

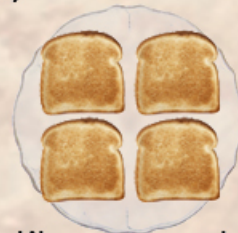
TOAST

and the speed of light

Measure the Speed of Light with only buttered toast and a microwave oven!

- 1) Acquire 4 pieces of bread, 1 stick of spreadable butter, and 1 microwave that does not rotate the plate!
- 2) If your microwave does rotate you can fix this by wedging blocks under the rotating plate to keep it from contacting the rotator.
- 3) Toast the bread as much as you would if you were going to eat it.
- 4) Remove toast and wait for it to cool completely.
- 5) Using a butter knife, apply a thick layer (1/8th inches) of butter evenly over the toast.
- 6) Place each piece of buttered toast side-by-side on a plate to form a large square of buttered toast.

Like this 



- 7) Put it in the microwave and microwave until a couple spots of melted butter begins to form. Watch carefully! Pull out the plate as soon as the butter begins to melt or you will need to start again.
- 8) Measure the distance (in cm) from the center of one melted butter spot to the nearest other melted butter spot. This is one-half the wavelength of a microwave used to melt the butter.
- 9) Look around on your microwave. It should list a frequency somewhere on it. If not, use frequency = 2450000000 Hz.
- 10) Get the speed of light by = $2 \times 100 \times \text{distance} \times \text{frequency}$.
- 11) The speed of light is about 300000000 m/s. If you got any number between 220000000 and 380000000, then you did some great science!

ENJOY YOUR TOAST!