Composts and composting

The process of composting is when, over time, fresh organic matter decays into humus, a stable substance.

Fresh O.M. → Humified O.M. → Humus

Humified organic matter has been partially broken down. It is at a very active stage in the process, with many microorganisms (mainly bacteria and some fungi) and much nutrient release. So humified O.M. (compost) is of great benefit when added to the soil.

Compost ingredients can be split into two main categories:

- Brown materials (paper etc), high in carbon and lignin (a key ingredient in humus).
- Green materials (veg and grass etc), high in nitrogen (vital for plant growth).

When building a compost heap, the rough proportions of these should be 50/50 green and brown. Most people put too little brown material in.

Hot and cold heaps

Hot (aerobic)	Cold (anaerobic)
All material is added at the start – none is added later on, so much material needed at one time	Materials are added gradually, so less are needed at the start
Produces quick compost ≈ 3 weeks	Takes longer to make compost ≈ 6-12 months
More work – needs turning every 3-7 days to maintain aeration and keep temperature up	Less work – turning is usually not required, or perhaps just once or twice
Seeds and pest/disease-affected materials can be added...IF heating can be guaranteed	Seeds/P+D-affected materials must not be added
Some nitrogen can be lost as ammonia, lessening the nutrient content	Worms can be used to assist the process

Most domestic or allotment composting is done in cold heaps, because few people have huge quantities of waste to put on the heap at a given time – it's far more convenient to add smaller quantities as you go along.

Types of compost heap

1. Covered heap – basically just a pile of composting materials sitting on the ground!
2. Pit heap  A pit is dug to partially hold the heap.

3. Plastic bin  No door is required on the side on the bin. It's a good idea to fold a layer of chicken wire underneath.
4. Wooden pallet or bin (New Zealand box)  Ideally there should be no gaps in the side for nutrients to escape through.
5. Tumbler  Not recommended. They usually have two compartments but, though the whole thing is easy to turn, it is not easy to transfer compost between chambers.

Summary

1. Most domestic compost heaps have material added gradually, making a cold heap.
2. The optimum ingredients for the bacteria that colonise heaps would consist of one part brown material (dry, carbon-rich) to one part green material (wet, nitrogen-rich).
3. Brown material, because much of it originates from wood and contains lignin, will go on to produce the soil-improving substance humus.
4. Green material will provide most of the nutrients required for plants to grow.
5. Materials that are slow to break down should be composted separately and animal products should not be included unless the heap is strictly controlled.