

# What is a Recipe?

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## Abstract

This document presents an abstract specification for a much more useful type of recipe than is currently known to exist. It should be relatively easy for existing concrete formats to fit into this format.

This is a first attempt at such a specification, and it could need alterations.

## 1 Introduction

This article is about recipes for cooking. You would think that everyone knew what a recipe is, since it is easy to find recipes on web sites, and even a few different Document Type Definitions or XML based languages which purport to describe a recipe.

While these various definitions of a recipe all work in general, they all miss on some points. And many recipes that you find on the Internet might as well be preformatted ASCII text for all the searchability they offer. Surround them with advertisements, headers, trailers and frames that have nothing to do with the recipe, and it's a wonder anyone can find anything. Well, maybe things aren't quite that bad, but it's close.

A recipe has 2 main parts, a number of minor parts. The first main part is the list of ingredients, and the other main part is the list of instructions to turn the ingredients into the final target.

## 2 Title

The title of a recipe is a short, but important part of a recipe. Quite often, it is the title that we actually want to search. Of course, some chefs obfuscate things and employ a title different than one we might think of.

Within the context of defining a recipe, we probably want a single title (which is up to the chef) and an arbitrary number of alternate titles which would hold things like: more common titles, the title without "foreign" characters, or titles in other languages.

A title search would probably search all of these fields, and only those fields.

## 3 Ingredients

Ingredients are what we make the recipe out of. Normally, a single ingredient is composed of a description of the type of substance and a specification of how much is needed.

Some ingredients come in distinct units: for example, a recipe might call for one apple. Unfortunately, this often isn't a good specification, there are different kinds of apples and different sizes of

apples. A mass of apple would be better. Some people are quite skilled in terms of cutting apples, and could find 1.375 medium apples. Medium still being a fuzzy specification.

A well made recipe might specify a minimum mass of apple (at some particular water content) and a maximum mass of apple. Other things the well made recipe might offer are:

- alternatives
- special precautions
- nutritional information
- an identification code (URI)

Alternatives have the same requirements as the ingredient does, except that alternatives probably shouldn't be nested.

Some ingredients will change colour or taste if prepared too far in advance. Special precautions are meant to explain this kind of thing to the cook.

Some people might have special nutritional requirements, having this information in the recipe, or a pointer (URI) to this would be a good idea.

Some ingredients might be fabricated food products in their own right. In which case, the identification code should point to a recipe.

## 4 Instructions

Instructions tell a person how to assemble the ingredients into the target. Each step needs a time estimate.

The instructions might tell the cook:

- what size/texture an ingredient or group of ingredients is to have,
- exposure to a certain temperature for a certain length of time,
- technique to use in exposing it
- reasons for doing so

The cook might be told to coarsely cut something (for example, bite size pieces) or to puree. A big part of the eating experience is texture. Another part is smell and flavour, and particle size will effect how well some foods exchange smells or flavour.

Exposure to temperature for time is an off hand reference to cooking, but it doesn't have to be. For certain kinds of meat cutting, you want to work on a refrigerated piece of meat, since it will be firmer. This might be a vague description. If you are trying to dehydrate something, how long depends on the relative humidity and temperature.

The chemical reactions that take place in cooking depend on temperature. Most of the time, there are many kinds of chemical reactions happening. Not all of these reactions happen at the same rate, or change their reaction rate in the same way with a change in temperature. Some reactions depend on certain ingredients. One of the ways that the temperature experienced by the food is controlled, is the method of cooking. Deep frying is different from pan frying.

The reasons section is there to explain critical parts of the step. If you are making a Crème Brûlée, there are certain steps that are more critical than others.

## 5 Sub-Recipes

Quite often a recipe is divided into parts, where the object of a part is to produce something which is itself the product of a recipe. For instance, you might need to make a certain amount of a sauce.

This section is a (series of) pointer(s) to these recipes for parts of the main recipe.

## 6 Production Amount

How much of the final product does this recipe produce? You need to know this, especially if this recipe is a sub-recipe to something else for scaling reasons.

Number of servings might be an optional part of this specification. The number of servings implies something about serving size, which is a rather subjective quantity.

## 7 Equipment Used

This is a section which occasionally needs to be searched. Maybe the only thing you have is a cast iron frying pan, finding a recipe to cook in it might be a nice thing to be able to do.

As with ingredients, this section needs an optional list of alternates for each piece of equipment.

Each piece of equipment should be able to specify a reason. There are times where a serrated knife is better than a single curve knife.

Each piece of equipment should be able to specify precautions. Use the food holder when employing a mandolin to slice food!

## 8 Techniques Used

Few cooks look for recipes because they are looking to use a particular technique, but instructors do.

## 9 Leftovers

Does this recipe freeze well? Specific recommendations would be nice, but in a world of litigation this might not be practical. We would end up with the WHMIS/MSDS warning everywhere, "Dispose of uneaten product immediately by mixing with gasoline and burning in a chemical incinerator equipped with afterburner."<sup>1</sup>.

## 10 Nutrition Information

If the instructions do not call for cooking, the nutritional information of the product can be derived from the nutritional information of the ingredients. However, cooking will alter things. Nutritional information cannot make allowances for alternate ingredients, you would have to come to your own conclusions on how an alternate ingredient would change the product nutritional information.

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<sup>1</sup>I've seen that MSDS warning with both sugar (sucrose) and sand in a chemical lab.

## 11 Precautions

Recipes need precautions? A few might. The most obvious one to me is for recipes containing lots of capsaicin, the active ingredient of note in chili's. You might warn people to have milk products nearby. But there are a few other foods which might warrant precautions.

## 12 Difficulty

Some measure of recipe difficulty is needed.

## 13 Grade

Many places that store recipes (books or databases), also provide some kind of grade assigned by people who tasted or tried cooking the recipe. The specification might as well hold it.

## 14 Time

Even though each step has a time estimate, cooking often involves doing things in parallel, or wait times. Having an estimate of preparation time and hold time (before serving) is needed.

## 15 Summary

This specification of a recipe has significantly more usefulness than what can be currently found. A person can either find a fruit salad recipe, or a recipe using fruit salad as an ingredient.

This format allows for a chef to be creative in how he/she names his/her creations, while still allowing others to find the recipe. The format allows an instructor to search for recipes based on techniques or equipment used. There is also enough information there to allow people to search based upon nutritional requirements. However, that could require considerable auxiliary calculation.

A recipe format of this complexity can also serve as a teaching document to new cooks. Few cooks would want to see all of the information present all of the time when actually putting the recipe together in the kitchen. But having this information available at the planning stage will often be invaluable.

In a HTML (web) context for the final document, it is still of minimal search-ability because of the inability of HTML to represent structure. XML and database type interfaces would allow all the search-ability needed.

This format is better represented in situations where documents can contain pointers to other documents. This is needed for sub-recipes, might be needed for nutritional information