**Food waste general knowledge and understanding**

* Food waste is food that is left uneaten.
  + Food waste can be edible or inedible.
  + Edible means that it is still safe and able to be eaten, like if you dish up too much and leave food on your plate.
  + Inedible is either unsafe or cannot be eaten further. Things such as bones and certain vegetable peels.
* It is said that almost 1/3rd or 30% of all the food produces to be eaten goes wasted.
  + This means that more than 2 billion people could be fed with the amount of food we waste.
  + This is over 1.3 billion tonnes of fruits, vegetables, dairy, seafood and grains.
* If food waste were to reduced, this would improve society as levels of food insecurity and malnutrition would decrease.
* This wasted food is caused throughout the food supply chain (FSC) for various reasons like:
  + On the farms due to poor harvesting
  + At manufacturers and distributors due to poor handling and transportation
  + At retailers due to poor storage and supply/demand trends
  + Or at consumers due to overconsumptions and poor consumption behaviours
* This wasted food could be enough to end world hunger and feed every starving person on the planet.
* Globally food waste waste’s money.
  + Money spent on growing, processing, storing and disposing of the food w=that was never eaten.
* In South Africa 10 million tonnes of food are wasted each year
  + Of this, 70% of the foods that are wasted are fruits, vegetables and cereals.
  + This is an annually loss of R61,5 billion rand according to the Council for Scientific and Industrial Research
* The wasted food in South Africa leads to a wasted energy that was used to produce these foods.
  + It is said that this wasted energy could light up the City of Johannesburg for 16 weeks!
  + The wasted water could fill 600 000 Olympic sized swimming pools.
* All this wasted food ends up in landfills whereas the food rot they produce greenhouse gases that affect the environment.
* Food waste is the prominent items to end up in landfills which then get incinerated (burned).
* Wasted food therefore poots a lot of strain on natural resources like water, land, labour and energy.
* Consumers food waste patterns is at least 8 times more costly than those of farms.
* Consumers do not necessarily see food waste as a problem for them to solve.
  + When eating out, you pay for the food, so you assume all other responsibilities are not your problem.
  + Younger generations are more concerned about food waste as they are generally more worried about the effects on the environment.
* Money is a motivator.
  + People will think about preventing food waste only if its of benefit to them.
  + If there is a way that money will be saved, then food waste will try to be avoided.
* Food waste is an economic issue.
  + Money used to dispose of food waste comes directly for consumers through tax.
  + The less food wasted; the less money is spent on trying to treat the waste.
* Food waste is a social issue.
  + Billions go hungry each day without access to food.
  + There is enough food being produced, it is simply being improperly handled or carelessly wasted.

**Common causes and misconceptions of food waste**

* Food waste and food loss occur through the food supply chain (FSC)
* The food supply chain broadly consists of
  + Producers – grow or produce the foods.
  + Manufacturers – process, package and store the foods.
  + Distributors – Transport the bulk foods to different industries.
  + Retailers – sell the foods to consumers (e.g., grocery store, restaurant)
  + Consumers – final stage, receive the products and use it up.
* Food waste and loss can happen at any of these stages.
* Producers can experience food waste due to
  + Poor weather conditions
  + Increase/decrease in demand and supply
  + Poor finances of the economy
* Manufacturers can experience food waste due to
  + Poor handling of food items
  + Incorrect storage methods and temperatures
  + Unsanitary working environments
* Distributors can experience food waste due to
  + Incorrect transportation methods
  + Incorrect transportation temperatures
  + Poor transportation facilities
* Retailers are a large sector and have a variety of reasons for food waste.
  + Incorrect storage methods and temperatures
  + Incorrect preparation methods
  + Lack of accurate skills
  + Overproduction of foods
  + Underproduction of foods
  + Incorrect forecasting of consumers
* At the consumer stage, which is the focus, there are multiple reasons as well for food wasted.
  + Poor menu planning
  + Poor preparation methods
    - Overcooking produce
    - Using the same preparation method on multiple ingredients
  + Incorrect storage methods
    - Food not being used in time before it goes bad
    - Food ‘hidden’ in the fridge
  + Overpreparing
    - Cooking up or serving too much food
    - Forgetting or not wanting to eat leftover overprepared food and throwing it away.
  + Poor portion control
    - Larger and larger portions are being served.
    - Restaurants are serving larger portions and more options.
    - All-you-can-eat buffets create large amounts of waste as they produce a surplus of food items.
  + Overbuying
    - Buying sales and not items
    - Bulk buying
* Consumers do not see food waste as an issue that they can control.
  + Many consumers see food waste as the governments problem or the institutions problem.
  + As they do no not see the large amounts of waste that end up in landfills, they do not see how their sole reduction would contribute.
  + When they are at institutions like restaurants, they feel it the restaurants responsibility to deal with food waste.
  + As they have paid the institutions, they do not see that costs associated with treating the food waste.
  + They are also a lot of choices to be made and so tend to maybe dish up more than they can actually consume, e.g., at a buffet style service.
* At institutions like schools, hospitals, and hotels where regulations are strict, food already presented at a buffet cannot be reserved, this food is then thrown away.
* At grocery stores food quality comes into question
  + Consumers like to purchase foods that look good visibly.
  + A lot of food is then thrown away as consumers do not want to by foods especially produce that has started to wilt or go brown.
  + This amongst other reasons is why fruits and vegetables are the most wasted food items.
* As food is biodegradable, many think the food will just naturally break down, therefore food waste isn’t such a big deal.
  + In reality, the wasted food ends up in landfills, which negatively affect the

**Food waste on the environment**

* When food is wasted it also affects the land, water, labour energy and other factors that were used in its production, processing, transporting, preparing, storing and disposal.
* Food waste and food loss heightens the climate crisis with the production of greenhouse gases (GHG)
  + Greenhouse gases are gases that sit in the Earth’s atmosphere and create a layer like a “blanket”.
  + These gases are needed to maintain the Earth’s temperature.
  + But because of humans, this layer has gotten thicker which makes the Earth a lot warmer.
  + The more greenhouse gases the thicker the “blanket” gets, the thicker the blanket, the warmer the Earth becomes.
* GHG’s are dangerous in large amounts because the thick blanket makes the Earth warmer and warmer which starts to change the natural weather patterns.
* This is known as global warming.
  + The increased rising of the Earth’s temperature.
* The production, transportation and handling of food generates a large amount of Carbon dioxide (CO2)
  + CO2 is a greenhouse gas produced by natural processes such as breathing of plants and animals.
  + Human activities like burning coal and cutting down large amounts of trees has increased the amount of CO2 the atmosphere can manage.
* When thrown away food ends up in landfills it leads to methane gas being produced which is an even deadlier greenhouse gas which has terrible negative effects on global warming and environment
  + Methane gas is another greenhouse gas that occurs naturally when things rot
  + Human activities like cattle farming and landfills have increased the balance of methane in the atmosphere.
  + Methane gas is a lot heavier the CO2 so the “blanket” it makes in the atmosphere is a lot thicker
  + The effects of methane gas on the environment leads to global warming which cause drastic and rapid climate changes.
* Landfills are breading sites for methane gas because all the food is piled on top of each other and doesn’t have oxygen to rot properly.
* Landfills are huge rubbish sites where most of the worlds waste products end up.
* In the case of food waste most of our wasted food ends up on landfills instead of being properly managed such as composted
* When food is composted, it is done so with oxygen, so the food is allowed to rot more openly which is better for the environment.
* There is a clear connection between food waste and climate change.
  + The more we waste, the more natural resources are used up.
  + The more we waste the more food that ends up in landfills.
  + The more food in landfills, the more methane gas produced.
  + The more methane gas in the environment, the thicker the “blanket”.
  + The thicker the blanket the greater impact it has on the climate and global warming.
  + The more drastic the weather changes are, the more food is poorly harvested and more wasted.
  + Then the cycle repeats.
* Wasted food uses up large amounts of freshwater with up to 25% in some cases and is a leading cause of water pollution.
* If food waste were to be reduced about 6%-8% of all GHG caused by people would be reduced.
* The more the worlds population grows, the more we need to think about how to waste less food.
* As it stands there is enough food being produced to feed every person, so we need to look at how to better use the food already produced and reduce food insecurity.

**Food waste prevention methods**

* In most instances prevention is better than cure, therefore careful planning is the best way to minimise food waste.
* Look at the ingredients in your fridge and pantry and create menu items
* Plan what you will need to purchase at the grocery store, draw up a list.
* Don’t go to the grocery store when you are hungry as this could lead to impulse buying.
* Shop small.
  + If possible, avoid bulk buying and rather make smaller purchases and more often trips to the grocery store.
* Use up what is in the fridge first.
  + Before you go buy more food, look at what you already have in the fridge first.
  + Follow the concept of FIFO (First in First out) and use the food you bought first (oldest date) before buying or using newly bought food.
* Buy the item not the deal!
  + Only by what you need, you do not need 3 punnets of sweetcorn. Don’t give into the sale price.
  + Only buy items that you know will be eaten, if no one eats it, don’t buy it just because it’s on sale.
* Accurate reading of food labels will prevent unnecessary wastage of food. Except for baby formula, most labels don’t refer to the safety of the food, but rather when the foods are at their freshest and taste the best. Common food labels:
  + Sell-by: food is still fresh if bought before that date.
  + Best before: the food is freshest if eaten before that date.
  + Use-by: company’s guarantee of freshness by that date.
* Most food are still good to eat for weeks after these label dates, even dairy products can last 5-7 days after.
* Keep the pantry stocked with essentials.
  + Have staples like canned beans and fish and grains such as rice, mealie meal, pasta etc.
  + This way when you buy fresh foods you already have the staples as a base.
* Cook only enough.
  + If you plan to cook for 2 days, make sure the food will be just enough for the number of days and will be eaten.
* Make use of the freezer
  + Frozen foods are just as nutritious as fresh ones.
  + If you happened to by the sale and not the item, freeze the extra food so it doesn’t go to waste.
  + Frozen foods help extend the shelf life of food items.
  + Cook and freeze foods before they go bad, especially produce (fruits and vegetables)
* Be creative with leftovers!
  + Even if you cook food for more than one day, you don’t have to eat it the exact same way.
* Change up food preparation methods.
  + Blend, bake or boil your wilting or discoloured fruit and vegetables.
  + You can turn imperfect produce that as started to brown into soups/stocks or smoothies and preserves like jam or a pickle.
* Donate leftover or extra food.
  + Don’t allow for you leftovers to end up in the rubbish.
  + See if there are soup kitchens nearby or organizations to take food that is slightly imperfect.
* When eating out ask for takeaways
  + Do not leave your leftovers at the restaurant, take them home with you.
  + Even if not eaten, add these to your compost to avoid them ending up in landfills.
* It is recommended to not wash fruits and vegetables before storing.
  + Washing the produce increases their moisture, which can lead to them going bad faster.
  + If you must though, make sure to dry the food thoroughly.
* Not all produce should be stored in the fridge.
  + Avocados, bananas, tomatoes, potatoes, eggplant, and onions should be stored at room temperature.
* Some produce should be left in their original packaging.
  + Apples, cauliflower and broccoli, grapes and carrots should be left in their original packaging and placed in the fridge.
* As a rule, avoid storing fruits and vegetables together as fruits are mostly ethylene-producing and vegetables are generally ethylene-sensitive.
  + Ethylene gas is a natural hormone found in produce that helps with ripening.

**Food waste management methods**

* The ideal is to prevent food waste, however not all food waste is avoidable. Therefore, options can be looked at the manage food waste.
* The most prominent method of food waste management is the 3 or 4 *R’s.*
  + Reduce – minimise the amount of food wasted.
  + Reuse – make use of food items in other recipes, e.g. using leftover chicken to make sandwiches the next day
  + Recycle – upgrading food items and making them into new products e.g., making soup out of vegetable offcuts.
  + Recover – food items that would usually be thrown away can be recovered and used again, e.g., vegetable peel chips.
* Under recycling there are many different methods
* Composting forms as a method of recycling
  + Composting turns the organic waste into fertilizer.
  + Items that can be composted include:
    - Greens – Grass clippings, vegetable waste, fruit scraps, weeds, and coffee grounds
    - Browns – Dead leaves, wood chips, twigs, and fireplace ash
    - Recyclable Packaging Material – Newspaper, cardboard, and paper
    - Food Leftovers – Eggshells, tea bags, and nutshells
* Try put your waste to work if you cannot compost.
  + Use the leftovers as farm animal feed such.
  + Try to find local facilities that you can donate the food scraps to
* Make creative use of your leftovers.
  + Turn stale bread into breadcrumbs/croutons and freeze it
  + Turn vegetable peels into pickles.
  + Add citrus peels to sugar to flavour the sugar.
  + Add citrus peels to sugar syrup and turn them into candy.
  + Use vegetable tops such as those from carrots as herbs.
* Reuse the food packaging materials.
  + Items such as paper wrappers, carons and containers
* Use fruit peels as natural aromas.
  + Boil fruit peels to create a natural air freshener.
* Make infusions.
  + Orange peels vinegar to vinegars
  + Chilli off cuts to olive oil
* Regrow vegetables.
  + Seeds, pits, and cuttings of lettuce, ginger, avocado, celery, green onions, and more can even be regrown.
  + Plant them in soil, water them appropriately and provide plenty of sunlight.
* Use every last drop of the jar.
  + Add oats or chia seeds to peanut butter jars to make overnight porridge.
  + Add eggs or mashed potatoes to salsa jars for a flavourful punch.
* Revamp herbs and ends.
  + Dry out herbs to make spice blends.
  + Dry out vegetable ends and use in the same way.

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