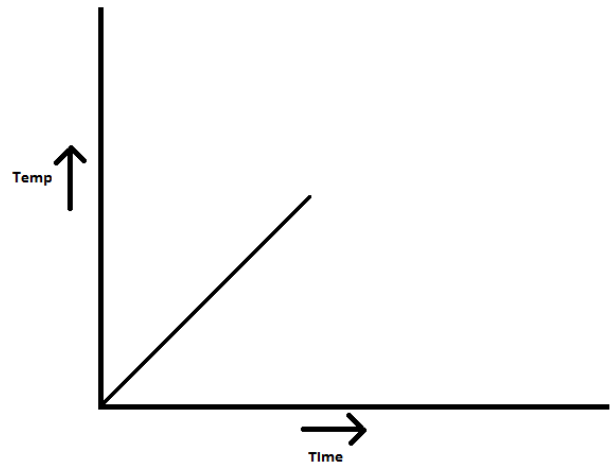
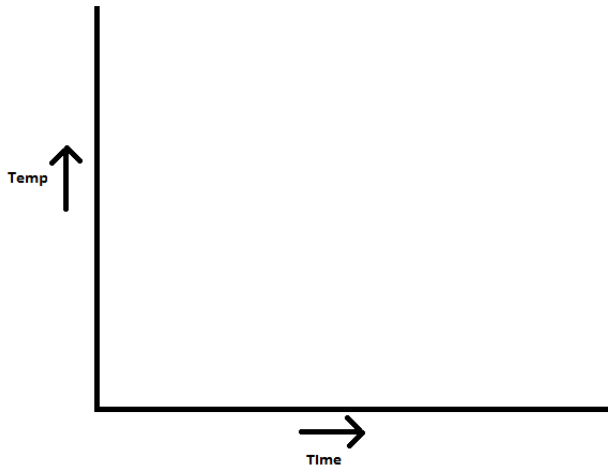


Firing Your Kiln

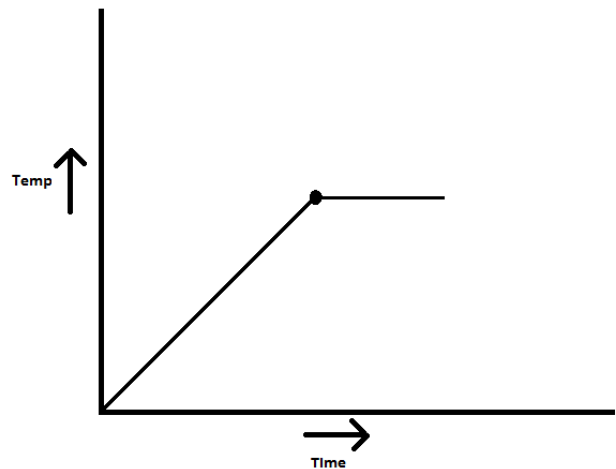
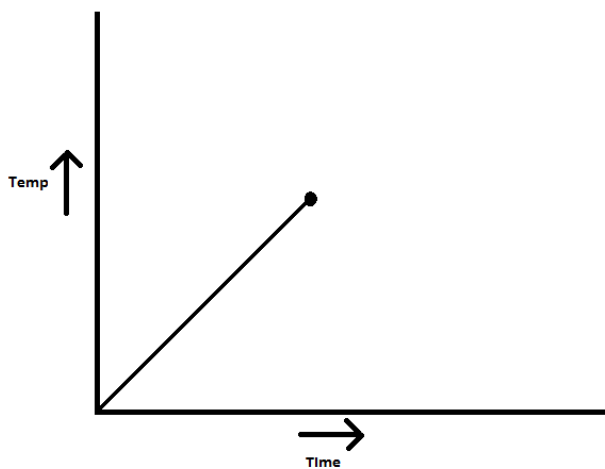


Firstly, we need you to consider the firing as a graph...



Then we are going to set the firing. The first item is to sort a rate of rise.

Which would look like this, we call this a ramp. We set the ramp in °C/hour.



We then set a temperature at which the ramp ends.

We might, or might not, then want to set a soak. We set a soak in hours:mins. Hours and minutes written like pounds and pence, with a decimal between.

A Ramp
A Temp = **A Segment**
A Soak

The controller splits the firing into segments, which are a ramp, a temperature and a soak.

We can then add another ramp, temperature and soak, a segment as we need. Each of the 32 programmes available offers 32 segments. That's 32 ramps, 32 temperatures and 32 soaks, if we need.

Not only do we need to consider the thickness or mass of the pot, but the kiln overall too.

Firing Your Kiln



We'll come to loading the kiln soon but going back to the mass or weight of clay in the pot and the kiln.

So, two examples.

We can't really fire these two pieces together successfully.

If we set the kiln to fire the thin bowl, the chunky pot will not be fired through.

If we set the kiln to fire the thick pot, we may warp or melt the thinner bowl.

Similarly, a few pots in the kiln can be fired quicker than a whole packed kiln full, if we want the kiln to fire evenly.

Firing Your Kiln



So, how do we know what numbers to set for ceramics?

Ceramic is an insular material and so there is no quick or easy way to get the heat through it, purely a matter of time and temperature.

Ramp Times

25°C/hour - 50°C/hour = Very Slow – This would be suitable for large or thick pieces – ¾" thick or 20mm

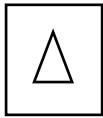
50°C/hour - 75°C/hour = Slow – ½" thick or 13mm

75°C/hour - 125°C/hour = Usual/Normal – This would be suitable for tableware, regular thickness pieces, cups or bowls, etc – ¼" or 6mm

125°C/hour - 175°C/hour = Quick – ¼" – 1/8" or 6mm – 3mm

175°C/hour - 200°C/hour = Fast – This would be suitable for thin and small pieces, such as buttons and brooches, etc – 1/8" thick or less or 3mm thick or less.

The ramp options available on the controller are;



'Full'
999
998
ETC...
ETC...

If we press the up arrow button, with the ramp light on the mimic display 'blinking'



3
2
1
End

If we press the down arrow button, with the ramp light on the mimic display 'blinking'

Caution!

If we set the ramp time too slow, there is a chance that we can warp or melt the clay to be fired and so damage the kiln internally.

If we set the ramp too fast, the pieces may explode!

Firing Your Kiln



Setting the Temperature

Bisque Firing – Pots can touch when firing

All clays can fire to 1000°C for bisque firing. The only exception is china, which bisque fires to 1260°C - 1280°C.

A bisque firing is traditionally considered 1,000°C over 10 hours. It can be quicker for thinner pieces or slower for heavier pieces.

When loading your pots or pieces into the kiln for a bisque firing they need to be dry, as dry as can be. They can all touch in the kiln, both pot to pot, maybe one inside another and can touch the side of the kiln.

If stacking the pots be sympathetic to the pot on the bottom of the stack, don't stack too high as you may damage or crush the lower pieces. It's fine to place shelves in the kiln to split the load and to fill the kiln top to bottom if the pots to be fired can stand it.

Glaze Firing – Pots must not touch when firing

Temperature should be shown on the glaze packaging.

If you are making your own glazes, then the recipe should give you maturity temperatures.

So, say your glaze packet/recipe says 1200 - 1260°C.

Firing Your Kiln



Then; if we know the clay we made the pot from will fire to these temperatures, then if we'd set the kiln to 1200°, I'd expect the glaze to be dull, no shine generally underdone, you get the idea.

If we set the kiln to 1260°C, I'd expect the glaze to be very shiny, fully mature, running off the pot, maybe even a bit of glaze on the shelf.

So with that in mind, a temperature in the middle would be the ideal starting point – if we don't use a soak, but...

In glazing the pots we are putting a coating of glass on the pots and when firing this coating will become liquid. This being so we need to keep the pots away from each other and the kiln, so as to prevent them from 'sticking'.

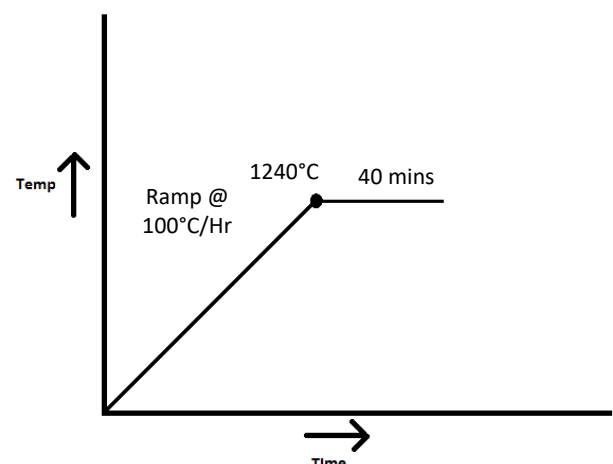
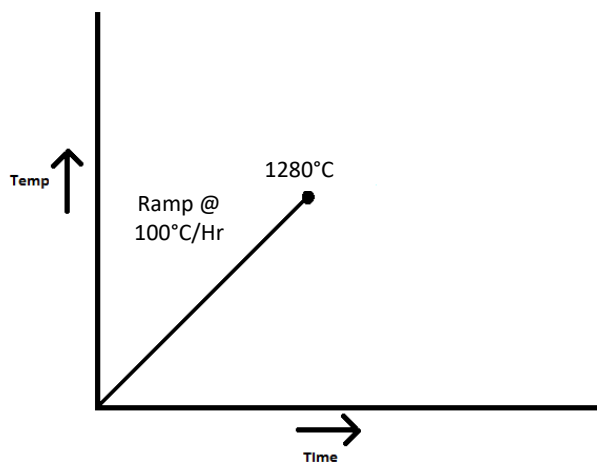
Why soak?

3 good reasons;

Economy – Cheaper firings – less electricity
Economy – Lower maintenance – more firings
Better, more lustrous finish

Heat work is time and temperature. Often people only value temperature, when the ramp or speed to temperature and soak at temperature can greatly alter results.

As a rough rule of thumb, for every degree taken off the top temperature, add a minute soak. See below.



Both firings would give very similar results, but the firing with the soak would use less energy.

Firing Your Kiln



Venting

There is a bung or damper on your kiln, which serves two purposes.

The obvious, once the kiln has fired is to help the kiln cool, by taking the bung out (top loader) or opening the damper (front loader) after the firing.

The second and less obvious is to let moisture from the clay being fired out of the kiln on the way up.

Damper closed or bung in between 300°C to 600°C.

Damper open or bung out between 600°C to 300°C depending on the pots inside.

Happy Firings!



