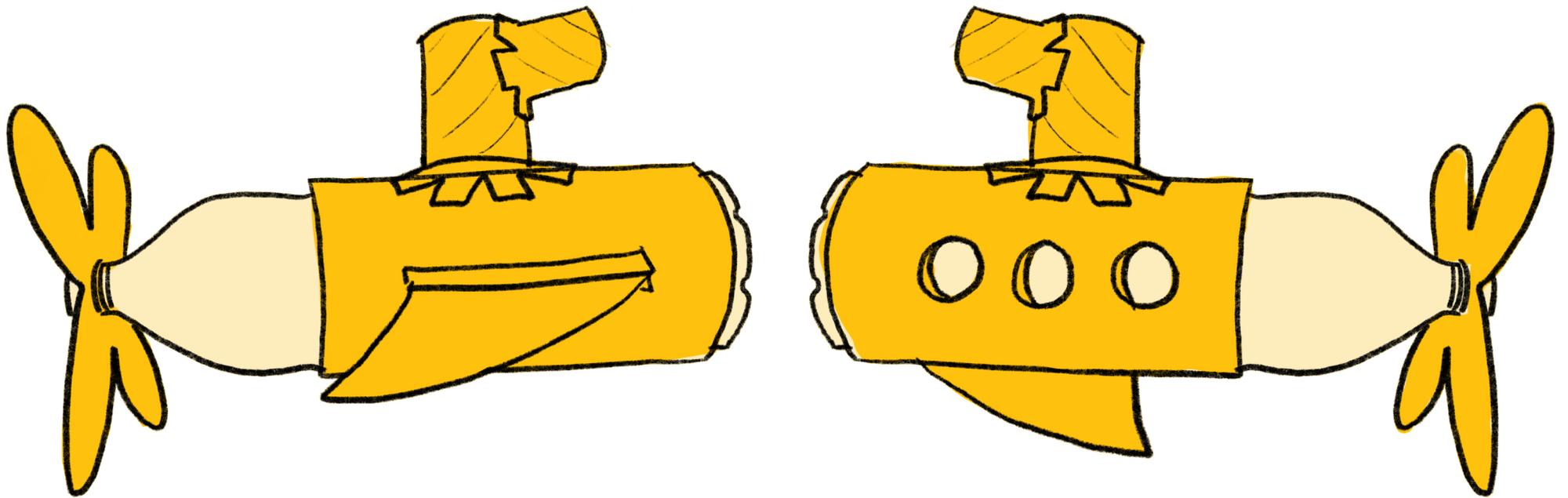


MISD Mission Blue : Oceans!



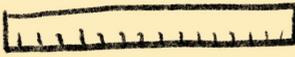


≡ MAKING A BOTTLE SUBMARINE ≡

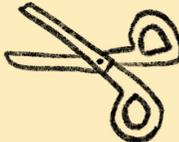
≡ EQUIPMENT ≡



PENCIL

RULER 



SCISSORS 

TAPE

ONE WILL
BE OKAY

GLUE
(PVA OR HOT GLUE)

GLUE STICKS
AREN'T GREAT FOR THIS

CLIPS OR PEGS
(USEFUL FOR HOLDING
SOME THINGS IN PLACE
WHILE GLUE DRIES)



≡ MATERIALS ≡



BOTTLE

TOILET ROLL TUBES x 2
(OR A KITCHEN ROLL TUBE)



CARDBOARD
(CORRUGATED LIKE DELIVERY BOXES)

NEED →

HOUSEHOLD/KITCHEN PACKAGING
(LIKE CEREAL BOXES)

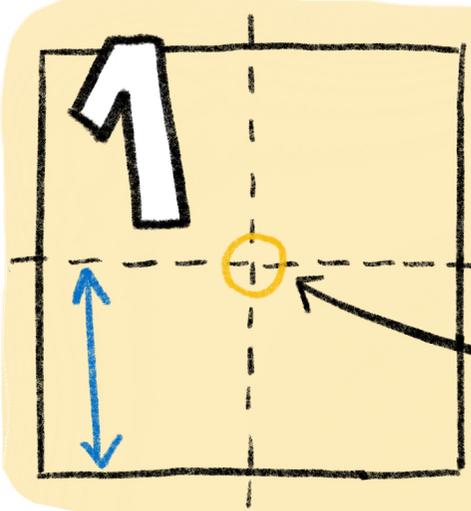


PAPERCLIP OR GARDEN WIRE

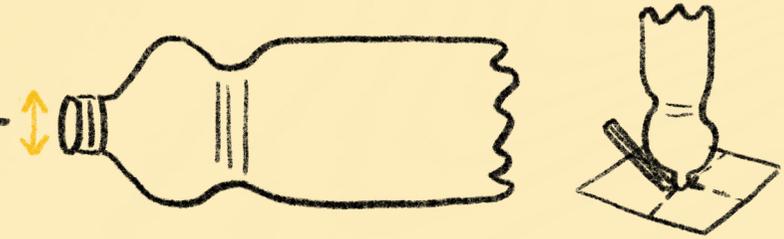
OTHER INTERESTING SHAPED RECYCLING



EXTRAS

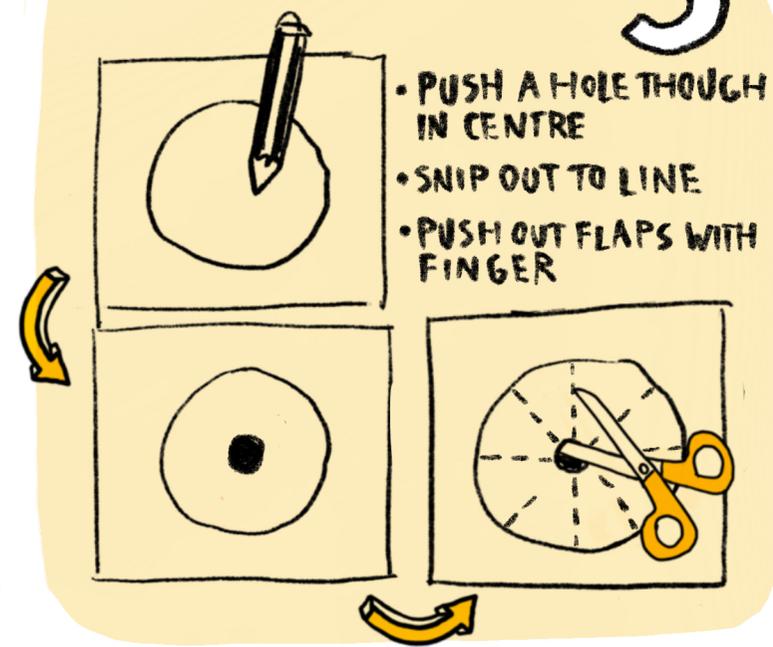


- MEASURE A SQUARE OF CARDBOARD
- USE YOUR RULER TO DRAW 2 LINES THAT INTERSECT IN THE MIDDLE OF YOUR SQUARE

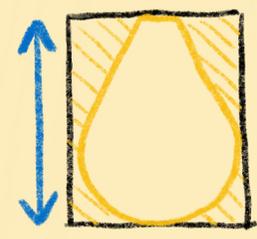


CAREFULLY PLACE YOUR BOTTLE OVER THE CENTRE AND DRAW AROUND WITH A PENCIL

CUTTING OUT THE CIRCLE: 3

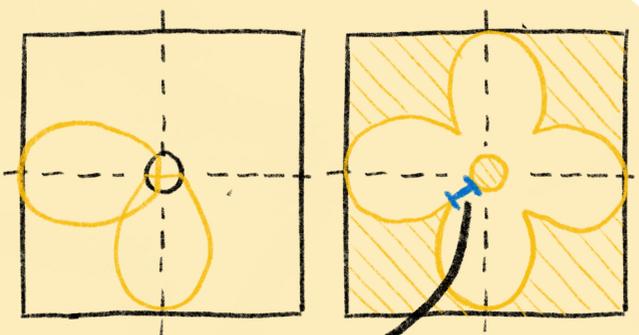


- PUSH A HOLE THROUGH IN CENTRE
- SNIP OUT TO LINE
- PUSH OUT FLAPS WITH FINGER

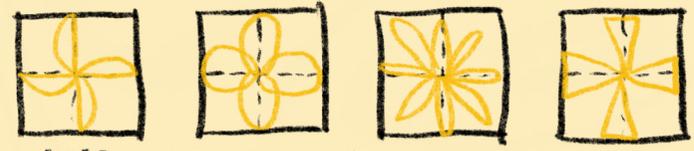


2

- DRAW AND CUT OUT A TEMPLATE FOR THE PROPELLER BLADES.
- MOVE YOUR TEMPLATE AROUND THE CENTRE CIRCLE AND DRAW AROUND IT



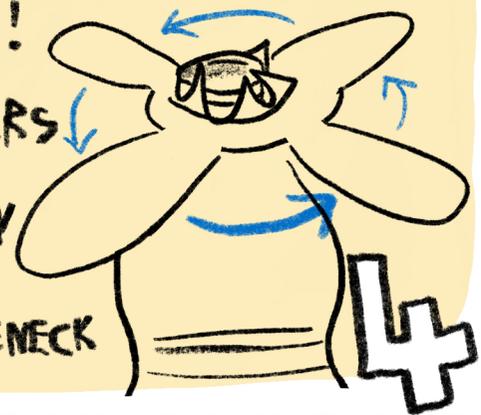
ITS IMPORTANT THIS DISTANCE ISN'T TOO SHORT AS IT MIGHT TEAR IF IT IS! (1.5/2 CM MIN)

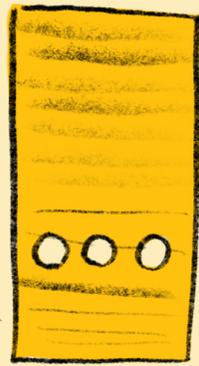


WHAT SHAPE WILL YOU TRY?

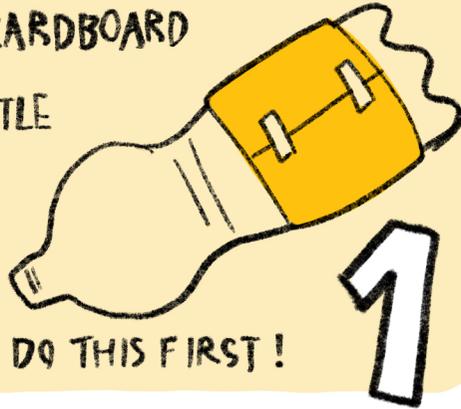
- NEXT YOU CAN DRAW ROUND YOUR PROPELLER AND CUT OUT AGAIN, 2 LAYERS WILL MAKE IT MUCH STRONGER!

- GLUE LAYERS
- CAREFULLY PUSH OVER BOTTLENECK

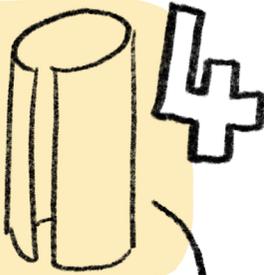




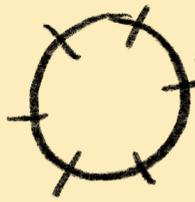
- CUT A STRIP OF CARDBOARD
- ROLL AROUND BOTTLE
- GIVE OVERLAP OR TAPE.
- IF YOU WANT TO CUT OUT WINDOWS DO THIS FIRST!



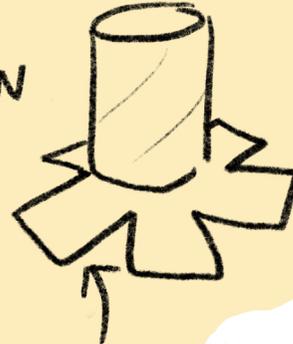
- GET 2 MORE TOILET ROLL TUBES (OR HALF A KITCHEN ROLL ONE!)
- CUT ALL THE WAY DOWN LIKE THIS →



- START WITH A LOO ROLL TUBE
- CUT SLITS ABOUT 2 CM DOWN AROUND ONE END.

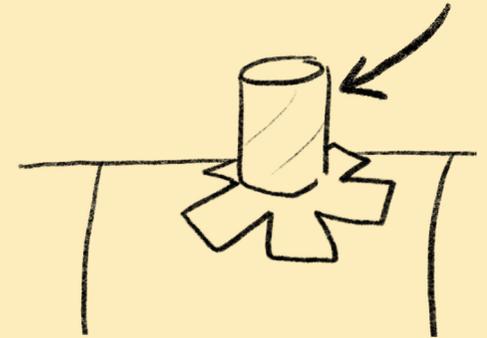
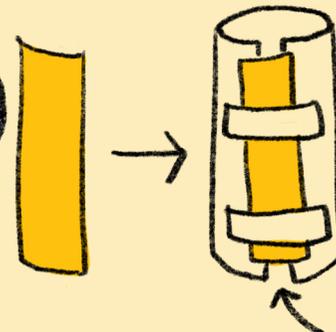


← AT LEAST 6 WORKS BETTER



FOLD OUT TABS

5

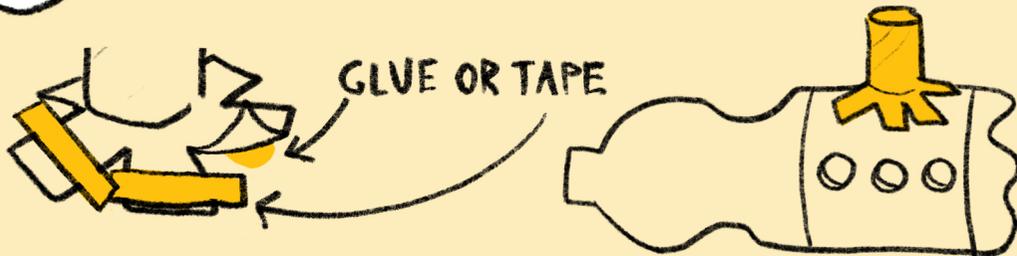


- PLACE THE FIRST ONE OVER THE ONE ON YOUR BOTTLE

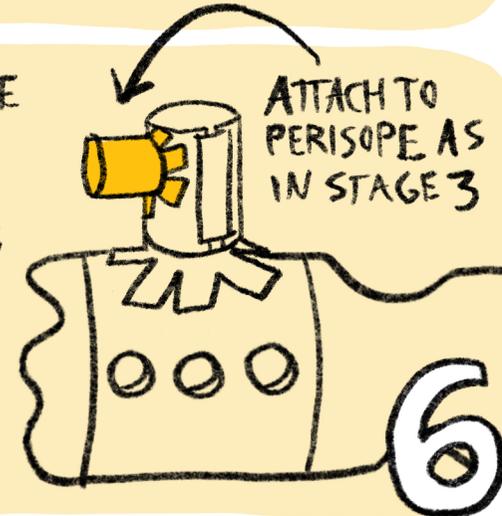
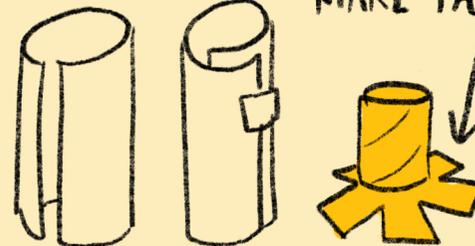
- THERE WILL BE A GAP SO YOU NEED TO COVER IT WITH AN EXTRA STRIP OF CARD BEFORE TAPING OR IT WON'T ROTATE!

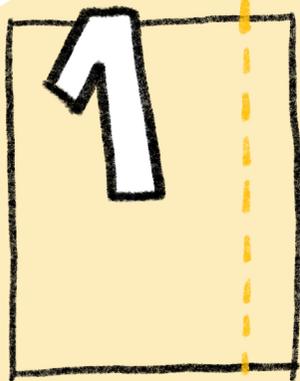
3

PLACE ON TOP OF THE CARDBOARD SECTION

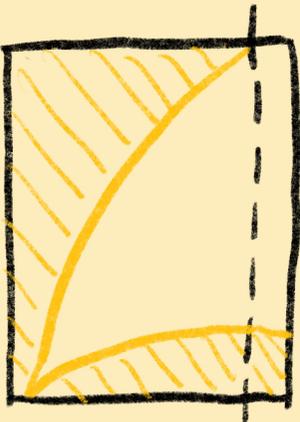
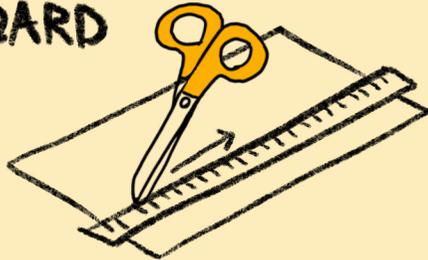


- ROLL UP SECOND LOO ROLL TUBE TO MAKE A NARROWER TUBE
- SECURE THE REPEAT STAGE 2 TO MAKE TABS



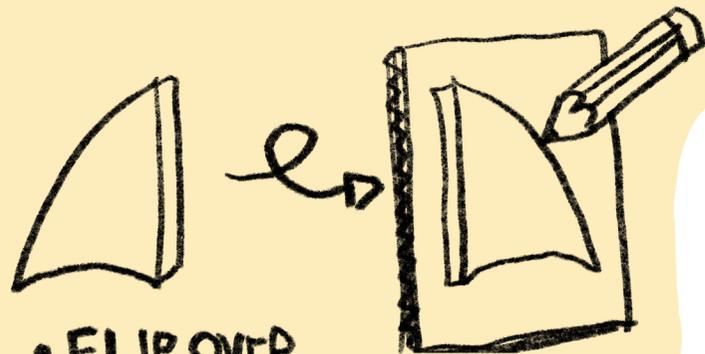


• WITH A RULER AND CLOSED SCISSORS SCORE A 'TAB' DOWN THE SIDE OF YOUR CARDBOARD



• DRAW YOUR FIN SHAPE

• CUT OUT 



• FLIP OVER
• TRACE TO MAKE 2nd FIN

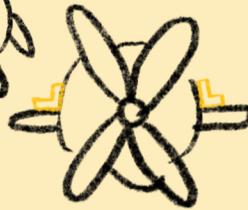
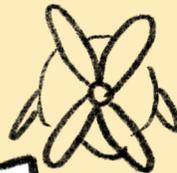
2



• USE FLAP TO GLUE OR TAPE FIN ON TO EACH SIDE. (OR EVEN TOP OR BOTTOM!)

≡ TIP ≡ EXTRA BRACE IF FINS ARE FALLING FLAT

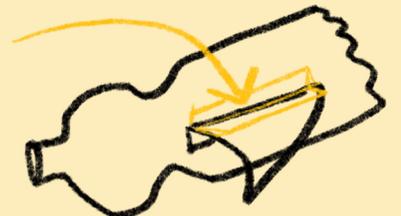
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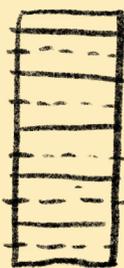
SCORE



L-SHAPE BRACE



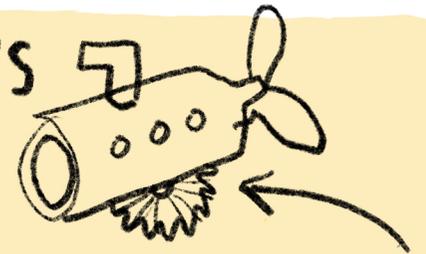
ATTACH TO FIN AND BOTTLE



ALTERNATIVE CONCERTINA FINS

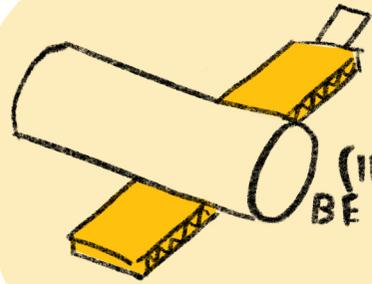


• FOLD PAPER

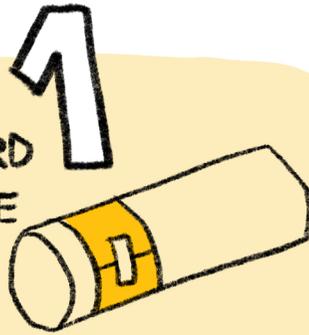


• GLUE TO CARDBOARD STRIP THEN

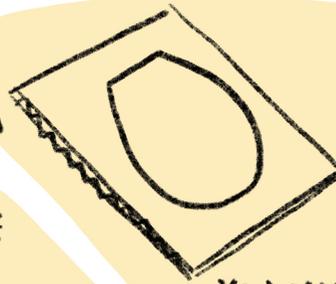
ALTERNATIVE PROPELLER DESIGN



- WRAP A STRIP OF CARDBOARD TIGHTLY AROUND YOUR TUBE
- (IF YOU USE GLUE NOT TAPE THEN BE CAREFUL NOT TO GLUE IT TO THE TUBE!)



2



- DRAW AND CUT OUT 1 FIN
- TRACE AND CUT OUT MORE (TRY 6 BUT IT'LL DEPEND ON THE SIZE OF YOUR FIN AND TUBE!)

YOU CAN TRY DIFFERENT SHAPES TOO



- STAND YOUR TUBE UP ON THE FLAT EDGE OF YOUR FIN.
- DRAW AROUND AND CUT OUT CURVE

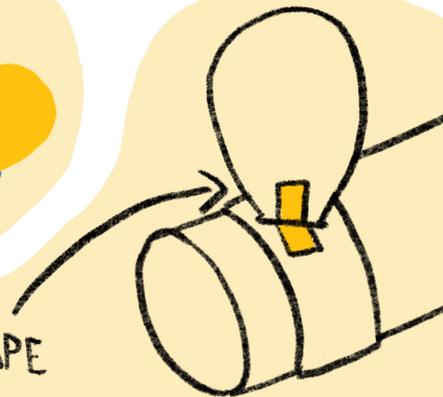


WHY?
IT HELPS THE FINS ATTACH MORE SECURELY AS THERE IS MORE AREA OF THE 2 PIECES JOINING.

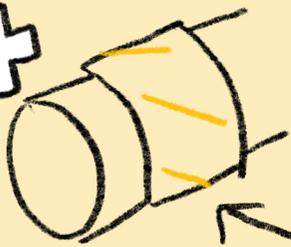
3



- ATTACH FINS WITH A TAB OR TAPE ON EACH SIDE.
- CONTINUE ROUND KEEPING THEM ALL AT THE SAME ANGLE.



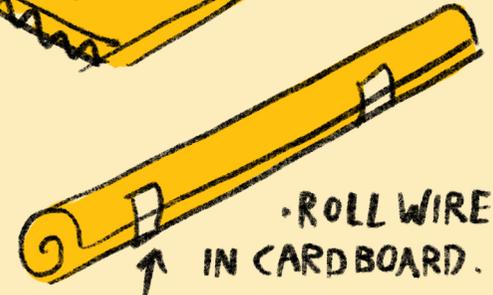
4



MOVING ARM ATTACHMENT

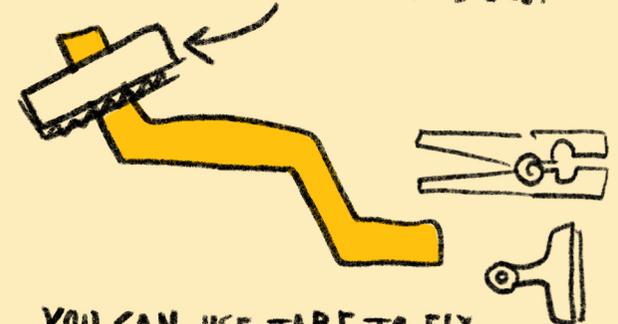


- STRAIGHTEN OUT A PAPERCLIP
- LAY IT ON A STRIP OF CARDBOARD



- ROLL WIRE UP IN CARDBOARD.
- TAPE OR GLUE TO HOLD.

- ATTACH TO SUBMARINE USING A CARDBOARD STRIP AND GLUE



YOU CAN USE TAPE TO FIX ON A CLIP OR PEG OR DESIGN YOUR OWN ATTACHMENT!