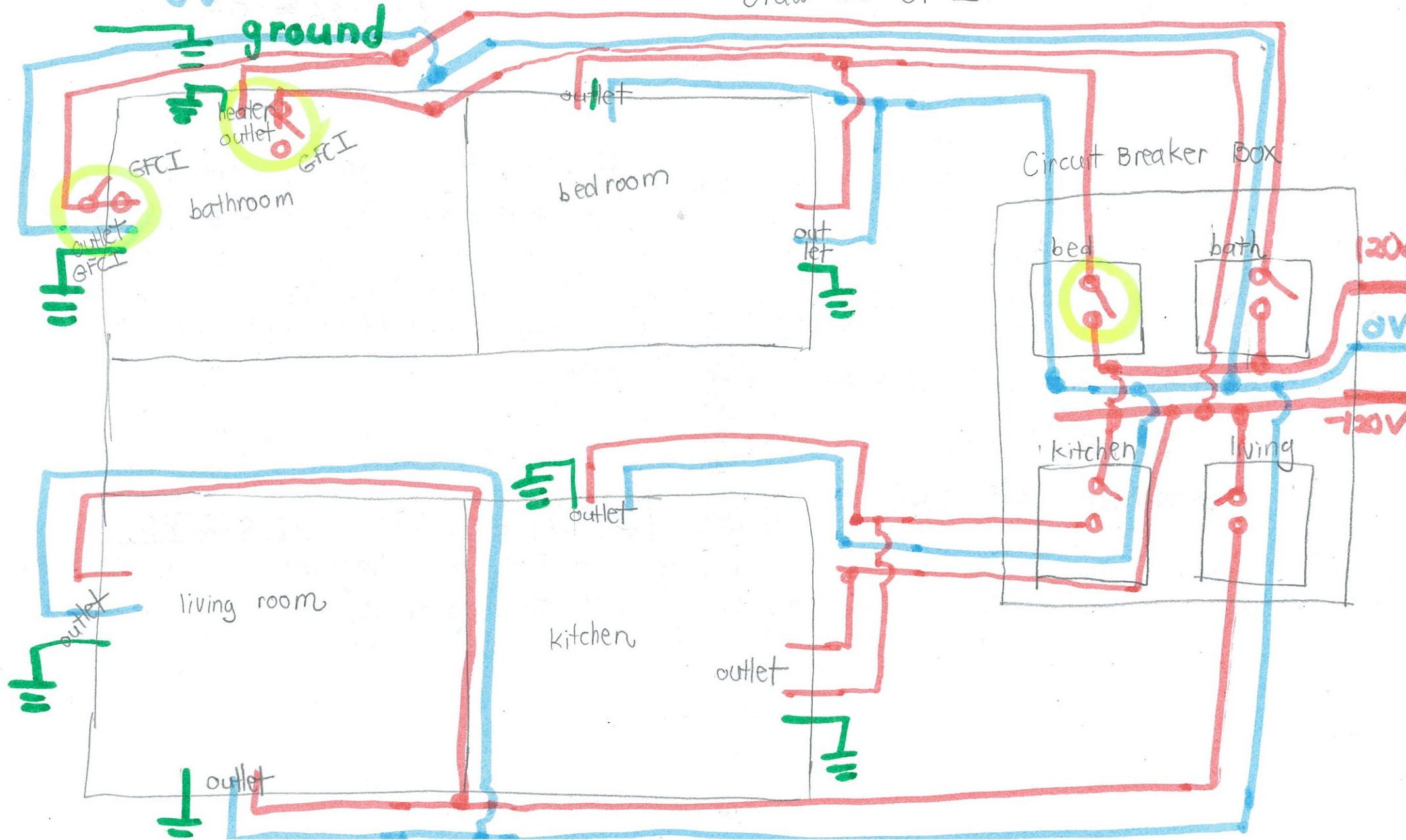


Be an Electrician

- ① Draw a floor plan for a house. Draw the wires using colored lines
— 120V live wire switch. Label the circuit breakers for each room.
— 0V Draw the GFCI for each room



② Circuit Overload (will trip breaker)	room
15 A	bedroom, family room
20A	kitchen, laundry, bathroom, dining room (toaster, iron, hair dryer)
30 ~ 50 A	water heater 5000 W ranges 10,000 W

(a) Turn on all your appliances in bedroom. Will the circuit breaker cut off the current?

$$18 + 12.5 + 0.136 \approx 30.6 \geq 30A \text{ yes} \\ > 15A$$

(b) Turn on all your appliances in the room it should be in. Will the circuit breaker trip?

bedroom: 0.136 A light no
kitchen 12.5 A no
18 A heater bathroom no

③ Estimate your electricity cost for 1 month.

The charge is (US 7¢) NT\$2 per kilowatthour.

Appliance	hours in month	Power kW	kWh
Light	6 hr x 30	$\times \frac{21}{1000}$	= 3.78
boiler	2 hr x 30	$\frac{1500}{1000}$	= 90
water heater	$\frac{2 \text{ hr}}{\text{day}} \times 30 \text{ days}$	$\frac{3960}{1000}$	= 237.6
Total: 331.38 kWh			$\times \text{NT}2 = \text{NT } 662.76$

④ Connect your house to the neighborhood mains, and diagram how to pull the wires to the power generator. Work with other groups.