

How to build a Water Rocket

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Making the Rocket

- How to Cut the Bottle into 3 Pieces.



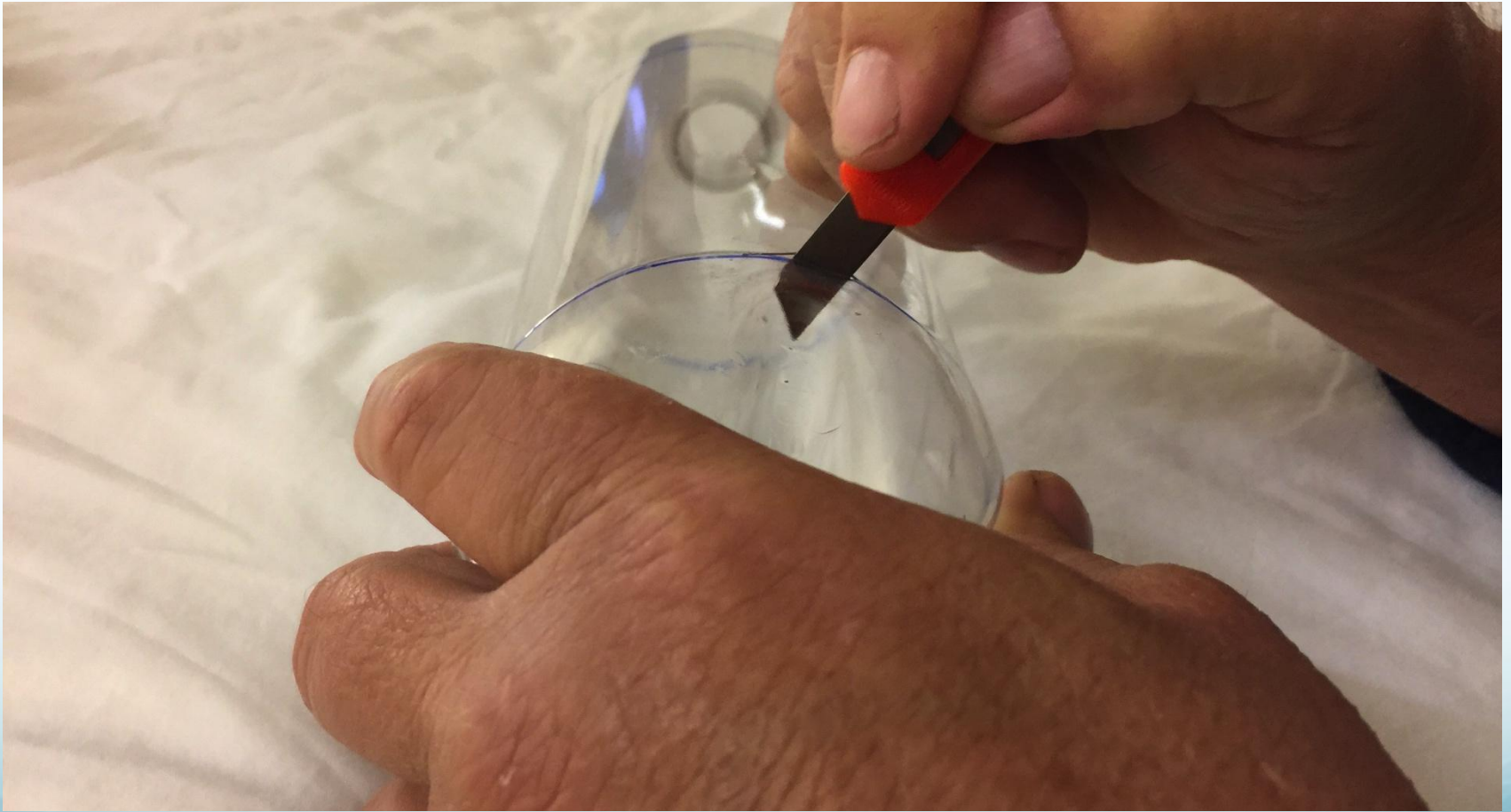
Use a 90° room corner to mark the bottle.







Use exacto knife to puncture bottle



Cut along lines with scissors



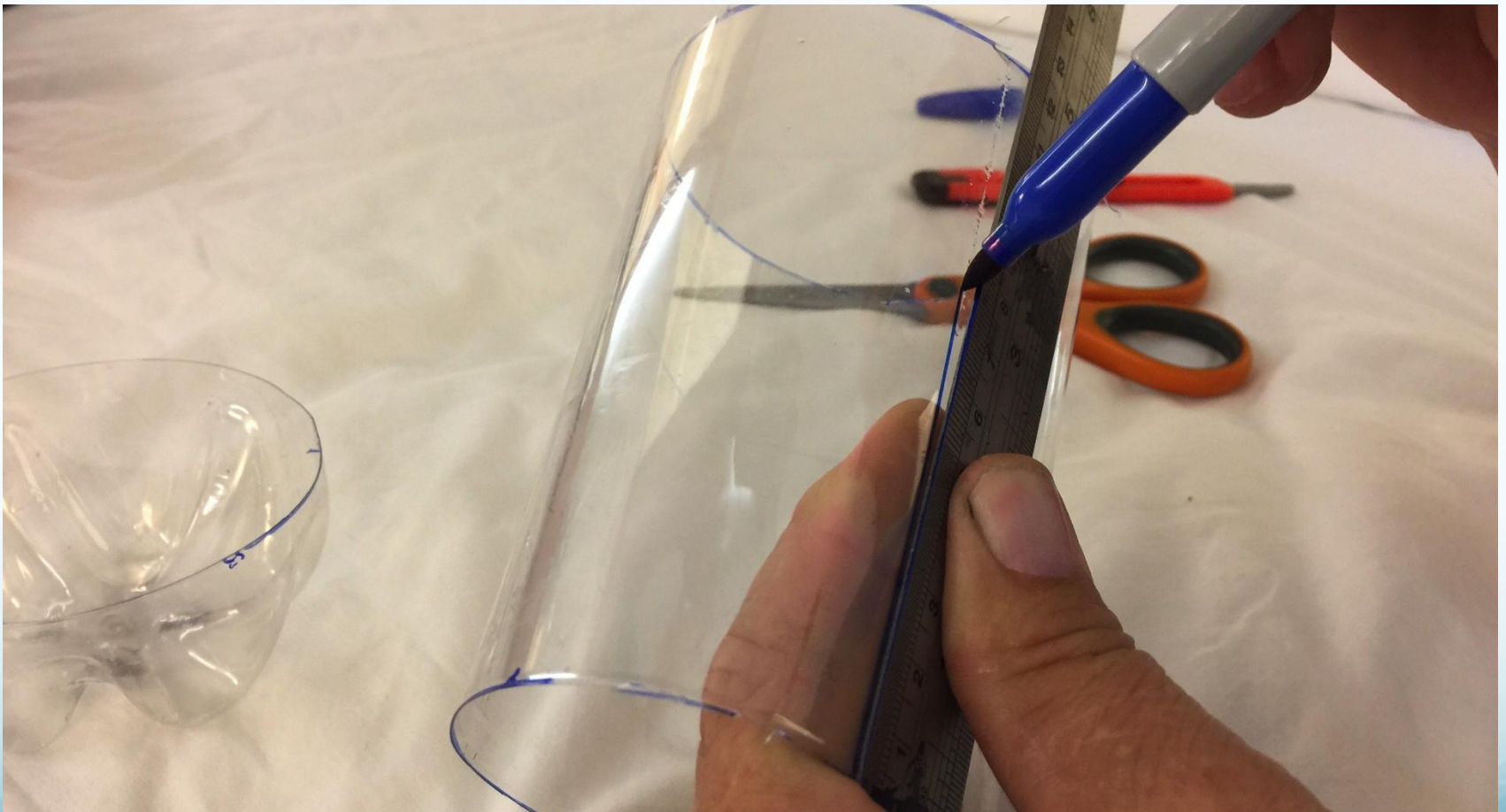
Save top

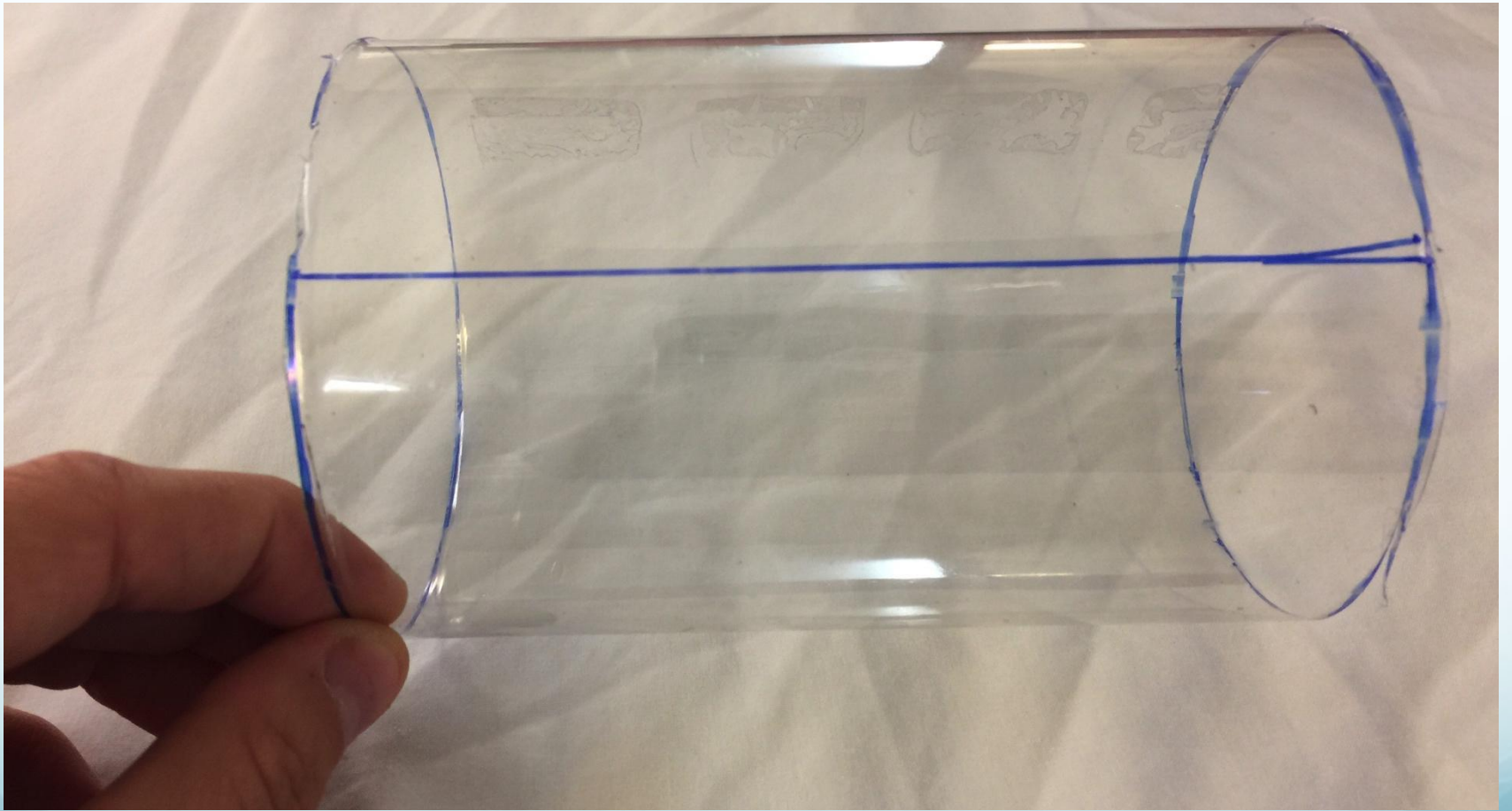


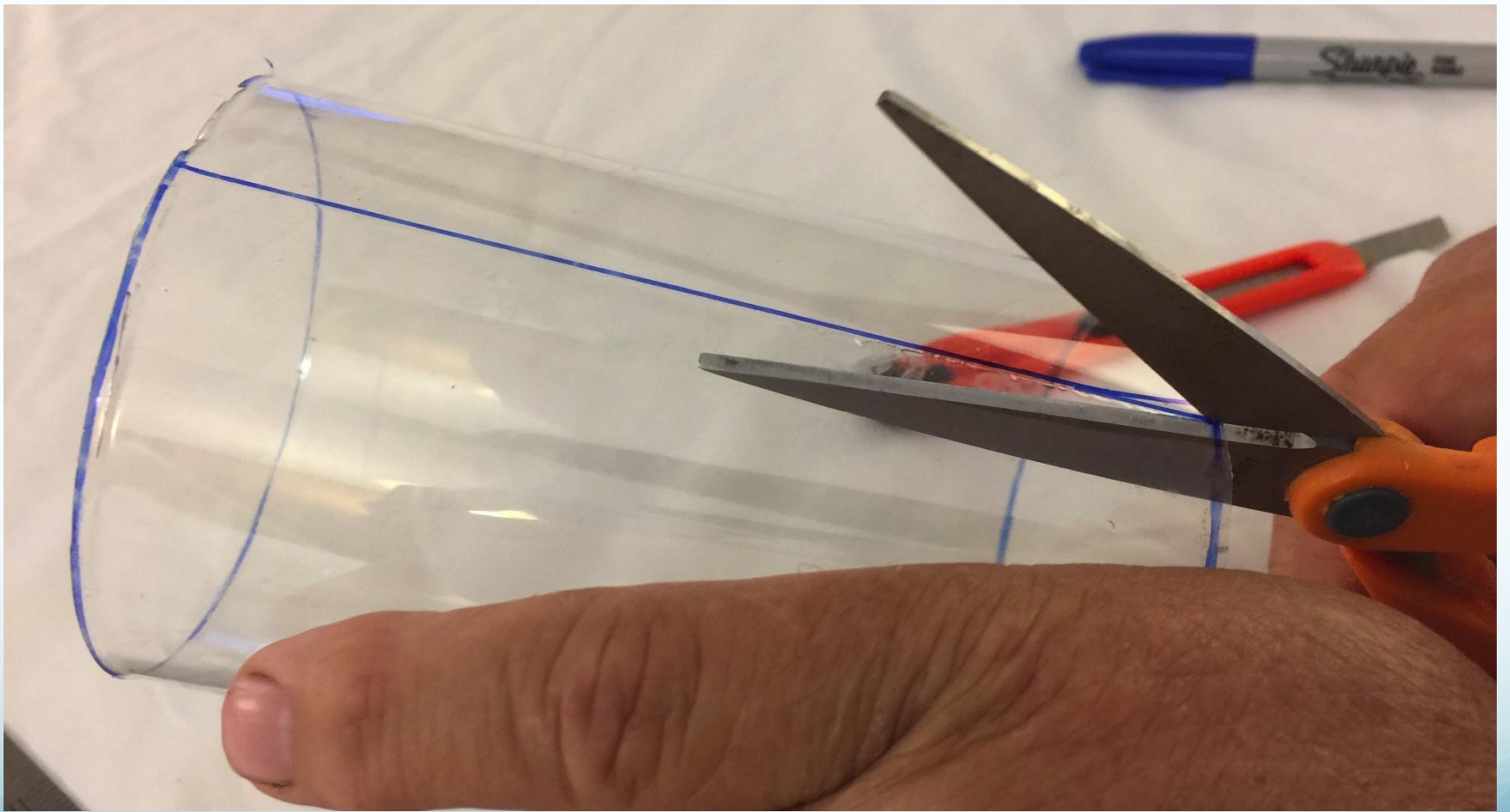
Save bottom



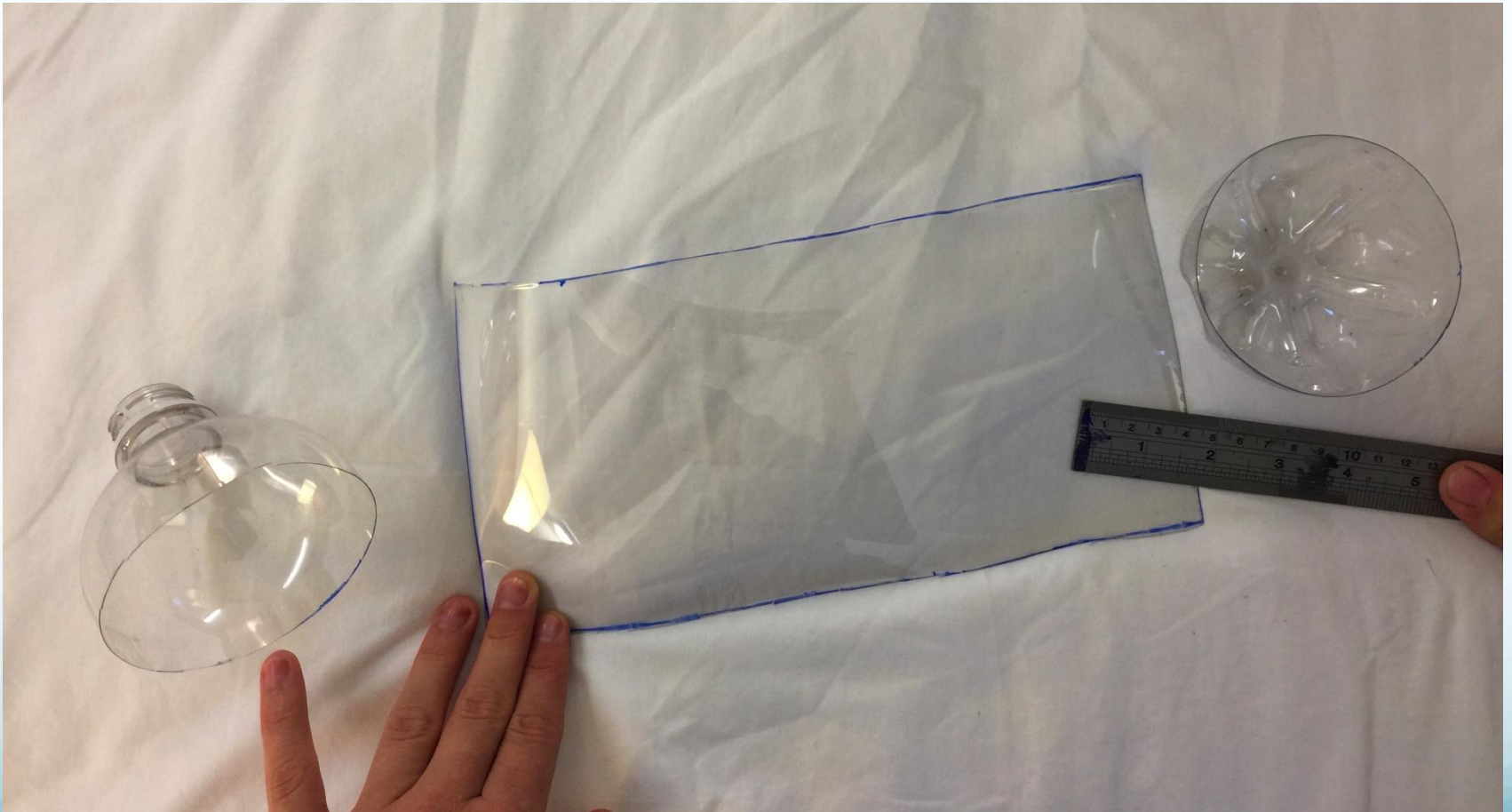
Mark where to cut



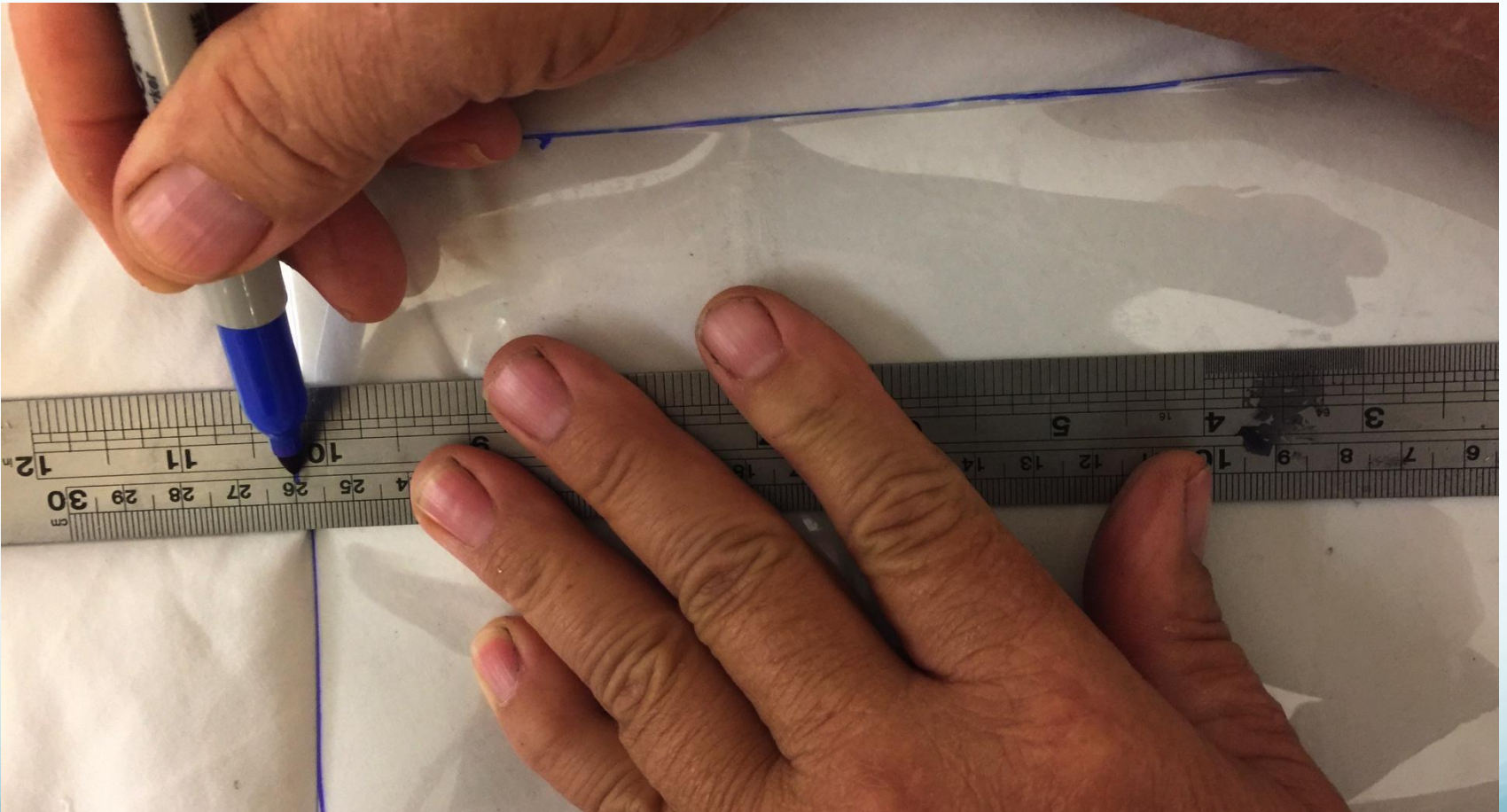


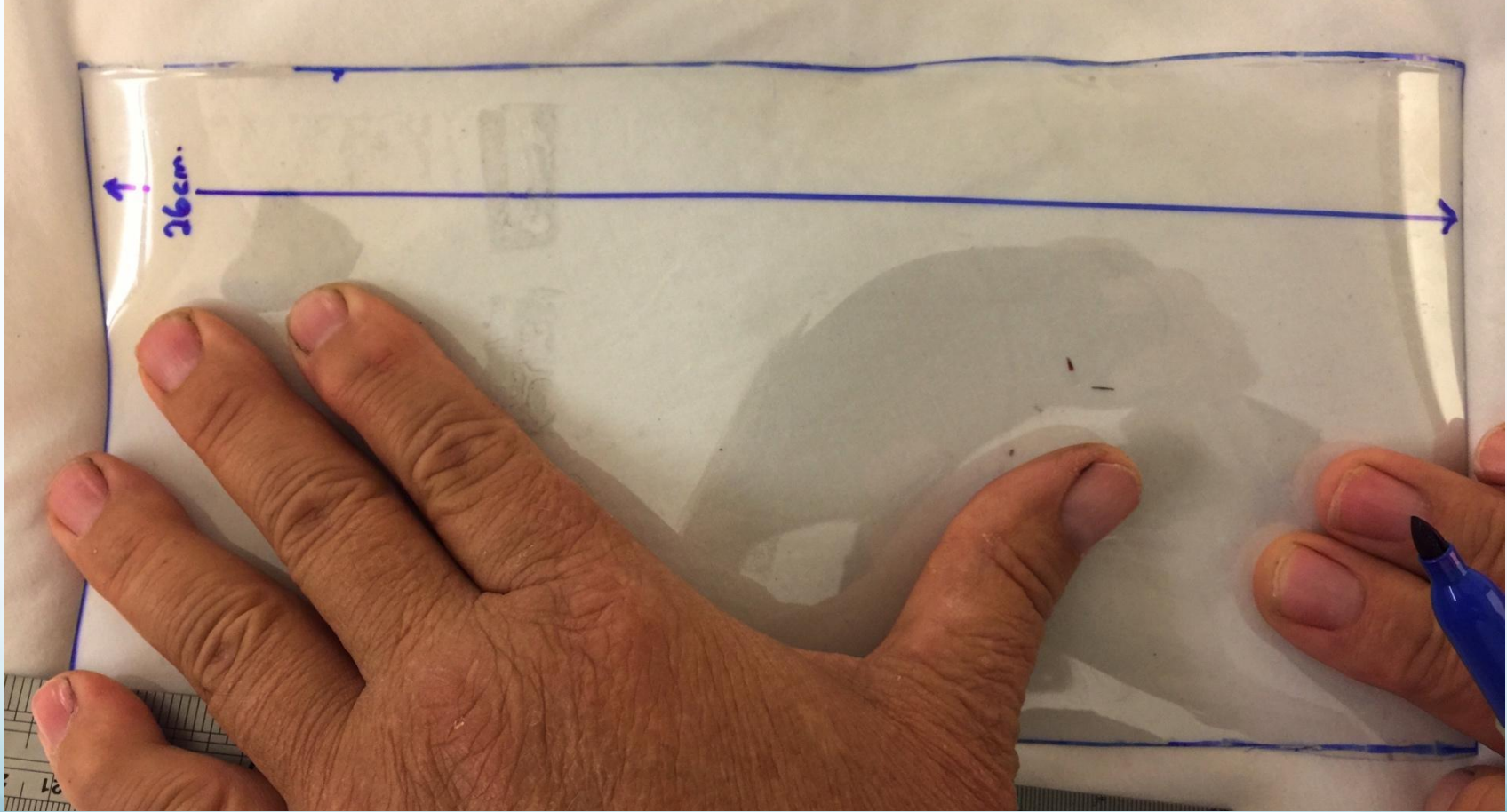


Lay flat



Measure length



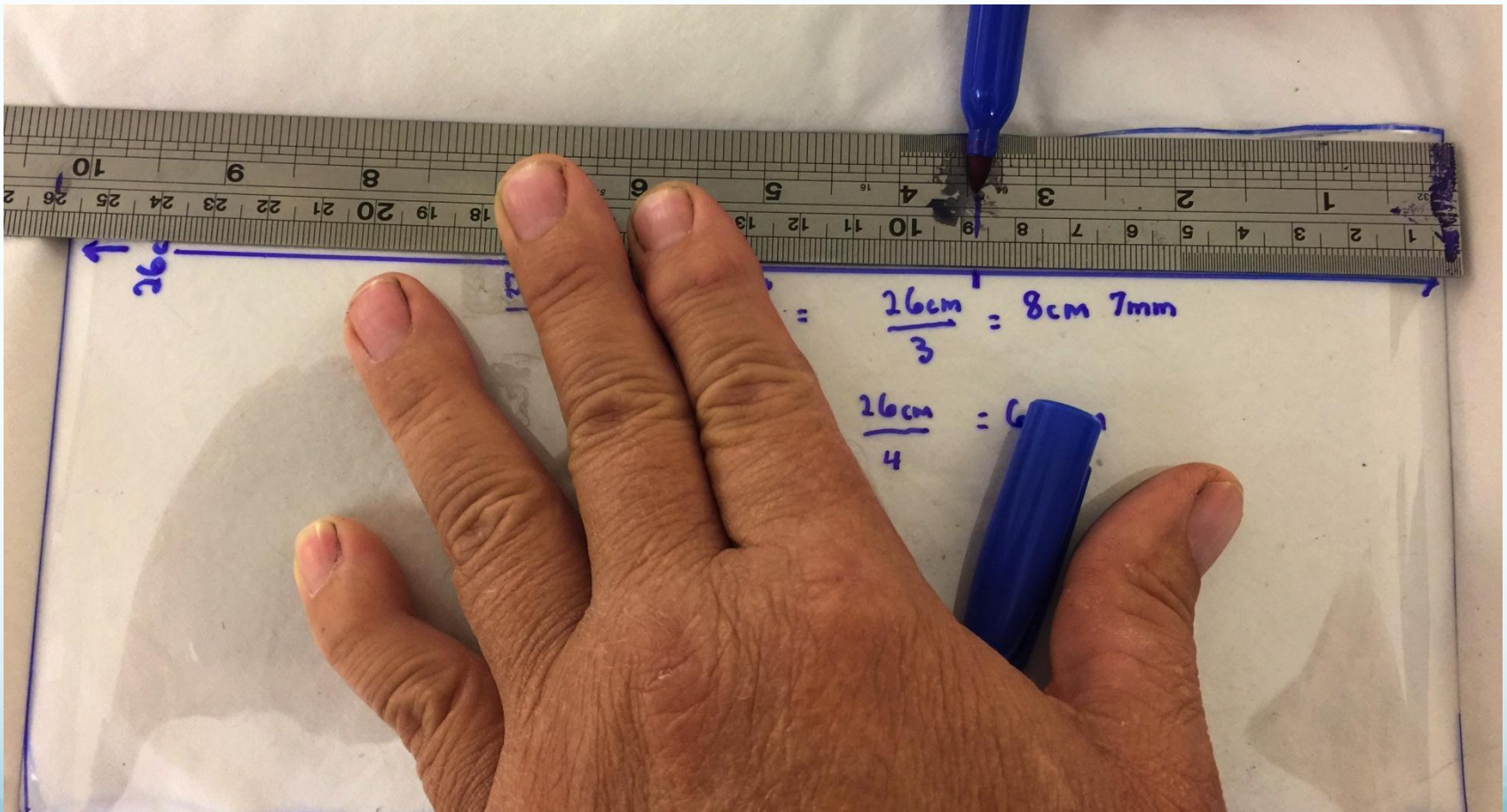


26cm.

$$\frac{\text{Distance between fins}}{3 \text{ fins}} = \frac{26\text{cm}}{3} = 8\text{cm } 7\text{mm}$$

$$4 \text{ fins} = \frac{26\text{cm}}{4} = 6.5\text{cm}$$

Measure where to cut fins



26cm.

Distance between $\frac{\text{fins}}{3 \text{ fins}} = \frac{26\text{cm}}{3} = 8\text{cm } 7\text{mm}$

4 fins = $\frac{26\text{cm}}{4} = 6.5\text{cm}$

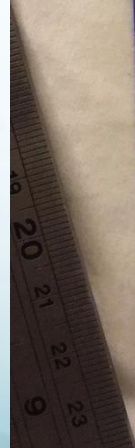
1 fin

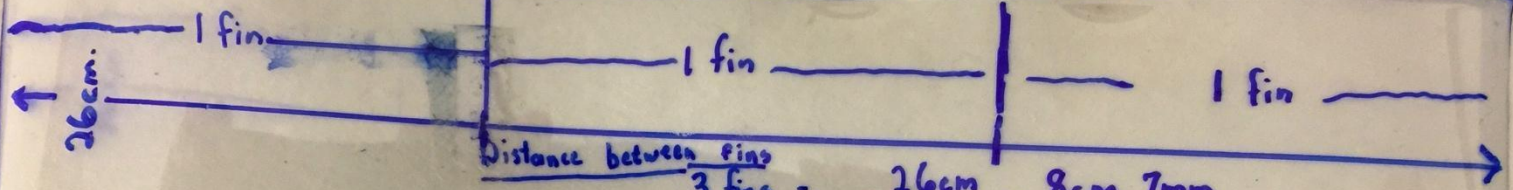


26cm.

Distance between fins
 $\frac{26\text{cm}}{3 \text{ fins}} = 8\text{cm } 7\text{mm}$

4 fins = $\frac{26\text{cm}}{4} = 6.5\text{cm}$



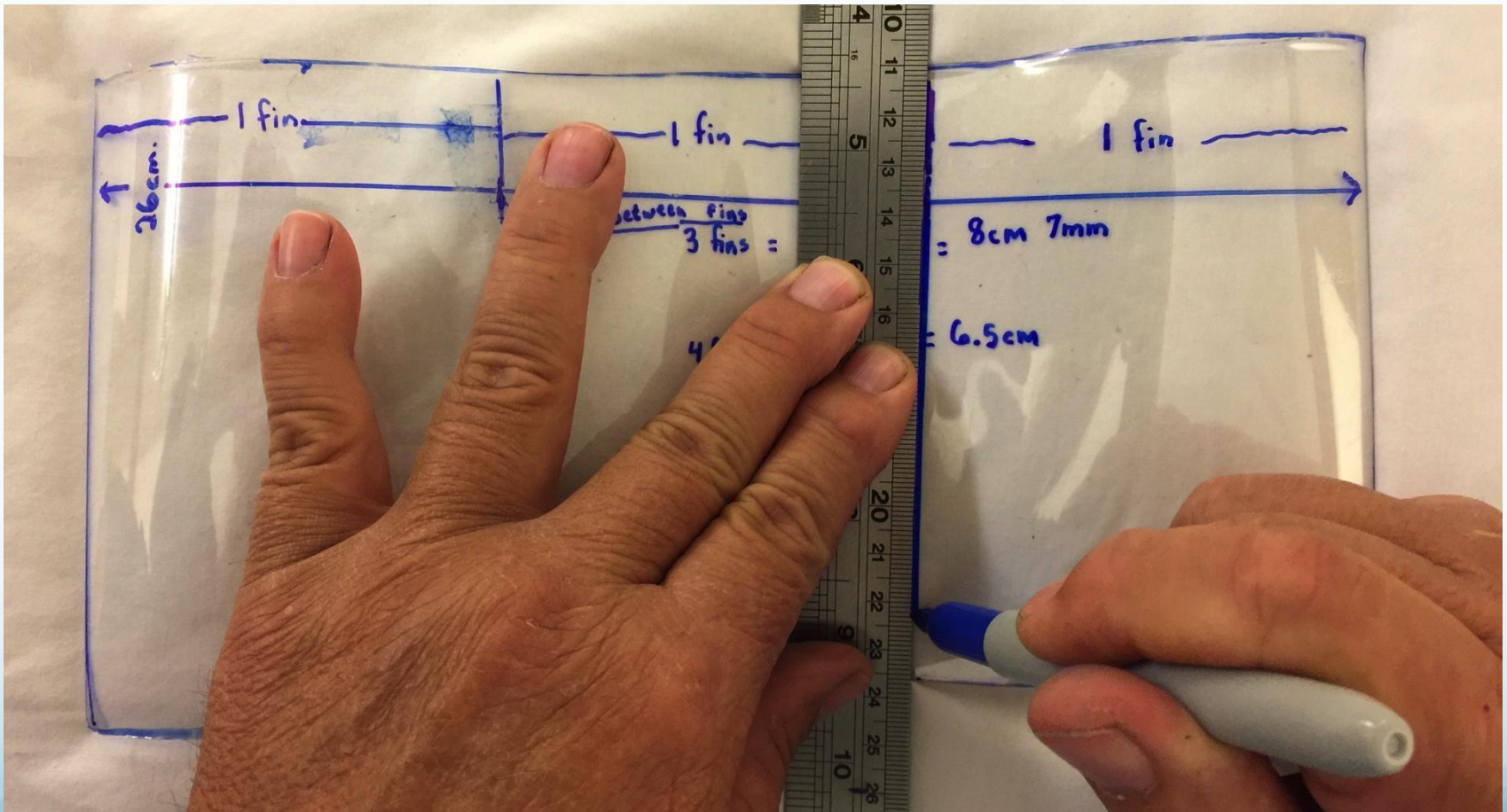


$$\text{Distance between fins} = \frac{26\text{cm}}{3} = 8\text{cm } 7\text{mm}$$

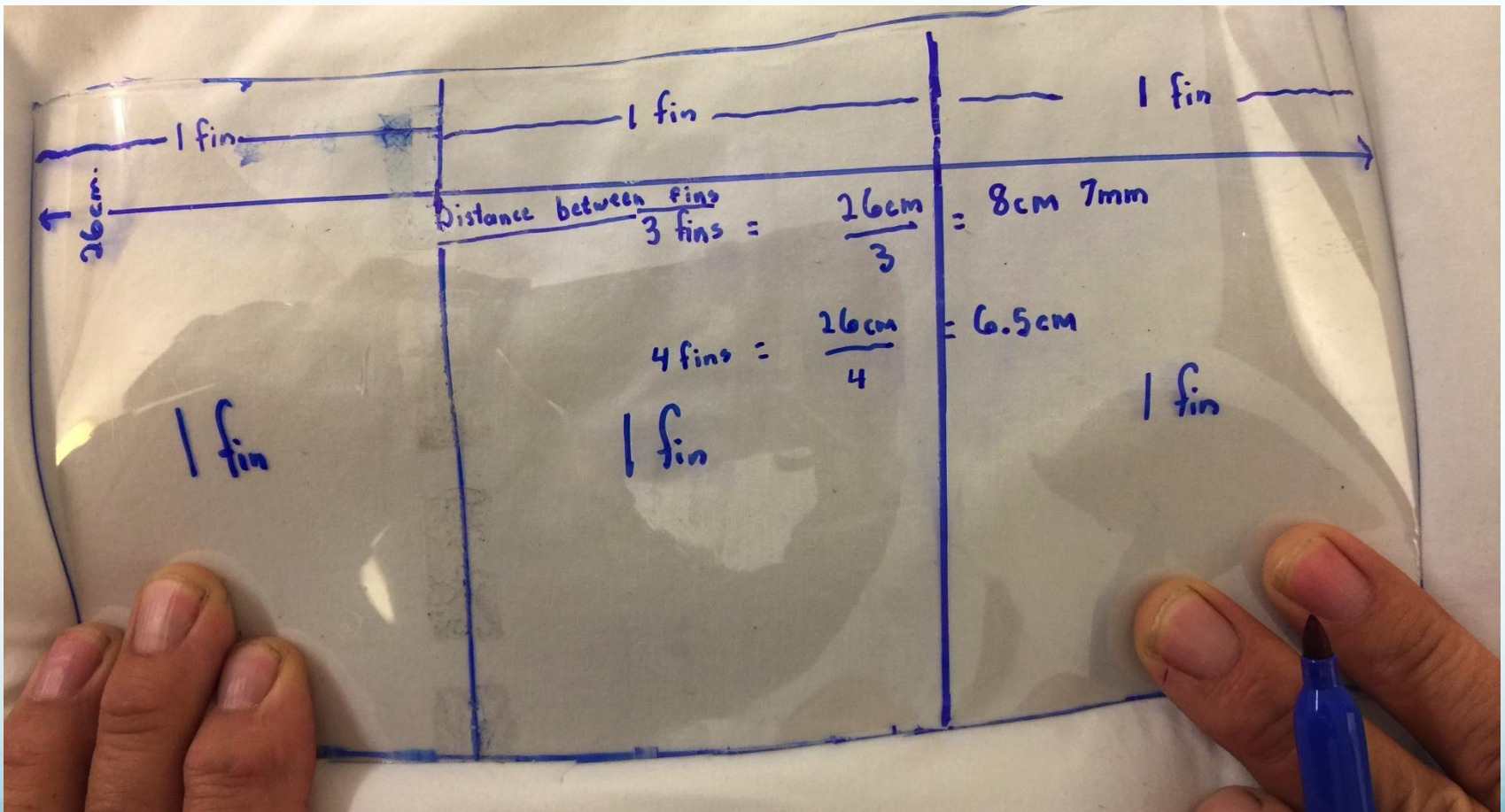
$$4\text{ fins} = \frac{26\text{cm}}{4} = 6.5\text{cm}$$



Mark where to cut for fins



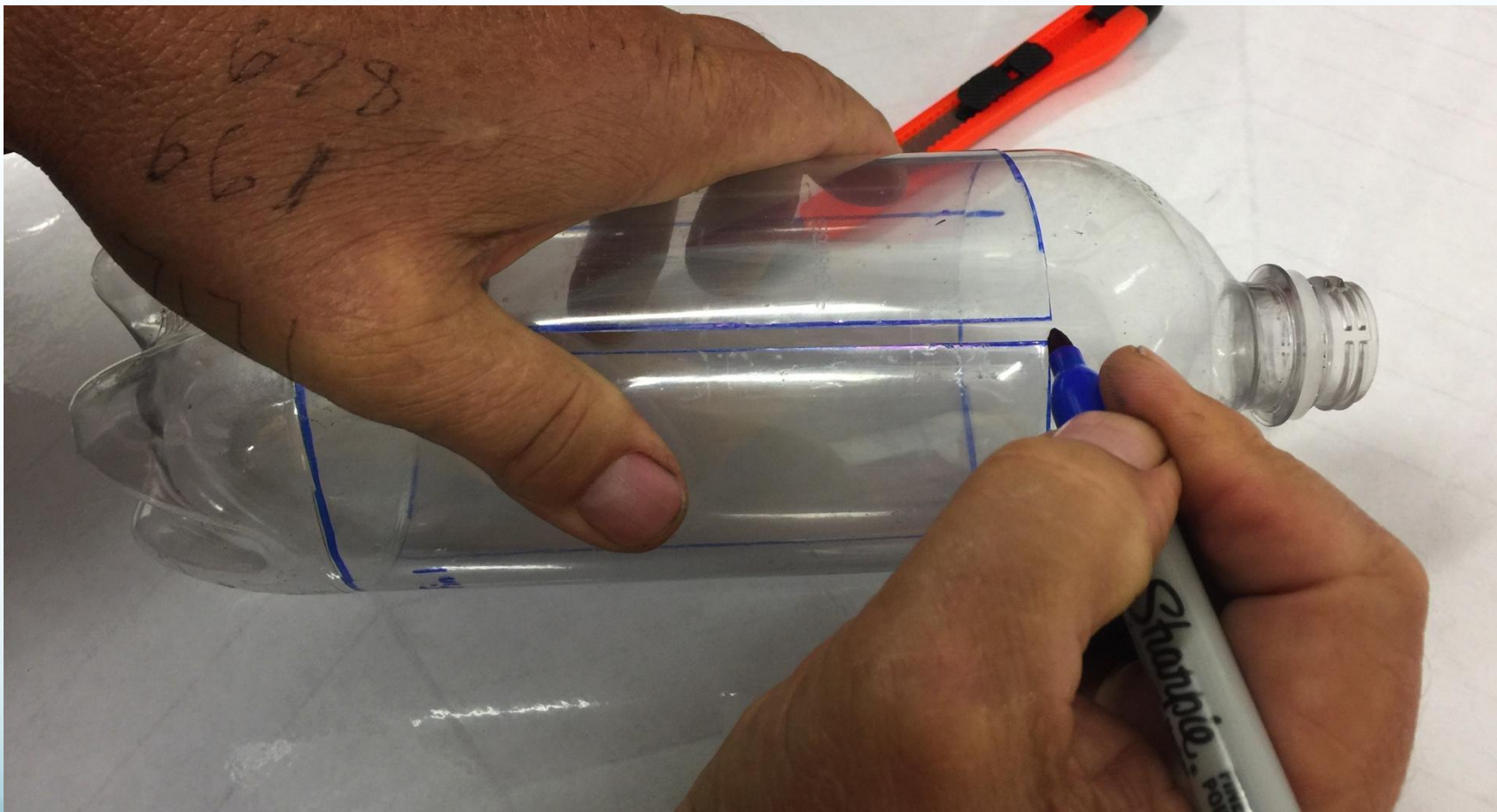
Use this to mark fin placement on rocket body before cutting

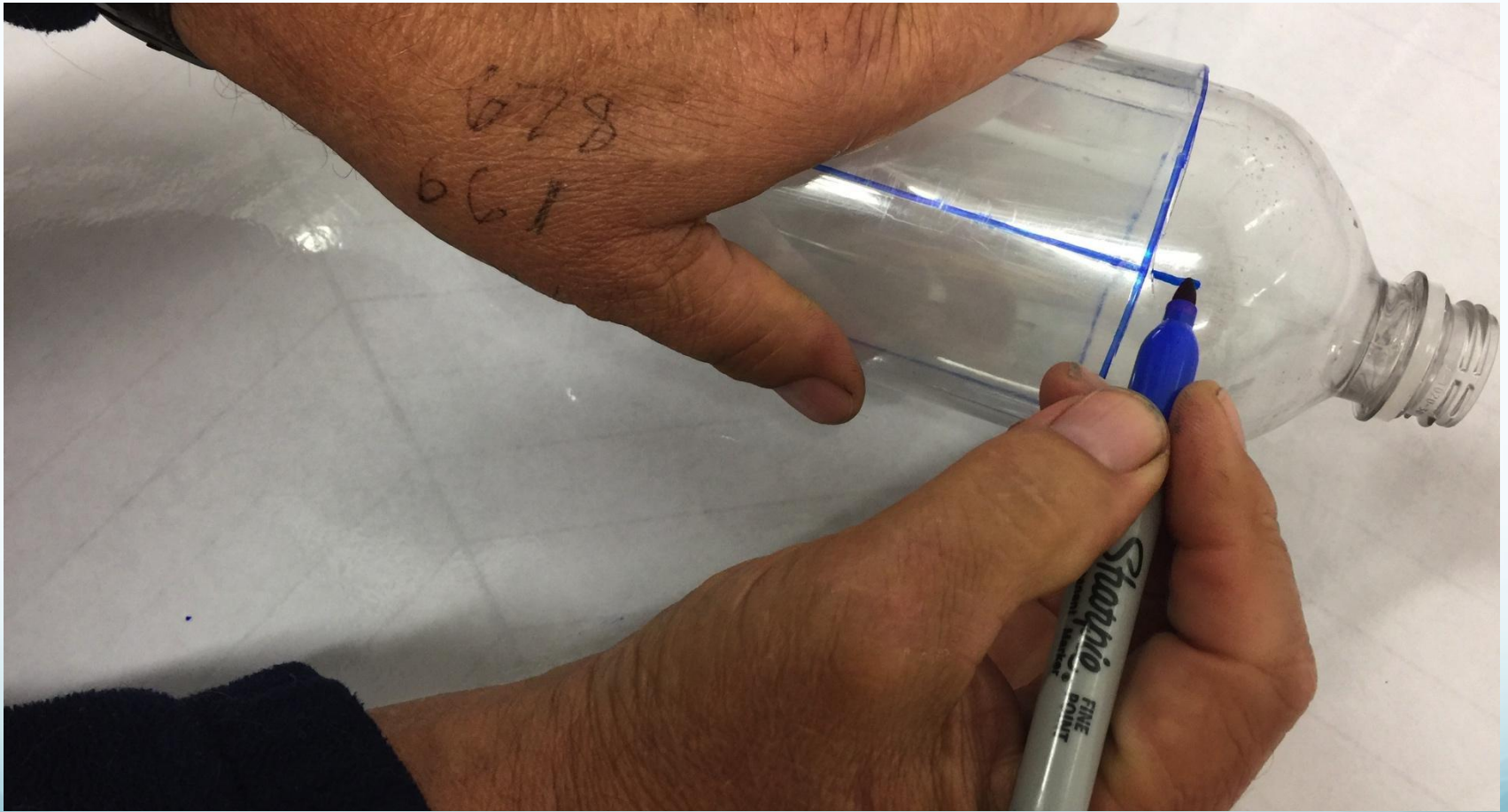








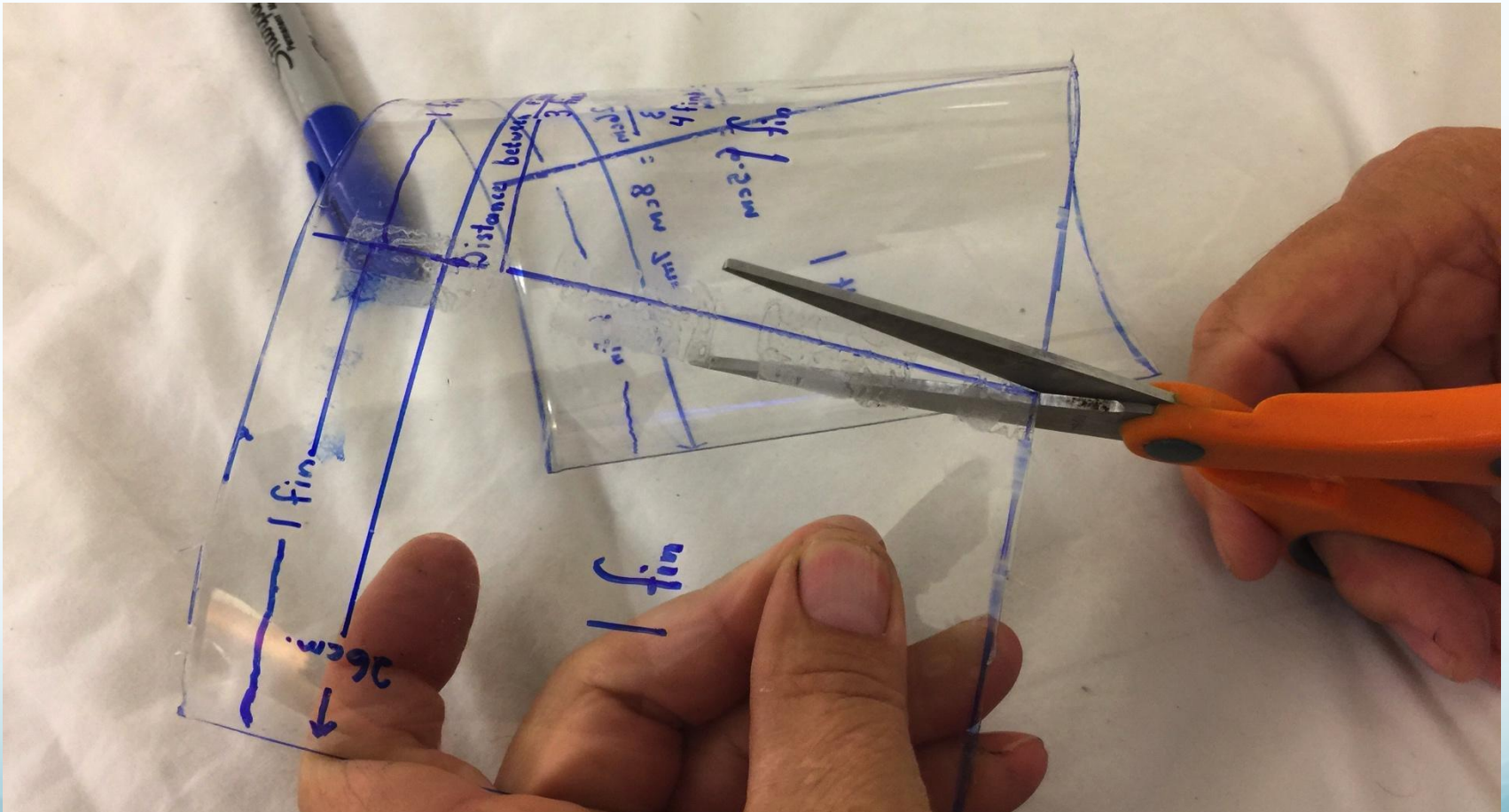




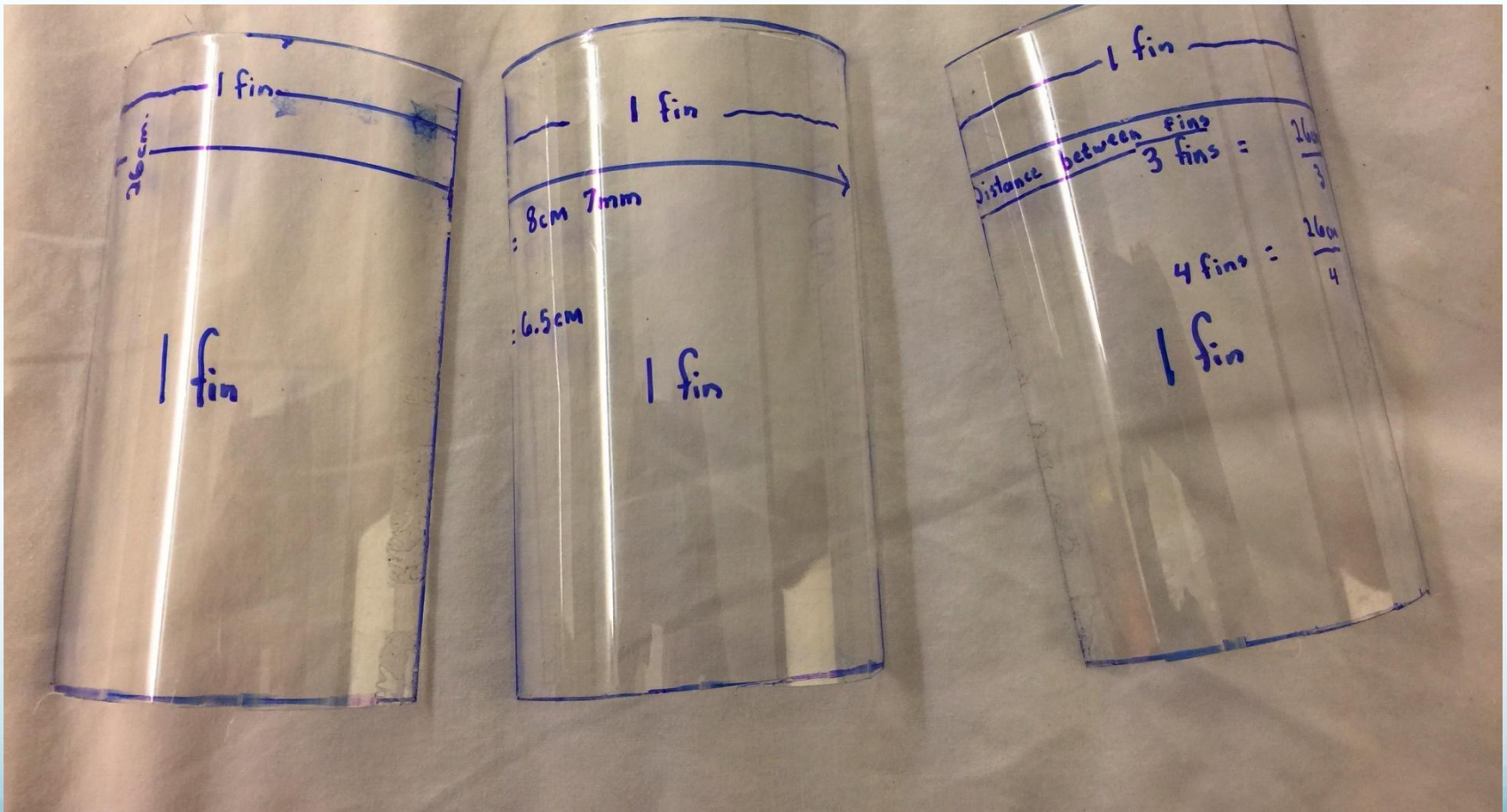




Cut into 3 pieces

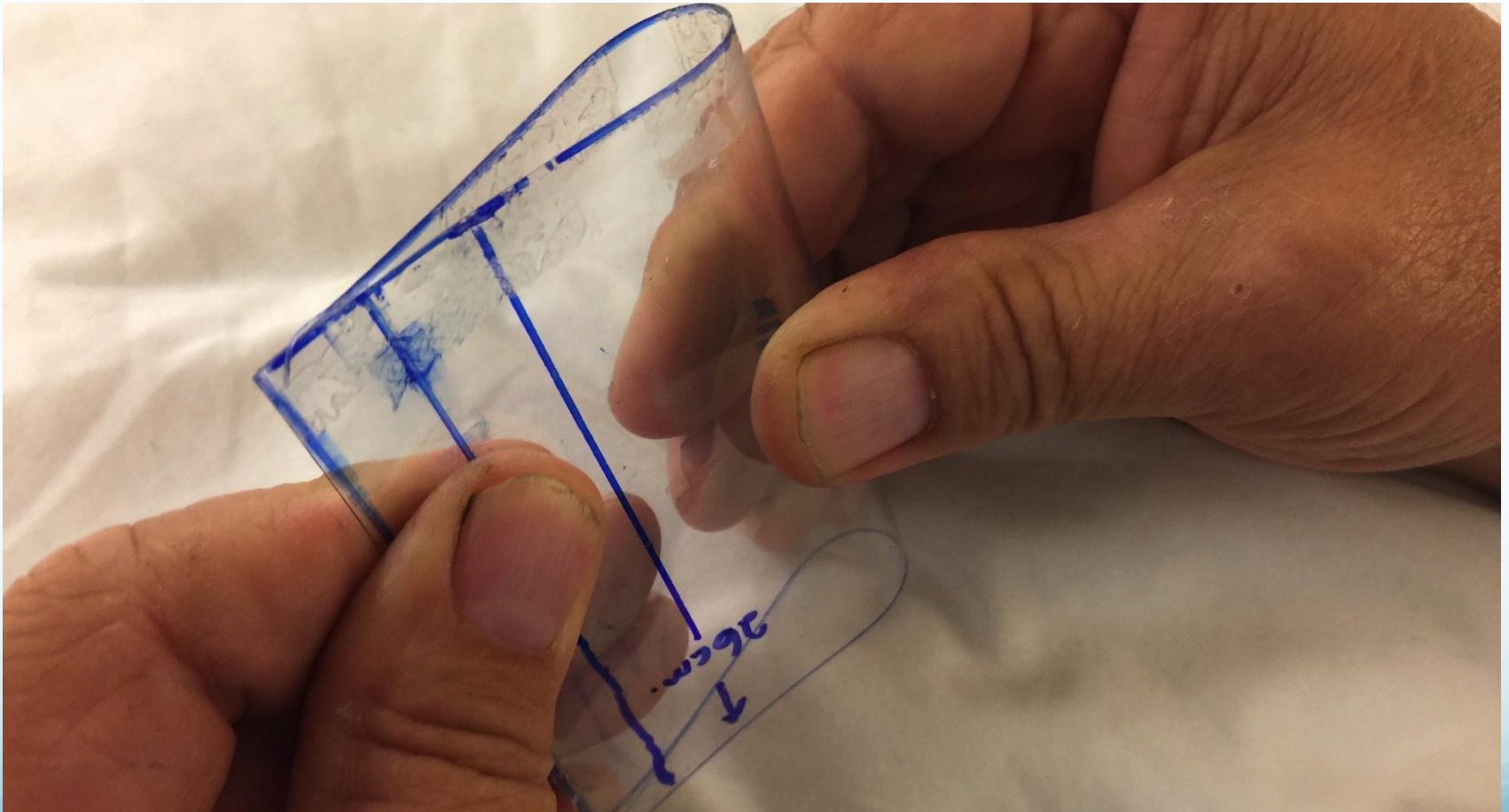


Ready to fold into fins!

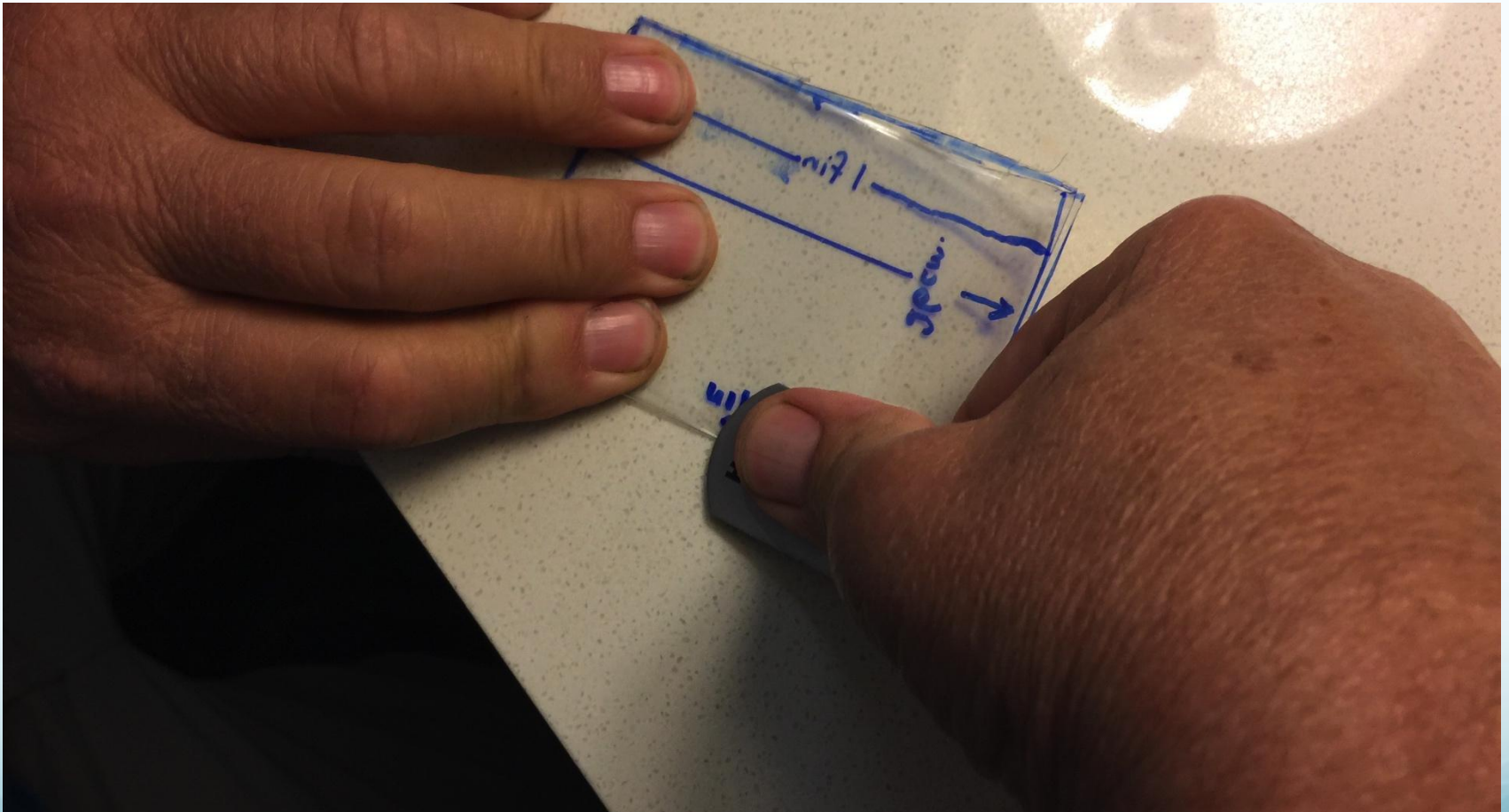


Fold fin

(in the hamburger direction)

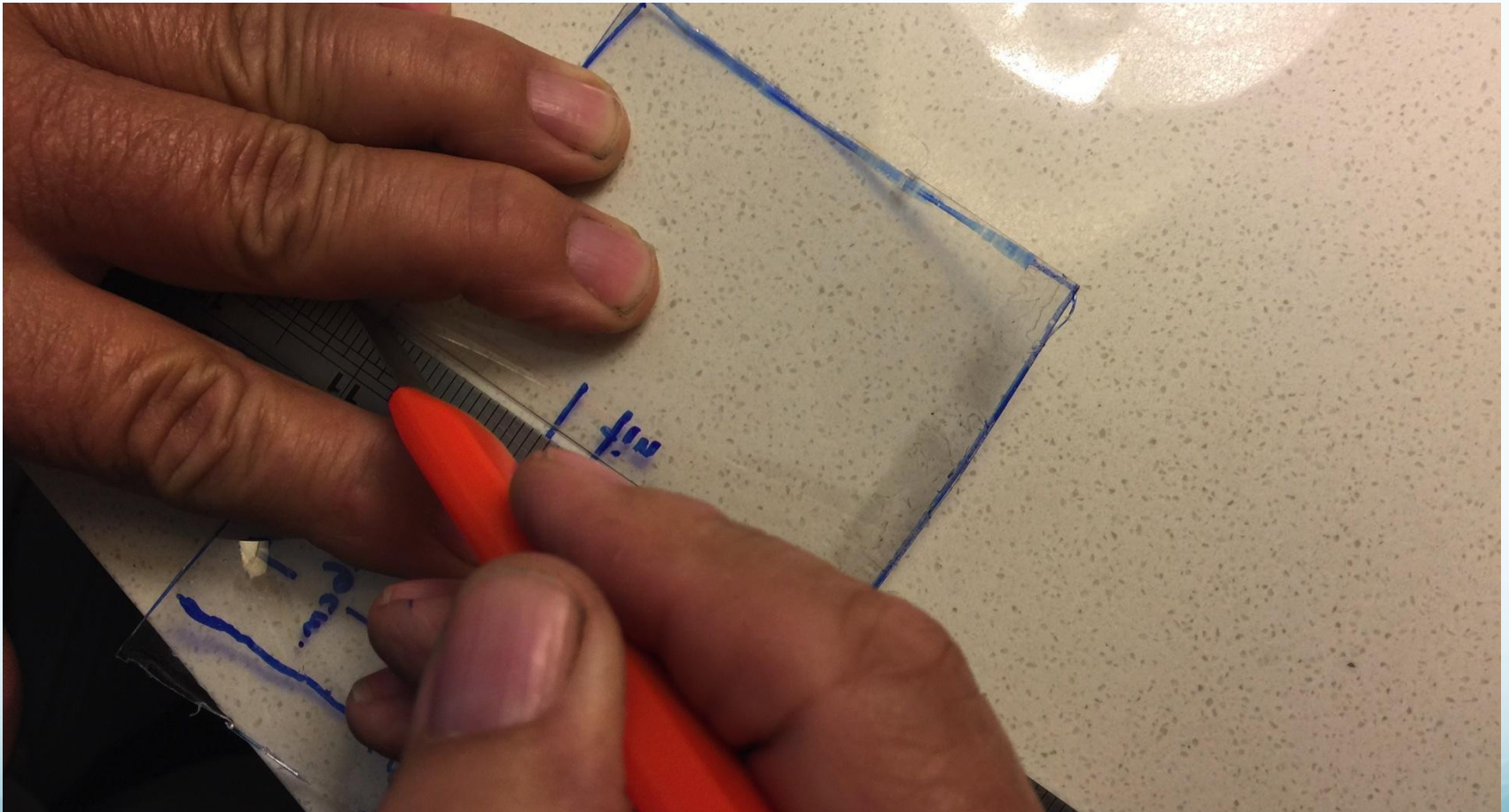


Use ruler to crease fold

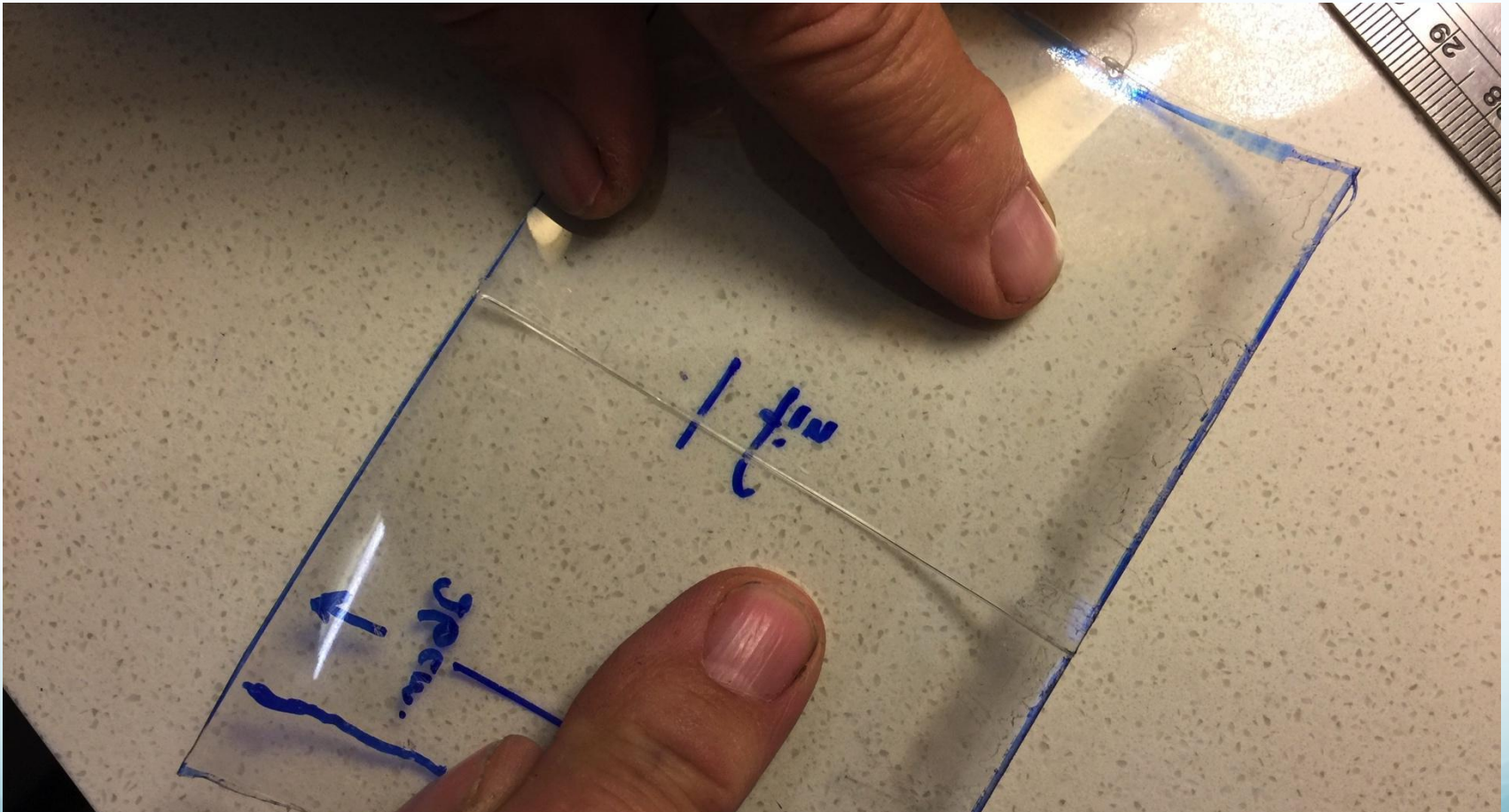


Score with Exacto Knife.

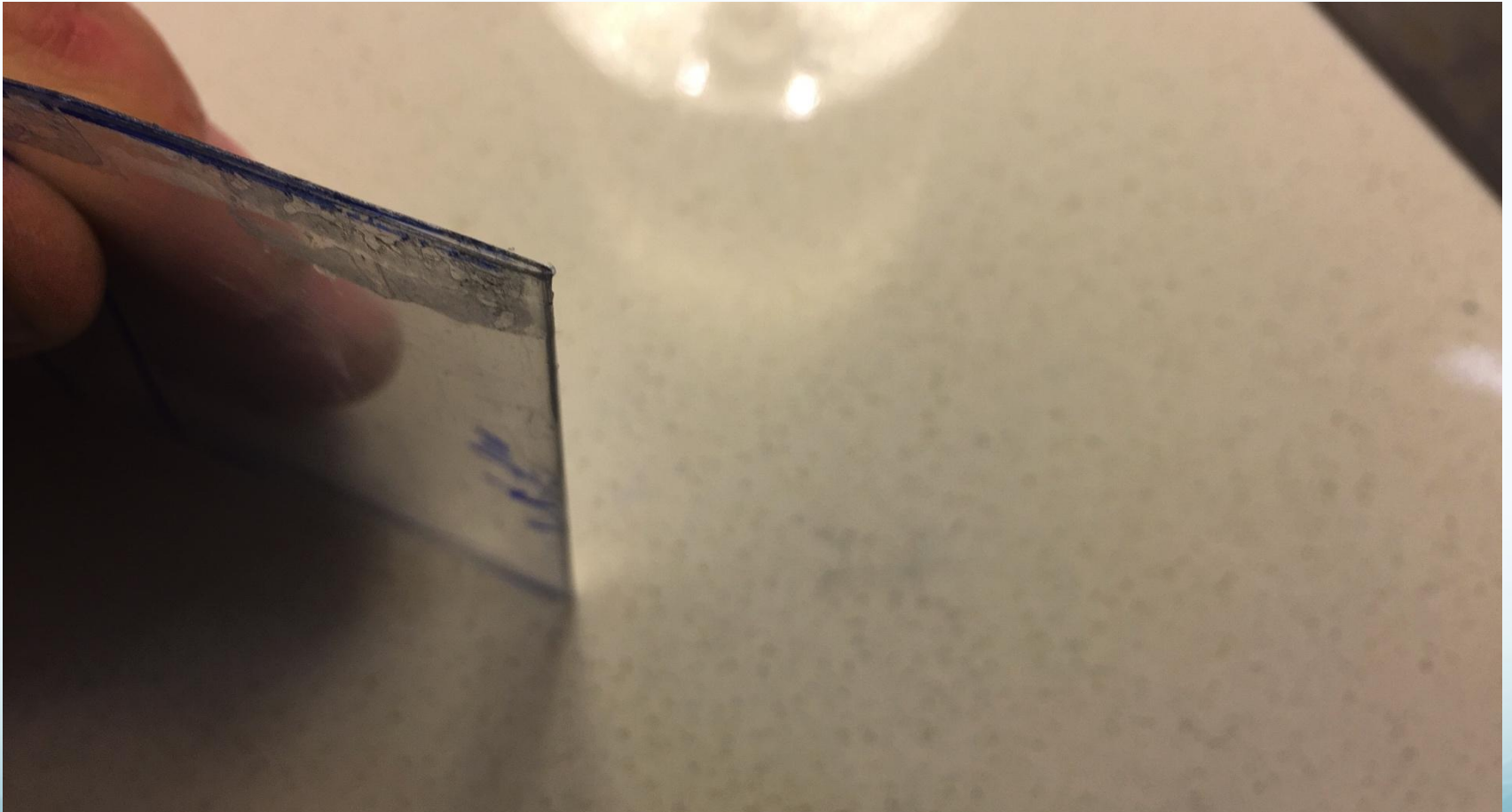
(Always on the outside of the fold.)



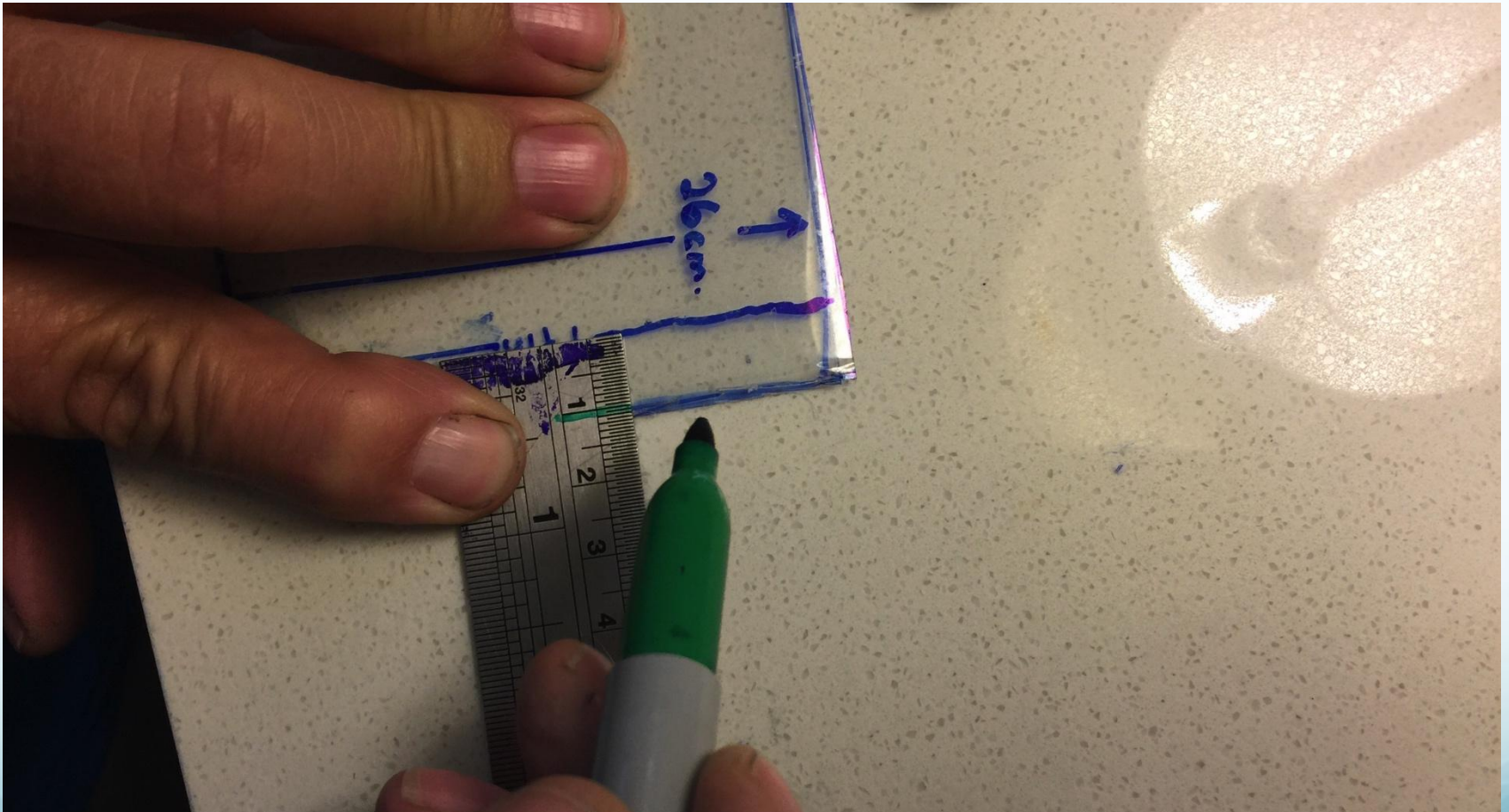
Score all 3 fins



Fin can fold much
flatter, now

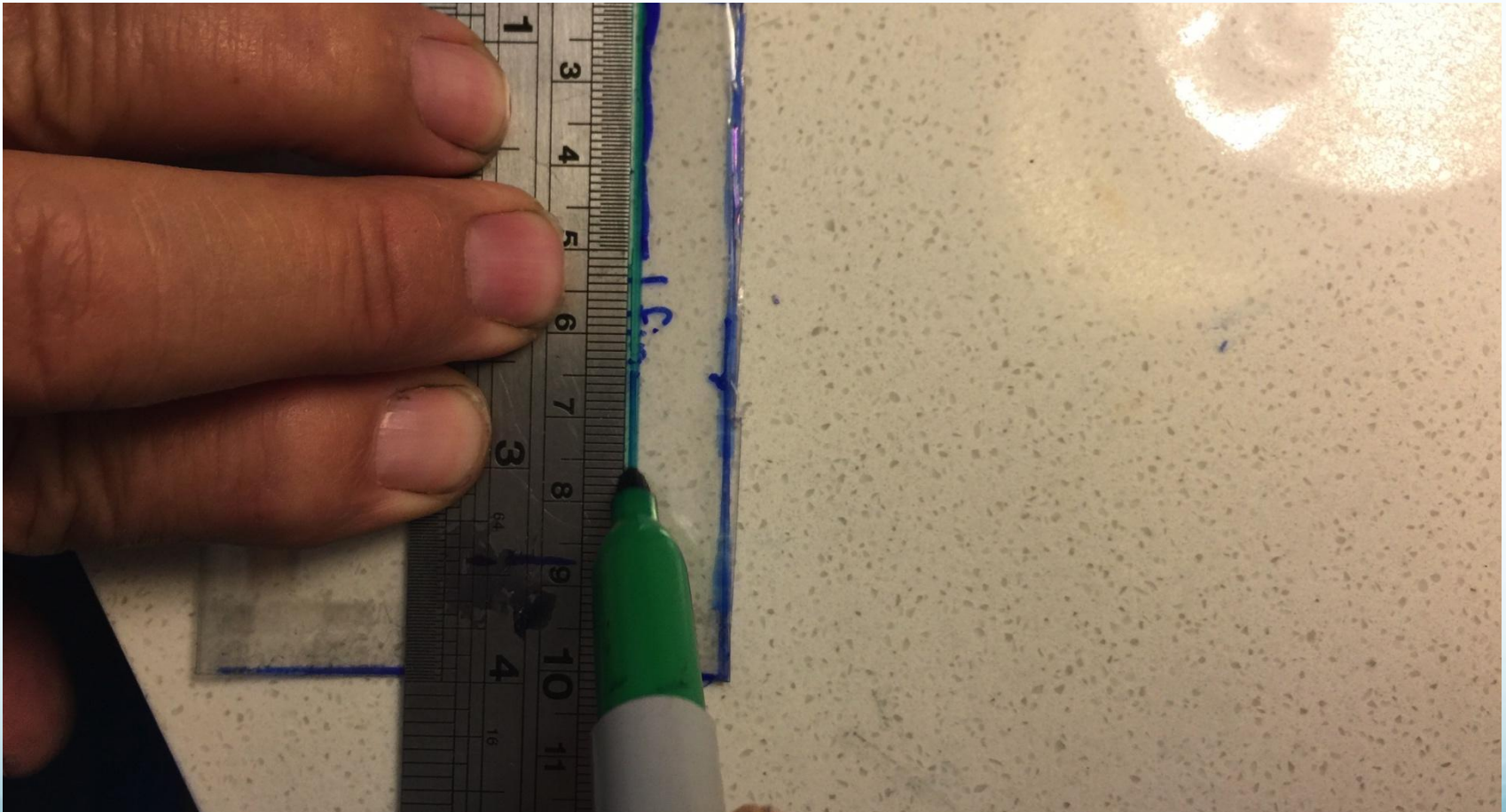


Mark where to fold
10 mm attachment tab
(which is located on the open side of the fin.)
(Note: Only mark one fin at this time)



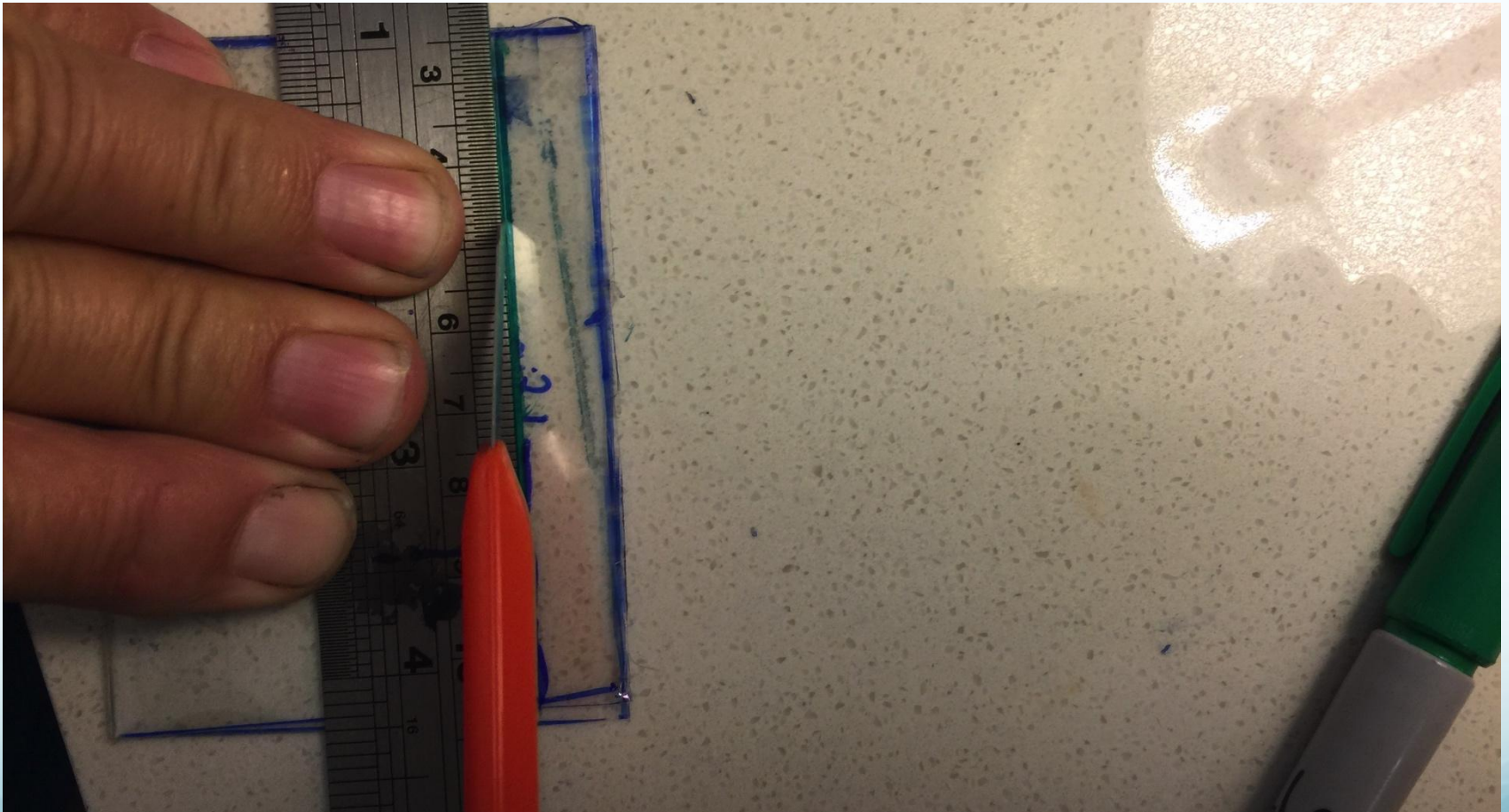
Mark where to score

Don't forget to score on the outside of the fold.



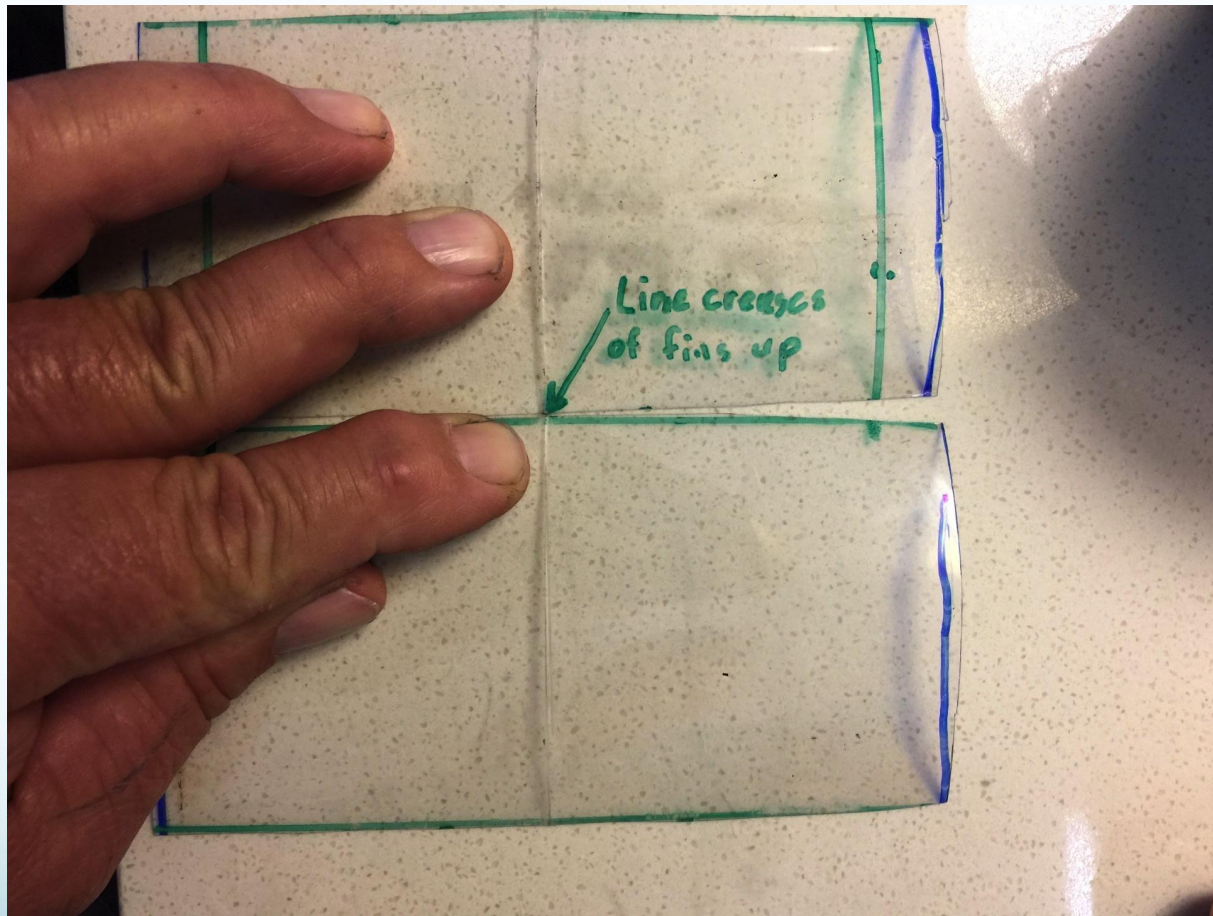
Scoring the outside of the fold

(Do not fold yet)

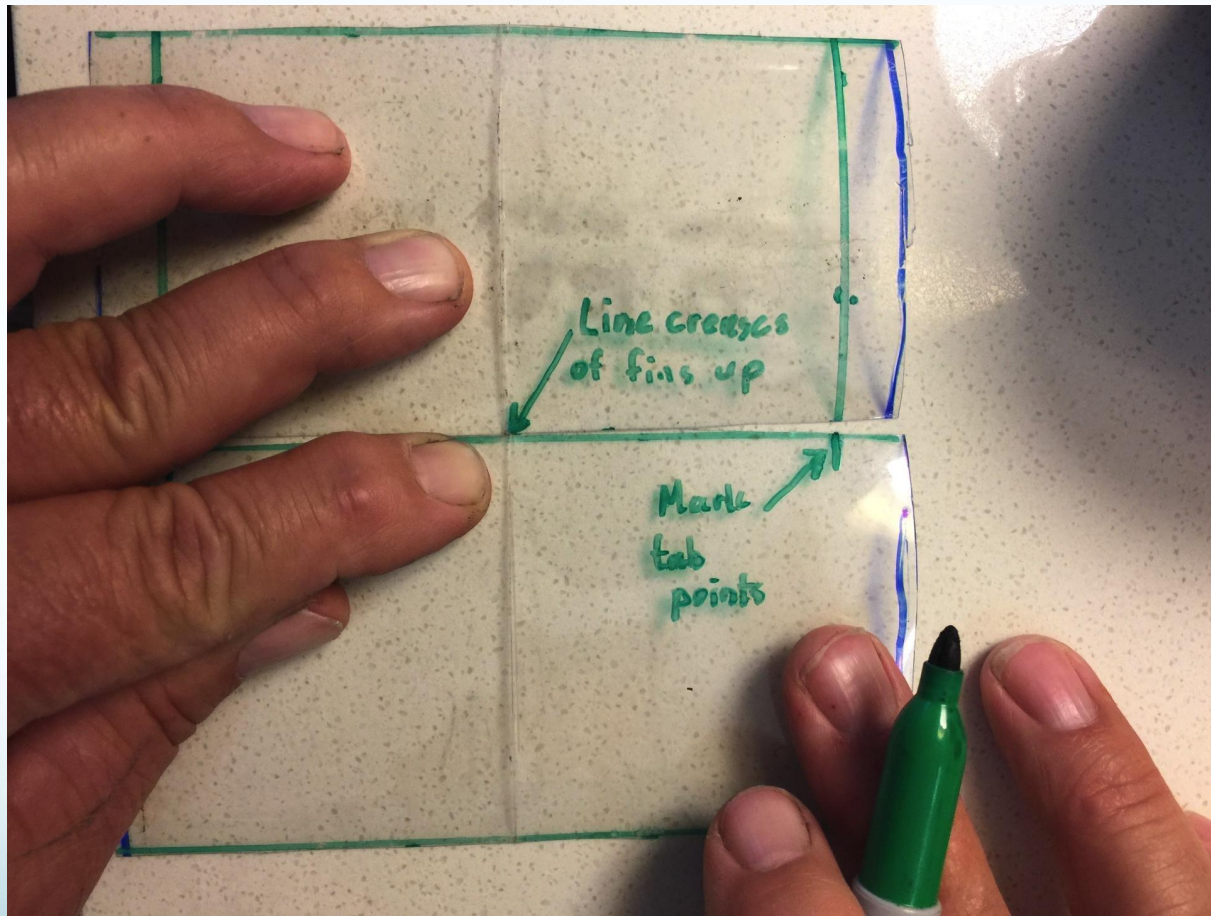


Use first fin as a guide for remaining fins.

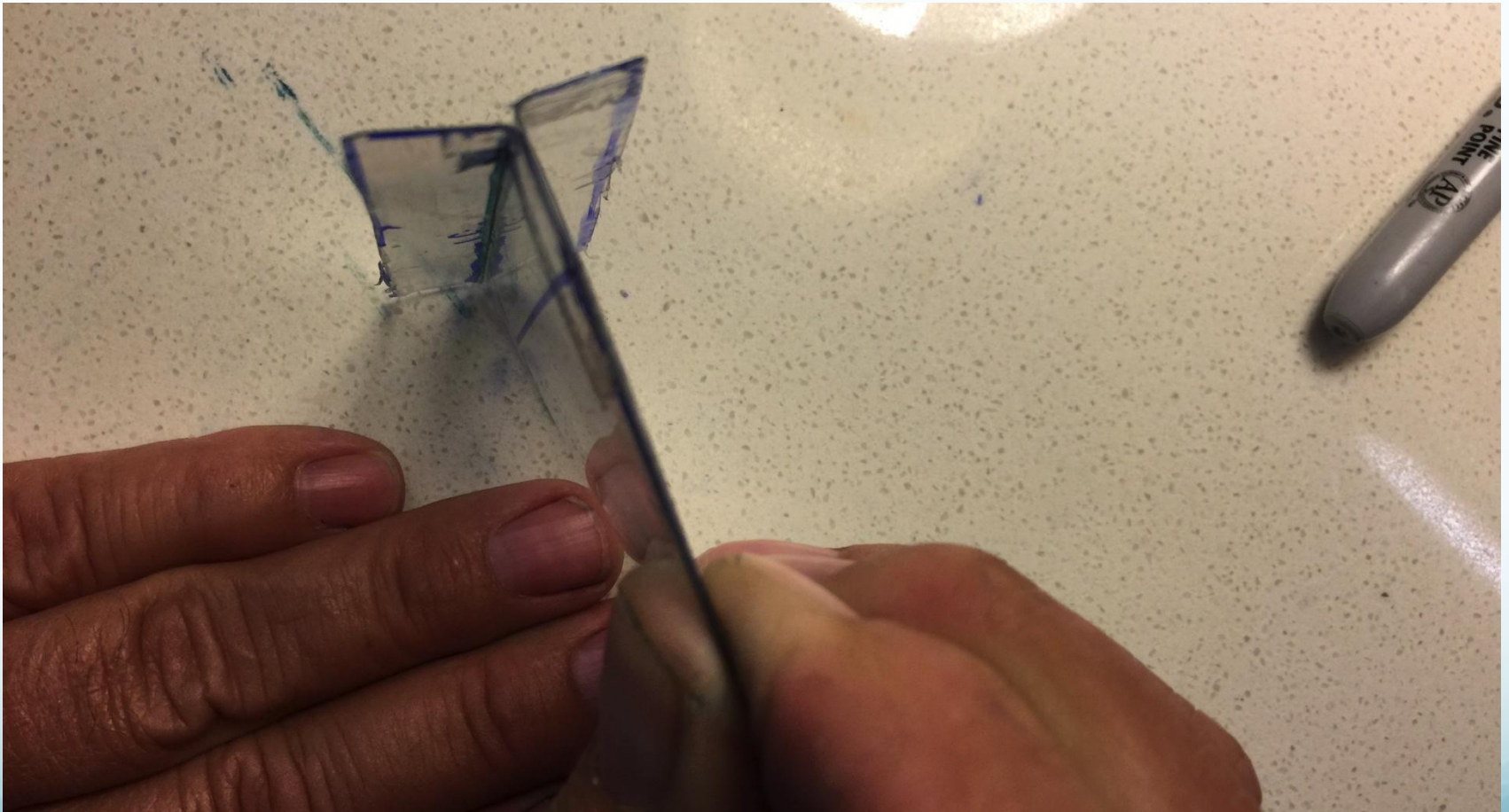
(Hold center creases together)



While holding the center creases together carefully mark the tabs.

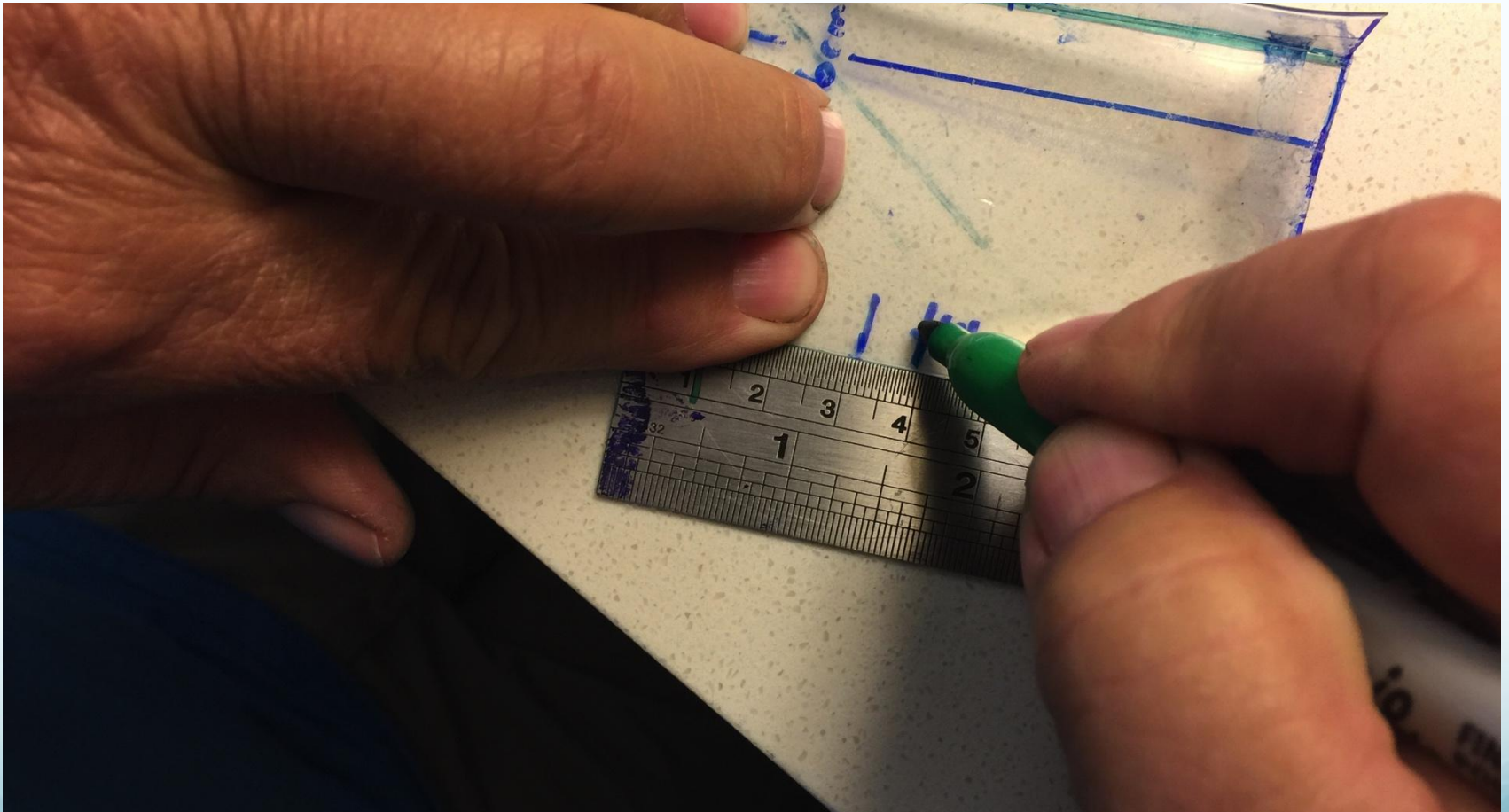


After marking and scoring the remaining two fins, fold the fins.

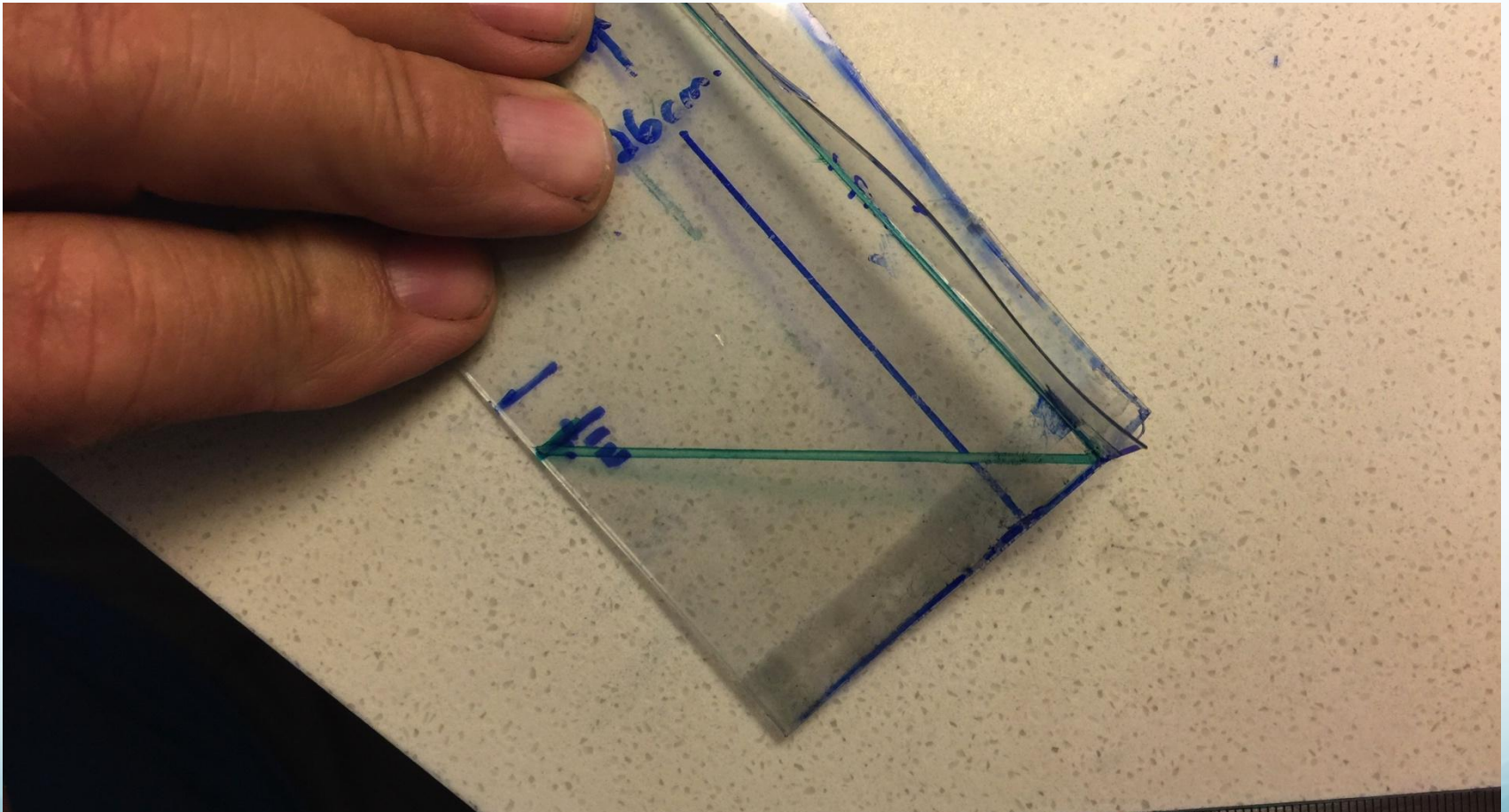


Making the fin shape.

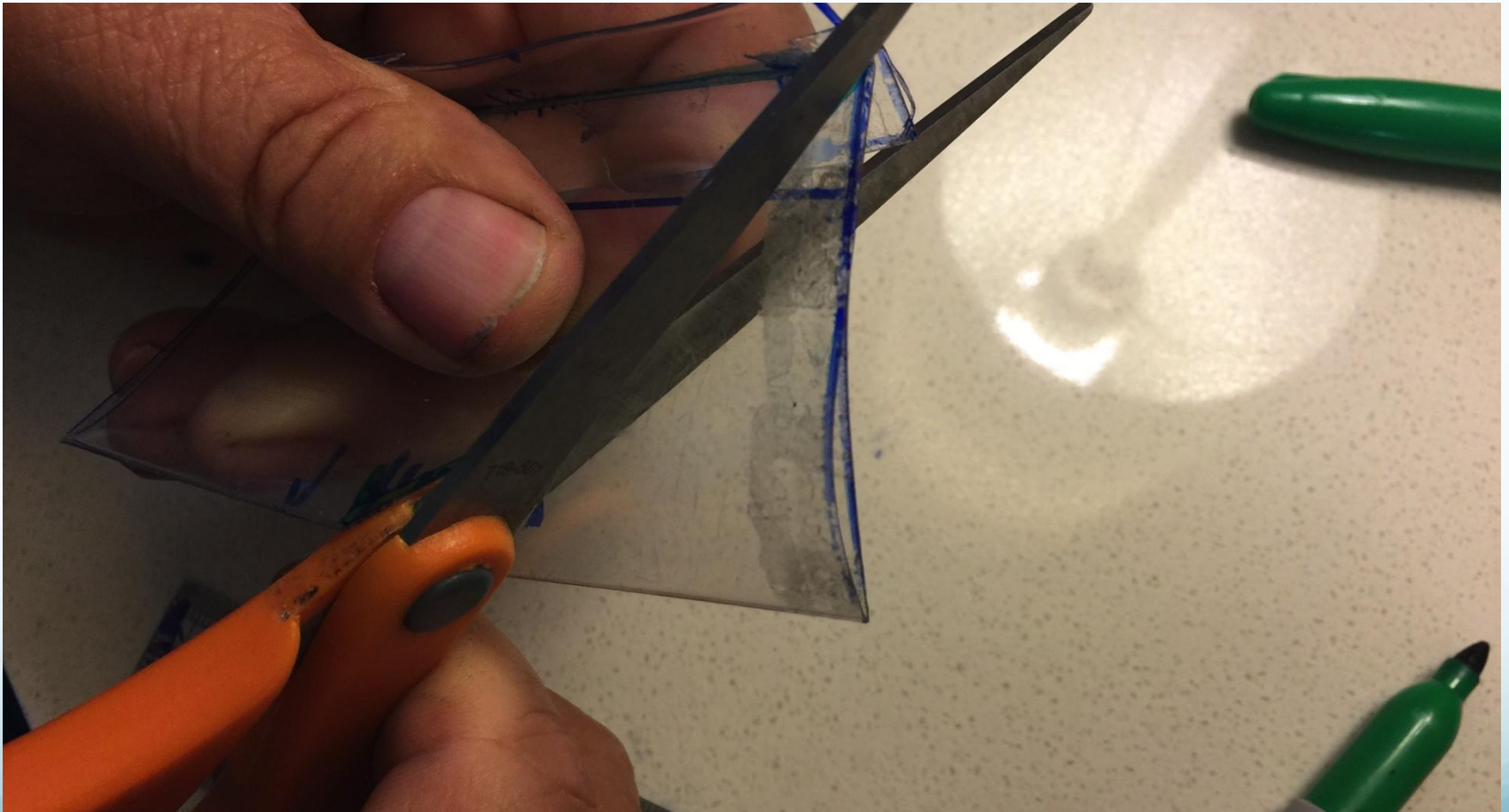
Mark at 4 cm or a distance of your choice.



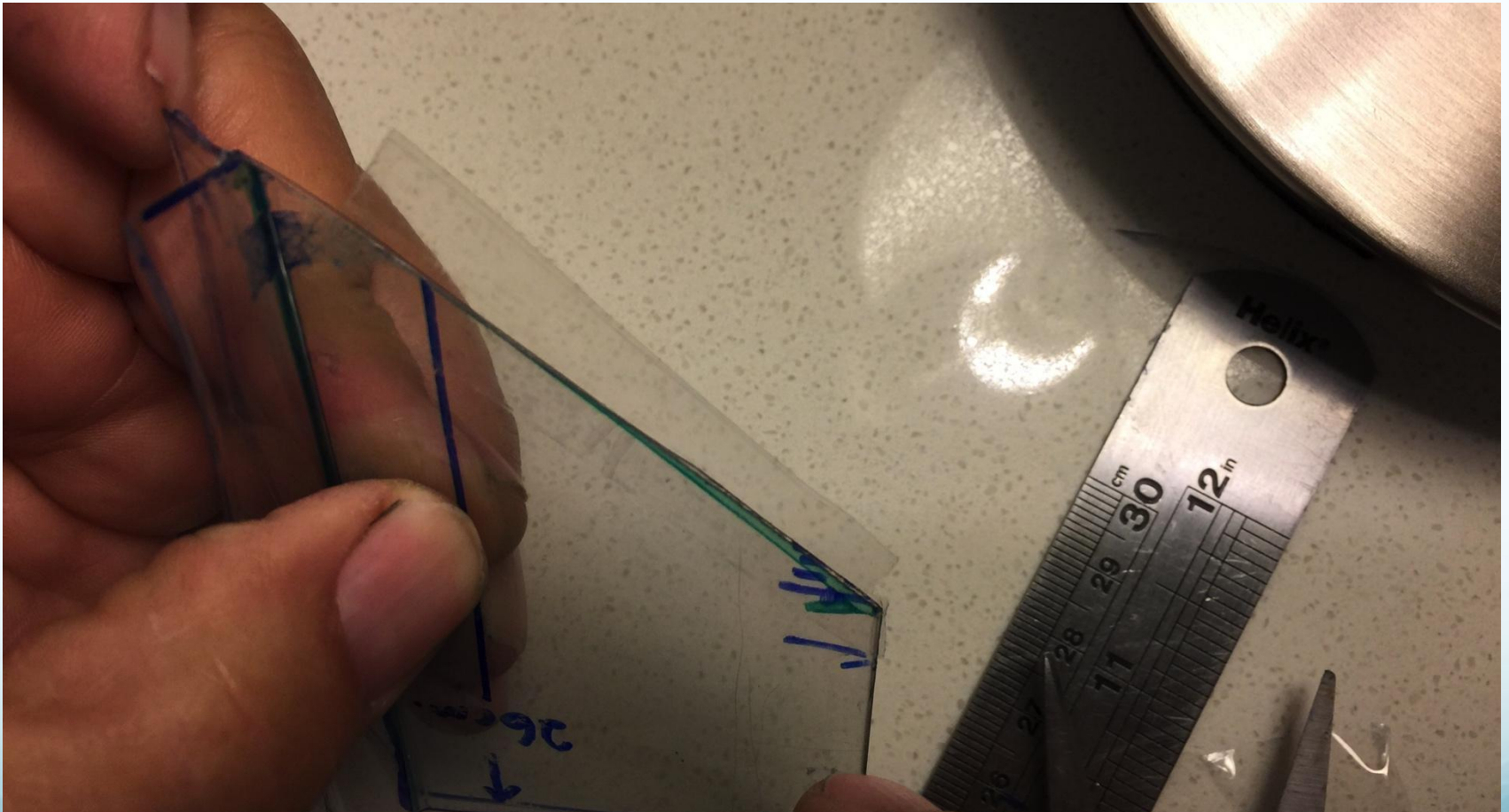
Draw a line from the mark to the
tab crease as shown

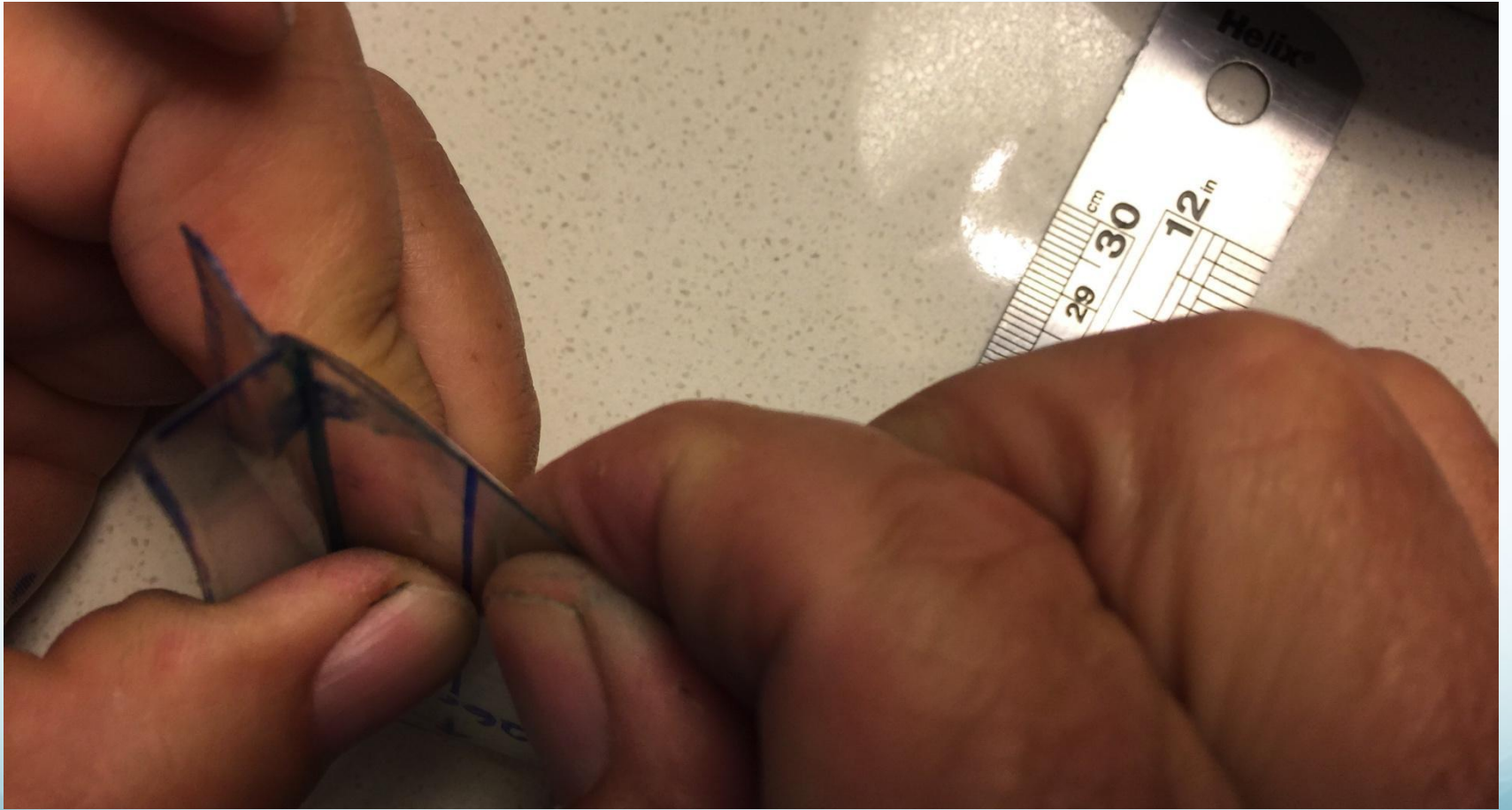


Cut along the previous line to give the fin its final shape.

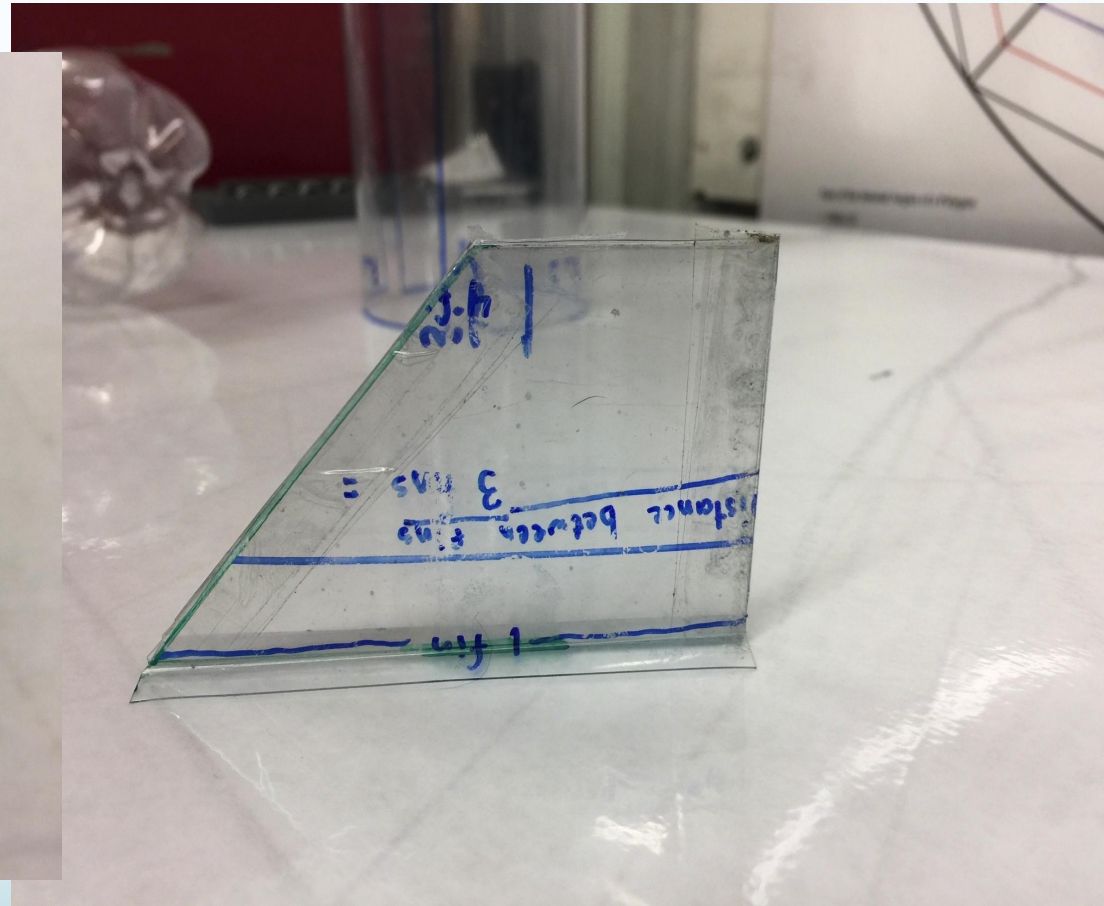
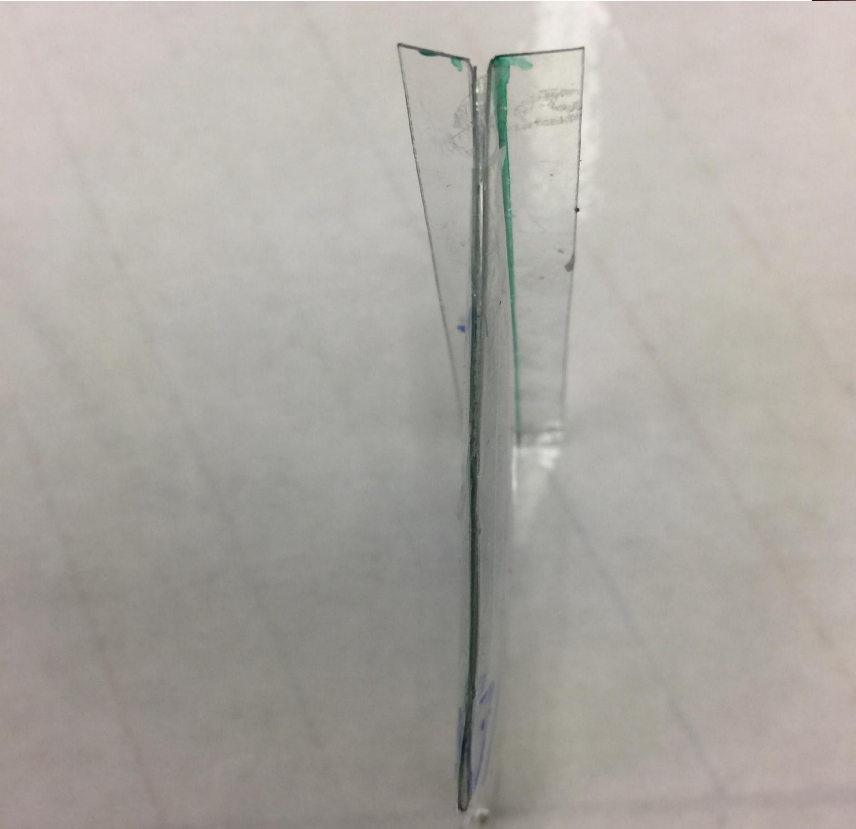


Place thin section of tape over top and bottom edge of fin

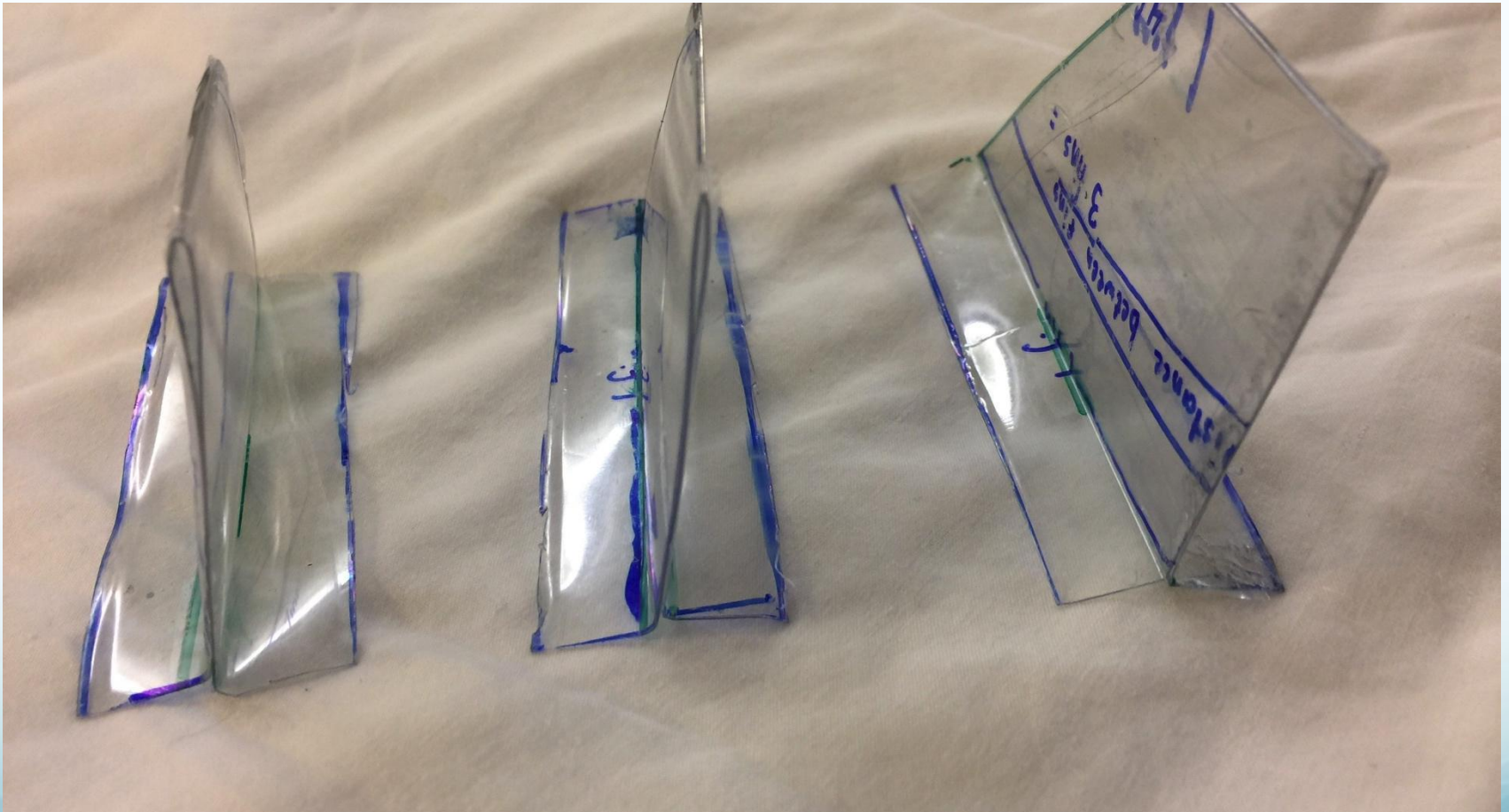




A very aerodynamic fin!



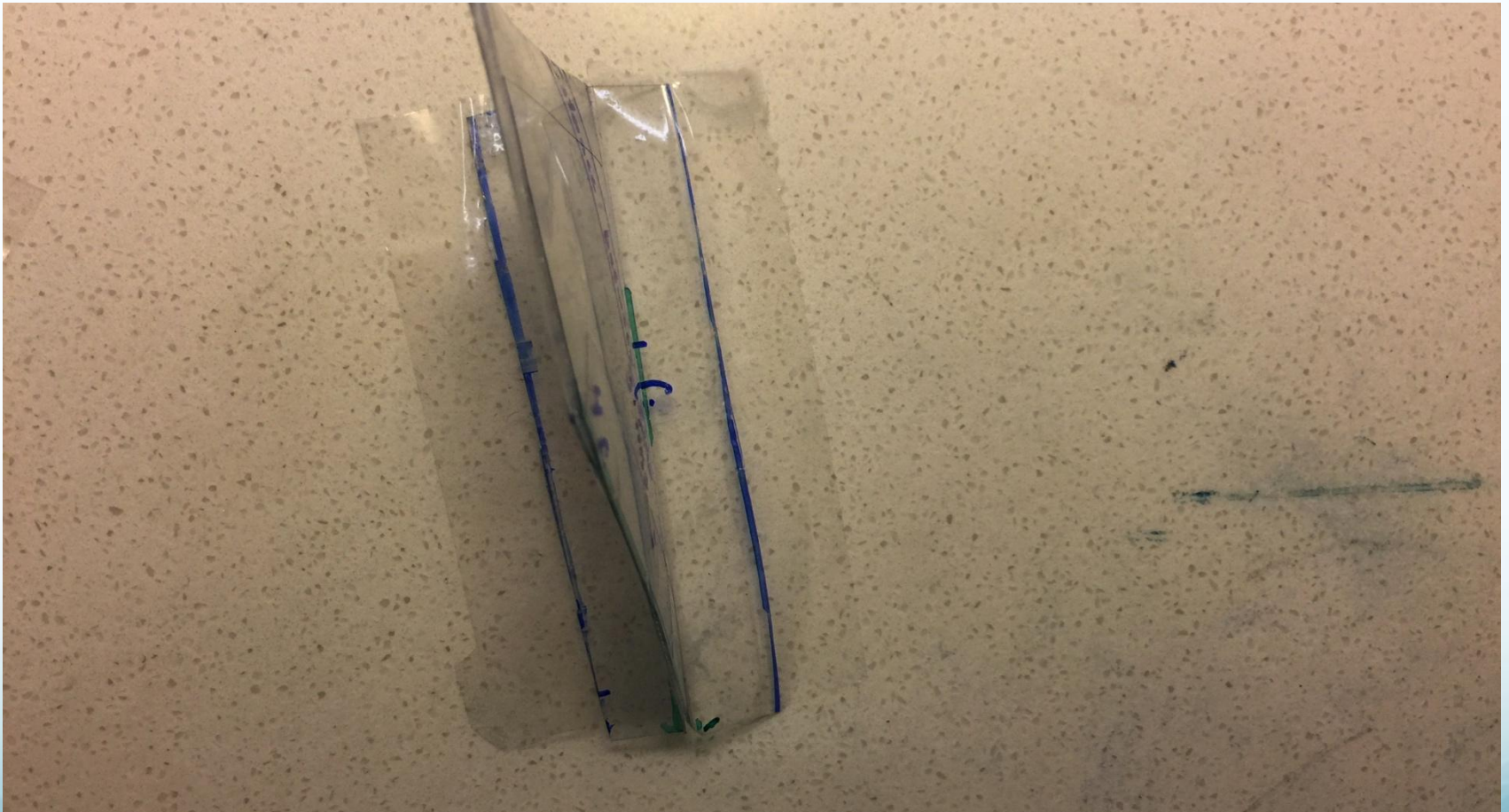
Collect the whole set!



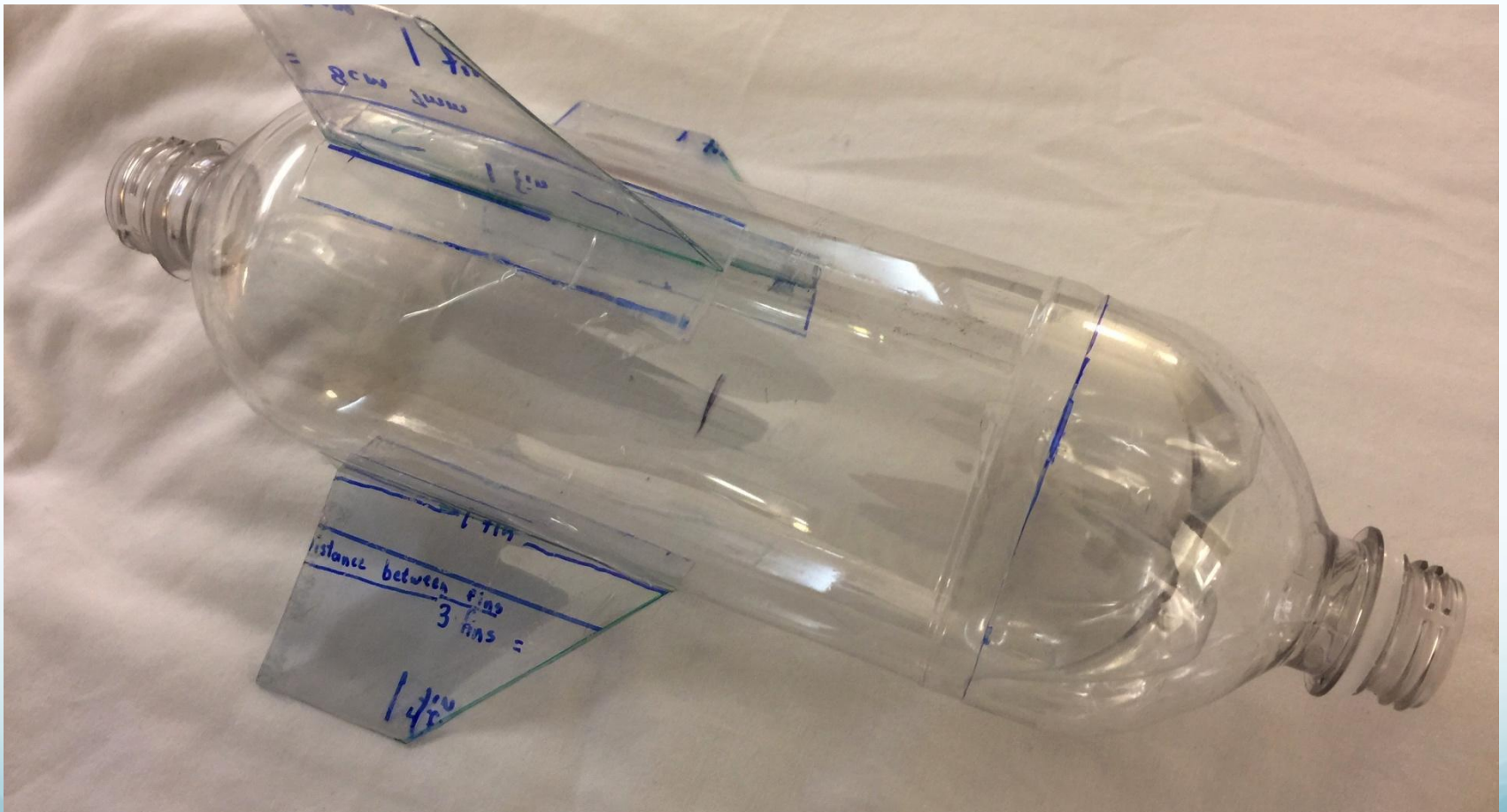
Place fins on previously marked locations



Prepared fin with tape on tabs



Gorgeous!



Place top of rocket onto rocket's main body





Remove unnecessary weight



Keep bottle cap in place and wrap the cap with approximately 12 wraps of masking tape.



Press fit the golf tube over the taped cap. Use the golf tube as a nose cone and balance (optional)



Fin!

