

Buzzing away in the corner of your kitchen, a freezer keeps food and drinks ice cold, but how does it work?

COOL CUSTOMER

Food goes off because microbes growing on it (and in it) turn it bad. But this bacterial activity slows in the cold. Below the freezing point of water, most microbes pretty much stop growing altogether. A freezer keeps food between -18°C and -23°C – pretty cool, huh?

GAS POWER

A freezer takes heat out of a box and dumps it into the surrounding air. The key to doing this is gas, and the fact that changing the amount of space it has alters its temperature. Squeezing a gas makes it hotter, while letting it expand makes it cool.

NEED TO KNOW



CHILLER CABINET

The box that is kept cold.

HEAT PASSES INTO THE ROOM FROM THE CHILLER

EXPANSION

As it enters the chiller cabinet, a valve allows the coolant to expand. This causes it to turn into a gas and makes it get very cold. This same process happens in an aerosol spray can.

RADIATOR

A metal grille helps get rid of the heat of the compressed gas.

HEAT ABSORBED FROM THE CHILLER CABINET

COMPRESSOR

An electrically powered pump squeezes the coolant, turning it back into a liquid. The noise of the pump is what makes a freezer hum.

COOLANT

Inside the pipes is a substance called a coolant. Also known as a refrigerant, it moves heat from the freezer box to the outside.

