

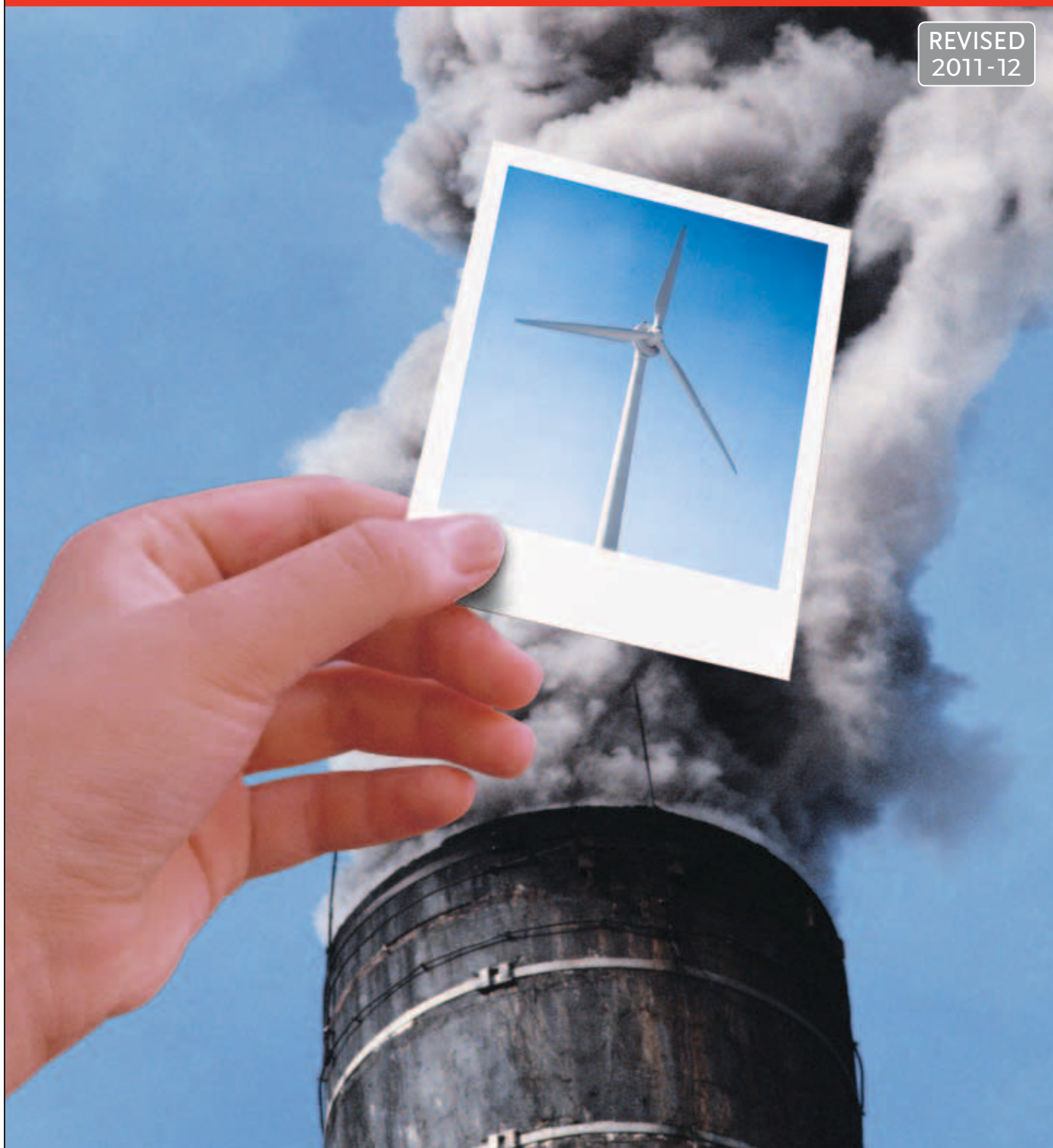
Ontario

ENERGY

conservation

GUIDE

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This guide is an adaptation of the EcoSchools *Energy Conservation Guide* produced by the Toronto District School Board (TDSB). The TDSB has donated this resource to the Ontario EcoSchools Program as part of its in-kind contribution to the project.

Ontario EcoSchools: Energy Conservation Guide

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► ENERGY CONSERVATION: WHY IS IT IMPORTANT?

Canada, along with the United States, is one of the highest energy consuming nations in the world. And although we derive nearly 60% of our electricity from hydroelectric (water-powered) sources, much of the energy consumption in Canada involves burning fossil fuels (coal, oil and natural gas). While our access to abundant and inexpensive energy supplies contributes to our high standard of living, burning large quantities of fossil fuels also has serious environmental and health consequences.

What exactly are these consequences? The burning of fossil fuels releases particulate matter into the air, causing smog that contributes to health problems and even premature deaths, particularly among the elderly. Fossil fuel consumption (primarily coal) also causes the formation of acid rain that damages forests, lakes and buildings. Most importantly, scientists now generally agree that greenhouse gas emissions produced by burning fossil fuels are contributing to global climate change.

In addition to its environmental costs, the financial cost of school boards' energy use has risen dramatically. *Every dollar that we don't have to spend on energy could be directed back to cleaning and maintaining schools.*

In recent years, many schools have upgraded lighting and installed computer-controlled temperature systems to make the buildings more energy efficient. But the *people* in our school buildings - teachers, students, support staff and other members of the school community - can also make a big difference in school energy use! While savings estimates vary, school communities can expect to reduce their school's energy consumption by 5 - 10% by adhering to the Ontario EcoSchools Energy Conservation Guidelines.

► ENERGY CONSERVATION, CLIMATE CHANGE AND ECOSCHOOLS

Keeping the natural environment healthy for future generations depends on everyone's participation. Climate change is one of the most serious threats to a healthy environment, and schools and school boards have a vital role to play in helping students and staff understand what they can do about it. EcoSchools helps to make explicit the connection between conserving energy and reducing climate-changing greenhouse gas emissions.

The EcoSchools program introduces an environmental perspective to the choices we make in operating our schools and in planning classroom programs - we learn not only about what to do, but also why. This *Energy Conservation Guide* provides a set of tools to help your school develop a systematic approach to energy conservation as a part of everyday school life. For detailed information about establishing an effective EcoTeam to lead your EcoSchools program, please see the *Introduction to EcoSchools and the Five-Step Process Guide*.

Did you know?



*If students and staff in 1000 classrooms turned off their lights for three hours per week when they might otherwise have been left on, the school board would save \$5,618 per year and reduce its carbon dioxide emissions by 44 tonnes.**

* Based on data compiled by Aladaco Consulting for Halton DSB (November 2006)

▶ INTRODUCING THE ECOSCHOOLS ENERGY CONSERVATION GUIDELINES

The Energy Conservation Guidelines outline the minimum day-to-day practices and behaviours that schools are encouraged to support. These guidelines may be implemented in stages. *It is highly recommended that schools focus first on establishing or improving*

school-wide strategies for ensuring that lights are turned off when not needed and computer monitors are turned off when not in use.

When schools work together they can make a significant contribution to reducing their environmental impact and also save money.

The following Guidelines form the basis of the Energy Conservation EcoReview:

Lights and Equipment

- (1) Lights are turned OFF when not required.
- (2) Computer monitors are either turned OFF or computers are put to SLEEP when not in use.
- (3) Computer peripherals such as printers, scanners and other electronic equipment are also turned OFF when not in use.
- (4) Only the most energy efficient equipment is purchased (e.g., Energy Star).
- (5) An equipment consolidation program is implemented to ensure that energy is not wasted by using more equipment than is necessary (e.g., reducing the number of computer printers through networking).

Heating and Air Conditioning

- (6) Windows and curtains are closed at the end of the school day.
- (7) Space around vents on walls or window sills is kept free of obstruction.
- (8) Doors to the outside of the building are not left open longer than necessary.
- (9) The school adheres to Board standard room temperatures and makes maximum use of its computer controlled temperature system (if available).
- (10) Mechanical equipment and water faucets are checked regularly and problems are reported promptly.

For the long-term success of this program, it will be critical to seize opportunities to explain to staff, students and parents why these activities are important. Teachers are encouraged to use Energy Conservation learning activities by grade (1-8) in the Ontario Ecoschools series to connect energy conservation efforts to their curriculum.

Download at www.ontarioecoschools.org
click on 'curriculum resources'

▶ THE ECOSCHOOLS FIVE-STEP PROCESS

EcoSchools is a simple program designed to help schools take an organized approach to improving their environmental performance. The five-step process is adapted from an environmental management system developed to give organizations a method for fostering continual improvement. The

steps are mentioned only briefly here; for a detailed description please see the *Introduction to EcoSchools and the Five-Step Process Guide*. To help you get started, specific samples of an Energy Conservation EcoReview (Step 2) and Action Plan (Step 3) are included in this guide.



The power of Ontario's students and staff to make a difference by conserving energy is enormous, especially when everyone participates!

Step 1. Establish the EcoTeam

Include representatives from across the school community. Please see the *Introduction to EcoSchools and the Five-Step Process Guide* for helpful and concise information about who should be on the team, what the EcoTeam does, how to facilitate good teamwork and the special role of the principal.

Step 2. Conduct the

EcoReview to discover where energy can be conserved. The EcoReview on the next page provides an example to help you with your own school's review based on the Energy Conservation Guidelines. A blank EcoReview appears in the Toolkit.

Did you know?



*If 1000 computers were on continuously the electricity consumed would cost \$84,884 annually. If monitors were turned off whenever they are not in use, overall power consumption could be cut by 50%.**

* Based on data compiled by Aladaco Consulting for Halton DSB (November 2006)

Sample: ENERGY CONSERVATION ECOREVIEW

The following review provides an example to help you with your own school's review based on the Energy Conservation Guidelines. The Comments Section has been used extensively to set the energy conservation targets and help craft the school's Action Plan (Step 3).

| | | | | |
|--|------------------------|-----------------|---|---|
| | <i>Jomma</i> SCHOOL | ABCDSB BOARD | <input checked="" type="checkbox"/> INITIAL Oct. 8 DATE | <input type="checkbox"/> FOLLOW-UP* DATE |
|--|------------------------|-----------------|---|---|

| Guidelines | Level 1 | Level 2 | Level 3 | Level 4 | Comments |
|---|----------|----------------------------|-------------|---------------|---|
| | Emerging | Approaching Implementation | Implemented | Comprehensive | |
| LIGHTS AND EQUIPMENT | | | | | |
| 1) Lights are turned OFF when not required. | X | | | | Some lights are turned off, but this practice is not consistent throughout the school. |
| 2) Computer monitors are turned OFF when not in use. | | X | | | Office and classroom PC computer monitors are often left on when not in use. |
| 3) Printers, scanners and other electronic equipment on standby when not in use and turned OFF at the end of the day. | X | | | | Not consistently. |
| 4) Only the most energy efficient equipment is purchased (e.g., Energy Star). | | X | | | Some equipment (computers) are Energy Star rated but no conscious effort has been made to buy energy efficient machines. |
| 5) An equipment consolidation program is implemented to ensure that energy is not wasted by using more equipment than is necessary (e.g., reducing the number of computer printers through networking). | X | | | | No equipment consolidation plan has been developed or implemented. It appears that we have more computer printers than we need. |
| HEATING AND AIR CONDITIONING | | | | | |
| 6) Windows and curtains (if present) are closed at the end of the school day. | | X | | | Some blinds need fixing. Curtains are usually closed after school, but no system is in place to ensure that this happens. |
| 7) Space around vents on walls, ceilings or window sills is kept free of obstruction. | | X | | | Some vents are blocked in classrooms. |
| 8) Doors to the outside of the building are not left open longer than necessary. | X | | | | Doors are left open longer than necessary during school entry times. |
| 9) The school adheres to Board standard room temperatures and makes maximum use of its computer controlled temperature system (if available). | | | | X | Yes, custodian does ensure that standards are adhered to. Staff and students understand that these steps save energy and reduce greenhouse gas emissions. |
| 10) Mechanical equipment and water faucets are checked regularly and problems are reported promptly. | | | | X | Weekly inspection by custodian. Staff and students report problems promptly. |

*Follow-up EcoReview must be completed at least 3 months after the initial EcoReview to be eligible for certification.

See the Toolkit for a **BLANK** copy of the EcoReview template, or download a Word version from www.ontarioecoschools.org.

Definitions of Rubric Levels used in the EcoReview

The definitions of the rubric levels that appear in the review on the previous page

will help you decide at which level to place your school for each activity that you are assessing.

| LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 |
|--|--|---|--|
| Emerging | Approaching Implementation | Implemented | Comprehensive |
| Awareness , but no active participation or limited practice/ results | Inconsistent / Some practice, participation, or results | Consistent/ Considerable practice, participation, or results | Frequent and consistent/ School-wide/ Comprehensive practice, participation, or results |

Tips for Conducting an Effective EcoReview

- ▶ *Visit all rooms in the school including offices, lunchrooms, resource centre, gym and classrooms.*
- ▶ *Try to complete the review all at once. This allows you to remember and document what is happening in your school.*
- ▶ *Be a detective: ask more than one person for the answer to get a bigger picture of what is actually going on!*
- ▶ *Get classes involved in doing the review. Participation can provide leadership opportunities that encourage students to take an interest in their school environment. Including the student perspective will also give a more complete picture of the perceived as well as the actual practices occurring in the school.*

Encouraging students and staff to turn off computer monitors when not in use is an important element of building a “culture of conservation” throughout the school community.

Step 3. Develop the Action Plan

for conserving energy in your school.

Record decisions in an Action Plan. The template on the next page provides a sample to help you with your school’s Action Plan in response to the results of your Energy Conservation EcoReview. The examples we have chosen illustrate school-wide strategies for ensuring that computer monitors are turned off when not in use and lights are turned off when not needed.

Step 4. Implement the Action Plan

involving the entire school community. Emphasize whole school participation. Please see the *Introduction to EcoSchools and the Five-Step Process Guide* for suggestions about supporting team

members and developing communication strategies both to make your EcoSchools initiatives stand out and to encourage broad participation. Sample announcements are included in the Guide.

Step 5. Monitor and evaluate progress

Recognize and celebrate successes. Please consult the *Introduction to EcoSchools and the Five-Step Process Guide* for helpful tips.

Give your Action Plan at least 3 months to engage the school and change behaviour.

Complete a follow-up EcoReview to assess your progress and identify areas where improvement is still needed.

Become a certified EcoSchool

EcoSchools certification provides a rigorous province-wide set of criteria to assess achievement of environmentally-responsible actions and environmental learning. For more information please see <http://certapp.ontarioecoschools.org>

SAMPLE: ECOSCHOOLS ENERGY CONSERVATION ACTION PLAN

| SCHOOL: <i>Jowma</i> DATE: <i>Oct. 14</i> | | | | | | |
|--|--|------------------------------------|--|---|-------------|--|
| TARGETS | ACTIONS | INDICATORS | RESOURCES | | | RESULTS |
| | | | HUMAN | MATERIAL | \$ | |
| <p>1. Computer monitors are turned off when not in use</p> | <p>a. each classroom will have students whose responsibility is to make sure monitors are turned off when not in use</p> <p>b. create and deliver energy conservation messages</p> <p>c. Mr. Tsang's class will periodically track and report the 'monitors off' efforts of each class to the whole school</p> | <p>Results of student tracking</p> | <p>All classes will participate</p> <p>EcoTeam will create and deliver energy conservation messages</p> <p>Mr. Tsang's class will do the tracking and share their findings with the whole school</p> | <p>Tracking tally charts</p> <p>Energy conservation stickers, posters, announcements (check with board rep for resources and www.ontarioecoschools.org)</p> | <p>N.A.</p> | <p>(Record results according to timelines)</p> |
| <p>2. Lights are turned off when not required</p> | <p>a. each classroom will have monitors who turn off lights when not needed</p> <p>b. create and deliver energy conservation messages</p> <p>c. Ms. Bado's class will periodically track and report the 'lights off' efforts of each class to the whole school</p> | <p>Results of student tracking</p> | <p>All classes will participate</p> <p>EcoTeam will create and deliver energy conservation messages</p> <p>Ms. Bado's class will do the tracking and share their findings with the whole school</p> | <p>Tracking tally charts</p> <p>Energy conservation stickers, posters, announcements (check with board rep for resources and www.ontarioecoschools.org)</p> | <p>N.A.</p> | <p>(Record results according to timelines)</p> |

See the Toolkit section for a **BLANK** copy of the Action Plan Template, or download a Word version from www.ontarioecoschools.org.


The Energy Conservation Toolkit

This energy conservation toolkit includes ideas and resources to support schools in their quest to conserve energy. We hope that what we have provided here will help to make the planning and implementation of the energy conservation strategies easier, more lively, and more effective!

Over time changes may be made to the resources and information in the following pages. For the most up-to-date information, refer to files posted at www.ontarioecoschools.org



ECOREVIEW: ENERGY CONSERVATION

| | |
|---|--|
|  | <input type="checkbox"/> INITIAL <input type="checkbox"/> FOLLOW-UP* |
| SCHOOL _____ | BOARD _____ |
| DATE _____ | DATE _____ |

| Guidelines | Level 1 | Level 2 | Level 3 | Level 4 | Comments |
|---|----------|----------------------------|-------------|---------------|----------|
| | Emerging | Approaching Implementation | Implemented | Comprehensive | |
| LIGHTS AND EQUIPMENT | | | | | |
| 1) Lights are turned OFF when not required. | | | | | |
| 2) Computer monitors are turned OFF when not in use. | | | | | |
| 3) Printers, scanners and other electronic equipment on standby when not in use and turned OFF at the end of the day. | | | | | |
| 4) Only the most energy efficient equipment is purchased (e.g., Energy Star). | | | | | |
| 5) An equipment consolidation program is implemented to ensure that energy is not wasted by using more equipment than is necessary (e.g., reducing the number of computer printers through networking). | | | | | |
| HEATING AND AIR CONDITIONING | | | | | |
| 6) Windows and curtains (if present) are closed at the end of the school day. | | | | | |
| 7) Space around vents on walls, ceilings or window sills is kept free of obstruction. | | | | | |
| 8) Doors to the outside of the building are not left open longer than necessary. | | | | | |
| 9) The school adheres to Board standard room temperatures and makes maximum use of its computer controlled temperature system (if available). | | | | | |
| 10) Mechanical equipment and water faucets are checked regularly and problems are reported promptly. | | | | | |

* Follow-up EcoReview must be completed at least 3 months after the initial EcoReview to be eligible for certification.

ENERGY CONSERVATION ACTION PLAN

| SCHOOL: _____ | | | | | | | DATE: _____ | |
|---------------|---------|------------|-----------|----------|----|-----------------------|-------------|---------|
| TARGETS | ACTIONS | INDICATORS | RESOURCES | | | BUDGET RESPONSIBILITY | TIMELINE | RESULTS |
| | | | HUMAN | MATERIAL | \$ | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |



ENERGY CONSERVATION—WALKABOUT WORKSHEET

School _____ Date _____ Time _____

Names of Reviewers _____

Use this worksheet to help you complete sections of the Energy Conservation EcoReview:

- Go to each room (i.e., classrooms, office, gym, lunchroom, etc.) and answer the questions below. Mark **Yes** or **No** for each question. Sometimes the questions might not be appropriate for every room (i.e., there are no computers or peripherals in the cafeteria). For those rooms, mark N/A for the answer and do not include these rooms in your calculation. **If your school population is more than 500 students** go to at least 50% of your school's rooms and answer the questions below. You must include the library, computer lab, cafeteria/lunchroom, photocopy room and some classrooms in your sample.
- Add up the results for each question and calculate the percentage of Yes answers. Using the table below, mark the Level achieved on the Energy Conservation EcoReview:

| | | | |
|-------------------------------|--------------------------------|---------------------------------|------------------------|
| Yes 80+% of the time= Level 4 | Yes 60-79% of the time=Level 3 | Yes 40-59% of the time= Level 2 | Yes below 40%= Level 1 |
|-------------------------------|--------------------------------|---------------------------------|------------------------|

| Room # or Name | Lights are turned off when not required | | Computer monitors are turned off when not in use | | Computer peripherals (printers, scanners) and other electronic equipment are turned off when not in use | | Space around vents on walls or window sill is kept free of obstructions | |
|-----------------------|---|----|--|----|---|----|---|----|
| | YES | NO | YES | NO | YES | NO | YES | NO |
| <i>Example: Rm 23</i> | X | | | X | | X | | X |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Continued on next page

ENERGY CONSERVATION GUIDELINES POSTER

This poster and other resources are available at www.ontarioecoschools.org

THE ONTARIO ECOSCHOOLS

Energy Conservation Guidelines

The following standards form the basis of the Energy Conservation EcoReview:

Lights and Equipment

- (1) Lights are turned OFF when not required.
- (2) Computer monitors are either turned OFF or computers are put to SLEEP when not in use.
- (3) Computer peripherals such as printers, scanners and other electronic equipment are also turned OFF when not in use.
- (4) Only the most energy efficient equipment is purchased (e.g., Energy Star).
- (5) An equipment consolidation program is implemented to ensure that energy is not wasted by using more equipment than is necessary (e.g., reducing the number of computer printers through networking).

Heating and Air Conditioning

- (6) Windows and curtains are closed at the end of the school day.
- (7) Space around vents on walls or window sills is kept free of obstruction.
- (8) Doors to the outside of the building are not left open longer than necessary.
- (9) The school adheres to Board standard room temperatures and makes maximum use of its computer controlled temperature system (if available).
- (10) Mechanical equipment and water faucets are checked regularly and problems are reported promptly.



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ENERGY CONSERVATION STICKERS

Posters and labels serve as constant graphic reminders of ways for staff and students to conserve energy. Some Boards already have posters and labels that support energy conservation. Often these resources are available through the Facility Services or Operations Department.

Alternatively, or additionally, students can make posters for the school. Be sure that students are given accurate information to work with and supervise their creations to ensure that text and illustrations clearly indicate the correct information.



Suggested timeline for Ontario EcoSchools certification



Student Engagement: This symbol indicates areas where student engagement and leadership opportunities are present.

| September-October | October-January | February-March | March-April |
|---|--|--|---|
| <ul style="list-style-type: none"> Establish the Eco Team Register your school online – http://certapp.ontarioecoschools.org Ask for support – contact parent’s council, staff meetings, community organizations, EcoSchools board representative Develop a communication strategy | <ul style="list-style-type: none"> Complete Initial EcoReviews (Energy Conservation and Waste Minimization) Based on the results of the EcoReviews, complete and implement Action Plans for Energy Conservation and Waste Minimization Gather submissions for Curriculum section – complete online templates and save/upload student work Start planning for School Ground Greening Brainstorm and start Environmental Stewardship campaigns/activities Conduct a Waste Audit and communicate results Input results of Initial EcoReviews and other information as applicable into online application Deadline: January 31st to input results of Initial EcoReviews | <ul style="list-style-type: none"> Continue to implement Action Plans Continue inputting information/answers into certification application Gather/upload Portfolio requirements Communicate feedback! Tell the school how they are doing and strategies for improvement | <ul style="list-style-type: none"> Complete Follow-up EcoReviews (Energy Conservation and Waste Minimization) Complete certification application Review completed online certification application Submit application from “Application Summary” page Save a copy of the Application Summary page for your records Assemble/upload all Portfolio requirements by April 30th Prepare for site visit Your board representative will advise you of the time/date of the site visit (May or June) if applicable Deadline: April 30th for submitting application (Early bird deadline - April 23). |

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