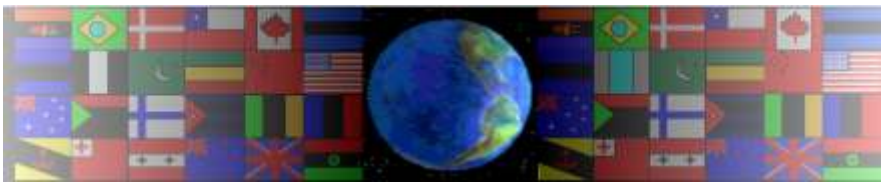
SWITCHES AND OTHER COMPONENTS

On behalf of The World Association of Technology Teachers

W.A.T.T.



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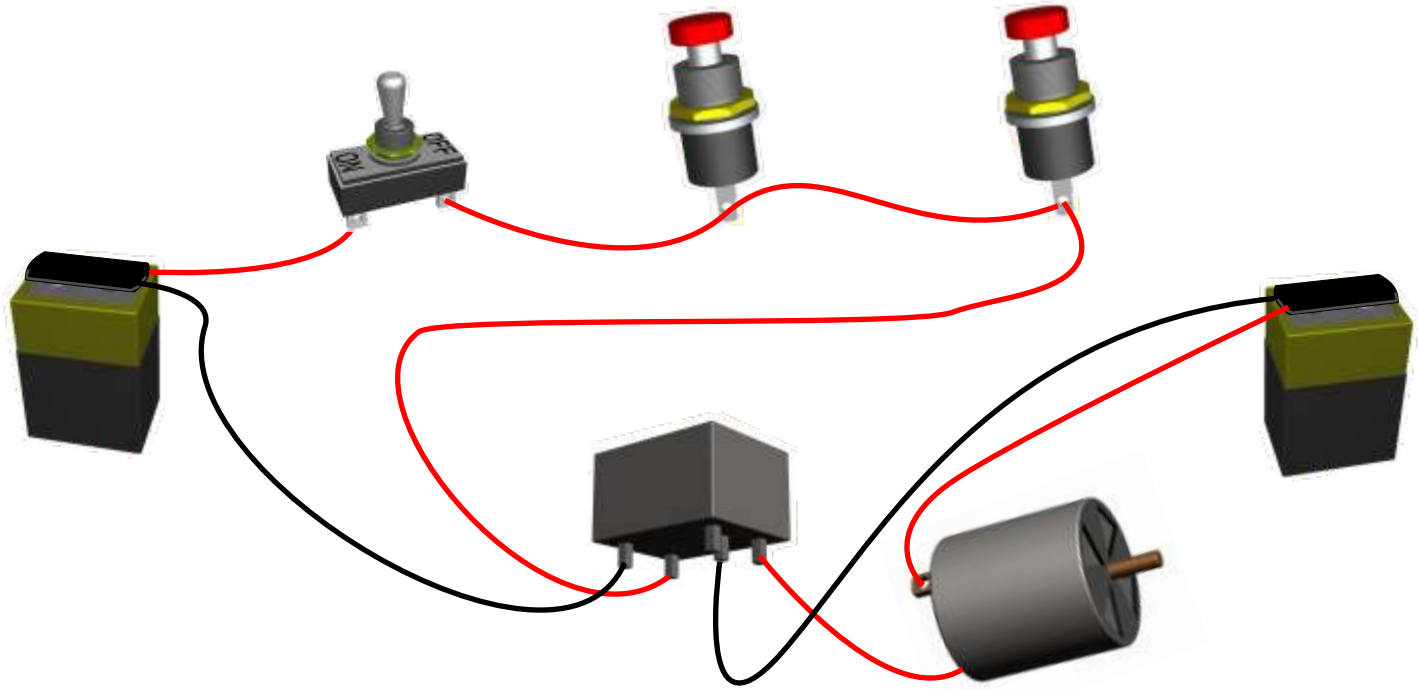
This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

CIRCUIT QUESTION - SWITCHES

The circuit below has a motor that can only be operated when both of the push to make switches are pressed.

1. The component names are listed below. Clearly label each of the components in the circuit.

TOGGLE SWITCH BATTERY RELAY BATTERY PUSH TO MAKE (A) PUSH TO MAKE (B) MOTOR

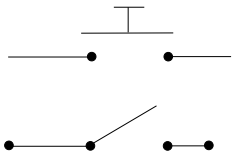


2. The component symbols that make up the circuit are shown below. Arrange them to form the circuit diagram.

+ 9v

+ 9v

M



RL

0v

0v

3. What is the function of the toggle switch?

4. What is the function of the relay?

5. The component show opposite is to be added to the circuit. What is it called?

6. What is the function of the new component?

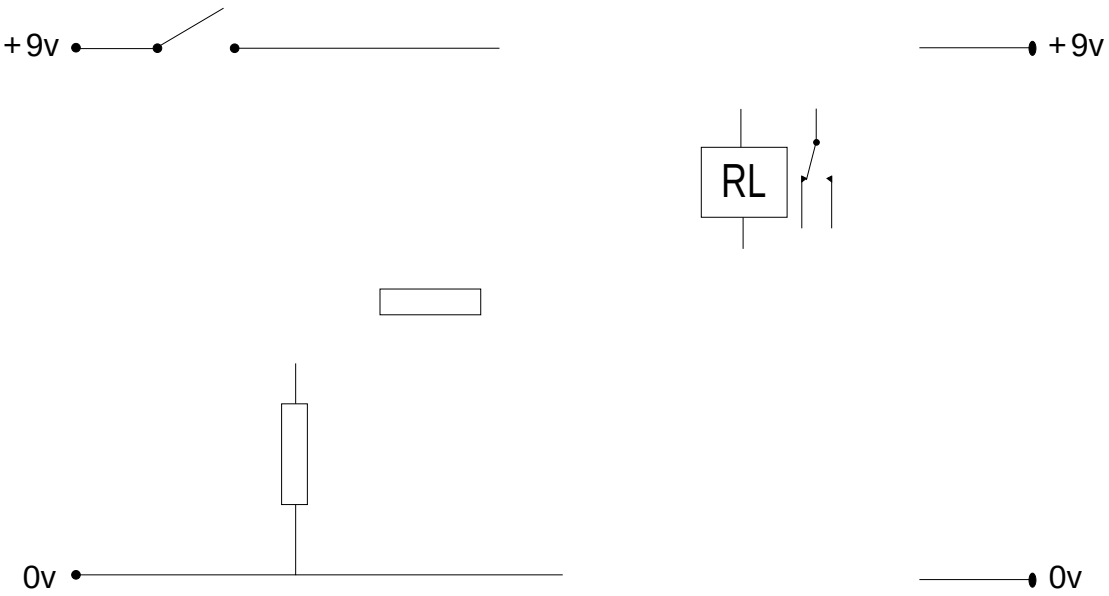
7. Draw the symbol for this new component in the box .

COMPONENT SYMBOL

8. The npn transistor shown opposite is also to be added to the circuit. Draw its symbol alongside the picture.

NPN TRANSISTOR SYMBOL

9. In the space below complete the new circuit that incorporates the new and original components plus a resistor to protect the transistor.



10. Explain how the circuit works.