

Minimum food storage and food preparation requirements for food security

Dr Martine J. Barons,
Director,
Applied Statistics & Risk Unit,
University of Warwick, UK

Dr Suzanne Kleve,
Accredited Practising Dietitian,
Department of Nutrition, Dietetics and
Food,
Monash University, Australia

Some people are food insecure on account of lack of access to adequate food storage or food preparation facilities e.g. in emergency housing. This obliges them to eat only the more expensive ready-to-eat foods. We determined the minimum requirements to avoid being food insecure on account of lack of food storage and preparation facilities. Our guiding principle was that each mode of cooking should require the same amount of time and cooking expertise.

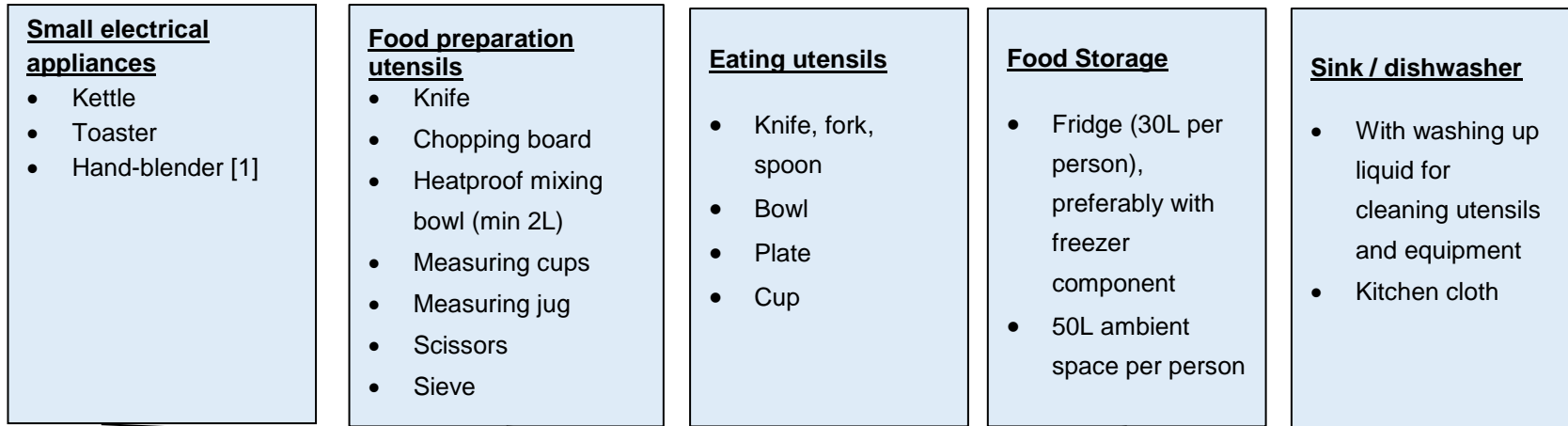
The World Food Summit of 1996 defined food security as existing **“when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”**.

Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences.

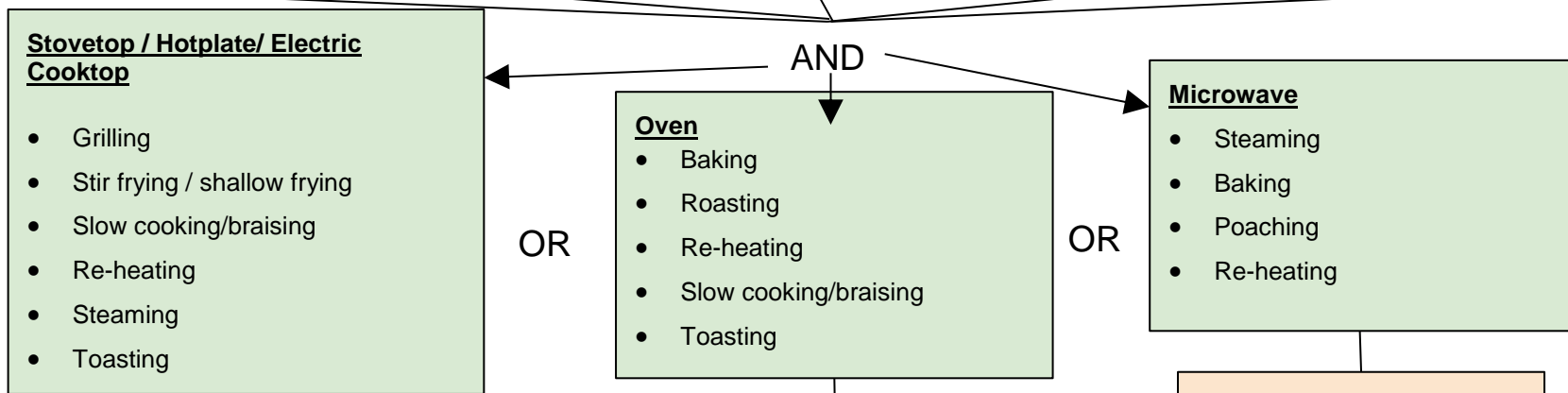
<http://www.fao.org/forestry/13128-0e6f36f27e0091055bec28ebe830f46b3.pdf>

We acknowledge with thanks the significant contribution of our research assistant Caitlin Kemp of The Department of Nutrition, Dietetics and Food, Monash University

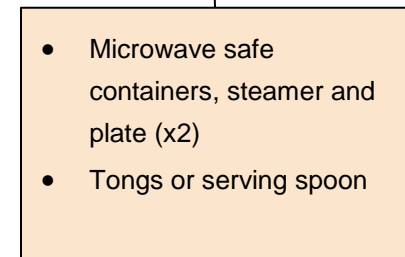
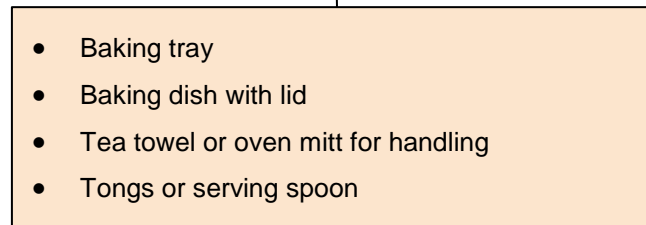
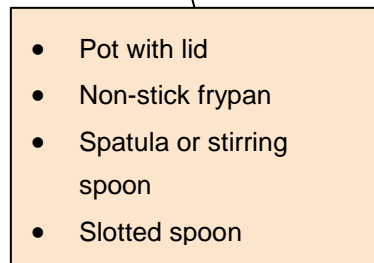
Basic general necessities



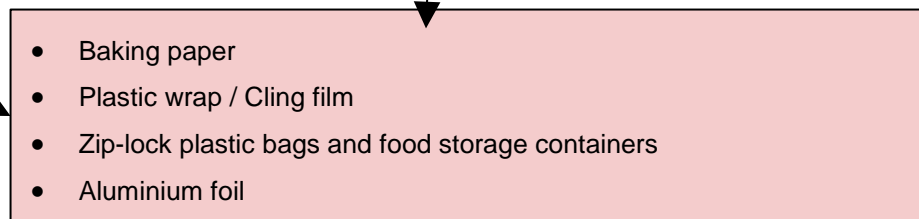
Cooking appliance with suitable cooking processes



Necessary equipment specific to appliance



Consumables to support food preparation and storage



What are the basic kitchen utensils and equipment needed to be food secure?

Small electrical appliances

- Kettle
- Toaster
- Hand blender [1]

AND

Eating utensils

- Plate
- Bowl
- Knife, fork, spoon
- Cup

AND

Food preparation utensils

- Knife
- Chopping board
- Mixing bowl (2L)
- Measuring cups
- Measuring jug
- Scissors
- Sieve

AND

Food storage

- Fridge (30L) per person, preferably with a freezer component, for cold storage of perishable ingredients (e.g. meat, poultry, fish, some fruit and vegetables, dairy, juice, leftover cooked meals)
- 50L ambient space per person for grocery storage

AND

Sink / Dishwasher

- With dish soap for cleaning utensils and equipment

AND EITHER

A) Stove top / electric cooktop / hob / hotplate / induction cooker, with at least:

- Pot
- Frypan
- Spatula or stirring spoon

Uses:

- Grilling (e.g. grilled meats, omelettes, eggs, vegetables, patties, fritters, burgers)
- Stir frying / shallow frying (e.g. stir-fries, meat, vegetables)
- Slow cooking/braising (e.g. casserole, stew, curry, goulash)
- Re-heating meals (e.g. leftovers)
- Soup

- Steaming
- Toasting (e.g. bread)

Can replace:

- Oven
- Microwave
- Kettle
- Slow cooker
- Rice cooker
- Deep fryer
- Sandwich press
- Toaster

OR

B) Oven, with at least:

- Baking tray
- Baking dish with lid
- Tea towel or oven mitt for handling
- Tongs or serving spoon

Uses:

- Baking (e.g. vegetables, cakes, bread, frittata)
- Roasting (e.g. vegetables, meat)
- Re-heating (e.g. leftovers)
- Slow cooking/braising (e.g. casserole, stew, curry, goulash)
- Toasting (e.g. bread)

OR

C) Microwave, with at least:

- Microwave safe container, steamer and plate (x2)
- Tongs or serving spoon

Uses:

- Steaming (vegetables, fish, rice, meat however increased risk of undercooking)
- Baking (e.g. cakes, bread)
- Poaching (e.g. eggs)
- Re-heating (e.g. leftovers)

AND

Consumables to support food preparation and storage

- Baking paper
- Plastic wrap / cling film
- Zip-lock bags or food storage containers
- Aluminium foil

References: [1] Davis et al. *A Minimum Income Standard for the UK in 2016*. Joseph Rowntree Foundation. 2016. Pages 9-10. Available from: <https://www.jrf.org.uk/report/minimum-income-standard-uk-2016>

Oven only

Baked Frittata with cheese and vegetables

Recipe adapted from: <https://cookieandkate.com/2010/the-perfect-frittata/>

Ingredients

- 6 eggs
- A handful of cheese
- A splash of milk
- Vegetables, spices, salt, pepper (and protein source like chicken, tuna, salmon, if desired)

Method

1. Preheat oven to 200 degrees Celsius.
2. Line a baking dish with baking paper.
3. In a separate bowl, whisk together eggs, cheese, milk, vegetables and seasonings (or other ingredients) with a fork.
4. Pour the mixture into the baking dish.
5. Bake until the frittata is golden and puffy and the centre feels firm and springy, about 25 minutes or more.

Meatloaf

Source: <http://allrecipes.com.au/recipe/4662/print-friendly.aspx>

Ingredients

Serves: 8

- 750g beef mince
- 1 egg
- 1 onion, peeled and chopped
- 1 cup dried bread crumbs
- salt and pepper to taste
- 1 1/2 tablespoons mustard
- 1/2 cup tomato sauce
- 1 tablespoon Worcestershire sauce

Method

1. Preheat oven to 180 degrees C.
2. In a large bowl, combine the beef, egg, onion and bread crumbs. Season with salt and pepper to taste and form into a loaf in the middle of a baking tray lined with baking paper.
3. In a separate small bowl, combine the mustard, tomato sauce and Worcestershire sauce. Mix well and pour over the meatloaf.
4. Bake for 1 hour.

Stovetop only

Thai Vegetable Red Curry

Source: <http://makingthymeforhealth.com/one-pot-vegetable-thai-red-curry/>

Ingredients

- 2 tablespoons olive oil
- 1 small onion, finely chopped (about 1 cup)
- 1/2 teaspoon salt
- 3-4 cloves garlic, minced (about 2 tablespoons)
- 2-inches fresh ginger, minced (about 2 tablespoons)
- 2 large carrots, chopped (about 1 cup)
- 4 ounces red curry paste
- 1 cup coconut milk
- 1 and 1/4 cup water
- 1 small potato, diced into cubes (about 1 cup)
- 1.5 cups broccoli florets
- 1.5 cups cauliflower florets
- 2 tablespoons tamari
- 1/2 tablespoon coconut sugar
- 1 tablespoons lime juice (or rice wine vinegar)

Method

1. In a large pot, warm the oil over medium heat on stovetop. Add the onion, sprinkle with salt and cook for 3 minutes, until translucent.
2. Next add the garlic, ginger and carrot. Continue to cook for 5 more minutes.
3. Add the curry paste, coconut milk and water then bring to a boil. Stir in the potato, broccoli and cauliflower. Reduce to a simmer then cover and cook for about 7 minutes, until vegetables are tender.
4. Stir in the tamari, coconut sugar, and lime juice (or rice wine vinegar).

Beef and shiitake stir-fry

Source: 4 Ingredients Diabetes. Kim McCosker. Simon and Schuster. 2013.

Ingredients

Serves: 4

- 500g rump steak, sliced
- 2 bunches broccolini, cut into 4cm lengths
- 200g shiitake mushrooms (or other type), sliced
- 4 tbsp oyster sauce (or hoisin or black bean sauce)

Method

1. Heat a non-stick frying pan over high heat on stovetop.
2. Add 2 tbsp water, beef, broccolini, mushrooms and season to taste with salt and pepper.
3. Stir-fry until the beef is just browned, 2-3 minutes
4. Add the oyster sauce and stir-fry until well coated and the vegetables just tender.

Microwave only

Omelette with steamed vegetables

Source: <https://www.eggrecipes.co.uk/recipes/microwave-omelette>

Ingredients

- 2 large eggs
- Pinch of salt and pepper
- 1 tsp cold water
- Butter

Method

1. Beat the eggs, water, salt and pepper.
2. Place 1 tbsp of butter in a shallow microwave-proof dish and melt in the microwave on HIGH for 10 seconds. Pour in the egg mixture, stand pie dish on an upturned plate in the microwave and cook on MEDIUM-HIGH for 40 seconds.
3. Use fork to draw the outside of the cooked egg into the centre of the dish and microwave on MEDIUM for a further 1 minute 40 seconds. Stand for 1 minute before serving.

* Steam vegetables in microwave safe dish and serve with omelette

Salmon en papillote

Source: <http://seafood.betterrecipes.com/salmon-en-papillote.html>

Ingredients

- 1 tsp olive oil
- 450g potatoes, thinly sliced
- 4 salmon fillets
- 1 lemon, thinly sliced
- 1 cup celery stalks, sliced into thin strips
- 4 tbsp spring onions, chopped
- 2 tbsp parsley, chopped
- 2 tsp tarragon, chopped
- ¼ cup white wine (optional)

Method

1. Cut 4 sheets of baking paper into squares. Brush parchment paper with olive oil.
2. Arrange 3/4 cup of sliced potatoes on baking paper. Place one portion of salmon on top of the potatoes.
3. Season the salmon with salt and pepper, top each portion with 2 lemon slices, 1/4 cup celery, 1 Tablespoon spring onions, and 1 Tablespoon of herbs.
4. Sprinkle white wine onto each salmon piece. Fold the paper over the top of the salmon to create a pouch and crimp the paper edges to seal.
5. Microwave 2 pieces at a time on high for 3 1/2 minutes, until the paper pouch puffs up.
6. Serve the salmon in the paper and slit the pouch open with a knife

Example of the same recipe using either stovetop, oven or microwave

Spaghetti Bolognese

Adapted from: https://www.bbc.co.uk/food/recipes/microwave_spaghetti_44920

Ingredients

1 onion, chopped
1 garlic clove, chopped
1 carrot, chopped into pea-sized pieces
300g lean beef mince
1 x 400g can chopped tomatoes
50ml boiling water
1 beef stock cube
1 tsp dried oregano (optional)
Black pepper (optional)
300g uncooked spaghetti
1 tbsp vegetable oil

Method

Sauce

Stove-top

1. Put the chopped onion, garlic and carrot into a large oiled frypan over low-medium heat.
2. When the onions are soft, add the mince and mix together with a spoon, breaking up the meat until it is well combined. Cook until beef starts to brown.
3. Add the chopped tomatoes together with 50 ml of boiling water, and crumble over the stock cube, oregano and black pepper (if using).
4. Cook until the sauce is boiling, then reduce heat and simmer 15 minutes until the beef is cooked and the vegetables are tender. Turn off heat.
5. Serve the drained, cooked spaghetti with the bolognese sauce.

Oven

1. Heat the oven to 200C. Put 650 ml of passata and a 400g tin chopped tomatoes in an ovenproof dish with a lid.
2. Use a spoon to break up the beef mince as you add it to the dish. Give everything a good stir so the meat is coated in the sauce. Add the carrots, onion, garlic, stock cube, salt and pepper then stir again.
3. Put a doubled sheet of foil under the lid then push the lid down and scrunch up the foil to seal.
4. Put in the oven for 1½ hours until you have a thick, rich sauce. Put sauce aside for cooking with pasta.

Microwave

1. Put the chopped onion, garlic and carrot into a large microwave safe bowl.
2. Add the mince and mix together with a fork, breaking up the meat until it is well combined.
3. Cover the bowl with a microwaveable lid or cling film, leaving a small area open, and microwave on full power for three minutes.
4. Remove the bowl. Stir with the fork, breaking up the mince again, cover and return to the microwave for another three minutes. Take care when removing the bowl as it will be very hot. Break up any clumps of mince again.

5. Add the chopped tomatoes to the bowl together with 50 ml of boiling water, and crumble over the stock cube, oregano and black pepper (if using).
6. Mix everything together with a wooden spoon. Cover again and cook in the microwave on full power for seven minutes. Remove the bowl, stir well, cover and return to the microwave for another 10 minutes on full power, stirring halfway through.
7. Serve the drained, cooked spaghetti with the bolognese sauce.

Pasta

Stove-top

1. Bring a large saucepan of salted water to the boil over high heat.
2. Add the pasta and stir occasionally to stop the pasta from sticking to the bottom of the pan.
3. Cook the pasta for the time as directed on the packet.
4. Drain the cooked spaghetti using a sieve or colander.

Oven

1. Preheat the oven to 175 degrees C.
2. Cover the bottom of the baking dish with a thin layer of the prepared pasta sauce.
3. Add the dry pasta to the baking dish.
4. Cover the dry pasta with more sauce and stir it to ensure that every piece of pasta is covered in sauce.
5. Add more sauce, if necessary, over the top. No pasta should be protruding above the top layer of sauce.
6. Cover the baking dish with aluminium foil.
7. Bake until the pasta is al dente (20-30 minutes). To test the pasta, spear it with a fork to test. Remove from oven and serve.

Microwave

1. Boil the kettle for the spaghetti. Break the spaghetti into thirds and put in a separate microwave safe bowl. Add the oil and mix well with a wooden spoon to coat the spaghetti with oil. Pour over boiling water until just covered and stir well.
2. Put into the microwave and cook on full power for four minutes.
3. Remove the bowl and stir the spaghetti. Cover and return to the microwave and cook on full power for another four minutes.
4. Take the bowl out of the microwave and leave to stand for two minutes. Check that the spaghetti is cooked and is al dente (still has a little bite). Cook for another couple of minutes if it's not soft enough.
5. Drain the cooked spaghetti using a sieve or colander.