**Letter to the Premier Project**

**Science 9**

**Electricity Unit**

**The Run Down**

**Time Frame:** 7 days

**Outcome:** Critique impacts of past, current, and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

Throughout our history, we have developed a number of ways to harvest energy from the earth and produce electricity. In Saskatchewan, there are a number of renewable and nonrenewable energy sources which we could use to power up our province. For this project we will research the various sources of energy that Saskatchewan could use, present our findings to the rest of the class, debate which energy source Saskatchewan should pursue, and finally, write a persuasive letter to the Premier of Saskatchewan to present your findings and argue your positioning.

**Research Phase**

Students will be randomly split up into groups of 4-5 and choose a source of energy from the list below that they would like to research. Groups will be given two days in class to research their energy source.

Students must use academic sources and be able to show where they got their information from. When researching your energy source, be thoughtful of where the information you are reading is coming from and whether their political ideology might influence how they present the data/information they are providing you with.

Sources of Energy

Hydroelectric

Coal

Natural Gas

Wind

Solar

Geothermal

Biomass

Nuclear

At the end of the research phase, groups will discover who their opponent for the debate will be.

**Debate Phase:**

Students will have two days prior to the debate to prepare for it. On the first day, we will discuss the format of a scientific debate and then groups will be given time in class to plan what role each member of their group will have for the debate and begin the planning process. On day two, groups should plan their arguments, anticipate rebuttals to points their opponents may bring up, and attempt to discover weaknesses in their opponent’s research. The order of the debates will be determined randomly at the beginning of the first prep class.

The debates will take place over a period of two days, with 2 debates taking place each day. On the debate days, groups will pair off against each other and the rest of the class will vote for the group they think has won the debate. At the end of all the debates, the class will vote for the energy source that they think Saskatchewan should pursue in the future based on the evidence and arguments presented.

**Letter to the Premier Phase:**

Students will learn what a persuasive scientific paper looks like. Using knowledge acquired from the research phase and debate phase, students will synthesize a persuasive argument to convince the Premier of Saskatchewan to consider the energy source (or combination of sources) the student believes to be the way of the future. The student’s arguments should be based in scientific fact with careful consideration for the future of the province and its citizens.

**Assessment:**

At the end of the debates, students will be given a handout which will allow them to assess themselves and their peers’ performance and participation in the debate and research phase. The assessment piece will allow students to gauge how they feel they did in each phase, how they felt their group members did in each phase, and how they believe other groups did in each phase. This, in combination with an evaluation done by Mr. Emond, Mr. Neudorf, and Ms. McTavish will be used to determine your mark for the group work segment of the Letter to the Premier Project.

The Letter to the Premier persuasive writing will be marked using a rubric provided to you at the beginning of the project. You will have a week after the last day of the project to finish the letter and have chances to provide rough drafts to Mr. Emond, Mr. Neudorf, or Ms. McTavish for guidance and feedback.

**Curriculum Connections**

Science 9: Characteristics of Electricity Unit

Outcome achieved:

CE 9.4: Critique impacts of past, current, and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

Indicators:

Students describe scientific, technological, societal, and environmental perspectives related to past, current, and proposed large-scale methods of electrical energy generation in Saskatchewan.

Students evaluate evidence and sources of information created by different stakeholders related to their method of electrical energy production in Saskatchewan.

**Resources**

Science 9 Saskatchewan Curriculum, Ministry of Education, 2009

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| --- | --- |
| In computer lab.  Use research template and jot down information that will be used in debate and Letter to the Premier. | **Day 1** |
| In computer lab.  Use research template and jot down information that will be used in debate and Letter to the Premier. | **Day 2** |
| In class.  Discuss format of scientific debates.  Assign roles to group members.  Begin preparing for debate. | **Day 3** |
| In class.  Group members should work together to make sure that each knows what they will say in the debate to avoid repetition and build a strong argument. | **Day 4** |
| In class.  Two groups will face off and debate which energy source Saskatchewan should use (of the two they researched).  Class vote to determine winner. | **Day 5** |
| In class.:  Last two groups debate.  Vote held to determine which energy source the class believes is the way of the future. | **Day 6** |
| In class.  Discuss format of a persuasive scientific letter.  Develop outline for persuasive letter in class. | **Day 7** |
| Hand in your Letter to the Premier. | **1 Week After Day 7** |

**Day 1 Lesson Plan**

**Subject**: Science 9

**Learning** **Outcome**: Critique impacts of past, current and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

**Grade Level:** 9

**Time for Lesson:** 1 hour.

**Introduction**: I will briefly go over the authentic task with students, discuss sourcing of research materials, and assign the students to cooperative groups of 4-5.

**Body of Lesson**: Students, in groups of 4-5, will choose an energy source for their group to focus on. Then, they will spend the remainder of the class in the computer lab doing background research on their energy source while sourcing this information. They will have received a research template with questions to guide their research.

**Summary**: Students will have established their groups, and begun researching their energy source.

**Assessment of Learning**: Visit groups to make sure they are on task and research is being done and all are participating in their groups. As groups leave, check their templates for progress and mark that they have work done (or lack thereof).

**Day 2 Lesson Plan**

**Subject**: Science 9

**Learning** **Outcome**: Critique impacts of past, current and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

**Grade Level:** 9

**Time for Lesson:** 1 hour.

**Introduction**: Explain that this will be their last day in class to get their research done in preparation for the debate.

**Body of Lesson**: Students, in groups of 4-5, will spend the remainder of the class in the computer lab doing background research on their energy source while sourcing this information.

**Summary**: Students will have completed their research template.

**Assessment of Learning**: Visit groups to make sure they are on task and research is being done and all are participating in their groups. As groups leave, check that their templates are complete. This will be a completion mark.

**Day 3 Lesson Plan**

**Subject**: Science 9

**Learning** **Outcome**: Critique impacts of past, current and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

**Grade Level:** 9

**Time for Lesson:** 1 hour.

**Introduction**: I will discuss the format, process, and reasons for having a scientific debate.

**Body of Lesson**: Students, in groups of 4-5, will determine what role they will each play in the debate (Introducer to argument, main argument, counter-argument, concluder).

**Summary**: Students will have established their roles in the debate, and begun discussing what each participant may say. Teacher will have determined, and let students know, which groups will face off against each other in the debate.

**Assessment of Learning**: As groups leave, have them hand in a paper with describing who in their group will be filling what role in the debate. This will be a completion mark.

**Day 4 Lesson Plan**

**Subject**: Science 9

**Learning** **Outcome**: Critique impacts of past, current and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

**Grade Level:** 9

**Time for Lesson:** 1 hour.

**Introduction**: Explain that this will be the last day for groups to plan for the debates in class.

**Body of Lesson**: Students, in groups of 4-5, will discuss who is responsible for bringing up what points. Groups should plan in what order they want to present their research to best support their argument. They should also begin brainstorming ideas to counter their opponent’s argument and who is responsible for bringing up these points.

**Summary**: Students will have prepared an outline of their debate argument.

**Assessment of Learning**: As groups leave, check that they have a rough outline of how their argument will unfold in the debate. This will be a completion mark.

**Day 5 & 6 Lesson Plan**

**Subject**: Science 9

**Learning** **Outcome**: Critique impacts of past, current and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

**Grade Level:** 9

**Time for Lesson:** 1 hour.

**Introduction**: Explain to students who are not debating that they should be listening closely and taking notes. After the debates are done, the audience will be given 5 minutes to ask questions of either team. Each student must ask at least 1 question throughout the debates.

**Body of Lesson**: 2 debates will take place today. Two groups will face off against each other at a time and argue that their energy source is the way of the future for Saskatchewan.

**Summary**: The winners of the debates will be decided by democratic vote. This is for fun, not for marks.

**Assessment of Learning**: Mr. Emond, Mr. Neudorf, and Ms. McTavish will each provide constructive feedback to students as they participate in the debates. Feedback should include details such as eye contact, preparedness, confidence, and strength of arguement. This feedback is not for marks.

Students will also self-assess and assess their group’s performance and participation in both the research and debate phases. The assessment piece will allow students to gauge how they feel they did in each phase, how they felt their group members did in each phase, and how they believe other groups did in each phase. This, in combination with an evaluation done by Mr. Emond, Mr. Neudorf, and Ms. McTavish will be used to determine their mark for the group work segment of the Letter to the Premier Project.

Participation points will be given to students who asked questions during the debates.

**Day 7 Lesson Plan**

**Subject**: Science 9

**Learning** **Outcome**: Critique impacts of past, current and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

**Grade Level:** 9

**Time for Lesson:** 1 hour.

**Introduction**: Introduce the Letter to the Premier assignment.

**Body of Lesson**: Discuss with students the format of a persuasive scientific paper. Explain the importance of properly sourcing research when presenting your findings. Vote on the energy source the class believes to be the way of the future for Saskatchewan. Begin developing an outline for the persuasive letter.

**Summary**: Students will have decided on an energy source they believe to be the best option for Saskatchewan to pursue, and have begun developing an outline for their persuasive argument.

**Assessment of Learning**: Students will show that they have begun their outline and chosen an energy source to write their persuasive letter about upon leaving the class.