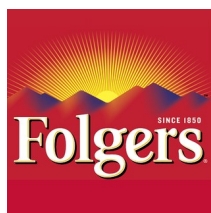


MOBILE GARDENS

A World Hunger Project



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“More than \$200,000,000 worth of vegetables— not counting potatoes and sweet potatoes—were grown in farm home gardens in 1939. These 4,800,000 home gardens produced vegetables worth a little more than those grown for sale on 3,000,000 acres. Thus, it is obvious that home-grown vegetables can and do furnish a substantial part of our national requirements.”

- “*Victory Gardens*”
US Department of Agriculture
1942

*Boswell, V. R. (1942). Victory Gardens, Miscellaneous Publication No. 483.
Washington, DC, USA: United States Department of Agriculture.*



What is the Mobile Gardens[®] world hunger project?

“Mobile Gardens[®]” is a world hunger project that invites innovators to design a sustainable food garden that is portable, meets varied needs of regions and climates, and utilizes locally-sourced materials. The goal is to provide highly nutritious food to populations in crisis.

Many regions of the world experience challenges for food production due to war, famine, poverty, lack of resources and other extreme conditions. A Mobile Garden can be easily moved from place to place, even to find more suitable growing conditions within the day. This concept is beneficial for any community, from urban to very remote and can be adapted to the specific requirements of the areas.

The pilot program, completed by students in Ohio, is one idea. But by encouraging innovators around the world, the idea can be adapted to provide one healthful, economic solution to the hunger crisis.



The pilot program, launched April 2021, is built by creative-thinking students in Ohio. This design uses 120 Folgers[®] coffee cans with lightweight soil. The entire garden weighs approximately 135 lb. and can be easily moved with handles.

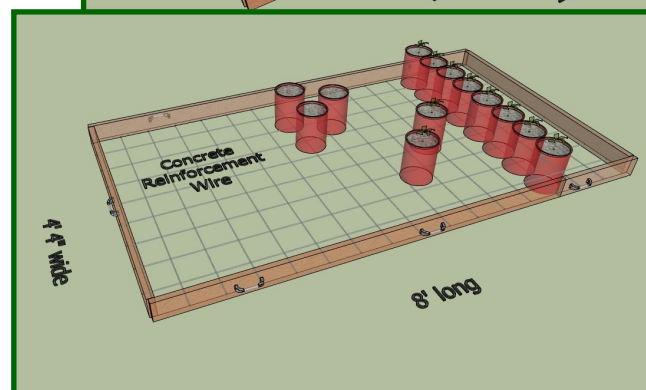
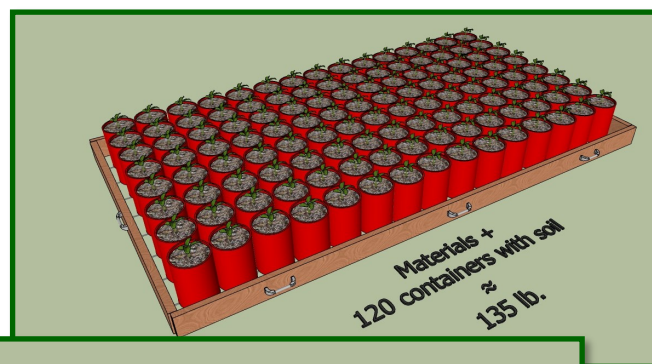
How does it work?

Mobile Gardens[®] can be created by individuals, small groups, or large organizations. Presented with the challenge to build a lightweight, portable growing space, caring designers may build this or any other solution that meets the needs of a community in crisis.

We encourage all creative problem-solvers to invent a device that can be moved easily over differing terrain or in environments with various limitations.

Mobile Gardens[®] are meant to be quickly moved as needed and yet provide an economical choice for growing. We encourage the use of locally-sourced materials, even recycled items!

These Mobile Gardens[®] will be given, free-of-charge, to organizations or communities who suffer from challenges in their living conditions.



What are the benefits of the Mobile Gardens[®] world hunger project?

BENEFITS FOR DONORS

- Contributing to one solution of the global hunger crisis for the Communities
- Sponsoring innovation, invention, and resourcefulness for the Builders.
- Encouraging STEAM skills for both Communities and Builders in the sciences
- All are welcome!

BENEFITS FOR THE BUILDERS

- Comradery and teamwork as part of a solution for a worldwide problem
- Innovation using locally-sourced materials to meet constraints of the environment
- Craftsmanship development with tools and materials
- Repurposing materials for a functional use.
- All are welcome!

BENEFITS FOR THE SERVED COMMUNITY

- A sustainable, easily-moved food source based on the needs of climate, famine, war, or other crisis
- Science & innovation of gardening by impacting light, water, pests, etc. using backpack supplies.
- Gardening gives excellent physical and mental health!
- All are welcome!



How can we be involved?

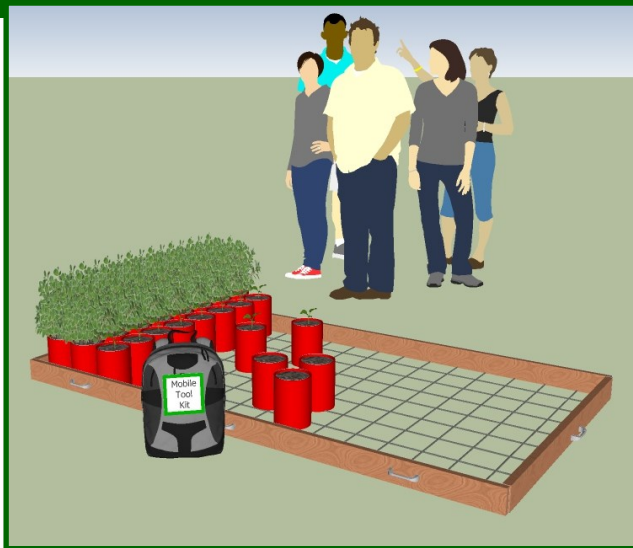
Are you ready to spread the hope of innovation to solve world hunger? Together, we can generously give Mobile Gardens[®] to the world!

We invite all caring individuals to contact The National Museum of Education, Inc.

- **Corporations** wishing to sponsor a community of innovative Builders or who are able to provide funding for materials or shipping
- **Individuals, communities or groups** wishing to build one or more Mobile Gardens[®] (We have free digital plans and information available. Please email kathleen@nmoe.org.)
- **Communities or organizations** who can recommend locations for delivery of Mobile Gardens[®]

Please call The National Museum of Education, Inc. at 234-900-6018 or visit www.nmoe.org

Who are the innovators?



We invite all caring, creative individuals or groups from preschool through adult. We especially encourage creativity, innovation and resourcefulness in your designs!

- Students
- Retirement communities
- Faith-based groups
- Scouts or other youth organizations
- Sports teams of all ages
- Homeless communities
- Differently-abled communities
- Groups in recovery
- Business social outreach groups
- Community clubs
- Sororities and fraternities
- Service groups like Kiwanis, Rotary, Lions, etc.
- All are welcome!

Suggestion only: Materials we used for the pilot program

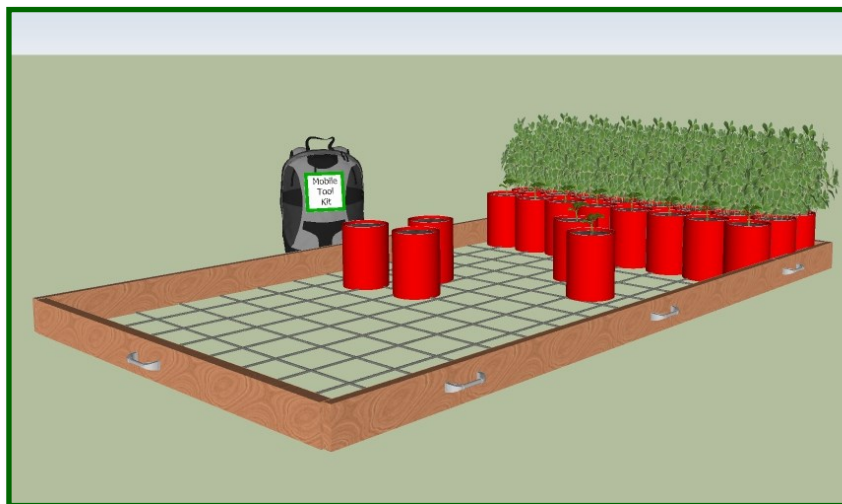
Mobile Gardens[®] is an INNOVATION initiative!

While you are welcome to use our ideas, we encourage everyone to design, modify or improve on a device to meet the global hunger crisis, using materials that are available locally. **We recommend that your device be:**

- Lightweight enough to transport
- Strong enough to hold containers of soil
- Sized appropriately for the location's needs

We used these materials:

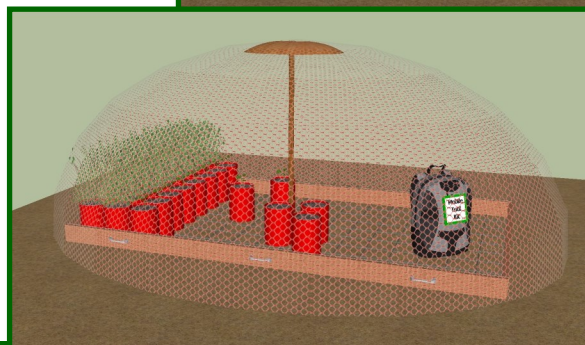
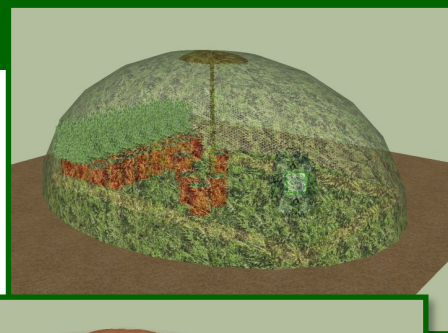
- 1" x 4" x 4' pine boards (count: 2)
- 1" x 4" x 8' pine boards (count: 2)
- Handles, with screws (count: 8)
- Flat corner braces (count: 8)
- Chicken wire & staples for the bottom
- 1 lb. box of 1 1/2" wood screws
- Folgers[®] containers (count: 100+)
- Drill, screwdriver, staple gun



What is included for the receiving communities?

Mobile Gardens[®] arrive with many additional supplies:

- Full instructions in multiple languages, including explanation of scientific concepts
- Lightweight soil & seeds to produce highly-nutritious foods
- A backpack containing:
 - Stanley[®] ratchet screwdriver, hammer, pliers, Ace[®] galvanized poultry net staples
 - Two kinds of net to prevent pests
 - Two kinds of plastic sheeting to help control heat & moisture
 - Center pole & dome to hold nets



Instructions for using the Mobile Gardens[®] device

Mobile Gardens[®] devices are designed to be moved, adjusted, and enhanced to improve growing conditions. However, there is no limit to ingenuity! We encourage gardeners to adapt to their own environments using locally-sourced materials.

Here are some suggestions for use with the supplies included in the Mobile Gardens[®] Backpack.

ASSEMBLY:

1. Use the Stanley[®] ratchet screwdriver to assemble the wood frame at the corners and install the corner brackets. Hardware is included and holes have been pre-drilled.
2. Then use the hammer, pliers, and Ace[®] galvanized poultry net staples to affix the hardware cloth across the bottom of the frame to form a base for the containers. Install the small support beams to the frame to support the hardware cloth.
3. Use the pre-drilled holes to attach the carrying handles, three on each long side and two on each end.

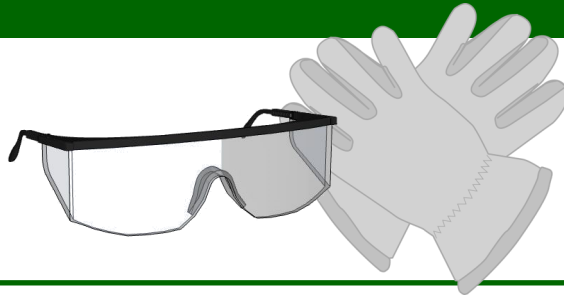
READY TO GARDEN:

1. Fill the Folgers[®] containers with the included lightweight soil and plant seeds according to package directions. Make sure your garden has plenty of water and sunshine!
2. There are two kinds of net to prevent pests:
 - The fine netting has been treated with all-natural pest deterrents such as citrus and pepper oils.
 - Use the pole with dome in the center of the garden to hold the netting off of the plants. You can tuck the extra netting under the frame for additional security.
3. There are two kinds of plastic sheeting to help control heat & moisture:
 - Use the black plastic under the garden to prevent pests or to collect additional water.
 - Use the silver mylar plastic as a sunlight reflector. Or use over the dome and pole to prevent too much sunlight or evaporation.

Suggested Items Needed for Assembling the Prototype Model

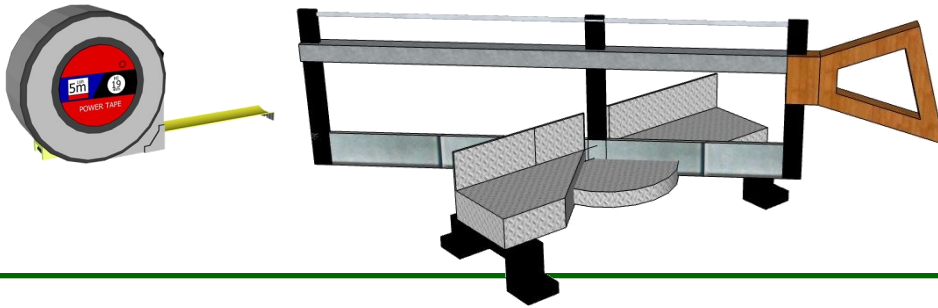
SAFETY GEAR:

- Safety Goggles
- Work Gloves



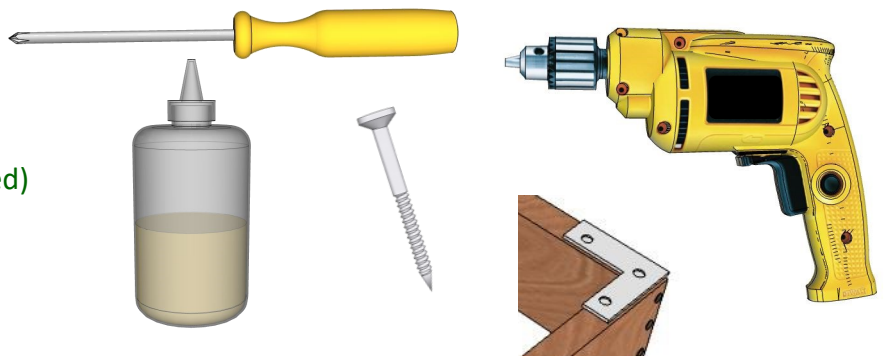
PREPARING THE FRAME

- Tape Measure
- Miter Saw



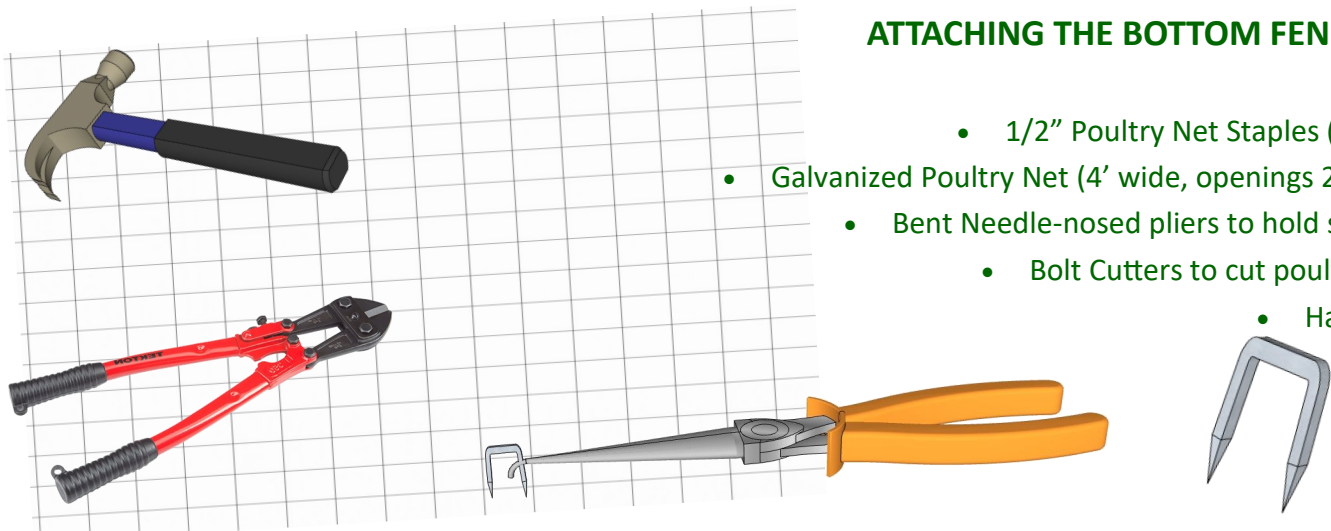
ASSEMBLING THE FRAME:

- Drill / bits
- 1.5" Wood Screws (12 needed)
- 3" x 1/2" Corner Stabilizers (8 needed)
- Screwdriver
- Wood Glue



ATTACHING THE BOTTOM FENCING:

- 1/2" Poultry Net Staples (many)
- Galvanized Poultry Net (4' wide, openings 2" x 3")
- Bent Needle-nosed pliers to hold staples
- Bolt Cutters to cut poultry net
- Hammer



ATTACHING THE HANDLES:

- Handles with Screws
- Screwdriver

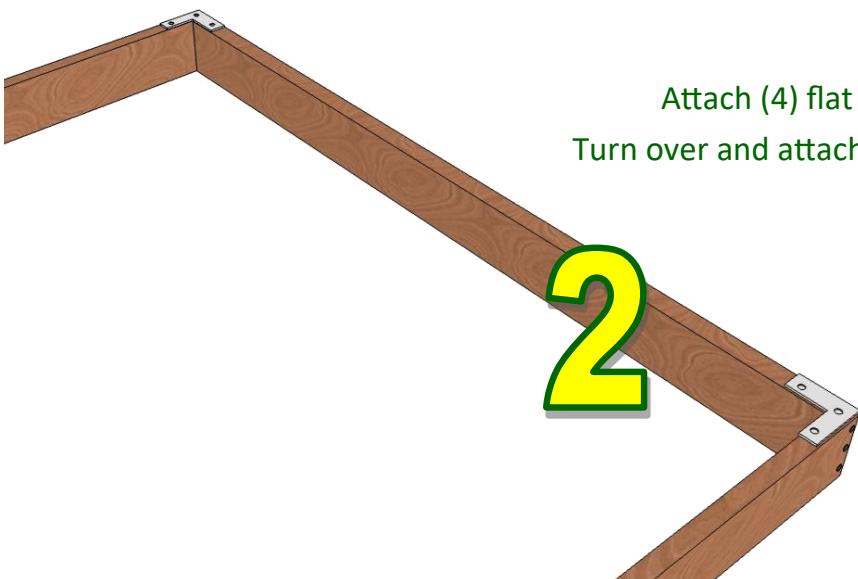


Suggested Assembly of the Prototype Model

REMEMBER: Safety first! Wear eye protection and sturdy work gloves.

FORM FRAME:

- Cut 1" x 4" pine lumber to desired lengths.
- Pre-drill three holes at each corner join to prevent wood from splitting.
- Spread wood glue in the join.
- Attach each corner join with (3) 1.5" wood screws.

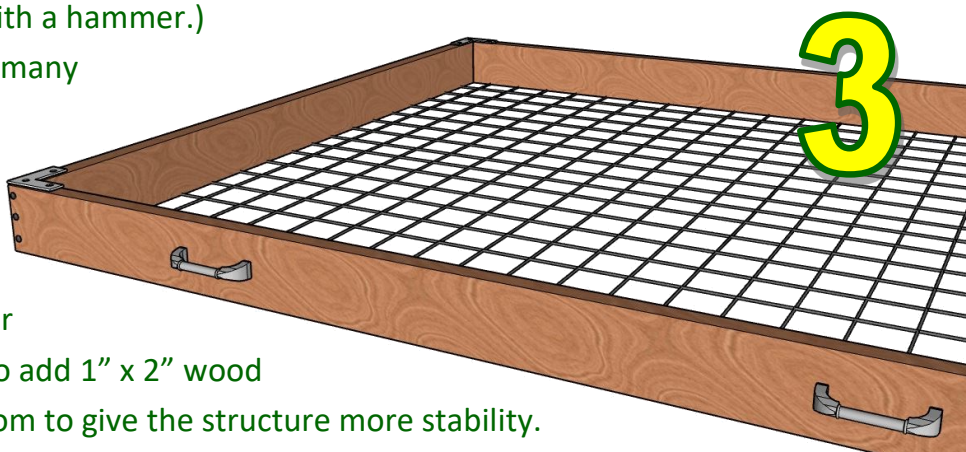


REINFORCE THE FRAME STRUCTURE:

Attach (4) flat corner braces to the TOP of each corner.
Turn over and attach (4) flat corner braces to the BOTTOM of each corner.

COMPLETING THE MOBILE GARDEN FRAME:

- Spread poultry fencing over bottom of frame. Cut to length with bolt cutters.
- Tack fencing in place with poultry net staples. (Hold these carefully with a bent needle-nosed pliers and pound in with a hammer.)
- Add handles for carrying (as many as needed to distribute the weight for your size frame.)



** Depending on the size of your Mobile Garden, you may have to add 1" x 2" wood supports across the center bottom to give the structure more stability.

What plants produce high nutrition?

Food (per 100 g)	Protein (g)	Fat (g)	Carb (g)	Energy (kcal)
Beans, soya, dried, raw	35.9	18.6	15.8	370
Melon seeds	28.5	47.7	9.9	583
Beans, broad, dried, raw	26.1	2.1	32.5	245
Peanuts, kernel only, plain	25.8	46.0	12.5	564
Lentils, red, split, dried, raw	25.6	1.8	51.2	311
Pumpkin seeds	24.4	45.6	15.2	565
Lentils, green and brown, whole, dried, raw	24.3	1.9	48.8	297
Beans, mung, whole, dried, raw	23.9	1.1	46.3	279
Beans, blackeye, whole, dried, raw	23.5	1.6	54.1	311
Beans, red kidney, dried, raw	22.1	1.4	44.1	266
Peas, dried, raw	21.6	2.4	52.0	303
Green beans, dried	21.6	4.4	31.9	246
Beans, chick peas, whole, dried, raw	21.3	5.4	49.6	320
Beans, pinto, dried, raw	21.1	1.6	57.1	327
Sunflower seeds	19.8	47.5	18.6	576
Beans, butter, dried, raw	19.1	1.7	52.9	290
Sesame seeds	18.2	58.0	0.9	598
Pine nuts, kernel only	14.0	68.6	4.0	688
Quinoa, raw	13.8	5.0	55.7	309
Edamame (immature soy bean pods)	10.6	4.7	8.2	106
Garlic, raw	7.9	0.6	16.3	98
Arrowhead, raw	5.0	0.3	21.5	107
Fenugreek leaves, raw	4.6	0.2	4.8	35
Taro leaves, raw	4.4	0.9	2.6	35
Broccoli, green, raw	4.3	0.6	3.2	34
Alfalfa sprouts, raw	4.0	0.7	0.4	24
Rape leaves, raw	3.8	0.3	4.8	37
Brussels sprouts, raw	3.5	1.4	4.1	42
Radish leaves, raw	3.5	0.5	3.5	33
Sweetcorn, kernels, raw	3.4	1.8	8.1	60
Peas, sugar-snap, raw	3.4	0.2	5.0	34
Curly kale, raw	3.4	1.6	1.4	33
Spring greens, raw	3.0	1.0	3.1	33
Asparagus, raw	2.9	0.6	2.0	25
Spinach, mature, raw	2.8	0.8	1.6	25
Spinach, baby, raw	2.6	0.6	0.2	16
Cauliflower, raw	2.5	0.4	4.4	30
Mustard leaves, raw	2.5	0.3	3.6	27
Cabbage, green, raw	2.4	0.2	4.1	27

Source: McCance Widdowsons Composition of Foods, 2015