* + **Making 1% Agarose Gel** (>1% for better separation; 1.2% for small fragments; 0.7% for large fragments)
    - Pour 500 mL of 1X TAE/TBE buffer in a 500 mL bottle
      * Tris-base: 242 g
      * Acetate (100% acetic acid): 57.1 ml
      * EDTA: 100 ml 0.5M sodium EDTA
      * Add dH2O up to 1 L.
      * To make 1X TAE from 50X TAE stock, dilute 400 mL of stock into desk water = 20 L final volume
    - Add 5 (5.2/5.4) g of agarose powder into the bottle
    - Microwave until powder dissolves
      * But do not overboil the solution, as some of the buffer will evaporate and thus alter the final percentage of agarose in the gel.
      * Microwave in pulses, swirling the flask occasionally as the solution heats up.
    - OR autoclave for 45 min
      * Immediately after taken out, mix well to avoid jelly
      * Store bottles in 65 C hot bath
    - Let cool down until warm to touch in a 65 C hot bath
    - Add 1 uL SYBR Safe/EtBr intercalator for visualization per 10 mL gel
    - solution (stock SYBRSafe 1000X).
      * If 50 mL gel, then add 5 uL
      * *If you add EtBr to your gel, you will also want to add it to the running buffer when you run the gel. If you do not add EtBr to the gel and running buffer, you will need to soak the gel in EtBr solution and then rinse it in water before you can image the gel.*
    - Pour the agarose into a gel tray with the well comb in place.
      * Pour slowly to avoid bubbles which will disrupt the gel.
      * Any bubbles can be pushed away with the well comb towards the edges of the gel.
    - Let gel sit at room temperature for 30 mins, until completely solidified.
    - Meanwhile, Add ? uL loading buffer to each of DNA sample
    - Once solid, remove gel tray from loading block and place in the gel rig
      * Orient the wells so that they are at the negative electrode.
      * Black is negative, Red is positive. Run from Black to Red.
    - Fill gel rig to the max line with 1X TAE running buffer. Carefully remove comb, so as not to destroy any wells.
      * Make sure to wash the comb at sink right away
    - Add some 5 uL EtBr to the TAE buffer?
    - Carefully load the ladder to the first lane
    - Carefully load the DNA samples to the rest of the lanes
    - Run the gel at 80-150 V until the dye line is approximately 75-80% of the way down the gel. A typical run time is about 1-1.5 hours, depending on the gel concentration and voltage.
    - Turn OFF power, disconnect the electrodes from the power source, and then carefully remove the gel from the gel box.
    - *(Optional)* If you did not add EtBr to the gel and buffer, place the gel into a container filled with 100 mL of TAE running buffer and 5 μL of EtBr, place on a rocker for 20-30 mins, replace EtBr solution with water and destain for 5 mins
    - Visualize with a UV transilluminator.
      * If extracting DNA fragment for later use, do not use a Gel Imager *to take a picture of the gel before cutting out the bands*
      * *You will want to use long-wavelength UV for as short a time as possible to get the bands cut out.*
    - When using UV light, protect your skin by wearing safety goggles or a face shield, gloves and a lab coat*.*