

## Energy Information Lesson Plan

### Michigan Grade Level Content Expectations and Common Core State Standards

#### *Sixth*

#### **SCIENCE**

##### **Inquiry Process**

- S.IP.06.11 Generate scientific questions based on observations, investigations, and research.

##### **Inquiry Analysis and Communication**

- S.IA.06.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.
- S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.

#### **SOCIAL STUDIES**

##### **Public Discourse, Decision Making, and Citizens Involvement**

###### P4.2 Citizen Involvement

- 6 – P4.2.3—Participate in projects to help or inform others (e.g., service learning projects).

#### **ENGLISH LANGUAGE ARTS**

##### **Reading Standards for Informational Text (RI)**

###### **Integration of Knowledge and Ideas**

- RI.6.7 Integrate information presented in different media or formats (e.g., visually quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

##### **Writing Standards (W)**

###### **Text Types and Purposes**

- W.6.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

###### **Production and Distribution of Writing**

- W.6.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- W.6.6 Use technology, including the internet, to produce and write as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.

###### **Research to Build and Present Knowledge**

- W.6.7 Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

##### **Speaking and Listening Standards (SL)**

###### **Presentation of Knowledge and Ideas**

- SL.6.4 Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
- SL.6.5 Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

##### **Language Standards (L)**

###### **Conventions of Standard English**

- L.6.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

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[www.ConsumersEnergy.com/kids](http://www.ConsumersEnergy.com/kids)

## *Seventh*

### **SCIENCE**

#### **Inquiry Process**

- S.IP.07.11 Generate scientific questions based on observations, investigations, and research.

#### **Inquiry Analysis and Communication**

- S.IA.07.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.
- S.IA.07.13 Communicate and defend findings of observations and investigations using evidence.

### **SOCIAL STUDIES**

#### **Public Discourse, Decision Making, and Citizens Involvement**

##### P4.2 Citizen Involvement

- 7 – P4.2.3—Participate in projects to help or inform others (e.g., service learning projects).

### **ENGLISH LANGUAGE ARTS**

#### **Writing Standards (W)**

##### **Text Types and Purposes**

- W.7.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

##### **Production and Distribution of Writing**

- W.7.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- W.7.6 Use technology, including the internet, to produce and write and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

##### **Research to Build and Present Knowledge**

- W.7.7 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

#### **Speaking and Listening Standards (SL)**

##### **Presentation of Knowledge and Ideas**

- SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
- SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

#### **Language Standards (L)**

##### **Conventions of Standard English**

- L.7.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

## ***Eighth***

### **SCIENCE**

#### **Scientific Inquiry**

- 1.1A Generate new questions that can be investigated in the laboratory or field

#### **Scientific Reflection and Social Implications**

- 1.2i Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.

#### **Earth Science**

- E2.2B Identify differences in the origin and use of renewable (e.g., solar, wind, water, biomass) and nonrenewable (e.g., fossil fuels, nuclear) sources of energy.
- E2.4A Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits.

### **SOCIAL STUDIES**

#### **Public Discourse, Decision Making, and Citizens Involvement**

##### P4.2 Citizen Involvement

- 8 – P4.2.3—Participate in projects to help or inform others (e.g., service learning projects).

### **ENGLISH LANGUAGE ARTS**

#### **Writing Standards (W)**

##### **Text Types and Purposes**

- W.8.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

##### **Production and Distribution of Writing**

- W.8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- W.8.6 Use technology, including the internet, to produce and write and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.

##### **Research to Build and Present Knowledge**

- W.8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

#### **Speaking and Listening Standards (SL)**

##### **Presentation of Knowledge and Ideas**

- SL.8.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
- SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
- SL.8.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

#### **Language Standards (L)**

##### **Conventions of Standard English**

- L.8.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

## ***Ninth & Tenth***

### **SCIENCE**

#### **Scientific Inquiry**

- 1.1A Generate new questions that can be investigated in the laboratory or field

#### **Scientific Reflection and Social Implications**

- 1.2i Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.

#### **Earth Science**

- E2.2B Identify differences in the origin and use of renewable (e.g., solar, wind, water, biomass) and nonrenewable (e.g., fossil fuels, nuclear) sources of energy.
- E2.4A Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits.

### **ENGLISH LANGUAGE ARTS**

#### **Writing Standards (W)**

##### **Text Types and Purposes**

- W.9-10.2 Write informative/explanatory texts to examine a topic and convey complex ideas, concepts, and information through the effective selection, organization, and analysis of content.

##### **Production and Distribution of Writing**

- W.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- W.9-10.6 Use technology, including the internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

##### **Research to Build and Present Knowledge**

- W.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

#### **Speaking and Listening Standards (SL)**

##### **Presentation of Knowledge and Ideas**

- SL.9-10.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- SL.9-10.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
- SL.9-10.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

#### **Language Standards (L)**

##### **Conventions of Standard English**

- L.9-10.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

## ***Eleventh & Twelfth***

### **SCIENCE**

#### **Scientific Inquiry**

- 1.1A Generate new questions that can be investigated in the laboratory or field

#### **Scientific Reflection and Social Implications**

- 1.2i Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.

### **ENGLISH LANGUAGE ARTS**

#### **Writing Standards (W)**

##### **Text Types and Purposes**

- W.11-12.2 Write informative/explanatory texts to examine a topic and convey complex ideas, concepts, and information through the effective selection, organization, and analysis of content.

##### **Production and Distribution of Writing**

- W.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- W.11-12.6 Use technology, including the internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

##### **Research to Build and Present Knowledge**

- W.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

#### **Speaking and Listening Standards (SL)**

##### **Presentation of Knowledge and Ideas**

- SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspective are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
- SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
- SL.11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

#### **Language Standards (L)**

##### **Conventions of Standard English**

- L.11-12.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

## ***Grades 6-12 Literacy in History/Social Studies, Science, & Technical Subjects***

### **Grade Bands 6<sup>th</sup>–8<sup>th</sup>, 9<sup>th</sup>–10<sup>th</sup>, & 11<sup>th</sup>–12<sup>th</sup>**

#### **Reading Standards for Literacy in Science & Technical Subjects**

##### **Integration of Knowledge and Ideas**

- RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
- RST.9-10.9—Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- RST.11-12.9—Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

#### **Writing Standards for Literacy in History/Social Studies, Science, and Technical Subject Research to Build and Present Knowledge**

- WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
- WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.
- WHST.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- WHST.9-10.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- WHST.9-10.9 Draw evidence from informational texts to support analysis, reflection, and research.
- WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
- WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection and research.

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[www.ConsumersEnergy.com/kids](http://www.ConsumersEnergy.com/kids)

Providing energy education to students in the communities we serve.  
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### Lesson Outcome

The student will conduct research using [Consumers Energy's website](http://www.ConsumersEnergy.com) to gather pertinent energy information which will be reported to the class.

### Rationale / Purpose for Lesson

[Consumers Energy's website](http://www.ConsumersEnergy.com) contains valuable information on various energy-related topics. This lesson allows students to explore the website and gather helpful information that is applicable to their everyday life. Students will explore topics such as safety, energy efficiency, green generation and Michigan's energy use. They will practice using the Internet as a research tool and have experience processing information and conveying important information by presenting in front of the class.

### Resources / Materials Required

- Access to the Internet, specifically [www.ConsumersEnergy.com](http://www.ConsumersEnergy.com) and [www.ConsumersEnergy.com/kids](http://www.ConsumersEnergy.com/kids)
- Copies of "Energy Information" student instruction sheet (below).
- Materials for presentations, such as computer use for slideshow presentations, poster board, markers, or paper for brochures and posters.

### Introduction

- Ask students where they go when they need to find information; where do they go to research topics? Discuss various research materials such as encyclopedias, libraries, the Internet, etc. Explain that although using Internet search engines may be helpful, other websites such as company pages related to the research topic can provide a great deal of information.
- Next, ask the students what questions they have about energy. Discuss what they already know about energy and generate a list of what else they want to know about energy. Explain that they students will have the opportunity to explore some of the questions they have.

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### Procedures

- Distribute the “Energy Information” student instruction sheet. Break the students up into groups of 3 or 4. Instruct each group to select a research topic from the list of questions generated in the introduction. (Some suggested topics are listed on the student instruction sheet.)
- Provide students with computer time to complete steps 1-3 on their instruction sheet.
- After students have conducted research on the Internet, allow the group’s time to prepare their presentation materials.
- Have students give presentation to the class about what they learned from their research.

### Closure

After all of the presentations have been given, ask students how their groups worked and what they learned.

- How did the groups tackle their assignment? Who did the research? Who prepared the presentation materials? Etc.
- What did they learn about researching? Do they have any new ideas about conducting research in the future?
- What did they learn about energy from their own research and from the other presentations?

### Extensions

- Have students give presentations to other grades or classes in the school.
- Have a “Learn About Energy” display available during lunch or for a special evening event where students present their findings and presentation materials.



## Energy Information

We all have experience with energy – since it is something we use every day! Most of us don't realize how important energy is to our daily lives. If we learn more about energies like electricity and natural gas we can improve our use of energy and our lives. The Consumers Energy website is filled with all sorts of useful information about energy, and it probably covers some things you *didn't* know about energy.

In this activity you will conduct research on an energy-related topic and present your findings to your classmates. The following steps will help guide your research and presentation.

1. Select a topic to research. What do you want to learn about energy? Suggested topics include safety, energy efficiency, Michigan's energy use, what to do in case of emergencies, and renewable energy.
2. Visit [www.ConsumersEnergy.com](http://www.ConsumersEnergy.com) to begin your research. From the homepage, click on the tabs "for home" or "for business" and let the exploration begin. The web pages listed under each tab contain valuable information for an energy consumer. The website also has many brochures, which provide even more information.
3. Compile all data and information related to your research topic. Form a main idea or theme that you would like to communicate with your findings.
4. Prepare materials to present your findings to the rest of the class. Presentation ideas include creating a computer slideshow, a poster, a brochure, a newspaper article, etc. Each presentation should include the following information:
  - a. Topic researched, including your initial question
  - b. Steps you took to conduct your research
  - c. What information you found
  - d. The importance of your research topic and how it applies to all energy users
  - e. What you learned from your research, both from the process of conducting research using Consumers Energy's website and by the contents offered by the website.
5. Rehearse your presentation.
6. Present to the class!