Investigation of Light Emitting Diodes (LEDs).

Some diodes are manufactured so that when a current passes some of the electrical energy is converted into light energy. These are called Light Emitting Diodes (LEDs).

(a) Use the crocodile clip leads to connect the Red LED to the COMMON and CONTINUITY connections of Squeekie.
If Squeekie does not produce a tone, swap over the connections to the LED.

When Squeekie does produce a tone, what happens to the LED?

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Note the pitch of the tone produced. This is the standard for the other LEDs.

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(b) (i) Test the Green LED.
How does the pitch of the tone produced by Squeekie compare with that for the Red LED?

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(ii) Test the Yellow LED.
How does the pitch of the tone produced by Squeekie compare with that for the Red LED?

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(iii) Test the Blue LED.
How does the pitch of the tone produced by Squeekie compare with that for the Red LED?

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(iv) Test the White LED.
How does the pitch of the tone produced by Squeekie compare with that for the Red LED?

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(c) Examine your observations to (b).
What do they tell you about the resistance of each of the LEDs when emitting light?

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Further investigations.

(d) Test the Infrared LED.

(i) What do you notice about the pitch of the tone from Squeekie conpared to the RED LED?

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(ii) Why can you not see the LED doing anything when connected so that Squeekie is producing a tone?

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(iii) Some camera phones are sensitive to Infrared radiation.
Use the camera on your phone to see if you can see any radiation from the Infrared LED.
What colour does it show as on your phone? ……

(e) Recall that the CONTINUITY connection of squeekie is positive and the COMMON connection is negative
Carefully examine the bottom rim of the LED and note the flat surface.

Identify whether the lead of the LED nearest to the flat surface needs to be positive or negative.

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(f) Use the Internet / books to find the circuit symbol for an LED and draw it below. Label the anode and cathode. Remember to state your source of information.

(g) Connect the Green LED to the COMMON and INSULATION terminals of Squeekie using the crocodile clip leads so that Squeekie does NOT sound a high pitched tone.
Now hold the LED in the light from a fluorescent tube or mains LED light.

(i) Describe the tone produced by Squeekie.

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(ii) Explain why Squeekie produces such a tone.

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