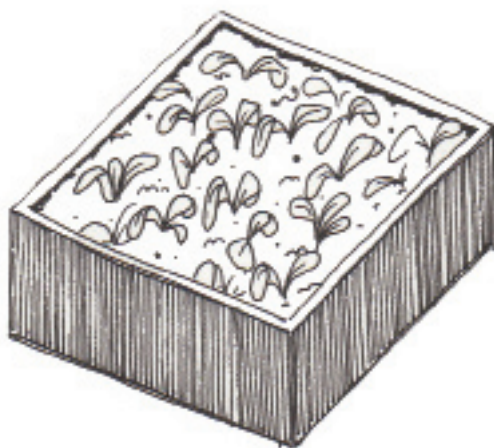
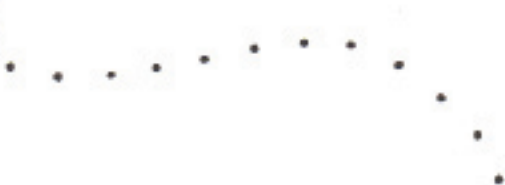


# The Edible Campus



Josephine Howes

## Introduction to the Edible Campus

The availability of fossil fuels is declining as the world's population increases every year. Peak oil, which refers to half the world's oil being used, is imminent and consequently towns need to adapt to become less reliant on oil. It is therefore necessary to think about alternative ways of living and changing old habits, making a transition into a greener society.



As part of the level 5 extension studies, I am taking part in a scheme called 'the edible campus'. The project focuses on sustainability, particularly the issue of food production, which is the main user of energy in this country. The proposal underlines the need for communities to become more self sufficient and less reliant on importing foods, thus introducing agriculture into towns and cities known as 'urban agriculture'. The success of the project heavily relies on community involvement and commitment.

Previously new to growing, the experience proved to be an exciting challenge. I was able to make my own choices as to what was grown in my planter and how I sourced this produce. It was my responsibility to ensure the planter received enough water and that weeding was kept on top of. This evidently entailed successes and failures. Nevertheless over the course of the project I discovered the benefits of organic growing, sustainable permaculture and creating the perfect compost.

I began growing vegetables at home to see if it was possible to create produce within my living space indoors.

My eyes were opened to certain ecological problems such as the oil crisis and abuse of the world's soil due to modern agriculture methods and deforestation.

To ensure this project is sustainable and ongoing, it requires continuous attention, for example over the summer.

This diary will record the growing at the Grand parade site and at home as well as bits of knowledge learnt along the way!



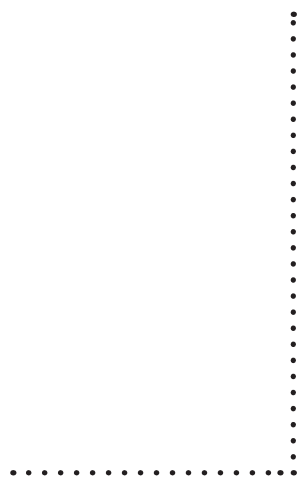
## The Power Of the Community: How Cuba survived peak oil

Cuba's response to its economic crisis in the early 90's presents itself as an example to the rest of the world. 70% of Cuban export stopped following the end of the Soviet Union and therefore the country was forced to make itself self sufficient to avoid starvation. I was shown a documentary called 'The Power of the Community: How Cuba survived peak oil'. This film helped me fully understand the purpose and need for the 'edible campus'.

The lack of Cuban trade in 'the special period' meant that oil and imported foods were becoming scarce. Generally, the main users of oil are households, transport and food production, the latter being the primary consumer. With no help from the rest of the world, Cuba began to develop its own sustainable methods, seeing a major change of life. Communities slowly began growing their own food on any available land: Gardens, disused green areas, balconies etc. Havana currently supplies 90% of its own fresh produce. Cuban Farmers became many of the richest people in the country. Communities developed into independent and condensed areas as public transport became inadequate due to the lack of oil. People travelled huge distances less, instead opting to ride a bike or working locally. The methods of farming were also adjusted as tractors were expensive and unreliable to run due to their fuel and the availability of replacement parts. Farmers were trained to use oxen, creating less soil compaction. They were also discouraged from using pesticides, generating healthier soil, alternatively using organic methods such as soil bacteria, insects, and crop rotation managing pests and increasing productivity.



Cuban Community Garden



## Growing food at Grand Parade

The intention is to grow various vegetables, fruits and herbs to supply the Grand Parade Brighton University cafeteria. There are currently several planters located in an outdoor seating area at the site. The planters themselves were constructed from a tree sourced from the local area. The planters are approximately 1 m squared and 300 mm deep. Choosing not to rely on chemicals, the seeds and soil will be organic. The soil in the planters has already been used for 2 years of previous food growing. Good quality soil is rich in nutrients and bacteria. Organic growing year after year will make the soil increasingly healthier. On the other hand fertilisers will destroy the bacteria and the soil will become dependent on chemicals to be productive. Worms and beneficial insects also thrive in healthy organic soil.



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# Grand Parade Edible Campus 1st March



Planters on the Grand Parade roof top



## Grand Parade Edible Campus 8th March: Seasonal Planting

It is necessary to determine which fruit and vegetables are suitable to be sown outside and inside depending on the season or month.

Beginning the Edible campus project in March, only certain seeds would be able to withstand the cold weather.

MARCH outside growing suitable for:

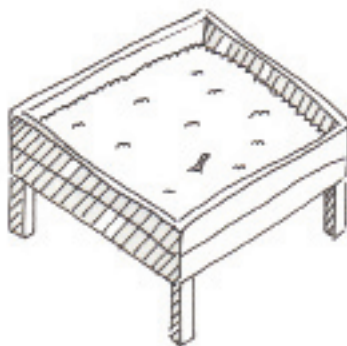
Broad beans, cabbage, carrots, onions, parsnip, peas, radish, spinach and turnips.

8th March: Consequently the group started by sowing carrots and spinach seeds in several of the planters after removing old weeds and cultivating. The planters were covered with a sheet of clear plastic to shield them from the elements.

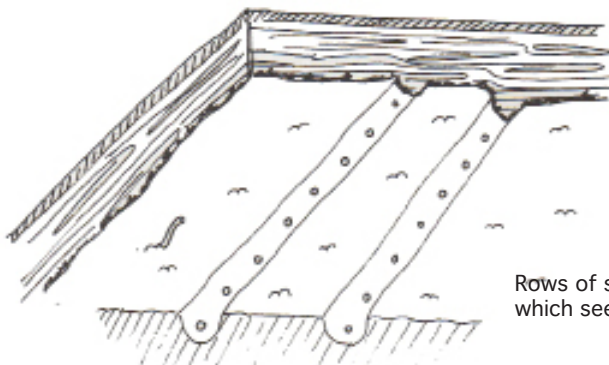
On the other hand, some seeds are suitable to be sown indoors or in a greenhouse.

MARCH inside growing suitable for:

Aubergine, peppers and tomatoes.



Wooden planter filled with organic soil



Rows of small grooves in the soil in which seeds are placed.



## Growing food indoors 8th March

Previously new to gardening, I decided to try and grow some food in my flat. Initially, I purchased a small propagator for my windowsill. I also managed to find a bag of organic soil and some organic tomato and pepper seeds.

The propagator was filled to the top with soil. After ensuring the soil was moist, the tomato and pepper seeds were evenly distributed on the surface. The varieties were separated at either end of the propagator. Another thin layer of compost was sprinkled on top of the seeds. The propagator was then sprayed with a small amount of water, placed on the windowsill with the clear plastic lid.

I then waited just over a week to see the tomato seedlings beginning to germinate. The pepper seedlings took about 3 weeks to shoot.



Pepper seeds



Tomato seeds



Top Left: Seeds

Top Right: Propagator in the window sill after planting seeds

Left: Tomato seedlings beginning to germinate

Right: First leaves of the tomato seedlings- almost ready to re pot.





# Origami seed pots 15th March

Step by step method of creating seed pot from newspaper:



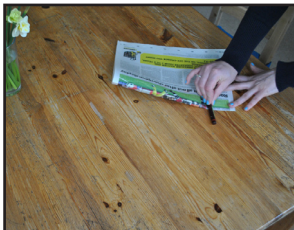
Use one sheet of newspaper,



Fold it in half,



Fold it in half again,



Flatten edges with a pen,



Fold it in half again.



Open up last fold.



With open end facing away,



Fold corners to centre



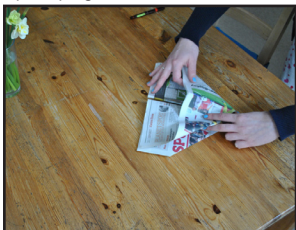
Open up right corner,



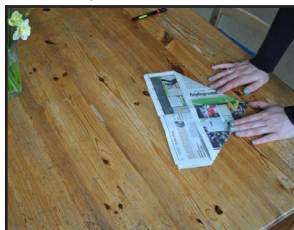
And move point to centre



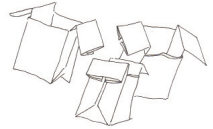
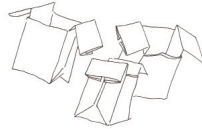
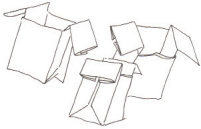
Repeat on the other side



Gap above triangle shape



Fold left side over triangle



Gap should be covered



Fold left edge to centre,



Fold over to centre again



Do the same on right side



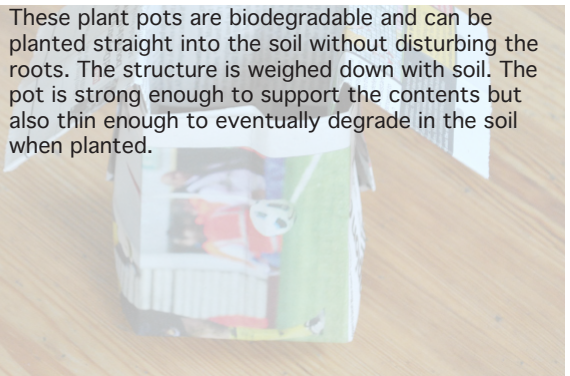
Flip over and repeat process



Fold extended interior over exterior newspaper.



Open up box and flatten bottom.



These plant pots are biodegradable and can be planted straight into the soil without disturbing the roots. The structure is weighed down with soil. The pot is strong enough to support the contents but also thin enough to eventually degrade in the soil when planted.

## The Continuous Productive Urban Landscape city: Andre Viljeon

15th March: The concept highlights the problem we face in feeding our cities when oil becomes scarce and we can no longer rely on imported food. Our cities, not only the countryside could potentially function as self sufficient productive food growing spaces. These spaces may well operate at a large scale, creating the cities infrastructure: In urban city blocks or public gardens. On the other hand, they may exist on a intimate level: personal gardens, allotments, patios, roof tops or balconies.

There are many benefits in developing our cities this way:

-It would be valuable to the environment, improving the climate.

-The spaces would be economically productive, creating jobs and becoming less reliant on importing food from other countries.

-The green areas would function socially, providing spaces for human activity and for the community to meet.

Viljeon also suggests that cities should become denser in order to become less reliant of transport. However various issues contradict this. For example, many people don't currently work their own towns or cities, and consequently travel great distances every day. Moreover dense city blocks would not receive enough light or ventilation for growing. Instead these buildings rely on electricity for light and air conditioning throughout the day which is evidently bad for the environment.

The need to preserve our soil is becoming apparent as we need it to be healthy to grow food and to control the levels of water. The availability of water is also declining. Soil is also necessary in providing habitats for many organisms. Ultimately the quality of the soil will affect the health of humans, animals and plants.

Viljeon highlights that everyone is involved with the issue of food, whether that would be growing, trading, or eating. It is important to consider this issue as the humans cannot continue living wastefully and ignoring the earth's needs. The population is steadily rising, thus increasing the demand for food.

However whilst proposing agricultural spaces for London, it becomes clear that many of the desired green spaces belong to private owners. The government therefore have no control over how the land is used. Currently, this is one major obstacle which prevents the system from working.

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The green spaces could act as an urban ornament, making the experience of being in the city more pleasurable as well as existing as productive areas.

Tom Phillips: Using recycled oil drums as garden ornaments and passive pest traps. 'Drum Flowers'



Drawing: City as a Continuous Productive Urban Landscape

## Development of indoor plants 25th March



I planted beetroot seeds directly into homemade newspaper containers. Ideally these seedlings need to be outdoors. Soon they will be planted into one of the planters at the Grand Parade site.



The pepper seedlings are kept warm and moist under propagator cover. When they are large enough, they will be moved to larger separate pots.

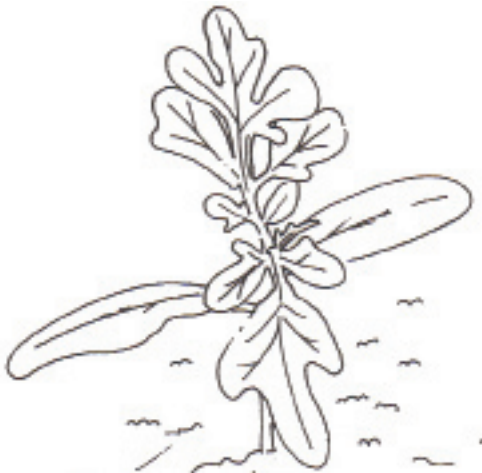


Seedlings are sprayed with water every other day to provide moisture. It is also advised to keep plants together to retain moisture levels.





Smaller newspaper pots are made to accommodate the tomato seedlings. The seedlings are ready to be re potted when the second set of leaves appear.



## Compost 29th March

Soil is a very important element in growing and vital for the environment. It helps provide the food humans consume. Too much soil has been damaged by the removal of plants and vegetation. The roots help nourish and hold together the soil. Poor farming methods, urbanisation and war are also to blame for soil erosion. Over the previous century a third of the earth's top soil has been used.

It is vital that soil is looked after in order to make healthy produce and a sustainable future.

A new system for compost has been developed for the Grand parade site. Compost is created when organic waste material is broken down. This material would otherwise end up in landfill or at a incineration plant polluting the earth. Good quality compost benefits the soil, by introducing microbes, bacteria and insects making the soil more fertile. Compost will make the soil retain water better and feed it with nutrients. Compost should be a perfect balance of components creating the correct pH. This will include food waste such as peelings as well as garden cutting waste, cardboard and straw. Egg shells will provide the compost with calcium and banana skins potassium.

How compost is made: Broken down waste material + oxygen + heat. Enough air circulation is needed to create good usable compost.

The system at Grand Parade is made from a material called 'lumber', formed with 95% recycled plastic and 5% wood fibre. The box is roughly 1 metre cubed and is easily assembled/disassembled. There is a pole running through the centre with small spikes attached to it. The pole can be rotated from the outside and consequently the spikes lift the soil inside encouraging air circulation.

The compost system:

- Minimizes manual labour
- Uses no adhesives or preservatives in construction
- Creates no waste in construction
- Is simple to assemble and use
- Is positioned on top of soil to allow worms in (breaking down the waste faster)
- Aerates the compost





## Grand Parade Edible Campus 29th March: Assignment of planter



Each group has been assigned a planter. Our planter, no. 2, already contains many spinach plants from the previous year. They currently own half of the planter. We have also planted carrot seeds which have begun to germinate on the opposite side of the planter.

Removing some of the spinach plants to make room to plant more seeds.

Collection of existing shells and bottle caps as decoration and to repel birds.



## Daily dietary intake

Over the course of one week I will be documenting the food I eat and where it comes from. This is my typical dietary intake.

### MONDAY 4.04

Breakfast:	Sainsbury's smoothie	Produced and packed in Spain.
	Sainsbury's corn flakes	Produced in the UK. Corn grown in Argentina.
	Alpro soya milk	Made in the EU.
Lunch:	Sainsburys yogurt	Made from British cows milk.
	Sainsbury's honey	Different sources, packed in the UK.
	Ryvita Philadelphia cheese	Primarily British Various sources.
Dinner	Food for friends restaurant	Locally sourced ingredients.

### TUESDAY 5.04

Breakfast:	Sainsbury's smoothie	Produced and packed in Spain.
	Sainsbury's corn flakes	Produced in the UK. Corn grown in Argentina.
	Alpro soya milk	Made in the EU.
Lunch:	Sainsburys yogurt	Made from British cows milk.
	Sainsbury's honey	Different sources, packed in the UK.
	Ryvita Philadelphia cheese	Primarily British Various sources.
Dinner	Sainsbury's ricotta and spinach pasta	Made in Italy.

WEDNESDAY 6.04

Breakfast:

Sainsbury's smoothie

Produced and packed in Spain.

Sainsbury's corn flakes

Produced in the UK. Corn grown in Argentina.  
Made in the EU.

Alpro soya milk

Lunch:

Sainsbury's yogurt

Made from British cows milk.

Sainsbury's honey

Different sources, packed in the UK.

Ryvita

Primarily British

Philadelphia cheese

Various sources.

Dinner

Cucumber

Grown in the UK

Tomatoes

Grown in Spain

Spring onions

Grown in Mexico

Feta cheese

Produced in Denmark

Bread

Made in the UK

THURSDAY 7.04

Breakfast:

Sainsbury's corn flakes

Produced in the UK. Corn grown in Argentina.

Alpro soya milk

Made in the EU.

Lunch:

Sainsbury's ricotta and spinach pasta

Made in Italy

Dinner

Bread

Made in the UK

Tesco's Baked beans

Produced in Italy

FRIDAY 8.04 Breakfast:	Sainsbury's smoothie	Produced and packed in Spain.
	Sainsbury's corn flakes	Produced in the UK. Corn grown in Argentina.
Lunch:	Alpro soya milk	Made in the EU.
	Sainsburys yogurt	Made from British cows milk.
	Bread	British
	Cheese	Made from British cows milk
Dinner	Pasta	Made in Italy
	Tinned tomatoes	Made in Italy
	Garlic	From Spain
	Basil	British
	Parsley	From Spain
SATURDAY 9.04 Breakfast:	Bread	British
	Cheese	Made from British cows milk
Lunch:	Bread	British
	Cheese	Made from British cows milk
Dinner	Sausages	British
	Potatoes	British
SUNDAY 10.04 Breakfast:	Innocent smoothie	Different sources
	Sainsbury's corn flakes	Produced in the UK. Corn grown in Argentina.
Lunch:	Alpro soya milk	Made in the EU.
	Sainsburys yogurt	Made from British cows milk.
	Bread	British
	Cheese	Made from British cows milk
Dinner	Potatoes	British
	minced beef carrots	British

# Origins of groceries



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 Sainsbury's Supermarkets Ltd  
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Fast Track	
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EXTRA PRINTS	X 2
ENGLISH HOTBALLS	
35 BREADSTICKS	
35 LUK FRUIT MIXLI	£3.99
100FRESH COLOUM	£0.78
35 HAMBURG	£1.29
80GUS OPRD TIMAGIES	£4.08
35 GARNI FLAKES	£0.50
35 GARNI THAMES	£1.02
100LA HOPPO X7	£0.50
100LA HOPPO X7	£1.29
WEST NINE OIED K7	£1.29
A LA STEAM KINNE	£1.00
80GUS OPRD WHI MED	£4.00
35 SLEED BURLINES	£1.25
DE CESSI MUSLI	£0.55
35 WHOLE MILK	£0.70
80GUS MOZZARELLA	£1.40
80GUS SPECIAL BUTTON	£1.29
CAROTTI LEISE	£0.47
0.260 KG #	£1.35
NO. 70/ KG	
NO. 20	

Food miles: the cost of importing food from other countries.. Air travel makes a significant contribution to CO2 emissions and environmental problems. Supermarket chains can offer cheap prices for imported goods discouraging people from buying local produce. We now expect to be able to buy any type of fruit or vegetable from any part of the world on sale all year round. It is perhaps wrong to consider 'organic' produce flown in from another country as green due to the amount of energy used to transport it.

My shopping bill suggests that many items are produced or grown elsewhere. These products could be easily grown or made locally.

## Development of indoor plants 26th April



7 weeks after sowing the tomato and pepper seeds, the plants were ready to be moved to larger containers. The paper pots with the plant were soaked in water to encourage the newspaper to disintegrate when in the soil.



The plants were moved into various sized plastic and terracotta pots. Each plant has its own pot giving it enough room for rooting. The large terracotta pots may be especially useful for when or if the tomatoes grow tall.



Terracotta pots placed close to the window- Mixture of pepper and tomato plants.

## Grand Parade Edible Campus 3rd May



The spinach in our planter shot up whilst the weather had been warm. Due to its age, the plant had begun to seed. Many of the plants were also being attacked by a parasite, apparent by the discolouration of the leaves.



The carrots were about 5 cm high. Nevertheless it was quite clear they were unnecessarily dispersed about the planter. These could of been planted round the edge for example.



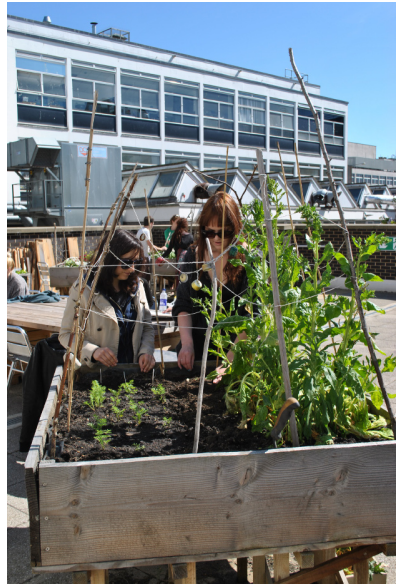
We were advised to plant a type of onion species close to the carrots as this would attract carrot fly. This is called 'Companion planting': A way of encouraging the growth of one plant by sowing the seeds of another plant which will attract beneficial insects/nutrients/bacteria.



The lonely beetroot plant original sown indoors at home. The remaining beetroot seedlings were unsuccessful. This one was taken to Grand parade and planted into our planter.



Planting the beetroot newspaper pot directly into the soil.



One spinach remains in the planter so seeds will fall onto the surrounding soil. This is an example of sustainable permaculture.

Dispersed carrots growing on one side of the planter

One beetroot in newspaper pot planted straight in the soil



## Grand Parade Edible Campus 10th May



Small organic strawberry plants were purchased to be planted in the planter. This would add to the variety of produce. The three plants were already beginning to flower and produce fruit.





The carrots continue to grow larger



Strawberries flowering

A couple of tomato plants from the batch grown indoors have been introduced to the soil. This will test their resistance to the outdoor climate.



## Qualities of soil 10th May

Bedrock will determine the type of soil in the area. For example, in Sussex, there is an abundance of chalk and therefore the top soil is dry, containing lots of sand and allows water to run straight through. However towards London the bedrock contains substantial amounts of clay. Clay benefits from containing nutrients but becomes inadequate for growing when it is too wet or too dry due to the texture. The perfect quality of soil is in fact a balance of both of these types.

Modern agriculture has ignored the condition of soil and is instead heavily reliant on pesticides and 'digging' with machinery. This is not a long term solution, and decreases the soil fertility over time.

Soil should contain a good amount of nitrogen (for healthy leaves), phosphorous (for strong roots), and potassium (to encourage flowering and fruit), however modern agricultural methods to provide nutrients often pollute waterways and damage ecosystems.



## Grand Parade Edible Campus 17th May



The contents of the planter continues to grow larger. This week, onions, more strawberries and runner beans are added to the soil.

Tomato plant, placed in the soil the previous week seems to be struggling. The sun has dried its leaves and it has not grown any taller.

The beetroot has grown larger leaves and seems to be adjusting to the soil well.





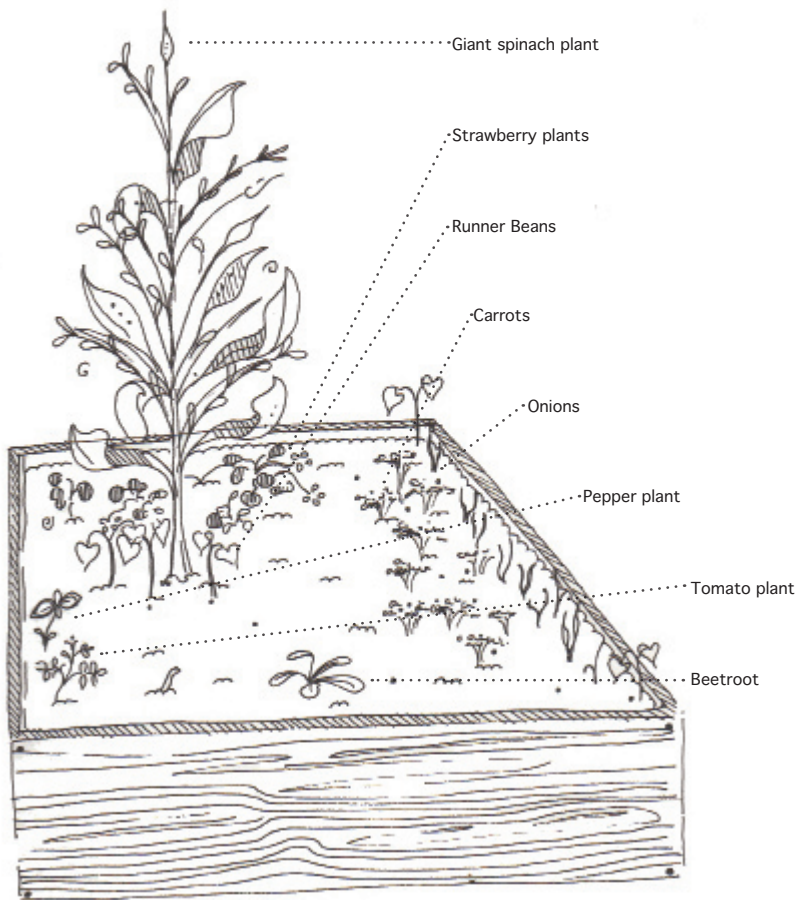
Runner beans have placed dispersed around the spinach plant. We hope that the stem of the spinach will act as a support for the beans to grow up.



The remaining spinach continues to grow taller producing more seeds. When ready these seeds will drop onto the surrounding soil and germinate to produce new more edible spinach plants for next year. Despite its flavourless leaves, the spinach plant is contributing to other plants in the planter as well as ensuring a rich produce of spinach in the future.



# Planter contents



## Tomato and pepper indoor plants 18th May



The tomato plants are now approximately 40 cm high. There are now 5 plants with three of them being moved to the planter at Grand parade.



Now 10 weeks old the larger tomato plants require a stake for support.



The pepper plants are also responding well, developing large leaves.

This project has given me an introduction into sustainable living and various issues surrounding modern agriculture and its consequences. I hope that from now, I will make every effort to buy locally sourced organic food and pursue growing what I can at home. Originally knowing very little about gardening, I have enjoyed the experience of being able to produce food I like to eat and seeing the plants develop week by week.