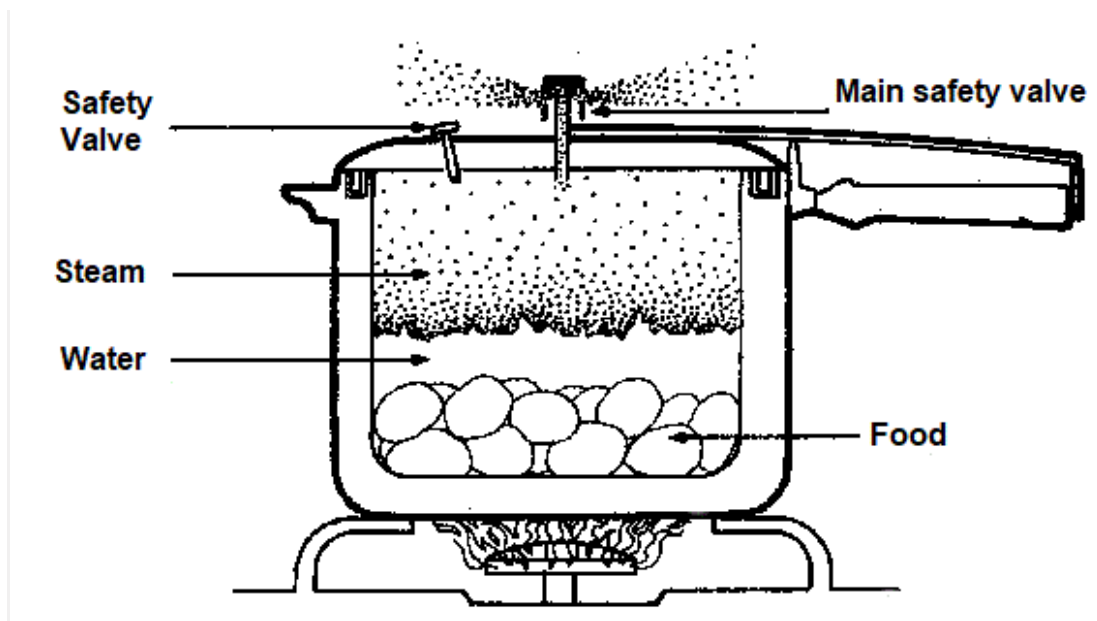


# PARABOLIC SOLAR COOKERS, PRESSURE COOKERS AND HEAT RETENTION – Prof. Elmo Dutra Filho, Porto Alegre City – South Brazil

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## 1. Pressure cookers

At sea level, water boils at 100 Celsius degrees. In higher altitudes (smaller atmospheric pressure) water boils in smaller temperatures. At 9000 meters water boils at 70 Celsius degrees! In other way, if we increase pressure, also the boiling temperature increases. This is the principle of pressure cookers. Working with pressure of 1.2 to 2 atm, boiling temperature increases to more than 120 Celsius degrees, and food cooks faster.



There are two safety valves that avoid it to explode. The main safety valve consist in a weight that reliefs the boiling pressure. If it clogs, it is dangerous and it may explode too. To avoid it there is a second relief valve a little bit different. It works with increasing temperatures that melts it, relieving the higher pressure. Black pressure pans works better with parabolic solar cookers.

## 2. Parabolic Solar Cookers



Pressure cookers need high boiling temperatures, and a parabolic solar cooker will be required. This kind of solar cooker concentrates heat better below the pan, and normally will need diameters higher than one meter. This solar cooker in the pics has a 1.2 m diameter.



### 3. Heat Retention

Because of higher temperatures, heat retention allows to continue cooking food by boiling for more than 30 minutes without any energy. Only with residual heat. Just put the pressure cooker inside the heat retention box for more than 30 – 40 minutes.

