



People for Energy and Environmental Literacy (PEEL)

Lesson Plan 10 and Lesson Plan 11

Developing an Action Plan and Executing the Plan

Basic Level

Intermediate Level

Advanced Level

Date: January 2019

Version 1.0

Summary of Activity

Grade: 3 – 12

Subject: Science, Social Studies, Humanities

Time: 1.5 hr each Theme: i) Developing an Action Plan and ii) Executing the Plan

Description: This lesson gives students the opportunity to make a difference within the school and within their community. One presentation is available (Grades 3 – 12).

What's included: PowerPoint file – Developing an Action Plan – All Levels
Each PowerPoint file has notes on each slide with questions and advice for the instructor.

The lesson slides for Lesson Plan 10 or Lesson Plan 11 can be completed in one class period. Two weeks are recommended for students to complete the school energy audit component of lesson 10. The Campaign is recommended for a minimum of 2 weeks. Lesson Plan 11 is a continuation Lesson Plan 10.

Overview

Now that the students know about climate change, their carbon footprint, conservation, and energy efficiency, and renewable energy, they can form a plan on how they are going to spread the awareness of sustainability.

In Lesson 10, students will apply their learnings and discover how sustainable their school is. The goal of this lesson is to teach the students how to look for sustainable practices and for what needs improvement. For example, students should recognize that a leaky faucet or an open window in the winter months are not sustainable practices. Students will find issues like this with an Energy Audit. This audit is the key piece to forming their action plan to make the changes they deem necessary in their school.

Lesson 11 – Executing the Action Plan will focus on allowing the students to explore ways they can implement change in their school through positive and effective campaigning. Through brainstorming, students will find ways they can achieve their sustainability goal. All activities must be related to sustainability. Students may raise money through sustainable means to install energy efficient technology, or they may use their knowledge to teach their peers about sustainability through interactive means. The choice is up to them! Following the campaign, students will conduct a second energy audit to assess their success.

Share your ideas progress with PEEL!

Curriculum Links

The table below provides a guide to some of the curriculum links between this lesson plan and grades and subjects.

Table 1: Curriculum links to this lesson plan

Grade Level	SUBJECT				
	Science	Social Studies	Career & Technology Studies	Environment and Outdoor Education	
3		Global Citizenship			
4	Waste and Our World	Alberta: A Sense of the Land			
4	Plant Growth and Change	Alberta: Celebrations and Challenges			
5	Electricity & Magnetism				
5	Mechanisms Using Electricity				
6		Citizens Participating in Decision Making			
7	Interactions and Ecosystems				
7	Heat and Temperature				
7	Planet Earth				
9	Biological Diversity	Issues for Canadians: Economic System in Canada and the United States	<ul style="list-style-type: none"> Environmental Stewardship Occupational Area, Primary Resources Occupational area, 	<ul style="list-style-type: none"> Part of a complex global environment Human life and life styles are dependent on environmental resources Humans influence environment through direct and indirect means. Principles of conservation 	
9	Environmental Chemistry				
10	Energy and Matter in Chemical Change				
10	Energy Flow in Technological Systems				
10	Energy Flow in Global System				
10	Stewardship				
11	Science Technology and Society				
12	Chemistry and the Environment				
12	Energy and the Environment				

In addition to the curriculum links, there are also direct links to the Alberta 21st Century Learner competencies.

CRITICAL THINKING	COMMUNICATION
PROBLEM SOLVING	COLLABORATION
MANAGING INFORMATION	CULTURAL AND GLOBAL CITIZENSHIP
CREATIVITY AND INNOVATION	PERSONAL GROWTH AND WELL-BEING

Figure 1: Alberta 21st Century Learner Competencies

This lesson focuses on the following learner competencies:

- Critical Thinking
- Problem Solving
- Managing Information
- Creativity and Innovation
- Communication
- Collaboration

Energy and Environmental Learning Outcomes

By the end of the lesson, students should be able to:

- Understand the importance of sustainability
- Find problem areas that need improvement around the school
- Assess on a relative scale how their school measures up to their sustainability expectations
- Show interest in ways they can improve areas of issue
- Demonstrate the ability to enforce positive reinforcement for positive change,
- Understand the importance of stakeholder interactions and relations,
- Demonstrate an excitement to share their new-found knowledge with their peers.

Planning Notes

Materials

- Developing an Action Plan PowerPoint presentation
- Executing the Action Plan PowerPoint presentation
- Other materials deemed necessary by the students to complete their audit
- A map of the school is helpful.

Prior Learning

Students are to have an understanding of the previous lessons so that they can integrate their learnings into their energy audit.



Teaching/Learning Strategies

This lesson can be taught with the slide presentation, or with alternative research and analysis completed on your own. The slide presentation provides a starting point for students to complete their audit.

Instructions

Pre-activity discussion

Remind students of the Appliance Energy Use Activity completed in Lesson 3 – Conservation and Energy Efficiency. Ask the students what skills they learned in the Lesson 3 Activity.

Discuss the energy audit results with the students and highlight the key findings they found. Identify what the major problem areas were in their school. This will help determine the type of campaign the students should conduct.

Activity – Lesson 10

Students will break into small groups and be assigned two or three areas of the school (depending on the size of the school and class). Over a two weeks, students will fill out the Energy Audit collection sheet with their results. The audit does not require any energy monitoring equipment as it is behavioural observation based.

The Rubric provides a listing of the behaviours that will be observed in their energy audit. This should help give them an idea of what to look for during their audit.

Post-Activity questions (Follow up questions) – Lesson 10

1. What were some of the common observations?
2. What things can easily be changed?
3. Why are we equipment running when we don't need it?

Activity – Lesson 11

In this lesson, students will focus on summarizing their energy audit and coming up with an Action Plan that they can use to raise awareness about a sustainability topic that was of most interest.

Here are some campaign ideas for the students:

- Anti-idling campaign
- Turn off the lights campaigns
- Reusable sandwich bag sales
- School/grade/class-wide community clean-up
- Community garden
- Used item donation round-up

Post-Activity questions (Follow up questions) – Lesson 11

1. Was it hard to encourage others to use sustainable practices?
2. What method did you use to raise awareness?
3. Did you use the stick or carrot method or both?
4. Did you see a positive change?
5. What needs more work?
6. What was the biggest change you saw following your campaign? Was there a shift in attitude?

Resources

This lesson plan is student-oriented and research-based. Students are to find their own resources to use based on how they chose to design their Action Plan.

Data References

References are provided in the Developing an Action Plan presentation in the notes section of the PowerPoint Document.

Feedback

We are continuously interested in improving and updating this lesson plan. Please send your feedback to info@teachpeel.ca.



ACTIVITY – SCHOOL ENERGY AUDIT

Intermediate and Advanced Levels

Big Idea: Now that we know how individual appliances use energy, we can apply this knowledge around the school. An energy audit is a performance assessment. We can evaluate how well the school conserves energy. If an area of the school scores low in energy efficiency, brainstorm ways you can increase its efficiency and conserve energy. This will be the first of two energy audits we will do. The goal of this audit is to create a baseline for understanding behaviour so that we can assess how well we improved at the end of the year. What methodology do you think will work best to complete your audit?

Materials:

- Wattmeter (optional)

Activity:

- Assign each group (~4 students) an area of the school (lunchroom, classrooms, staff room, washrooms, offices, etc.). Depending on the size of your school, groups can assess multiple rooms.
- Provide each group with the Energy Audit Collection Sheet Handout.
- Students will use the rubric to assign a “grade” to each room in the building.

Possible Questions:

(Please modify these questions to align with your student’s needs.)

1. What room had the worst performance?
2. What was a common issue you found? (lights left on, windows or outside doors left open unnecessarily, appliances on when not needed, etc.)
3. How can you mitigate these issues and conserve energy?

Result: If students find areas of poor performance they should be able to find a solution to the issue and provide suggestions to their peers to help solve the problem.



Energy Audit Collection Sheet

Observer Name: _____

Area: _____

Date: _____

Start time: _____

End time: _____

Room	Things that are using electricity	Does this device need to be on? (Yes, probably not, no way)	Is this device using electricity even if it is off?	Alternative to the way this device is currently being used? (e.g. plug into power bar, turn some lights off, etc.)



Energy Audit Collection Sheet

RUBRIC: Are you wise with your energy?

Area: _____

Date: _____

	Lighting	Monitors	Computers	Projectors	Printers	Heaters/ Thermostat	Taps	Doors/ Windows	Other
E	Daily energy check by students or teacher. Motion sensors on bathroom lights.	Daily energy check by students or teachers.	Daily energy check by students or teacher.	Daily energy check by students or teacher.	Daily energy check by students or teacher.	Daily energy check by students or teacher.	Monthly check on leaky taps. Water temperature turned down slightly.	Annual check of weather stripping around doors and windows.	
C	Energy efficient light bulbs used (where possible) & lights only on when required. Lights off in empty hallways.	No phantom power use (unplugged when not in use). Power bar used to switch off monitors.	No phantom power use (unplugged when not in use). Computers are in energy saving mode during the day when not in use & off when school is out.	No phantom power use (unplugged when not in use).	Printers turned off overnight & on weekends (no phantom usage)	Temperature turned down during the school day when not occupied.	Low flow taps installed & turned off after use.	Caulking & weather stripping around doors & windows	
M	Lights are only on when required. Use natural light in the classrooms. Outdoor lights are off during the day & triggered only by motion sensors.	Monitors turned off when not in use.	Computers are shut down at the end of the day. Computers are turned off for the weekends.	Projectors turned off when not in use.	Minimize printing, & only print double sided (reduce print waste)	Temperature turned down after school day & on weekends.	Taps turned off after use.	Keep classroom doors closed in winter to keep heat in.	
N	Lights are on all the time, even when not required, overnight & weekends	Monitors left on when not in use.	Computers left on overnight, or on the weekends.	Projectors left on when not in use	Printers left on overnight & weekends. Set for single sided printing.	Temperature left on high always (evening & weekends). Air around heaters is restricted.	Taps left running with no one around. Hot water too hot.	Outside windows or doors kept open in winter.	



CAMPAIGN BRAINSTORMING

Name: _____

Date: _____

IDEAS:

PLANS:
