The main types of spirits that we’re all familiar with begin with a number of raw materials. These include:

- **GRAINS**
  - such as barley, corn, wheat and rye

- **FRUITS**
  - such as grapes

- **SUGAR CANE PRODUCTS**
  - such as molasses and sugar cane juice

- **VEGETABLES**
  - such as potatoes and agave

In order to produce a spirit by distillation you need to start with an alcoholic product. Spirits can be produced from any raw material containing sugar, which can be fermented by yeast into alcohol.

### Fermentation & Distillation

- **Fermentation**
  - is the conversion of sugar to alcohol by the action of yeast enzymes. The spirit produced is around 5-10% ALCOHOL.
  - Fermentation is vitally important in the CREATION OF FLAVOUR. If the components of flavour (congeners) are not created at this stage they cannot be concentrated in distillation.

- **Yeast**
  - therefore has a significant impact and most spirits producers choose their yeast carefully because it helps to give specific FLAVOURS that they want in their spirit.

- **Distillation**
  - The length of fermentation is also important. Longer timescales create a WIDER range of different aromas and flavours.

Fermentation produces not just ethanol, but a whole range of other alcohols such as propanol, butanol, methanol and amyl alcohol (fusil oil). It can also create aldehydes, esters and acids.

The distiller chooses which of these they wish to concentrate and retain in their spirit and which they wish to discard.

The next process is **Distillation** where the alcohol level is concentrated.
Fermentation & Distillation

Distillation separates the alcohol from the liquid used during fermentation (mainly water) increasing its strength in the process. It works because alcohol boils and turns into vapour at a lower temperature than water. This vapour is collected and condensed into a spirit with a higher concentration of alcohol than the wash that was initially heated.

There are two basic distillation methods:

1. **POT STILL** – A batch process that produces characterful spirits of relatively low strength. This typically small-scale process tends to be artisanal, slow and expensive but the characterful spirit it produces makes these challenges worthwhile.

2. **CONTINUOUS/COLUMN STILL** – A continuous process that can produce very high-strength neutral spirits or lower strength spirits by design. This process is typically industrial, cheaper and faster and produces higher volumes however the spirit produced has less character and taste.

After distillation the pure spirit that comes off the still is colourless. At this point other ingredients can be added to it such as the botanicals (herbs and spices) used in gin production.

It can also undergo maturation, the aging process applied to some spirits where they are stored in wooden casks to mellow and soften the spirit, enhancing the flavour profile and changing its colour.

After maturation the spirit can be blended with other matured spirits to achieve a flavour balance and consistency of a "house style" of spirit over time.
Being a more artisan and premium process, it gives the product more character and taste. It's a more expensive process and usually a smaller scale operation.

**The overall process is:**

1. Raw ingredients are added to water and sometimes milled or roasted to release the flavours.
2. Yeast is added to the mix. The yeast eats the sugars in the ingredients and produces alcohol. This is called fermentation.
3. The still is where the liquid is evaporated and the alcohol is distilled. The more times we do this, the better the alcohol.
4. The alcohol is then filtered, where more of the impurities are removed.
5. After filtering, for a number of sub-categories like whisky and rum, the ageing process begins. This is where the alcohol is aged in casks.
6. Once ready, the final product is bottled.

**The benefits of the process are:**

Being a more artisan and premium process, it gives the product more character and taste.

**The disadvantages are:**

It's a more expensive process and usually a smaller scale operation.
The continuous still (also known as the column still) does a similar role to the pot still, but is different, both in its shape and the extent of the distillation process.

For the most part, the benefits of the continuous process are:

Lower costs and higher volumes.

The disadvantages are:

Less character and taste.

In general where a continuous still is used, the ageing part of the process is less likely to be included.

Where possible, a good range will have products made using both continuous and pot still.