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**Group Members**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Due Date**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**OBJECTIVE: Design your own energy-efficient school!**

In teams of 2 or 3, students will create a large diagram of their very own “Green” School.

**LEARNING GOALS:**

By the end of this activity, students:

* will have analyzed their school’s energy efficiency
* will have reflected on how their school can be more energy-efficient
* will have imagined and communicated ways of making their new school more sustainable

**MATERIALS:**

As required for your design.

**PROOF TO BE SUBMITTED:**

A final diagram of your school on a white Bristol board. The diagram should contain short sentences/paragraphs explaining what each section of the school is accomplishing energy-wise or from an environmental standpoint.

**ACTIVITY: Sustainable School Design 101**

1. **DISCUSS** ways in which your school uses energy as you **WALK** around the premises. Keep an eye out for examples of how it uses or loses energy.
2. Next, **DISCUSS** some of the ways in which large buildings such as schools can be energy efficient and ask students if they think their school is. Students should create an **Energy Pros and Cons List** for WillowWood as it is now. This will help them think of ways to improve the school’s energy efficiency.



1. Encourage students to **RESEARCH** different types of energy and explain that the class is going to **DESIGN** their **own energy-efficient school**.
2. Materials will be distributed as required to complete this project. Make sure students not only **OUTLINE** what their school looks like but also **EXPLAIN** why they have chosen to design it in this way. Short captions (1-3 sentences) explaining the purpose of each new change will do.
3. Each group will **PRESENT** their design to the rest of the class (**5 minutes**). They should treat this presentation as a real proposal for the new and improved WillowWood School.

**Student Checklist:**

* **Find examples of how the school currently uses/loses energy**
* **Create an Energy Pros and Cons List** **for WillowWood as it is now**
* **Research different types of sustainable energy and how big buildings are already trying to be energy-efficient**
* **Design your school on a white Bristol board (Use the school map provided as a guide)**
* **Include short 1-3 sentence captions explaining what each new section of your school is, what it does, and why you have chosen it.**
* **Prepare a 5-minute presentation to the class describing your “Green” School of the Future**

**How can I get a Level 4?**

* **Be Creative!** Drawings, eye-catching colours, smart and clean design.
* **Be Thorough!** Have a great attention to detail. Explain fully and clearly.
* **Be Innovative!** Think outside the box. Do some solid research into new and future energy technologies.
* **Be a Team Player!** Work well as a group, participate fully, help each other understand and succeed.



**5 Questions to Consider When Designing Your New School:**

1. What organisms and ecosystems are currently being affected by the way the school is designed and how it consumes energy now? How will your new design take this into account?
2. What is the cost of the energy-saving changes you want to make to the school? Are these changes worth it right now? Will they pay off in the future?
3. How will teaching and student learning be affected by your new design?
4. How will the ecological footprint of the whole school change with your new design?
5. How can you use outdoor and indoor space most effectively? Where will everything go?

**Tip**: Don’t forget about building materials – feel free to bulldoze & rebuild the school

**Learning Goals: What should I be showing in this assignment?**

* Assess, on the basis of research, the impact of factors related to human activitythat threaten sustainability *(B1.1)*
* Use appropriate terminology related to sustainable ecosystems *(B2.1)*
* Assess the social, environmental, economic implications of non-renewable and renewable energy sources in Canada (*E1.2*)
* Produce a plan of action to reduce electrical energy consumption (*E1.3*)

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| **Criteria** | **Level 1**Struggling | **Level 2**Pretty close | **Level 3**“Provincial Standard” | **Level 4**ABOVE & BEYOND! |
| **Knowledge and Understanding** |
| I can use my previous classroom experience in Biology/Sustainability to identify the current problems the school faces (SP, Obs., Conv.) |  |  |  |  |  |
| I can research new innovative ways to solve current energy issues (SP, Obs.) |  |  |  |  |
| **Thinking/Planning** |
| I can use teamwork to outline individual responsibilities and tasks (Obs., Conv.) |  |  |  |  |  |
| I can seek and incorporate feedback from peers and the teacher to improve my design/presentation (SP, Obs., Conv.) |  |  |  |  |
| **Communication** |
| I can use appropriate terms, symbols, and/or units in completing the tasks in this assignment. (SP) |  |  |  |  |  |
| I can express my thoughts and ideas clearly using correct grammar, spelling, and sentence structure. (SP) |  |  |  |  |
| I can explain why and how energy-efficient changes to the school can have big effects on the local environment. (SP, Obs., Conv.) |  |  |  |  |
| I can answer class and teacher questions well, showing I’ve prepared for a potential debate. (Conv.) |  |  |  |  |
| I can submit my work in an organized and presentable manner. (SP) |  |  |  |  |
| **Application** |
| My presentation contains various solutions to existing problems (SP, Obs.) |  |  |  |  |  |
| My presentation contains interesting and engaging information about my new school (SP, Obs.) |  |  |  |  |

**Success Criteria: How can I show it?**

**WillowWood School Pros/Cons List**

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| --- | --- |
| **PROS** | **CONS** |
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**Teacher Observation/Conversation Sheet**

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| --- | --- |
| **Phase I – Research & Planning** | **Phase II – Design & Application** |
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