

Aware Animals

COMPOSTING  
little  
BOOK  
about  
SOIL

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# What is composting?

Composting is a process in which, with the help of soil microorganisms, the mixture of organic materials is transformed into soil humus, rich in food resources. This environmentally friendly way of utilizing household and garden waste provides valuable natural fertilizer that not only turns compacted clay soils and barren sands into fertile terrain, but also maintains optimal soil moisture, suppresses the development of plant diseases, stabilizes acid reaction and recultivates soils contaminated with heavy metals and toxic waste.

Translated from Latin, „compost“ means a mixture. This mixing of ingredients mimics the annual seasonal turnover of organic matter in nature - spring and summer are the seasons during which the earth's surface accumulates mainly nitrogen components ( wet and fresh ), and autumn offers abundant cover of carbon ingredients ( dry and crumbly ). Winter is the moment when all the components combine in a

new soil layer, from which in the spring the plants enjoy the necessary nutrients and continue their development. This process is most clearly observed in forests, where if we bury our fingers in the soil we will find that there are several layers of organic matter on the surface, in different stages of decomposition.



# Why should we compost?

## TO REDUCE THE VOLUME OF ORGANIC WASTE REACHING LANDFILLS

Landfills fill up extremely quickly and occupy valuable areas that could be better utilised. In addition, the less organic waste we dispose of in the general waste and recycling containers, the greater the chance that valuable resources dumped there ( like glass, metal, plastic, etc. ) will be recycled and reused.

## TO RETURN CARBON TO THE SOIL AND RESTORES ITS RICHNESS

Carbon accumulates in soils during decomposition and mineralization of plant residues, thus reducing its concentration in the atmosphere. Soil degradation is also associated with a decrease in the content of organic carbon in the soil and its release back into the atmosphere. Soil protection is therefore important for regulating carbon emissions and reducing the effects of climate change. \*

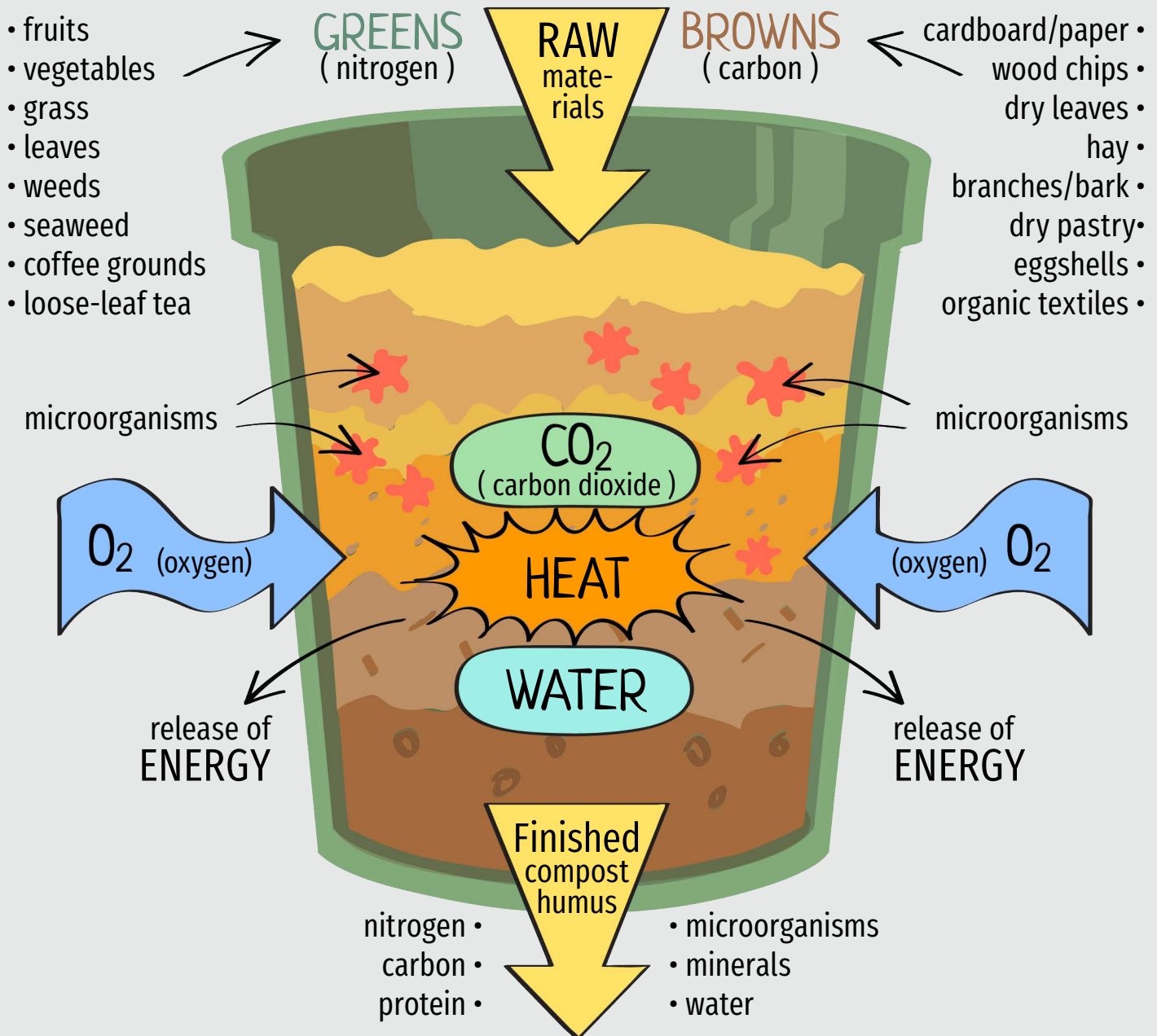
\* [www.climateka.bg](http://www.climateka.bg)

## TO REDUCE THE RELEASE OF METHANE

Methane is a greenhouse gas 26 times more potent than carbon dioxide and it has a significant contribution to global warming. The reason for its release is the decomposition of organic material in anaerobic ( oxygen-free ) conditions ( for example, in landfills, where it is suffocated by other „non-breathable“ waste - plastics, metals, etc. )\*\* [www.agric.wa.gov.au](http://www.agric.wa.gov.au)

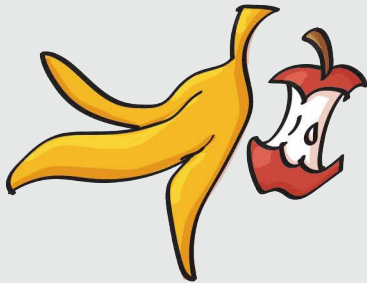


# Aerobic composting - process



# Greens ( nitrogen-rich )

Ingredients that are fresh and moist. They provide water for the compost and saturate it with nitrogen.



## SCRAPS / PEELINGS

- from fruits
- from vegetables
- seeds and nuts



## GREENS

- freshly cut grass
- leaves
- seaweed



## WEEDS

avoid adding their seeds, to ensure they don't spread through the soil



## COFFEE GROUNDS

you can also compost the filter if it is biodegradable, e.g. paper or natural fabric



## LOOSE-LEAF TEA

if it is in a teabag, make sure that the bag is biodegradable



## EGGSHELLS\*

make sure they are washed, dried and broken. \*actually a mineral, neither carbon nor nitrogen.

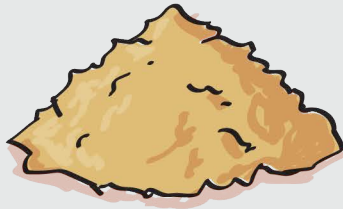
# Browns ( carbon-rich )

Ingredients that are usually dry and crumbly. They act as a natural desiccant for compost and saturate it with carbon.



## DRY LEAVES / HAY

- dry leaves
- hay and straws



## WOOD CHIPS

wood chips or sawdust are most easily found in woodworking workshops



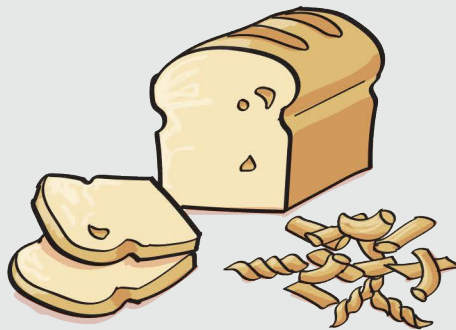
## BRANCHES / BARK

- dry branches
- tree bark
- pine cones



## CARDBOARD / PAPER

- greasy pizza cartons
- newspapers, napkins
- non glossy paper



## GRAIN PRODUCTS

- bread crumbs
- dry bread
- pasta and spaghetti



## TEXTILE

only applies for organic materials ( cotton, linen, hemp, silk )

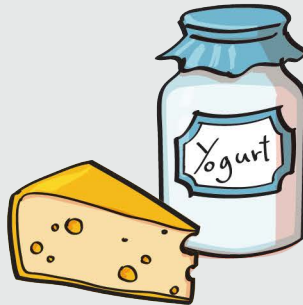
# What NOT to Compost

In addition to materials such as metal, glass and plastic, this includes ingredients that cannot degrade, spoil the quality of soil humus or hinder the process.



## MEAT AND FISH

- bones and meat waste
- fish bones and remains
- eggs



## DAIRY PRODUCTS

- milk and yogurt
- cheese
- butter



## CITRUS PEELS

can be added in moderation, as otherwise they would kill the beneficial microorganisms



## INFECTED PLANTS

they can spread the disease to other plants through the finished soil humus



## LAMINATED PAPER

as it is coated with a plastic polymer that cannot be broken down naturally



## FATS

- vegetable oils
- animal grease
- any cooked food



# A matter of balance

The ratio of green to brown organic matter should usually be maintained between 1:1 ( indoors ) to 1:3 ( outdoors ). This often depends on external factors such as humidity, temperature, etc. If we have the feeling that the compost is not well balanced and the process is not going the way we want, here are some signs to find out what measures to take.

## TOO WET

- bad smell;
- uncontrollable mold;
- appearance of flies.

### Measures:

- add more wood chips ( instead of paper or cardboard, because it does not absorb moisture well enough );
- leave the composter lid open for a while to evaporate excess water.



## TOO DRY

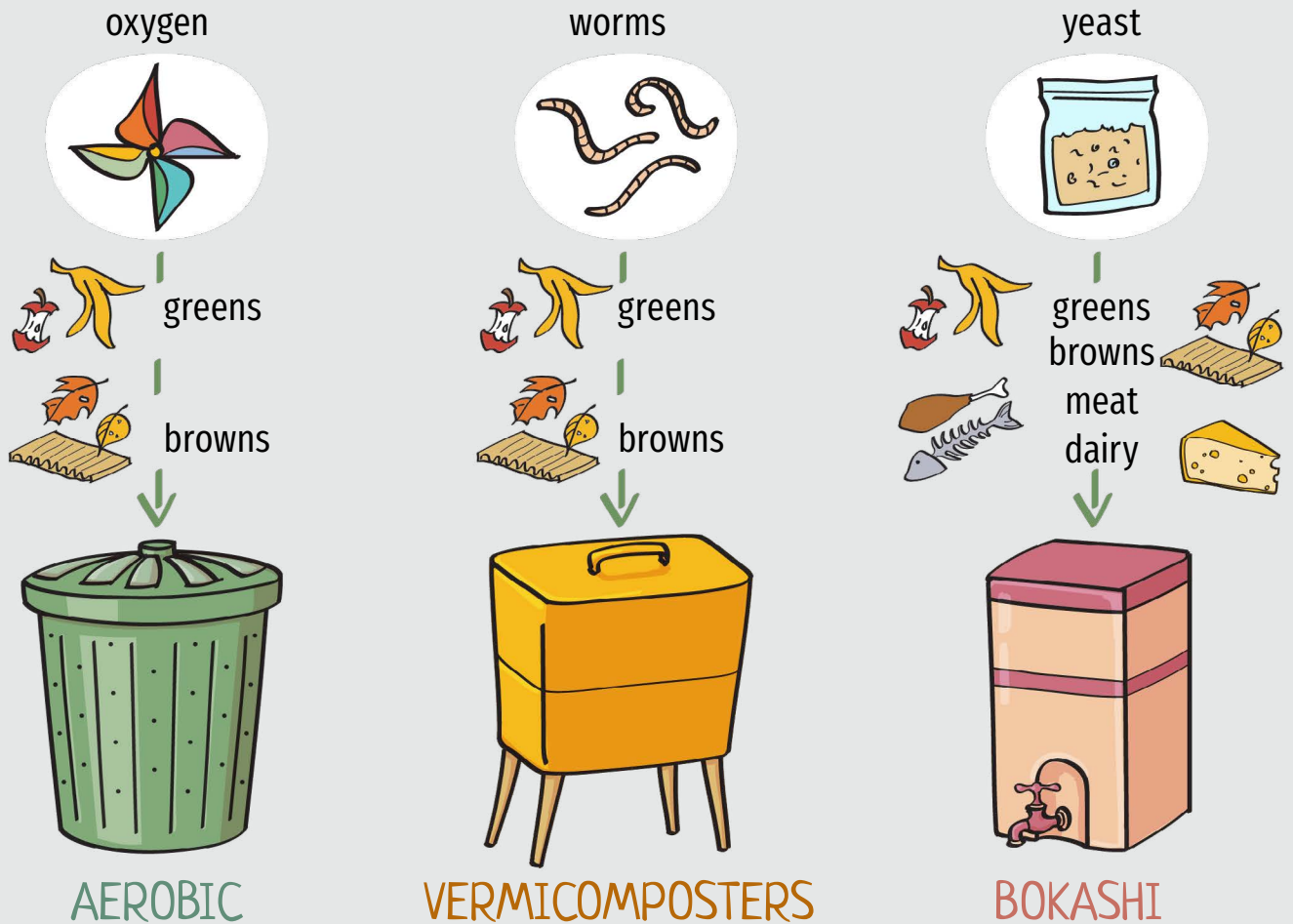
- the bucket is not warm, no break-down process occurs;
- the volume in the bucket does not settle.

### Measures:

- add more greens to moisturise the compost;
- stir frequently to mix the ingredients well.



# Indoor composters



Decomposition with the help of soil microorganisms and access to oxygen. It is important to maintain a balance between green and brown mass.

Aerobic decomposition with the help of California worms. The compost requires more moisture than the aerobic one. The worms live in a pad of wood chips and newspapers.

Anaerobic ( oxygen-free ) decomposition by yeast. Process close to fermentation. The liquid needs to be drained once every 10 days. Does not emit unpleasant odors.

# DIY aerobic indoor composter

## FIND / BUY A BUCKET

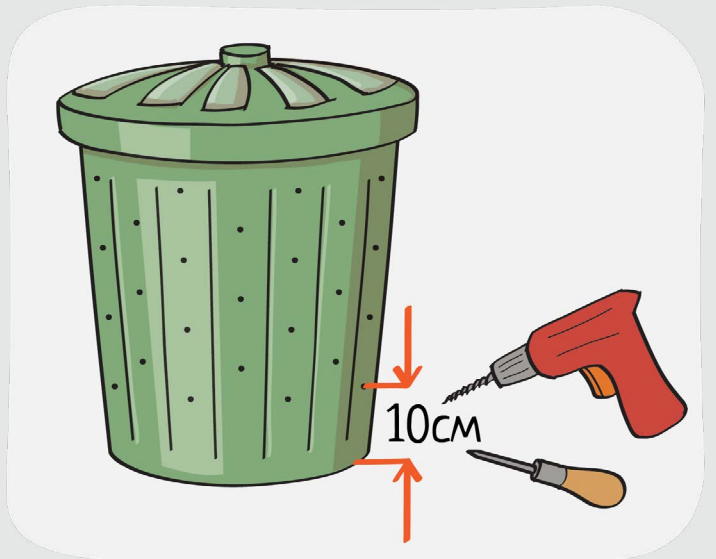
Its size depends on the size of your household and the consumption of plant foods. For example, for a household of 2-3 people with a predominantly plant-based diet, a bucket of 30-50 liters ( 8-13 gallons ) is usually enough. A bucket below 30 liters is not recommended, as its volume will not be sufficient to achieve the optimum process.



## DRILL HOLES

...to provide ventilation of the compost. Start at 10 cm / 4 inches from the bottom of the bucket to leave room for drainage and circulation of water in the compost.

If you don't have a drill, a sharp object would also work. Be careful not to get hurt!



# DIY aerobic indoor composter

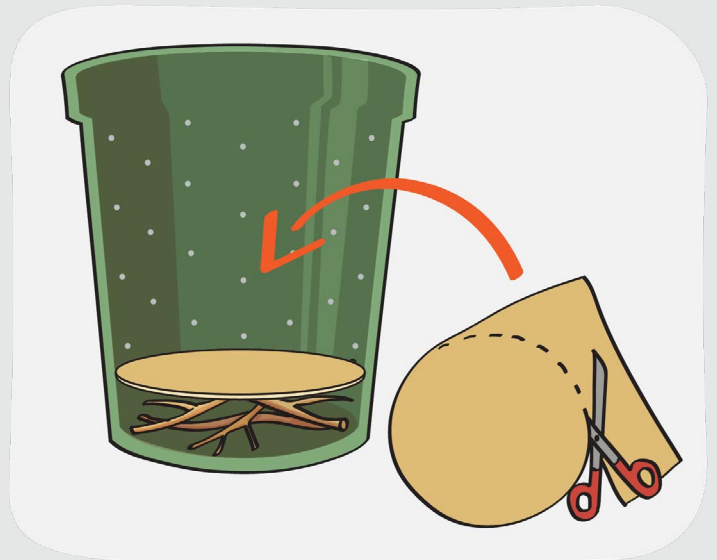
## PUT BRANCHES AT THE BOTTOM

All kinds of dry tree branches are suitable. You can collect them from your own garden or backyard or go for a walk in the park or a nearby forest. Arrange them so that they cover the bottom surface well, but at the same time there is air between them. They will act as drainage.



## PUT A BARRIER

Cut a piece of cardboard in the shape of the bucket's bottom and place it on top of the drainage branches. It will act as a false bottom and separate the branches from the waste. You can use a leftover piece of cardboard or a greasy pizza box. Every piece of waste can be a resource, right?



# DIY aerobic indoor composter

## ADD A HANDFUL OF SOIL

A handful or two of soil placed on top of the cardboard are more than enough. By doing so, we invite all the beneficial microorganisms that the compost needs to function. Make sure the soil is insect-free so they don't multiply and start crawling all over your home.



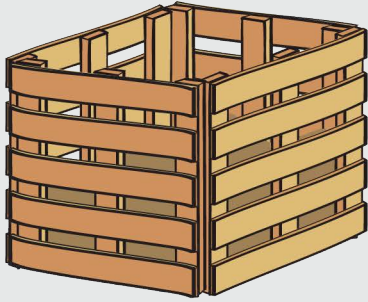
## YOU'RE READY TO GO!

Start applying layers of green (nitrogen) and brown (carbon) waste.

In an apartment, the composter works better if the waste is cut into smaller pieces so that the decomposition process happens faster. Once the bucket is 1/3 full, it is good to start stirring the contents twice a week.

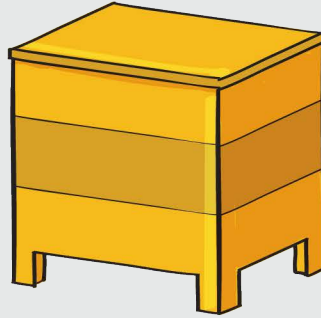


# Outdoor composters



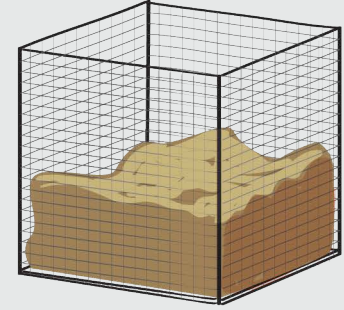
## PALLET BIN

Low-budget option for shared neighborhood composting. You can build one yourself (page 15)



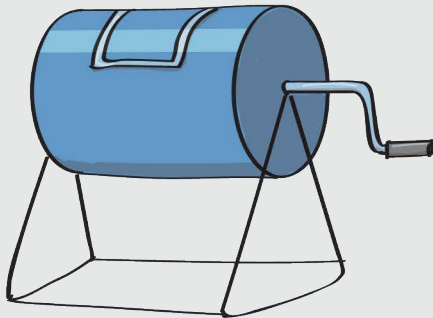
## WORM BIN

Worms can decompose large volumes of raw material in relatively small space.



## WIRE BIN

An easy way to make a large composter, but due to excessive ventilation it can dry out more easily.



## COMPOST TUMBLER

Designed for maximum efficiency in mixing and oxidation of the green and brown mass.



## PLASTIC BIN

It can be purchased ready-made. Suitable for shared use in the yard of residential buildings.



## COVERED PILES

Another low-budget option that does not include the purchase or construction of a special vessel.

# DIY aerobic outdoor composter

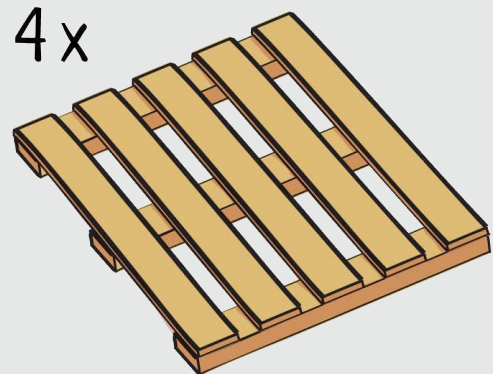
## CHOOSE A SUITABLE PLACE

Your garden composter should be easily accessible, but not somewhere where odors or liquids will cause inconvenience. Place it on flat, well-drained ground and make sure the area is properly sunlit. If the compost becomes too cold, it will slow down the composting process. If it gets too hot, we risk it getting too dry. The same can happen if it is in a windy place.



## FIND PALLETS

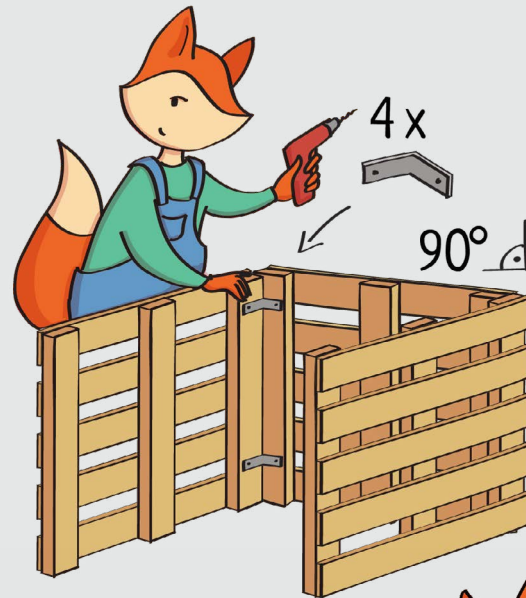
You will need 4 pcs. wooden pallets, preferably the same size. They can be purchased new or used from local businesses. This usually means that you will not need a high budget for the whole project. Make sure the pallets have not been treated with toxic chemicals (often the pallet has a seal that provides this information).



# DIY aerobic outdoor composter

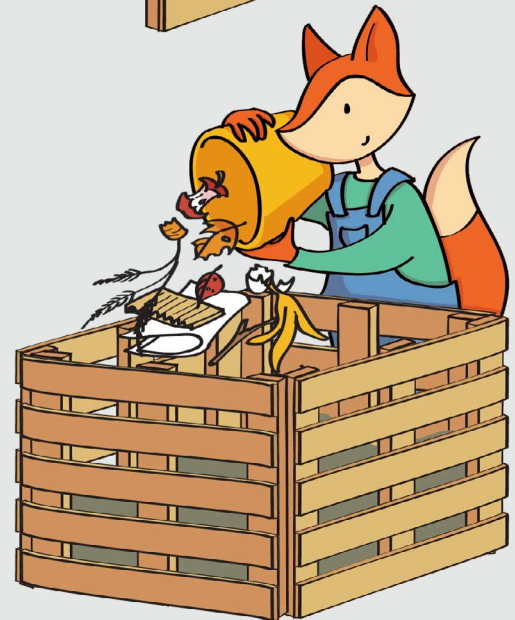
## ASSEMBLE THE PALLETS

To assemble the pallets together, you will need 4 pcs. angle brackets, screws and a drill or screwdriver. Start connecting 3 of the the pallets to each other forming right angles. Use the corner brackets, one at the top and one at the bottom of each corner, to hold the pallets in place. Connect the 4th pallet to one of the sides with hinges - it will serve as a door.



## YOU ARE READY TO START!

Now that you have the construction ready in the shape of a large box or cube, you are ready to start filling it! You can safely put all the above-mentioned organic waste from the kitchen or garden. Make sure again that you are looking for the right ratio of greens to browns. For a garden, that's usually around 1:3



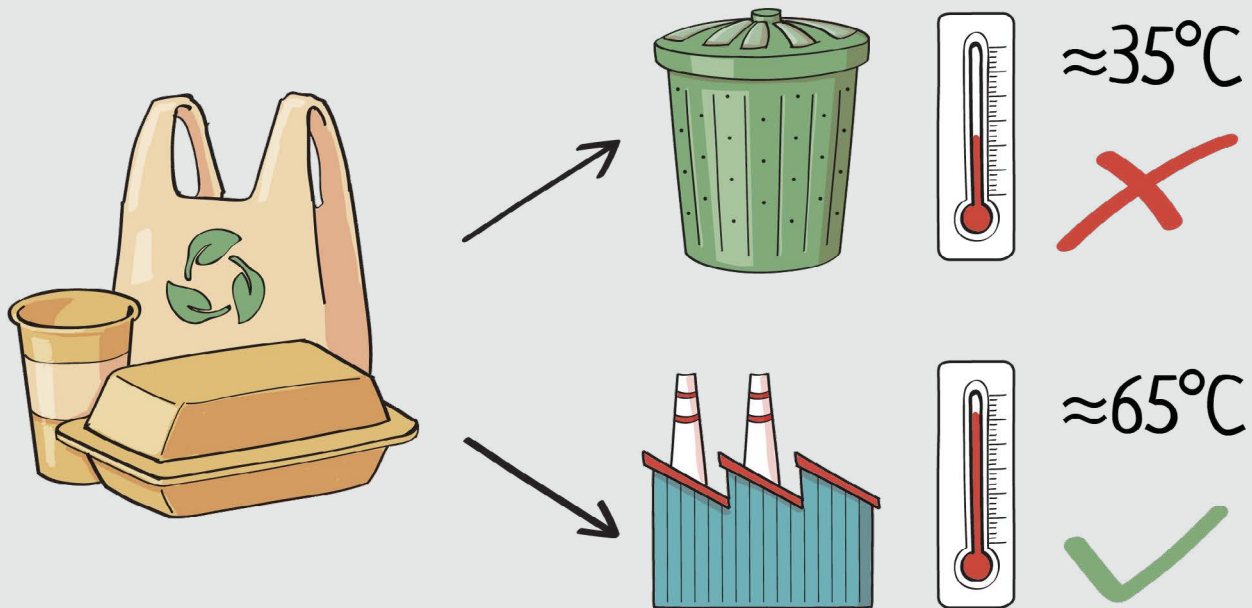


# Biodegradable items

Did you know that biodegradable / compostable items often:

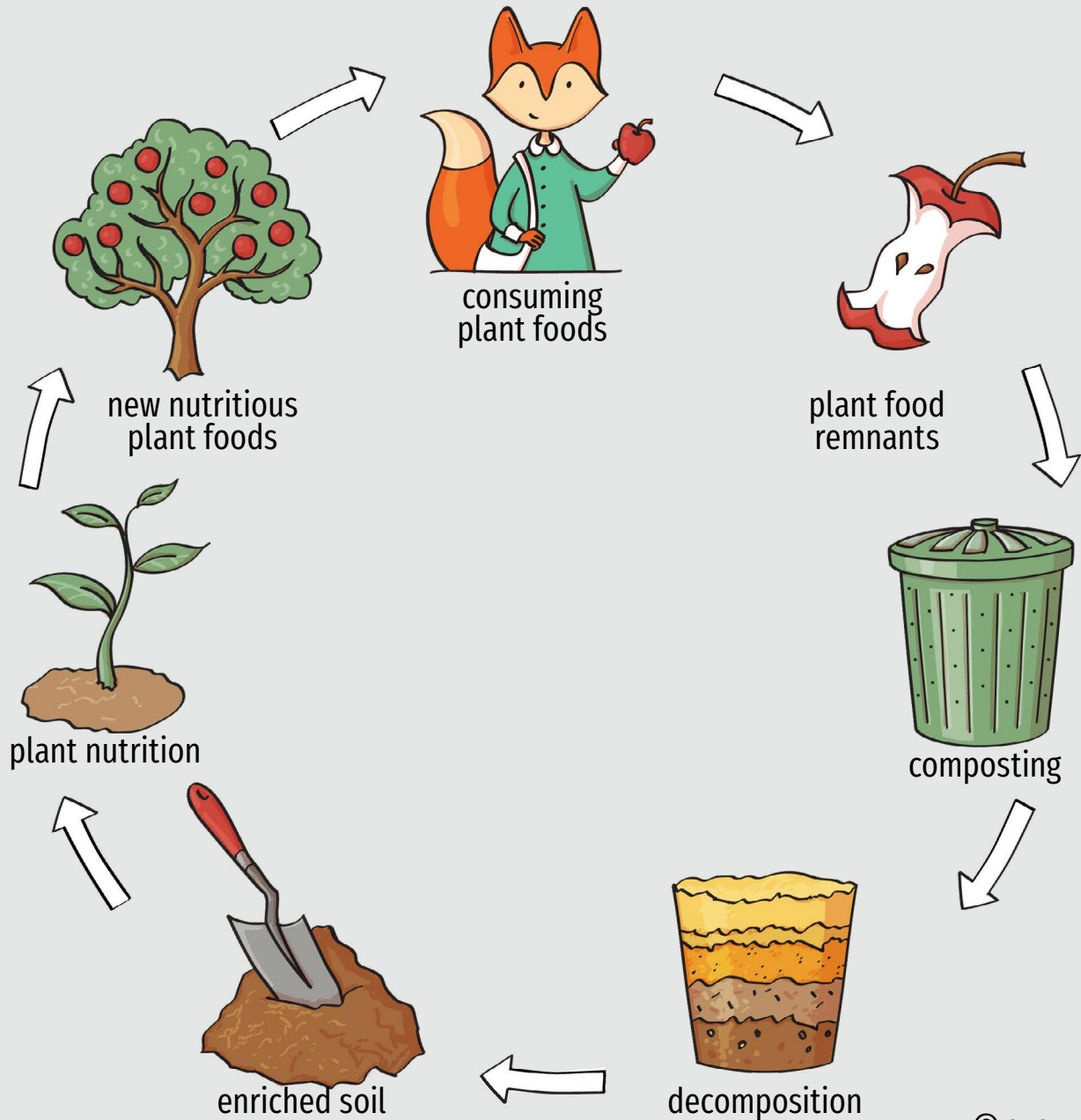
- can only be decomposed in an industrial composting facility;
- should not be mixed with food waste in the home composter;
- do not decompose much faster than plastic if they end up in landfills;
- should not be disposed of in plastic recycling containers as they create major problems for the recycling industry.

The reason is that their decomposition requires a much higher temperature, which is difficult to achieve in a home composter.



To reach biodegradable waste treatment facilities, these items must be disposed of in the organic waste containers in your area ( if they exist ).

# Composting cycle



# Who are we?

## MIRA PETROVA

Creator of the web comic Aware Animals, promoting sustainable practices and living with less waste.

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Madlen Zasheva of the Root Foundation for her tremendous help in creating this book.

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## SOURCES:

„Compost at home with Urban Experimental and MOVE.BG“  
[www.climateka.bg](http://www.climateka.bg)  
[www.bvc.de](http://www.bvc.de)  
[www.elegantz.bg](http://www.elegantz.bg)  
[www.soillearningcenter.com](http://www.soillearningcenter.com)  
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# Special acknowledgement:

## MADLEN ZASHEVA

Madeleine Zasheva is part of the youth generation that grew up in the volunteer circles of the non-governmental sector in Bulgaria, and like every one of these young people she carries in herself the love for the world, the different, the new, the change. She studied „Ecology and Environmental Protection“ at the New Bulgarian University, and before that she studied „Non-formal education“ at the Faculty of Pedagogy at Sofia University. She is a social worker by profession and works with various vulnerable groups. She has been working with the Root Foundation since the fall of 2019.

## ROOT FOUNDATION

Root Foundation shares the mission to find a place for nature in cities and to contribute to the development of a new sustainable culture in Bulgaria and globally. Their activities seek to advance, validate and implement various strategies, models and technologies for sustainable development in the fields of architecture, agriculture, education and culture. Their projects aim to promote the economic, social and environmental benefits of models that preserve, develop and improve natural resources, landscape, biodiversity and the quality of human life. The basis of their work is the implementation of cooperation with environmental organizations, universities, state, regional and municipal authorities, as well as with organizations related to the Foundation.

## FIND THEM:

[www.koren.bg](http://www.koren.bg)

[www.facebook.com/fondaciakoren](https://www.facebook.com/fondaciakoren)

[www.instagram.com/korenfoundation](https://www.instagram.com/korenfoundation)

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фонд  
„Култура“

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