

**Subject** : Science

**Grade** : Grade 9

**Term** : 2<sup>nd</sup> Term

**Unit** :13 - Artificial environment & green concept

**Learning Outcomes** : Adjusted to cover 4.5 competency level

### 1. Artificial environment & green concept

#### Activity 1

Gradually the natural environment was replaced by man changing it according to his requirements and it is known as an artificial environment.

Study the diagrams given below and classify them as agricultural, industrial and urban environments.

Discuss the features of the above-mentioned environments with elders at your home.

1.....



2.....



3.....



4.....



5.....



6.....

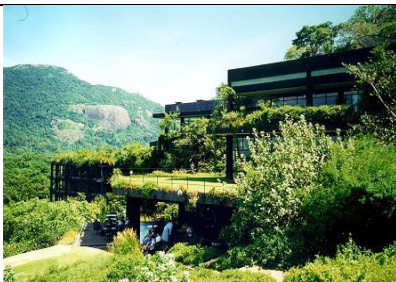


## Activity 2



Green concept means, following guidelines and policies essential for maintaining goods and services without damaging the natural environment or causing minimal damage to the natural environment on the Earth.

Let us identify the places in Sri Lanka where the green concept is utilized successfully.



Kandalama Hotel



Jeffrey Bawa garden



Green university

Below are some of the places where green concepts are being implemented in the present world. Identify them and write the ways by which it adopts the green concept.

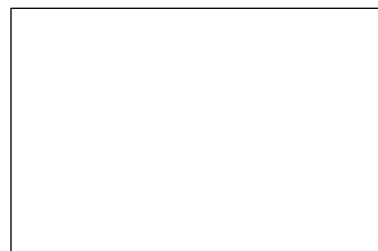
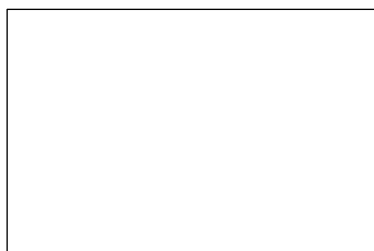
Places where the green concept is implemented	How it adopts the green concept
German parliamentary building	
Beijing national sports complex in China	
Wayne L. Morse court complex in USA	
K2 housing project in Australia	
Bud Clark Commons housing complex in USA	

### Activity 3

Several symbols have been using to express the green concept. Following symbols are some of them.

You may also create a few such symbols under the following themes.

- Increase of plant cover to appear green
- Reduction of emission of greenhouse gasses which influence global warming
- Organic farming



## 2. Agricultural process

### Activity 1

Study the textbook and identify the differences between organic and inorganic farming.

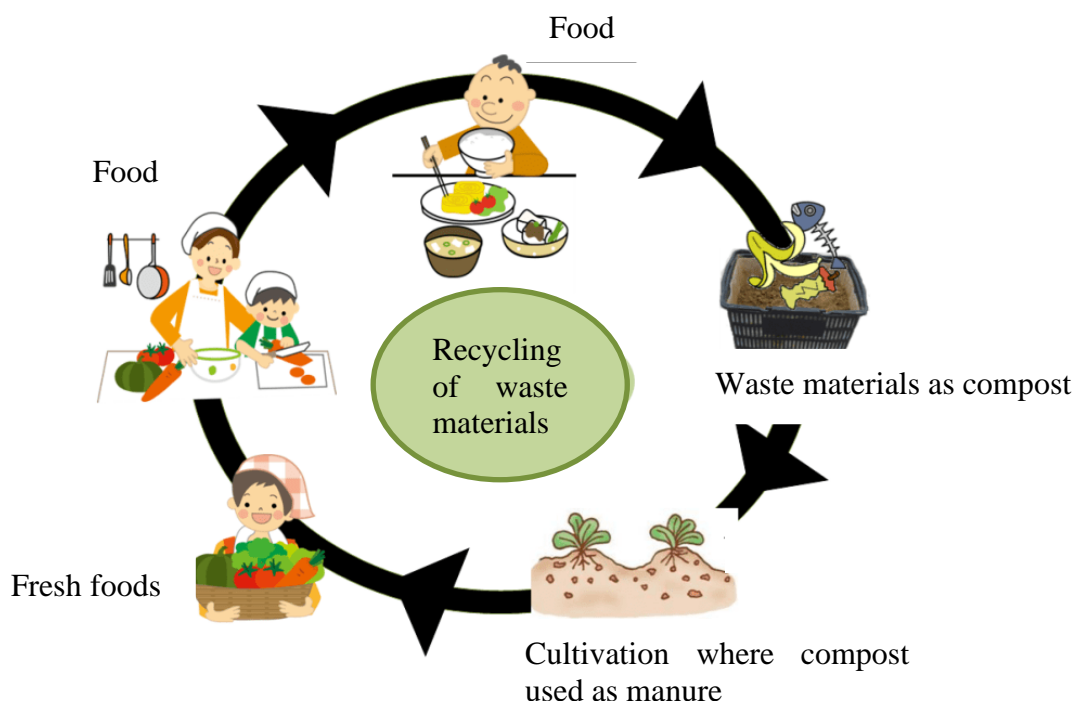
Complete the following table by comparing the differences between organic and inorganic farming.

	Organic farming	Inorganic farming
Use of fertilizers		
Pest control		
Use of planting materials		

## Activity 2

Following the given steps produce compost using the waste materials from home. Engage in organic farming by using them.

- First you have to clean and make a drainage system to drain the water.
- Then, pack the household waste and animal waste at 30cm intervals.
- If moisture is not enough, use water.
- Then, add old compost portions (20 kg for 1000kg). Then close it with a black-coloured polythene sheet/ coconut leaves allowing entry of air.
- Put water after examining after 7 days.
- Turn the compost heap after a month. ( Aid in producing under aerobic conditions )
- Decomposition could be speed up by adding old compost portions again.
- Moisture should be checked once a week and turning should be done once a month.
- Compost can be prepared once three months.

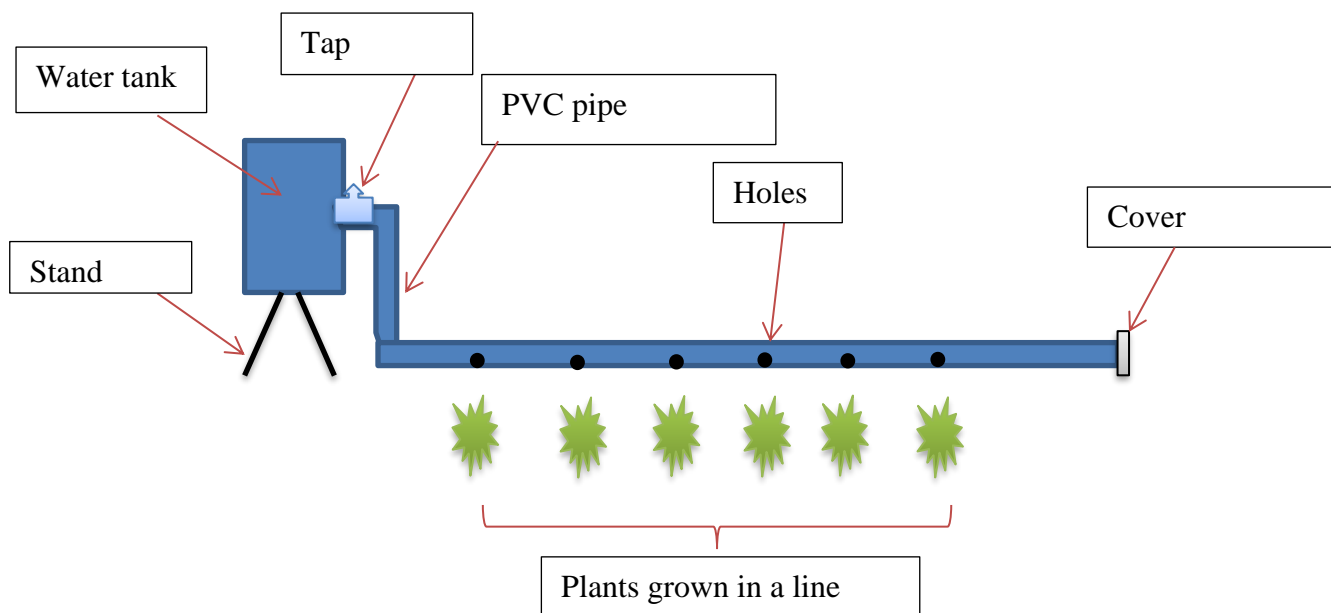


### Activity 3

Water is an important resource. We are the only nation who have used environment friendly water management system for agriculture.

Water is a limited resource. Therefore, it should be managed well for the next generation and drip irrigation is the most efficient micro-irrigation technique used today.

Let us prepare a drip irrigation system for the crops grown in the garden. Prepare the setup as shown in the figure. Open the tap and supply water to the plants.









## Activity 4

This should be done based on the land management green concept.

Following diagrams and information shows some of the most productive cultivation methods used in land management.

Identify and name them as mixed crop cultivation, crop rotation and bio-technologically improved crops.

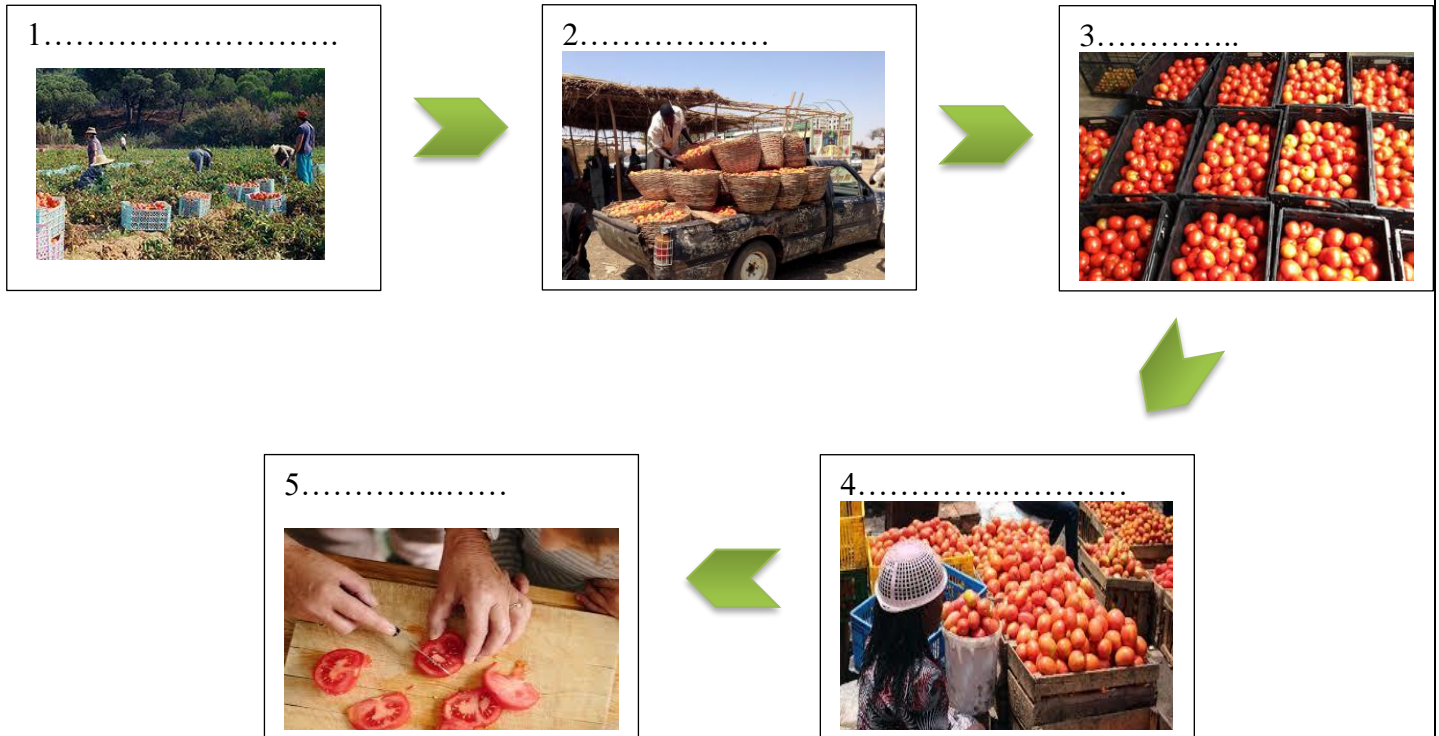
Diagram	Explanation	Crop method
	Cultivating other crops along with commercial crops like coconut	1
	Cultivating one or more crops with a main crop in the same plot of land	2
	Cultivating several crops in the same plot of land from season to season according to an order.	3
	Improving plants by using technology <ul style="list-style-type: none"><li>➤ Tolerance to draught</li><li>➤ Resistance to diseases and pests</li><li>➤ Improving the nutritive value and taste of plant products</li></ul>	4

### Activity 5

Due to the poor post-harvest technology people are deprived of consuming high-quality foods.

The damage to the harvest occurs from the plucking stage until it is consumed.

Study the following figures and identify the stages where the harvest gets damaged.



### 3. Industrial process

## Activity 1

Natural substitutes should be used instead of chemical substances.

Discuss with the elders about the natural substitutes that could be used instead of chemical substances which we use for various needs of our day-to-day life.

Mention them.

## Chemical substances

## Natural substitutes

## Food additives



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## Medicines



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## Disinfectants



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Cosmetics



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## Activity 2

A building constructed to prevent or minimize the emission of greenhouses gasses is called a green building.

Mention the factors that should be considered when constructing a green building.

[illegible]



### Activity 3

A large amount of fuel burns daily for transporting goods and passengers. Therefore, a large quantity of greenhouse gasses is emitted to the atmosphere.

Mode of transport that reduces the emission of greenhouse gasses are known as green transportation.

Use arrows to show the ascending and descending order of emission of greenhouse gasses.



### Activity 4

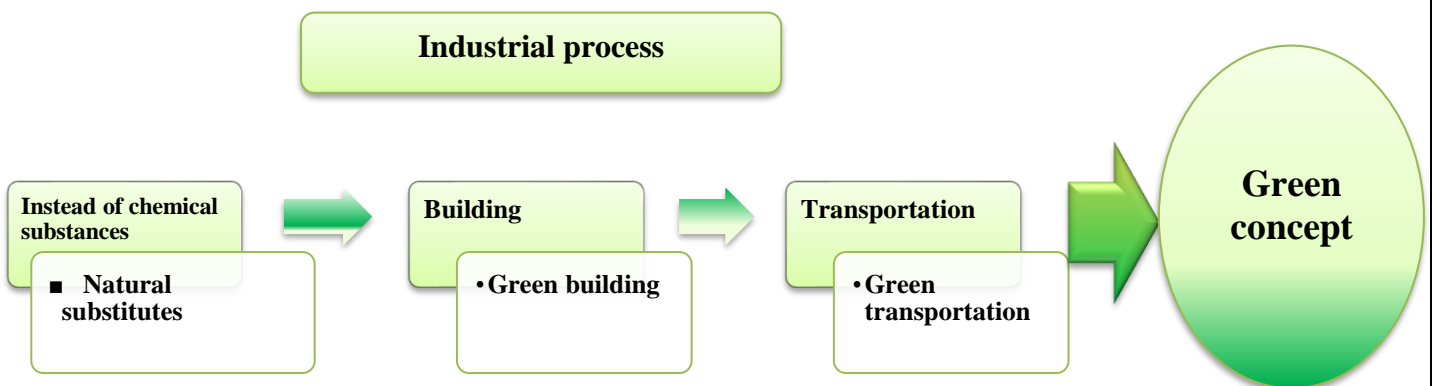
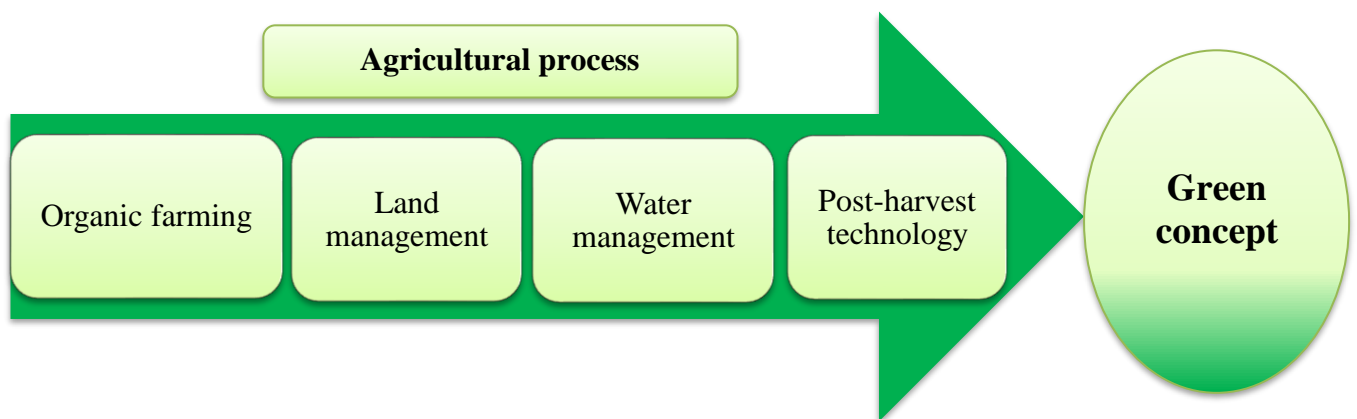
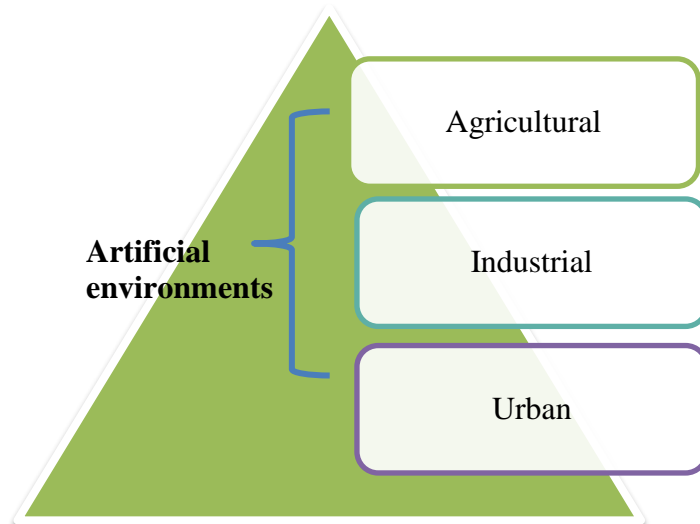
The distance over which a food item is transported during the journey from producer to consumer is known as food mile.

Arrange the following foods in order of increasing the food mile.

Obtain an idea on food mile by examining the labels of the foods borrowed to home.



## Summary



### **Exercises**

1. What is known as green concept?
2. What is organic farming?
3. What are the materials that can be used to make compost?
4. Name a few greenhouse gasses.
5. What are the factors to be considered when constructing green buildings?

**Translated by: Nayomi Wijesooriya**