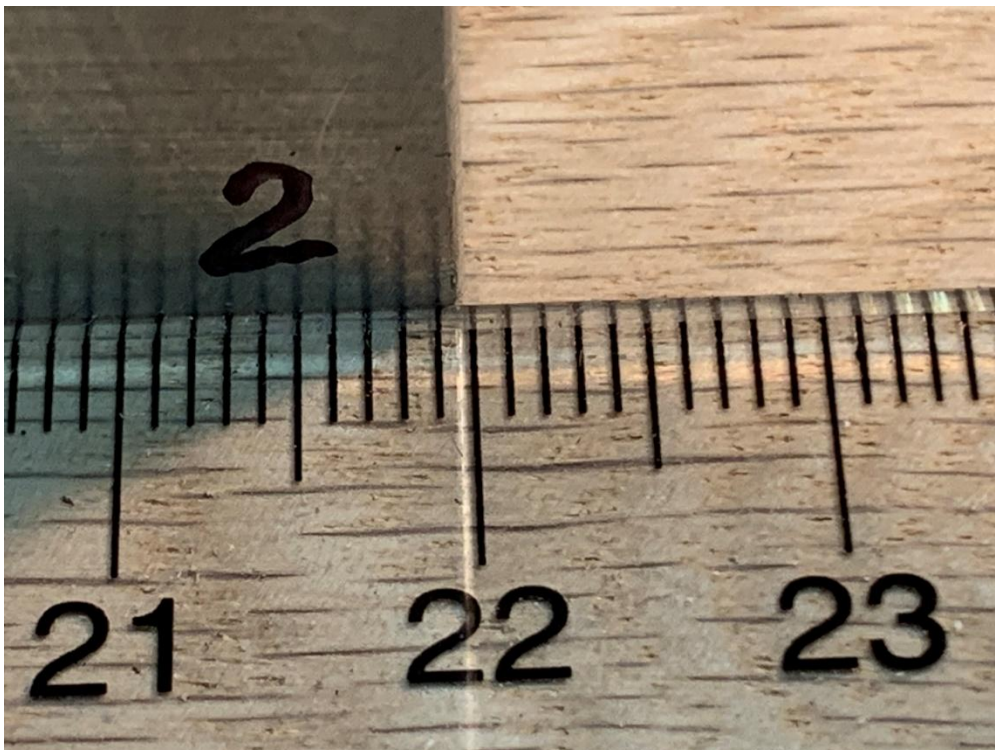


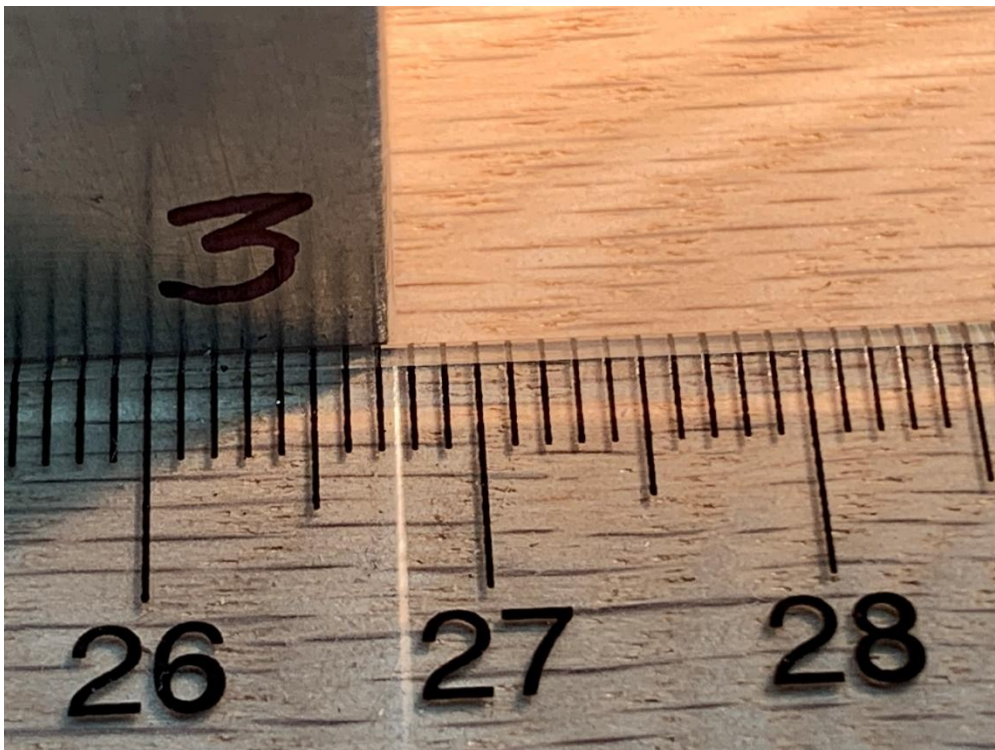
The following two photos are the **first** measurement of your block's **length (labeled as side 1)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



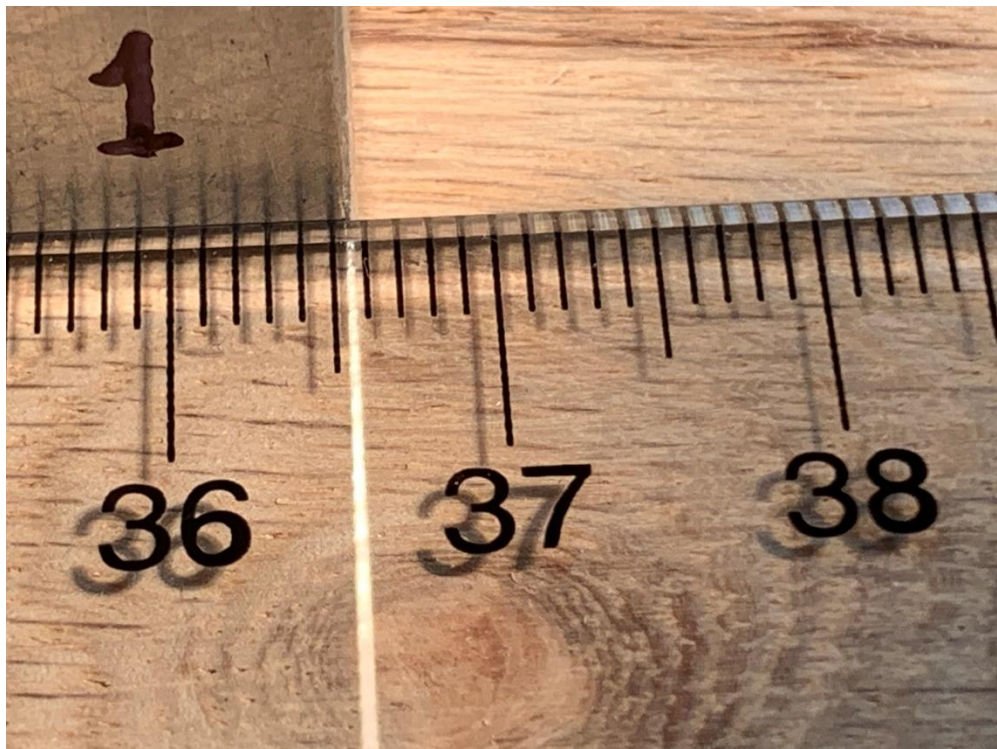
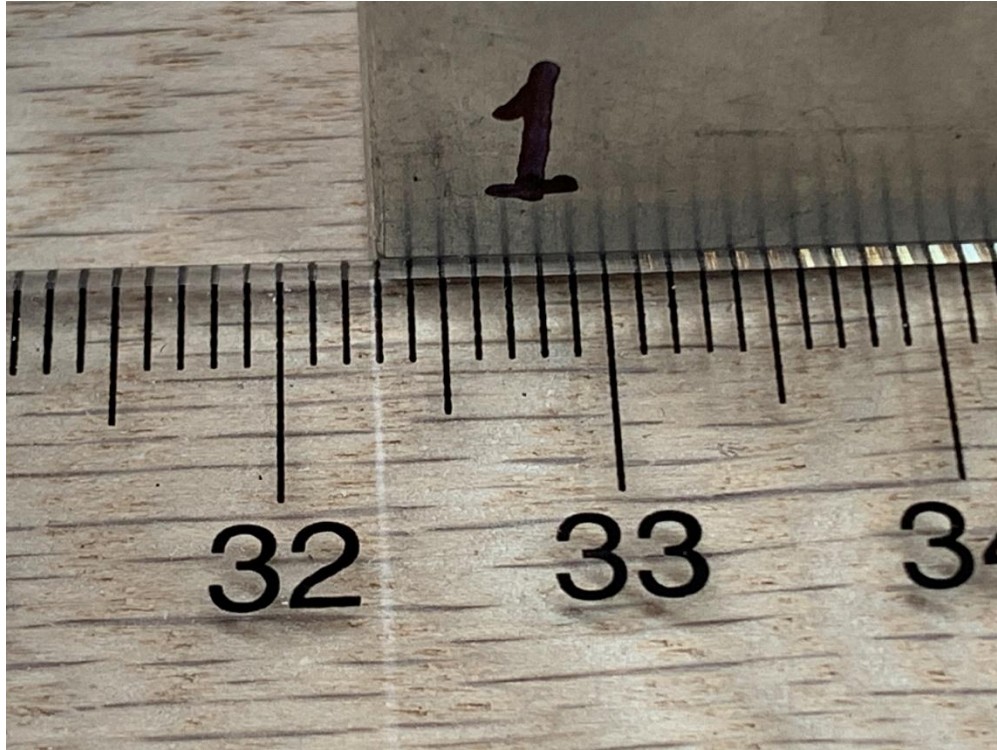
The following two photos are the **first** measurement of your block's **width (labeled as side 2)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



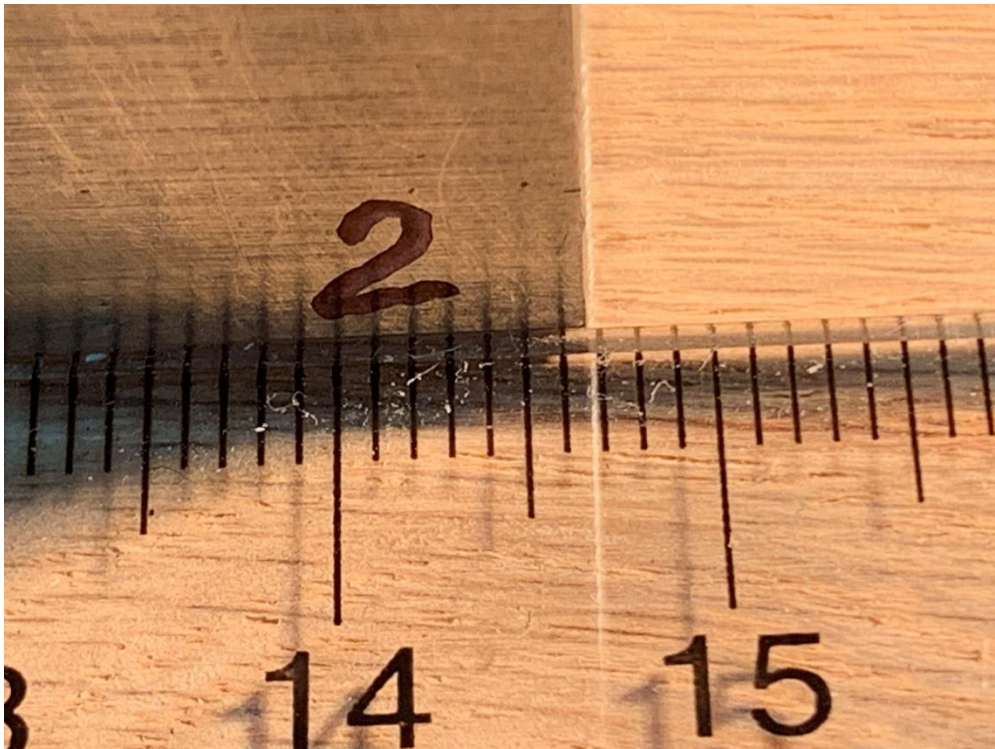
The following two photos are the **first** measurement of your block's **depth (labeled as side 3)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



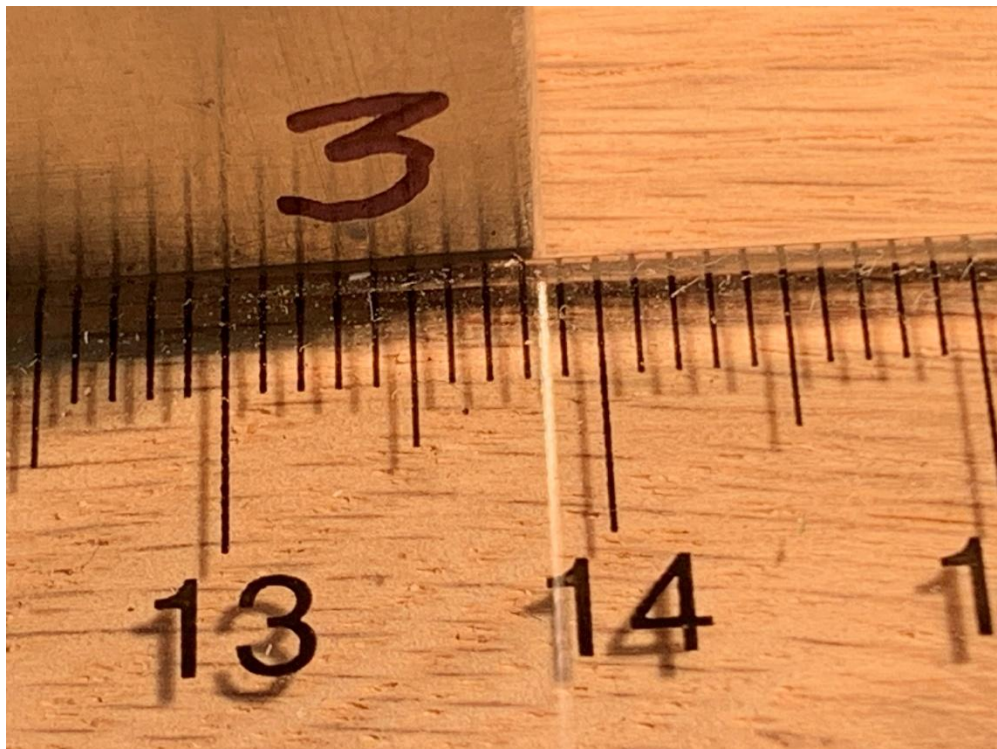
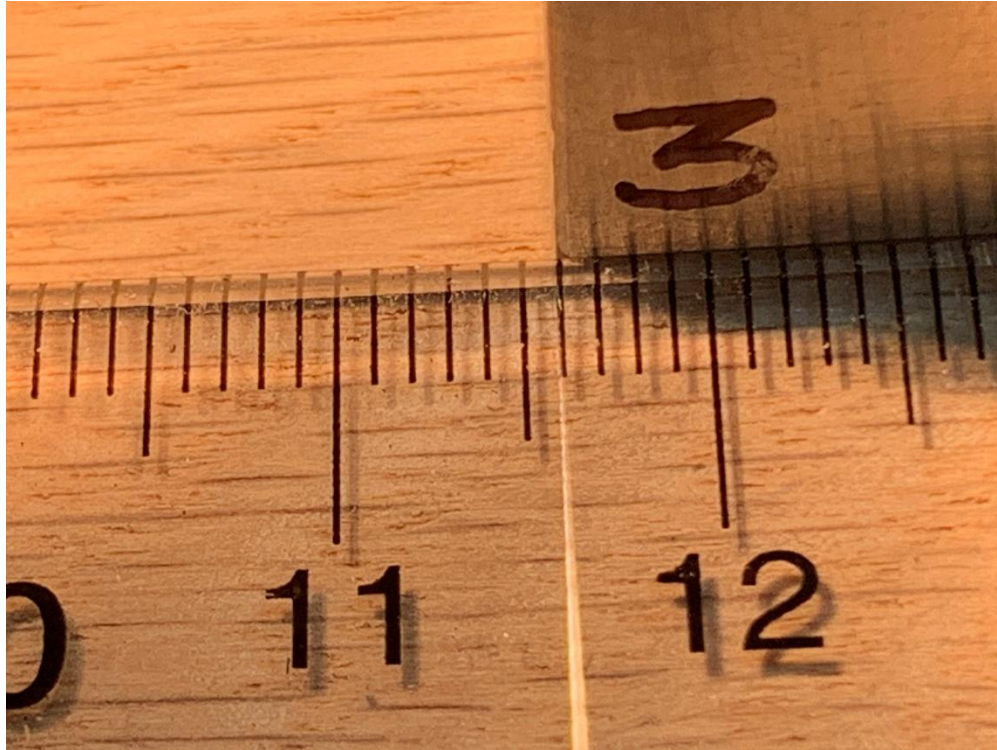
The following two photos are the **second** measurement of your block's **length (labeled as side 1)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



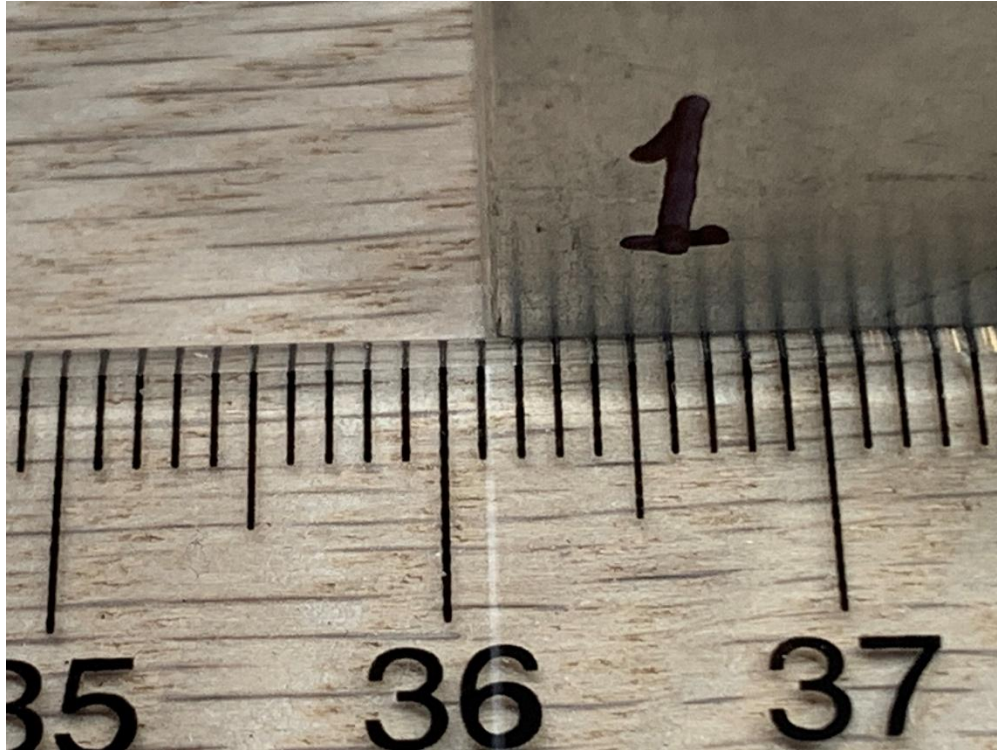
The following two photos are the **second** measurement of your block's **width (labeled as side 2)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



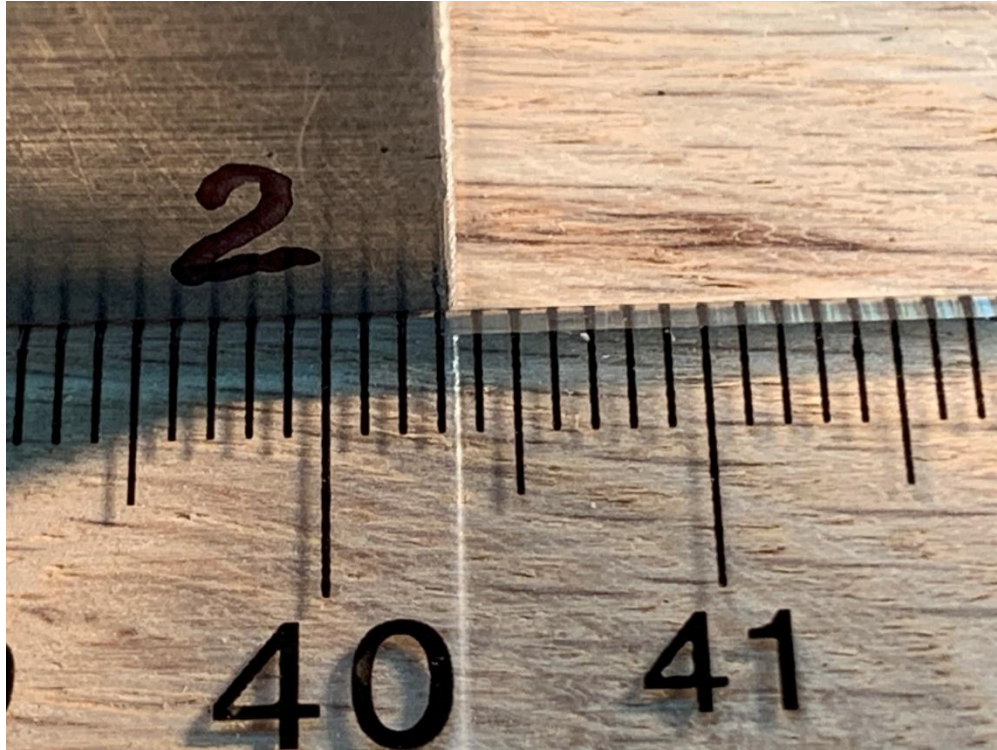
The following two photos are the **second** measurement of your block's **depth (labeled as side 3)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



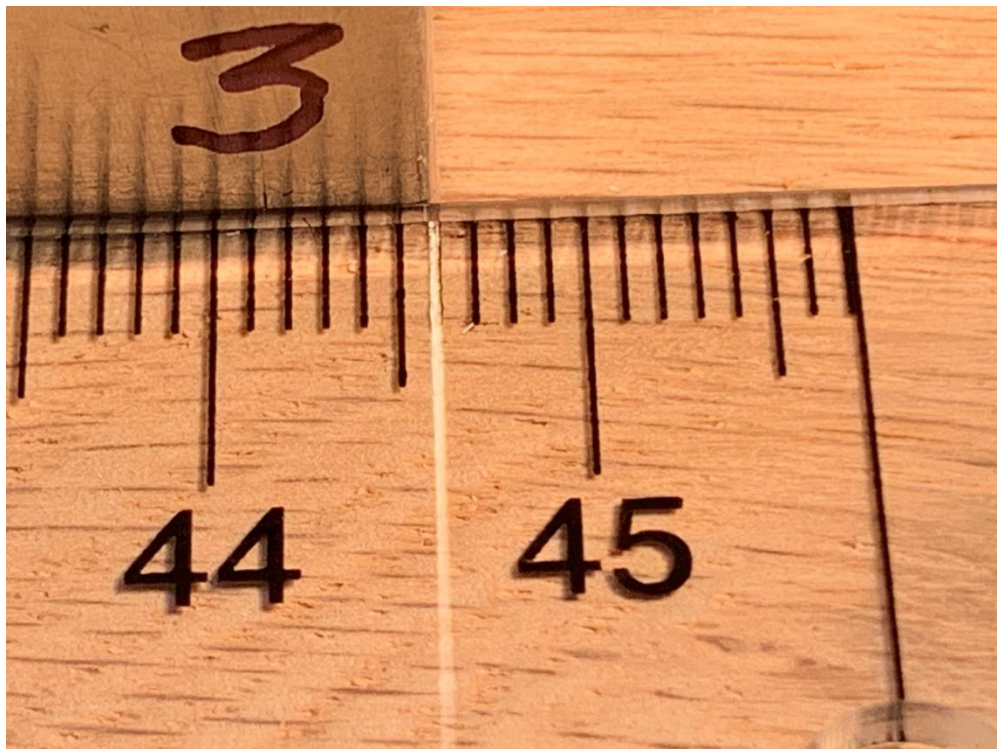
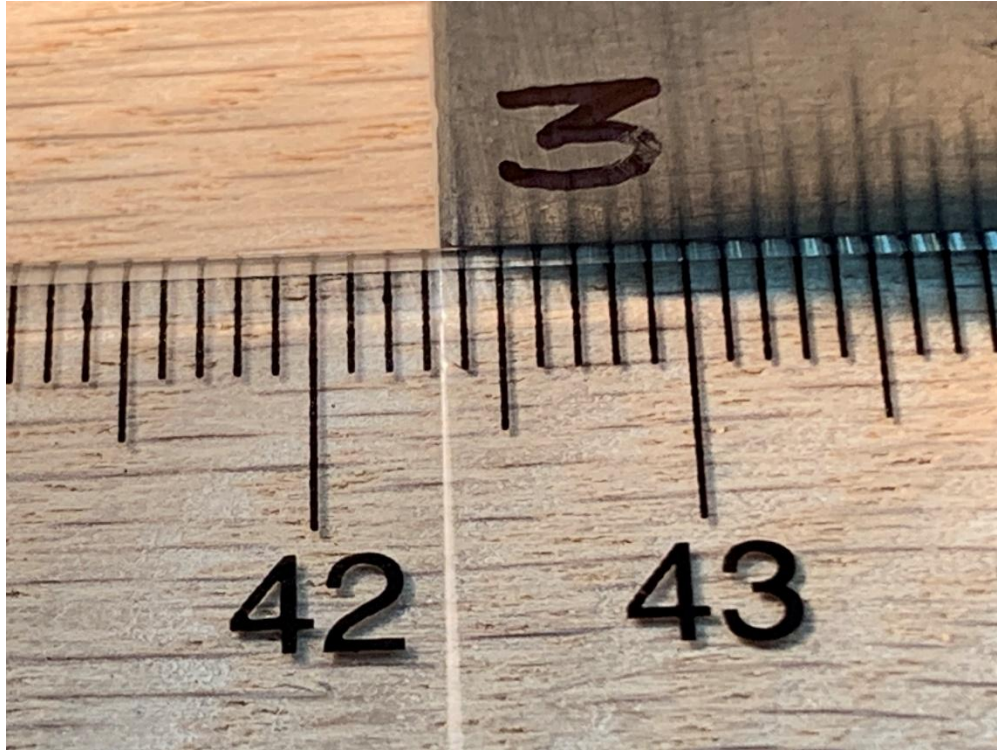
The following two photos are the **third** measurement of your block's **length (labeled as side 1)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



The following two photos are the **third** measurement of your block's **width (labeled as side 2)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



The following two photos are the **third** measurement of your block's **depth (labeled as side 3)**. The block was arbitrarily placed against a ruler (centimeter scale). The first photo is the left edge while the second photo is the block's right edge. Light was reflected off its side creating a line down the scale of the ruler. The center of that line indicates the edge of the block.



The following images were taken as your block's mass was being measured. The same block was measured three separate times. Different small weights were placed on the balance for each of the three measurements. This gives us measurements at different scale ranges.

Remember that the balance has two scales with adjustable weights. The major scale weight can only be adjusted in 10 gram increments while the smaller mass is on a 1 gram scale with 0.1 gram tick marks. The smaller scale's metal slide is meant to be read by observing where its left edge is located on the scale (this shouldn't matter however since you are taking differences as long as you are consistent with which edge you use).

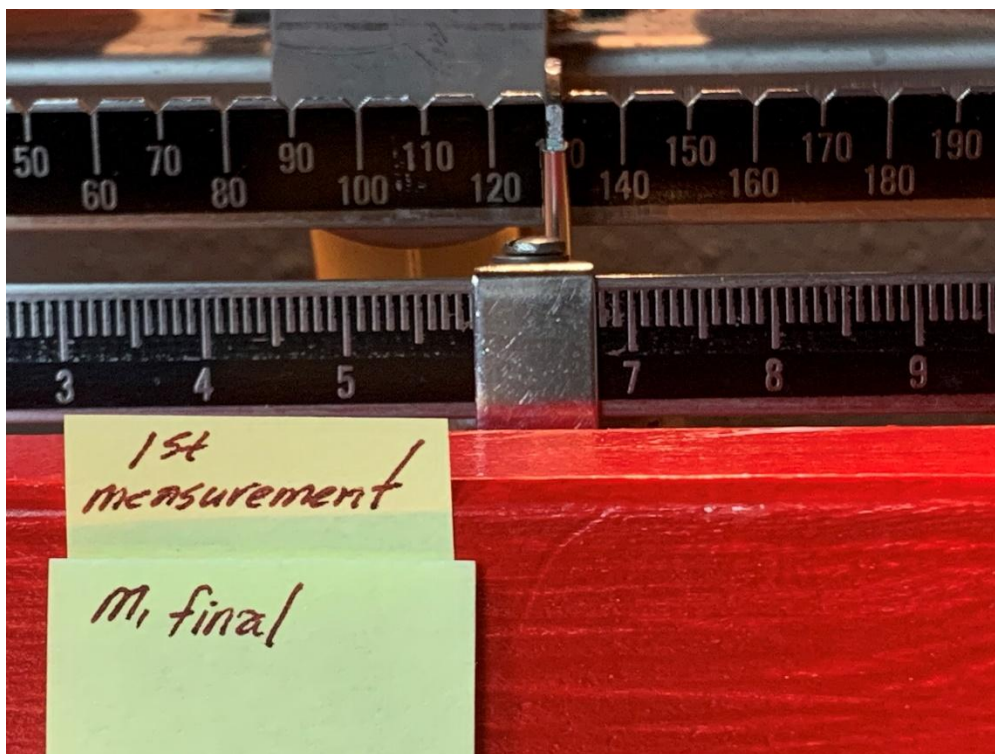
Here was the procedure. A small mass is placed on the scale. The sliding weights on the scale are then adjusted so that the balancing needle (not pictured) rests on 'zero'. The mass reading is our initial value (or 'empty'). Our block is then placed on top of the previously placed small weights and the scale is adjusted again to balance at 'zero'. This new mass reading is our final value (or 'loaded'). Simply take the difference.

Be sure to note which notch the larger adjustable weight is in (the major scale). It's slender and could easily be forgotten. The first photo shows it located at 0.

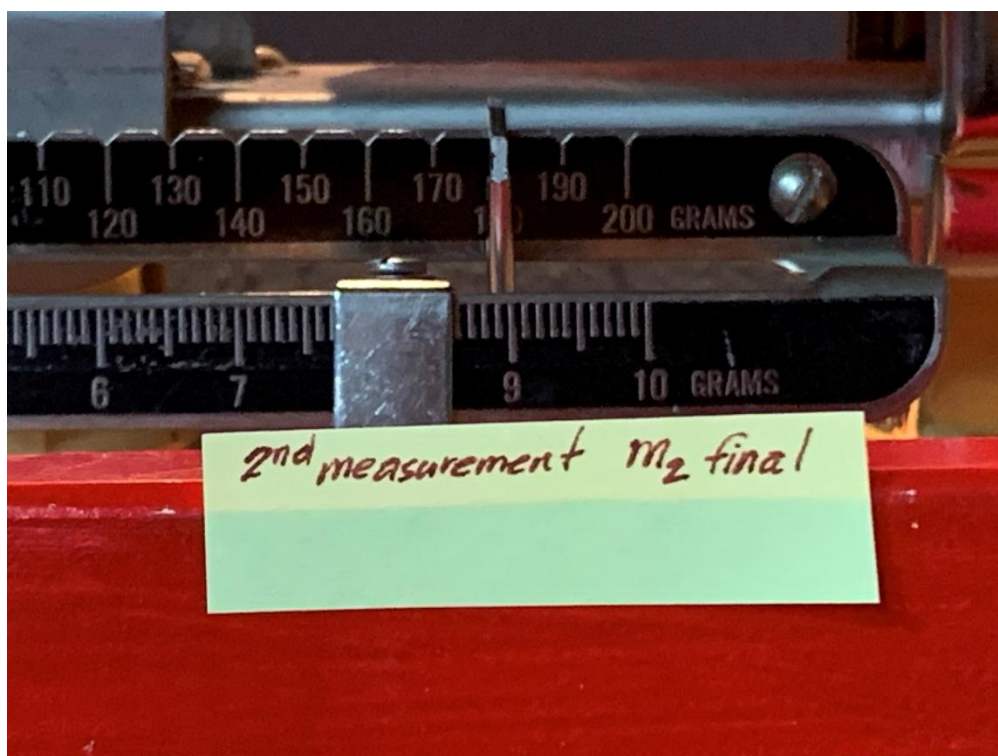
One last thing. As mentioned in your lab manual, the error associated with reading a scale is often reported as $\pm$ half the value of the shortest tick interval but is ultimately left to the discretion of the measurer. It could be better or worse. Speaking of worse, imagine using the ruler used in this lab to measure the amplitude of an oscillating mass on a spring. The error would be nowhere near ± 0.05 cm! I'm bringing this to your attention because of the following argument. Although you may easily be able to read this balance's minor scale to within ± 0.05 cm, there is an additional source of error not mentioned. Before reading the scale, the balancing needle must read zero. Not only is the needle rather blunt, but it is also positioned away from its scale. The error associated with that reading is larger than the error associated with the sliding scale (you could sometimes tap the slider 0.05 cm along the scale while not producing any movement on the balancing needle). Personally (unless your instructor says otherwise), I would assign this balance an error of ± 0.1 grams.

You'll find the images you need for this portion of the lab grouped together on the following pages.

Here are the images for the 'empty' and 'loaded' readings for measurement number one.



Here are the images for the 'empty' and 'loaded' readings for measurement number two.



Here are the images for the 'empty' and 'loaded' readings for measurement number three.

