# Logic Worksheet 1

For all:

* include truth table
* screen shots of the circuit working

## Car Door

Create a circuit to make the internal light come on when a car door is opened. The internal light should come on when either the left door (A) is opened, the right door (B) is opened, or both.

## Nuclear Launch

Create a circuit to launch nuclear missiles only when two separate keys (A and B) are both turned to on at the same time.

## Landing Light

Create a circuit to make an upstairs landing light come on if the downstairs switch (A) is switched on, or if the upstairs switch (B) is switched on. If both switches are on then the light should switch off.

## Fridge Light

Create a circuit to switch on the light inside a fridge if the circuit (A) is broken by the door opening. If the circuit is connected (and A is on) then the light should stay off.

## Burglar Alarm

A burglar alarm has 3 inputs

* A (the main on/off switch)
* B (a door sensor)
* C (a motion sensor).

Once the alarm is set to ON, either sensor A or B can trigger the alarm.

## Electric Oven

An electric oven has two inputs –

* A (the main on/off switch)
* B (a thermostat)

Once the oven is switched on the thermostat gives a ‘0’ signal while the oven is cold and a ‘1’ signal if the oven is too hot.

## Car Park (2 spaces)

A car park has 3 pressure sensors to check if a car is present (0 if empty, 1 if full). A light switches on if there is an empty space available.

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## Half Adder

A half adder takes two input digits (A and B) and adds them (0 + 1 = 01, 1 + 0 = 01 and 1 + 1 = 10)