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Introduction

Heading towards Green Pre-schools – Environmental Management Guidebook for Pre-schools is compiled by the Hong Kong Productivity Council under the guidance given by the Environmental Protection Department. This Guide provides simple but practical information about environmental protection measures which are applicable to pre-schools of different scales. We encourage all pre-schools to read this Guide, whether they have already adopted or have just begun the implementation of environmental protection measures. Pre-schools taking these proactive measures will not only help our society preserve resources and minimise the negative impact on our environment, but will also set good examples for young children to learn more about the concepts and importance of environmental protection.

The Environmental Protection Department and the Hong Kong Productivity Council would like to express their deep gratitude to Po Leung Kuk Mrs. Vicwood K.T. Chong Kindergarten and Fung Kai Kindergarten for their support and contributions in the preparation of this Guide.

The Environmental Protection Department would also like to thank the Zonta Club of New Territories for the donation of recycling bin models to over 800 pre-schools for environmental education purpose.

Environmental Infrastructure

1. Campus Greening

Greening the school campus with planting not only provides students with a pleasant learning environment, but also encourages them to come closer to the Nature to acquire hands-on knowledge about the importance of plants to the ecosystem and global climates.

The following steps are recommended for campus greening:

I. Spread the Message and Gather Opinions

Invite ideas or views on greening from students, parents, teachers and neighbours.

II. Examine Campus to Identify Needs

Taking into account the circumstance of the campus, plan the facilities, set the objectives (e.g. whether for beautifying purpose only or for educational purpose) and identify the needs (e.g. capital, areas of modification, etc.) for greening.

III. Formulate Conceptual and Action Plans

After setting the themes and action plan, try it out on a small scale first to see the effects before full implementation.

IV. Share Results

Compare the differences before and after implementing the "green" measures. Share the results with everyone concerned. Do acknowledge the contributions of the sponsors or supporting organisations for the greening activities!

The teachers-in-charge of the greening project should note the following:

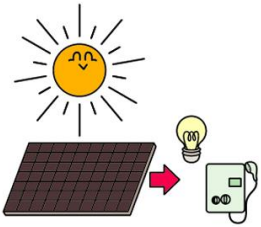
- both bushes and trees can be used as windbreaks or for shading on campus.
- bushes and trees are more environment-friendly than artificial fences.
- check the plants to see if they are evergreen or poisonous (e.g. oleander) and the amount of water needed for irrigation. You may consider planting native species such as *Camellia granthamiana Sealy* (Grantham's Camellia), *Rhodoleia championii Hook. F.* (Rhodoleia) and *Camellia crapnelliana Tutcher* (Crapnell's Camellia).
- ask students to participate in planting, watering, fertilizing and weeding, depending on their abilities and safety.

- consider practising organic gardening and setting up a small-scale organic farm, and let students and their parents share the harvest.
- incorporate educational elements in the planting activities (e.g. worksheets with topics such as "Plants that Grow On/Under the Ground" or "My Diary of Peas Growing").
- label each plant (e.g. indicating their names and characteristics) for educational purposes.

2. Environmental Facilities on Campus

Using environmental facilities for the campus can reduce the consumption of resources. Schools may consider adopting the following measures when extending or renovating the campus:

- energy-efficient devices
- solar panels
- solar powered hot water supply
- water-efficient devices
- rain collection systems/containers
- grey-water recycling systems
- “green” construction materials
- recyclable collection bins
- compost system



Environmental Management

1. Environmental Policy

School management should devise an environmental policy stating its intention of and commitment to environmental protection.

The environmental policy should form an integral part of the school's education policy and should:

- state clearly the school's commitment to adopting "green" measures; and
- be strategic with an enunciation of the gist and the goal of the policy and a brief summary of the goal-oriented activities or procedures.

The environmental policy should be a simple and concise document which can be easily understood by all school members and can be readily available for perusal by parents and interested parties. It should be drafted by the school management or the teacher(s) in charge of environmental protection issues and approved by the school management.

Example of an environmental policy:

Our school is committed to the following actions:

- *adopting effective "green" measures in school operations*
- *reducing energy and water consumption to the minimum*
- *reducing waste, and reusing and recycling waste as far as possible*
- *incorporating environmental protection elements into teaching*
- *making our environmental policy and measures readily accessible to all interested parties*

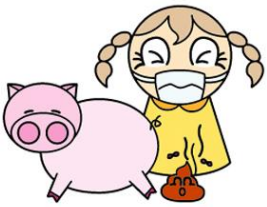
Signature _____

2. Implementing "Green" Measures

2.1. Indoor Air Quality

Common indoor air pollutants include:

- volatile organic compounds (VOCs), e.g. formaldehyde and toluene (released from furniture, cleansers, pesticides and cigarettes).
- micro-organisms, e.g. bacteria, viruses, moulds and fungus spores (caused by poor ventilation systems and air-conditioning systems, or in damp buildings).
- carbon monoxide and suspended particles released from burning things (from inside or outside the school).
- ozone (e.g. released from photocopiers) and smell (usually from outside).
- asbestos (used in old buildings and now forbidden).
- pollutants produced by insects, animals and birds (e.g. excrement, bacteria and allergens).



The following measures can be applied independently or in combination to improve indoor air quality:

A. Removal of Sources of Pollution

- Keep indoor environment clean and dry.
- Frequently clean and replace components (including pipes and filters) of the ventilation system, exhaust fans or air-conditioning systems.
- Remove and replace mouldy ceiling panels, carpets and construction materials.

- Strictly prohibit smoking.
- Store paint, adhesives, solvents and pesticides in a well-ventilated area. Buy only the required amount to avoid excessive storage. Leave new furniture in an open area for a few days or weeks before placing them indoors.
- Avoid buying products that will affect air quality, such as:
  - products generating strong odour; and
  - products releasing volatile organic compounds (VOCs), such as paint, adhesives and cleansers, etc. Choose formaldehyde-free adhesives or products bearing “green” labels.
- Keep the campus clean and maintain all facilities properly to prevent harmful insects from breeding. Avoid using pesticides.
- Frequently clear up the drains of air-conditioning system to prevent mosquitoes and other insects from breeding in stagnant water.

B. Review of Housekeeping and Maintenance Procedures

- Use pollution-inducing products during weekends or holidays only to allow sufficient time for fumes to disperse before school resumes. Keep the areas well-ventilated when using these products.
- Use cleansers with low volatility.
- Avoid using sprays, including air fresheners.
- Use water or soapy water as a cleanser.
- Use wet towels or a vacuum cleaner to remove dust. Avoid using chicken-feather dusters.
- Reduce the use of weed killers and pesticides.

C. Ventilation Improvement

- Install windows that can be opened and closed.
- Frequently clean and replace the dust filters in the air-conditioners.
- Install exhaust fans near photocopiers or computers.

D. Installation of Air-filtering or Air-purifying Systems

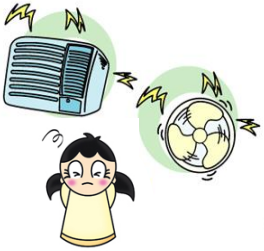
E. Staff Education

- Train up staff on the operation of the exhaust fans and air-conditioning systems to keep the machines in optimum condition.
- Train up staff on the safe and proper use of pesticides and cleansers.

2.2. Noise Control

Noise pollution is very annoying and affects the concentration of teachers and students. School management should adopt the following measures to minimise the impact of noise on classes and to protect school members from noise nuisances:

- arrange noisy renovation works to be carried out after school hours or during holidays.
- relocate noisy equipment away from the teaching areas.
- request abatement from the noise source. If no improvement is made, report the situation to the Environmental Protection Department.
- check for abnormal noises or vibrations from fans or exhaust fans.
- install sound-absorbing panels in classrooms.
- use carpets to absorb noise and reduce the possibility of students being injured.



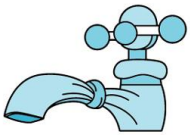
2.3. Water Conservation

Every year, Hong Kong spends a huge amount of money on treating drinking water and waste water. If we reduce our daily water consumption, we will not only save money but also cut down the amount of effluents for the protection of our inshore waters.

The following tips can help schools reduce water consumption:

- post notices reminding everybody to turn off taps after using water and to report any leaks.
- regularly check and maintain water pipes.
- adjust the main switch of water supply to reduce the water pressure, or install water-flow restrictors in taps.
- use "green" cleaning products (e.g. use vinegar as a substitute cleanser for windows and use biodegradable cleansers in washrooms).

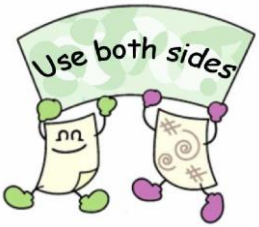
- water plants in the morning or at dusk to reduce the water evaporation rate so that re-watering can be avoided.
- adopt organic farming instead of using pesticides and chemical fertilizers.
- avoid washing fruits and vegetables or defrosting food in the running water. Use water container and change the water when necessary.
- remind students to turn off the taps when wiping their faces or brushing their teeth.



2.4. Waste Management

In Hong Kong, about 10,733 tonnes of municipal solid waste are generated each day and most of them are dumped directly into the landfills so that our usable landfills will soon be exhausted. Schools should shoulder the responsibility for educating the next generation on waste reduction. Major measures include:

- install boxes in all classrooms and offices to collect paper for reuse or for recycling.
- photocopy on both sides of paper and select size-reducing mode for photocopying.
- use shredded waste paper as fillers for packaging.
- use packaging boxes as recycling boxes or as arts-and-crafts materials for students.



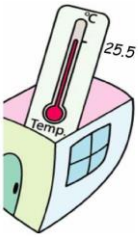
- use solar-powered electrical appliances (e.g. calculators) to reduce battery disposal.
- use rechargeable batteries instead of alkaline cells.
- use refillable cleanser containers.
- organise toys/books exchange days, or old toys and clothes recycling days.
- collect recyclable items including paper, carton, paper boxes, plastics, aluminium cans and toner cartridges.
- use recycled products (e.g. recycled paper, reusable and refillable pens/toner cartridges and paper towels).
- avoid the use of disposable bottles or cutlery.

2.5. Energy Conservation

Efficient management of resources is essential in achieving the goal of a "green" pre-school. In general, power for most schools in Hong Kong is generated by burning coal and natural gas. Both are limited natural resources and will eventually be used up. The burning process of coal and natural gas for generation of power also has a negative impact on the environment. Therefore, reduction in power consumption will not only save money, but also improve our environment. In doing so, schools can:

- review their monthly and annual power consumption by referring to their electricity bills.
- identify major sources of power consumption.
- replace the obsolete bulbs with energy-efficient bulbs or fluorescent tubes.
- turn off unnecessary lights during breaks, lunch time, overtime work and after office hours. (Label the control area of each switch for easy identification.)
- install a timer or a sensor to control the use of electric lights.
- encourage teachers and students to use natural light.

- use an electronic ballast instead of a traditional electromagnetic ballast when replacing a damaged ballast.
- use electrical appliances with energy-efficient labels (Please consult the Electrical and Mechanical Services Department for details).
- label the air-conditioning main switch and light switches to remind teachers and students to turn off electrical appliances before they leave.
- draw natural breezes from outside instead of using air-conditioning during cool days.
- keep the room temperature at 25.5℃ to reduce energy consumption.
- use blinds or curtains as shades to reduce the room temperature and the burden of the air-conditioners in summer, and draw up the blinds or curtains to let sunshine in to warm up the room temperature in winter.



2.6. Transportation

School members should choose “green” travelling to school because it can help reduce air pollution. It includes:

- joining a car pool or taking public transport.
- travelling on foot if the distance is not too far.

- implementing the “Wait Green—Engine Off” policy on school buses or vans, and posting notices or labels inside the vehicles and outside the campus.
- wherever possible, re-positioning the parking spaces in the school to avoid students and school members being affected by vehicle exhaust.
- using school buses or vans that use liquid petroleum gas (LPG) or environment-friendly engines (Euro VI).
- maintaining vehicles regularly to minimise emissions.

2.7. "Green" Purchasing

"Green" purchasing can help minimise the negative impact on the environment and utilize resources more effectively. The following are some guides for schools to determine whether products are environment-friendly:

- The manufacturing of the product uses less raw material/energy/water as certified by manufacturers.
- The raw material of the product is obtained from a sustainable source (e.g. sustainable forests) as certified by suppliers.
- The product is durable, renewable, recyclable and easy to be repaired.
- The product contains less waste (e.g. with minimum packaging or is refillable).
- The product is less toxic.

In addition, the required amount should be ordered to avoid excesses and the "first-buy-first-use" principle should be adopted to minimise the disposal of expired items. A damaged product should only be discarded when it is beyond repair.

Choices of "Green" Products

In Hong Kong, many "green" products are available as substitutes for some materials. The following are some examples of "green" products available in Hong Kong:

Recycled paper	Paper towels/toilet paper that contain recycled materials
Environmental shopping bags	Ozone-safe correctional fluid
Biodegradable garbage bags	Food in "natural packaging" (e.g. fruit)
Biodegradable cleansers	Highly energy-efficient electrical appliances and fluorescent tubes
Low-toxicity pesticides	
Organic fertilizer	Reusable cutlery
Biodegradable lunch boxes	Furniture with recycled materials
Material with minimum packaging	Refillable pencils, pens, white board markers or highlight markers

2.8. "Green" Meals

Healthy eating habits should be nurtured during early childhood. Provision of "green" meals by schools not only provides students with a balanced diet but also teaches them to cultivate good environmental habits at home. Schools may:

- ask students to bring their own containers, water bottles/cups, handkerchiefs, etc.
- use reusable/recycled containers and cutlery.

- avoid stocking a large amount of food.
- wash food thoroughly, remember less salt, less fat, less sugar and plenty of fibre when selecting foods and cooking. For example, oatmeal or rice noodles in light soup is healthier than stir-fried spaghetti. Cereals and vegetables are preferable in meals.
- choose more fresh ingredients and organic foods.
- remind food suppliers of the “green” meal requirements and request them to provide reusable containers and cutlery.
- use a biodegradable cleanser to wash cutlery.
- use handkerchiefs, cleaning cloths and reusable table cloths instead of paper towels.
- teach students to wash their hands before having meals, especially after touching animals.

"Green" Pre-schools Self-Assessment

The first part of this Guide introduces essential elements of a "green" pre-school. After you have acquired a good understanding of these elements, you may use the attached "Self-Assessment Form" to review the environmental protection work currently underway in your school. You only need to take a few minutes to complete the form. Please begin and follow the steps below!

Step 1: Give scores for each question in the "Self-Assessment Form".

Step 2: Questions are grouped under 4 categories, namely:

(1) Environmental Infrastructure,
(2) Environmental Management,
(3) Environmental Education, and
(4) Parents' Participation in Environmental Activities.

Please add up the total scores in each category.

Step 3: Use the formula in the score sheet to calculate the scores in each category.

Step 4: Add up the scores of all the categories to see how "green" your school is.

According to the assessment result, schools may formulate a plan for the green pre-school, implement the plan step-by-step and monitor the progress with a view to the goal of sustainable development.

The Environment Protection Department and the Hong Kong Productivity Council would like to express special thanks to the Kindergarten Sub-Working Group of the Environmental Campaign Committee, Dr. C.S. Man and the Education University of Hong Kong for their valuable and professional opinions on this Assessment Form.

To : Environmental Campaign Committee Secretariat
(Attn. : Assistant Secretary (Community Relations) 2)
(Email : schools@epd.gov.hk Fax : 2827 8138)

(Please complete and return the self-assessment form and score sheet to the ECC Secretariat by email or by fax on or before 17 January 2020 (Friday).)

School Information	
School Name	
School Address	
Telephone No.	
Fax No.	
Email Address	
Hong Kong Green School Award Working Team Members of the School	
Teacher-in-charge cum Contact Person	Name: Position: Contact No.: Email Address:
Alternative Contact Person	Name: Position: Contact No.: Email Address:
Other Members	Name: Position:
	Name: Position:
	Name: Position:
	Name: Position:
	Name: Position:

1. Self-Assessment Form

None - 0 Fair – 1 Good - 2 Excellent - 3

* Please provide reasons in the "Remarks" for the score "0" or "3".

Questions	Scores				
	0	1	2	3	N/A
(1) Environmental Infrastructure (20%)					
1. Campus Greening					
A. Opinions from the parties concerned are collected on the objectives and the action steps for the campus greening with achievements and results are publicised.					
B. All plants are labelled (e.g. their names, dates of planting and brief descriptions of their characteristics, etc.) for educational purposes.					
C. A plot is developed for practice of organic farming.					
Remarks * :					
2. Environmental Corner / Bulletin Board					
A. A corner and a bulletin board are established to provide information on environmental activities in the school and the local community.					
Remarks * :					
3. Environmental Facilities on Campus					
A. Facilities for energy conservation, water conversation and waste recycling are installed.					
B. Classrooms and offices are kept clean.					
C. Washrooms are kept clean and odourless.					
Remarks * :					

(1) Environmental Infrastructure Total Scores: _____ marks

No. of Relevant Questions: _____ (max. 7 questions)

Questions	Scores				
	0	1	2	3	N/A
(2) Environmental Management (20%)					
4. Environmental Policy					
A. A clear environmental policy is formulated and made known to parents.					
Remarks * :					
5. Implementing "Green" Measures					
A. Air Quality					
I. Sources of pollution are removed with the best endeavour.					
II. Good housekeeping methods such as using wet cloth and vacuum machine are adopted.					
III. Ventilation system is improved.					
IV. Air-filtering or air-purifying systems are installed.					
V. Staff are educated on the correct air quality management.					
Remarks * :					
B. Noise Control					
I. Appropriate measures are devised to guard against noise nuisances from inside and outside of the school.					
Remarks * :					
C. Water Conservation					
I. Guidelines on water conservation are formulated.					
II. The water conservation measures adopted by school yield significant results[#].					
Remarks * :					

[#]Schools may use the "Resource Consumption" excel file downloadable at the Schools Go Green website (https://school.ecc.org.hk/english/highlights/highlights_1.html) to compare the water and electricity consumption, and solid waste disposal in the past two academic years (2017-18 and 2018-19), if necessary.

Questions	Scores				
	0	1	2	3	N/A
D. Waste Management					
I. Guidelines on waste reduction are formulated.					
II. Facilities for separation and recycling of waste are set up.					
III. Waste management yields significant results[#].					
Remarks * :					
E. Energy Conservation					
I. Guidelines on energy conservation are formulated.					
II. Energy-efficient devices are installed.					
III. The energy conservation plans yield significant results[#].					
Remarks * :					
[#]Schools may use the "Resource Consumption" excel file downloadable at the Schools Go Green website (https://school.ecc.org.hk/english/highlights/highlights_1.html) to compare the water and electricity consumption, and solid waste disposal in the past two academic years (2017-18 and 2018-19), if necessary..					
F. Transportation					
I. Teachers and students are encouraged to use public transport or to join car pools.					
II. School buses or school vans are requested to adopt "green" driving practices.					
Remarks * :					
G. "Green" Purchasing					
I. A "green" purchasing policy is formulated.					
II. Environment-friendly products are used.					
Remarks * :					
H. "Green" Meals					
I. "Green" eating practices are adopted (e.g. using reusable containers and cutlery).					
II. Healthy recipes are adopted in school menus.					
Remarks * :					

Questions	Scores				
	0	1	2	3	N/A
6. Review of Effectiveness of "Green" Measures					
A. A review is undertaken at least once a year to evaluate the effectiveness of the environmental measures. The results are displayed on campus.					
Remarks * :					
7. Environmental Education Training					
A. Teachers attend external environmental training courses regularly.					
Remarks * :					
8. Dissemination of Environmental Information					
A. Environmental reference materials are collected regularly. These materials and other updates of environmental news and activities are regularly disseminated in the school and the local community.					
Remarks * :					

(2) Environmental Management Total Scores: _____ marks

No. of Relevant Questions: _____ (max. 24 questions)

Questions	Scores				
	0	1	2	3	N/A
(3) Environmental Education (40%)					
9. Integration of environmental education into other disciplines of study					
A. Elements of environmental education are incorporated in learning and in relevant teaching plans.					
B. Teachers use/produce special teaching materials for environmental education.					
C. Teachers are provided with catalogues of environmental resources.					
D. School has been participating in other environmental activities organised by outside parties.					
Remarks * :					

Questions	Scores				
	0	1	2	3	N/A
10. Environmental Activities					
A. School has been organising thematic environmental activities according to the yearly plan.					
B. All teachers, students and parents participate in the environmental activities.					
C. Details of the plan, progress and evaluations of all the activities are well-recorded.					
Remarks * :					
11. Review of Effectiveness of Environmental Education					
A. An effective assessment mechanism is in place to evaluate the effectiveness of the environmental education.					
B. Environmental awareness is enhanced among teachers.					
C. Environmental awareness is enhanced among students.					
Remarks * :					

(3) Environmental Education Total Scores: _____ marks

No. of Relevant Questions: _____ (max. 10 questions)

Questions	Scores				
	0	1	2	3	N/A
(4) Parents' Participation in Environmental Activities (20%)					
A. The school has helped set up a Parent Committee for students' parents which gives suggestions and opinions on environmental education and activities.					
B. Parenting elements are often considered in organising environmental education activities. Parents are encouraged to participate.					
Remarks * :					

(4) Parents' Participation in Environmental Activities

Total Scores: _____ marks

No. of Relevant Questions: _____ (max. 2 questions)

2. Score Sheet

Calculation Method

(1) Environmental Infrastructure	$= \frac{\text{Total Scores}}{\text{No. of Relevant Questions} \times 3 \text{ marks}} \times 20 = \frac{\square}{\square \times 3} \times 20 =$	
(2) Environmental Management	$= \frac{\text{Total Scores}}{\text{No. of Relevant Questions} \times 3 \text{ marks}} \times 20 = \frac{\square}{\square \times 3} \times 20 =$	
(3) Environmental Education	$= \frac{\text{Total Scores}}{\text{No. of Relevant Questions} \times 3 \text{ marks}} \times 40 = \frac{\square}{\square \times 3} \times 40 =$	
(4) Parents' Participation in Environmental Activities	$= \frac{\text{Total Scores}}{\text{No. of Relevant Questions} \times 3 \text{ marks}} \times 20 = \frac{\square}{\square \times 3} \times 20 =$	
	Total Score	

Total Scores	Performance
76 – 100	Excellent
51 – 75	Good
26 – 50	Fair
25 or below	Immediate Improvement Required

Signature of School Head: Signature of Teacher-in-charge: School Chop:

Name of School Head: Name of Teacher-in-charge: Date: