



Education Bureau



Agriculture, Fisheries and
Conservation Department

Countryside Adventure

Learning Activity Resource Package
Education Bureau

Teacher's Guide



VII Activity Plans

Activity Area: A. Field Crops

Activity 1 : I am a Little Farmer

Activity 2 : Protect the Little Plants



A. Field Crops

Activities "I am a Little Farmer" and "Protect the Little Plants" can be conducted in this area.

Area Introduction

- Field Crops is located in the valley of the AFCD Lions Nature Education Centre. Seasonal crops such as legumes, aquatic crops, melons, Chinese radish, garlic, chives and leeks, roots and tubers, eggplant & fruit and short-term leafy vegetables (with growing period for 30-40 days). Crop rotation practice will be adopted for each growing season. Children can observe, compare and contrast different

plants such as yam (Tuber type), lettuce (leafy type) and tomato (eggplant & fruit type), and experience the work of a farmer through operating the tools, to understand the growing conditions of crops and the procedures in farming.

Safety Precautions

- Teachers should pay attention to children's use of tools and remind them to give due regard to safety.



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|--------------------------|------------------|
| A Geopark Visitor Centre | E Insectarium |
| B Fisheries Hall | F Rock Classroom |
| C Agriculture Hall | G Rock Academy |
| D Shell House | |

- When children are using the tools, teachers should remind them to place the tools carefully to prevent children from stepping on the tools which may cause tripping hazards.
- When children are using the long and short bamboo rods to build the nets, teachers should remind them not to use the rods to point at themselves or others.
- Beware of uneven ground.

Design Rationale

- Children in Hong Kong do not have much opportunity to get close to the fields and countryside, they may not know the farming methods and the source of food. At Field Crops, children can learn about the crops' (or plants') growing conditions; experience the farming procedures; and understand the close relationship between the nature and human life, so as to bring forth the message of loving the nature and cultivate the attitude towards treasuring the food.
- In the first activity "I'm a Little Farmer", children gain a preliminary understanding of the growing conditions of crops (or plants) through plowing and watering the soil. Science activities for children allow them to freely explore, discover problems and try to find out the answers on their own through predictions, hypothesis and experiments. Therefore, this activity not

only allows children to have first-hand experience, but also proactive explorations, predictions and experiments.

- In the second activity "Protect the Little Plants", children can further experience the work of farmers and understand that besides sowing, planting and watering, farmers also have to protect crops from damage caused by pests and other animals. Children love role-play and constructive play activities. In this activity, children will cooperate to build a protection net, which enables them to demonstrate their creativity and team spirit. The purpose of building a protection net is not only for repelling pests, it is also a physical precaution to prevent animals like boars or birds from eating the crops.

Teaching Skills

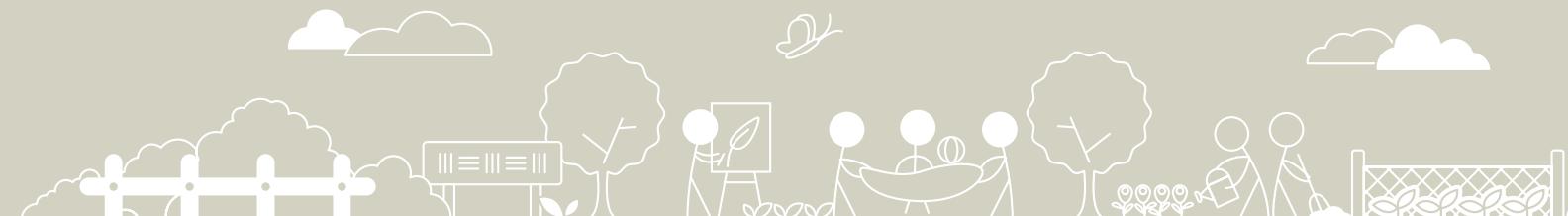
- Teachers should be open-minded and encourage children to freely explore, self-discover, and solve problems during the activity. Teachers should let children guess or share how to use the tools. They should avoid too much demonstration which will stifle children's thinking.
- During free exploration/construction, teachers should observe children's performance to provide appropriate assistance and guidance; yet avoid dominating children's exploration.

- Prior to the activity, teachers are encouraged to discuss with children about what kind of tools to bring to the field for plowing the soil, which will foster children's interest and commitment. As for K3 children, teachers may discuss and construct concept maps with them to grasp their prior knowledge. Teachers may invite them to prepare and bring a tool for plowing the soil.
- Under safe conditions, teachers should let children freely choose the tools and methods to water and plow the soil. Children should not be asked to use the tools provided only, for example, they may use their own bottles or hands for watering or their own tools for plowing. However, teachers should avoid using the disposable plastic bottles and cups in order to instill the concept of reducing waste source and recycling for environmental protection.
- While inviting children to observe and share the characteristics of various farming tools, they may have other interesting discoveries, such as an inverted reflection in water. Teachers may explore the topic with children in a flexible manner, they may also jot down the questions for further sharing at school.
- To avoid domination, teachers should let children freely suggest and test different methods in building nets.
- The "Agriculture Hall" in the AFCD Lions Nature Education Centre displays animal and crop specimens, and organic produces. Teachers may use other facilities in the Centre flexibly as a reference for teaching.
- According to actual situations and children's interests, teachers may conduct extended activities at school.

Activity 2: Protect the Little Plants



Proposed Class Level	K1
Name of Area	Field Crops
Proposed Number of Participants	6 people in a group
Duration	Around 30 minutes
Teaching Aids/ Materials	<p>Free loan from AFCD Lions Nature Education Centre through advance registration:</p> <ul style="list-style-type: none">Tools for building nets, such as long and short bamboo rods, nets, clips and strings <p>Prepared by teachers:</p> <ul style="list-style-type: none">Plastic tapes / rubber bands
Children's Developmental Characteristics 3-4 years old	<ul style="list-style-type: none">Enjoy construction playAble to take turns to use the materials with teacher's assistance
Proposed Learning Objectives	<p>[Knowledge] Children are able to understand the function of protection nets</p> <p>[Skill] Children are able to build protection nets with assistance</p> <p>[Attitude] Children are able to care for plants</p>
Focus of Activity	Enable children to build protection nets with assistance to protect the plants.
Proposed Activity Plan (Procedures)	<p>Introduction</p> <ul style="list-style-type: none">Teacher leads children to Field Crops to observe the crops and asks them: What do you see?



- Some crops are under the nets, teacher asks children: Why are crops covered by nets? Teacher may invite them to observe the nets and netting frames. Children may also touch the nets.

Process

- Teacher invites children to build a protection net together.
- Teacher shows them different construction tools (such as various lengths of bamboo rods and supporting stands), and invites them to explore ways of construction and try to build and secure the netting frame.
- If children cannot successfully secure the frame, teacher can provide demonstration and assistance.
- Then teacher and children can place a net over the frame together, and use clips to fix the net on the frame.
- Teacher can let them smell the scent from Spearmint.
- Teacher summarises that the smell of lemongrass and Spearmint are natural insect repellents. Therefore, we can reduce the use of pesticides or chemical insecticides.

Conclusion (Sharing)

Teacher revises with children on how to protect plants and brings out the message that when we protect plants, we also need to protect the nature. Meanwhile, we should treasure insects as some of them play an important role in pollination and maintaining ecological balance.

Possible Adjustments Reference Questions for Teachers (Select questions according to circumstances and in line with the proposed learning objectives)	Children may encounter difficulty in building the netting frames, yet the experience is more important than result. Teachers can provide assistance when needed. According to children's prior knowledge and skills on the activity, teacher guides them in thinking and questioning gradually and progressively.
	<u>Before the Activity</u> <ul style="list-style-type: none">• Why are there some nets covering crops? <u>During the Activity</u> <ul style="list-style-type: none">• How can we secure the netting frames?• Why do some crops need to be covered by nets and some don't?• What is the smell of Spearmint? <u>After the Activity</u> <ul style="list-style-type: none">• What have we done today? Do you like it?• Why do we need to build nets?



Extended Activities Based on the rationale of this activity, teachers may develop other extended activities to fit into the themes of the school-based curriculum, for example:

Activity 1

Science activities for children may integrate with different learning domains (such as art activity) to consolidate learning. While sharing on how to protect plants, children may mention scarecrows can keep birds away from crops. Teachers can make little scarecrow puppets with children to decorate small pot plants at school.

Activity 2

Teachers can make mosquito-repellent sachets with children by putting lemongrass, dried orange peel or lemon peel into small cloth bags. Children can decorate the small bags with drawing.

Supplementary Information for Teachers

AFCD Lions Nature Education Centre will plant seasonal crops with different varieties from time to time. Children may enquire further why there are different crops planted in the fields, how this diversified planting strategy can control the impact of pests and what the other benefits are, teachers may refer to the following information, but not required for teaching.

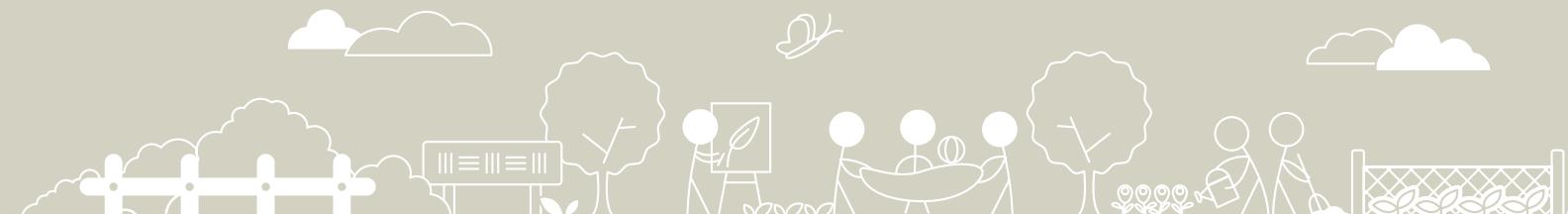
Seasonal Planting

Strategically adjust crop planting schedules to avoid the likelihood of a serious infestation. For example, larva likes to eat the brassica plants. In summer, avoid planting brassica plants such as choy sum, but planting melons instead.

Besides seasonal planting, there are crop rotation and alternate planting.

Besides, children learn not only how to protect crops, but also the roles of insects in the nature, for example:

- *Larva or caterpillar eats vegetable leaves, but the adult butterfly and moth help pollinate crops.*
 - *Aphid sucks juice from crops; ladybug is farmers' good helper as it preys on aphid.*
 - *Dragonfly is also farmers' good helper as it preys on insects which can control the pests on crops.*
 - *With the help of these beneficial insects, the natural enemies of pests, use of chemical pesticides can be avoided, thus these farmers' good helpers can be conserved.*
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Proposed Class Level

K2

Name of Area Field Crops

Proposed Number of Participants 6-8 people in a group

Duration Around 30-45 minutes

Teaching Aids/ Materials Free loan from AFCD Lions Nature Education Centre through advance registration:

- Tools for building nets, such as long and short bamboo rods, nets, clips and strings

Prepared by teachers:

- Plastic tapes / rubber bands

Children's Developmental Characteristics
4-5 years old

- Enjoy construction play, able to engage in games which require cooperation with peers
- Able to show empathy to surroundings and willing to take care of small animals and plants

Proposed Learning Objectives

[Knowledge] Children are able to understand preliminarily various ways of protecting plants

[Skill] Children are able to build protection nets with peers

[Attitude] Children are able to care for plants and insects

Focus of Activity Enable children to design the netting frame for protection nets and solve problems with peers, and to know there are natural ways to expel pests.

Proposed Activity Plan
(Procedures)

Introduction

- Teacher invites children to observe different crops and asks them: What is the function of using nets to cover crops? (Children may share freely)
- Based on children's sharing, teacher tells children the nets are used to protect plants.

Process

- Teacher invites children to cooperate with one another to build a protection net.

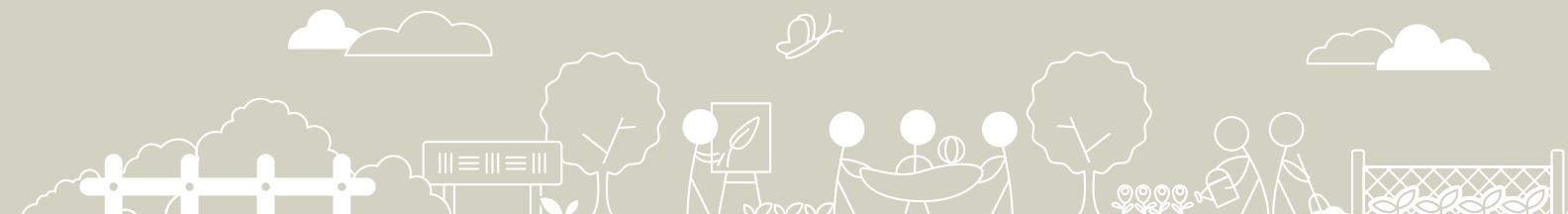


- Teacher shows them different construction tools (such as various lengths of bamboo rods and supporting stands), guides them to think and share about the steps of building a net. Teacher invites them to freely design, then build and secure the netting frame. Teacher should not restrict their ways of construction.
- Children should be able to design a protection net by themselves. Yet teacher should observe their work and provide assistance if needed.
- Then teacher invites them to place a net over the frame together, and think about how to fix the net on the frame.
- Teacher can show them the crops not covered by protection nets. Children may see the labels of plants such as Mint, Perilla and Pepper, etc., and know that smells can expel pests.
- Teacher can let them get close to touch and smell the herbs, and find that we can use natural ways to expel pests, so as to reduce the use of pesticides and chemical insecticides.

Conclusion (Discussion and Sharing)

Teacher revises and shares with children about ways of protecting plants and natural ways of expelling pests to protect the nature. Meanwhile, we should treasure insects as they play an important role in pollination and maintaining biological balance.

Possible Adjustments	Children may not be used to cooperating with peers, teachers can guide them to listen to peers' opinions and express their own views.
Reference Questions for Teachers (Select questions according to circumstances and in line with the proposed learning objectives)	<p>According to children's prior knowledge and skills on the activity, teacher guides them in thinking and questioning gradually and progressively.</p> <p><u>Before the Activity</u></p> <ul style="list-style-type: none">• What did you see in Field Crops?• What are the functions of the nets? <p><u>During the Activity</u></p> <ul style="list-style-type: none">• What do we need to build before covering with nets?• How can we build and secure the netting frame?• Can nets be blown away? How can we fix the net on the frame?• Why do some crops need to be covered by nets and some don't?• For those plants not covered by nets, what do they have in common?• What is the smell of Spearmint? <p><u>After the Activity</u></p> <ul style="list-style-type: none">• What else can we do to protect plants?



Extended Activities Based on the rationale of this activity, teachers may develop other extended activities to fit into the themes of school-based curriculum, for example:

Activity 1

While sharing on how to protect plants, children may mention scarecrows can keep birds away from crops. Science activities for children can also integrate with different learning domains (such as art activity) to consolidate learning. Teachers can make little scarecrow puppets with children to decorate the small pot plants at school.

Activity 2

Teachers can make mosquito-repellent sachets with children by putting lemongrass, dried orange peel or lemon peel into small cloth bags. Children can decorate the small bags with drawing.

Supplementary Information for Teachers

AFCD Lions Nature Education Centre will plant seasonal crops with different varieties from time to time. Children may enquire further why there are different crops planted in the fields, how this diversified planting strategy can control the impact of pests and what the other benefits are, teachers may refer to the following information, but not required for teaching

Seasonal Planting

Strategically adjust crop planting schedules to avoid the likelihood of a serious infestation. For example, larva likes to eat the brassica plants. In summer, avoid planting brassica plants such as choy sum, but planting melons instead.

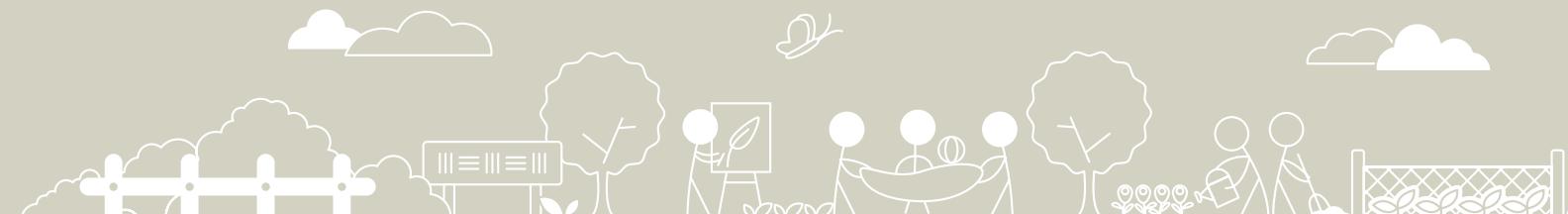
Besides seasonal planting, there are rotation planting and alternate planting.

Besides, children learn not only how to protect crops, but also the roles of insects in the nature, for example:

- *Larva or caterpillar eats vegetable leaves, but the adult butterfly and moth help pollinate crops.*
 - *Aphid sucks juice from crops; ladybug is farmers' good helper as it preys on aphid.*
 - *Dragonfly is also farmers' good helper as it preys on insects which can control the pests on crops.*
 - *With the help of these beneficial insects, the natural enemies of pests, use of chemical pesticides can be avoided, thus these farmers' good helpers can be conserved.*
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Proposed Class Level	K3
Name of Area	Field Crops
Proposed Number of Participants	8 people in a group
Duration	Around 30-45 minutes
Teaching Aids/ Materials	<p>Free loan from AFCD Lions Nature Education Centre through advance registration:</p> <ul style="list-style-type: none">Tools for building nets, such as long and short bamboo rods, nets, clips and strings <p>Prepared by teachers:</p> <ul style="list-style-type: none">Plastic tapes / rubber bands / reusable table cloths
Children's Developmental Characteristics 5-6 years old	<ul style="list-style-type: none">Enjoy construction and cooperative playAble to complete tasks with peersAble to make simple predictions and engage in discussion
Proposed Learning Objectives	<p>[Knowledge] Children are able to understand different ways of protecting plants</p> <p>[Skill] Children are able to select appropriate materials to build protection nets with peers based on their prediction</p> <p>[Attitude] Children are able to care for the environment</p>
Focus of Activity	Enable children to design, build and secure the netting frame for protection nets and solve problems with peers, and to know there are natural ways to expel pests.
Proposed Activity Plan (Procedures)	<p>Introduction</p> <p>Teacher invites children to observe different crops. Children may be able to describe the functions of nets. Teacher can further ask them to think about why nets are needed to protect plants and if other materials can be used.</p>



Process

- Teacher invites children to cooperate with one another to build a protection net.
- Teacher shows different construction tools (such as various lengths of bamboo rods and supporting stands). Teacher guides them to have a group discussion on free design of the netting frame for the protection net, then they secure the frame. Teacher should not restrict their ways of construction.
- Then teacher shows different materials (such as net, reusable plastic table cloths, etc.) and invites them to observe the characteristics of those materials. Teacher asks them to predict the results of using those materials to cover the frame.
- Teacher can let children select different materials to cover the frame, and guide them to think, make predictions and carry out experiments. For example, plastic table cloths may hinder watering and block the plants from sunshine and air.
- Teacher can show them the crops not covered by protection nets. Children may see the labels of the crops (such as Spearmint) and work out that smells can expel pests.
- Teacher can let them get close to smell the Spearmint, and find that we can use natural ways to expel pests, so as to reduce the use of pesticides or chemical insecticides.

Conclusion (Discussion and Sharing)

Teacher can invite children to share about their prediction results and bring forth the message that we need to care for the nature. For example, we should use natural ways to expel pests on crops instead of using chemical pesticides, which in turn help us avoid consuming food contaminated with toxic pesticide residues. Meanwhile, we should treasure insects as they play an important role in pollination and maintaining ecological balance.

Possible Adjustments

Children may encounter different opinions in the process of group work. Teacher can guide them to negotiate in order to reach a consensus.



Reference Questions for Teachers

(Select questions according to circumstances and in line with the proposed learning objectives)

According to children's prior knowledge and skills on the activity, teacher guides them in thinking and questioning gradually and progressively.

Before the Activity

- Why are nets used to protect plants? Can other materials or methods be used?

During the Activity

- How can we build and secure the netting frame?
- What kind of materials should be used to cover plants? Why?
- What would happen if we used plastic table cloths to cover plants?
- For those plants not covered by nets, what do they have in common?
- Some children realise there are more than one crop in the field, why do farmers do that?

After the Activity

- Can you guess if there are other natural ways to protect plants?

Extended Activities

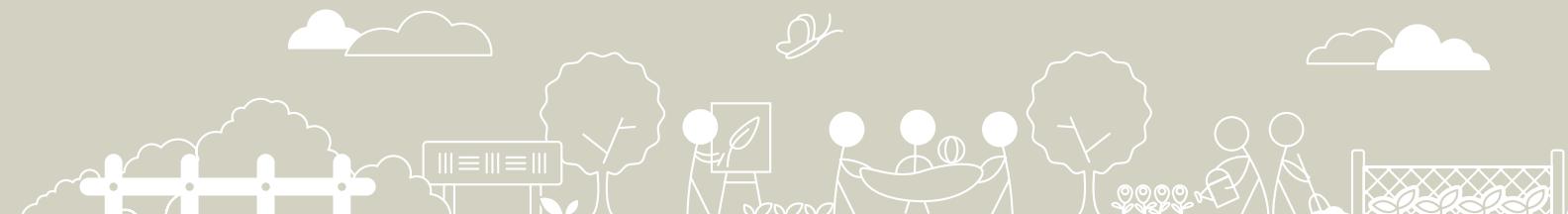
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Appendix 1

Plant Information at Field Crops of AFCD Lions Nature Education Centre

Common Perilla

Features : Leaves stained with purple, pubescent, with scent of Common Perilla
Flowering & fruiting : Flowering: Oct-Dec; fruiting: Nov-Feb
Uses : Additive (flavouring), medicinal (folklore)



Mint

Features : Leaves opposite, with scent of Mint
Flowering & fruiting : Flowering: Aug-Sep; fruiting: Oct
Uses : Material (essential oils), spice, medicinal (folklore)



Long Pepper, Bell Pepper

Features : Mature fruit usually red
Flowering & fruiting : Summer to autumn
Uses : Food (vegetable), additive (flavouring)



Lemon-grass, Citronella Grass

Features : Perennial herb, with scent of Citronella Grass
Flowering & fruiting : Nov-Apr of the following year
Uses : Material (essential oil), additive (flavouring)



Some information and pictures are provided by AFCD.