

Name: _____ Course: _____ Date: _____

VALUE CONSERVATION

BRIGHT ENERGY

Inquiry: How do our lighting and energy choices impact people and the environment?



ACTION PLAN	<ol style="list-style-type: none"> 1. MY WORLD VIEW 2. MY ACTIONS 3. GLOBAL RESEARCH 4. LOCAL ACTIVITY 5. CRITICAL THINKING 6. ACTION SURVEY 7. PRESENTATION 8. SELF EVALUATION
--------------------	---

Group Members and Contact Info

Goals

Please read over the following goals and keep them in mind as you complete your Action Pack.

When you finish this, you will do a SELF EVALUATION to measure how much you have gained in each area below.

- I
Inquiry:
 I can work with others to take a hands-on, minds-on, research- based approach to developing my knowledge and considering solutions to sustainability problems.
- T
Creative/Critical Thinking:
 I can learn a lot about something, consider different points of view, and generate new ideas that will influence how I think and act in the future.
- C
Communication:
 I can talk with others about my area of interest, consider their points of view, use digital media to gain knowledge, and deliver an interesting presentation on my topic.
- PS
Personal & Social Responsibility:
 I know what my own values are and they help me make wise choices for the health and well being of myself, my community and my world.

Glossary

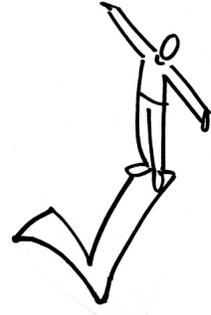
Below are some key terms you will need to understand as you explore the inquiry of this Action Pack. They will appear in ***bold italic*** in your Action Pack. The simple definitions below are provided for ease of reference

Climate Change	The long term changes and abnormal occurrences in weather patterns; in this case due to human activity.
Conservation	Taking steps to use a minimal amount of natural resources so that they can regenerate and be available for future generations.
Economic Impacts	Any change to the wealth and resources of a country or region, community or person. Often referred to in terms of the production and consumption of goods and services.
Ecosystem	A community of plants, animals and other organisms and all the interacting parts of their environment (air, water, soil, etc) that live, feed, reproduce and work together as a system.
Energy Efficiency	Reducing the amount of energy used or needed to complete a task
Environmental Impacts	Any change to the living and non-living natural surroundings or conditions in which a person, animal or plant lives and interacts together. These impacts can be negative or beneficial, and can be created by an industry, project or Individual.
Family	For the purposes of this Action Pack, family will be considered the group of people that you are living with.
Fossil Fuels	A natural fuel such as oil or gas, formed in the geological past from the remains of living organisms.
Government	A system or organization that exercises authority and performs functions for the people of a designated country, province or local community.
Natural Resources	Materials provided by the Earth, such as minerals, forests, water, and fertile land that can be used for life to continue and by humans for economic gain.
Non-renewable Energy	A type of energy that is finite; it will eventually run out
Renewable Energy Sources	Energy that comes from resources which are naturally replenished on a human timescale
Social Impacts	The effect of an activity on the social well being of the people in a community (such as wealth, health, education, employment).
Sustainability	Meeting the environmental, social, and economic needs of the present without affecting the ability of future generations to meet their needs.

1. MY WORLD VIEW

A 'world view' is how you see the world. We all have different world views, depending upon our cultural background, our life experiences and personal values. Our world view changes as we gain more knowledge and experience and consider other points of view.

Please complete the **WORLD VIEW & VALUES SURVEYS** BEFORE and AFTER completing this Action Pack.



Aboriginal wisdom presents another world view and values to consider:



"We slept when it got dark and arose when the light returned. Scientists now know our bodies release melatonin after dusk to help us follow these natural rhythms of life"

~Last Spring Storm (John Thomas), Dene Nation

2. MY ACTIONS

Our actions are directly related to our world view. We often see shifts in our actions as our knowledge about topics grows. You will be asked to take action through-out this project to try out what it is like to change habits.



Complete 6.1 in your ACTION SURVEY on [page B3.14](#) of this Action Pack BEFORE completing anything else in your Action Pack. Indicate which actions you already do by giving yourself points in Column A. **Only complete Column A at this time.**

DURING your Action Pack inquiry you will be asked to choose different Actions to try out and tick off your choices in Column B. Make sure that you have completed at least one Personal action and one action from any of the other categories before completing your Action Pack. But don't do that now – that's for later.

AFTER you have completed the entire Action Pack you will complete Column C, but don't do that now either! Just focus on filling out Column A at this time.

Name: _____ Course: _____ Date: _____

3. GLOBAL RESEARCH

Important information on this topic has been pre-researched for you. Register online by inserting the 6-digit 'class code' number that your teacher will provide to complete the url below:

www.bethechangeearthalliance.org/user/register?classcode=_____

Then check out the websites and videos on this issue here:

www.bethechangeearthalliance.org/SLS



User Name: _____ Password: _____

Make notes on interesting and important information for the Critical Thinking questions in Section 5 and the Presentation you will be making in Section 7. Discuss and compare different perspectives with other members of your group.

Research Questions

Based on what you have learned in your research, answer the following questions. Group discussions are encouraged but answers to the research questions are to be written independently. To avoid plagiarism, your answers must be in your own words. Please list the links you used to answer your questions.

- 3.1 List a minimum of 7 sources of energy that could be used, and briefly how the energy is created. e.g. nuclear energy is derived from mined uranium and nuclear fission changes water into steam that runs turbine generators.

Non-Renewable (finite/limited):	Renewable (unlimited):
1.	5.
2.	6.
3.	7.
4.	8.

--	--

Link(s):

3.2 a) Fossil fuels, such as coal, oil, or natural gas are carbon-based and formed in the earth from plant or animal remains. We extract a lot of fossil fuels in Canada to use for multiple purposes. What are the positive reasons we use fossil fuels as a form of energy?

b) What are the problems associated with burning carbon-based fossil fuels for energy?

Link(s):

3.3 BC uses hydropower as a main source of energy. What are the Pros and Cons of using hydropower? List at least 3 Pros and 3 Cons.

Pros	Cons

--	--

Link(s):

3.4 What are the impacts of light pollution on people and the natural world?

Link(s):

3.5 Based on your research, list 4 'small actions' you can do to increase the *energy efficiency* of your home?

Link(s):

Taking Action

Choose ONE or MORE actions from your **ACTION SURVEY** in the back of your Action Pack and do the action(s) now. Choose something that you are not already doing or increase an action that you have done occasionally to become a regular practice.



Make a check mark in **Column B** beside the action you will be taking and record it below.

My chosen action is: _____

I will complete it by: _____

Name: _____ Course: _____ Date: _____

4. LOCAL ACTIVITY



How does this global topic relate to you personally? Complete the following activity and research chart to see how you are part of the equation.

Test and record the lighting in your home and other constant energy users, such as TV and entertainment units, cell phone chargers, fridges, electric toothbrushes, etc. and consider changes that your household could make to conserve energy.

1. Use the BC Hydro Powersmart Guide to test the lighting in your home and complete Research Chart #1. In which area will you reduce your energy usage?
2. Track your energy usage over a 4 day period and calculate your energy saved based on reductions from doing the Powersmart testing. Record your findings in Research Chart #2.
3. Find out how much your household is charged per kilowatt by looking at your electricity bill. Calculate the amount of energy and money saved.

Research Chart 1

4.1 Complete Research Chart (use note paper if more space is needed)

<i>TESTING the Lighting of my home.</i>				
LIGHTING GUIDE: http://www.bchydro.com/powersmart/residential/guides_tips/green-your-home/lighting_guide.html , REFERENCE the BC Hydro site for How to Tips and more information				
ITEM TO TEST	QUALITY IN HOME	% OF IMPROVEMENT POSSIBLE	ESTIMATED AMOUNT I THINK WE COULD SAVE	I WILL DO THIS
How many lights in my home?	Incandescent_____	Fluorescent_____	# to Change_____	n/a
EFFICIENT LIGHTING?-do I use any LED lighting?	Yes No	75%	%_____	
Are any lights left on at night? If so, how many are left on at night and what kind are they?	Incandescent_____	Fluorescent_____	# to Change_____	
Do I use energy efficient fluorescent outdoor lights?	Yes No	70%	%_____	
How many outdoor lights are on timers?	On timers_____	Not on timers_____	# to Change_____	

Research Chart 2

4. Complete Research Chart, place a  in the appropriate boxes to track light use over four days

DAY	I TURNED OFF LIGHT IN ROOM THAT IS GOING TO BE USED AGAIN SOON – Estimate 1 hour saving	I TURNED OFF LIGHT IN ROOM THAT WILL BE UNUSED FOR REST OF DAY OR NIGHT – Estimate 8 hours saving	LIGHT BULB TYPE	ENERGY SAVED IN KW (/1000) (Formula indicated in example below)	\$ SAVED see bill or est .10/kw
	Ex. 		60 watt	$(60 \times 1 \times 10) + (60 \times 8 \times 5)$ = $3000 / 1000 = 3$.30
	Ex. 		100 watt	$(100 \times 5) + (100 \times 8 \times 5) =$ $4500 / 1000 = 4.5$.45
1					
2					
3					
4					
Total Energy Saved: _____ watts = _____ kilowatts			Total Saving from Electricity Bill \$_____.		

So What?

4.2 What are the similarities and differences you found from comparing your activity results to others in your group?

4.3 What are some conclusions or observations you gained from this Activity?

Taking Action

Choose ONE or MORE actions from your **ACTION SURVEY** in the back of your Action Pack and do the action(s) now. Choose something that you are not already doing or increase an action that you have done occasionally to become a regular practice.



Make a check mark in **Column B** beside the action you will be taking and record it below.

My chosen action is: _____

I will complete it by: _____

Name: _____ Course: _____ Date: _____

5. CRITICAL THINKING

Global **sustainability** issues are complex, and considering different points of view can give us a stronger understanding in order to change for the better.



Critical Reflections

To avoid plagiarism, write your answers IN YOUR OWN WORDS.

5.1 Referencing the hydro-dam impacts in either the Brazil, India or China examples, explain how you think this situation could have been carried out better to avoid the severity of the environmental or social impacts?

5.2 Which form of energy would you invest in to switch the world off 'fossil fuels', and why?

5.3 **STAKEHOLDERS** are individuals or groups (companies, communities, etc) who have concerns or could be impacted by an issue. Below is a list of stakeholders and environments that could experience *environmental, social* or *economic impacts* by reducing our energy consumption or type of energy used. Write down two or three benefits or concerns for each stakeholder(s).

<i>Stakeholder(s) / Environments</i>	<i>Impacts: Benefits & Concerns</i>
1. Myself, my family & my Community	
2. The Natural World (Animals, Plants, Ecosystems and planetary life-support systems)	
3. Companies that extract and sell fossil fuels and related energy.	
4. Companies that develop new technology and sell non-carbon based energy.	
5. Government	
6. Other	

Name: _____ Course: _____ Date: _____

Costs & Benefits

What if I was to choose differently, and reduced my energy consumption and sought out greener energy forms?

5.4 What would I need to do to take this action (e.g. commitment, time, something I'd need to stop doing, asking people to support me, taking responsibility, shifting comfort zones, etc.)? List at least 3 specific examples.

1.

2.

3.

5.5 What would the benefits be?

1. To me, personally (health, knowledge, values, etc.)

2. Environmentally (locally to globally) put in examples?

3. Socially (who may be impacted by this?)

4. Economically (money or resources saved or spent)

5.6 If I chose NOT to reduce my energy consumption, what would the ***environmental, social*** and ***economic impacts*** be?

Name: _____ Course: _____ Date: _____

6. ACTION SURVEY

Our actions are directly related to our world view.



Complete the following ACTION SURVEY step by step.

6.1 **BEFORE** starting your Action Pack, indicate which actions you already do by giving yourself points in COLUMN A. Add these up in the Total for COLUMN A.

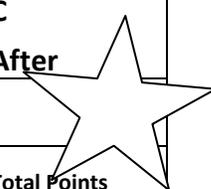
# of points	If this statement is true for you or not
0 points	= Not true
1 point	= Sometimes true
2 points	= I have done this (not something one does regularly)
3 points	= True most of the time

6.2 **DURING** your Action Pack inquiry, set your goals and tick off the Actions you intend to take in COLUMN B... and then do them! IF you have already done all of the suggested actions, think of a new action, get it approved by your teacher and write it into the last open space.

Action Survey

	<i>What Actions have I taken before?</i> <i>What Actions will I start taking?</i>	A <i>Done before Action Pack</i>	B <i>I intend to do this Action ✓</i>	C <i>I have done these Actions</i>
Personal Actions	1. I have installed a power bar for my entertainment and computer electronics and I turn them off when not in use.			
	2. I have turned off every light as I left a room for the last 3 days			
	3. I have turned off every light as I left a room for the last week			
	4. I have turned off every light as I left a room for the last two week			
	5. I have researched Bullfrog Power to find out how households and organizations can use green energy instead of carbon based fuels. www.bullfrogpower.com			

Household Actions	6. I have replaced incandescent light bulbs in my household with compact fluorescent bulbs, and have some ready for the others as they burn out.			
	7. I have encouraged my household to install motion detector lights or turn off lights outside of my house, instead of having the lights on all night.			
	8. If there is an extra fridge plugged in that does not need to run all the time, then I have discussed the energy and financial saving of unplugging it for a period of time.			
	9. I discussed the opportunity of supporting Bullfrog Power with my family. www.bullfrogpower.com			
School Actions	10. I have created signs to TURN OFF LIGHTS and post them next to light switches in my school.			
	11. I have encouraged my school to replace incandescent bulbs with compact fluorescent bulbs as they burn out.			
	12. I have researched alternative power sources for our school and proposed we switch to some renewable energy sources.			
Community Actions	13. I have gone to a rally or talk or signed a petition about supporting renewable energy sources.			
	14. I found out what government department regulates this issue and which elected politician is responsible for this department.			
	15. I wrote a letter to the department staff and/or to the politician stating the change that I think is appropriate.			
	16. My customized and related action (teacher approved): _____			
	Totals: What Actions have I taken?	A Before		C After
	Totals:			
		Starting Points Sustainability		Total Points Sustainability



Points for Sustainability

6.3 **AFTER** completing your Action Pack, fill in COLUMN C by giving yourself points for all the actions you are now taking. Add up the total of COLUMN C to see your **TOTAL POINTS FOR SUSTAINABILITY**.

5-15	This is a good place to start! And you have lots of choices for actions to increase your score
16-31	You are well on your way to creating healthy, sustainable habits!
32 or more	WOW, Superstar! You are here to inspire others. Lead on!

Points for Change

6.4 **CHANGING** our habits is a big accomplishment! As we increase our awareness we will see the impact of each choice we make and even more ways to 'be the change'. To give yourself points for trying new actions and being willing to change old habits, subtract the total of COLUMN A from the total of COLUMN C to get your total **POINTS FOR CHANGE**.

Total Column C: _____ - **Total Column A:** _____ = _____ **TOTAL POINTS FOR CHANGE**

3-6	Way to go – you've overcome the hardest part to change – STARTING! Keep it up!
7-15	Well done – keep consistent with your changes to create new habits.
16 or more	Way to be a CHANGE AGENT! Check out other Action Packs for more ideas

Reflection on Taking Action

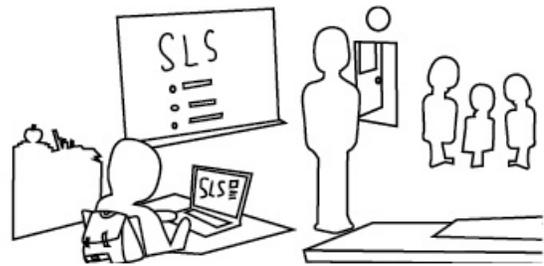
Answer these questions after completing your Action Pack (use more paper as needed)

6.5 What was rewarding about making a commitment to action and changing my behaviour?

6.6 What was challenging?

7. PRESENTING YOUR EXPERIENCE AND KNOWLEDGE

Your final Action Pack assignment is to give a presentation to your class summarizing your thoughts on the Inquiry you did in this Action Pack. This is your chance to share what you have learned and invite your peers to take action!



Presentation length: 5 - 15 min.

See ideas for your presentation below. Ask your teacher for further details.

Make sure your presentation includes:

1. **I** Inquiry Process

- Start by telling your class the Inquiry that you explored. It is clearly stated on the first page of this Action Pack. Is this is an important question we all need to be asking ourselves?
- List the top 3 most important facts that you learned in your research.
- Share the experience and results of your local activity

2. **T** Creative/Critical Thinking

- Name some key stakeholders or *ecosystems* and their concerns or interests.
- List some ways we can approach this issue more sustainably (both industry and personal).
- Share new ideas or conclusions you gained from completing the Action Pack.

3. **PS** Taking Action for Personal & Social Responsibility

- What actions did you take?
- What was it like to take personal action?
- Share your personal experience exploring this topic, inspire others to take action.
- Suggest ways your classmates can take action.

4. **C** Creative Communication

- Engage with your audience; make eye contact, don't read off a piece of paper the entire time, and project your voice.
- Be creative; how can you make learning about this topic fun and interesting? Consider the different presentation formats below.
- Share personal stories that deliver key points.
- Be passionate, persuasive and creative.

Creative Format Options

1. **A VERBAL TESTIMONIAL** Acting as a stakeholder (person, community, animal, river, etc) you tell your personal story about how important this topic is to you and how it can affect your life, positively and negatively. You could do it like a talk show where one interviews the other about your experience.
2. **GRAPHIC DEPICTION** Drawings that are labeled and explain the information you learned in the research. This could be pictures, images, a storyboard, timeline, and includes how you will make changes in your life.
3. **MOCK DEBATE** You and your partner present two points of view, or two stakeholders, showing the facts that support both sides in the issue.
4. **PAINTING OR COLLAGE** An artistic representation of what you learned in the research and how you will make changes in your life.
5. **MOCK NEWSCAST** You are a TV journalist on the scene of an environmental situation and you are interviewing both sides of the issue. For example, trees being cut down, industry's waste going into a river, protesters with signs at a government office.
6. **NEWSPAPER** Create a newspaper page with various articles about both sides of the issue. You may include a cartoon that is relevant, a letter to the editor about the issue and columns with the scientific facts. Include what changes are needed to help with this issue in the world.
7. **POEM/PROSE/SONG/RAP** Present a piece of creative writing that expresses personal feelings and facts together around your issue/topic.
8. **SKIT** Act out a script to demonstrate your understanding of the issue/topic. Explain the stakeholders on both side of the issue and how you will change your life to help.
9. **WEBSITE** Create a well designed website that clearly leads the reader through the major issues, facts and opinions on this topic.
10. **POWERPOINT/PREZI** Create a visual presentation with strong images, graphs, even video, that compliments and strengthens your verbal presentation. Remember images – not words!
11. **VIDEO** Create a video that describes the key points of the issue in a compelling way. This video can be animation.

8. SELF EVALUATION

While helping you learn about a sustainability topic, the goal of this Action Pack was to help you increase your ability in a number of life skills.

By completing the self evaluation below you can acknowledge the areas that you have developed and the areas that need more work. Please keep in mind that your abilities will continue to develop over the years.

Please rate yourself from 1 – 5 for each of the following statements.

- 1** = I did not develop this skill with this project and I do not feel confident in this life skill.
- 2** = I developed this skill a little, but I need to do more work in this area.
- 3** = I developed this skill a fair bit, and I see how I could use it in the future.
- 4** = I developed this skill a lot and I am quite confident about using this skill in the future.
- 5** = This goal was fully met... I actively use this life skill in many areas of my life.

	<i>Action Pack Goal</i>	<i>Your Self Evaluation</i>				
I	Inquiry Process:					
	• I can work well with others to explore a topic.	1	2	3	4	5
	• I can research a question using internet links.	1	2	3	4	5
	• I am willing to get personally engaged to use my own experience as part of my research.	1	2	3	4	5
	• I am willing to look for solutions even when a clear and easy answer is not obvious.	1	2	3	4	5
T	Creative/Critical Thinking:					
	• I learned a lot about this topic.	1	2	3	4	5
	• I considered different points of view.	1	2	3	4	5
	• I have generated some new ideas.	1	2	3	4	5
	• My understanding of this topic will now influence how I think and act in the future.	1	2	3	4	5



Communication:

- I am comfortable speaking with others about my area of interest. 1 2 3 4 5

- I can hear and respect different opinions during a discussion 1 2 3 4 5

- I can use digital media to research information. 1 2 3 4 5

- I can use digital media to share information. 1 2 3 4 5

- I can deliver an interesting presentation on my topic. 1 2 3 4 5



Personal & Social Responsibility:

- I know what my own values are. 1 2 3 4 5

- I use my values to decide on my actions. 1 2 3 4 5

- I take responsibility for how my actions impact on my life. 1 2 3 4 5

- I take responsibility for how my actions impact on the lives of others, my community & my planet. 1 2 3 4 5