

science + history

= art of nation building





“...knowledge alone does not move you to action. It is the desire, the will to serve. The new Belizean man and woman is known by his or her lively interest and energetic and optimistic approach to the many problems that come from progress and from growth.”

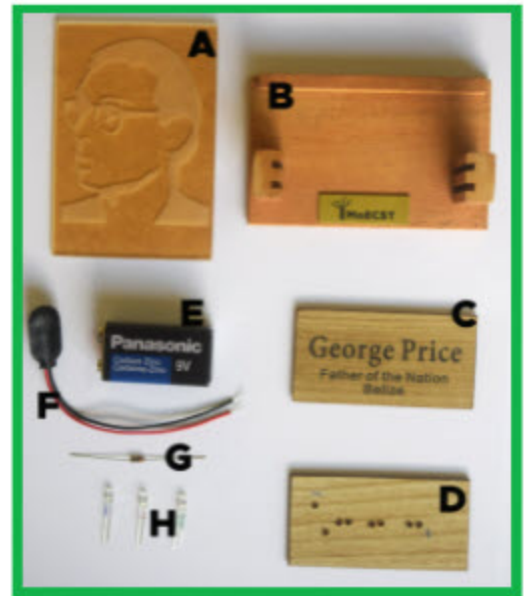
**George Price, 1965.
From the book *George Price Journey of a Belizean Hero***

This year, the Ministry of Education, Culture, Science and Technology decided this act as part of our celebration of the 103rd birthday of George Price, the Father of our Nation.

Our intention here is to not only create a gift of commemoration but to take the opportunity to teach, one which lesson is that we must invent a Belizean education culture rooted in the merging of history and innovation. It is this attitude we believe the father of our nation was referring to when he spoke of “Building the Nation”

Your kit contains:

- a. George Price Acrylic Plate
- b. Base
- c. George Price engraved front panel
- d. Electronic Board
- e. 9V battery
- f. 9V battery snaps
- g. Resistor
- h. LEDs



Inspect

- Inspect your Electronic board to ensure all holes are properly drilled through and are clear.
- Remove electronic tape from the battery. This tape was placed as a safety measure.
- LEDs

Important to know:

- The abbreviation "LED" stands for Light Emitting Diodes. These produce lights and can be found in different colors. They produce light like light bulbs do but they work a bit differently electronically.
- Each LED has a positive and a negative side which means that current only flows in one direction. Same as when you use a battery, you have to put it in the right direction.

Shorter leg is negative -



Longer leg is positive +

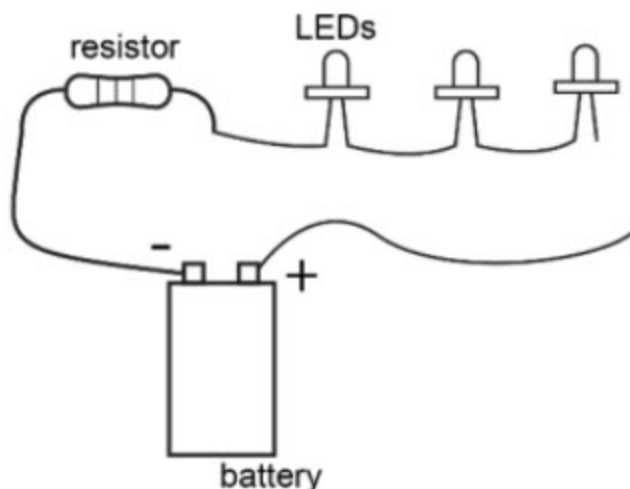
Important to know:

- Resistors are needed to limit the amount of current that the battery would send through the LEDs or any electrical components. Without protection of a current limiting resistor, they will quietly just cease ever being able to glow. To find the right resistor amount, we have to look at our LED specifications and do a calculation.
- Visit this site for more information: <https://eepower.com/resistor-guide/resistor-applications/resistor-for-led/#>
- Resistors are measured in Ohm or Ω resistors.
- Ohm or Ω is the SI unit of electrical resistance, expressing the resistance in a circuit transmitting a current of one ampere when subjected to a potential difference of one volt.

Notes on resistors:

- The color bands on resistors indicate the value.
- There is no positive or negative end so you can put it in either direction.

To achieve a working circuit there must be a complete path for electrons to flow.



The Assembly Process

- 1 Gather the LEDs and line them up in a chain. All three LEDs must allow current to flow in the same direction. To achieve this, make sure each LEDs' positive leg is on the left side. If any LED is backwards it will block current from flowing and the LEDs will not light.

Shorter leg is negative -



Longer leg is positive +

- 2 Next, get your resistor and bend the legs forming it into a U shape.

- 3 On your Electronic Board mark the positive side and the negative side as demonstrated in the image on the right.



- 4 Assemble your LEDs and resistor on your electronic board as shown in the image below. Remember that there is no positive or negative end to a resistor.



- 5 Look for the bump on each leg of the LED. For each LED, lift until the bump is just below the surface then press to bend the LED towards the top edge of the board (towards the glass). If you hold up your glass as shown, the LEDs should just graze the edge.

The Assembly Process continued

- 6 To help guide you, mark your + and - marks to the other side of the Electronics Board where the legs of the LEDs and resistor are sticking out. The - should be on the side where the resistor is.
- 7 Now, you will be twisting 3 pairs of neighboring components legs together to connect them. Bend neighboring legs around each other then add a few loose twists with your fingers. Make sure the twisted pairs are not touching each other.
- 8 Peel off the protective seal on the double sided tape attached on the lower end of the acrylic glass panel.
- 9 Attach the glass panel onto the electronic board. The sticky edge of the tape must be attached to the rough side of the electronic board.
- 10 Slide the structure into the base. The LED lights should face the MoECST logo.
- 11 On your battery snap, the black wire is your negative wire. Twist the black wire around the resistor leg that was not twisted.



The Assembly Process continued

- Clip on the battery snaps to the battery as shown in the image. To close your circuit, touch the red wire to the unpaired LED leg by the + mark. The LEDs should light up at this point if your circuit was created right. If not, it's time to troubleshoot! Troubleshooting is sometimes part of the process. Once it is working, disconnect your battery.



- Hold the LEDs in place and use your fingers and the plier ends of the wire strippers to twist the legs tighter. Do not over tighten.
- Make sure the twisted pairs are not touching each other. You can cut the twisted legs shorter so they do not interfere with each other.
- Secure your battery to the base.

The Panel Assembly

- 1 Peel off the double sided tape from the George Price Acrylic Plate and stick it to the electronic board.
- 2 Slide in the electronic board to the stand.



electronic board



acrylic plate

- 3 Secure your battery to the base.



base



final product



George Price

Father of the Nation
Belize



MOECST