

SECOND QUARTER

SOCIAL STUDIES: Human systems (Regions)

SCIENCE: Physical Science--electricity

OVERVIEW:

Concept: Systems - Systems are groups of interacting or interdependent elements forming a complex whole. Changing, altering, and/or interfering with one part of a system affects the system as a whole. Examining the human systems of the regions allows students to develop an understanding of their inter-relatedness

TOPIC 1: Give it a Charge

TOPIC 2: Let's make it work!

Possible Learning Experiences for Developing Conceptual Understanding

- Visit http://www.anl.gov/Media_Center/Explorer/Summer_2005/feature_2_1.html to find out more about Rube Goldberg. Investigate the Rube Goldberg Award Complex systems to perform simple tasks. Visit www.rube-goldberg.com/html/gallery.htm. Select 1-3 cartoons; analyze what is happening. Describe what a system is. Write a class definition of a system. Go to <http://news.uns.purdue.edu/UNS/html4ever/2005/050305.Rube05.localwin.html> to see a video of the 2005 winner of the award.
- Draw the system used in switching on a ceiling light or lamp in your home.
- Using the following website, form assembly lines with your students in your classroom http://www.michigan.gov/hal/0,1607,7-160-17451_18670_18793-53435--,00.html. Each assembly line is to perform a task in which every member performs a part. Explain that an assembly is a system where everyone works together to create one product. After assembly lines have completed the project, remove one step of the process. Discuss with students what they observed and the importance of all parts of a system.
- People Machine p. 394 in *Tribes*: "Systems"; One person begins the activity by assuming a strange position and making a repetitive movement and sound. The next person connects physically making a different movement and sound. Students continue adding themselves to the machine. The end result is a huge people machine.

TOPIC #1: Give it a charge! Standards Addressed:


Throughout this unit the teacher will connect the essential understandings, inquiries/activities to the concept of systems. New Science standards to be addressed in this topic:

Standard 2: Electricity- Electricity in circuits can produce light . The student will engage in investigations that integrate the process standards and lead to the discovery that

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| CS2.1 | Some materials are insulators and some are conductors |
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| CS2.2 | The flow of electricity is controlled by open and closed circuits |
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Throughout this unit students will address these Social Studies standards:

Standard 1: The student will develop and practice the process skills of social studies. 

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| 1.2 | Construct timelines of events in the development of the regions of the United States. |
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Standard 2: The student will analyze the regions of the United States from a spatial perspective.

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| 2.1 | Interpret geographic information using primary and secondary sources, atlases, charts, graphs, and visual images.  |
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| 2.2 | Identify, use, and interpret basic political, physical, and thematic maps and globes.  |
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New Social Studies Standards to be addressed this unit

Standard 4: The student will describe the human systems (e.g., migrations, settlements, cultural mosaics, and economic interdependence) identified with the major regions of the United States, including human interaction with the environment.

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| 4.1 | Compare and contrast the human characteristics of early and contemporary human settlements in the regions of the United States. |
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| 4.2. | Explain how people are influenced by, adapt to, and alter their environment, including agricultural efforts, housing, occupations, industries, transportation, and communication. |
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| 4.3 | Describe how people attempt to resolve geographic challenges (e.g., bridges, dams, tunnels, irrigation systems, and landfills). |
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| 4.4 | Describe the development of economic specialization in each region of the United States, including examples of interdependence among regions and connections to global trade. |
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Prior Knowledge: Students will understand that electricity is formed by positively charging electrons causing them to flow through a conductor.

Essential Understandings:

1. Electrical circuits are systems which are composed of insulators, such as rubber and plastic which do not allow the flow of electricity, and conductors such as metals and water which do. (CS2.1)
2. Open and closed circuits control the flow of electricity. Open circuits allow the flow while closed circuits prevent the flow of electricity. (CS2.2)

CROSS CURRICULAR CONNECTIONS

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| <p style="text-align: center;">ART</p> <p>Standard 3.1 Small groups or the entire class will create a light show using flashlights (colored cellophane can cover the flashlight lens to make different colors). After the light show, have the students design original works of art using a variety of materials - Do a wax resist watercolor painting by using a white crayon (or candle) to create a design. Then watercolor paints could be mixed with blues, greens, violets and painted over the “white drawing” with a quick and watered down wash.</p> <p>Sketch a safety poster highlighting the importance of insulators and conductors. For example, water is a conductor. Why should we keep electrical products out of water? Why are frayed cords hazardous? What happens when a circuit is overloaded?</p> | <p style="text-align: center;">MUSIC</p> <p>Coordinate the light show to music.</p> |
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| <p>TECHNOLOGY <u>NETS Standard 1: Basic Operations and Concepts</u> ● Students demonstrate a sound understanding of the nature and operation of technology systems. ● Students are proficient in the use of technology. POWERPOINT National Educational Technology (NETS) Standards 3 and 4 <u>NETS Standard 3: Technology productivity tools:</u> ● Students use technology tools to enhance learning, increase productivity, and promote creativity. ● Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works. <u>NETS Standard 4: Technology communication tools:</u> ● Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. ● Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences. EXCEL National Educational Technology (NETS) Standard 6 <u>NETS Standard 6: Technology problem-solving and decision-making tools:</u> ● Students use technology resources for solving problems and making informed decisions. ● Students employ technology in the development of strategies for solving problems in the real world.</p> | <p style="text-align: center;">HEALTH/PHYSICAL EDUCATION</p> |
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COMMUNITY GUIDELINES & LIFESKILLS

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| Curiosity | Resourcefulness |
| Cooperation | Organization |
| Personal Best | Attentive Listening |

For learning experiences refer to TRIBES book, *Tools for Citizenship & Life*, and/or Teacher Resources page of TPS website.

ESSENTIAL UNDERSTANDINGS

1. Electrical circuits are systems composed of insulators, such as rubber and plastic which do not allow the flow of electricity, and conductors such as metals and water, which do. (CS2.1)
2. Open and closed circuits control the flow of electricity. Open circuits allow the flow while closed circuits prevent the flow of electricity. (CS2.2)

Emotional Hook/Engagement-----Common Group Experience-----Real World Involvement

- Magic light bulb: You need a comb and light bulb. Make the room dark. Rub the comb quickly through your hair or a wool sweater. Touch the bottom of the light bulb – Magic (This creates a charge in the comb which moves electrons to the bulb.) This activity can be used as a hook to enhance prior knowledge of electricity.
- Form a circular track for hot wheels. Have the hot wheel go around the track. Remove a piece and see what happens. Brainstorm why? How does this compare to what we know about a system? (Circuit must be complete for car to make it around.)
- Use the Energy Ball (see materials for purchasing) to demonstrate an open and closed circuit. Have the group form a circle. One person places a finger on 1 of the metal conductors on the side of the ball. Then link arms with the person standing next to you, who, in turn, links arms with the individual on the other side. This continues until the last person has one arm linked and the other arm next to the other side of the energy ball. This person needs to place a finger on the metal conductor. Observe what happens. Brainstorm why? When the ball lights and makes noise share with the students that this is an example of a closed circuit. Ask two individuals to unlink their arms. What happens? Why? When the ball does not light up and make noise they are creating an open circuit.

Possible Learning Experiences - Guided Practice / Independent Practice

Essential Understandings:

1. Electrical circuits are systems which are composed of insulators, such as rubber and plastic which do not allow the flow of electricity, and conductors such as metals and water which do. (CS2.1)
 - **Conductors or Insulators** – Place the students in small groups. Collect one dry cell, (size D) one light bulb and bulb holder, and three lengths of insulated wire with insulation removed from each end, a variety of objects to be tested, such as **string**, nails, or pieces of glass, a paper clip, staples, pennies, nickels, dimes, quarters, aluminum, paper, wax crayons, rocks, leather, plastic, Styrofoam, cardboard, paper, and an elastic for each group. In each group, use one dry cell (size D), light bulb and bulb holder, and 2 lengths of wire. Make the bulb light up. Next, use the materials listed and test whether or not different materials conduct electricity. Create a data chart to record your observations. Your chart should include an area to list the materials and indicate whether or not an object is a conductor or an insulator and an area to determine why. Draw a diagram of the device you created. Using the device you created, test each material. Mark the item down as a conductor or an insulator. Find 5 other objects to test such as the chalkboard, door frame, etc. Note your predictions before testing them. Discuss with students, which objects conducted electricity? How do you know? How were the conducting materials similar? Brainstorm why insulators are useful a part of an electrical circuit system. Predict what would happen with a frayed cord and electricity in water.
2. Open and closed circuits control the flow of electricity. Open circuits allow the flow while closed circuits prevent the flow of electricity. (CS2.2)
 - A lesson on electricity including Multiple Intelligences is available from <http://www.chariho.k12.ri.us/curriculum/MISmart/electric/electric.html> It has separate lessons with visuals on insulators and conductors and one on circuits.
 - Create a door alarm – after learning about the elements of a circuit, students work in pairs to create a door alarm. A video of this process is available from http://www.teachersdomain.org/3-5/sci/phys/mfe/lp_electric/
 - **Creating a battery** – **You will need the following materials:** lemon, lamp (bulb holder), hammer, copper strip, zinc strip, galvanometer or 0.2 volt bulb, penny nail, 2 copper wire leads, knife, and a science journal. Roll the lemon a few times on a counter to get the juices flowing. **With adult supervision:** Use the knife to make two parallel (side by side) slits 2 cm apart in the lemon. Make a small nail hole in the end of the metal copper and zinc strips. Insert the copper strip into one slit and the zinc strip into the other slit so that they stay 2 cm apart. Connect the wire leads to the copper strip and the zinc strip by looping the wires through the holes made by the nail. Connect one of the ends of the wire to the terminals on a lamp (bulb holder) or on one end of the galvanometer. Predict what will happen when the loose wire touches the lamp terminal or the galvanometer. Take the other loose wire end and touch it to the open terminal of the lamp or galvanometer to complete the circuit in short intervals. The current is too weak to electrocute anyone! If the galvanometer is used as the load, record the reading. If the lamp with a bulb in it is used, note the brightness of the bulb. Discuss with the students the following questions: What is the power source? Would two strips of the same metal produce electricity? What other fruit can be used instead of the lemon? List the circuit parts.
 - **Light it up** from www.mcrel.org For this activity, the students should work in pairs. Give each pair a set of materials--a small light bulb, a battery, and a wire. Explain to the students that their goal is to light up the light bulb with the materials they were given. They must also draw and label a diagram of the finished product. Allow enough time for each group to make a complete circuit and diagram. After each group has completed the circuit, have the students brainstorm how they might make their light bulbs glow even brighter. Would more batteries make a brighter light? Or more light bulbs? Maybe a longer wire? Allow them to test their predictions.

| Resources/Materials | |
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| <p>BOOKS/VIDEOS/WEBSITES</p> <p>Text book STC Science Kits – Electric Circuits</p> <p>Trade books <i>Everyday Science Explained</i> Curt Suplee <i>101 Things Every Kid Should Know About Science</i> Samantha Beres <i>The Story of Electricity with 20 Easy to Perform Experiments</i> by George deLucenay Leon <i>Physical Science Activities for Grades 2-8</i>, Science Curriculum Activities Library by Marvin N Tolman and James O Morton Batteries, Bulbs, and Wires by Physical Science Activities for Grades 2-8, <i>Science Curriculum Activities Library</i> by Marvin N Tolman and James O Morton Batteries, Bulbs, and Wires by David Glover Books & videos from Tulsa City County Library <u>Books from Tulsa City County Library</u> <i>Electricity: Bulbs, Batteries, and Sparks</i> by Darlene R. Stille & illustrated by Sheree Boyd – 2004 <i>Experiments with Electricity</i> by Salvatore Tocci – 2001 <i>What is Electricity?</i> by Lisa Trumbauer – 2004 <i>Janice VanCleave's Electricity: Mind-boggling Experiments You Can Turn into Science Fair Projects</i> by Janice Pratt VanCleave – 1994 <i>Electric Mischief: Battery-powered Gadgets Kids Can Build</i> by Alan Bartholomew 2002 <u>Multi-Media Options</u> <i>Save the Show with Sound, Light and Electricity</i>. Zap interactive multimedia – 1998 – Tulsa City Count Library</p> <p>Videos <i>Tell Me Why. Electricity & Electric Safety</i> – From Tulsa City County Library Understanding: Electricity {Video kit} Discovery Channel/Assignment Discovery 1997 this video examines the power and purposes of electricity. It covers how electricity is generated and delivered to homes Generating electricity : More Power to You [c1991. Videocassette (ca. 15 min.) What an Idea!: Julie Lewis- Inventor [Video Recording]: Scholastic Inc. 1996 - 8 minutes Bill Nye. Physical Science I - His young assistants walk students through frying ice, testing whether an object conducts electricity, making their own compasses and many other experiments.</p> <p>Websites http://www.thetech.org/exhibits/online/topics/10a.html - Introduction to circuits including visuals and experiments. Good site! http://www.energyquest.ca.gov/story/index.html - The story of electricity http://www.howtoons.org/ - Scroll down to motor mouth and it shows how to create a spinning copper wheel with a magnet http://www.bbc.co.uk/schools/revisewise/science/materials/07c_act.shtml activities with circuits from the BBC http://www.energymatch.com/kidsgateway.asp - go to Kid's Schoolhouse click on the science lab and then click on <i>Electrons a path and a push</i> to go over how a circuit works. Home room has definitions and History has inventors and inventions. http://gwydir.demon.co.uk/jo/elect/index.htm - Make a circuit on line. Predict what would happen with an overloaded circuit. http://www.teachersdomain.org/3-5/sci/phys/mfe/lp_electric/ Cool site with Quick Time videos including kids creating a door alarm. You need to register, but it is free. http://www.chemistry.org/portal/a/c/s/1/wondernetdisplay.html?DOC=wondernet%5Cactivities%5Celectric%5Ccircuit.html - directions for activity to create a secret circuit. Students determine where the wires are connected. http://download.micron.com/pdf/education/lessonplans/electricity_lesson_plan.pdf - This website links to various electricity lesson plans & activities for upper elementary students. There are pictures to model each activity.</p> | <p>MATERIALS/SUPPLEMENTS</p> <p>D Batteries, wire, flashlight bulbs, foil, twisted into a "wire" (copper wire can be used, but foil is easier to manipulate different insulators and conductors, electric bells, switches, paper clips, block of wood with tacks in it. paper and pen to draw plans, wire, electrical tape</p> <p>Energy Ball (\$4.75) storeforknowledge.com /Electronic-Kits-Toys-C201.aspx</p> |

Assessment Opportunities

Conductors and Insulators Assessment - Give students a list of objects that insulate and conduct electricity. Have them identify which are insulators and which are conductors. What is the key similarity of conductors? What is the key similarity of insulators?

Circuits Assessment – When given a series of visuals of different circuit configurations. Students will decide which are open circuits (will work) and which circuits are closed (will short circuit). Students will explain how the open circuit configurations form systems.

Students should create a diagram for two different circuits. Students must create and test their circuits to assure that they work. While creating the circuits, they will observe and record their process and results. Use the rubric below to assess the students' projects. (see page 18)

Teacher Notes:

SECOND QUARTER

SOCIAL STUDIES: Human systems (Regions)

SCIENCE: Physical Science--electricity

OVERVIEW:

Concept: Systems - Systems are groups of interacting or interdependent elements forming a complex whole. Changing, altering, and/or interfering with one part of a system affects the system as a whole. Examining the human systems of the regions allows students to develop an understanding of their inter-relatedness

TOPIC 1: Give it a Charge

TOPIC 2: Let's make it work!


Possible Learning Experiences for Developing Conceptual Understanding

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- People Machine p. 394 in *Tribes*: "Systems"; One person begins the activity by assuming a strange position and making a repetitive movement and sound. The next person connects physically making a different movement and sound. Students continue adding themselves to the machine. The end result is a huge people machine.



TOPIC #2: Let's make it work!

Standards Addressed:

Throughout this unit students will address these Social Studies standards:

Standard 1: The student will develop and practice the process skills of social studies. 

1.2 Construct timelines of events in the development of the regions of the United States.

Standard 2: The student will analyze the regions of the United States from a spatial perspective.2.1 Interpret geographic information using primary and secondary sources, atlases, charts, graphs, and visual images. 2.2 Identify, use, and interpret basic political, physical, and thematic maps and globes. 

New Social Studies Standards to be addressed this unit

Standard 4: The student will describe the human systems (e.g., migrations, settlements, cultural mosaics, and economic interdependence) identified with the major regions of the United States, including human interaction with the environment.

4.1 Compare and contrast the human characteristics of early and contemporary human settlements in the regions of the United States.

4.2 Explain how people are influenced by, adapt to, and alter their environment, including agricultural efforts, housing, occupations, industries, transportation, and communication.

4.3 Describe how people attempt to resolve geographic challenges (e.g., bridges, dams, tunnels, irrigation systems, and landfills).

4.4 Describe the development of economic specialization in each region of the United States, including examples of interdependence among regions and connections to global trade.

Essential Understandings:

1. Regions are parts of an interrelated system. (SS Standard 4)
2. In order for a settlement to work and thrive there must be some common interrelated elements (pieces of the system) including adapting to environment, working together, and using technology. (SS Standard 4)
3. People alter their environment in order to create a system which works more efficiently, resolves existing problems, or better meets their needs. (SS Standard 4)

| Cross Curricular Connections | | |
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| <p>ART - Standard 2 & 3</p> <ul style="list-style-type: none"> Using crayon, glue, pictures and other media, student groups will illustrate different aspects of the region they are studying on pre-cut shapes of each region. Once illustrations are complete, the regions will be assembled to create a map of the US. Use play dough to make a topographical map of the region. Include a legend. Examine art and artifacts from each of the regions of the US. Identify key or unique elements for each region (Wind and rain – Northeast Region, pottery – Southwest Region, etc.) One site to use as source is http://americanart.si.edu/collections/exhibits/t2go/1lw/index.html (Lure of the west) and http://americanart.si.edu/collections/exhibits/t2go/1sa/index-frame.html (scenes of American life) | <p style="text-align: center;">MUSIC</p> <ul style="list-style-type: none"> Discuss with the students how the orchestra works as a system. Contact Paige Godfrey to check out Music Trunks which includes the book “The Story of the Orchestra” and a CD. Contact the Fulton Music Department for videos depicting a wide range of orchestra systems. <p>Standard 1.4c and Standard 4.1 & 4.2</p> | |
| <p style="text-align: center;">TECHNOLOGY</p> <p>NETS Standard 1: Basic Operations and Concepts</p> <ul style="list-style-type: none"> Students demonstrate a sound understanding of the nature and operation of technology systems. Students are proficient in the use of technology. <p>POWERPOINT - National Educational Technology (NETS) Standards 3 and 4</p> <p>NETS Standard 3: Technology productivity tools:</p> <ul style="list-style-type: none"> Students use technology tools to enhance learning, increase productivity, and promote creativity. Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works. <p>NETS Standard 4: Technology communication tools:</p> <ul style="list-style-type: none"> Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences. <p>EXCEL - National Educational Technology (NETS) Standard 6</p> <p>NETS Standard 6: Technology problem-solving and decision-making tools:</p> <ul style="list-style-type: none"> Students use technology resources for solving problems and making informed decisions. Students employ technology in the development of strategies for solving problems in the real world. | <p style="text-align: center;">HEALTH/PHYSICAL EDUCATION</p> | |
| COMMUNITY GUIDELINES & LIFESKILLS | | |
| <p>Mutual Respect Organization Curiosity</p> | <p>Attentive Listening Resourcefulness</p> | <p>Cooperation Friendship Perseverance</p> |
| <p>For learning experiences refer to TRIBES book, <i>Tools for Citizenship & Life</i>, and/or Teacher Resources page of TPS website.</p> | | |
| <p>Essential Understandings:</p> <ol style="list-style-type: none"> Regions are parts of an interrelated system. (SS Standard 4) In order for a settlement to work and thrive there must be some common interrelated elements (pieces of the system) including adapting to environment, working together, and using technology. (SS Standard 4) People alter their environment in order to create a system which works more efficiently, resolves existing problems, or better meets their needs. (SS Standard 4) | | |

Emotional Hook/Engagement-----Common Group Experience-----Real World Involvement

- List the parts of the school and guide the students through a discussion on how the school works. Ask: What if the cafeteria did not work? How would it affect the people in our school?
- Introduce the concept of regions by using empty boxes and different products from the grocery store. State and illustrate what makes a region a region; (geography, location, and climate). Regions are based on similar characteristics – just like the grocery store. Try to relate your departments to the regions. For example, the plains might be the cereal aisle; the frozen foods might be the northeast. Have students decide what items go in each region. Where would frozen bagels go? Why? The teacher could use a natural resource map and/or a climate map to define characteristics of each region.
- Brainstorm in small groups using a T chart how the use of electricity has changed where and how people in our region live. Some things that might be considered are *living conditions* :
EX. Are there places that were more sparsely populated than others? Why? (Electricity – air conditioning, heating, and lighting)

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communication
transportation
agriculture

Did it affect the food people ate? Why?
Did it change when they got up and went to bed?
Did it change how they communicated with friends/relatives?
Did it change what they did for entertainment?

- Read aloud passages or show clips from stories where people had to adapt to the environment – Swiss Family Robinson, Blue Lagoon, Little House on the Prairie, Island of the Blue Dolphins, (the TV show Lost). How did the people adapt to their environment? What things did they do to get food and housing, etc.
- Divide the class into cooperative learning groups. Have each group make a list of the natural, human and capital resources available in the community. Have students choose a current business based on available resources that could be added to their community. Have each group present its choice to the class with the reasons for the choice and an explanation of how available resources would be used. Encourage students to react to the choices made.
- Have students use encyclopedias and atlases to compare the chief products produced/exported from the different regions. What factors affect the types of products that are produced in each state/region? (e.g. Why fruit from California? Why machinery from Ohio?)
- Examine how a specific disaster like Katrina has directly affectS a region of the US. How does the regional disaster affect other parts of the systems in the US – For example, with Katrina, how did it affect gasoline prices and production? Population? Transportation? Construction? Economic development? How did it affect our region where we live?
- Examine the blackout which affected the region around the Great Lakes. How did a failure in one part of the electrical system spread throughout the system? Create a time line with a map of the Great Lakes region. Some websites which can be used as resources are http://www.electricity.doe.gov/documents/1282003113351_Blackout_Summary.PDF; <http://www.cnn.com/2003/US/08/16/blackout.chron.ap/index.html>
- Learn about bridges and how they are chosen depending on the purpose and location of the bridge. Look at different types of bridges. Students should choose the most appropriate map for an area based on purpose. <http://www.pbs.org/wgbh/buildingbig/bridge/challenge/index.html>
- When people alter their environment people and animals may adapt to their environment. A good example is the bat bridge in Austin. How did building those bridges change the habitat of the bats? Transportation in the city? Economic development in the city? <http://www.batcon.org/discover/congress.html> http://www.statesman.com/metrostate/content/thisisaustin/2004/main/200407_bats.html
- Divide class into groups and have each group explain the primary system in place for communication between regions (Northeast and West for example) in 1840; 1860, 1880, 1900; 2000 Some websites to use as resources are http://inventors.about.com/library/inventors/bl_history_of_communication.htm <http://inventors.about.com/gi/dynamic/offsite.htm?site=http://http.cs.berkeley.edu/%7Erandy/Courses/CS39C.S97/index.html> Students should fill in a chart and illustrate what the system was and how the system worked
- This lesson from Georgia focuses on economic specialization and interdependence based on *Isaac The Ice Cream Truck* by Scott Santoro <http://www.glc.k12.ga.us/BuilderV03/LPTools/LPShared/lpdisplay.asp?LPID=37740>
- Another lesson from the Georgia site <http://www.glc.k12.ga.us/BuilderV03/LPTools/LPShared/lpdisplay.asp?LPID=37691> A little girl makes an apple pie by gathering ingredients from all around the world. Prompt the students with the following question? Why did the girl need to go elsewhere for the ingredients?(She needed to go elsewhere because she is not able to produce or specialize in making all the ingredients herself. This is called interdependence).
- Students will take grocery fliers or advertisements from grocery stores and will investigate where the foods come from in the US and place a picture of the item on the US map.
- Examine the impact of the dustbowl on not only the Oklahoma region, but other regions in the US (Like California and other farming areas) Examine how Oklahomans altered their environment and resolved the existing problems caused by the Dust Bowl. What changed in terms of farming techniques?
- Students will be divided into groups to examine some of the great projects that have changed the face of America – Bridging the Appalachians, electrifying New York, Bridging New York, Hoover Dam, the “Big Dig” in Boston, the man-made lakes of Oklahoma, and Port of Catoosa and the inland canal system – what were the projects? How did they alter the environment and how people lived? Each group will present a report with a timeline describing the events and their impact. A place to begin research is <http://www.pbs.org/greatprojects/tour/index.html> Presentation should include a timeline, visuals, a description of the project, a description of the benefits and drawbacks of the projects and major obstacles faced, ways it altered, affected the environment. (See Resources for contact information pertaining to man-made lakes and the Port of Catoosa).

| Resources/Materials | |
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| <p>BOOKS/VIDEOS</p> <p>Text book - States and Regions Harcourt Brace Social Studies</p> <p>Trade books</p> <ul style="list-style-type: none"> • <i>Ben's Dream</i>, by Chris Van Allsburg 1982 – Ben dreams about a flood which transports him past major landmarks in the world. • <i>Out of the Dust</i> – by Karen Hesse • <i>Angels in the Dust</i> – by Margot Theis Raven • <i>Isaac The Ice Cream Truck</i> - by Scott Santoro • <i>How to Make an Apple Pie and See the World</i> by Marion Priceman • <i>Bridges of the World: Their Design and Construction</i> by Charles S. Whitney • <i>Bridges That Changed the World</i> (Changed the World) by Bernhard Graf • <i>Bridges: Amazing Structures to Design, Build & Test</i> (Kaleidoscope Kids) by Carol Johmann, Elizabeth Rieth, Michael P. Kline (Illustrator) • <i>Bridges</i> by Etta Kaner, Pat Cupples (Illustrator) • <i>Bridges: From My Side to Yours</i> by Jan Adkins • <i>Dams</i> (An Easy-Read Modern Wonders Book) by Cass R. Sandak, Cass Sandak (Describes various kinds of dams, how they function, and how they are planned and built. Also discusses some of the problems and failures of dams and the uses of other kinds of water barriers.) • <i>Represas/Dams/Spanish (Maravillas de la humanidad)</i> by Jason Cooper - English and Spanish versions (Describes the construction, purpose, and parts of dams throughout the world.) • <i>Dams</i> by Lynn Stone – 2002 (Describes different kinds of dams, how and why they are built, and their effects on the environment.) • Dams Give Us Power by Lee Sullivan Hill. Copyright 1997. Picture book that introduces readers to dams, their purposes, and how they may be built • Tunnels by Gail Gibbons A brief introduction to tunnels--their types, shapes, and parts, and how they are built.) • Tunnels by Philip Sauvain (Describes different types of tunnels and how they are made. Roads and Tunnels by Pollard, Michael (Describes how roads and tunnels are constructed and provides a historical perspective.) • Bridges and Tunnels by Chris Oxlade; illustrated by Raymond Turvey; photography by Martyn Chillmaid. <p>Websites</p> <ul style="list-style-type: none"> • http://www.nationalgeographic.com/xpeditions/lessons/04/g35/foods.html Regional foods lesson from National Geographic • http://www.tourstates.com/default.asp - states grouped by regions with images and information about each state • http://www.foodmuseum.com/permanent.html - The food museum has information about the origin of many foods their history and pictures of the plants in different stages of growth http://www.enchantedlearning.com/geography/ - outline maps • http://www.nationalgeographic.com/xpeditions/lessons/03/g35/exploremaps.html - This lesson is a mapping activity. If you click on any of the us maps, you can zoom to your region. It has population, topographic, satellite maps and road maps. • http://www.noaa.gov Click on climate-at-a-glance maps to see the climate for each region • http://www.usgs.gov/ - maps of the states which include minerals produced there, recreational information and information about water resources • http://www.eduplace.com/geonet/ • http://www.americaslibrary.gov/cgi-bin/page.cgi/es - Information about the states • http://school.discovery.com/lessonplans/k-5.html - click on geography to get complete lessons on the different regions of the US • http://octopus.gma.org/streams/edge.html Website which examines the effects of destruction of the environment around the river banks • http://www.pbs.org/greatprojects/tour/index.html - describes major bridge, dam, and other construction projects. <p>Videos From Fulton<i>How communities grow and change</i> –t the relationship of natural resources and community growth</p> <ul style="list-style-type: none"> • <i>The Northlands</i> - Explores the northern regions of North America, and examines the interrelationship of climate, plant life, and animal life in this harsh environment. • <i>Geography of the U.S.A.</i> -Examines the similarities and diversity of landforms, climate, and regional characteristics of the six geographical regions of the U.S. | <p>MATERIALS/SUPPLEMENTS</p> <p>Guest speakers: Kathy Tippin Executive Director Kaw Lake Association P.O. Box 1933 Ponca City, OK 74602 1-877-671-6985 kawlake@cableone.net</p> <p>Yolane Hartsfield, Public Affairs Office, Tulsa District Corps of Engineers, 918-669-7530, main office 918-462-3492.</p> <p>Paul Roberts, Corp of Engineers, Ranger, Lake Keystone, 918-865-2621. <u>The following are available for check out in the Teacher's Professional Library.</u> Patton, Ann, <u>Fifty Years Remembered</u>; Tulsa District U.S. Army Corps of Engineers, Tulsa, OK; U.S. Government Printing Office: July 1, 1989.</p> <p>The Corp of Engineers will provide our district with a CD of the Keystone Lake and Dam. <u>Being There Experiences</u> Contact Paul Roberts, Ranger, Lake Keystone, 918-865-2621. Keystone Lake will provide a half day guided tour of the lake and dam and the information about the changes that were made to accommodate the project.</p> <p><i>Artists and Their Work: In Brief</i> is a baker's dozen CD collection of twenty-five years of educational print resources—now all out-of-print. To receive your free CD, contact Linda Maxwell at MaxwellL@saam.si.edu.</p> |

- *Looking for America*- Travel across the United States, from the Atlantic coast to the Mississippi River and from the Rocky Mountains to the Pacific Ocean, Many facets of the American character are explored, as are the six major regions of our country and their cultures, unique characteristics, and major cities.
- *The Zambezi and the Nile* -Modern technology in the form of large dams is changing the natural order of things for the people that depend upon & live along two of Africa's greatest rivers: the Zambezi and the Nile.

Videos From Tulsa Libraries

- *Tunnels*: Combines location sequences and animation to show the building of tunnels. Building small demonstrates the building of a tunnel by children with sand and masking tape.
- *Dams*: Combines location sequences and animation to show the building of dams. Building small demonstrates the building of a dam by children with sand, stones, and popsicle sticks.
- **Thinking Big [Video recording]: Building small.** (65 min.) This video studies the building of New York City's Citibank building and the problems involved with constructing it. The second part of the video provides activities for children ages 8-13 to improve their understanding of the construction of **bridges**, domes, skyscrapers, **dams**, and **tunnels**.
- **Tell me why. How things work [Video recording].** Spanish Video (Answers questions about the workings of such things as telescopes, electric eyes, seismographs, hydroelectric dams, refrigerators and engines.)

Assessment Opportunities

- Divide the class into several groups. Assign each group a region. The group should produce an outline map of their region and the pieces should be placed together to form a whole. Each group will then produce a regional travel brochure of a certain region in the United States. They should include famous sites, major cities, routes to travel, climate, etc. The students will then get together and present a short commercial (a.k.a. presentation) for visiting their region. Use attached rubrics (p.19 &20) or a similar rubric from <http://rubistar.4teachers.org>
- **Follow That Food** – divide students into groups to look at the numerous interrelated systems which allow them to have their favorite dish – For example, pizza requires wheat, tomatoes, cheese, garlic, salt; hamburgers require wheat, salt, beef – maybe lettuce, tomatoes, pickles (cucumber and vinegar), someone has to bake the bread; macaroni and cheese, corn dogs, grilled cheese sandwiches, spaghetti with meat sauce, tacos, peanut butter and jelly sandwich, etc. (You may want to assign specific dishes to specific groups) All of the items need to make it to Tulsa, Oklahoma. How did they get there? (Include ingredients, transportation, production sites, distribution systems, etc.) A website to use as a resource is <http://www.foodmuseum.com/permanent.html> - The food museum has information about the origin of many foods their history and pictures of the plants in different stages of growth. One exhibit <http://www.foodmuseum.com/pizza.html> has a listing of all the pizza ingredients and information about them. <http://www.botham.co.uk/kids.htm> describes the system needed from grain to mill to bakery involved in a loaf of bread. Review the Global Food System chart (p.21). Students will demonstrate knowledge of the processes in production of products and methods of distribution for the food they chose to follow. Included should be visuals of the ingredients and location of products (see Global Food System chart page 21). Projects will be graded on completeness, correctness, neatness, and clarity. Rubrics below could be used or adapted for assessment. <http://rubistar.4teachers.org>

Teacher Notes:

RUBRIC
Building a Circuit

Student Name: _____

| CATEGORY | 4 | 3 | 2 | 1 |
|----------------------------------|---|--|---|---|
| Scientific Knowledge | Explanations by all group members indicate a clear and accurate understanding of scientific principles underlying the construction and modifications. | Explanations by all group members indicate a relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by most group members indicate relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by several members of the group do not illustrate much understanding of scientific principles underlying the construction and modifications. |
| Plan | Plan is neat with clear measurements and labeling for all components. | Plan is neat with clear measurements and labeling for most components. | Plan provides clear measurements and labeling for most components. | Plan does not show measurements clearly or is otherwise inadequately labeled. |
| Construction - Care Taken | Great care taken in construction process so that the structure is neat, attractive and follows plans accurately. | Construction was careful and accurate for the most part, but 1-2 details could have been refined for a more attractive product. | Construction accurately followed the plans, but 3-4 details could have been refined for a more attractive product. | Construction appears careless or haphazard. Many details need refinement for a strong or attractive product. |
| Journal/Log - Content | Journal provides a complete record of planning, construction, testing, modifications, reasons for modifications, and some reflection about the strategies used and the results. | Journal provides a complete record of planning, construction, testing, modifications, and reasons for modifications. | Journal provides quite a bit of detail about planning, construction, testing, modifications, and reasons for modifications. | Journal provides very little detail about several aspects of the planning, construction, and testing process. |
| Modification/Testing | Clear evidence of troubleshooting, testing, and refinements based on data or scientific principles. | Clear evidence of troubleshooting, testing and refinements. | Some evidence of troubleshooting, testing and refinements. | Little evidence of troubleshooting, testing or refinement. |

RUBRIC
Regional Travel Brochure Presentation

Teacher _____ Student _____

| CATEGORY | 4 | 3 | 2 | 1 |
|---------------------------------|---|--|---|---|
| Comprehension | Students are able to accurately answer the questions posed accurately by classmates about the topic. | Students are able to accurately answer most questions posed by classmates about the topic. | Students are able to accurately answer a few questions posed by classmates about the topic. | Students are unable to accurately answer questions posed by classmates about the topic. |
| Collaboration with Peers | Listens to, shares with, and supports the efforts of others in the group. Tries to keep people working well together. | Usually listens to, shares with, and supports the efforts of others in the group. Does not cause "waves" in the group. | Often listens to, shares with, and supports the efforts of others in the group but sometimes is not a good team member. | Rarely listens to, shares with, and supports the efforts of others in the group. Often is not a good team member. |
| Preparedness | Students are completely prepared and has obviously rehearsed. | Students seem pretty prepared but might have needed a couple more rehearsals. | Students are somewhat prepared, but it is clear that rehearsal was lacking. | Students do not seem at all prepared to present. |
| Content | Students show a full understanding of the topic. | Students show a good understanding of the topic. | Students show a good understanding of parts of the topic. | Students do not seem to understand the topic very well. |
| Visuals | Visuals are appropriate, attractive, visible and legible from 3 feet away | Visuals are adequate, and most are visible and legible from 3 feet away | Visuals are inadequate or inappropriate. Legends and visuals cannot be seen or read from 1 foot away | Visuals are inadequate or inappropriate. Legends cannot be read unless you are next to the display |

RUBRIC
Making a Regional Travel Brochure

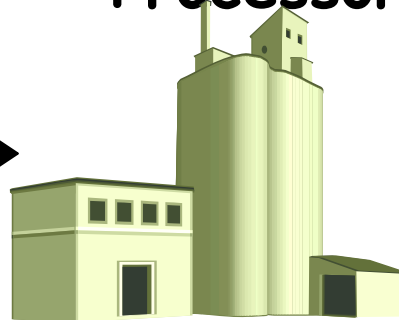
Teacher _____ Student _____

| CATEGORY | 4 | 3 | 2 | 1 |
|--|--|---|--|--|
| Graphics/Pictures | Graphics go well with the text and there is a good mix of text and graphics. | Graphics go well with the text, but there are so many that they distract from the text. | Graphics go well with the text, but there are too few and the brochure seems "text-heavy". | Graphics do not go with the accompanying text or appear to be randomly chosen. |
| Attractiveness & Organization | The brochure has exceptionally attractive formatting and well-organized information. | The brochure has attractive formatting and well-organized information. | The brochure has well-organized information. | The brochure's formatting and organization of material are confusing to the reader. |
| Content - Accuracy | All facts in the brochure are accurate. | 99-90% of the facts in the brochure are accurate. | 89-80% of the facts in the brochure are accurate. | Fewer than 80% of the facts in the brochure are accurate. |
| Writing - Mechanics | Capitalization and punctuation are correct throughout the brochure. | Capitalization and punctuation are correct throughout the brochure after feedback from an adult. | There are 1-2 capitalization and/or punctuation errors in the brochure even after feedback from an adult. | There are several capitalization or punctuation errors in the brochure even after feedback from an adult. |
| Knowledge Gained | All students in the group can accurately answer all questions related to facts in the brochure and to technical processes used to create the brochure. | All students in the group can accurately answer most questions related to facts in the brochure and to technical processes used to create the brochure. | Most students in the group can accurately answer most questions related to facts in the brochure and to technical processes used to create the brochure. | Several students in the group appear to have little knowledge about the facts or technical processes used in the brochure. |

Producer



Processor



Transporter



Distributor



Consumer

