

# DIGITAL LOGIC CIRCUITS

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On behalf of The World Association of Technology Teachers

## W.A.T.T.



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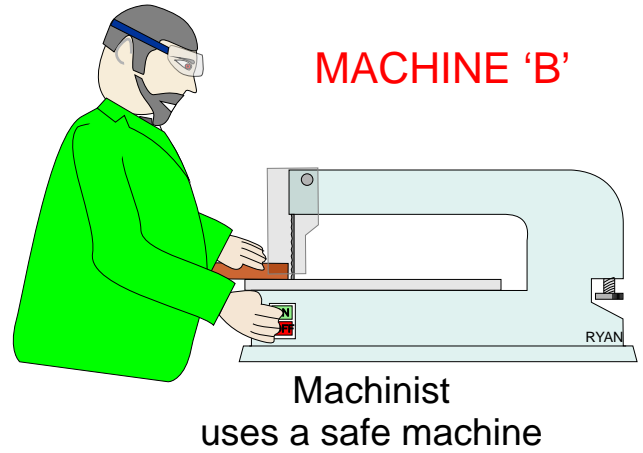
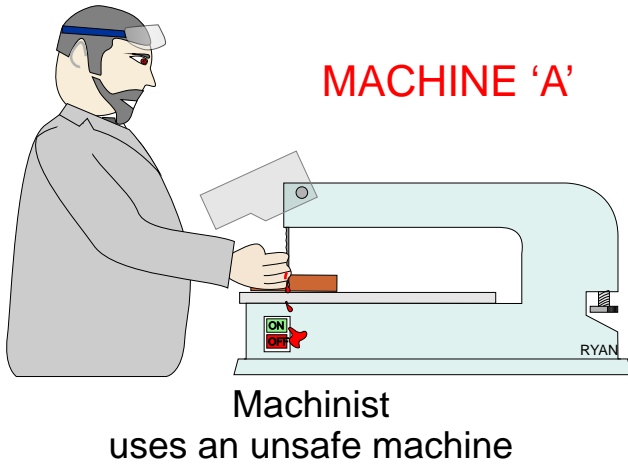
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# BASIC LOGIC GATE - CIRCUITS

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In manufacturing industry safe use of machines is very important. All machines should be set up in such a way that it is impossible for the machine operator to have an accident. Machine 'A' is unsafe because it can be turned on and used when the guard is out of position.

Alternatively, machine 'B' has been fitted with a logic circuit. It is designed to ensure that the guard is in the correct position and the 'ON' switch is pressed simultaneously, before the machine will work.

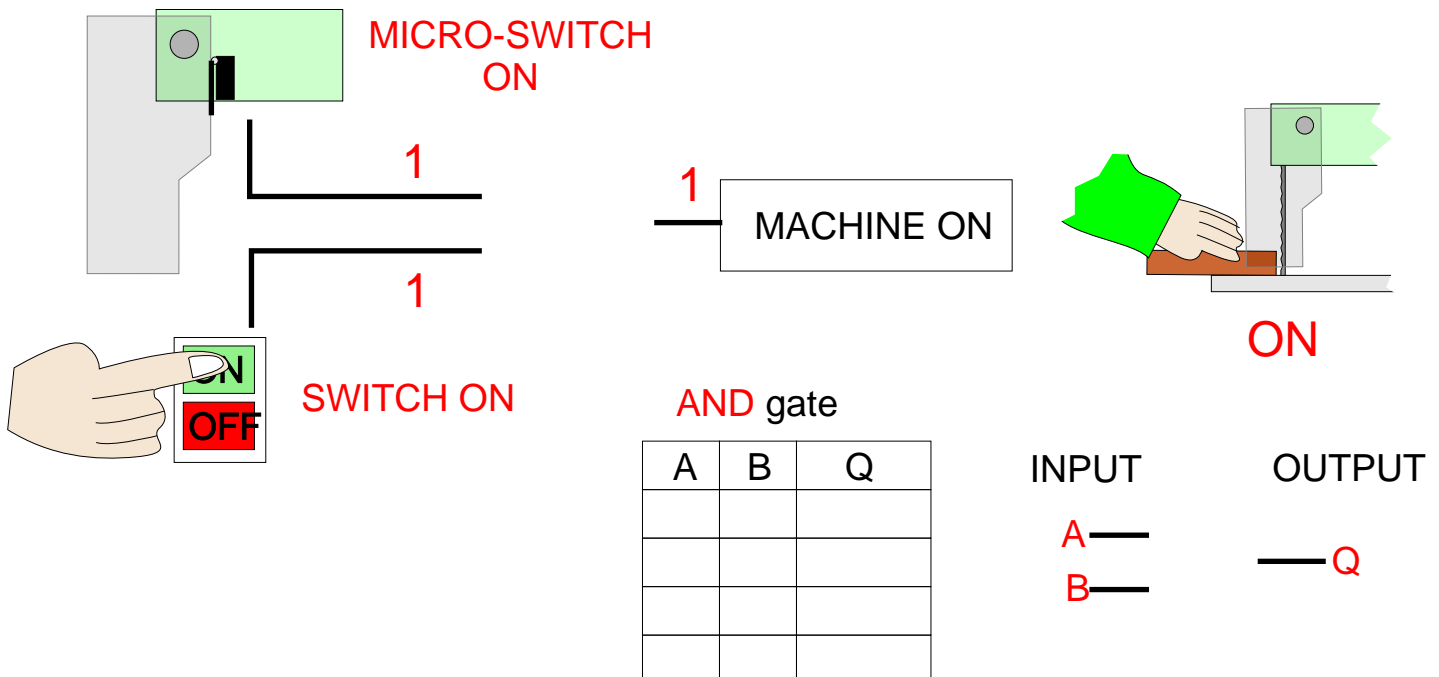


The diagram below shows the micro-switch has been switched on as the guard is in the right position. Also, the 'ON' switch has been pressed simultaneously. This means that the logic states of both inputs are 1 (true, on, high, up).

Complete the diagram by drawing the correct logic gate that allows the machine to work.

Complete the Truth Table for the logic gate.

Draw the correct logic symbol alongside the truth table.

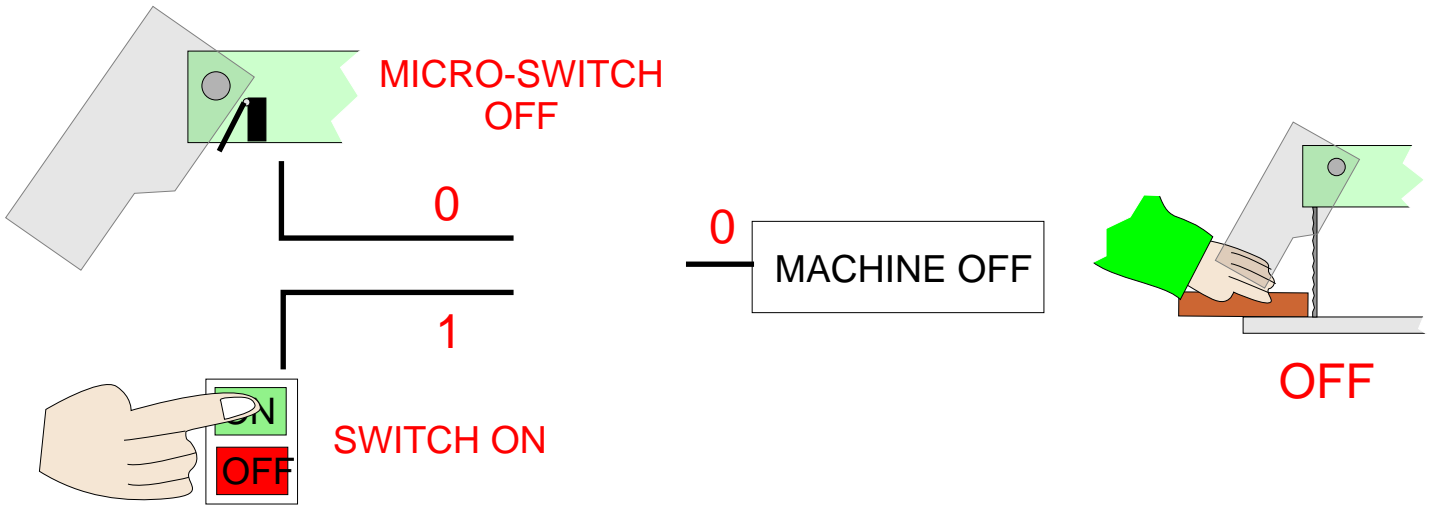


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The diagram below shows the machine not working.

Draw the gate symbol in position.



Why does the machine not work? Write a detailed answer.

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In the space below draw an alternative gate or series of gates that will give the same output. It should allow the machine to work when the guard is in the correct position and the switch is pressed. I should prevent the machine from working when the guard is not in the right position and the switch is not pressed.

DIAGRAM / LOGIC CIRCUIT

EXPLANATORY NOTES

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