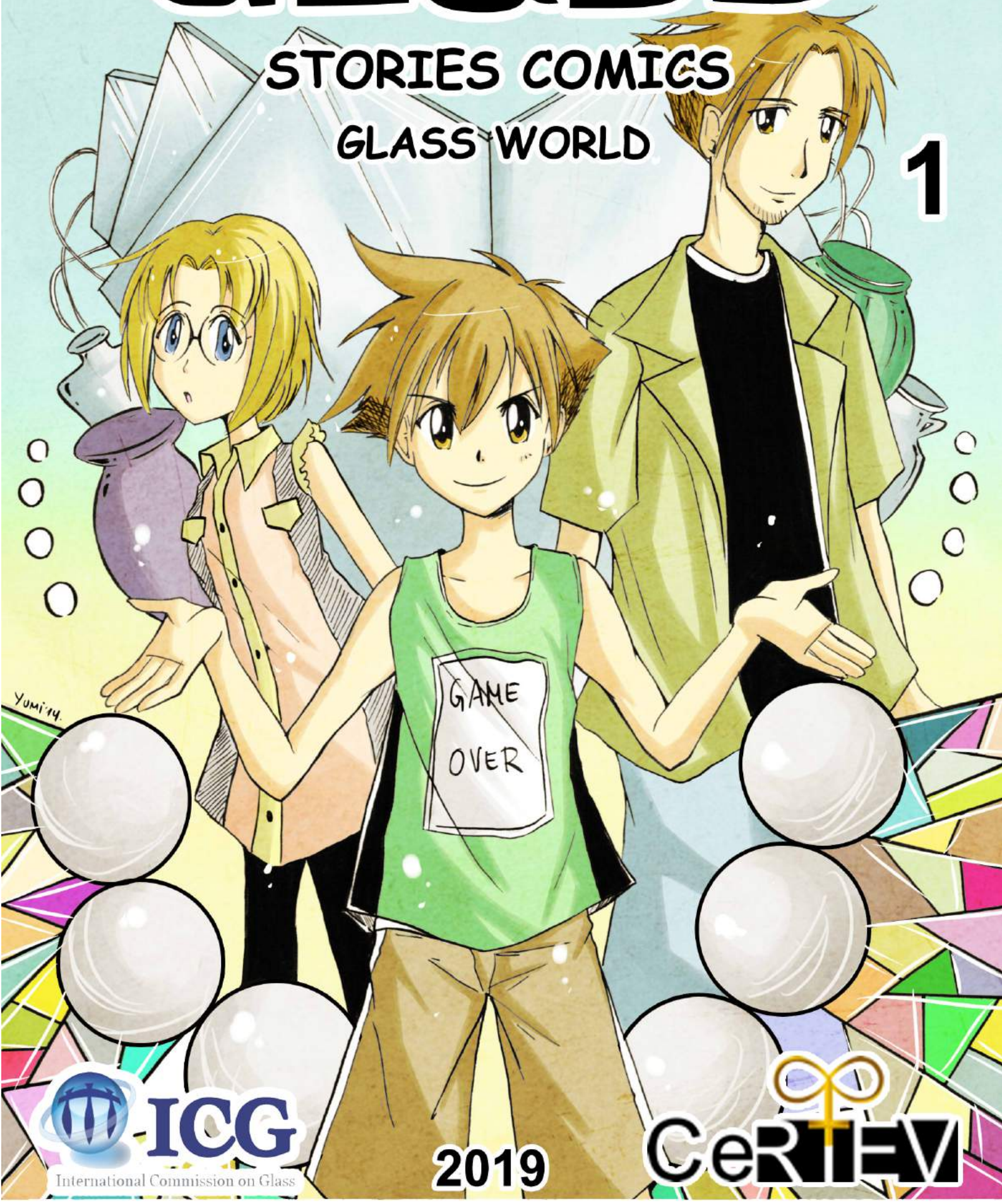


GLASS

STORIES COMICS

GLASS WORLD

1



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Glass Stories Comics

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EDITORIAL

HI, HOW ARE YOU?

THIS IS THE FIRST IN A COMICS SERIES ABOUT "GLASS STORIES"! IN OTHER WORDS, THESE COMICS ARE GOING TO DISCUSS THIS VERY INTERESTING MATERIAL, WHICH ONE SEES IN LOTS OF EVERYDAY STUFF! WANT AN EXAMPLE? LOOK AT YOUR FRIEND'S EYEGLASSES, OR THE WINDSHIELD OF YOUR FATHER'S CAR. SEE?

IN THIS FIRST ISSUE, WE'RE GOING TO MEET A BOY CALLED VINNIE AND HIS FRIEND LOUISE, WHO ARE HAVING TROUBLE WRITING A SCHOOL ASSIGNMENT.

VINNIE'S BROTHER, MATTHEW, IS A GLASS SCIENCE RESEARCHER WHO WORKS AT CERTEV (CENTER FOR RESEARCH, TECHNOLOGY AND EDUCATION IN VITREOUS MATERIALS). TO HELP THE KIDS WITH THEIR SCHOOL ASSIGNMENT, HE DECIDES TO EXPLAIN, IN A FUN WAY, WHAT GLASS IS, HOW IT WAS DISCOVERED, THE TYPES OF GLASS AND THEIR APPLICATIONS IN DAILY LIFE.

WILL THE KIDS MANAGE TO COMPLETE THEIR SCHOOL ASSIGNMENT? DO YOU WANT TO FIND OUT? THEN READ ON!

HEY, VINNIE ...
SHOULDN'T WE
GET BACK
TO WORK?

THE TEACHER TOLD
US TO DO RESEARCH
ON SOME SORT OF
IMPORTANT MATERIAL
THAT'S FOUND
IN EVERYDAY ITEMS,
BUT I CAN'T THINK
OF ANYTHING...

CALM DOWN,
I'M FINISHING
THIS PHASE!
THERE!!
I GOT IT!!

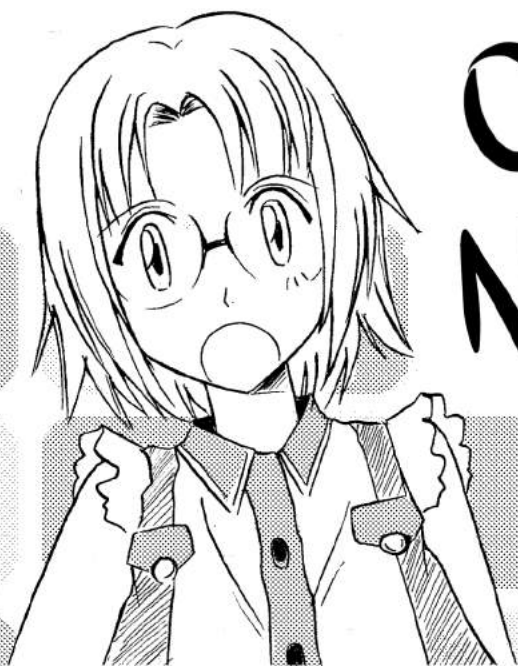
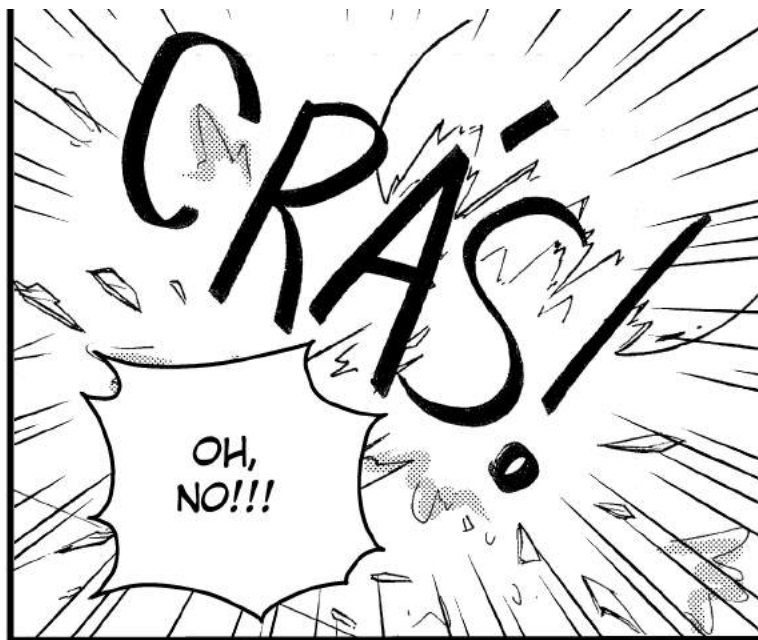
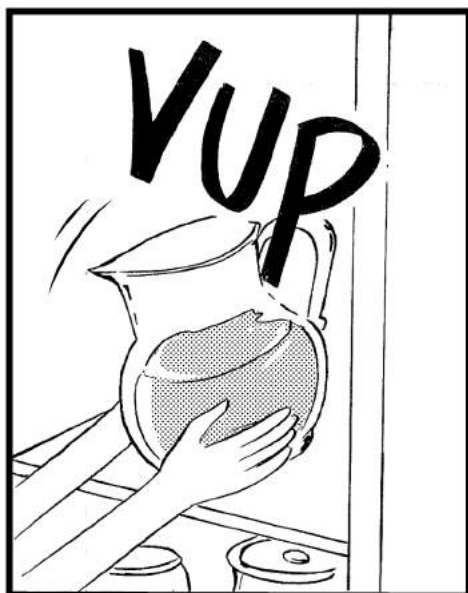


GOSH, I'M SO
HUNGRY! LET'S
GRAB SOMETHING
TO EAT.

YOU'RE A
REALLY
HOPELESS
CASE...

CHECK
IT OUT...
THERE'S
CAKE...

GREAT,
THERE'S
EVEN SOME
JUICE!!





HEY...
WHAT'S
GOING ON
HERE?

OH, IT'S
REALLY
NOTHING,
BRO!! JUST
GLASS JUG
THAT FELL
AND BROKE!



!



OH, ARE YOU
STILL DOING THAT
ASSIGNMENT?
ABOUT
MATERIALS?

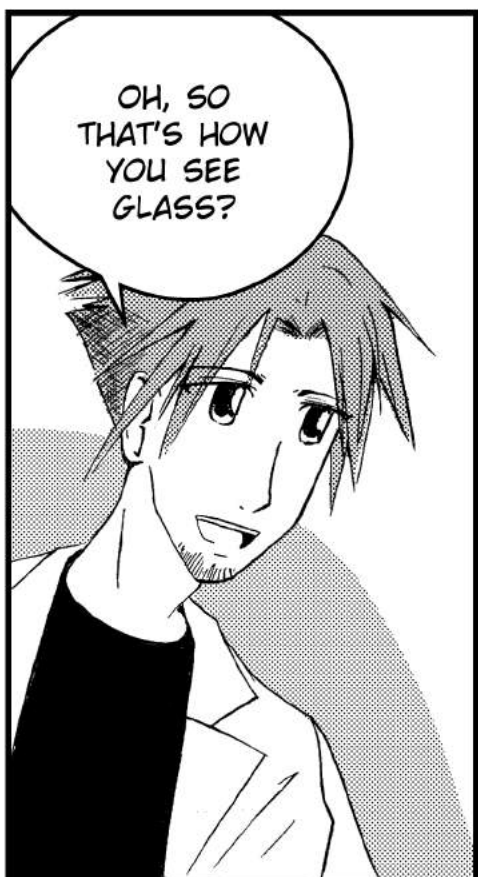
UH...YES.
BUT WE'RE
OUT OF
IDEAS.



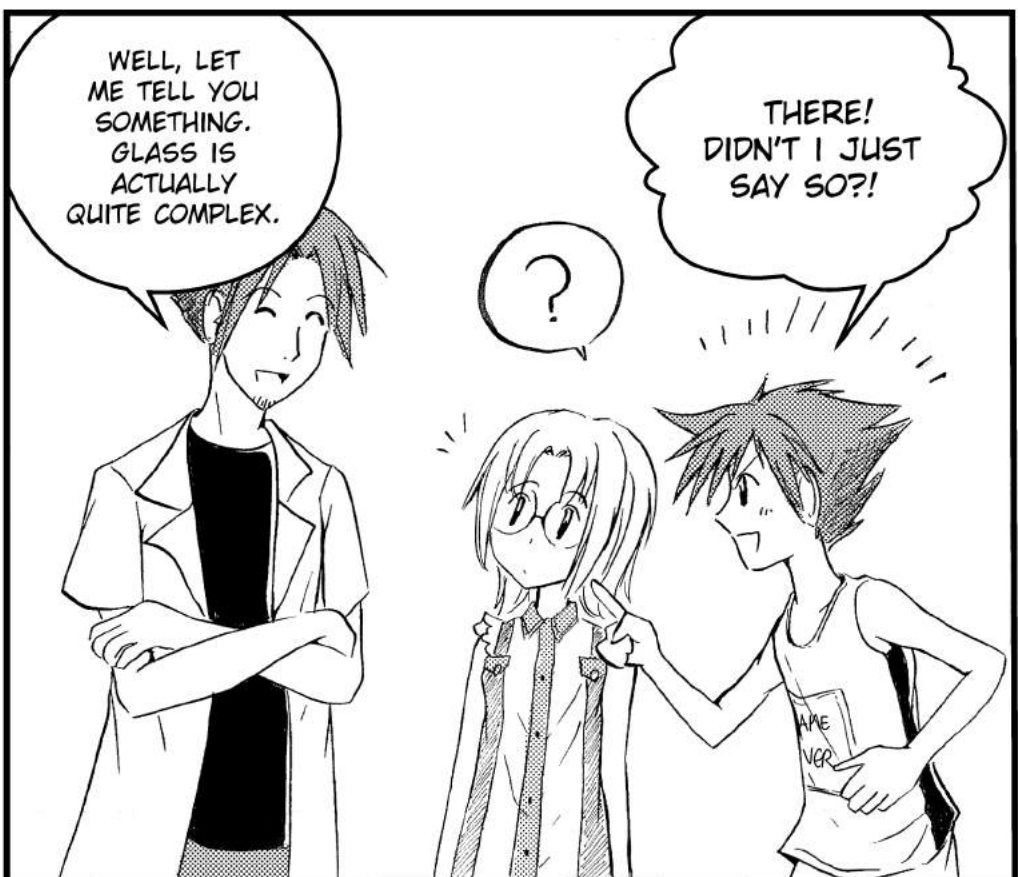
WHY DON'T
YOU WRITE
ABOUT
GLASS?

THAT'S TOO
COMPLEX!

HOW AM I GOING
TO CLEAN UP
THIS STUFF
SCATTERED ALL
OVER THE
FLOOR?



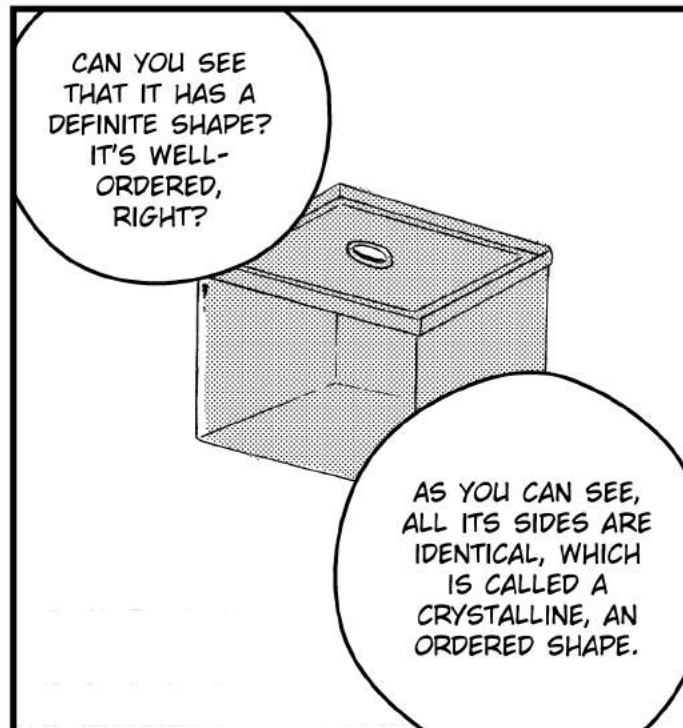
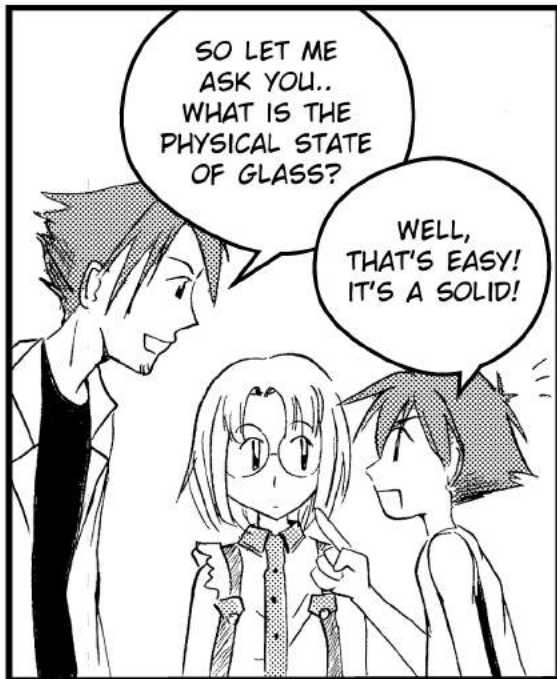
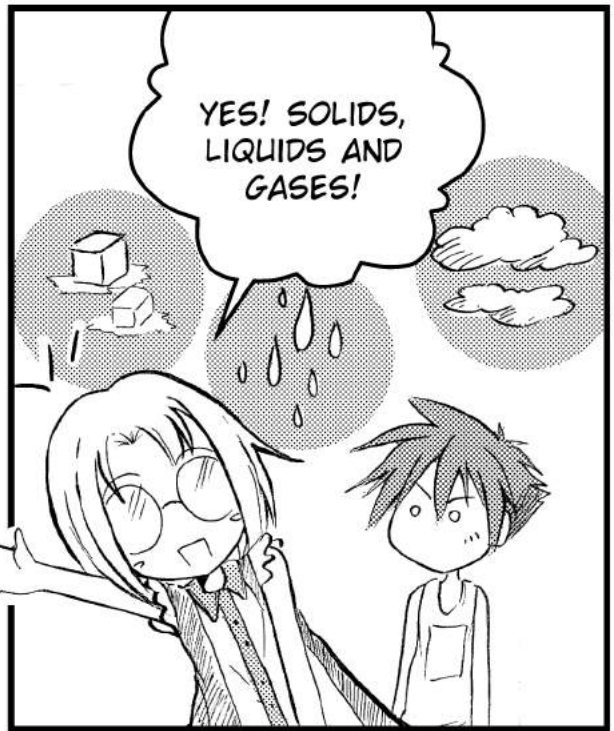
OH, SO
THAT'S HOW
YOU SEE
GLASS?

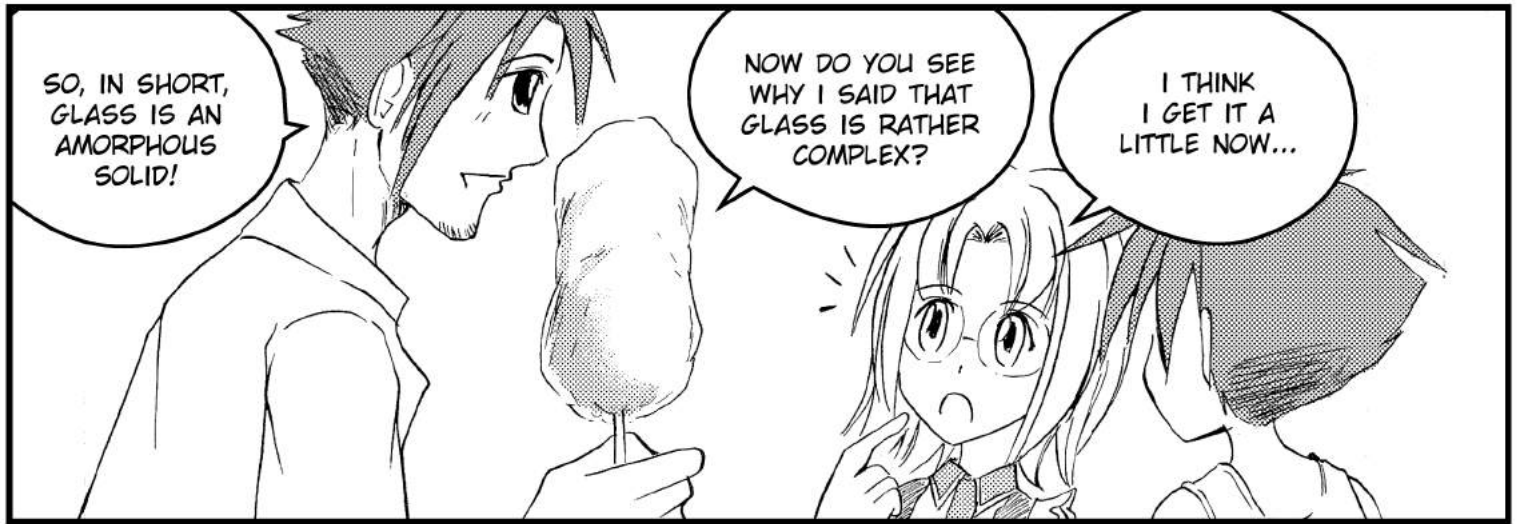
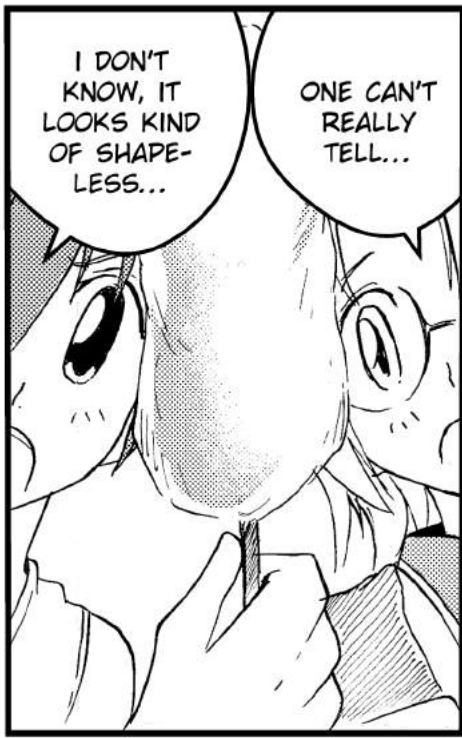


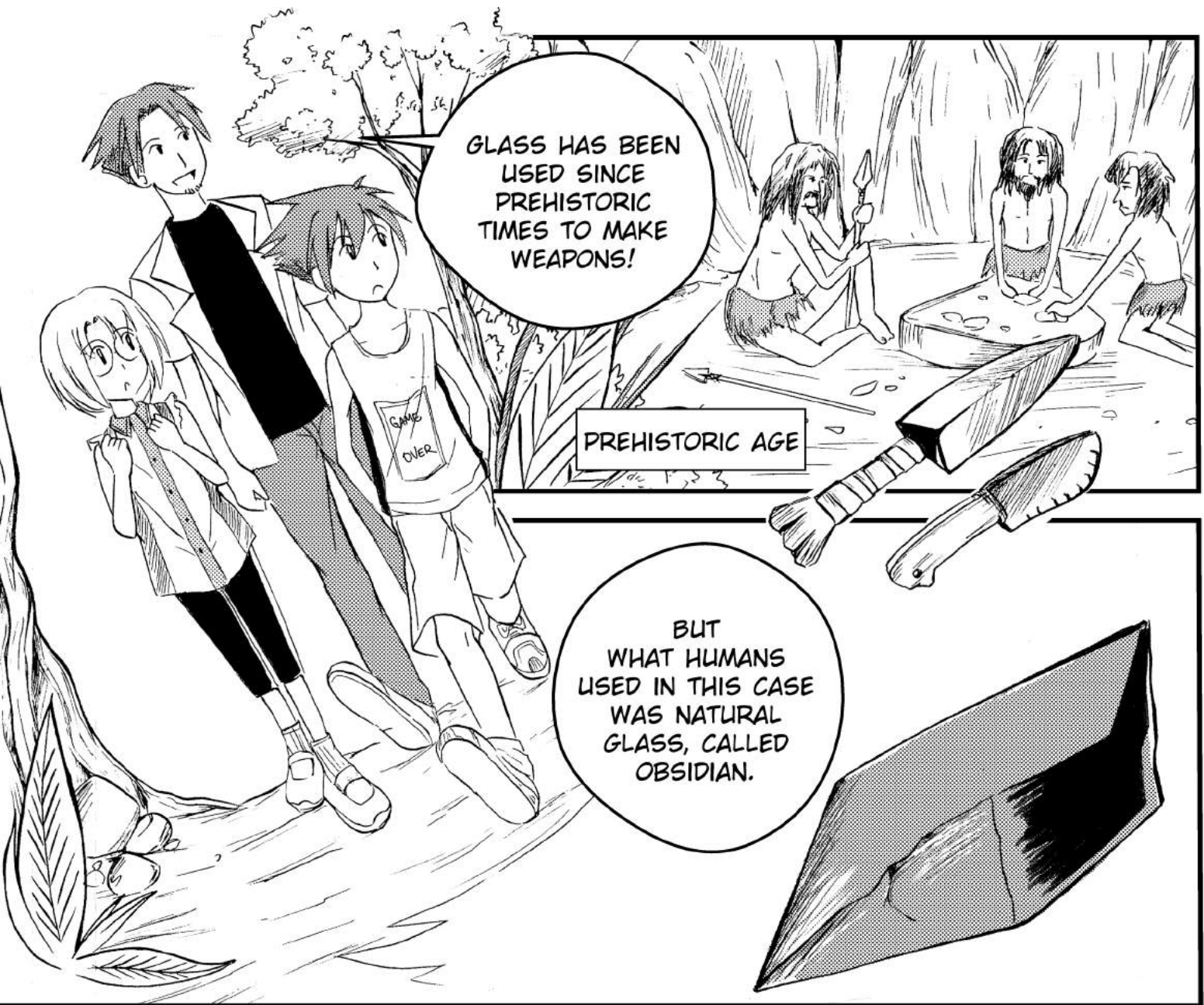
WELL, LET
ME TELL YOU
SOMETHING.
GLASS IS
ACTUALLY
QUITE COMPLEX.

THERE!
DIDN'T I JUST
SAY SO?!

?







GLASS HAS BEEN USED SINCE PREHISTORIC TIMES TO MAKE WEAPONS!

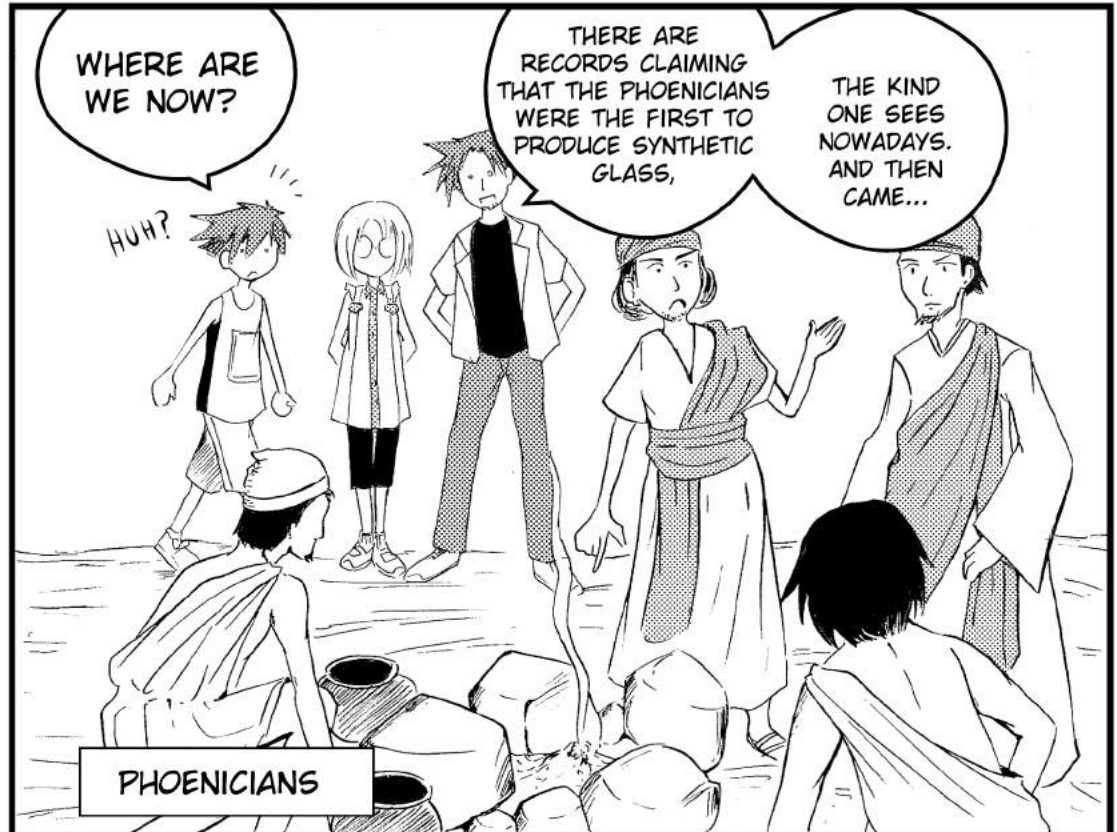
PREHISTORIC AGE

BUT WHAT HUMANS USED IN THIS CASE WAS NATURAL GLASS, CALLED OBSIDIAN.



OBSI-WHAT?!

WOW, BRO, WHAT A DIFFICULT WORD!



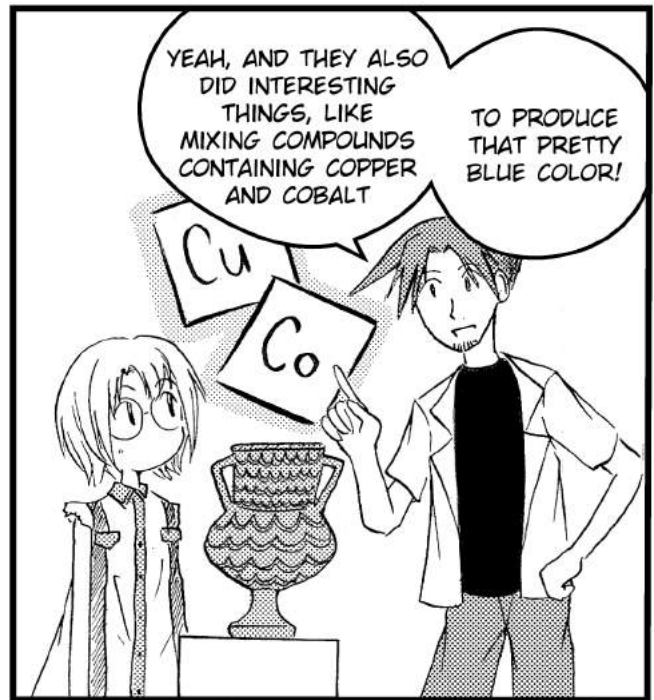
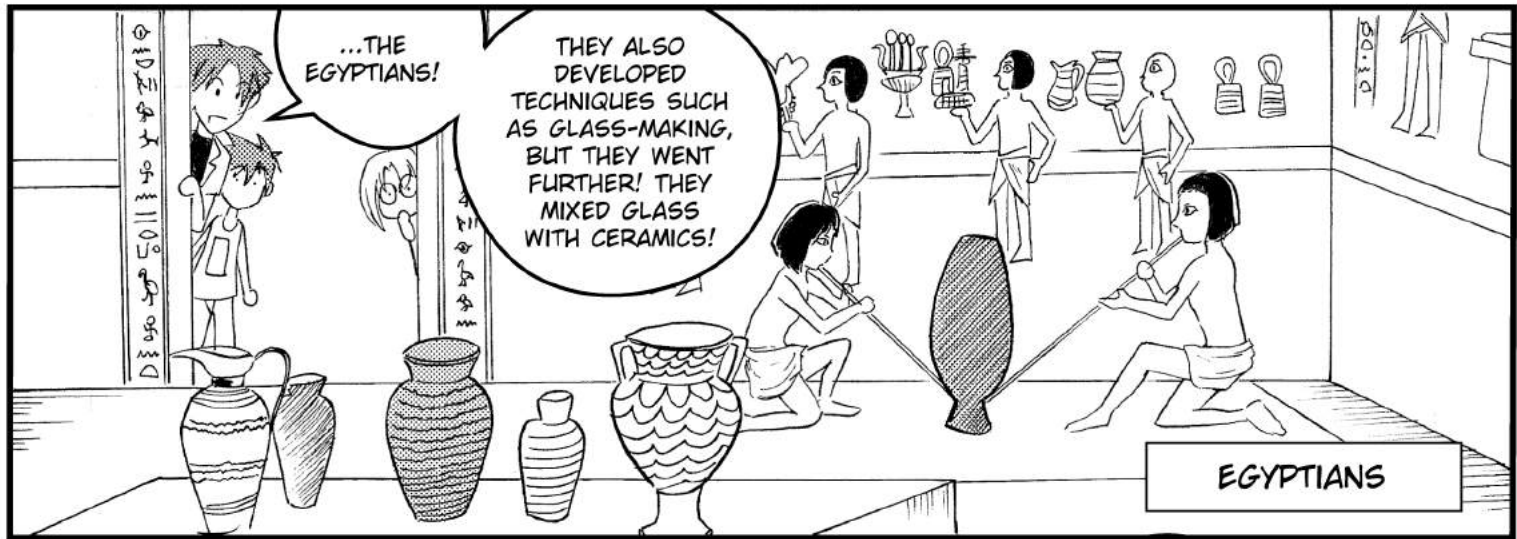
WHERE ARE WE NOW?

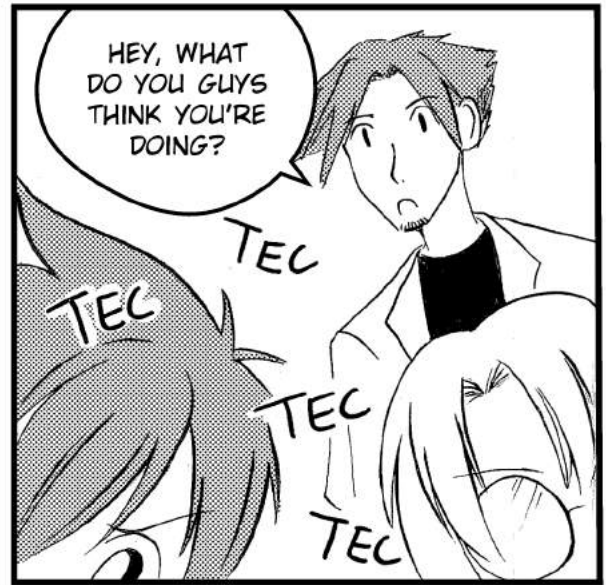
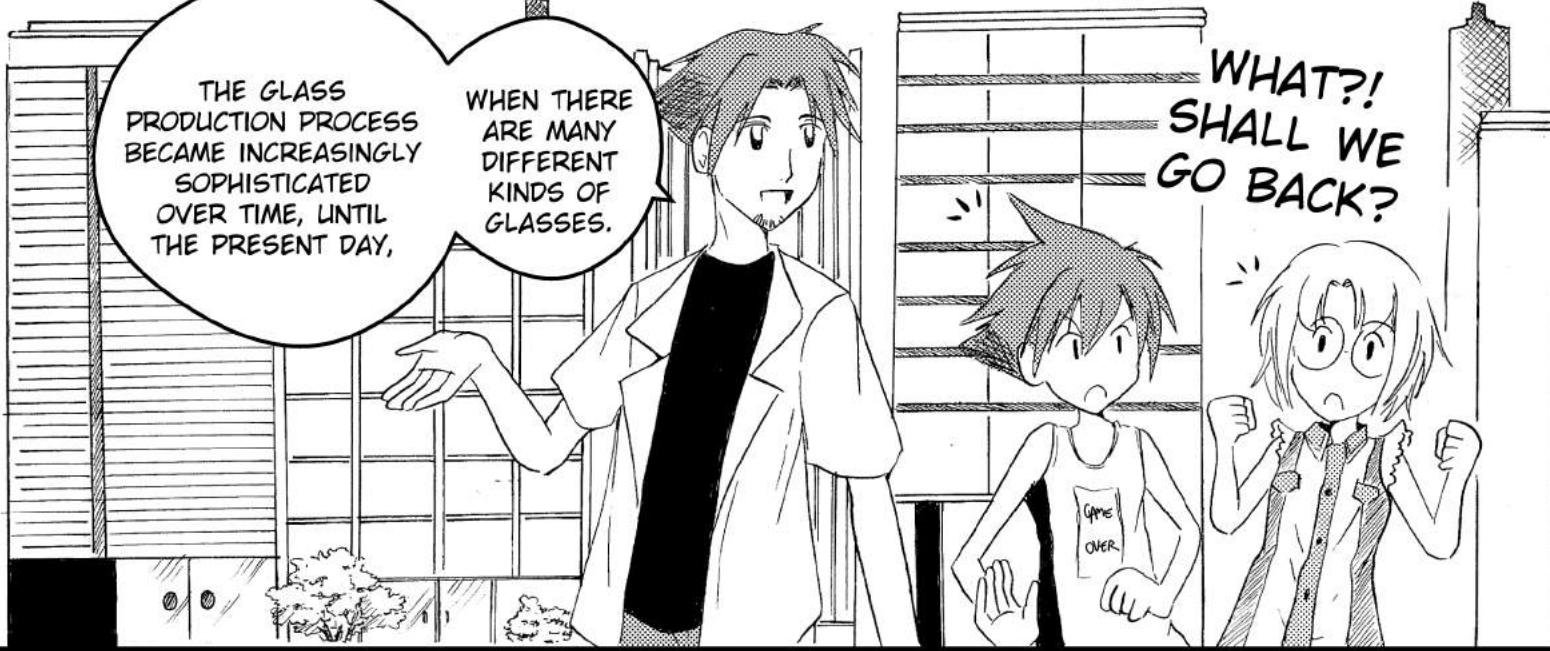
HUH?

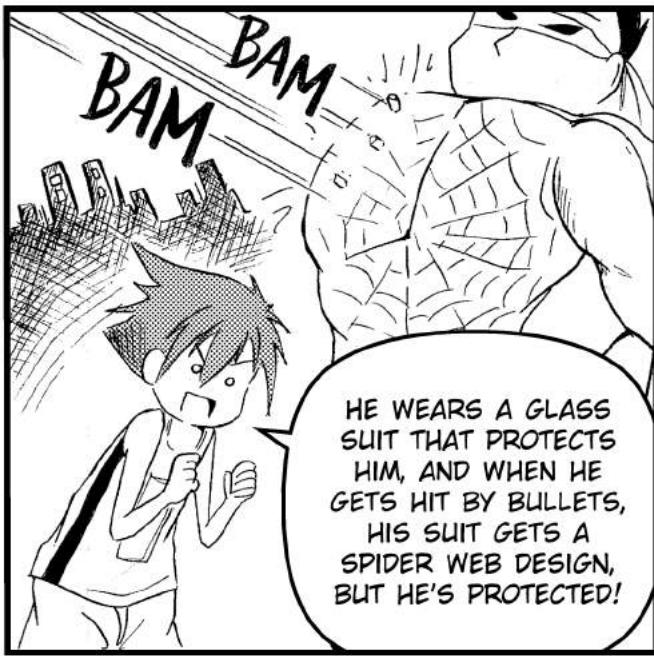
THERE ARE RECORDS CLAIMING THAT THE PHOENICIANS WERE THE FIRST TO PRODUCE SYNTHETIC GLASS,

THE KIND ONE SEES NOWADAYS. AND THEN CAME...

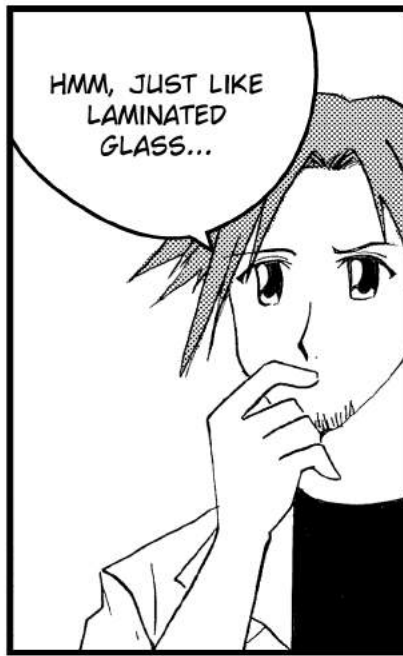
PHOENICIANS



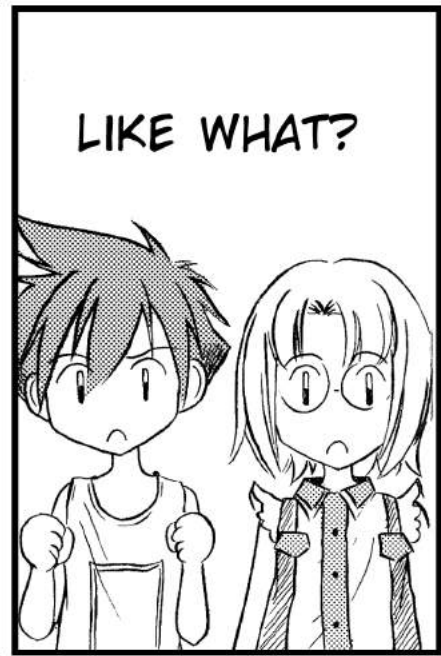




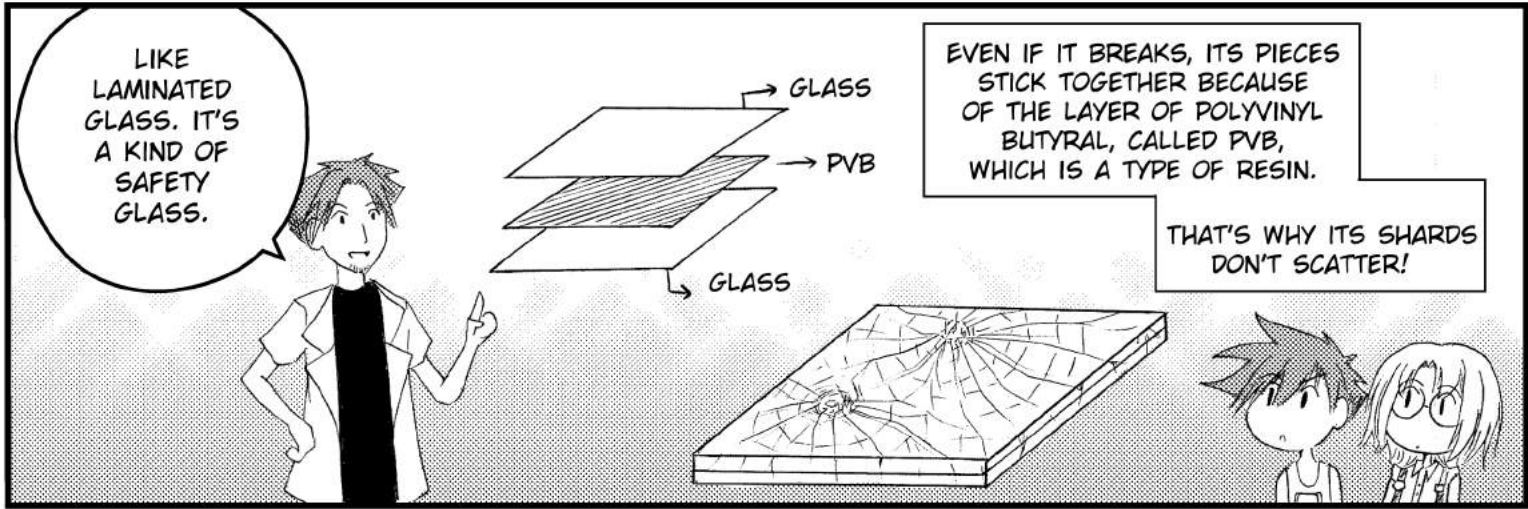
HE WEARS A GLASS SUIT THAT PROTECTS HIM, AND WHEN HE GETS HIT BY BULLETS, HIS SUIT GETS A SPIDER WEB DESIGN, BUT HE'S PROTECTED!



HMM, JUST LIKE LAMINATED GLASS...



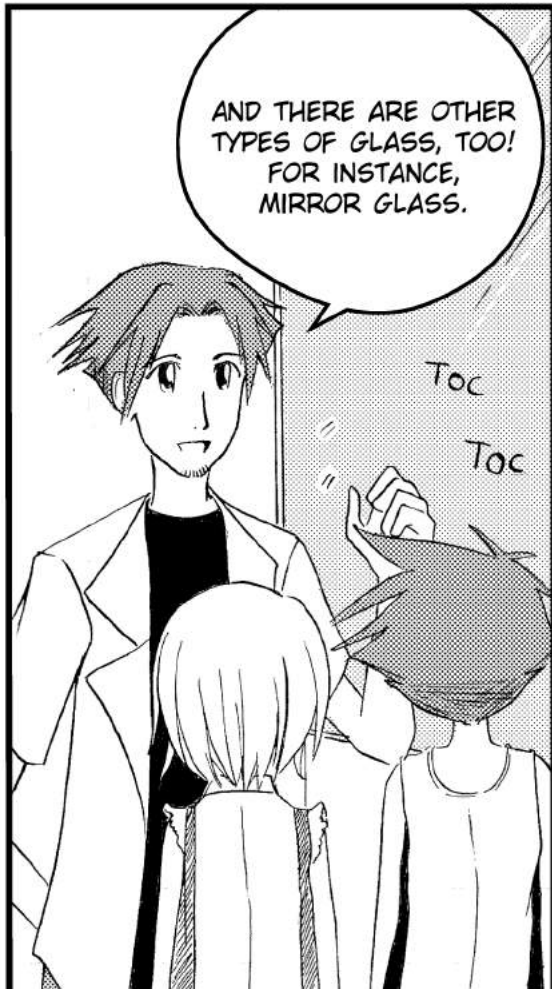
LIKE WHAT?



LIKE LAMINATED GLASS. IT'S A KIND OF SAFETY GLASS.

EVEN IF IT BREAKS, ITS PIECES STICK TOGETHER BECAUSE OF THE LAYER OF POLYVINYL BUTYRAL, CALLED PVB, WHICH IS A TYPE OF RESIN.

THAT'S WHY ITS SHARDS DON'T SCATTER!



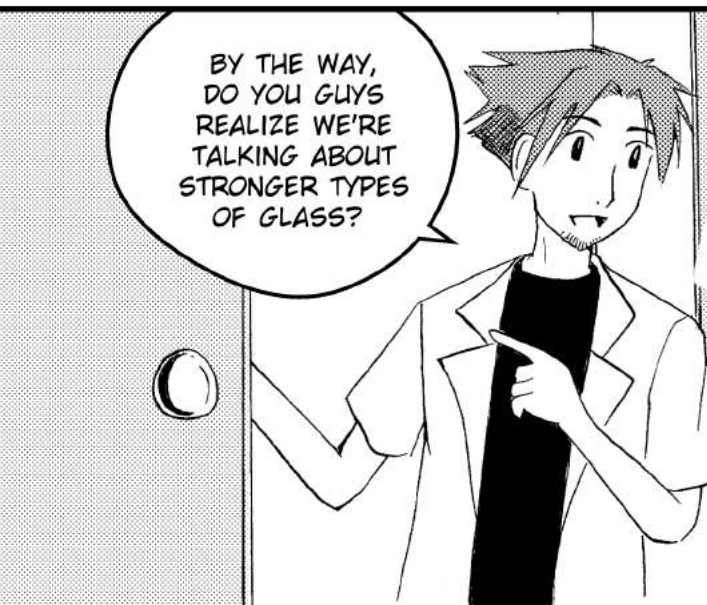
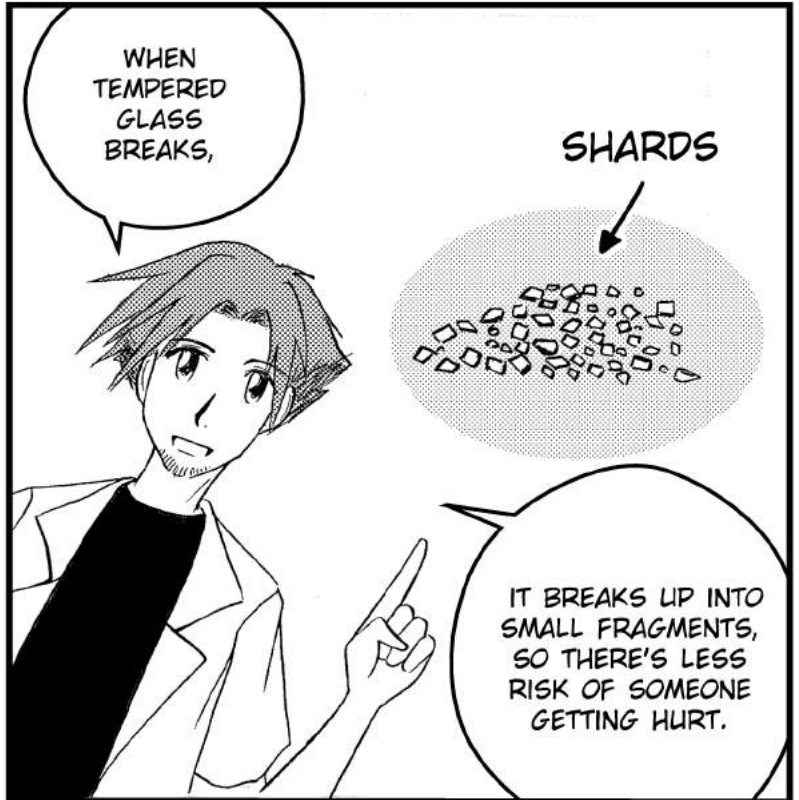
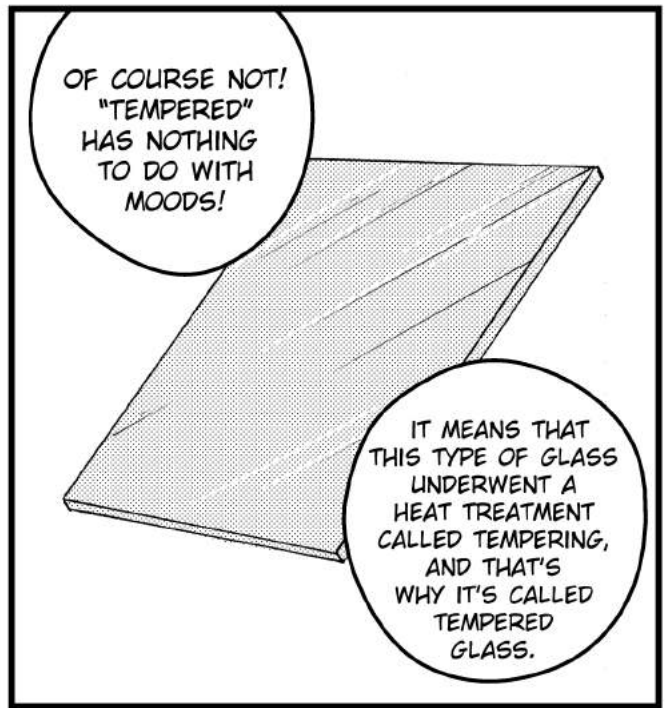
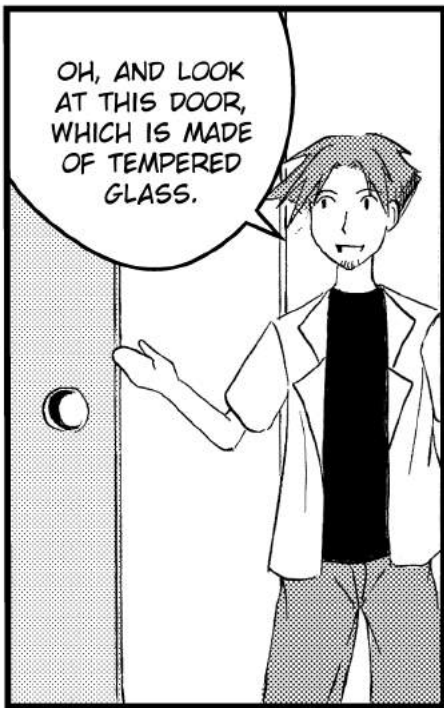
AND THERE ARE OTHER TYPES OF GLASS, TOO! FOR INSTANCE, MIRROR GLASS.

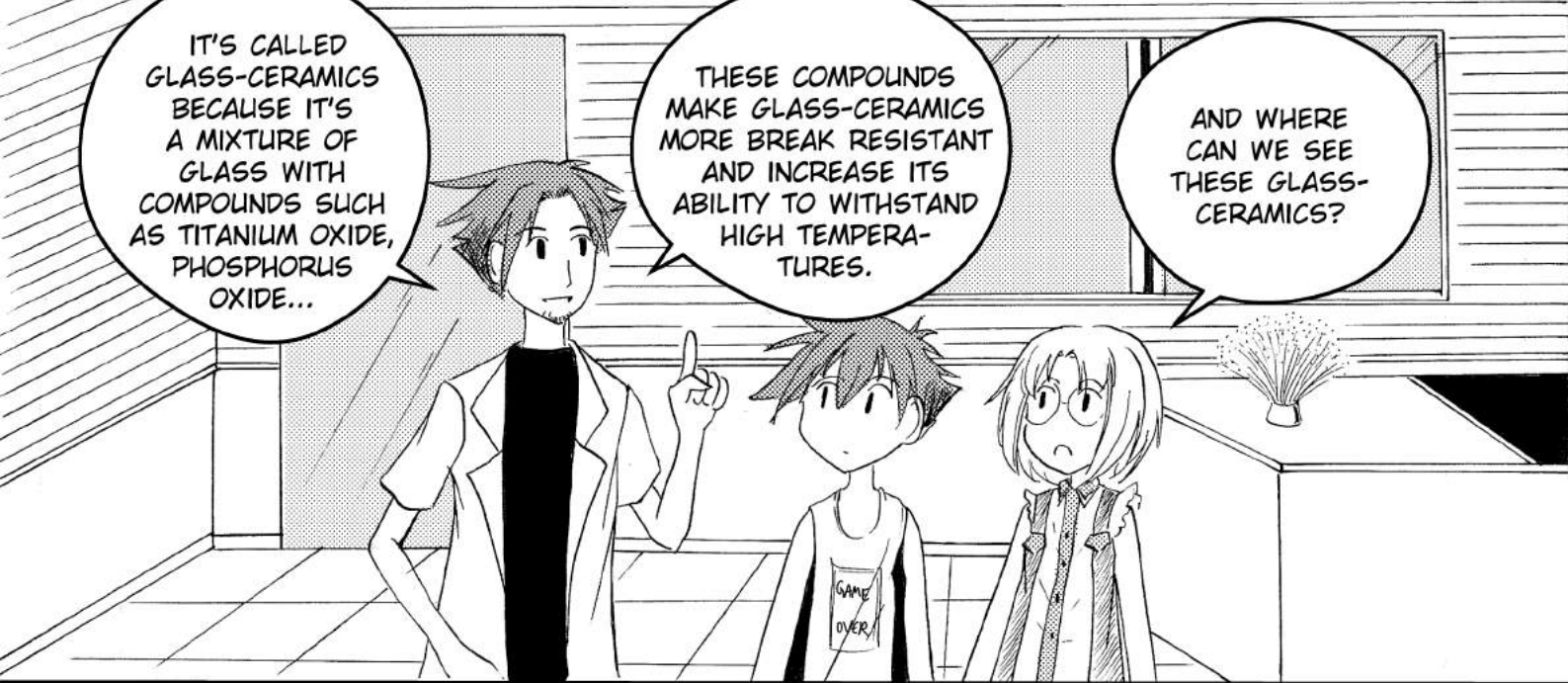


OH, I THOUGHT THEY WERE MIRRORS...SO THAT'S GLASS?

YES IT IS. THOSE WINDOW PANES ARE COVERED WITH A REFLECTIVE METALLIC COATING.

WOW, THEY LOOK REALLY NICE IN THE BUILDINGS!





IT'S CALLED GLASS-CERAMICS BECAUSE IT'S A MIXTURE OF GLASS WITH COMPOUNDS SUCH AS TITANIUM OXIDE, PHOSPHORUS OXIDE...

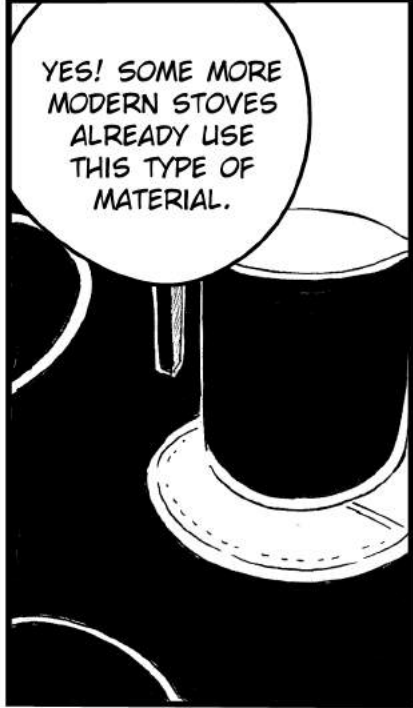
THESE COMPOUNDS MAKE GLASS-CERAMICS MORE BREAK RESISTANT AND INCREASE ITS ABILITY TO WITHSTAND HIGH TEMPERATURES.

AND WHERE CAN WE SEE THESE GLASS-CERAMICS?



RIGHT HERE.

A STOVE?



YES! SOME MORE MODERN STOVES ALREADY USE THIS TYPE OF MATERIAL.



WOW, THAT'S COOL!

I THINK MOM WOULD LIKE THIS STOVE, IT LOOKS EASY TO CLEAN!

PRECISELY!

HA HA HA



MATTHEW, WHAT ARE THESE THIN STRANDS?

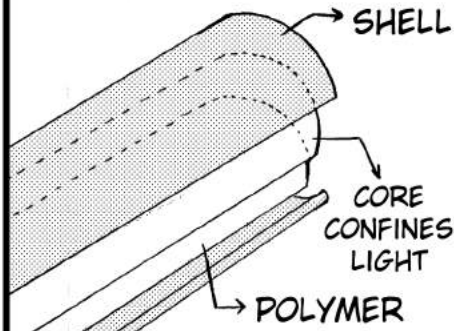
AH, THAT'S OPTICAL FIBER.

"OPTICAL"? DOES IT HAVE ANYTHING TO DO WITH EYEGLASSES?



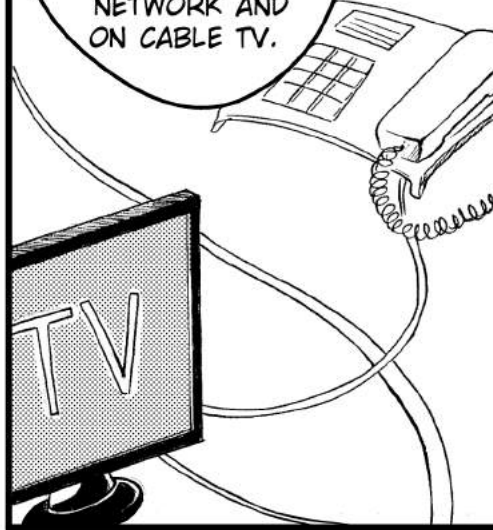
oo

NO, AN OPTICAL FIBER IS A STRAND OF A COMPLETELY COLORLESS MATERIAL CALLED "SILICA" THROUGH WHICH LIGHT CAN BE TRANSMITTED.

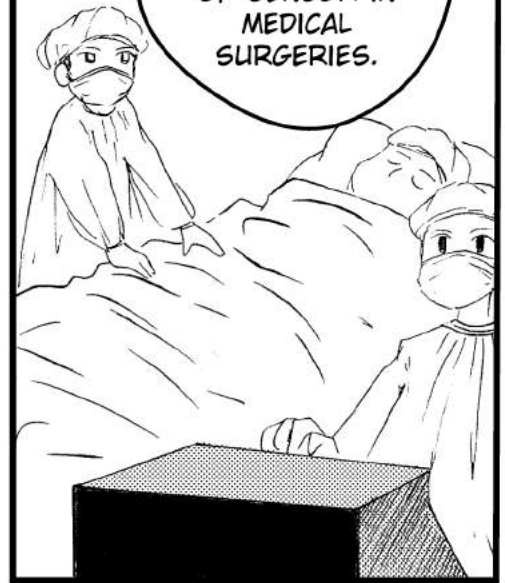


THIS FIBER IS COMPOSED OF TWO GLASS LAYERS (CORE AND SHELL) AND AN INNER LAYER OF POLYMER.

OPTICAL FIBERS ARE USED TO TRANSMIT DATA THROUGH THE TELEPHONE NETWORK AND ON CABLE TV.

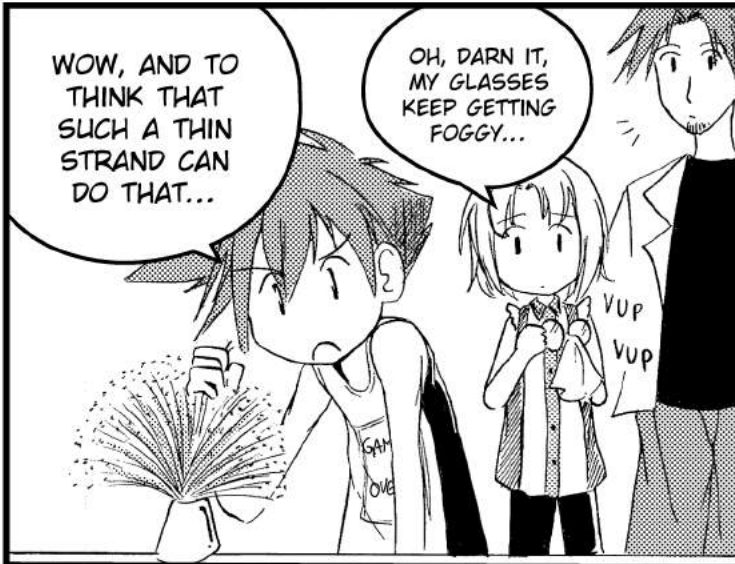


THEY'RE ALSO USED AS A KIND OF SENSOR IN MEDICAL SURGERIES.



WOW, AND TO THINK THAT SUCH A THIN STRAND CAN DO THAT...

OH, DARN IT, MY GLASSES KEEP GETTING FOGGY...



HEY, WAIT A MINUTE!

WHAT MATERIAL ARE YOUR GLASSES MADE OF, LOUISE?



I THOUGHT GLASS WAS NORMALLY USED IN WINDOWS AND DECORATIVE VASES, BUT I'D FORGOTTEN ABOUT MY GLASSES!

AND THESE LENSES ARE MADE OF REAL GLASS!



YES, SO AS YOU CAN SEE, GLASS IS EVERYWHERE!

GLASS IS USED
NOT ONLY IN
WINDOWS AND
VASES

BUT ALSO IN
EYEGLASSES, CDS,
OPTICAL FIBERS AND
FIBER OPTIC PRODUCTS,
LENSES, AND CELL
PHONE AND TV SCREENS...
GLASS IS INCREASINGLY
PRESENT IN
OUR LIVES.

WOW, THIS
GLASS STUFF
IS ACTUALLY
QUITE COOL,
BRO!

THAT'S WHY I
LIKE TO STUDY
GLASS,
SO I CAN UNDERSTAND
BETTER WHY IT'S SO
COMPLEX.

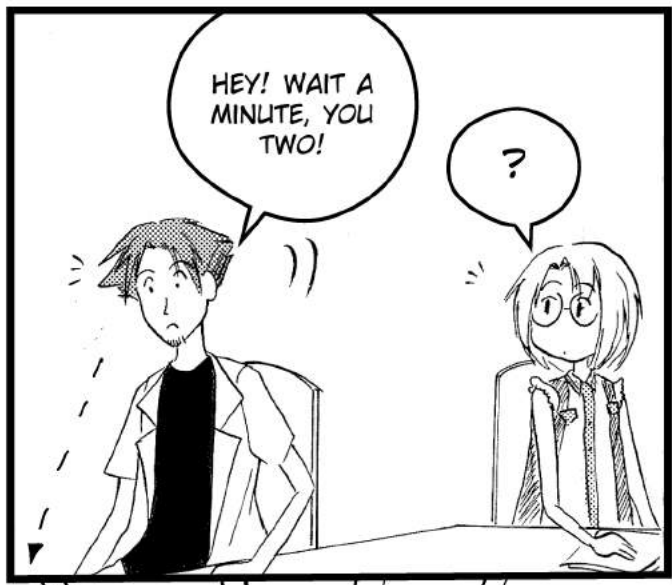
AND UNDERSTANDING
ABOUT GLASS ENABLES
ME TO DO RESEARCH
WHERE I WORK TO
FIND ALTERNATIVES
THAT IMPROVE
OUR DAILY LIVES!

CeRiEV

LOUISE! LET'S DO
OUR ASSIGNMENT
ON GLASS?

I WAS GOING
TO DO THAT
EVEN IF YOU
DIDN'T WANT
TO.

OK THEN!
LET'S
BEGIN!!





CREATED BY:



SUPPORT:

