We want a 25:1 carbon to nitrogen ratio

Many ingredients used for composting do not have the ideal ratio of 25-30:1. As a result, most must be mixed to create a perfect balance.

High C:N ratios may be lowered by adding grass clippings or manures.

Low C:N ratios may be raised by adding paper, dry leaves or wood chips.

So🡪coffee grounds(20-1), grass clippings(20-1), wood ashes(25-1), newspaper(175-1), steer gro, seaweed if possible

So, we want concentrated materials off the list below.

We will want to mix frequently to prevent unpleasant odors caused by anaerobic (without oxygen) bacteria growth which puts off materials like ammonia and trimethyl amine, see list to be copied below.

**1-Anaerobic respiration**

-also called fermentation, of which we will cover 2 types.

-this process does not need oxygen to happen

-because fermentation does not use oxygen, less energy is produced, so typically used by single celled organisms if it is the only method of respiration used

2 types: incomplete chemical formulae here due to most of the process being assisted decomposition of glucose by the organism using ‘re-usable’ enzyme chemicals.

**A- Lactic acid fermentation**

-from glucose (C6H12O6) to lactic acid (C3H6O3) as the final product

**B-Alcoholic fermentation**

-from glucose (C6H12O6) to ethanol (C2H6O) as the final product

-of note, there are also many incompletely fermented products produced, which can

lead to combinations of ‘smelly’ molecules, which we will detail later.

-some organisms, select bacteria and fungi, only use anaerobic respiration and are

actually killed by exposure to oxygen.

-so, if we mix compost frequently, the growth of these type of bacteria and fungi

are limited by repeated exposure to oxygen.

-but, many organisms use anaerobic respiration when oxygen is in short supply

for a limited period.

**Ex:** your body uses lactic acid fermentation when you do anaerobic

activity🡪sprinting, weightlifting…burst activities

-this cause a buildup of lactic acid in muscle cells which results in the

‘burn’ felt during heavy, short term exertion.

-some organisms, called facultative (to live off different conditions) anaerobes,

such as yeast, can function equally well with or without oxygen

-so, without oxygen, they use fermentation, and in the presence of oxygen,

they use aerobic respiration.

**2-Aerobic respiration**

-this process requires oxygen to happen.

-Glucose to carbon dioxide and water

-less ‘smelly’ by products, more complete breakdown of organic materials into other re-

usable molecules.

🡪both processes release heat in a composting setting…consider the steam rising off piles of bark and compost at a commercial nursery like Carpinito’s.

**Materials to Avoid**  
**Coal Ash** - Most ashes are safe to mix into your compost pile, but coal ashes are not. They contain sulfur and iron in amounts high enough to damage plants.  
**Colored Paper** - Some paper with colored inks (including newsprint) contain heavy metals or other toxic materials and should not be added to the compost pile  **Diseased Plants** - It takes an efficient composting system and ideal conditions (extreme heat) to destroy many plant disease. If the disease organisms are not destroyed they can be spread later when the compost is applied. Avoid questionable plant materials. \*Avoid weeds that have gone to seed, as seeds may survive all but the hottest compost piles.  
**Inorganic materials**-This stuff won't break down and includes aluminum foil, glass, plastics and metals. Pressure-treated lumber should also be avoided because it's treated with chemicals that could be toxic in compost   
**Meat, Bones, Fish, Fats, Dairy** - These products can "overheat" your compost pile (not to mention make it stinky and attract animals). They are best avoided.  
**Pet Droppings** - Dog or cat droppings contain several disease organisms and can make compost toxic to handle.   
**Synthetic Chemicals** - Certain lawn and garden chemicals (herbicides - pesticides) can withstand the composting process and remain intact in the finished compost. Poisons have no place in the natural micro-community of your compost pile.

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| **Materials to Compost** | |
| **Browns = High Carbon** | **Greens = High Nitrogen** |
| Ashes, wood Bark Cardboard, shredded Corn stalks Fruit waste Leaves Newspaper, shredded Peanut shells Peat moss Pine needles Sawdust Stems and twigs, shredded Straw Vegetable stalks | Alfalfa Algae Clover Coffee grounds Food waste Garden waste Grass clippings Hay Hedge clippings Hops, used Manures Seaweed Vegetable scraps Weeds |
| **Estimated Carbon-to-Nitrogen Ratios** | | |
| **Browns = High Carbon** | | **C:N** |
| Ashes, wood | | 25:1 |
| Cardboard, shredded | | 350:1 |
| Corn stalks | | 75:1 |
| Fruit waste | | 35:1 |
| Leaves | | 60:1 |
| Newspaper, shredded | | 175:1 |
| Peanut shells | | 35:1 |
| Pine needles | | 80:1 |
| Sawdust | | 325:1 |
| Straw | | 75:1 |
| Wood chips | | 400:1 |
| **Greens = High Nitrogen** | | **C:N** |
| Alfalfa | | 12:1 |
| Clover | | 23:1 |
| Coffee grounds | | 20:1 |
| Food waste | | 20:1 |
| Garden waste | | 30:1 |
| Grass clippings | | 20:1 |
| Hay | | 25:1 |
| Manures | | 15:1 |
| Seaweed | | 19:1 |
| Vegetable scraps | | 25:1 |
| Weeds | | 30:1 |