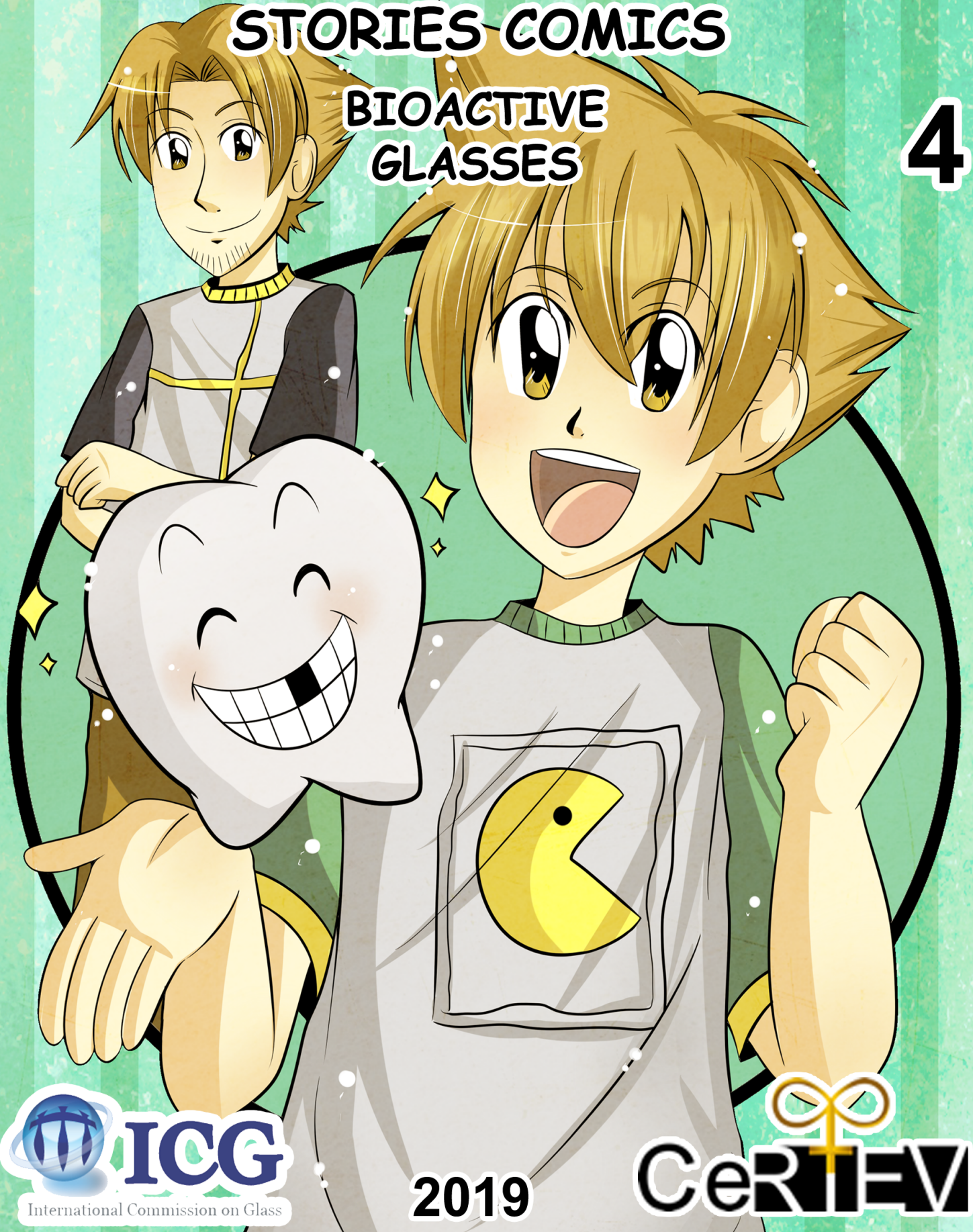


GLASS

STORIES COMICS

BIOACTIVE
GLASSES

4



Title: Glass Stories Comics

Created by CeRTEV and ICG-TC23

Copyright Page:
Glass Stories Comics

n.4, 2019
Editorial Board

Authors

Script:

Adriana Yumi Iwata (DQ- UFSCar) - adrianaiwata@gmail.com

Karina Omuro Lupetti (DQ- UFSCar) - karinalupetti@yahoo.com.br

Illustrations:

Adriana Yumi Iwata (DQ- UFSCar)

Scientific Consultants:

Ana Candida Martins Rodrigues (DEMa- UFSCar) - acmr@ufscar.br

Marina Trevelin (DEMa- UFSCar) - marina.trevelin@gmail.com

Murilo Camuri Crovace (DEMa- UFSCar) - murilocc@yahoo.com.br

Translation: Jane Goldwin

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EDITORIAL

HI, HOW ARE YOU?

WE'RE BACK WITH THE FOURTH ISSUE OF THE SERIES "GLASS STORIES"!

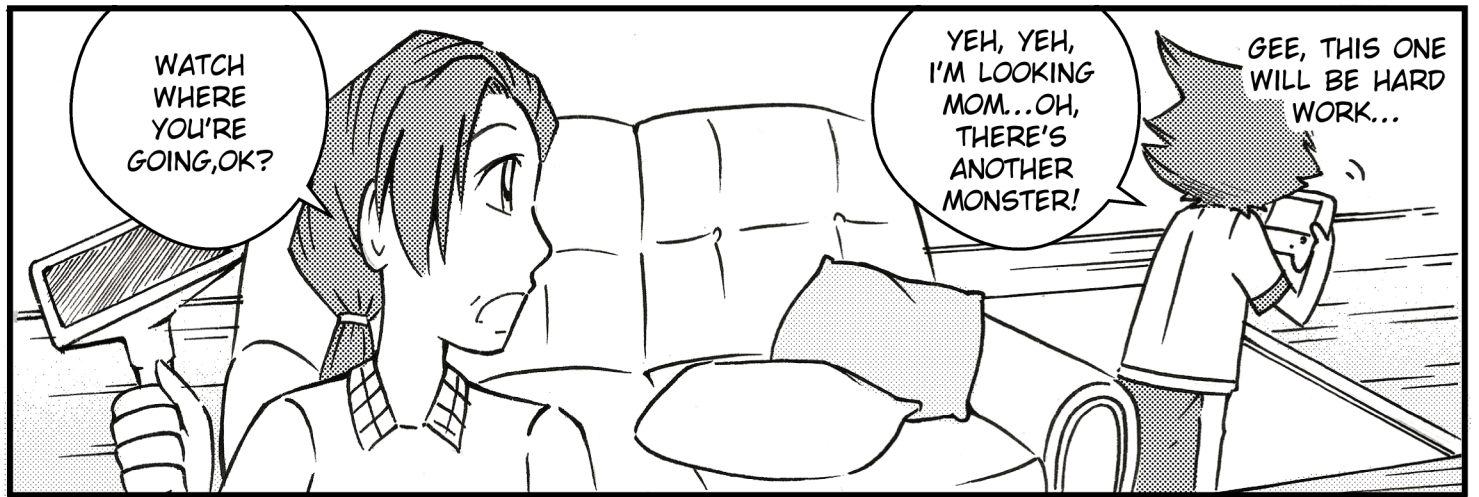
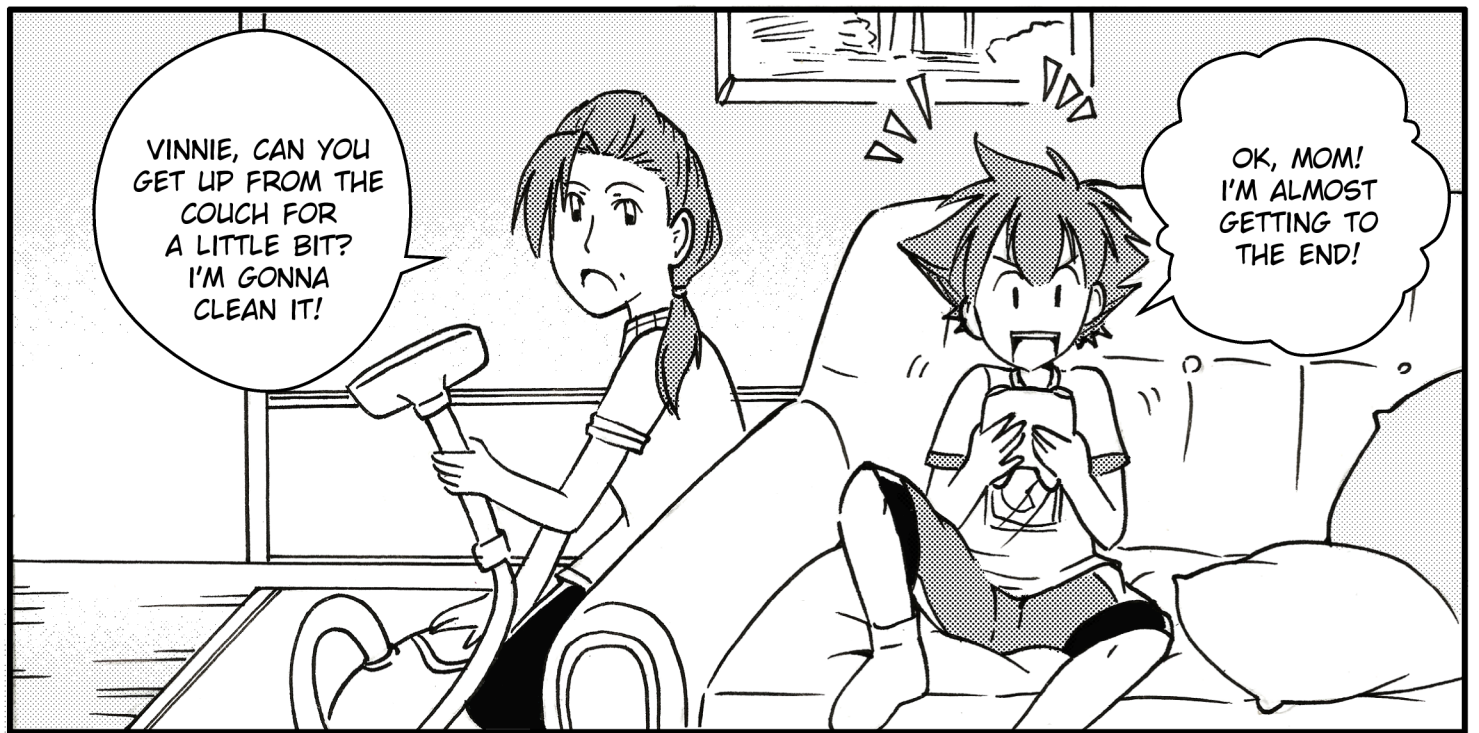
IN THIS FOURTH ISSUE WE'RE GOING TO TALK ABOUT BIOGLASS!

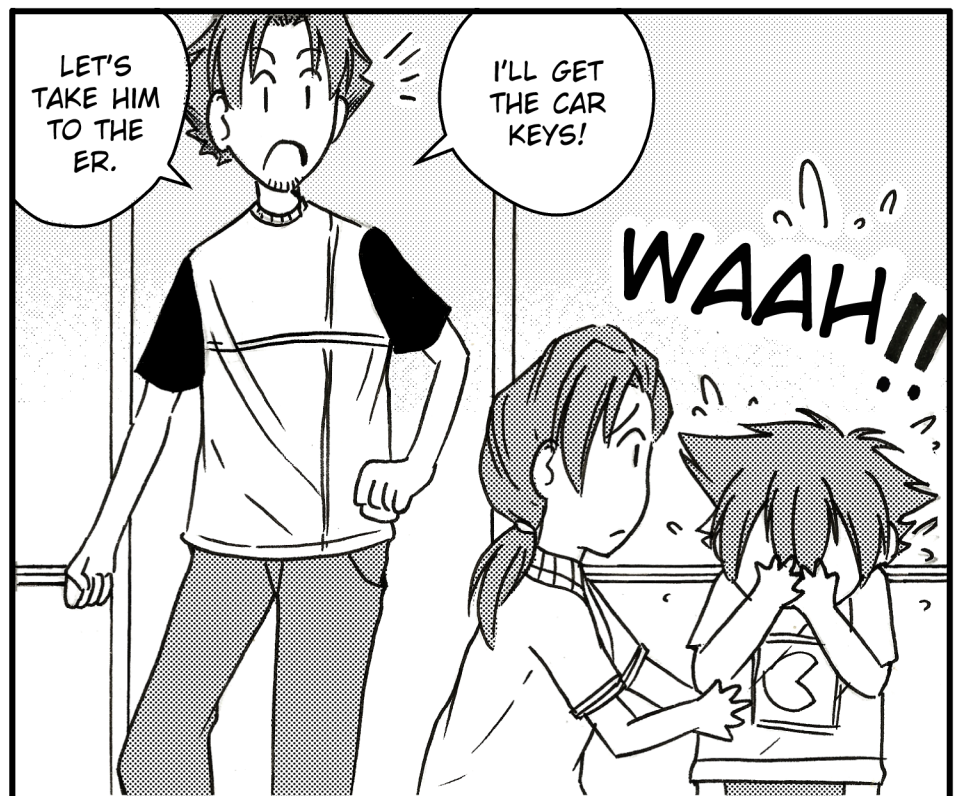
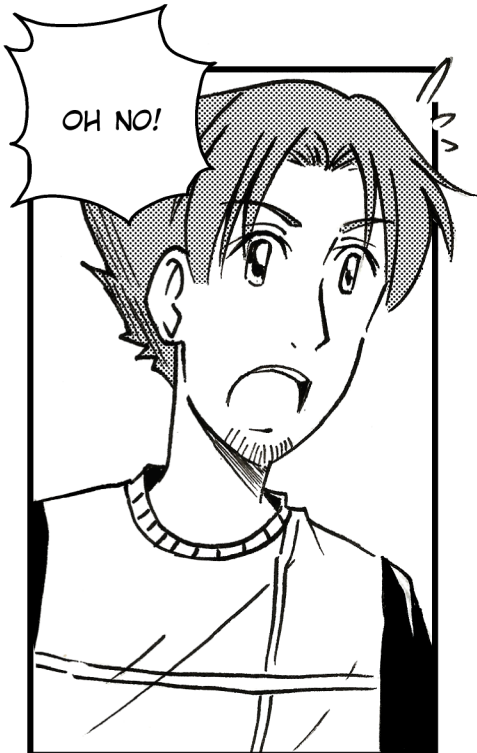
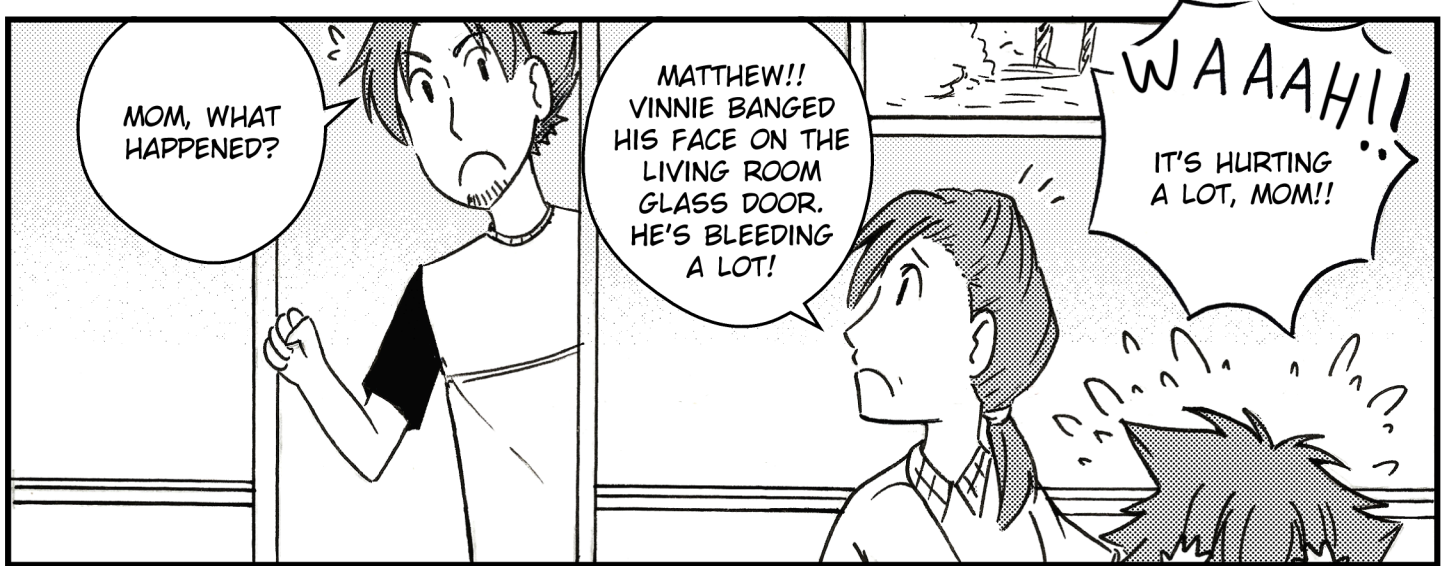
VINNIE IS IN THE LIVING ROOM PLAYING VIDEO GAMES WHEN HIS MOTHER ASKS HIM TO GET OFF THE COUCH SO SHE CAN CLEAN UP! HE STARTS WALKING WITHOUT LOOKING WHERE HE'S GOING AND BANGS STRAIGHT INTO THE GLASS DOOR. NO WAY!

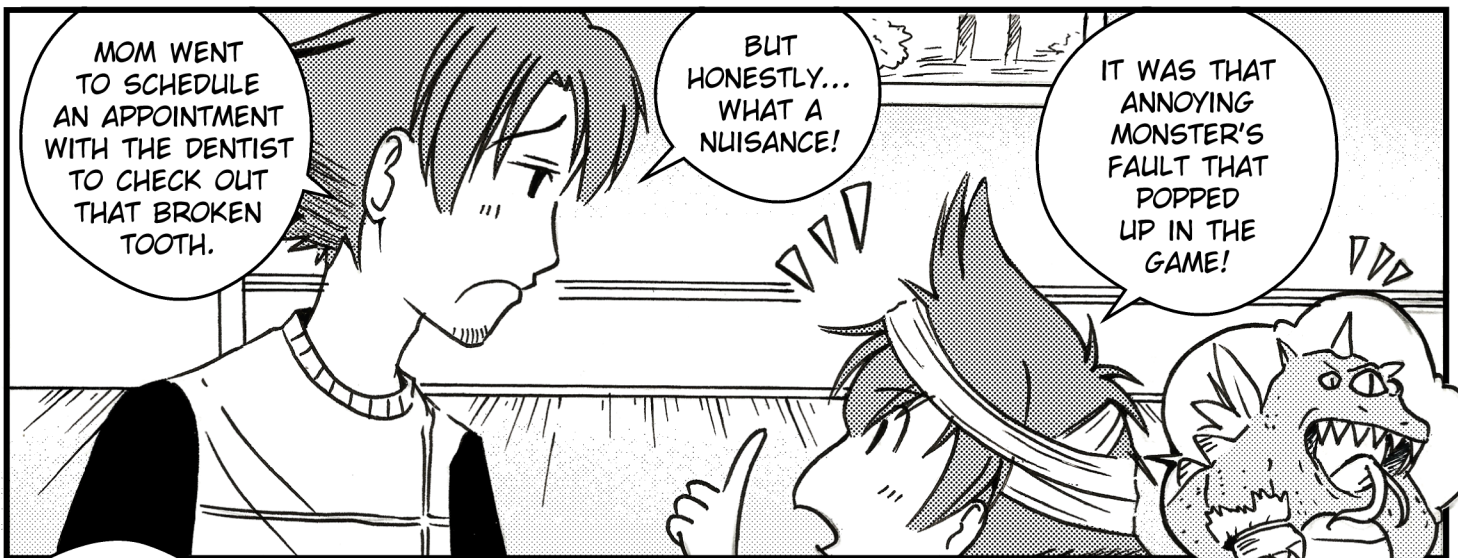
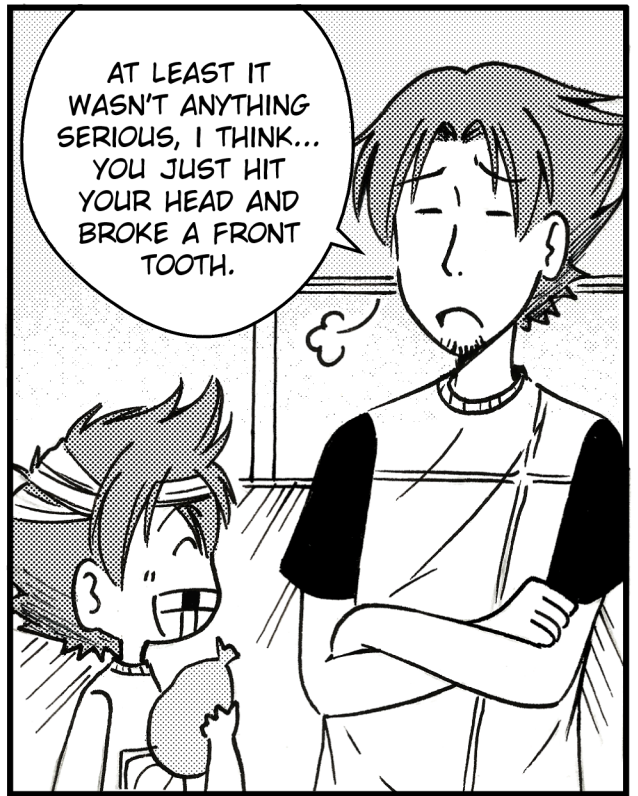
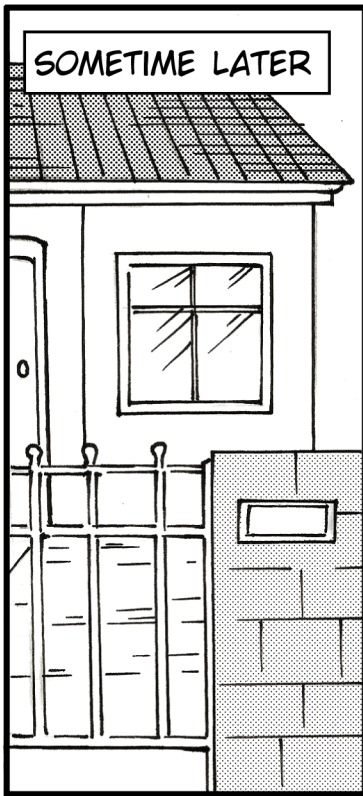
VINNIE BREAKS HIS TOOTH AND HAS TO GO TO THE DENTIST. WHILE THEY ARE THERE, MATTHEW TELLS HIM ABOUT BIOGLASS, MATERIALS THAT CAN BE USED IN BONE AND TOOTH REGENERATION.

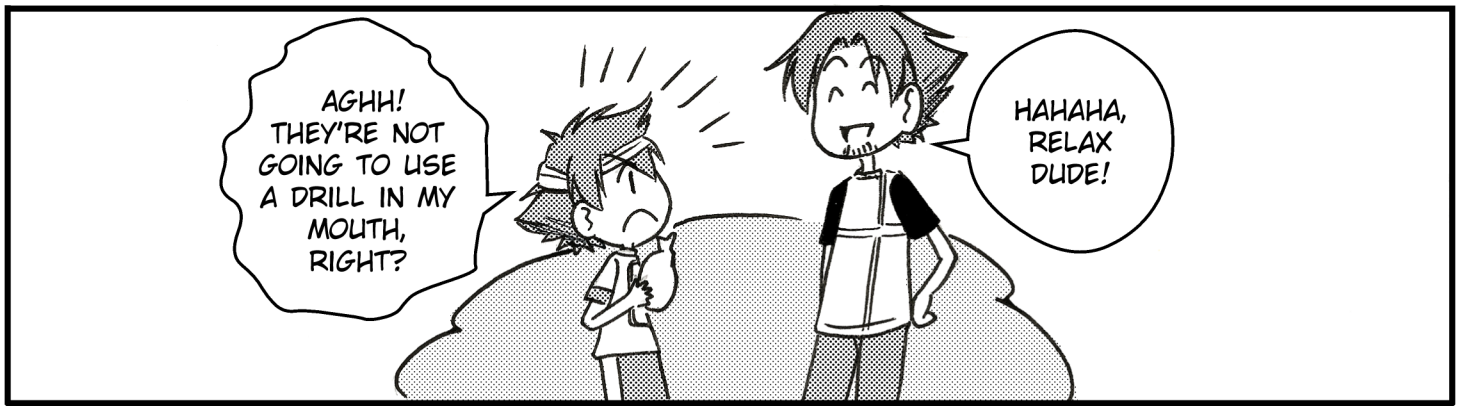
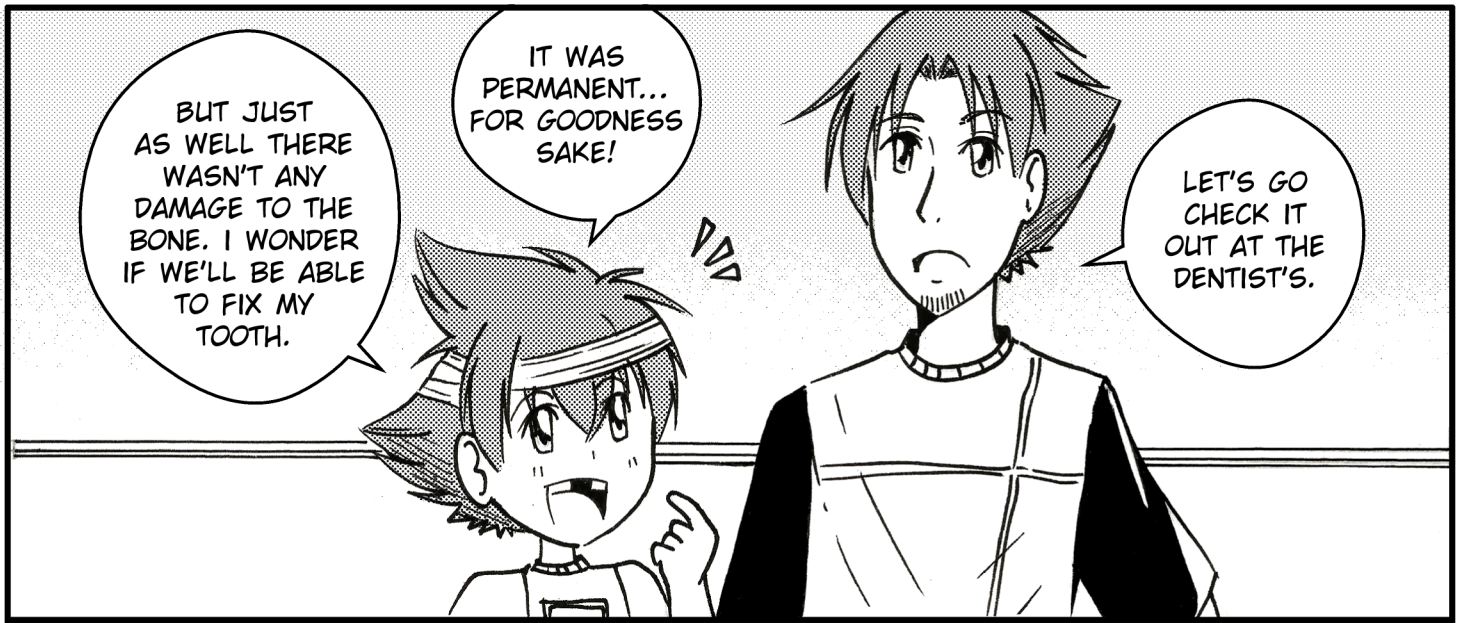
HANG ON A MINUTE... GLASS IN YOUR TEETH?!

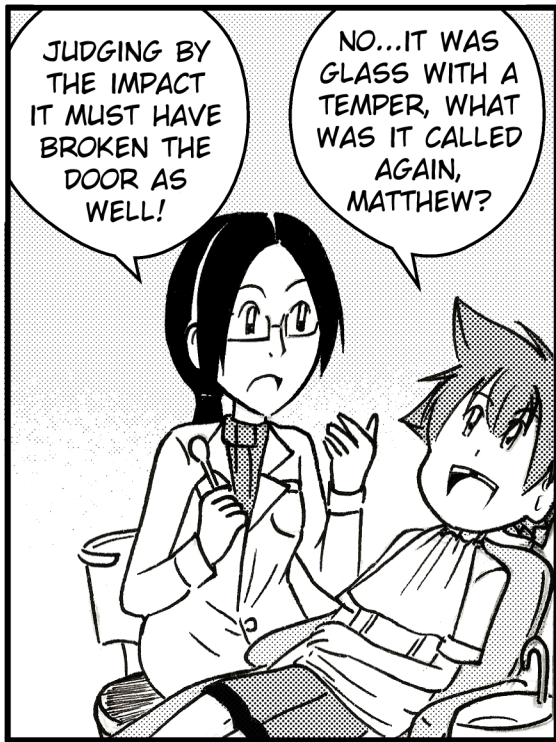
TO FIND OUT MORE, JUST TURN THE PAGE AND START READING THE STORY!











JUDGING BY THE IMPACT IT MUST HAVE BROKEN THE DOOR AS WELL!

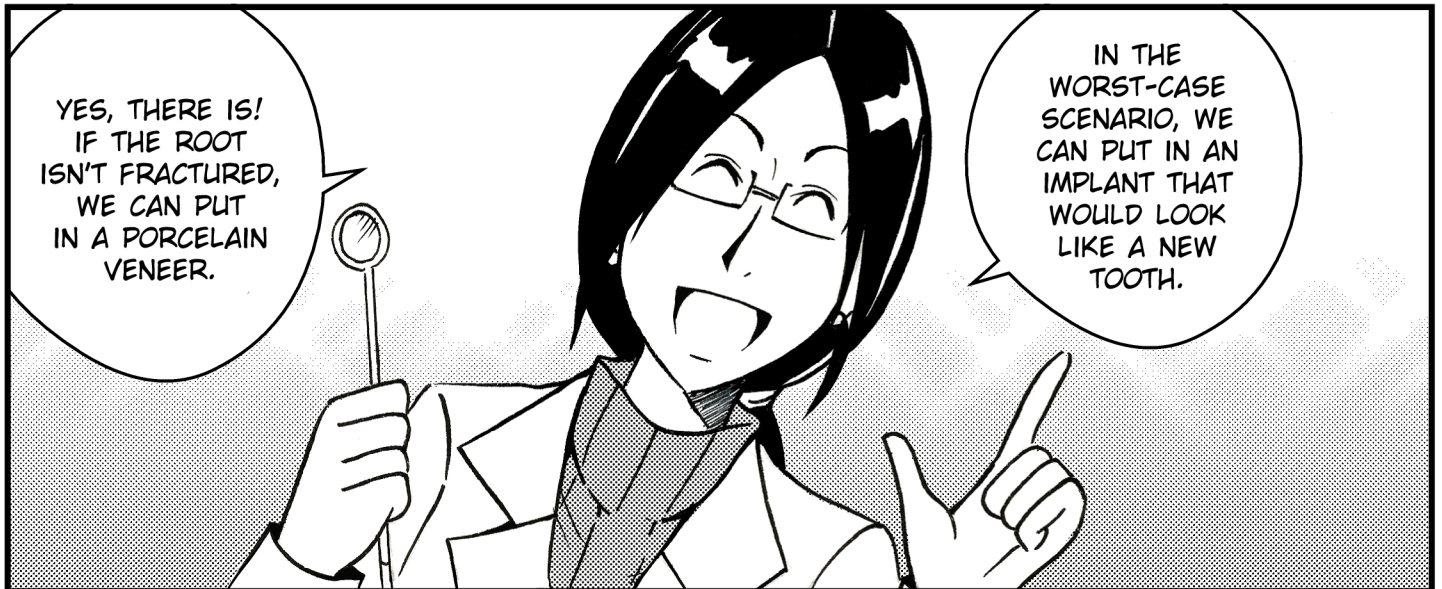
NO...IT WAS GLASS WITH A TEMPER, WHAT WAS IT CALLED AGAIN, MATTHEW?



TEMPERED! VINNIE, NOT A TEMPER...IT WAS TEMPERED GLASS.



BUT... IS THERE A WAY TO FIX IT?



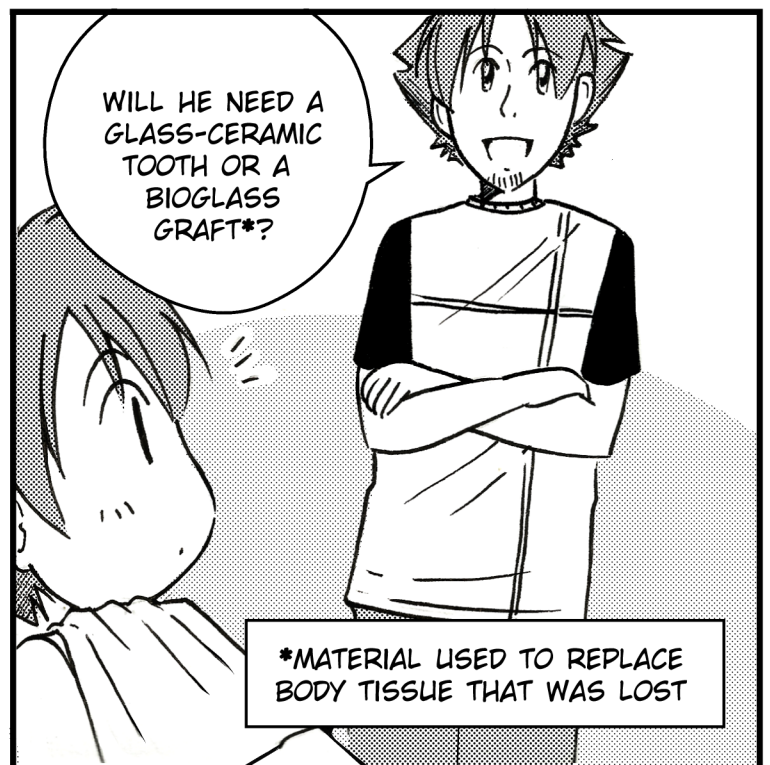
YES, THERE IS! IF THE ROOT ISN'T FRACTURED, WE CAN PUT IN A PORCELAIN VENEER.

IN THE WORST-CASE SCENARIO, WE CAN PUT IN AN IMPLANT THAT WOULD LOOK LIKE A NEW TOOTH.



LET'S TAKE AN X-RAY SO WE CAN SEE AND THEN WE'LL DECIDE, OK?

RIGHT!



WILL HE NEED A GLASS-CERAMIC TOOTH OR A BIOGLASS GRAFT*?

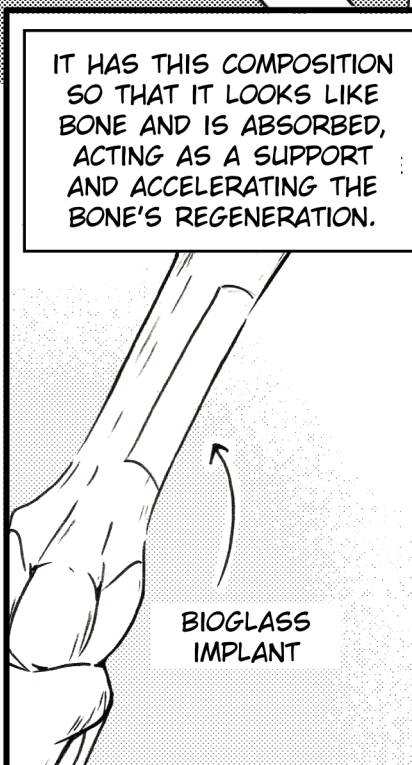
*MATERIAL USED TO REPLACE BODY TISSUE THAT WAS LOST



NO, THAT IS OPTICAL GLASS. BIOGLASS IS DIFFERENT BECAUSE IT HAS A LARGER QUANTITY OF CALCIUM AND PHOSPHORUS.



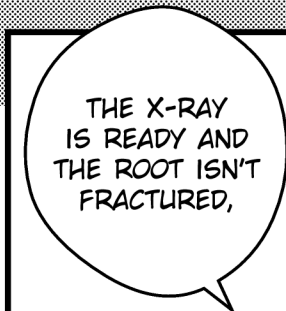
BIOGLASS COMPOSITION:
45% SiO₂
24.5% CaO
24.5% Na₂O
6% P₂O₅
IN WEIGHT PERCENT.



IT HAS THIS COMPOSITION SO THAT IT LOOKS LIKE BONE AND IS ABSORBED, ACTING AS A SUPPORT AND ACCELERATING THE BONE'S REGENERATION.



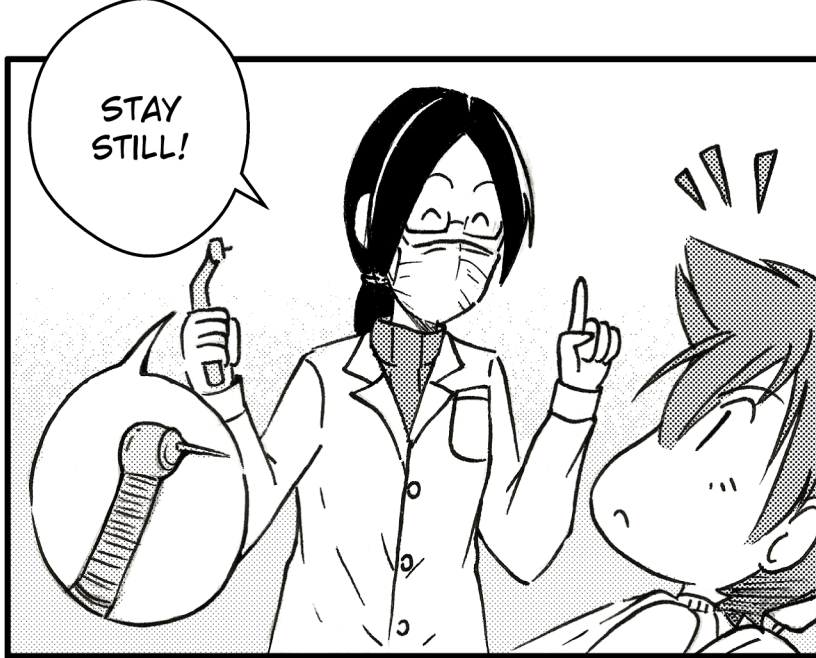
GEE! SO, YOU MEAN GLASS IS ALSO USED TO REGENERATE BONE. COOL!



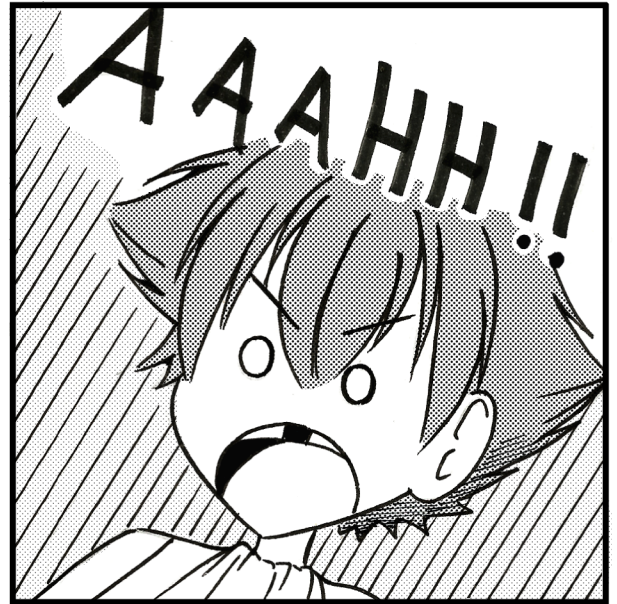
THE X-RAY IS READY AND THE ROOT ISN'T FRACTURED,



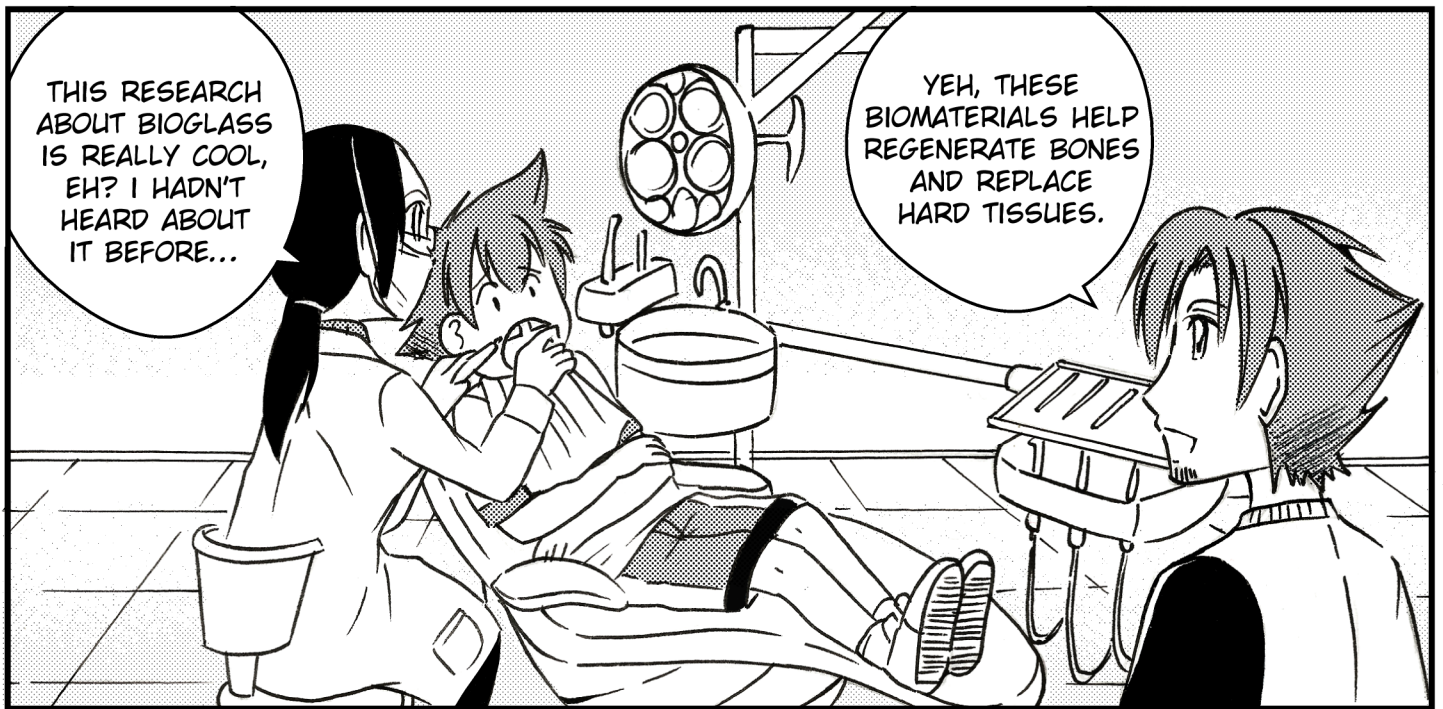
SO LET'S JUST MAKE YOU A NEW SMALL TOOTH TO FIT ONTO THE REMAINING BIT, OK? SHALL WE MAKE A MOLD?



STAY STILL!

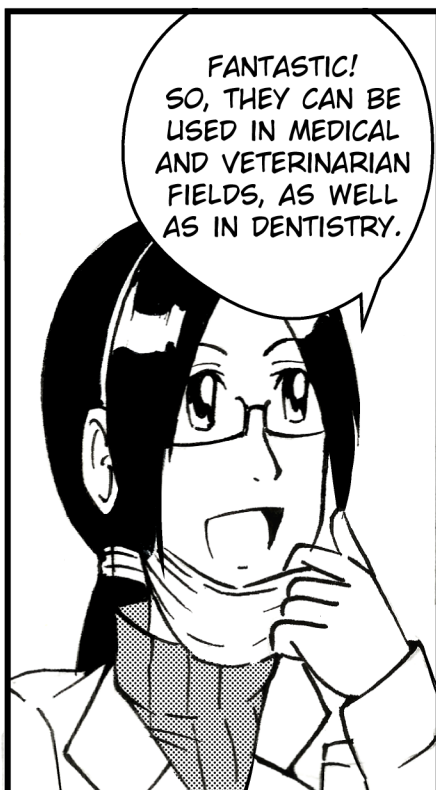


AAAAHHH!!



THIS RESEARCH ABOUT BIOGLASS IS REALLY COOL, EH? I HADN'T HEARD ABOUT IT BEFORE...

YEH, THESE BIOMATERIALS HELP REGENERATE BONES AND REPLACE HARD TISSUES.



FANTASTIC! SO, THEY CAN BE USED IN MEDICAL AND VETERINARIAN FIELDS, AS WELL AS IN DENTISTRY.



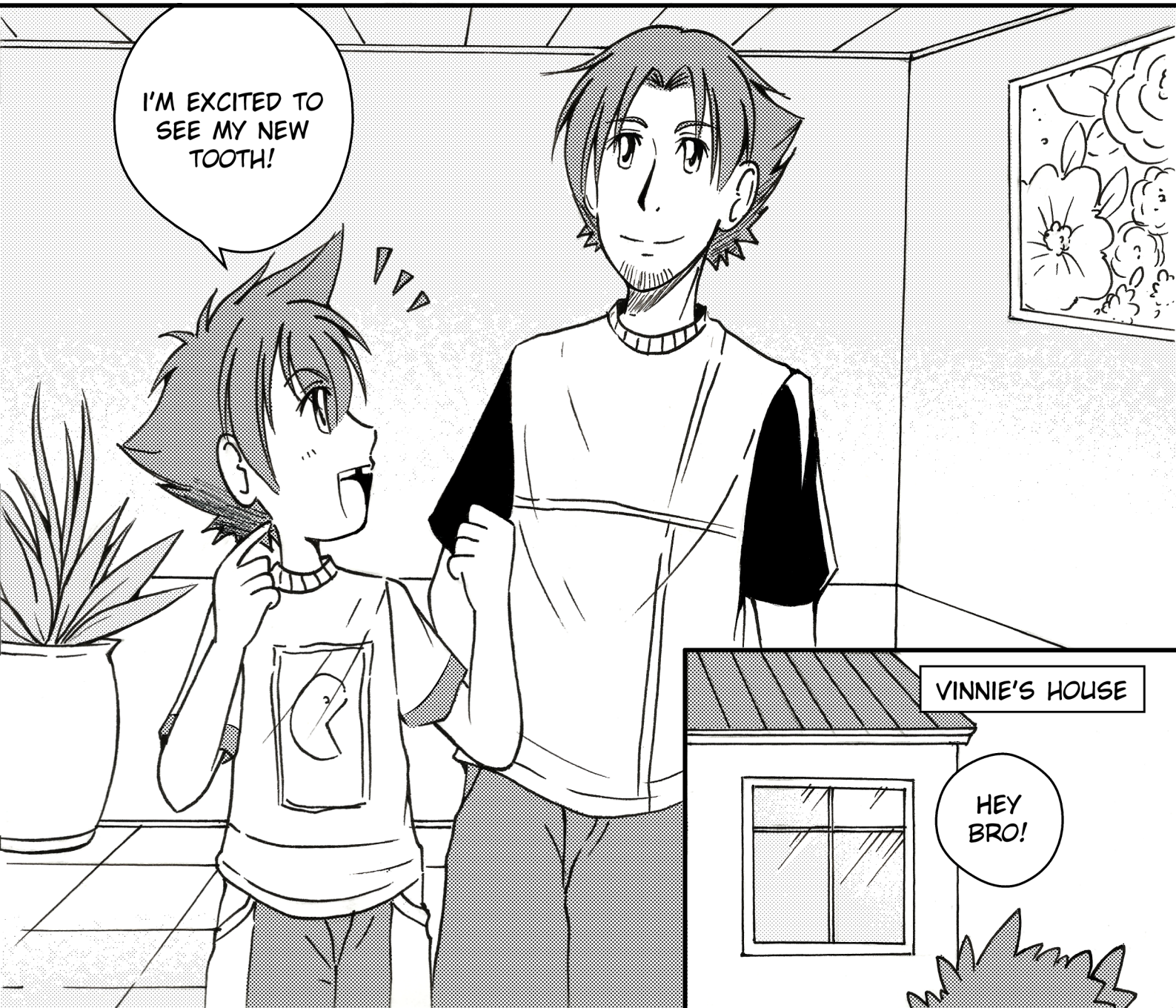
SO, IN MY CASE THEY WILL BE USED TO REGENERATE MY TOOTH?

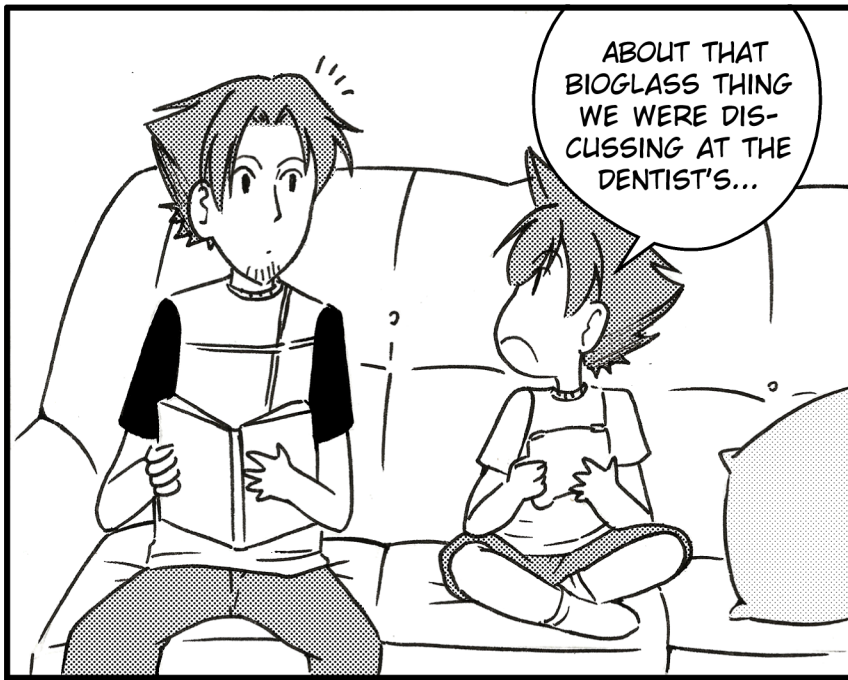
AM I GONNA HAVE GLASS IN MY TOOTH?



NOT THIS TIME, BECAUSE YOU WON'T NEED AN IMPLANT OR TO HAVE A GRAFT* DONE.

* BIOGLASS GRAFTS ARE USED ON ELDERLY PEOPLE OR WHEN THE BONE IS SEVERELY DAMAGED.

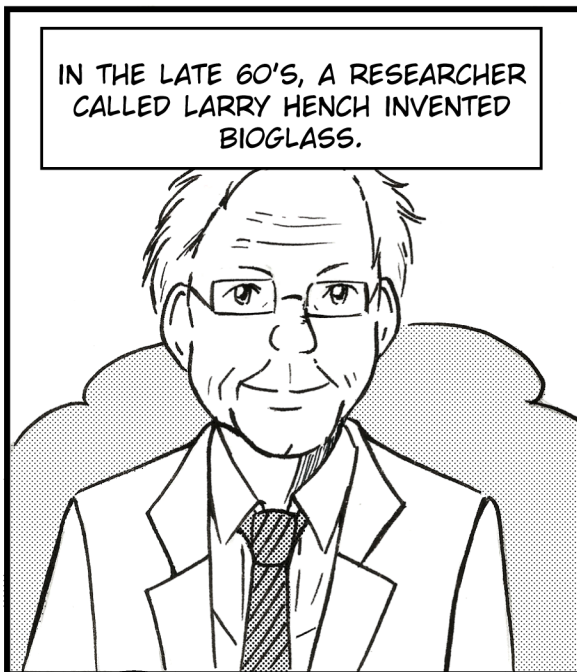




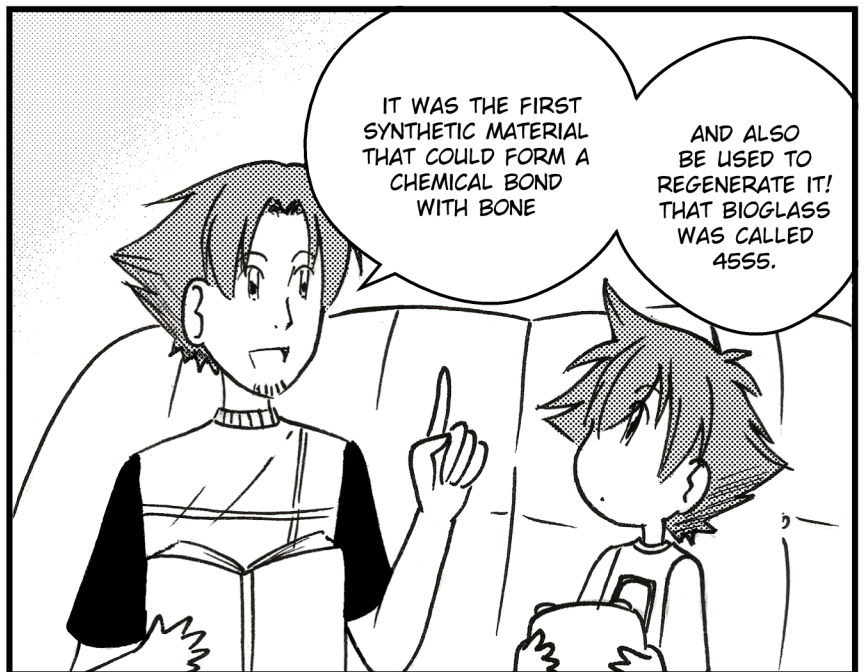
ABOUT THAT BIOGLASS THING WE WERE DISCUSSING AT THE DENTIST'S...



WHO INVENTED IT?



IN THE LATE 60'S, A RESEARCHER CALLED LARRY HENCH INVENTED BIOGLASS.

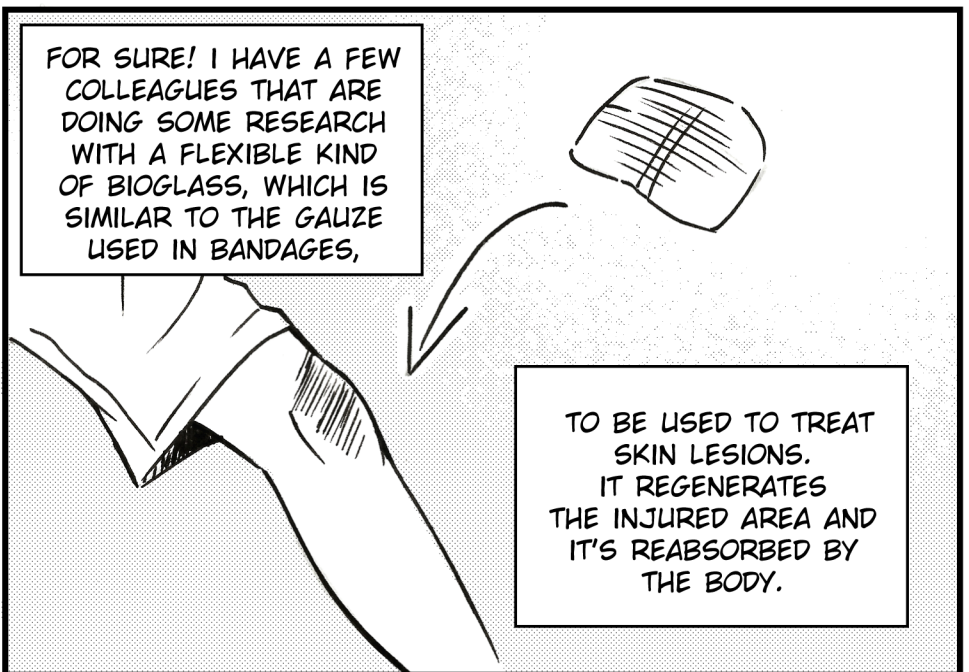


IT WAS THE FIRST SYNTHETIC MATERIAL THAT COULD FORM A CHEMICAL BOND WITH BONE

AND ALSO BE USED TO REGENERATE IT! THAT BIOGLASS WAS CALLED 4555.

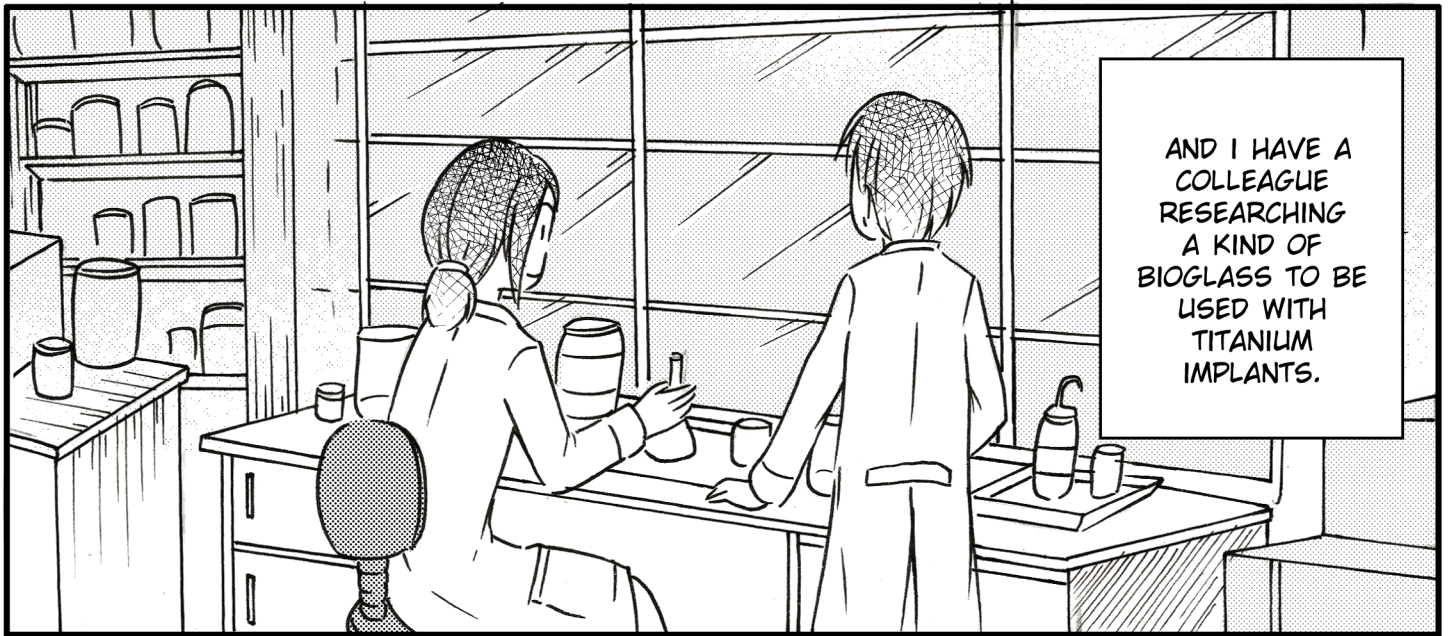


ARE THERE PEOPLE DOING RESEARCH WITH IOGLASS WHERE YOU WORK?



FOR SURE! I HAVE A FEW COLLEAGUES THAT ARE DOING SOME RESEARCH WITH A FLEXIBLE KIND OF BIOGLASS, WHICH IS SIMILAR TO THE GAUZE USED IN BANDAGES,

TO BE USED TO TREAT SKIN LESIONS. IT REGENERATES THE INJURED AREA AND IT'S REABSORBED BY THE BODY.

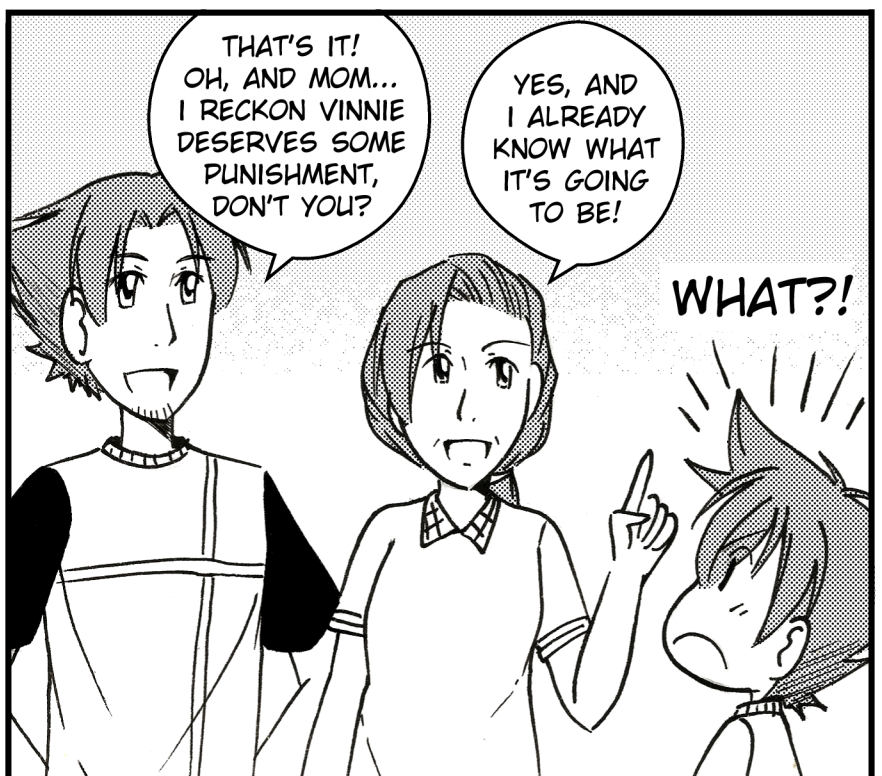
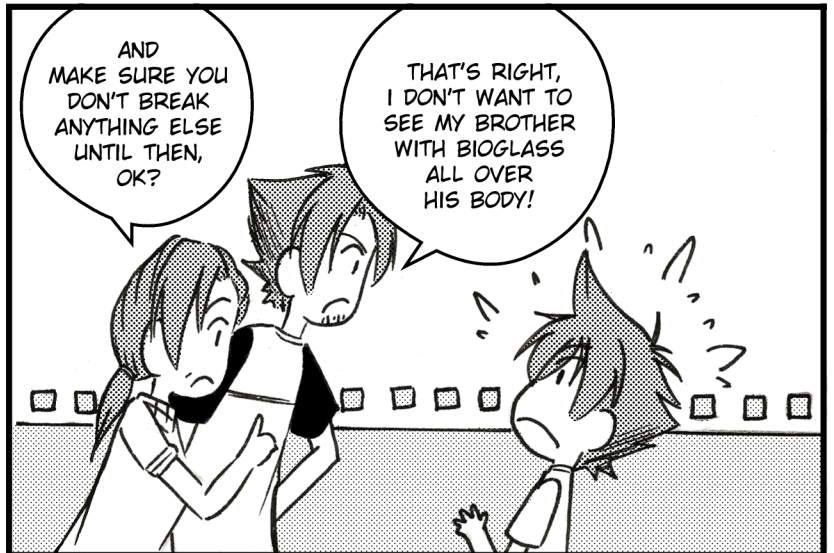
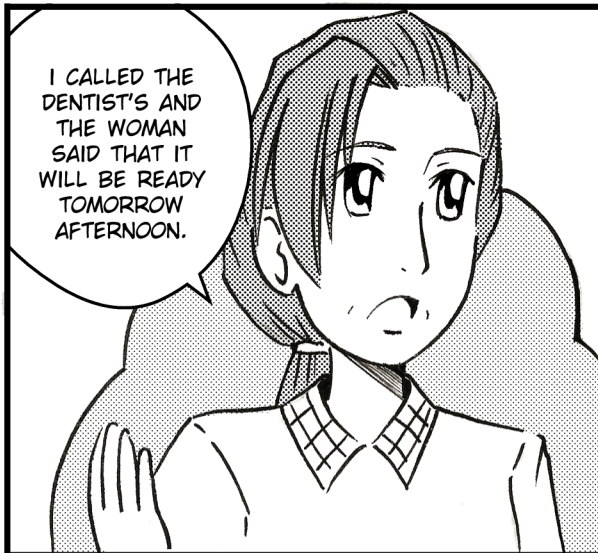
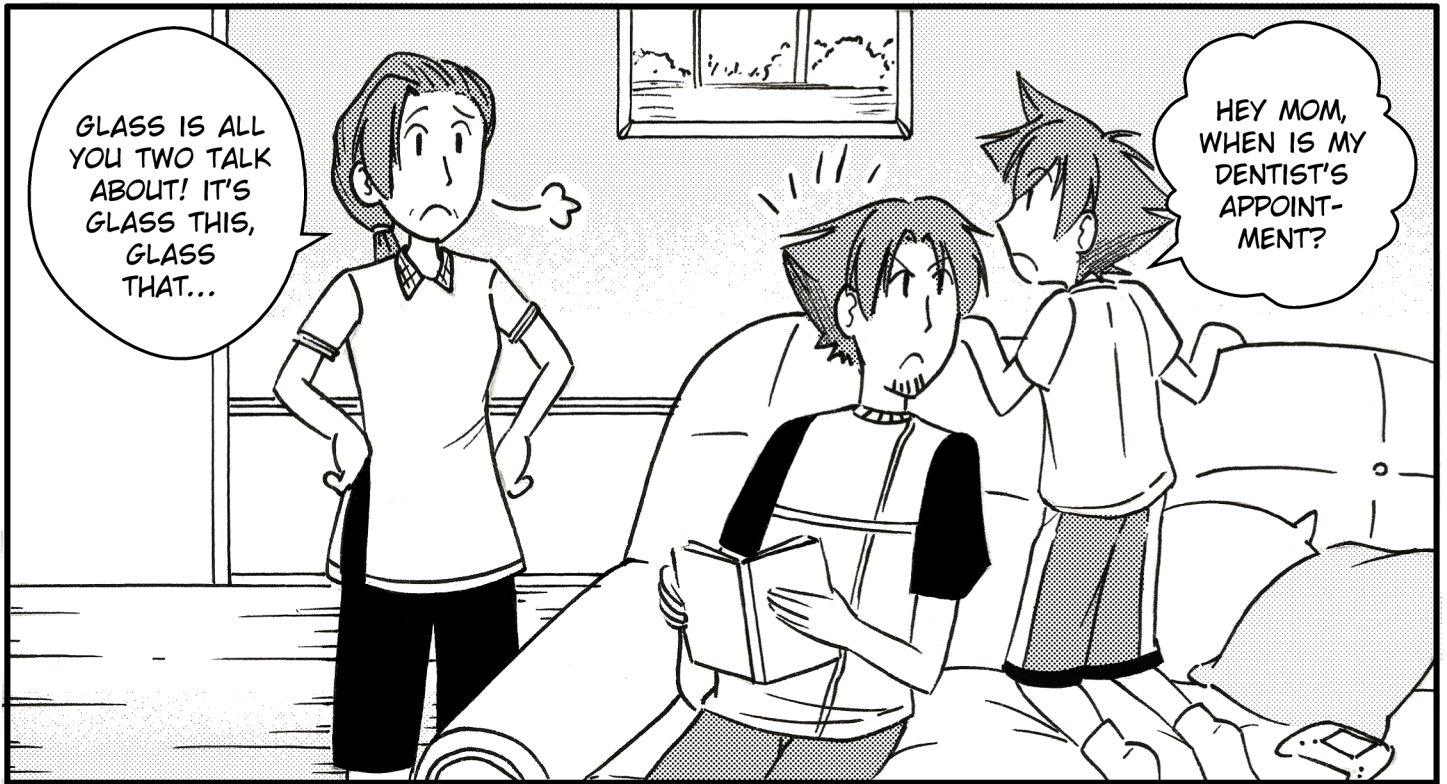


AND I HAVE A COLLEAGUE RESEARCHING A KIND OF BIOGLASS TO BE USED WITH TITANIUM IMPLANTS.



MY GOODNESS, GLASS CAN BE USED IN SO MANY WAYS, EH BRO?

IT'S USED FOR DECORATION, SAFETY, FOR THE INTERNET AND ALSO TO REGENERATE BONES AND TEETH!



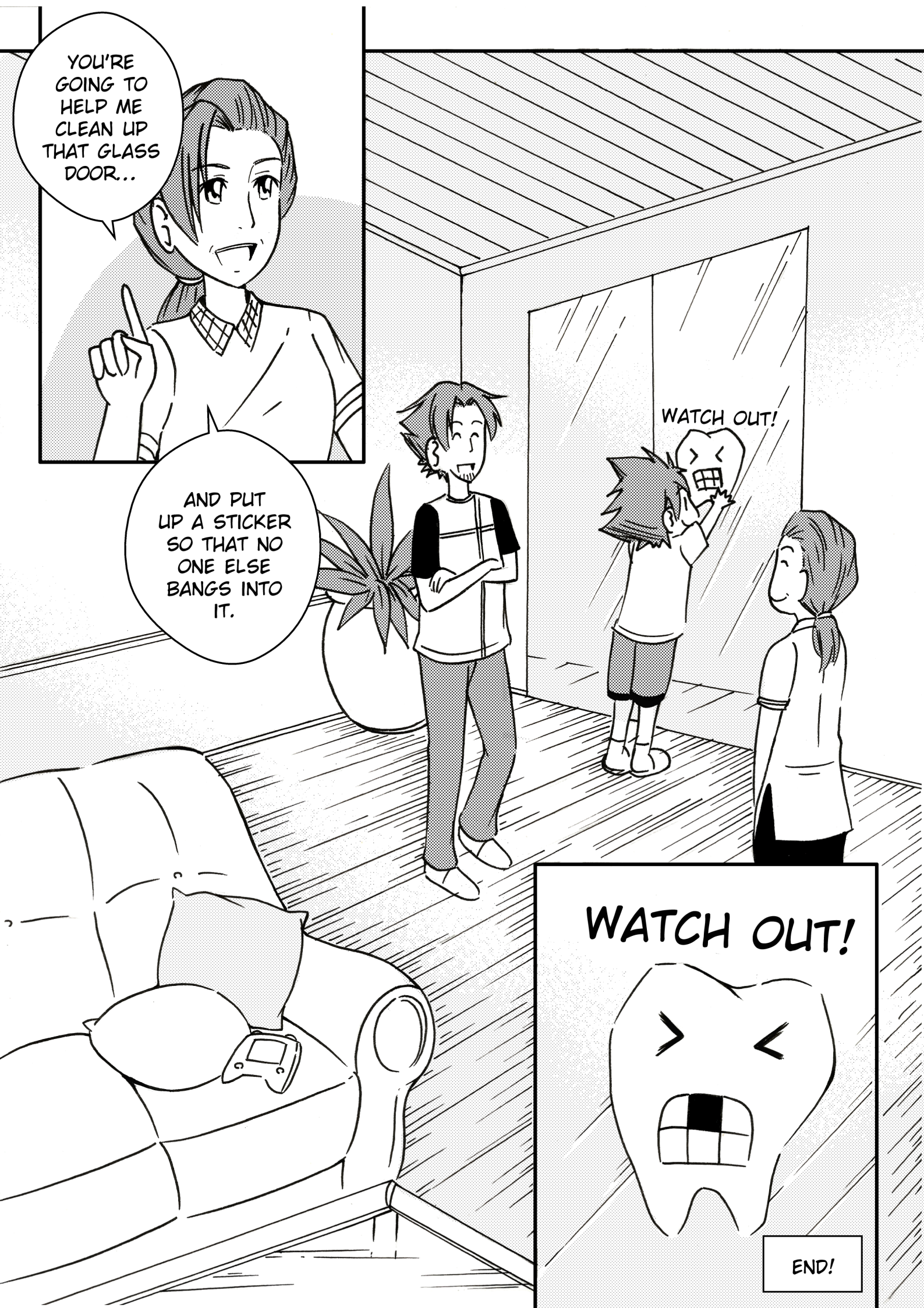
YOU'RE GOING TO HELP ME CLEAN UP THAT GLASS DOOR...

AND PUT UP A STICKER SO THAT NO ONE ELSE BANGS INTO IT.

WATCH OUT!

WATCH OUT!

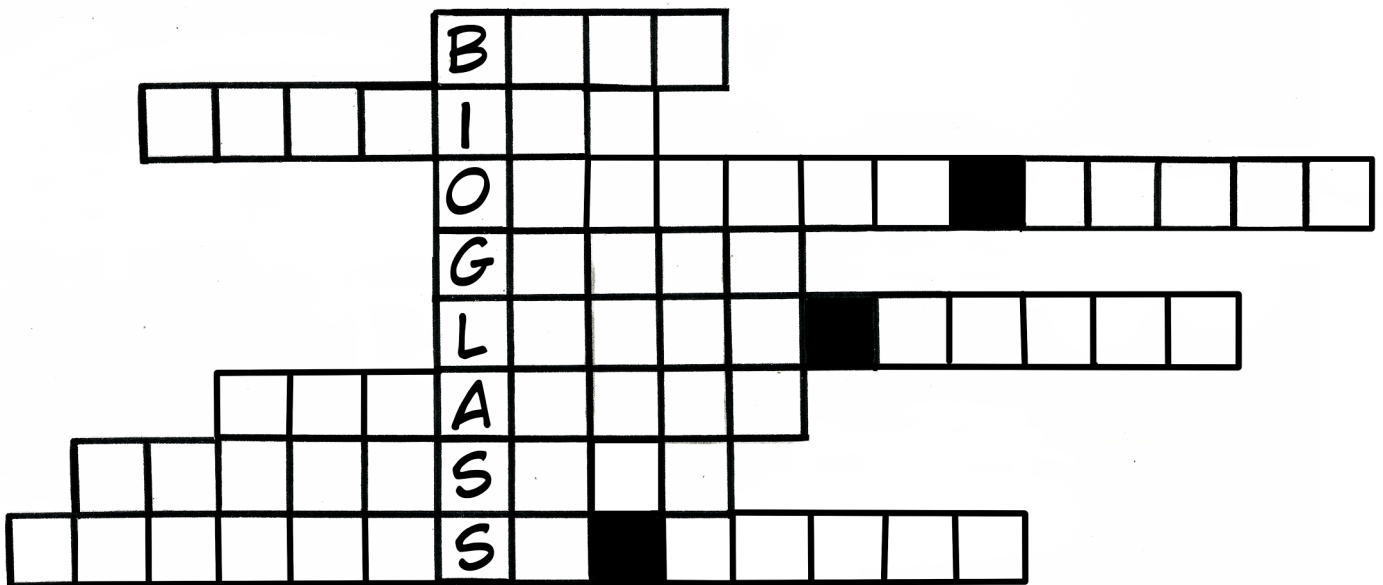
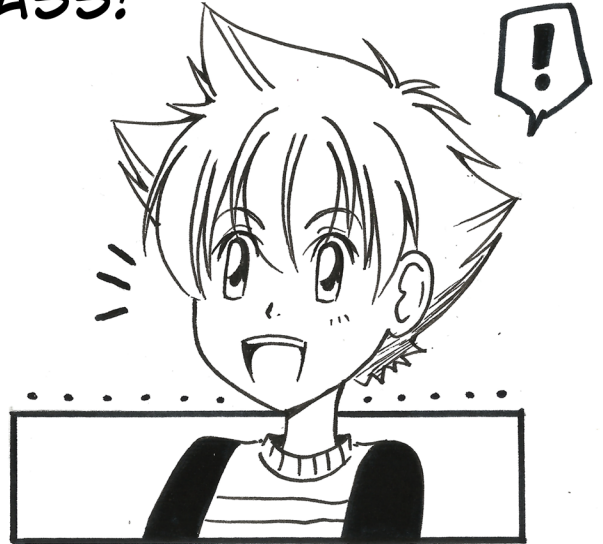
END!



CROSSWORD PUZZLE

TEST YOUR KNOWLEDGE ABOUT BIOGLASS!

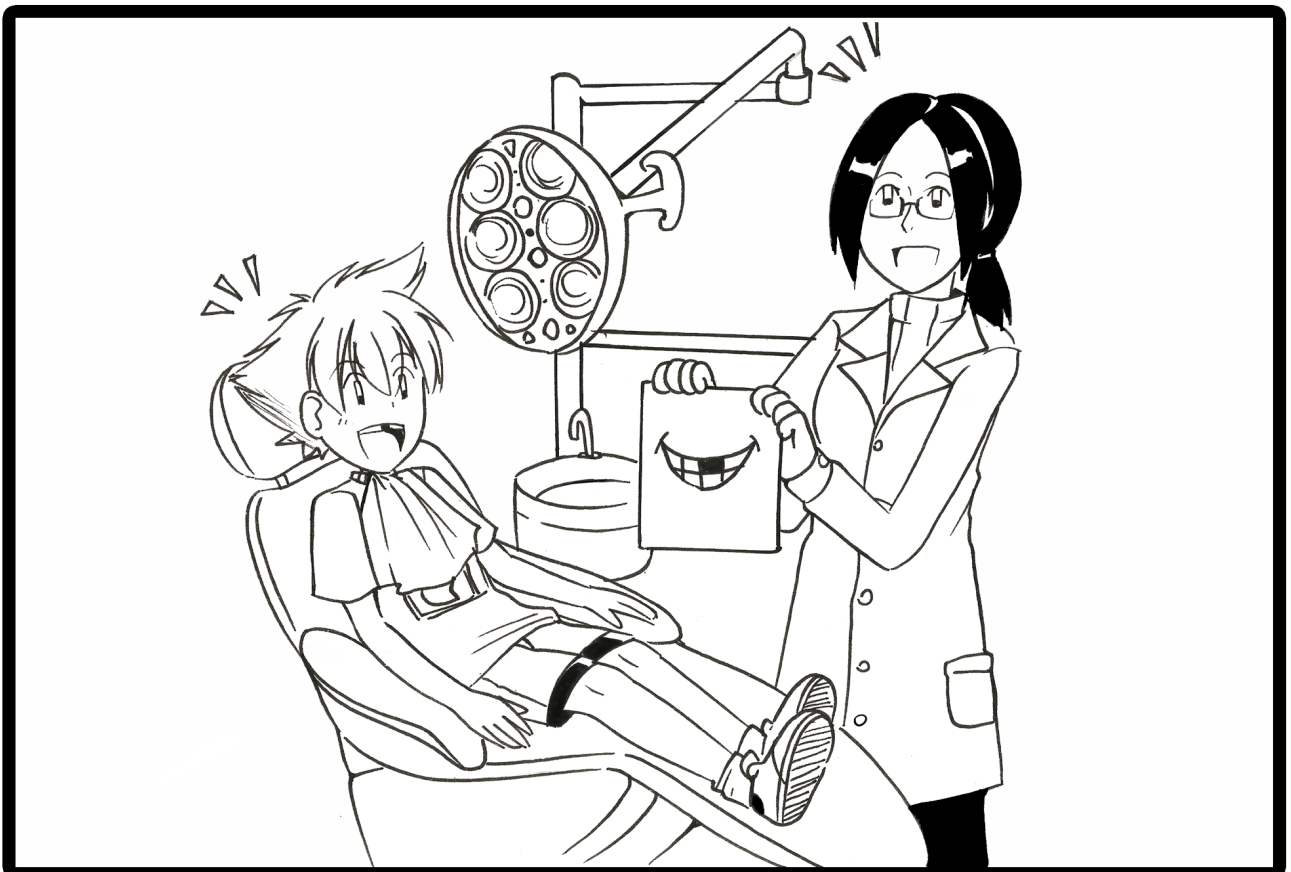
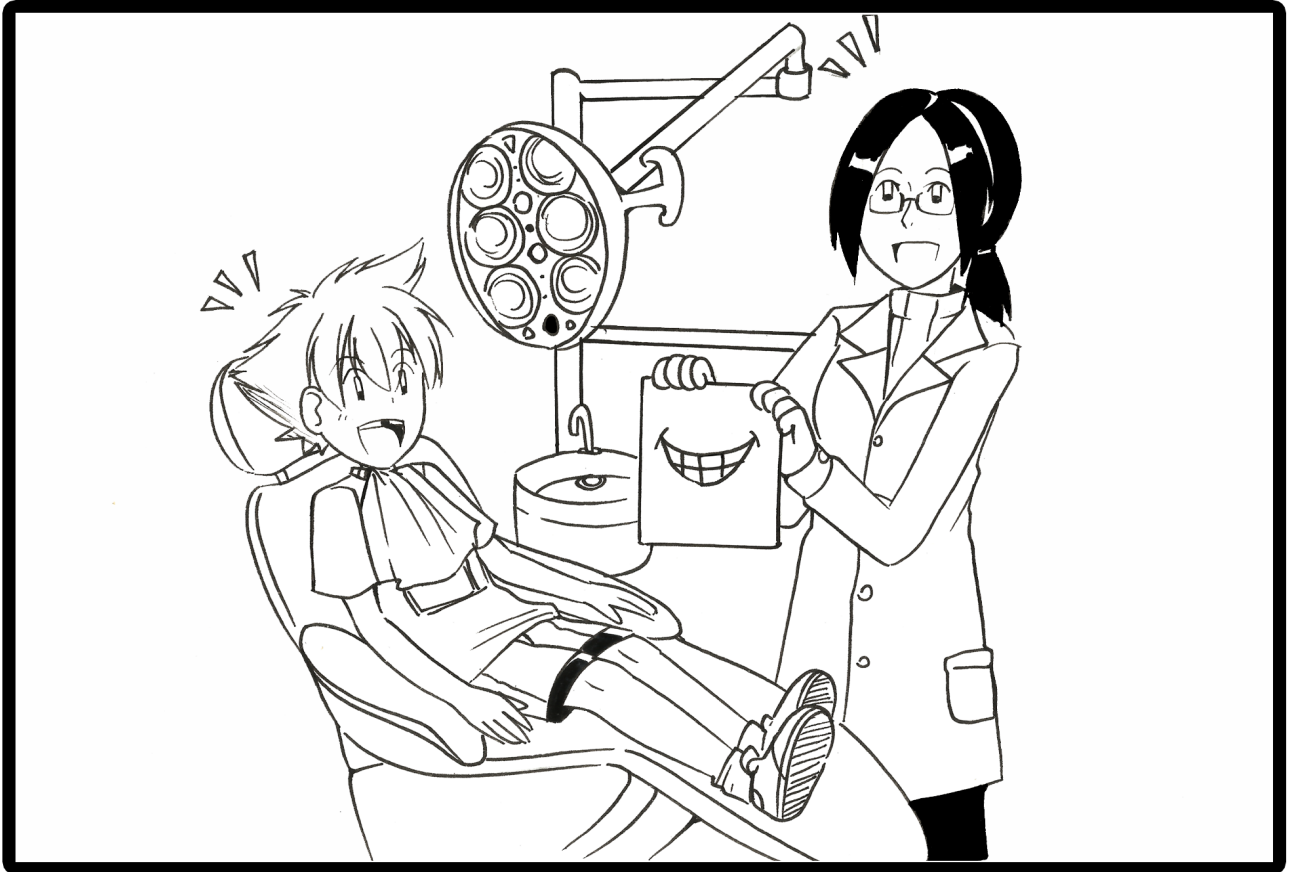
- 1) BIOGLASS CAN BE USED FOR _____ REGENERATION.
- 2) AN ELEMENT THAT APPEARS IN A LARGE AMOUNT IN THE COMPOSITION OF BIOGLASS.
- 3) TYPE OF GLASS USED IN GLASSES THAT YOU WEAR.
- 4) A TYPE OF FLEXIBLE BIOGLASS, USED TO TREAT LESIONS.
- 5) WHO INVENTED BIOGLASS?
- 6) AN ELEMENT USED TO MANUFACTURE IMPLANTS.
- 7) BIOGLASS CAN BE USED IN _____.
- 8) A MATERIAL THAT REPLACES A BODY TISSUE.



THE ANSWERS TO THE ACTIVITIES ARE LISTED ON THE LAST PAGE!

GAME WITH 7 MISTAKES

COMPARE THE TWO IMAGES AND FIND SEVEN MISTAKES!



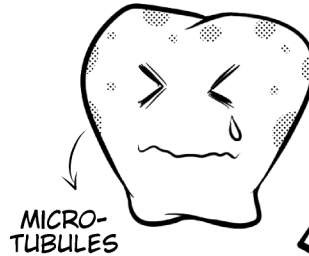
SOME MORE TRIVIA ABOUT BIOGLASS!

WHEN TEETH ARE WHITENED, THE ENAMEL IS LEFT WITH VARIOUS EXPOSED MICROTUBULES (PORES) THAT LEAD TO SENSITIVITY.

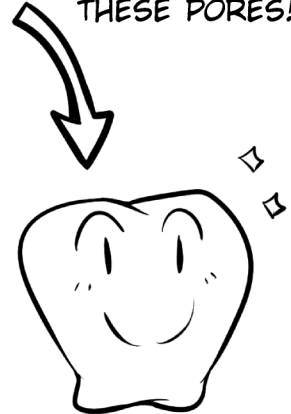
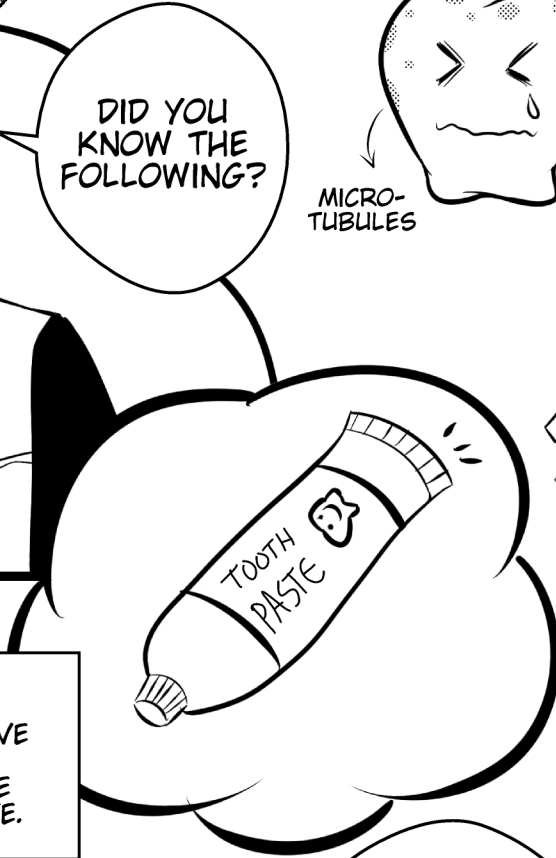
BIOGLASS COMPOUND



BIOGLASS IS THEN USED TO "FILL" THESE PORES!



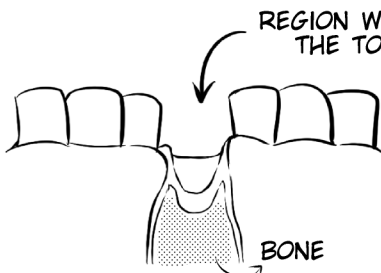
DID YOU KNOW THE FOLLOWING?



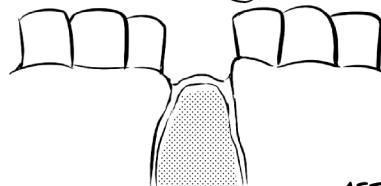
YOU CAN ALREADY BUY TOOTHPASTE FOR SENSITIVE TEETH AND IT CONTAINS BIOGLASS, BUT THEY ARE USUALLY MORE EXPENSIVE.

AFTER YOU LOSE A TOOTH, THE BONE AND TISSUE SHRINK, IF NOT TREATED QUICKLY.

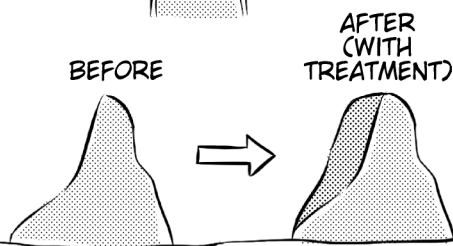
FIND OUT A BIT MORE ABOUT LOSING TEETH!



WHEN YOU DON'T HAVE A TOOTH ANYMORE, YOUR BODY WILL UNDERSTAND THAT IT NO LONGER NEEDS THE MECHANICAL STIMULUS FOR CHEWING AND THE BONE THAT SUPPORTED THE TOOTH IS NO LONGER USEFUL, INITIATING THE BONE RESORPTION PROCESS.



THEREFORE, IT'S IMPORTANT TO PUT IN A "NEW TOOTH" (DENTAL PROSTHESIS*) INSTEAD OF THE TOOTH THAT WAS REMOVED.



IN SOME CASES, YOU HAVE TO TREAT THE SITE BEFORE PUTTING IN THE PROSTHESIS. TO DO THIS, A GRAFT IS PLACED TO INCREASE THE BONE VOLUME.

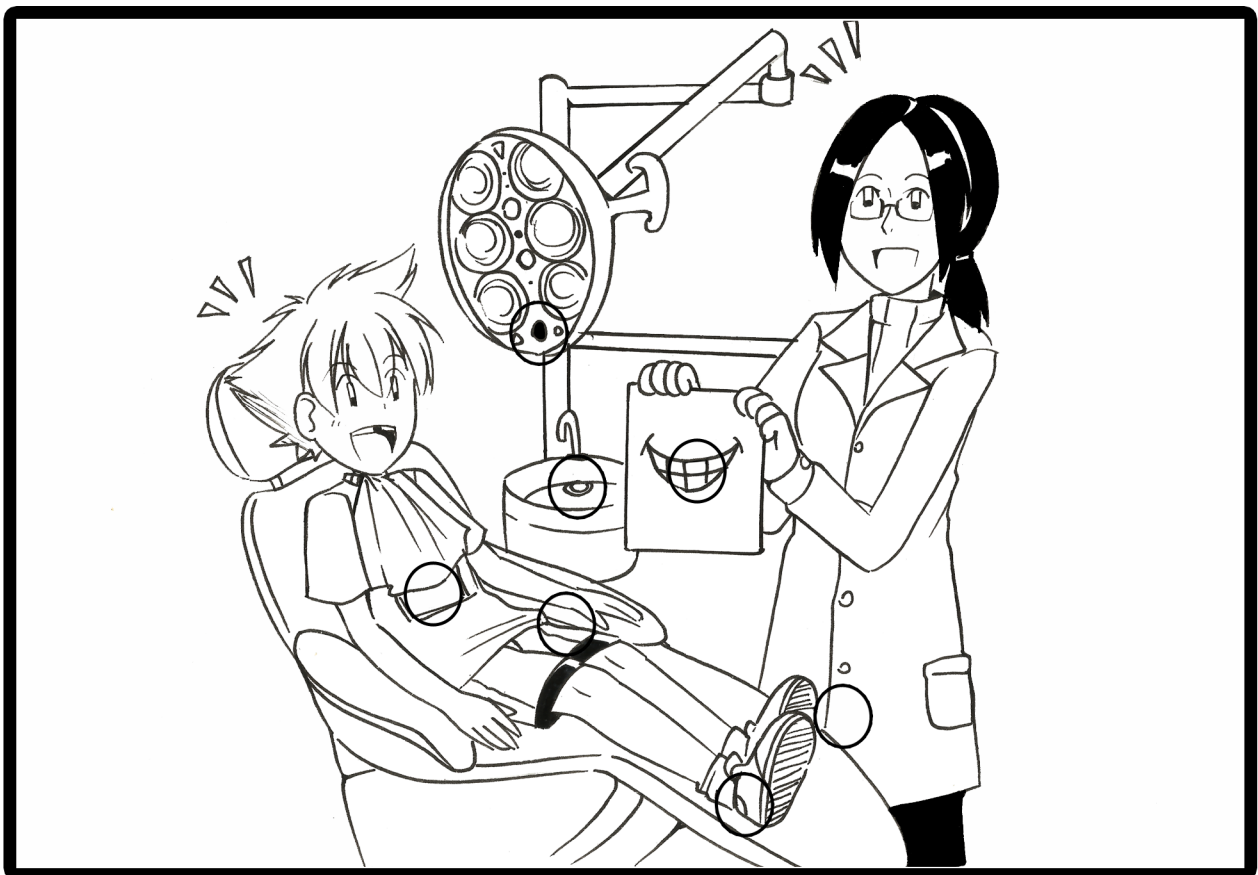
* IMPLANT (SCREW + ARTIFICIAL TOOTH)

ANSWERS TO THE ACTIVITIES:

CROSSWORD PUZZLE:

- 1) BONE
- 2) CALCIUM
- 3) OPTICAL GLASS
- 4) GAUZE
- 5) LARRY HENCH
- 6) TITANIUM
- 7) DENTISTRY
- 8) BIOGLASS GRAFT

GAME WITH 7 MISTAKES:



CREATED BY:



SUPPORT:

