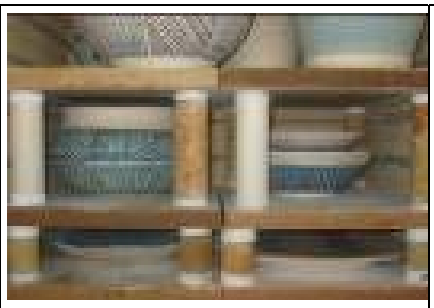
# Ceramics: Packing a Kiln. How to pack a Kiln.

## EQUIPMENT: What you will need

| | | |
|---|---|---|
|  Electric kiln |  Kiln shelves and props |  Damp,sandy clay (small amount for coiling around cones |
|  Pyrometric cones (for measuring the temperature in the kiln) |  Kiln bungs |  Safety goggles (same as for welding) |

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# SAFETY: How to stay safe

Only use a kiln that has been wired up by an electrician.
Always turn off the power before you open a kiln door.
Make sure the kiln is cool, (no hotter than 80 degrees Celsius) before you open the door.
Carefully remove any glaze spills off shelves or props that have been through a firing. They can cut like glass.
Do not touch a kiln when it is on. Be very careful to keep children away from a hot kiln.
Do not stay in the same area as a kiln when it is being fired. It can release poisonous gases.

# Glossary: Words you need to understand

**Kiln shelves & props**
Ceramic work is placed on shelves inside the kiln. Props higher than the work packed on the shelves make legs for the next shelf to be placed on top. Made of special ceramic material, these are also known as kiln furniture.

**Safety goggles**
These should be worn at all times when looking inside a hot kiln. They should have green glass in them like welding glasses. Wearing them will prevent serious damage to your eyes

**Pyrometric cones**
small cones made of ceramic material that give a very exact reading of heat that ceramic work has received inside a kiln. They have numbers on their side to show what temperatures they are to be used for.

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# Packing a kiln

## Place shelf props

Place three short props of even height on the floor of the kiln. This is for the first shelves to go on.

One at the back in the middle, and two at the front under each corner.

## Place shelf

Place the first shelf on these props.

Be careful not to knock the kiln walls with the shelf.

## Leave space around the sides of the shelves

There should be at least a 5cm gap between the shelves and the kiln wall.

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## Next shelf

Load low work onto these first shelves. Leave room for the props to hold the next shelf. Place the next props in.

They need to be higher than the tallest work.

## Place more shelves

Place the next shelf carefully on top of the props. Let it down evenly.
Pack more work on top of this shelf. Keep going until all the work has been packed in.

## Placing the cone

Place pyrometric cone with correct number on a shelf or prop so that it can be seen through the spy hole.

See **Firing a kiln using pyrometric cones** at the end of this section for getting the correct temperature in the kiln.

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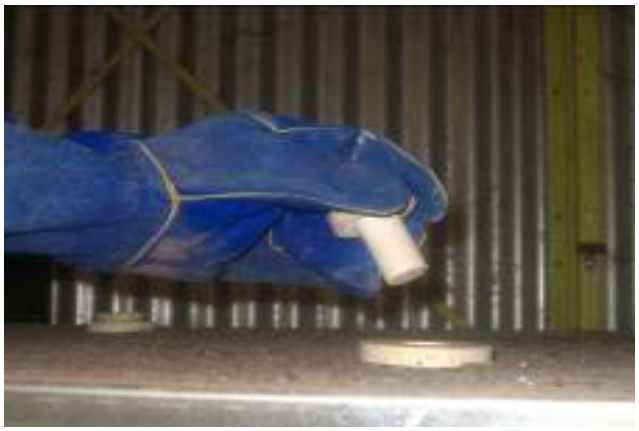
## Close kiln

Close the door securely.

## Remove bungs

Remove the bungs from the door and the chimney.



## Turn on kiln

The kiln is now ready to turn on.

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# Tips: Packing a kiln

Placing shelves on 3 props is more stable than placing it on 4 props, and you don't need as many!
Allowing for space between the kiln walls and the kiln shelves lets the heat circulate freely and evenly around the ceramic work. It will help glazes to melt evenly.
By loading low work in first, the props for the next shelf do not need to be very tall and so will be more stable.
To make props more stable, add a little rolled in sand between props and shelves.
The work can touch, or even sit inside each other, when it is a low temperature firing and there is no glaze on the work.
Replace bungs in door and chimney when temperature has reached 600 degrees Celsius. Wear heat proof leather gloves. Be very careful of heat coming from chimney.

# Using Pyrometric Cones to fire a kiln

Different number cones will read different heat work or temperatures. A chart on the box containing the cones explains which cones you will need for which temperatures.

The procedure is the same for all the different cone temperatures. If the kiln is rising in temperature at approx. 100 degrees an hour, start to check the lean of the cone about 50 degrees before the temperature you wish to reach.

If the kiln has been firing very slowly, less than 100 degrees rise in temperature an hour, check the cone at a lower temperature.

This difference is because the work will have received more heat over a longer time, even though it may not have been as hot. This is known as ***heat work***, and it is why we use cones. It is this heat work we need to measure to get good results, particularly when using glazes.

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Try to remember how much of the cone you can see through the spy hole, when you first set it up. Even do a little sketch of it. This will help you to locate the cone when the kiln is very hot and it is hard to see inside.

It might be very tempting to take off the safety goggles if you are having trouble locating where the cone is. **This is very damaging to the eyes.**

Instead, with the bung removed, and being very careful not to get too close, blow gently into the spy hole. This will clear the hot air inside the kiln and help you see more clearly.

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