energy resources (maintenance, usages, and future sustainability). |

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| **Differentiation:**<br>(Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may work with a partner to choose quotes or work with a double journal entry with the quotes supplied | Students may complete a the "response" side of the double journal entry |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| | Students may choose one resource and locate compelling quotes regarding the maintenance/usage of the resource | Students may complete a the "response" side of the double journal entry |
| **Critical Content:** | • N/A | |
| **Key Skills:** | • Identify, evaluate, and communicate strategies to respond to constraints places on human systems by the physical environment<br>• Gather data, interpret, and draw conclusions maps, graphs, tables, and charts | |
| **Critical Language:** | N/A | |