

Science Adventures with the

THUNDERBOLT  
KIDS





# **Sciences Adventures with the Thunderbolt Kids**

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Grade 4

by Siyavula and the Shuttleworth Foundation

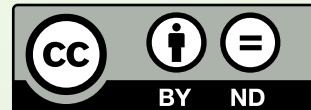
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## **ATtribution**

The Thunderbolt Kids characters and graphical stories in this book were developed as part of the Kususa project ([www.kusasa.org](http://www.kusasa.org)), initiated and funded by the Shuttleworth Foundation ([www.shuttleworthfoundation.org/](http://www.shuttleworthfoundation.org/)). This project aimed to develop analytical and creative thinking in Grade 4,5 and 6 learners through the use of character role models, experiments, simple computer modelling and carefully-sequenced lesson plans. The characters and stories were used with the permission of the Shuttleworth Foundation in these science adventures and the related Grade 4-6 Natural Science and Technology workbooks.

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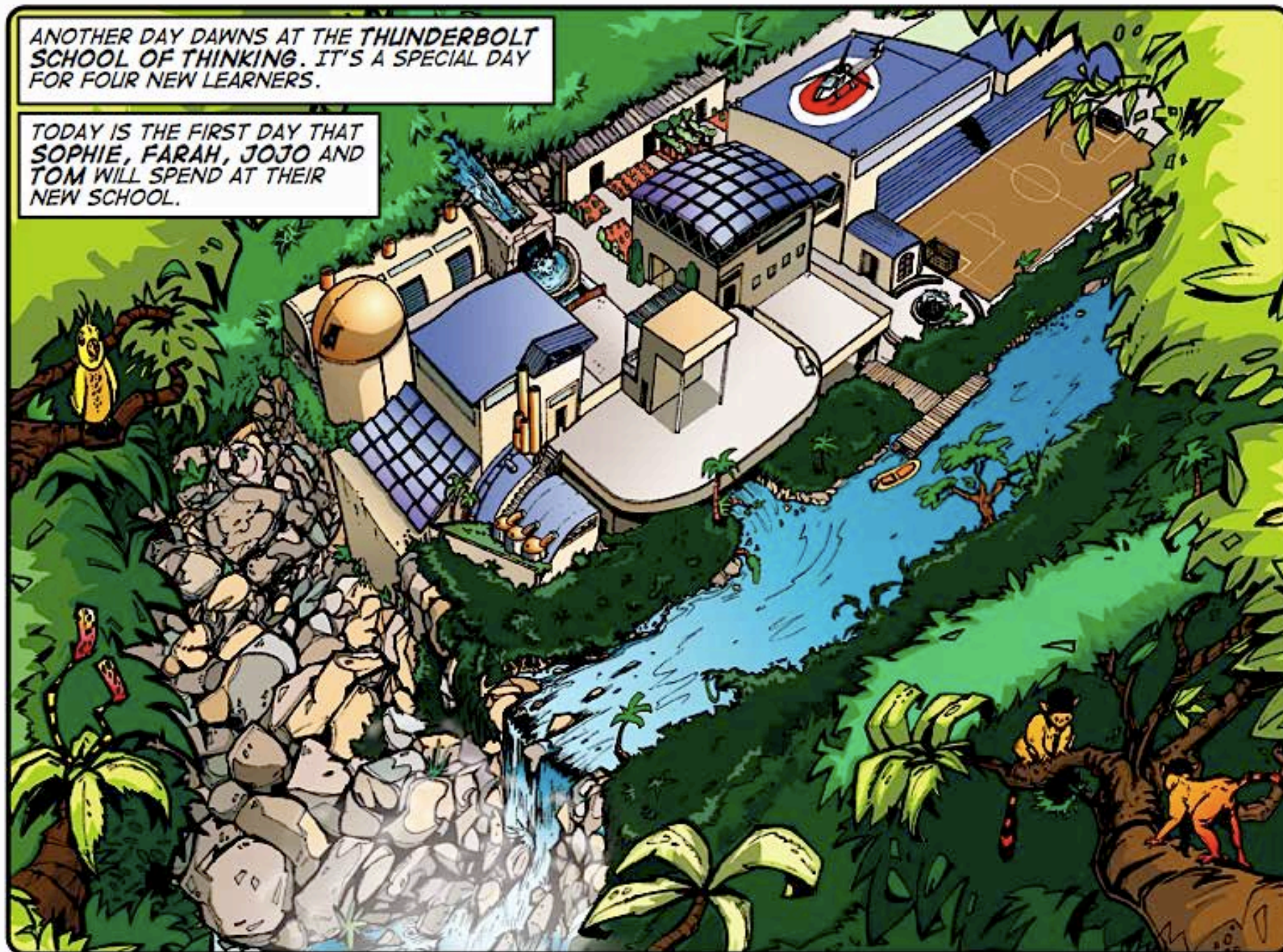
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## **1. THE THUNDERBOLT KIDS**



ANOTHER DAY DAWNS AT THE THUNDERBOLT SCHOOL OF THINKING. IT'S A SPECIAL DAY FOR FOUR NEW LEARNERS.

TODAY IS THE FIRST DAY THAT SOPHIE, FARAH, JOJO AND TOM WILL SPEND AT THEIR NEW SCHOOL.





BUT SPECIAL DAYS AREN'T ALWAYS EASY.  
SOPHIE IS ALREADY NERVOUS ABOUT THIS ONE.



NO **QUESTIONS**, SOPHIE!  
OR YOU'LL BE **EXPELLED** ON  
THE FIRST DAY!



FARRAH IS WORRIED TOO. BUT HER WORRIES ARE A LITTLE DIFFERENT.

DON'T MAKE A **NOISE** IN CLASS, FARRAH! YOU CAN **TALK** TO THE OTHER KIDS AT BREAK!





JOJO IS JUST AS  
NERVOUS AS THE GIRLS.

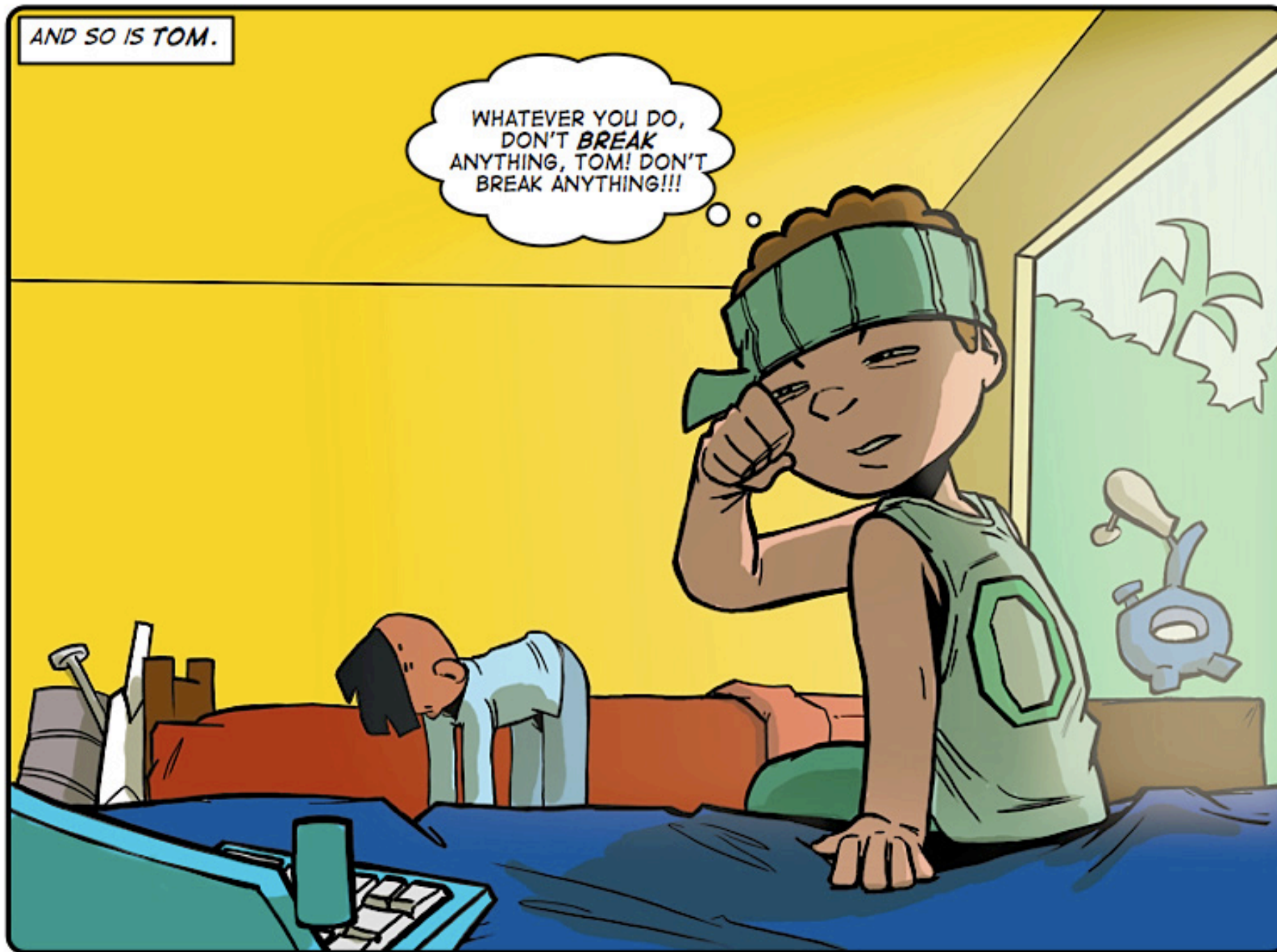
JUST STAND BACK,  
JOJO. TRY NOT  
TO *DO* TOO MUCH, OR  
YOU'LL GET  
INTO TROUBLE.

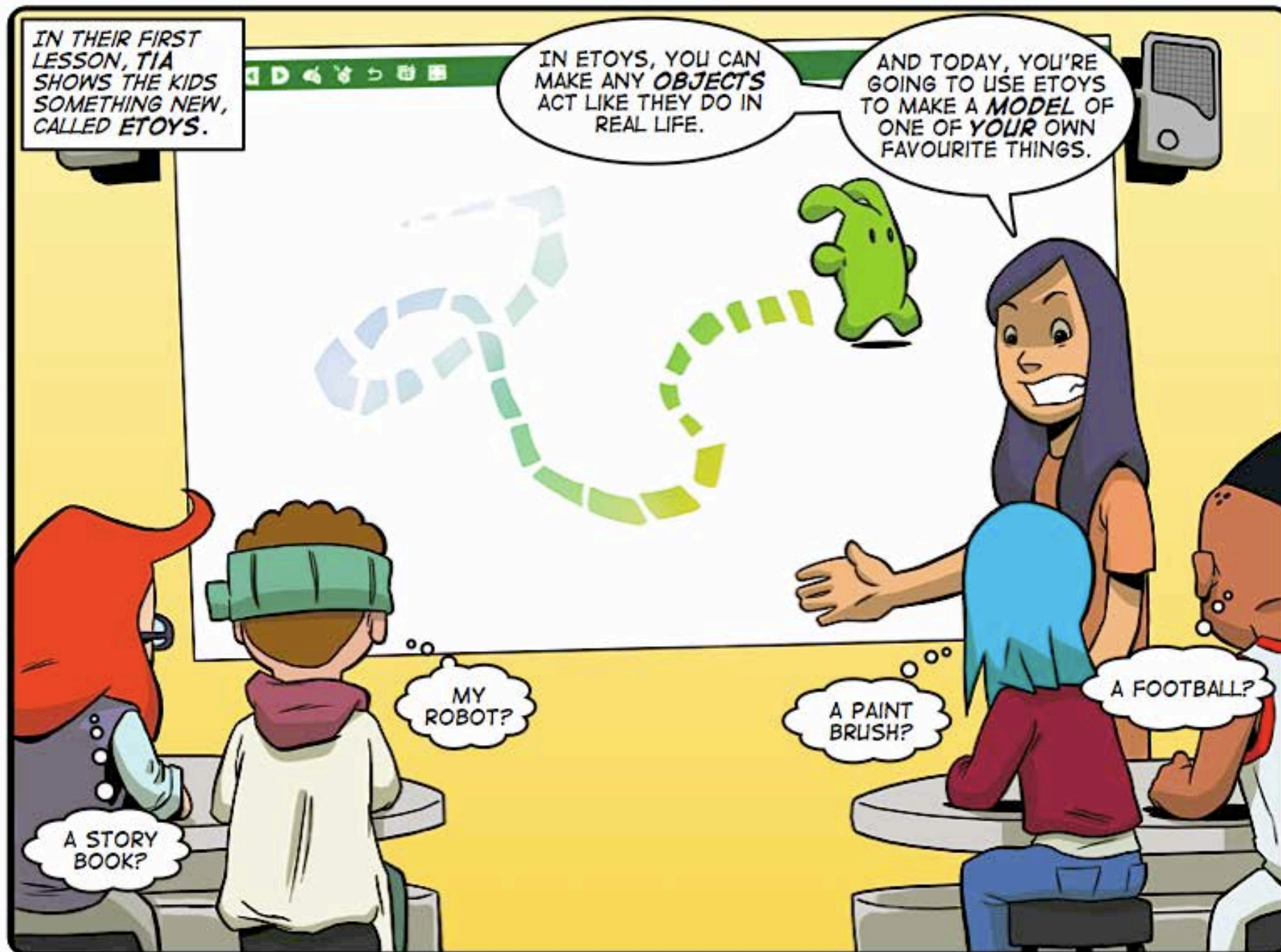




AND SO IS TOM.

WHATEVER YOU DO,  
DON'T **BREAK**  
ANYTHING, TOM! DON'T  
BREAK ANYTHING!!!







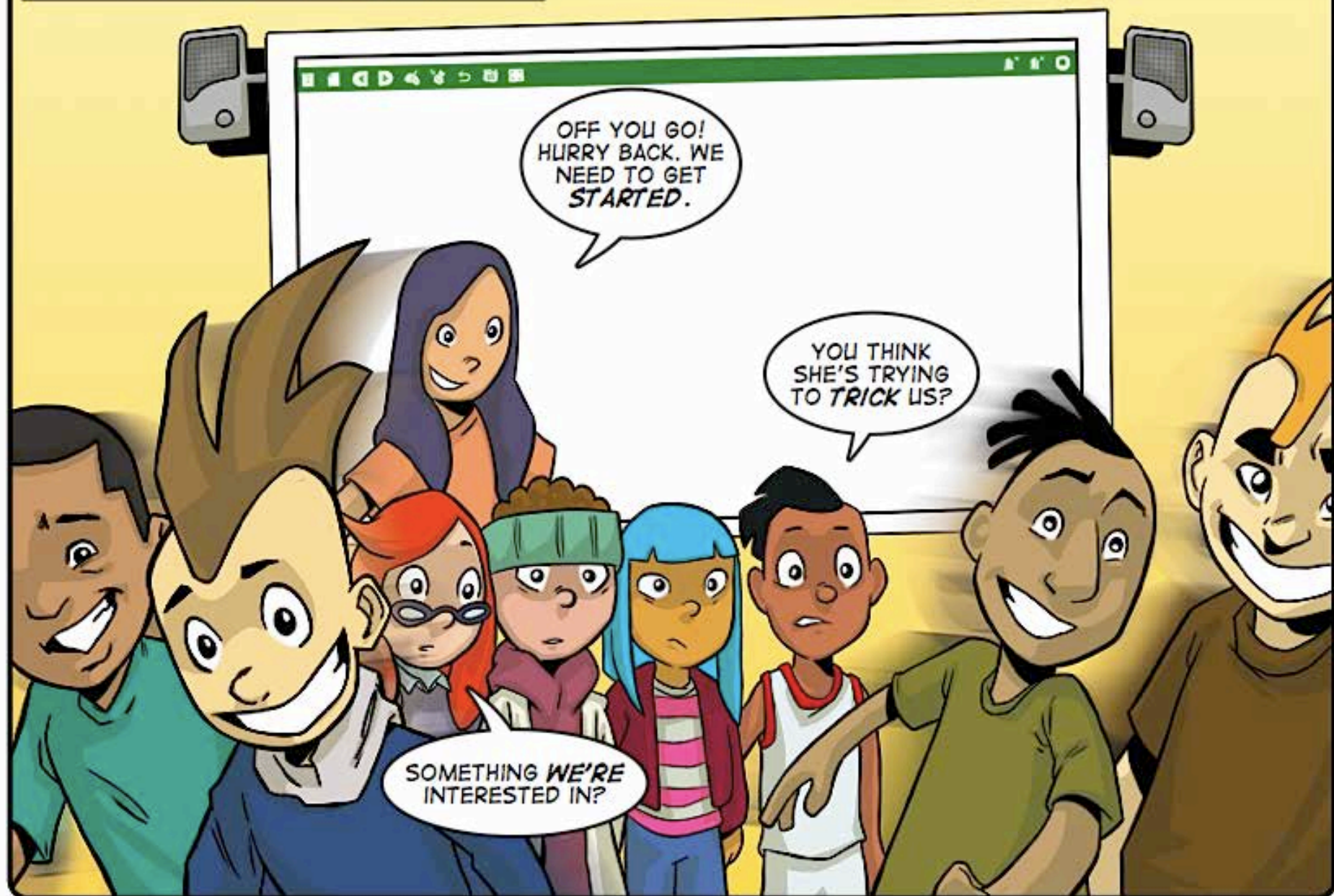
AS THE LITTLE GREEN ANIMAL **FLIES** ON THE SCREEN BEHIND HER, TIA TELLS THE CLASS SOMETHING THAT THEY **DON'T EXPECT**.

GO BACK TO YOUR ROOMS AND FETCH SOMETHING **YOU LOVE**. SOMETHING **YOU'RE** INTERESTED IN.

WHEN YOU GET BACK, WE'LL MAKE IT COME **ALIVE** IN ETOYS.



THE FOUR NEW KIDS ARE USED TO SCHOOL  
BEING A LITTLE DIFFERENT FROM THIS.





BUT THEY ARE NOT  
NERVOUS FOR LONG.

I CAN'T  
BELIEVE I CAN  
TAKE MY  
**FOOTBALL** TO  
CLASS!

WAIT 'TIL  
THEY SEE MY  
**ROBOT!**



**BOOKS** DON'T  
MOVE MUCH, BUT  
THEY SEEM LIKE  
THEY'RE **ALIVE**  
TO ME.

PAINT BRUSH?  
MICROPHONE?  
FLUTE? THIS IS  
TOUGH.







BACK IN CLASS, ALL THE KIDS SHOW  
OFF THEIR FAVOURITE THINGS.

THIS IS THE  
BEST SCHOOL  
DAY EVER!



WHAT'S THE  
MATTER? NEVER  
SEEN A *BOOK*  
BEFORE?



BOOKS DON'T  
*MOVE!* ARE  
YOU CRAZY?



WAIT 'TIL  
THEY SEE  
THIS BABY  
*FLY!*





AS TOM PREPARES TO LAUNCH, THE REST OF THE CLASS IS COMPLETELY UNAWARE OF THE CHAOS THAT WILL FOLLOW...

REALLY? YOU WANNA **SEE** A BOOK MOVE?!

ONE, TWO, THREE...  
**GO!**



AS THE TINY **ROCKETS** FIRE UP, THE  
ROBOT **BLAZES** THROUGH THE AIR.

AND TOM THINKS  
HIS WORST **FEAR**  
ABOUT HIS FIRST  
DAY IS ABOUT TO  
COME TRUE...



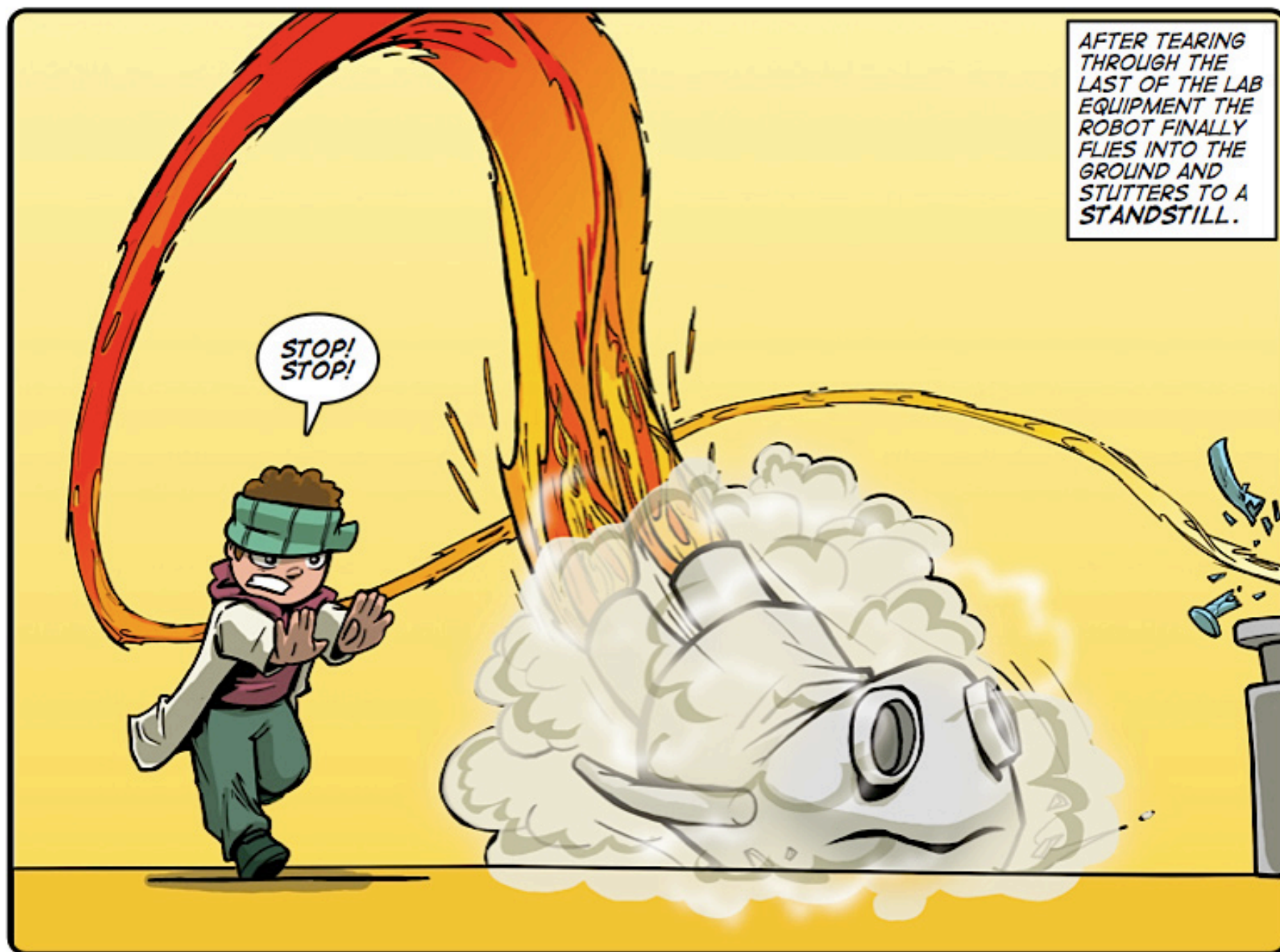
OH NO...  
THAT'S **NOT**  
MEANT TO  
HAPPEN.





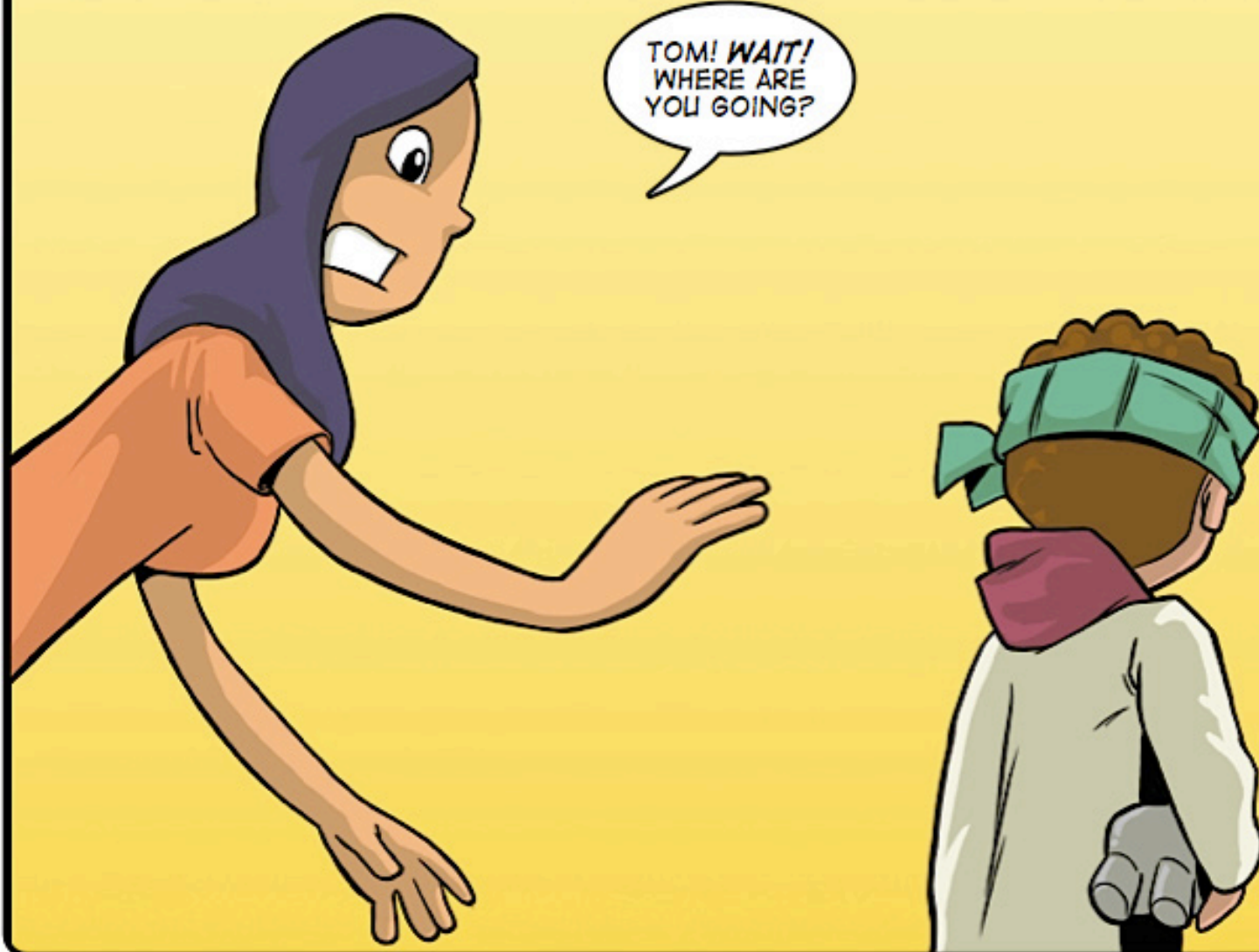
AS IT **WRECKS** EVERYTHING IN ITS  
PATH, TOM CAN ONLY HOPE THAT IT  
RUNS OUT OF FUEL QUICKLY.





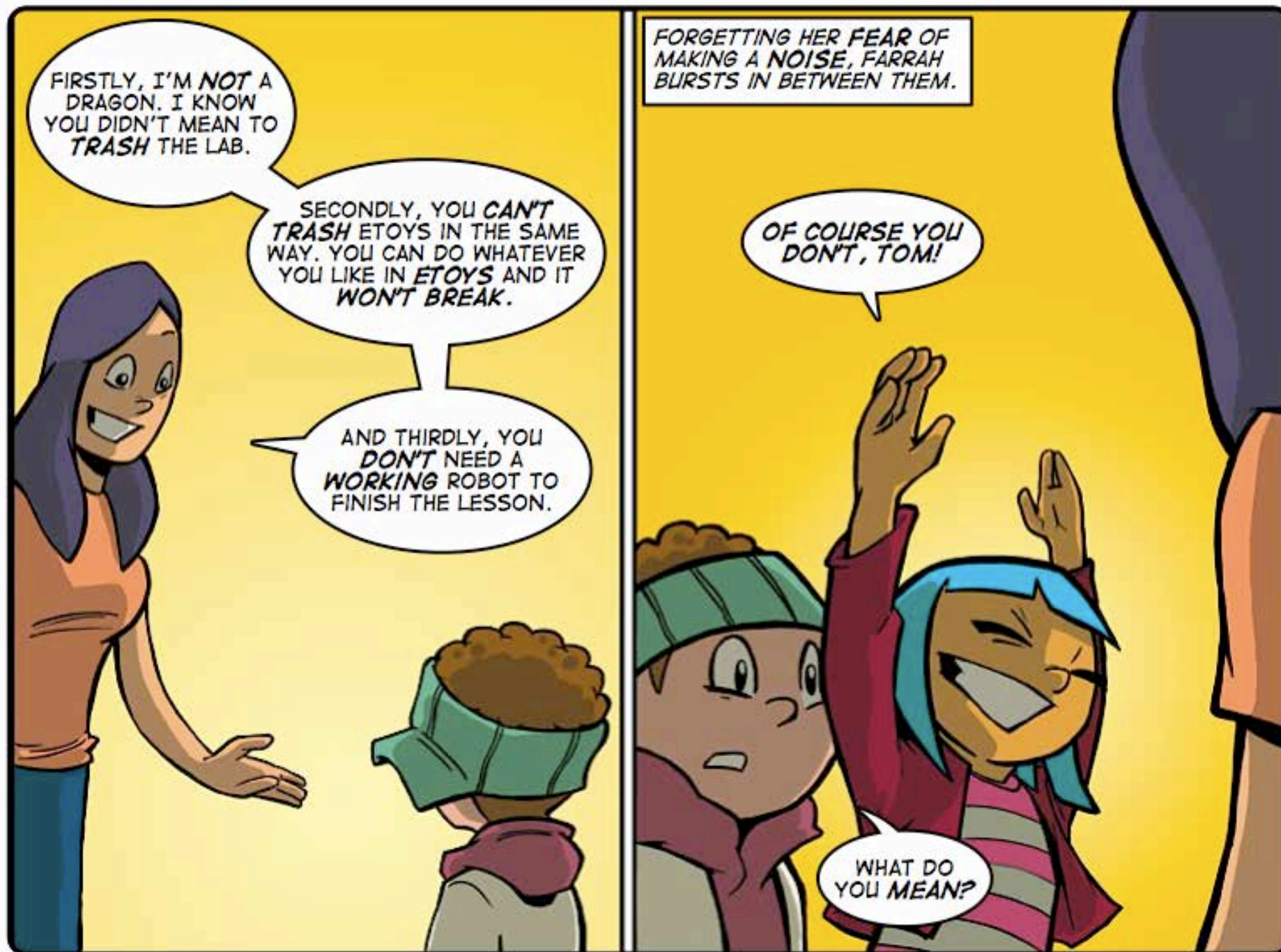
WITHOUT SAYING A WORD,  
TOM PICKS UP HIS ROBOT  
AND HEADS FOR THE DOOR.

TOM! *WAIT!*  
WHERE ARE  
YOU GOING?



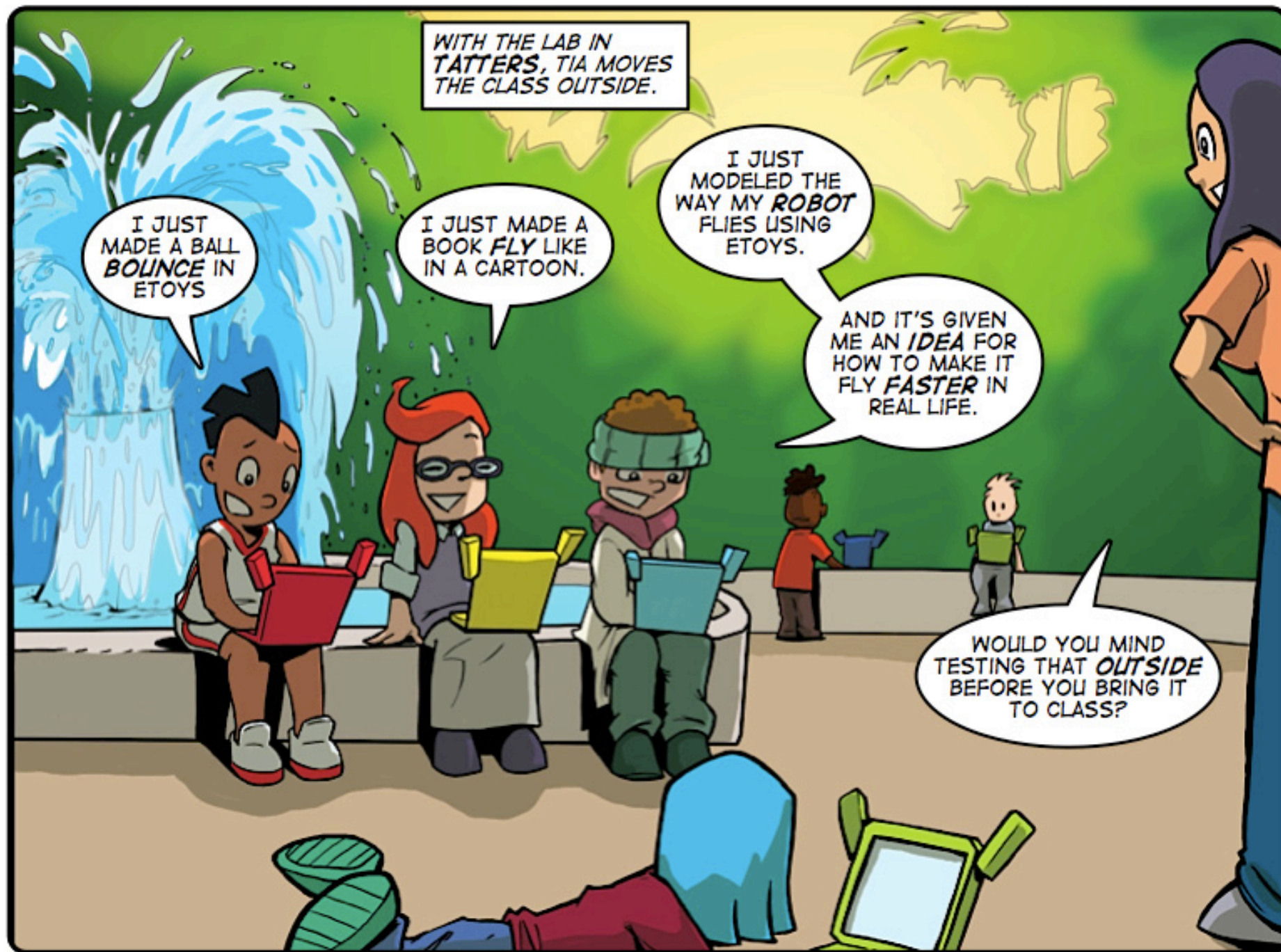












## **2. THE RACE**



THE KIDS' LATEST PROJECT IS TO  
BUILD THEIR OWN PUSH-CARS.

THE CAR THAT GOES THE FARTHEST,  
WITH JUST ONE PUSH, IS THE WINNER.

THERE IS JUST ONE DAY TO GO UNTIL THE  
COMPETITION. EVERYONE IS WORKING LIKE  
CRAZY TO BUILD THE BEST PUSH-CAR THEY CAN.





FARRAH CAN'T PUSH HARD. SO SHE HAS BUILT HER CAR WITH A SAIL THAT CATCHES THE WIND.

THE FIRST MODEL DIDN'T WORK WELL. BUT SHE DIDN'T GIVE UP. NOW, A FEW MODELS LATER, IT'S STARTING TO SAIL LIKE A YACHT!



UNFORTUNATELY, SHE'S BEING WATCHED...



A SAIL, EH? WHAT A COINCIDENCE! WEREN'T WE JUST SAYING HOW GOOD A SAIL WOULD LOOK ON *OUR* CAR?





**SCORE**

**H  
A**

JOJO FIGURES THAT HE CAN PUSH FURTHER BY USING HIS WHOLE BODY.

SO HIS CAR IS HIS SKATEBOARD. HE LIES DOWN ON IT AND PUSHES WITH HIS ARMS AND LEGS.

HE SPENT AGES DESIGNING A SPECIAL, AERODYNAMIC COVER. NOW IT MOVES LIKE LIGHTNING!



UNFORTUNATELY, JOJO'S ALSO BEING WATCHED.

NOW ISN'T THAT A COINCIDENCE? THAT'S JUST WHAT **WE** WERE GOING TO DO!

YEAH! WHAT **WE** WERE GONNA DO!



SOPHIE ALSO CAN'T PUSH VERY HARD.  
BUT SHE'S ALSO HAD A BRAINWAVE.

SHE'S BUILT A RAMP TO HELP HER CAR  
BUILD UP SPEED.

IT'S NOT WORKING AS WELL AS SHE WOULD LIKE.  
BUT EACH TIME SHE TESTS IT, SHE MAKES AN  
IMPROVEMENT. AND IT KEEPS GETTING BETTER.



UNFORTUNATELY,  
SOPHIE'S BEING  
WATCHED TOO.

WHAT A  
COINCIDENCE?  
WASN'T I JUST  
SAYING THAT I  
THINK *WE*  
SHOULD USE A  
RAMP?





AND OF COURSE TOM IS BEING WATCHED.  
EVERYONE EXPECTS HIM TO BUILD  
SOMETHING AMAZING. AND HE HAS!

TOM FIGURED THAT HE DOESN'T  
HAVE TO PUSH THE CAR HIMSELF.  
HE KNOWS HE CAN BUILD A  
BOOSTER MACHINE TO PUSH IT FOR  
HIM THAT WILL DO A BETTER JOB.



\* WOW! A **BOOSTER**!  
ALTHOUGH, I'M SURE YOU  
REMEMBER THAT I WAS  
THINKING OF BUILDING  
ONE MYSELF... \*

THE NEXT DAY, ALL THE KIDS ARE AT THE STARTING LINE EARLY TO SHOW OFF THEIR CARS.

I GOT THE IDEA FROM A CEMENT TRUCK. THE BARREL INSIDE KEEPS TURNING **AFTER** MY PUSH HAS WORN OFF!

IF I HAD JUST **ONE MORE DAY**, I COULD HAVE MADE IT HOVER...

IT'S GOT **GYRO-WEIGHTS** IN THE WHEELS!



JUST ONE MORE THING BEFORE  
THE GAMES BEGIN...



THE **RULES** ARE: 1.  
YOU MAY PUSH YOUR  
CAR **ONLY ONCE**.

2. YOU MAY PUSH  
YOUR CAR ONLY  
UNTIL THE **END OF  
THE WHITE AREA**.

3. WE WILL MEASURE  
FROM THE END OF THE  
WHITE AREA **TO THE  
BACK OF YOUR CAR**.

JUST AS TIA FINISHES, LAZLO STEPS  
UP TO THE START.

WHEN FARRAH SEES THE SAIL ON  
HIS CAR, SHE GOES BALLISTIC!



HE'S GONNA  
**WISH** HE'D  
STAYED IN BED  
THIS MORNING!

FARRAH,  
**WAIT!**





GUYS, DON'T YOU SEE?  
HE'S RIPPED OFF OUR IDEAS,  
BUT THERE'S **NO WAY** HE CAN  
MAKE THEM WORK!

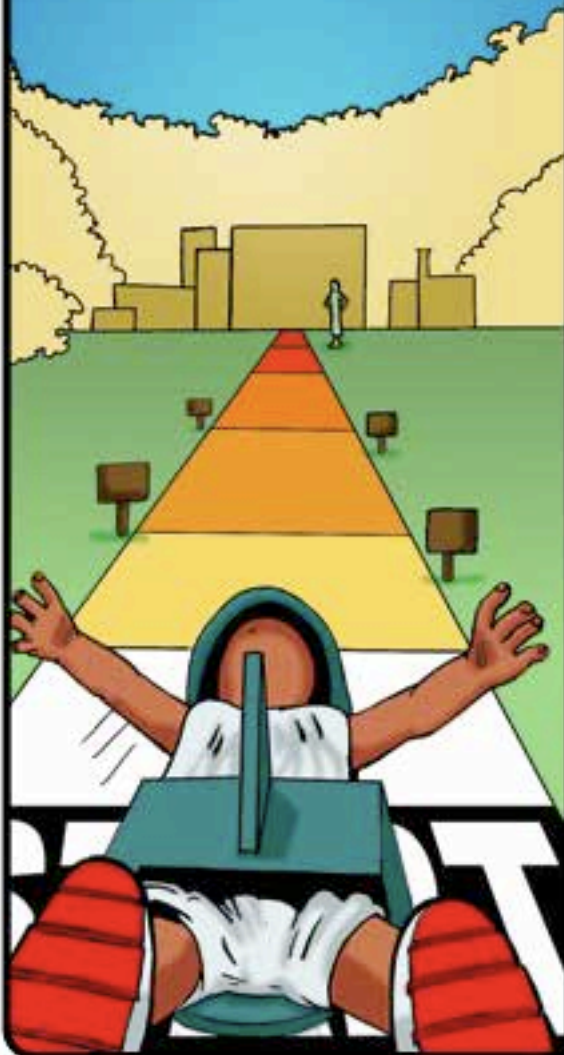
ONCE THEY PUT THEIR HEADS TOGETHER, IT DOESN'T TAKE  
LONG FOR TOM TO CONVINCE THEM WHAT TO DO NEXT...



\* PSS WSS  
HSSS! \*



JOJO'S UP FIRST. AN  
ALMIGHTY PUSH SENDS HIM  
FLYING ACROSS THE START  
LINE!



EVENTUALLY HE ROLES  
TO A STOP.





SOPHIE'S NEXT AND HER CAR GOES SCREAMING DOWN THE RAMP!

ANOTHER WHOPPING DISTANCE! THE COMPETITION IS LOOKING TOUGH!

\* HOW COME SHE LOOKS SO *HAPPY*? SHE KNOWS WE STOLE HER RAMP IDEA? \*



AT FIRST FARRAH'S CAR DOESN'T GO VERY FAR...

...BUT SUDDENLY THE WIND CATCHES THE SAIL. AND IT CARRIES HER INVENTION ALMOST TO THE END OF THE TRACK!



\* HUH?! I DON'T GET IT. WHEN SHE SAW THE SAIL ON OUR CAR SHE WAS ANGRY. NOW... \*

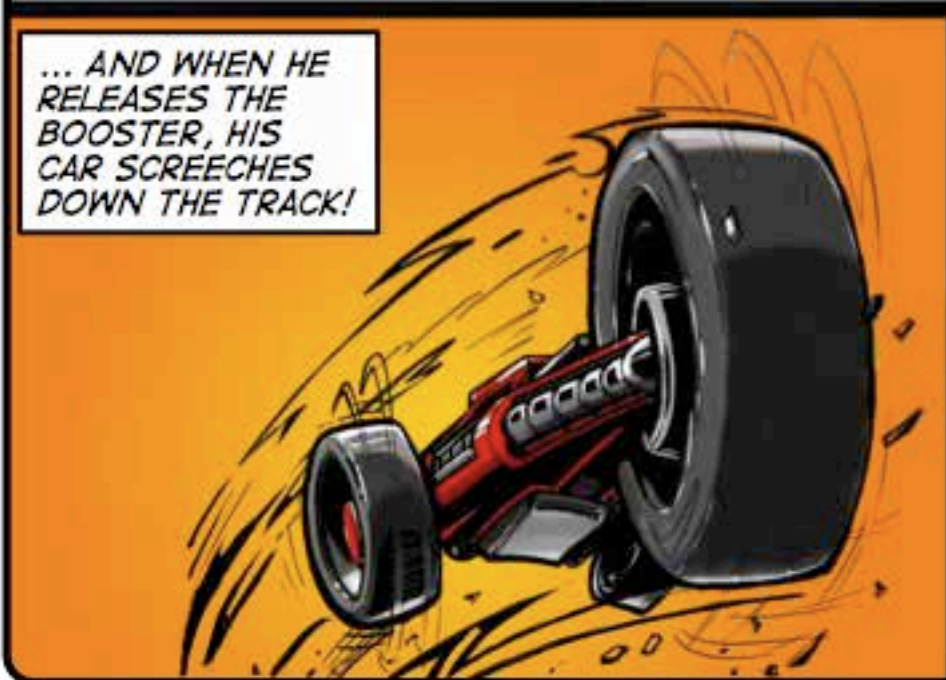




WHEN TOM STEPS  
UP TO THE START,  
THE CROWD GOES  
QUIET...



... AND WHEN HE  
RELEASES THE  
BOOSTER, HIS  
CAR SCREECHES  
DOWN THE TRACK!



LIKE JOJO, SOPHIE AND  
FARRAH BEFORE HIM,  
TOM COULDN'T BE MORE  
PROUD OF HIS WORK.



• HE DOESN'T EVEN  
**CARE** THAT WE'RE  
USING A BOOSTER  
TOO... •



EVEN THOUGH HE'D BE HAPPIER IF THE OTHERS WERE ANGRY AT HIM, LAZLO DOESN'T MISS THE CHANCE TO BE THE CENTRE OF ATTENTION...

HE SETS UP HIS STOLEN SECOND-HAND DESIGN...

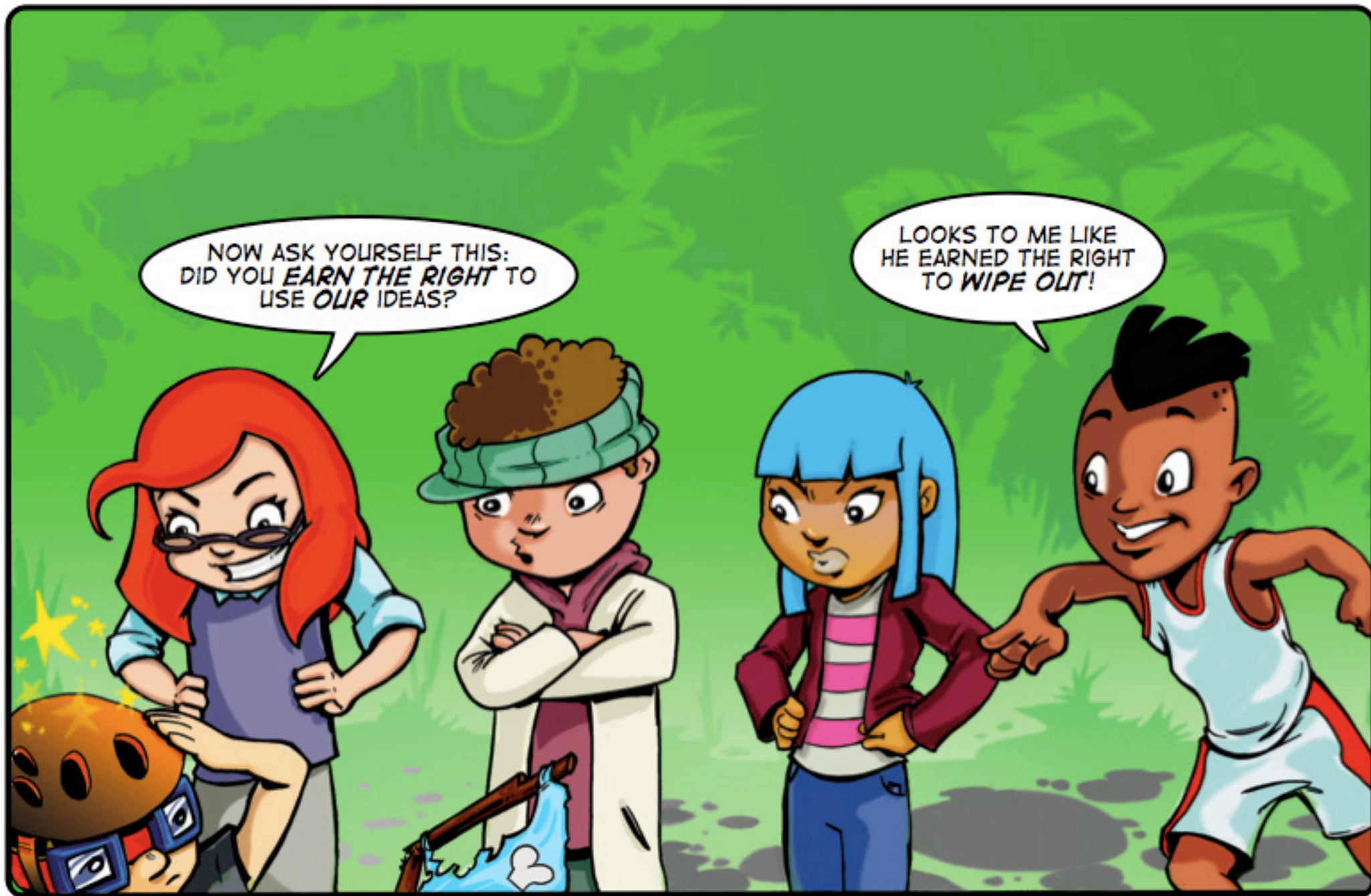


... THE CROWD GOES QUIET AS THE BOOSTER SPRING CREEKS INTO POSITION.



BUT WHEN THE SPRING SNAPS BACK, LAZLO'S  
PATCHWORK CAR FALLS APART AT THE SEAMS!







LET ME TELL YOU ABOUT TWO THINGS THAT I LEARNED WHILE I WAS BUILDING MY RAMP.

FIRSTLY, I LEARNED THAT THE CAR **NEVER WENT STRAIGHT**. SO I BUILT A GUTTER IN THE MIDDLE OF THE RAMP. IT STOPPED THE CAR FROM GOING SKEW.

SECONDLY, I LEARNED THAT I HAD TO MAKE THE CAR **HEAVIER IN FRONT**. IF I DIDN'T, IT WOULD OFTEN FLIP OVER.

TWO BITS OF INFORMATION THAT YOU WOULD KNOW IF YOU HAD DONE **YOUR OWN WORK**. AND TWO THINGS THAT PROBABLY CAUSED YOUR ACCIDENT.





I LEARNED THAT THE **SAIL**  
**COULDN'T BE OPEN FROM**  
**THE START**. OTHERWISE IT  
SLOWED THE CAR DOWN.

I MADE EIGHT  
**DIFFERENT VERSIONS**  
OF MY CAR. AND YOU  
KNOW WHAT I LEARNED?

AND I LEARNED THAT I  
COULD **USE THE WIND ITSELF**  
**TO OPEN THE SAIL** WHEN IT  
WAS BLOWING FROM BEHIND.  
THAT WAY IT WOULD NEVER  
SLOW THE CAR DOWN.

TWO BITS OF INFORMATION  
THAT YOU WOULD KNOW IF  
YOU HAD DONE **YOUR OWN**  
**WORK**. AND TWO THINGS  
THAT PROBABLY CAUSED  
YOUR ACCIDENT.



EACH TIME I TESTED A NEW VERSION OF MY CAR, DO YOU KNOW WHAT I DID?

I WOULD **WRITE DOWN** THE TENSION OF THE BOOSTER SPRING, THE WEIGHT OF THE CAR, AND THE TIME AND SPEED OF THE PUSH.

NEXT I WOULD **WORK OUT** HOW MUCH I THOUGHT EACH OF THOSE SHOULD CHANGE.

THEN I WOULD **PREDICT** HOW MUCH OF A DIFFERENCE I THOUGHT THE CHANGES WOULD MAKE. AND THEN I'D **TEST IT AGAIN** TO SEE IF I WAS RIGHT.

THESE ARE ALL THINGS THAT YOU MIGHT HAVE DONE. **IF** YOU WERE DOING YOUR OWN WORK. AND THEY MIGHT HAVE PREVENTED YOUR ACCIDENT.





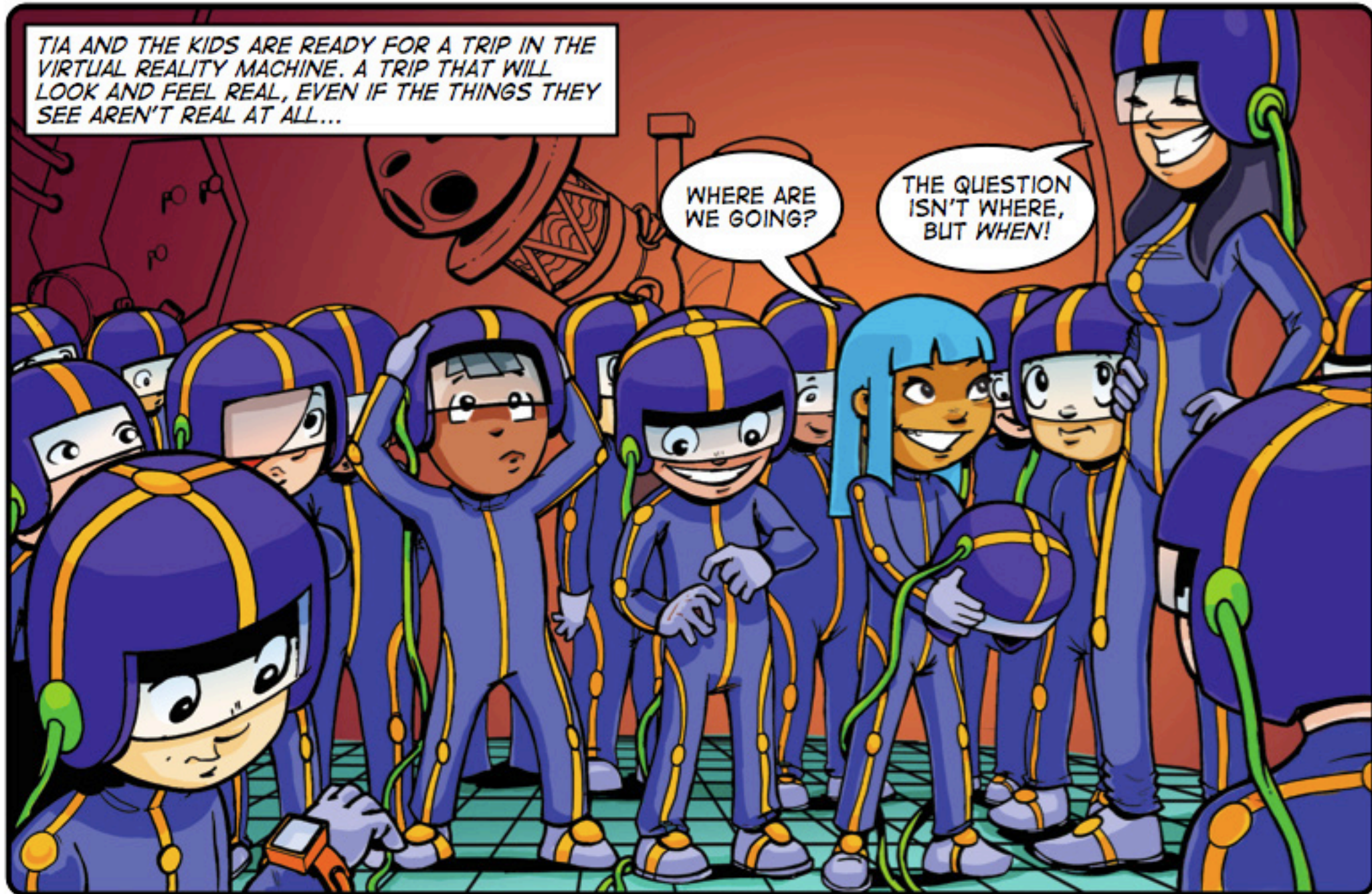


### **3. THE LUNAR MENACE**

TIA AND THE KIDS ARE READY FOR A TRIP IN THE VIRTUAL REALITY MACHINE. A TRIP THAT WILL LOOK AND FEEL REAL, EVEN IF THE THINGS THEY SEE AREN'T REAL AT ALL...

WHERE ARE WE GOING?

THE QUESTION ISN'T WHERE, BUT WHEN!

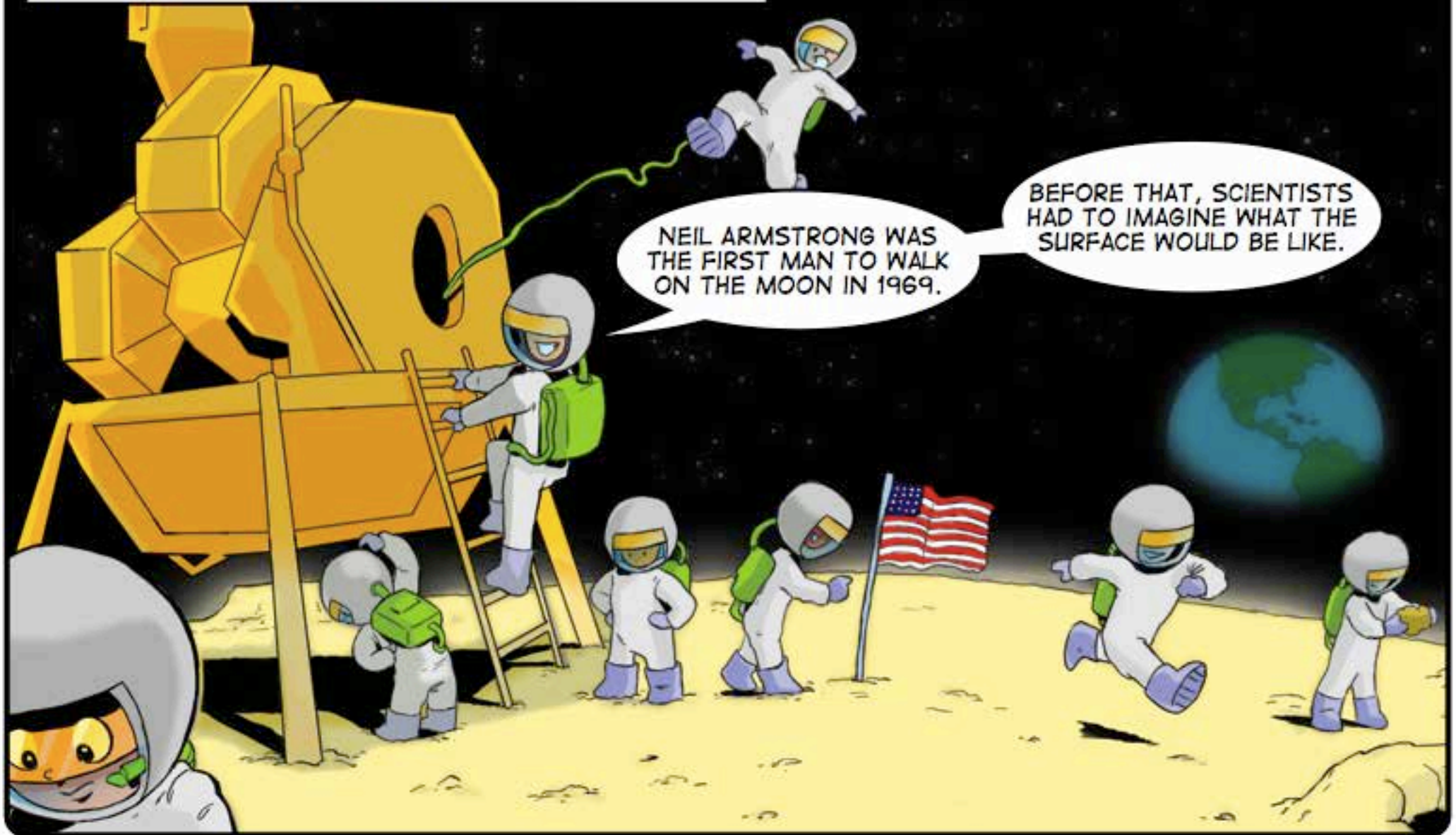




WITH THEIR HELMETS AND THEIR SPECIAL SUITS PLUGGED INTO THE VIRTUAL REALITY MACHINE, IT LOOKS AND FEELS LIKE THEY ARE ON THE MOON IN 1969.

NEIL ARMSTRONG WAS THE FIRST MAN TO WALK ON THE MOON IN 1969.

BEFORE THAT, SCIENTISTS HAD TO IMAGINE WHAT THE SURFACE WOULD BE LIKE.



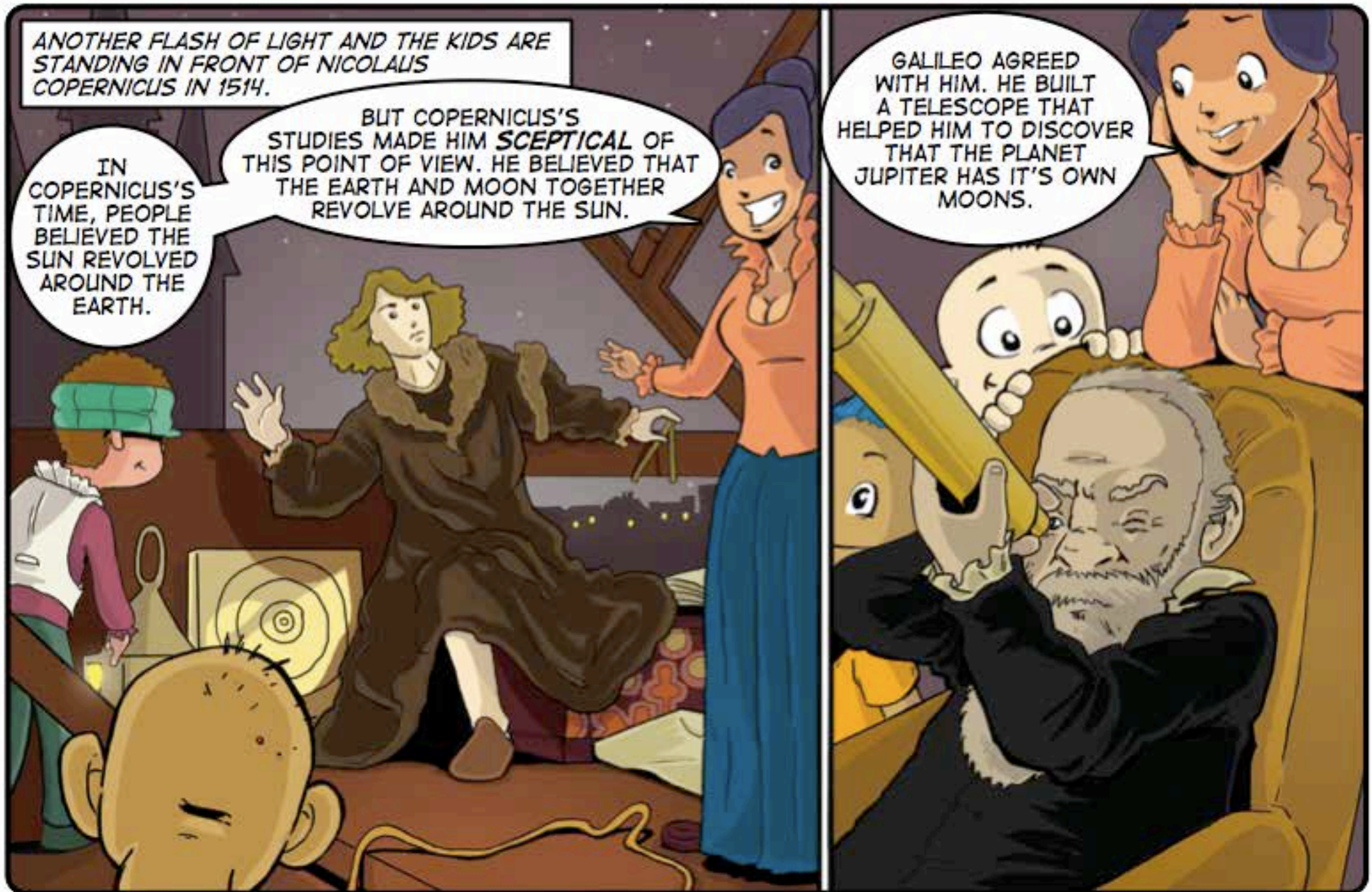


WITH A QUICK FLASH OF LIGHT THE VIRTUAL REALITY MACHINE TAKES THEM FROM THE SURFACE OF THE MOON TO ANCIENT CHINA.

IN ANCIENT TIMES, THE CHINESE BELIEVED THAT THERE WERE TWELVE MOONS: ONE FOR EACH MONTH...

... UNTIL A MAN NAMED ZHANG HENG WORKED OUT THAT THERE IS ONLY ONE MOON. AND WE CAN SEE IT BECAUSE IT REFLECTS LIGHT FROM THE SUN.







ANOTHER FLASH OF  
LIGHT AND THE MACHINE  
TAKES THEM TO A COLD,  
FOGGY FOREST IN  
TRANSYLVANIA...

EVEN THOUGH WE  
HAVE LEARNED SO MUCH,  
PEOPLE STILL HAVE SILLY  
SUPERSTITIONS ABOUT  
THE MOON.

SOME PEOPLE BELIEVE  
THAT WEREWOLVES COME OUT  
ON A FULL MOON IN SCARY  
PLACES LIKE THIS...





THE VIRTUAL REALITY MACHINE SENSES FARRAH'S PANIC AND SHUTS DOWN IMMEDIATELY.

SORRY, FARRAH,  
I THOUGHT YOU  
UNDERSTOOD THAT  
NONE OF THAT  
WAS REAL.

OF COURSE! I  
MEAN... UH... I JUST  
GOT A FRIGHT...

LATER THAT NIGHT, FARRAH WAKES  
TO FIND A HAUNTING FIGURE  
HOVERING IN HER BEDROOM...



... AN ICY FEAR GRIPS  
HER HEART AND SHE  
MOANS IN TERROR...



... ITS BLACK CLAWS SEEM  
TO REACH OUT FOR HER AS  
ITS ARMS SWAY SILENTLY  
BACK AND FORTH...





SOPHIE HEARS HER FRIEND  
AND JUMPS OUT OF BED.

THE **MONSTER**...  
OVER **THERE**...  
TEETH... **CLAWS!**

THERE'S NO MONSTER,  
SWEETY. YOUR EYES ARE  
PLAYING **TRICKS** ON YOU.  
IT'S JUST **SHADOWS** FROM  
THE TREES.

IF YOU JUST **QUESTION**  
**WHAT YOU SEE**, MAYBE  
YOU WON'T BE SO SCARED  
NEXT TIME.

THE NEXT DAY  
AT LUNCH...



TAKEN LAST  
NIGHT BY A  
**WEREWOLF!**



I CAN'T BELIEVE IT!  
SHE REALLY *IS* SCARED  
OF WEREWOLVES. THIS  
GIVES ME AN IDEA...







TOM SHOWS FARRAH  
THE INFORMATION ON  
THE ABSENTEE BOARD.

## ABSENTEE LIS



THERE'S A SIMPLE  
REASON WHY BECKY ISN'T HERE.  
SHE'S SICK, SEE? IF YOU JUST  
*GET THE RIGHT INFO*, THEN  
SUDDENLY THE MYSTERY IS  
SOLVED.



TIA SEES THEM FROM HER OFFICE AND  
COMES ACROSS THE COMPUTER  
SCREEN.



ARE YOU GUYS LOOKING FOR  
BECKY? HER FOLKS PICKED HER UP  
THIS MORNING. BUT DON'T WORRY,  
SHE'LL BE FINE.





LATER THAT EVENING ON THE PLAYGROUND.

FARRAH IS BATTING LIKE A PRO. BUT  
THEN SOMETHING CATCHES HER EYE...

AND SHE CAN'T HELP THINKING...







ON HER WAY BACK TO  
HER ROOM, FARRAH  
**RETHINKS** THE  
HORRORS OF THE  
PAST TWO DAYS...

I GET SO  
SCARED WHEN I  
SEE STRANGE  
THINGS.

BUT WHEN I  
**PICTURE** THEM  
AFTERWARDS,  
THEY DON'T SCARE  
ME AT ALL...

AND THEN SHE FINALLY GETS IT!

I SUPPOSE IT'S BECAUSE  
YOU CAN TAKE TIME TO  
STUDY A **PICTURE**. YOU CAN  
**QUESTION** WHAT YOU SEE IN  
IT, LIKE SOPHIE DOES.

OR YOU CAN TREAT  
IT LIKE A PIECE OF  
**INFORMATION**, LIKE TOM.  
OR YOU CAN TAKE A REALLY  
**CLOSE LOOK** AT IT, LIKE  
JOJO DOES.



LATER THAT NIGHT...

YOU'RE  
LOOKING BETTER,  
FARRAH. WHY  
THE CHANGE  
OF HEART?

THANKS, SOPH!  
I GUESS I JUST  
HAD TO THINK  
THINGS THROUGH.

AND I'VE GOT  
YOU AND THE  
GUYS TO THANK  
FOR IT...

WITH A SOFT  
CLICK, THE LIGHTS  
GO OUT...

WHO'S THERE?  
SOPH! WAS  
THAT YOU?

I DIDN'T DO  
A *THING*!

SUDDENLY, THE  
TOWERING FIGURE OF A  
WEREWOLF BURSTS  
THROUGH THE DOOR!



BUT FARRAH DOESN'T SCREAM  
THIS TIME...

WAIT A SECOND...  
I'M TIRED OF  
LOOKING LIKE A  
**FOOL!** LET'S SEE  
WHAT YOU  
**REALLY ARE!**







SHE HURLS THE BAT AT  
THE BEAST'S HEAD  
WITH ALL HER MIGHT.





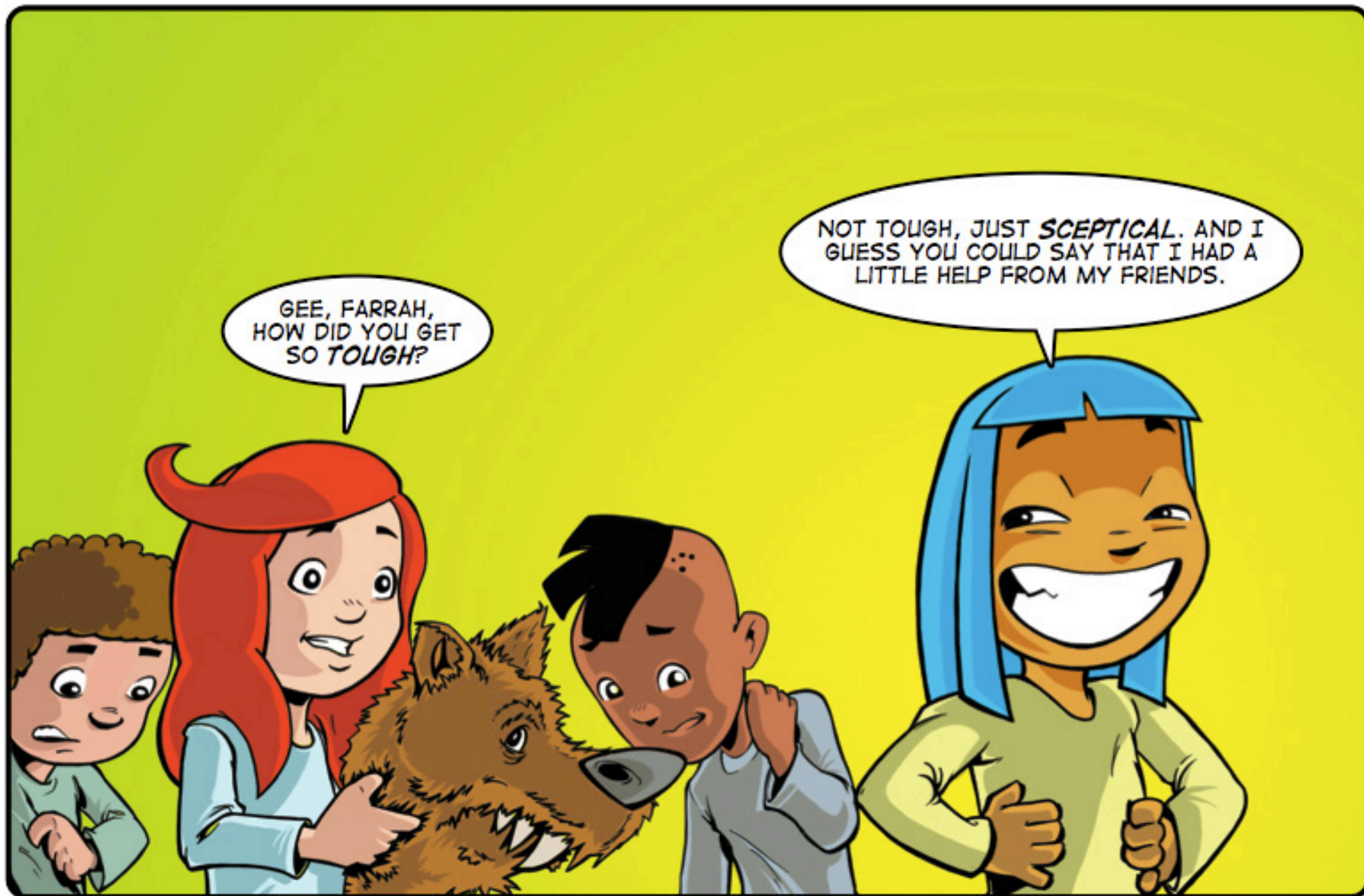


BUT, QUICK AS A FLASH, THEY'RE ON  
THEIR FEET AND OUT THE DOOR.

OUTA MY WAY!





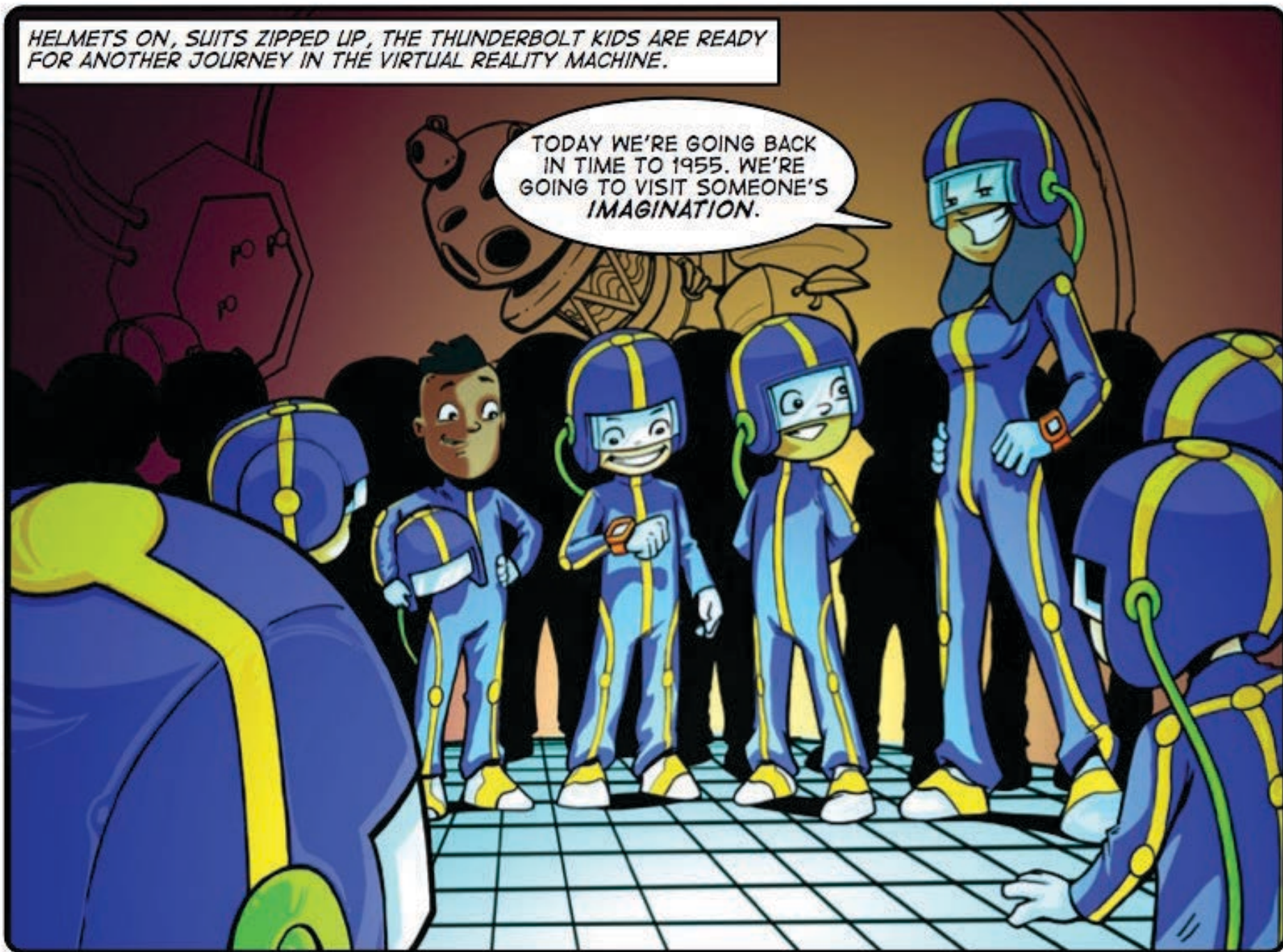


## **4. THE RIVER OF DREAMS**



HELMETS ON, SUITS ZIPPED UP, THE THUNDERBOLT KIDS ARE READY FOR ANOTHER JOURNEY IN THE VIRTUAL REALITY MACHINE.

TODAY WE'RE GOING BACK IN TIME TO 1955. WE'RE GOING TO VISIT SOMEONE'S *IMAGINATION*.





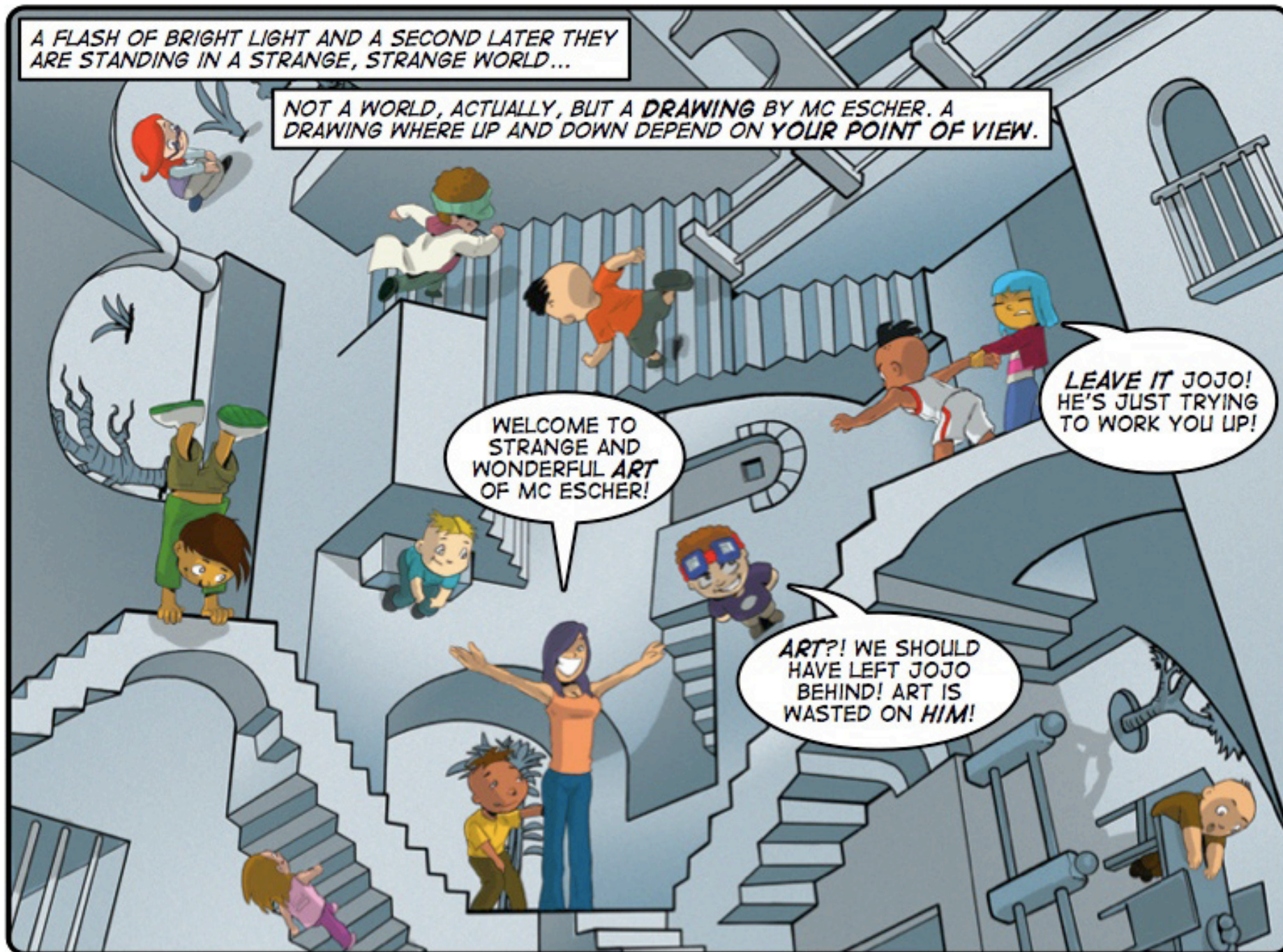
A FLASH OF BRIGHT LIGHT AND A SECOND LATER THEY ARE STANDING IN A STRANGE, STRANGE WORLD...

NOT A WORLD, ACTUALLY, BUT A **DRAWING** BY MC ESCHER. A DRAWING WHERE UP AND DOWN DEPEND ON YOUR POINT OF VIEW.

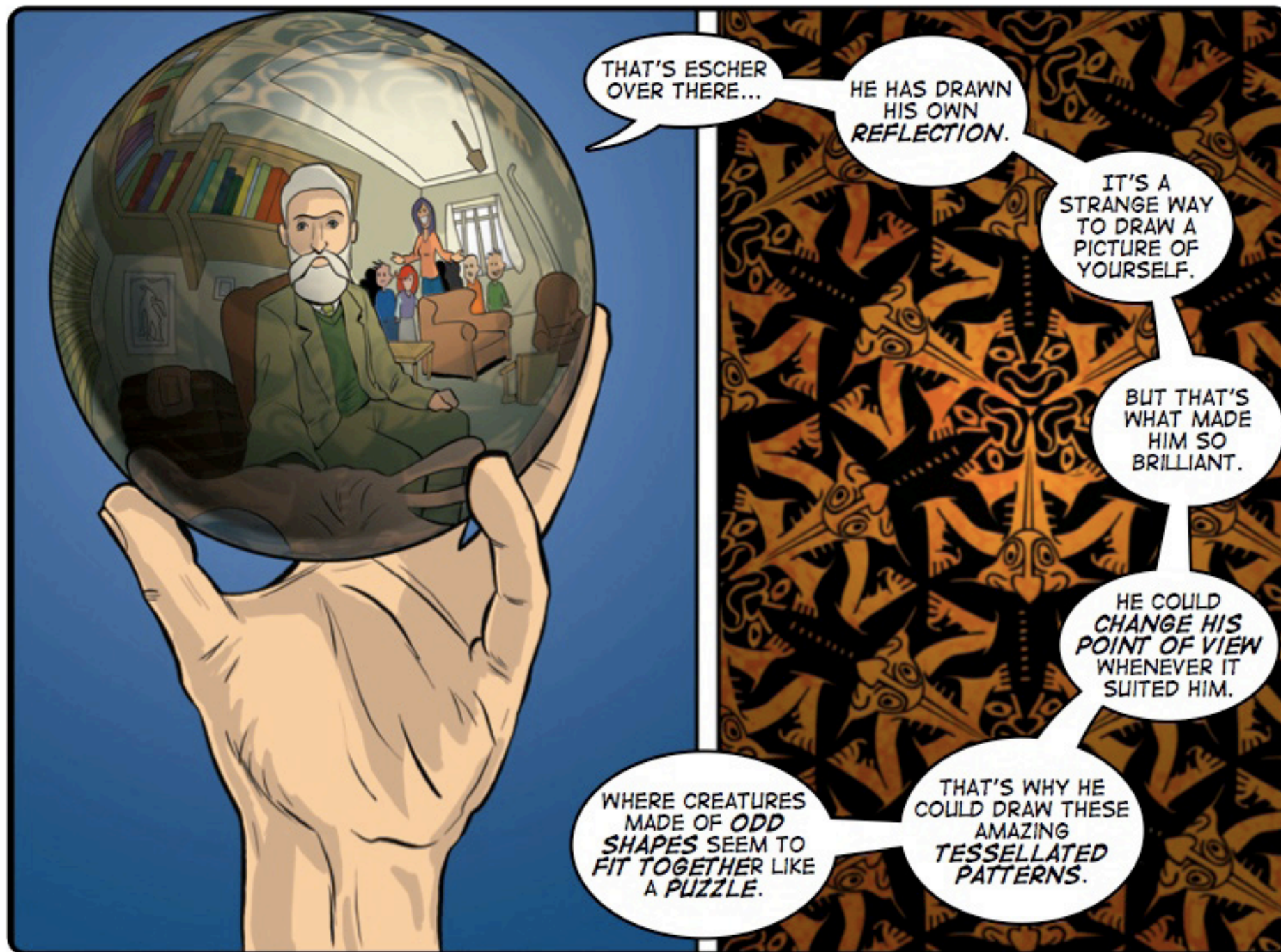
WELCOME TO STRANGE AND WONDERFUL **ART** OF MC ESCHER!

LEAVE IT JOJO!  
HE'S JUST TRYING TO WORK YOU UP!

**ART?! WE SHOULD HAVE LEFT JOJO BEHIND! ART IS WASTED ON HIM!**







THAT'S ESCHER  
OVER THERE...

HE HAS DRAWN  
HIS OWN  
REFLECTION.

IT'S A  
STRANGE WAY  
TO DRAW A  
PICTURE OF  
YOURSELF.

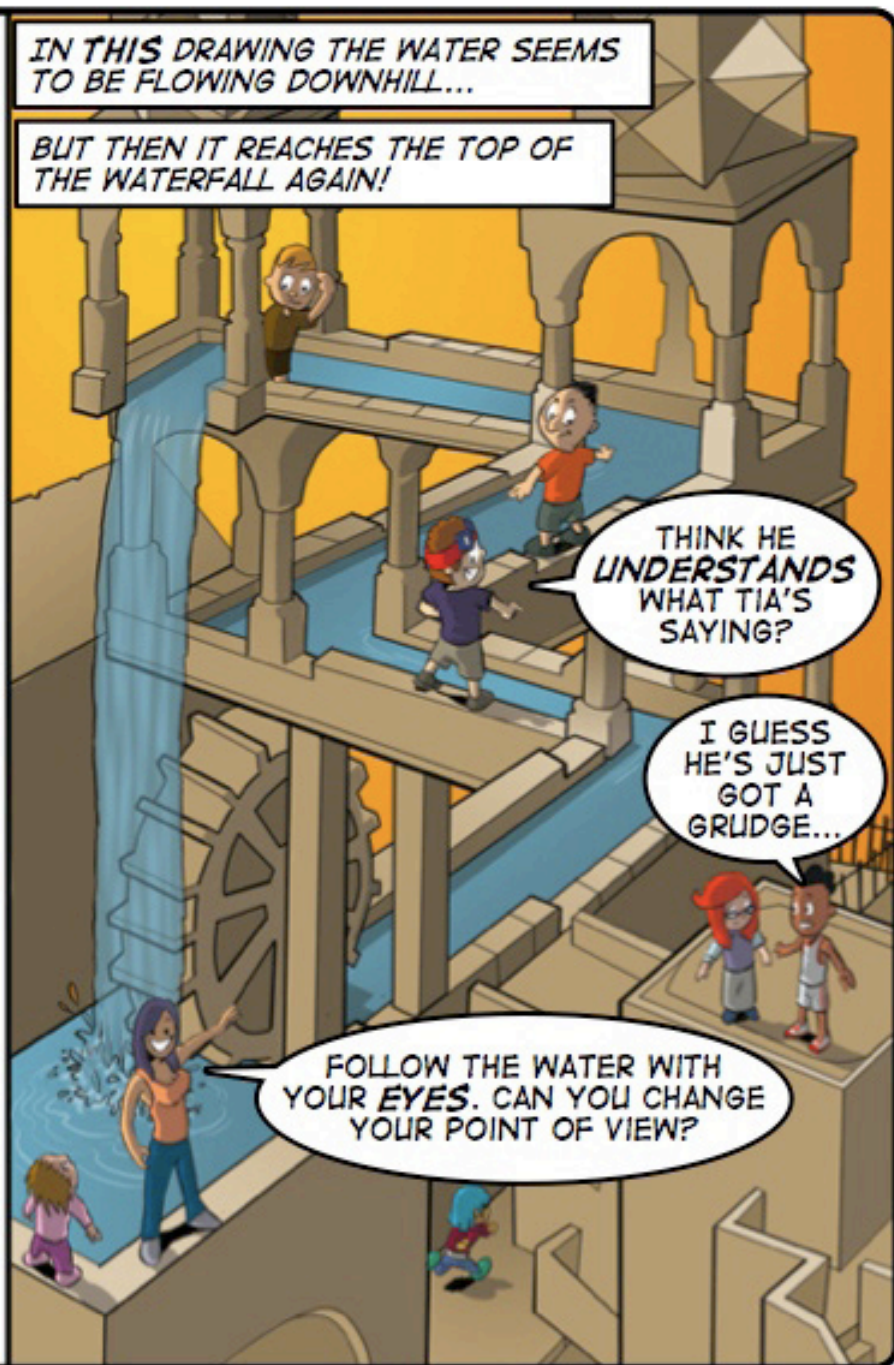
BUT THAT'S  
WHAT MADE  
HIM SO  
BRILLIANT.

HE COULD  
CHANGE HIS  
POINT OF VIEW  
WHENEVER IT  
SUITED HIM.

WHERE CREATURES  
MADE OF **ODD**  
**SHAPES** SEEM TO  
FIT TOGETHER LIKE  
A PUZZLE.

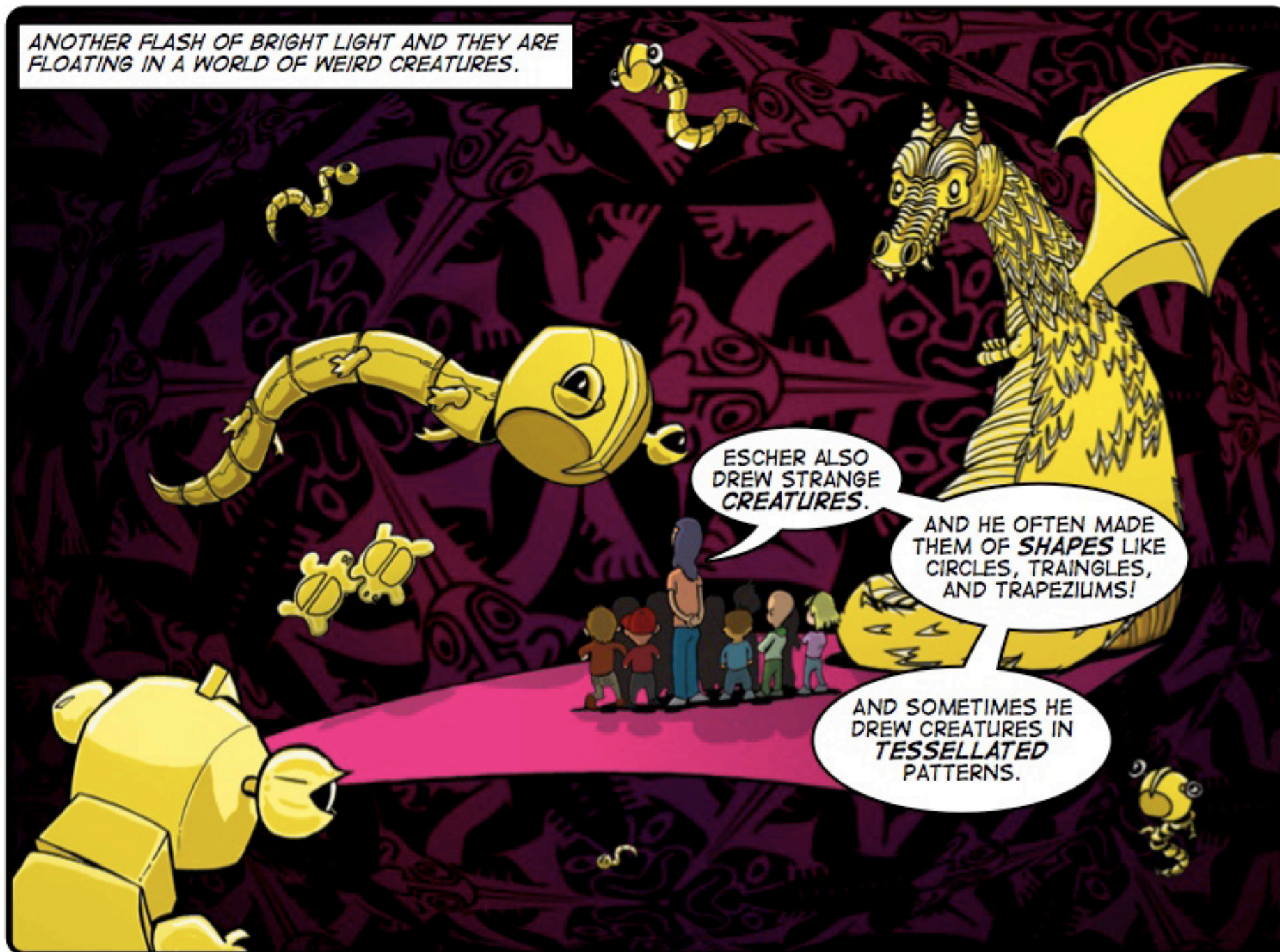
THAT'S WHY HE  
COULD DRAW THESE  
AMAZING  
**TESSELLATED**  
**PATTERNS.**







ANOTHER FLASH OF BRIGHT LIGHT AND THEY ARE FLOATING IN A WORLD OF WEIRD CREATURES.



ESCHER ALSO  
DREW STRANGE  
CREATURES.

AND HE OFTEN MADE  
THEM OF **SHAPES** LIKE  
CIRCLES, TRIANGLES,  
AND TRAPEZIUMS!

AND SOMETIMES HE  
DREW CREATURES IN  
**TESSELLATED**  
PATTERNS.



A WHILE LATER, BACK IN THE CLASSROOM...

TIA SHOWS THE KIDS THREE OBJECTS IN THREE TALL, GLASS TUBES.

AND SHE POSES A NEW CHALLENGE.

STUDY THEM CAREFULLY AND TELL ME: WHICH ONE IS THE **ODD** ONE OUT?



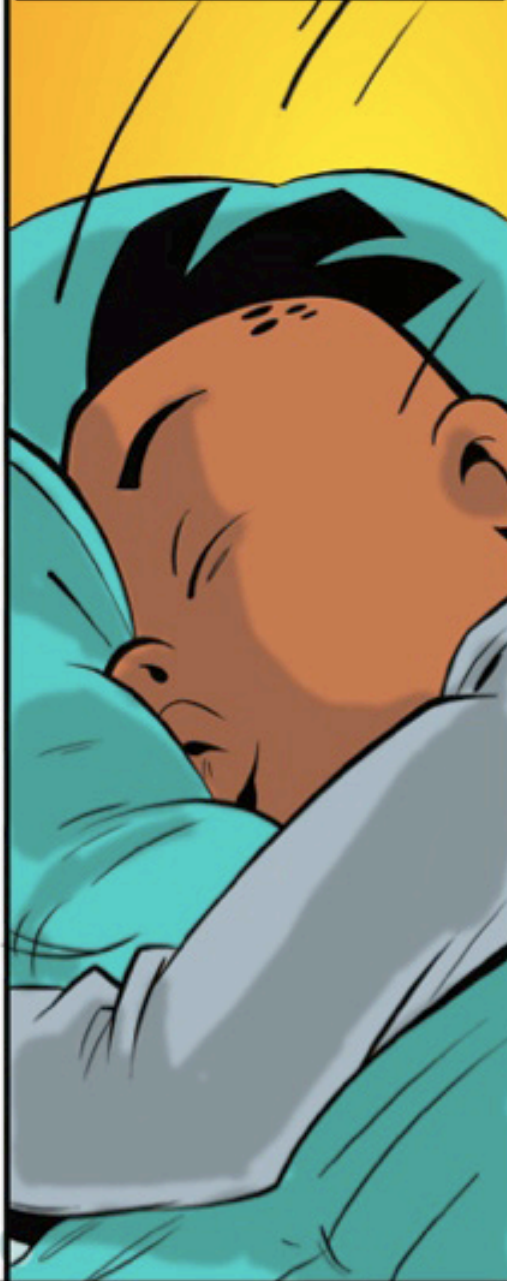




LATER THAT NIGHT...



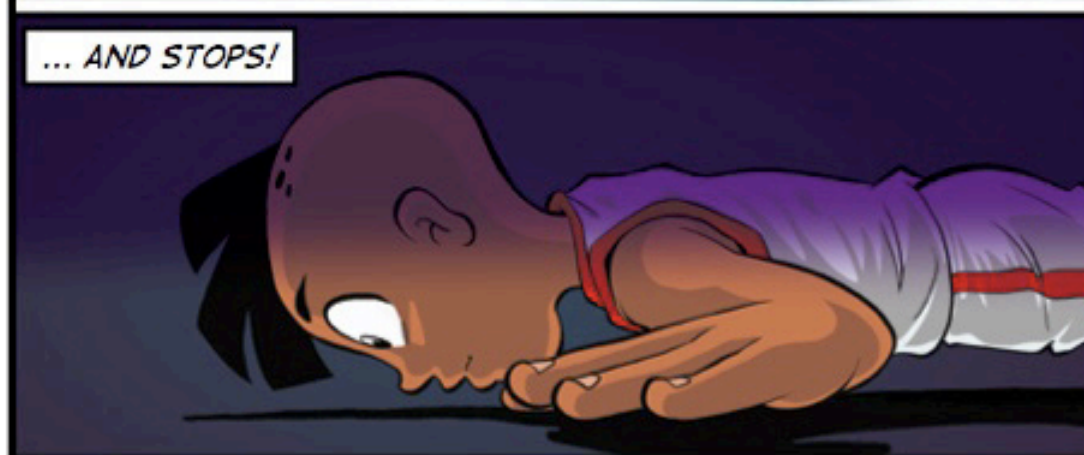
JOJO FALLS INTO A DEEP...



... DEEP SLEEP. AND FALLS... AND FALLS...









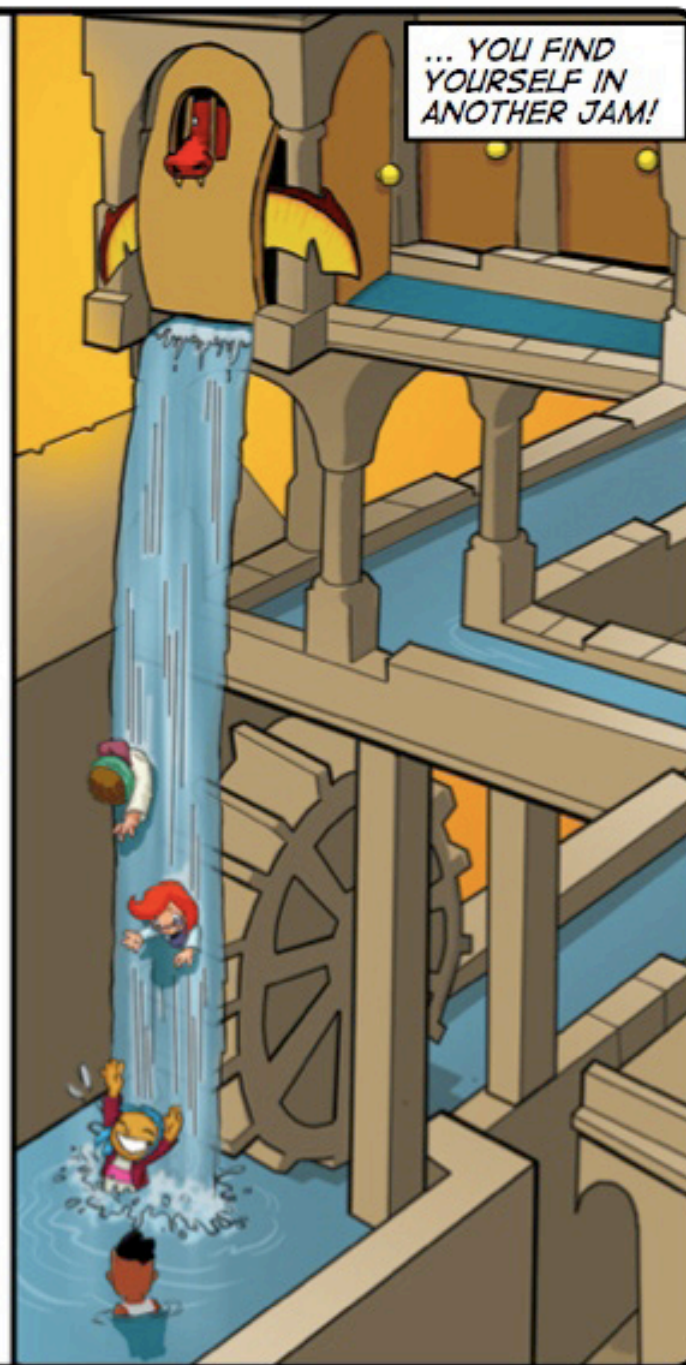
BUT, AS YOU KNOW, DREAMS ARE NEVER THAT SIMPLE!



IN DREAMS YOU CAN'T ALWAYS TELL WHICH WAY IS UP...





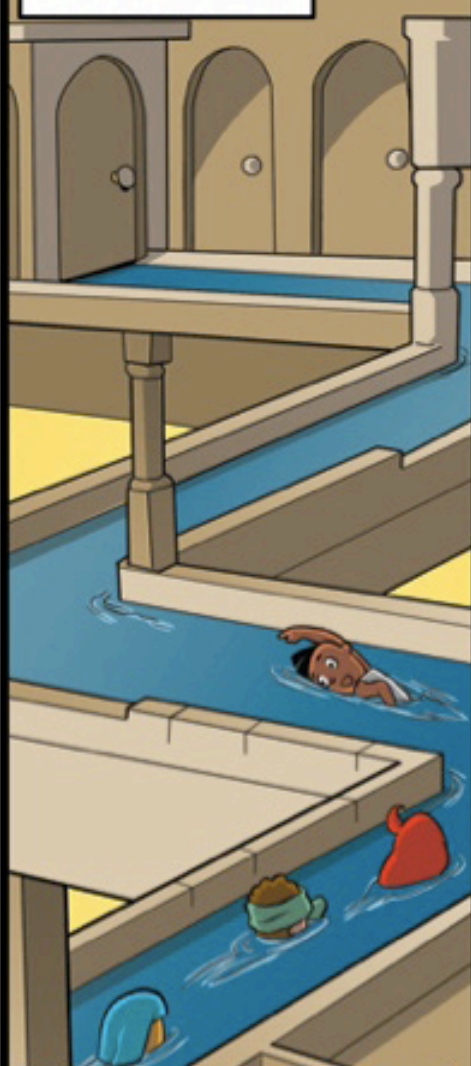








AND HE'S RIGHT!



IN ESCHER'S DRAWING,  
SWIMMING **STRAIGHT**,  
TAKES YOU **UP**!

BUT HE MUST FACE ONE  
MORE CHALLENGE...

WHICH DOOR LEADS BACK HOME?

THAT'S FUNNY...  
I'M SURE ALL THE  
DOORS GO TO **THE**  
**SAME PLACE**. THEY  
ONLY **APPEAR** TO BE  
DIFFERENT.







AS THE ALARM CLOCK RINGS AND JOJO JOLTS AWAKE, IT ALL BECOMES CLEAR TO HIM.



LATER THAT MORNING, THEY  
MAKE THEIR WAY TO CLASS...

... AND THEY GET READY TO ANSWER  
TIA'S QUESTION: WHICH OBJECT IS  
THE ODD ONE OUT?

I CAN'T WAIT TO  
HEAR WHAT CRAZY  
IDEA HE HAS!

I BET *I'M* THE  
ONLY ONE WHO  
GETS THE RIGHT  
ANSWER.







AFTER ALL THE MEAN THINGS THAT LAZLO HAS SAID ABOUT JOJO, THE THUNDERBOLT KIDS CAN'T HELP SMILING.



NOPE.

WELL IF IT'S *NOT* THE GREEN ONE, AND IT'S *NOT* THE YELLOW ONE, THEN IT *MUST* BE THE *PURPLE* ONE!











## **5. DETECTIVE SOPHIE**

IN THE FOREST, ABOVE THE  
SCHOOL, SOPHIE DREAMS  
ABOUT HER FAVOURITE  
CHARACTER: THE DETECTIVE,  
SHERLOCK HOLMES...





SUDDENLY, A RUSTLING NOISE IN THE BUSHES FRIGHTENS HER AWAKE...

SWIK  
SWIK

AND SECONDS LATER A STRANGE CREATURE CHARGES INTO HER!


SKRAWY!

WHA-?!




BUT SHE'S NOT UNDER ATTACK!

JUST AS SHE CALMS DOWN, SHE  
NOTICES SOMETHING VERY STRANGE.



YOU'RE NOT SO  
SCARY. YOU-  
WAAAIT A  
SECOND... WHAT  
ARE YOU?



YOU LOOK JUST LIKE A...  
EXCEPT FOR THE PINK  
FEATHERS, THAT IS. BUT YOU  
**CAN'T BE!** CAN YOU?





BACK AT THE SCHOOL, SOPHIE'S NEW FRIEND SHOWS OFF SOME FLASHY FOOTBALL SKILLS.

BUT SOPHIE IS'NT REALLY INTERESTED IN THE BIRD'S FOOTBALL SKILLS. SHE IS MORE INTERESTED IN WHAT KIND OF BIRD IT IS.



WHEN SHE FINALLY FINDS WHAT SHE'S LOOKING FOR, SHE CAN BARELY BELIEVE IT!







BUT SOPHIE DOESN'T CARE IF THE OTHERS LAUGH AT HER. SHE KNOWS SHE'S ONTO SOMETHING!

GUYS, I KNOW DODOS ARE SUPPOSED TO BE **EXTINCT**...

BUT ALL THE DETAILS POINT TO **THIS** BEING ONE OF THEM.



DOWN AT THE SCHOOL GATE, TROUBLE ARRIVES IN A GREEN HUMMER...

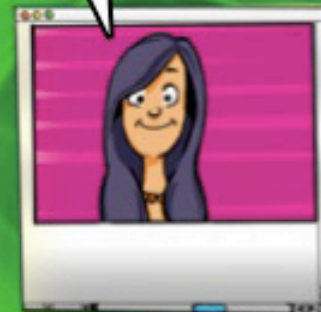






WHILE THE KIDS MEASURE UP THE BIRD, TIA SENDS A MESSAGE TO SOPHIE'S COMPUTER...

SOPHIE, WILL YOU PLEASE COME DOWN TO THE COURTYARD. AND BRING YOUR NEW FRIEND...



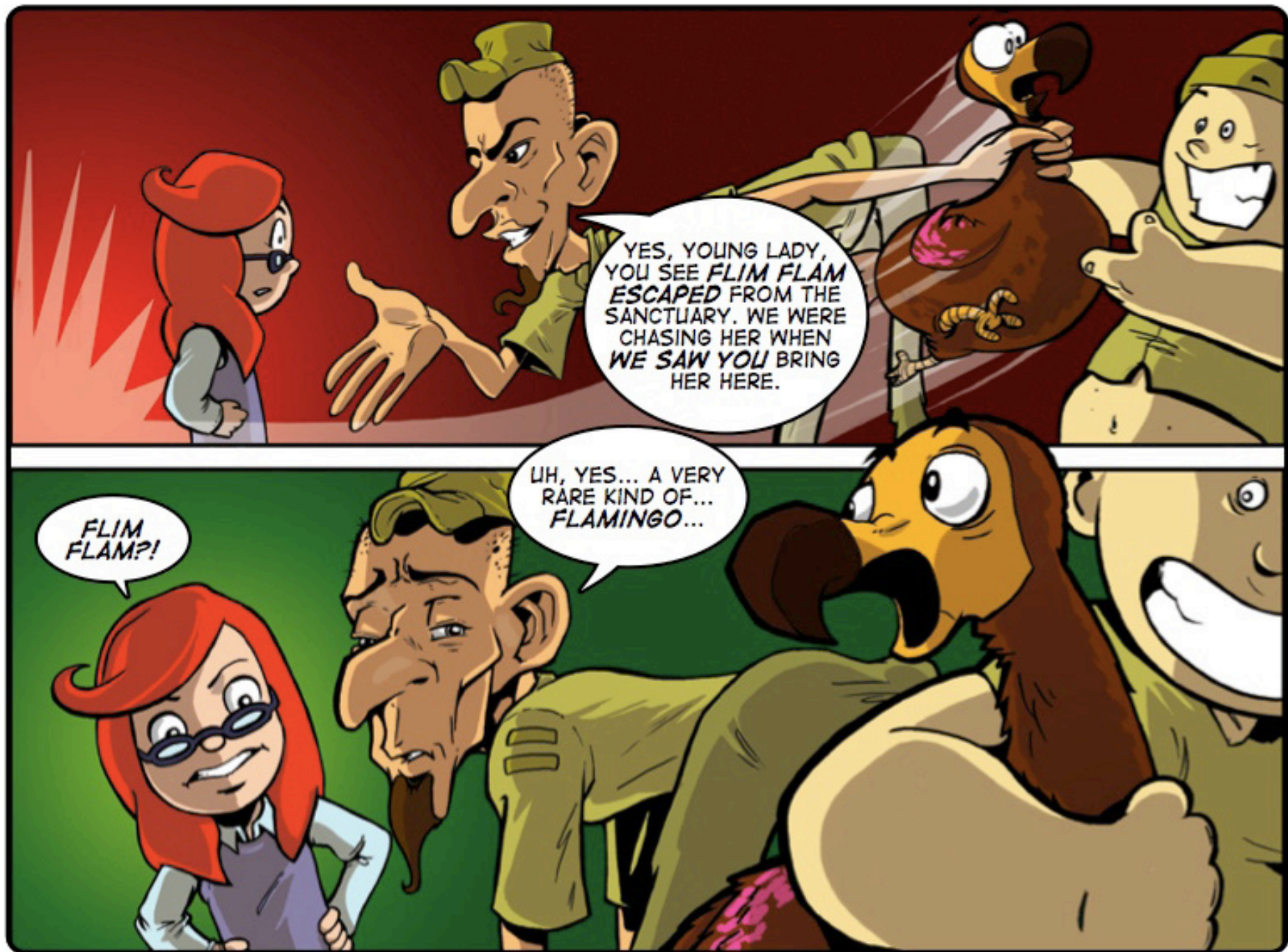
A FEW MINUTES LATER, IN  
THE COURTYARD OUTSIDE  
THE SCHOOL...

SOPHIE, SAY HI  
TO DR ROBERTS  
FROM THE *BIRD*  
SANCTUARY.

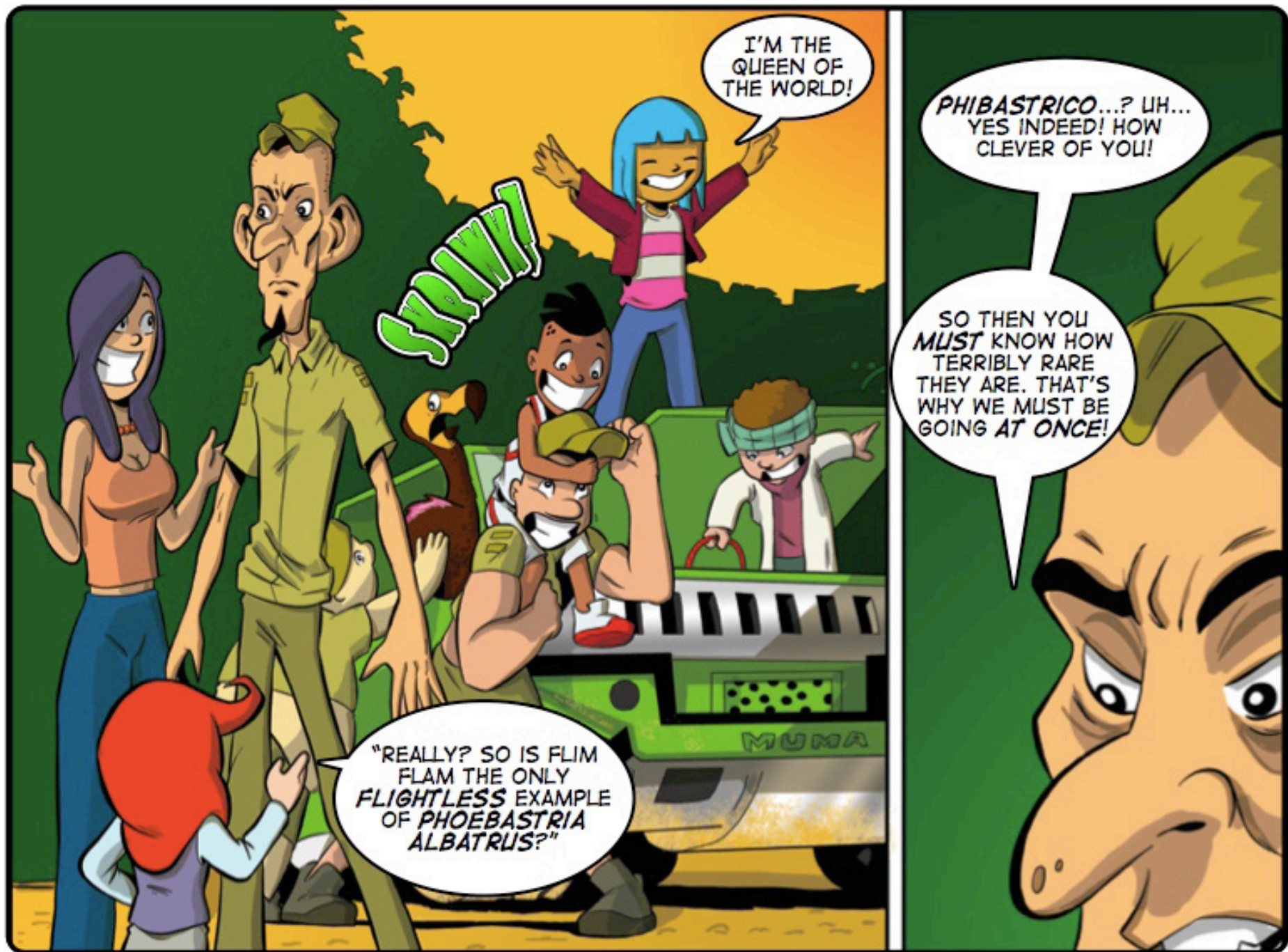
SANCTUARY?!

CHECK IT  
OUT! A  
HUMMER!

















BEFORE THEY ARE EVEN OUT THE GATE, SOPHIE SCREAMS...

TIA, SOMETHING  
**TERRIBLE** HAS  
HAPPENED. CALL THE  
**SANCTUARY!** AND  
THE **POLICE!**

WHAT'S  
GOING ON,  
SOPH?

**OFFICER?** YES,  
THIS IS TIA FROM  
THE THUNDERBOLT  
SCHOOL...

NO TIME TO  
EXPLAIN. WE  
HAVE TO GET TO  
THE **BEACH**  
RIGHT AWAY!

















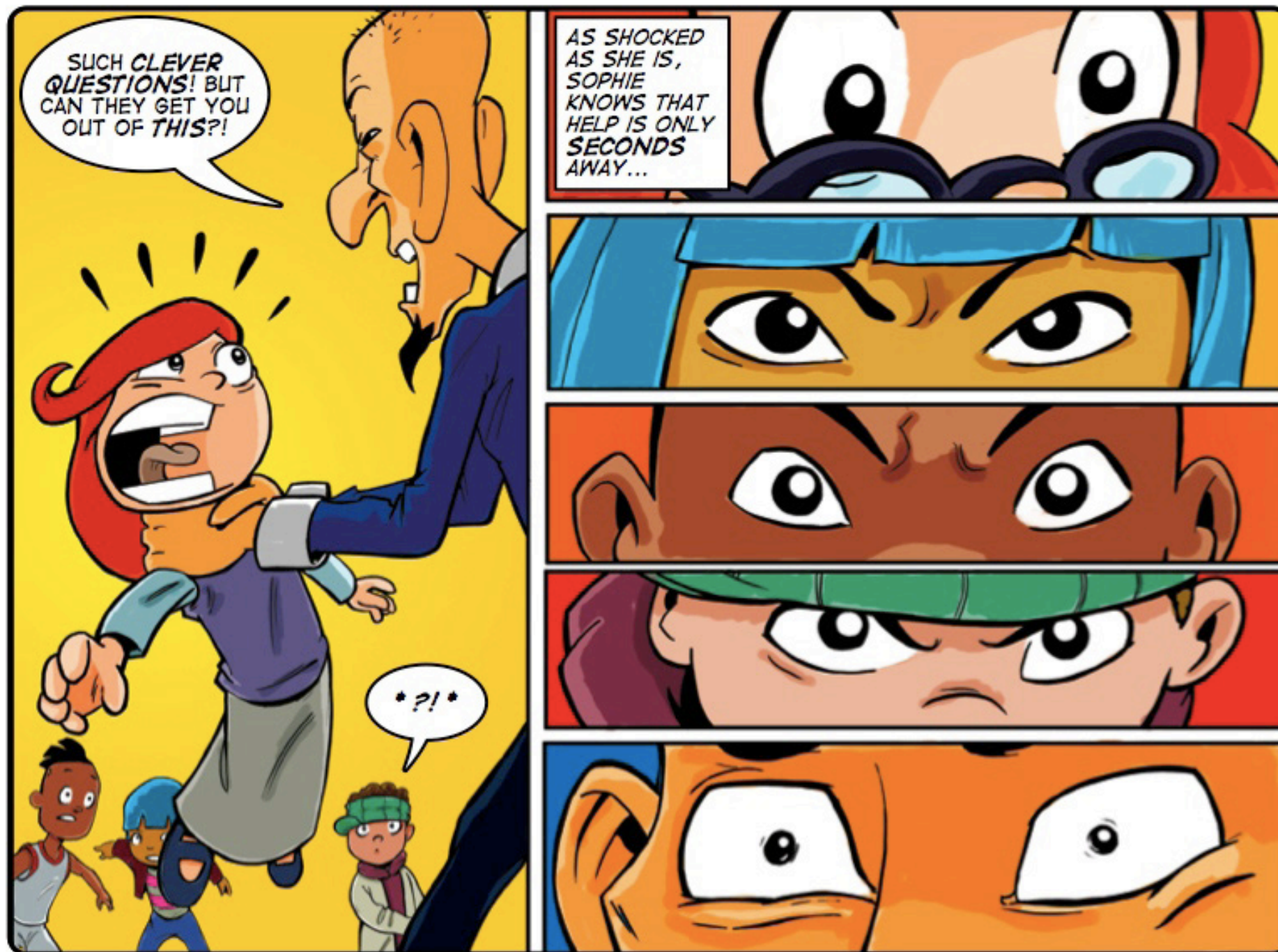
SO WHAT?!

IT WAS A TRICK QUESTION. *PHOEBASTRIA ALBATRUS* IS THE LATIN NAME FOR A SHORT-TAILED ALBATROSS, **NOT** A FLAMINGO!

AND WHEN I ASKED WHY YOU DIDN'T FOLLOW ME TO THE SCHOOL YOU SAID THE HUMMER COULDN'T FIND A WAY DOWN. BUT I SAW **BEACH SAND** ON THE TYRES. WHICH MEANS THAT IT CAME UP FROM THE **BEACH**, **NOT** DOWN FROM THE FOREST.

PLUS YOUR CLOTHES **DIDN'T FIT** PROPERLY. WHICH MEANS YOU PROBABLY STOLE THEM FROM THE BIRD SANCTUARY.



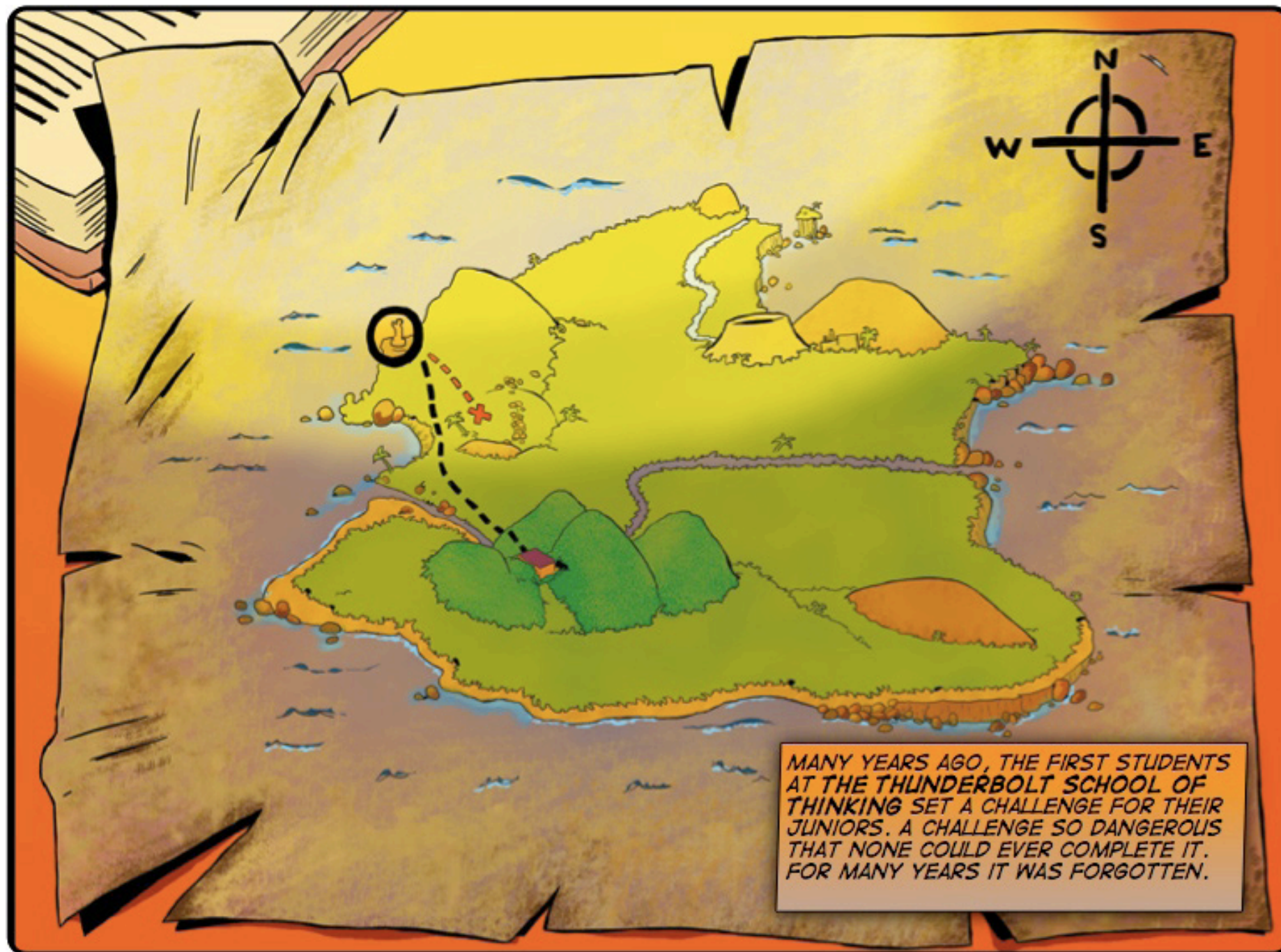






## **6. APPLE OF KNOWLEDGE**





MANY YEARS AGO, THE FIRST STUDENTS AT THE THUNDERBOLT SCHOOL OF THINKING SET A CHALLENGE FOR THEIR JUNIORS. A CHALLENGE SO DANGEROUS THAT NONE COULD EVER COMPLETE IT. FOR MANY YEARS IT WAS FORGOTTEN.



SATURDAY MORNING. THE GREAT LIBRARY, AT  
THE THUNDERBOLT SCHOOL OF THINKING.

SOPH, WHY DO YOU  
STILL LIKE USING THE  
LIBRARY, WHEN  
*EVERYTHING* IS ON  
THE INTERNET?

I'VE GOT NOTHING  
AGAINST THE NET. I  
JUST LIKE THE WAY  
LIBRARIES *SORT*  
*THINGS OUT*.

THE DEWEY DECIMAL  
SYSTEM IS SO *CLEVER*.  
ALL THE BOOKS ON THE  
SAME SUBJECT GO IN THE  
SAME PLACE.

SEYMOUR  
PAPERT...  
THAT'S ABOUT  
COMPUTERS:  
THE 000s.

CHARLES  
DARWIN...  
SCIENCE. HE  
GOES IN THE  
500s.

CPT COOK'S  
JOURNALS...  
THAT'S  
GEOGRAPHY:  
THE 900s.



WHEN SHE FINDS THE 900s, SOPHIE  
DISCOVERS SOMETHING MYSTERIOUS  
BETWEEN THE PAGES OF A BOOK OF MAPS.



AS ALWAYS, HER  
CURIOSITY TAKES  
HOLD OF HER...

AND THE ADVENTURE BEGINS...

GUYS! CHECK THIS  
OUT! IT LOOKS LIKE  
A **TREASURE MAP!**

IT SHOWS THE WAY TO A  
CAVE. A CAVE THAT HOLDS...  
A **GOLDEN APPLE!**









LESS THAN AN HOUR LATER...

THE SCHOOL IS FAR BEHIND THEM. AND THEY HAVE FOUND THE STATUE ON THE MAP...

... THE STATUE THAT MARKS THE ENTRANCE TO THE CAVE OF THE GOLDEN APPLE!



BUT WHEN THEY GET CLOSE, THEY CAN'T FIND THE ENTRANCE TO THE CAVE.









THE STATUE'S  
NOSE OPENS  
A TRAP DOOR  
INTO A DARK,  
COLD ROOM...

ARE YOU  
OKAY?

WE'RE  
IN!

BUT JOJO SEES ONLY  
THE WARM GLOW OF A  
GOLDEN APPLE!

JOJO, NO! IT  
COULD BE A...

... BOOBY  
TRAP!

AND THE MOMENT HE TOUCHES IT,  
THE TRAP DOOR SWINGS **SHUT!**

OH NO...



WHY DO YOU  
ALWAYS HAVE  
TO **TOUCH?**!

• SORRY... •



HEY! THERE'S  
SOMETHING  
ON THE WALL.





A STRANGE PICTOGRAM AND INSTRUCTIONS IN THE FORM OF A RIDDLE. SOPHIE READS ALOUD FOR THE OTHERS...

THOUGHTS, LIKE KEYS,  
OPEN DOORS  
BUT ONLY ONE  
WILL OPEN YOURS.  
AVOID THE YALE,  
CHOOSE THE WARD.  
THE ONE WHOSE  
CLOVER BOW IS GOLDEN  
SO YOU MAY EARN  
THE FRUIT YOU'VE STOLEN.



THAT'S NOT SO  
BAD. WE DON'T  
HAVE TO FIGURE  
OUT THAT CRAZY  
RIDDLE.

WE JUST HAVE  
TO TRY ALL  
THE KEYS UNTIL  
ONE FITS.

BUT WHOEVER MADE THE CAVE  
DID NOT WANT THINGS TO BE  
THAT SIMPLE...



THE ROOM IS FILLING  
WITH WATER! IF WE  
DON'T OPEN THAT DOOR  
NOW *WE'LL DROWN!*



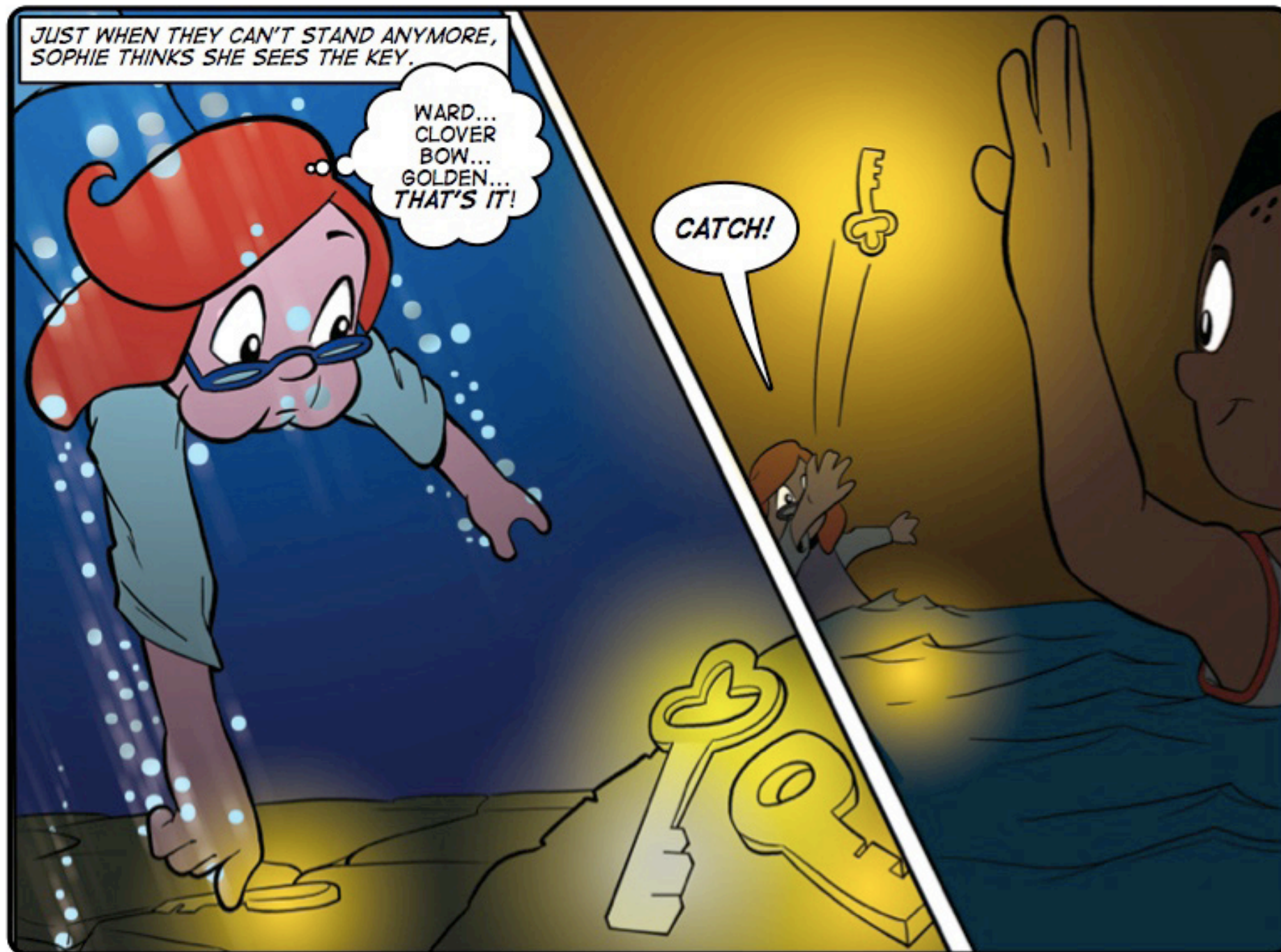
THE RIDDLE SAID,  
"AVOID THE YALE..."  
SO *DON'T* LOOK FOR  
*KEYS LIKE THIS!*

WE NEED A *WARD*  
*KEY*. A *WARD KEY* THAT  
IS *GOLDEN*. WITH A  
*CLOVER* ON ONE END.











JOJO'S HAND SHAKES  
AND THE KEY RATTLES  
IN THE LOCK...



BUT THE KEY IS TRUE AND  
THE LOCK CLICKS OPEN...



AND THE FLOOD OF WATER  
WASHES THEM INTO THE NEXT  
ROOM. WHERE THERE IS A  
HORRIBLE, DISGUSTING SMELL...



WHEN THE WATER DRAINS AWAY,  
THE STAND AND SEE A RIVER OF  
FOUL-SMELLING SLUDGE.

THERE IS ANOTHER  
**RIDDLE**. AGAIN,  
SOPHIE READS  
ALOUD.

IS THE PATH TO KNOWLEDGE **EASILY WALKED**?  
OR IS IT WEAK AND RICKETY AND **SHORT**?  
OR IS IT WITH MUCH **DIFFICULTY** FRAUGHT?  
ONE PATH IS SURE AND TRUE. WHILE TWO OF  
THEM WILL LAND YOU IN A RIVER OF POOH!



WHILE THE OTHERS TALK ABOUT THE RIDDLE, JOJO DECIDES TO TEST THE BRIDGES...

IT HAS TO BE THE **DIFFICULT** ONE.

SOPH'S RIGHT. WHOEVER MADE THIS PLACE THINKS YOU HAVE TO **WORK HARD** FOR YOUR KNOWLEDGE.

JOJO THROWS STONES ONTO ALL THE BRIDGES...

THE LONG STRONG ONE **COLLAPSES**. AND SO DOES THE SHORT, WEAK ONE.

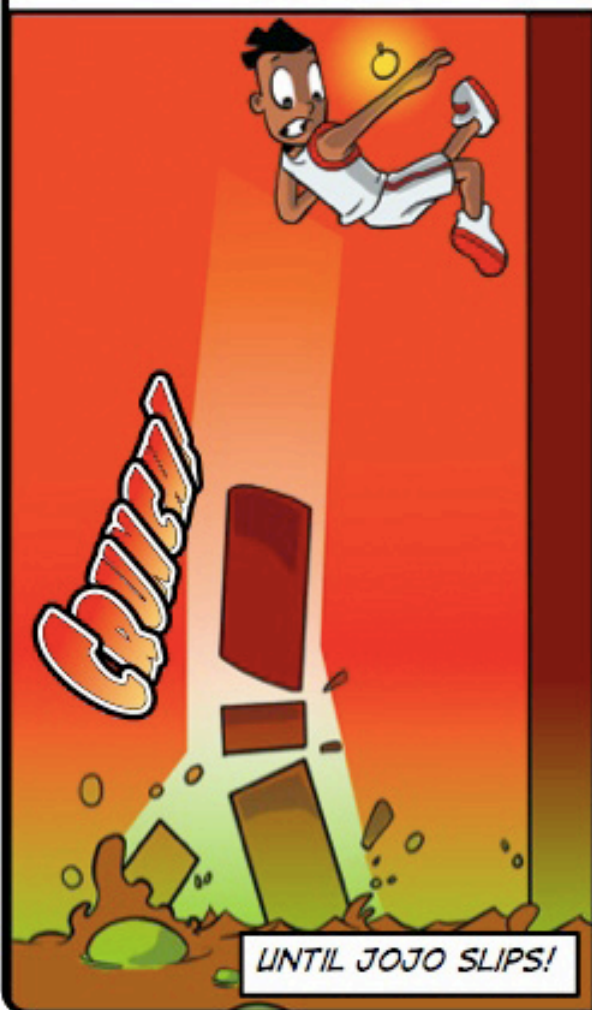
YIKES!

THANKS, JOJO...

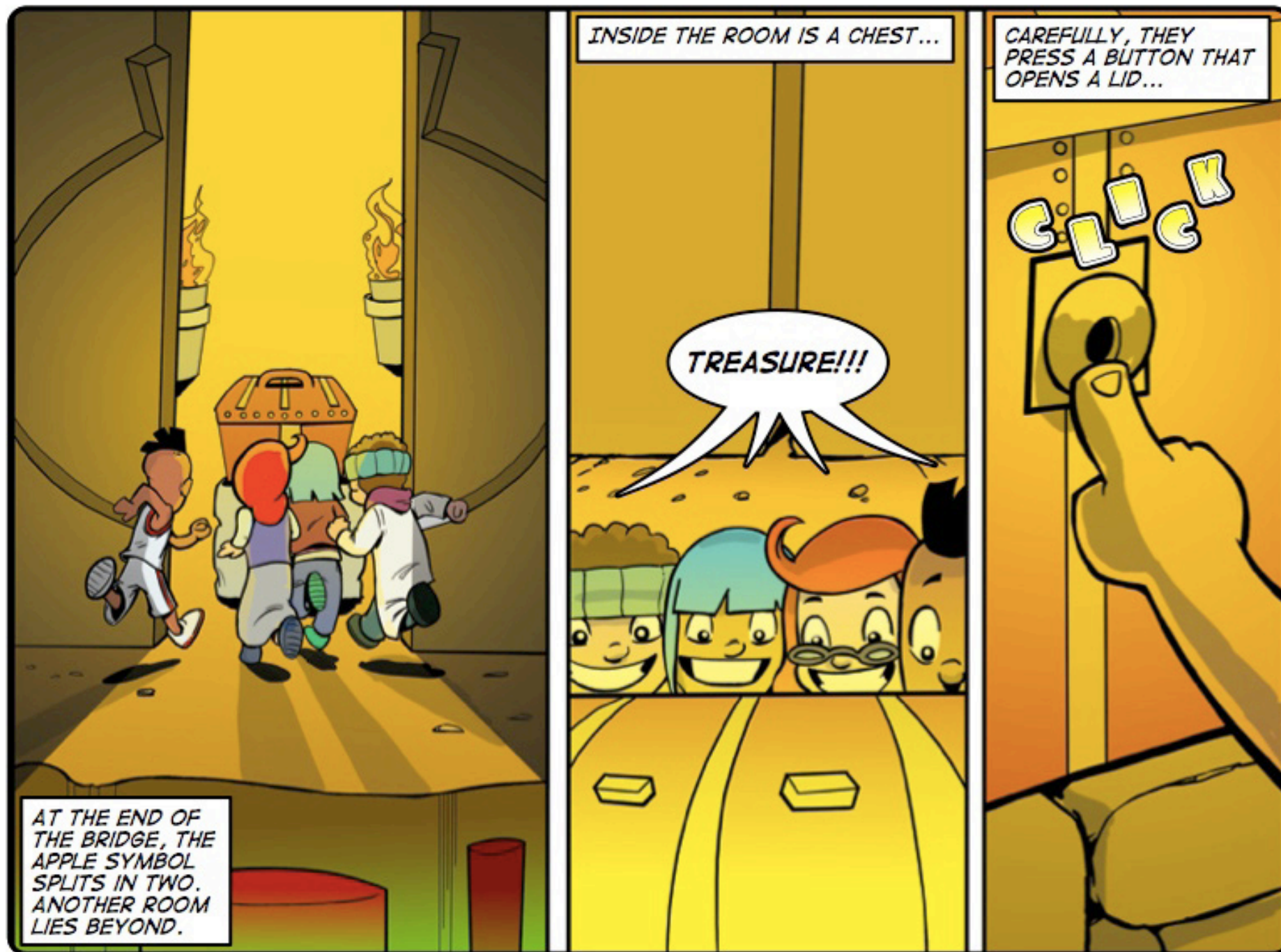
YEAH... AT LEAST THAT NARROWS DOWN THE CHOICE...

AND SO THEY LEAP FROM PILLAR TO PILLAR  
ON THE BRIDGE MARKED WITH APPLES...

I CAN'T REACH  
THAT ONE. THIS  
ONE'S *EASIER*...







INSIDE THE ROOM IS A CHEST...

CAREFULLY, THEY  
PRESS A BUTTON THAT  
OPENS A LID...

TREASURE!!!

AT THE END OF  
THE BRIDGE, THE  
APPLE SYMBOL  
SPLITS IN TWO.  
ANOTHER ROOM  
LIES BEYOND.

AS THE LID OPENS, AN  
HOURGLASS TURNS...



A WOODEN  
APPLE?

AND THE CAVE  
WALLS OPEN,  
LETTING IN THE  
SUNLIGHT...



BUT SOPHIE SEES  
ANOTHER RIDDLE...

THE APPLE YOU'VE STOLEN **MUST  
BE RETURNED,**  
BUT **TAKE THE ONE HERE** FOR  
THE LESSONS YOU'VE LEARNED.  
MAKE YOUR CHOICE QUICKLY, FOR  
HERE'S HOW IT GOES:  
WHEN THE **SAND RUNS OUT,**  
THE CAVE **WALLS WILL CLOSE!**



JOJO! SWAP  
THE APPLES.  
**QUICK!**

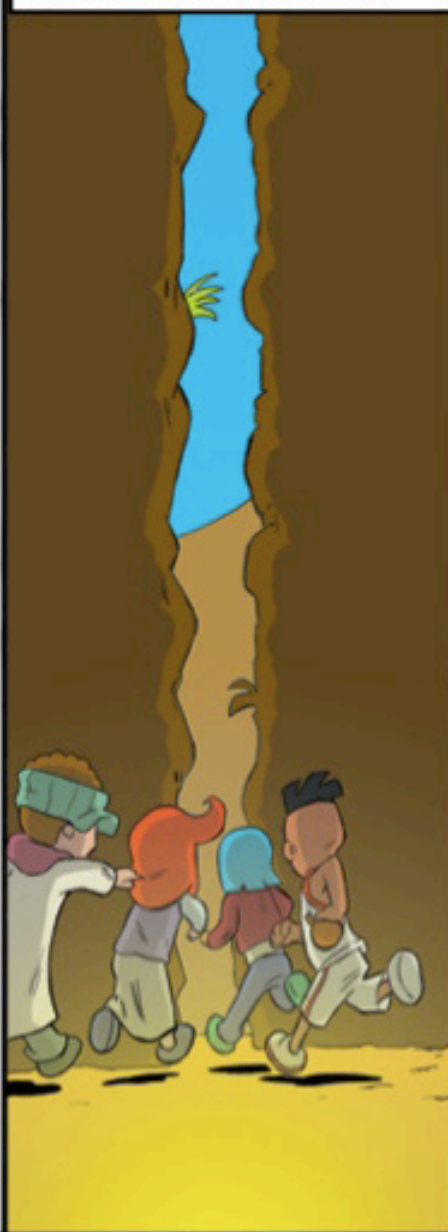


JOJO KNOWS THERE IS  
NO TIME TO ARGUE...



HE CAN TAKE THE WOODEN  
APPLE OR NOTHING...

THEY SPRINT FOR THE  
OPENING IN THE CAVE, AS  
THE WALLS CLOSE IN...



AND MAKE IT OUT WITH  
ONLY SECONDS TO SPARE...



WHEN THEY SETTLE ON THE GRASS,  
JOJO DISCOVERS A SURPRISE...

DID YOU KNOW  
THAT WAS GOING  
TO BE INSIDE?

NOPE! BUT I  
THINK THAT WAS  
THE POINT.

YUP! DOING  
THINGS THE HARD  
WAY PAYS OFF.



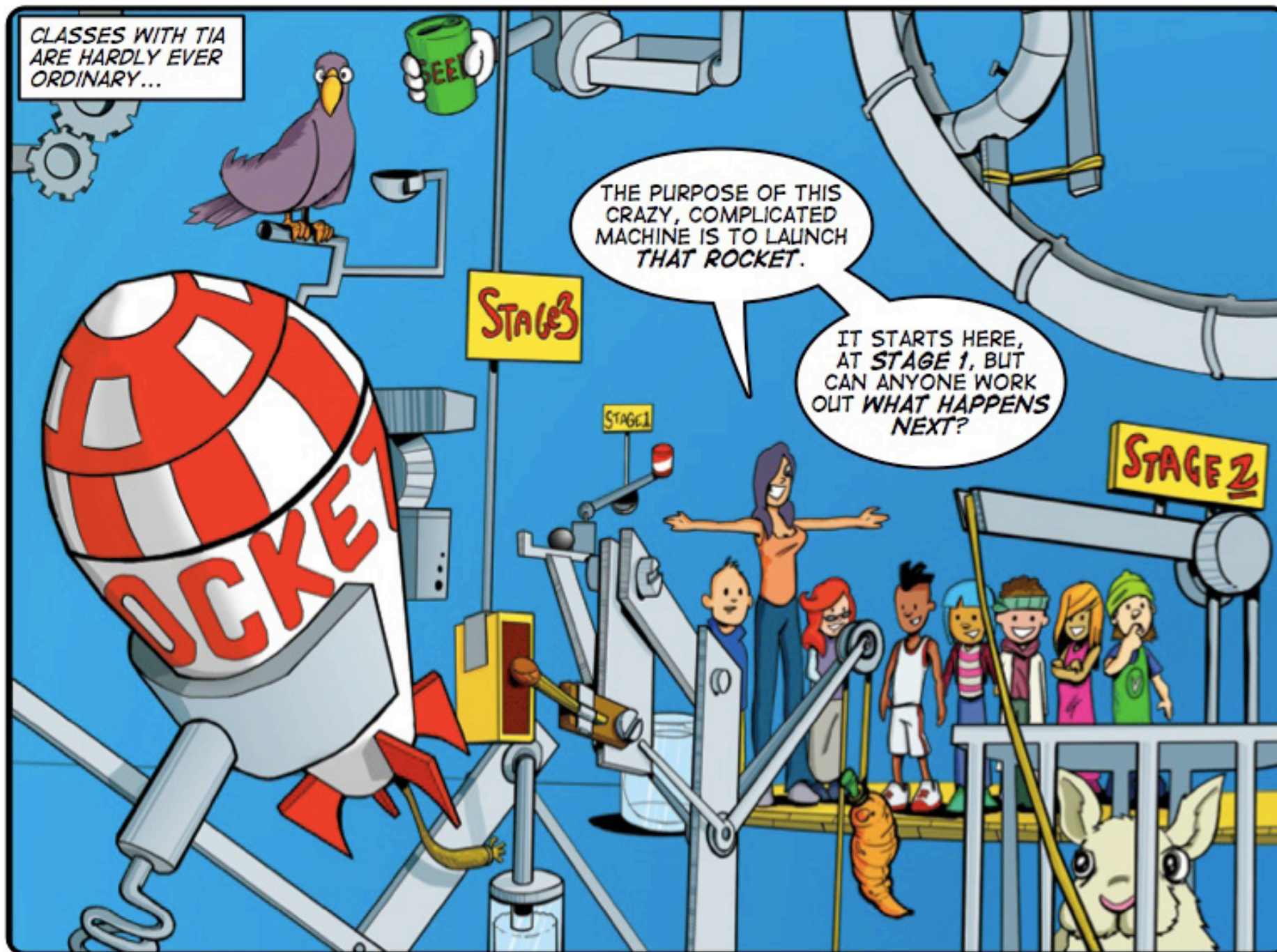


## **7. THE MUSHROOM EFFECT**

**CLASSES WITH TIA  
ARE HARDLY EVER  
ORDINARY...**

THE PURPOSE OF THIS  
CRAZY, COMPLICATED  
MACHINE IS TO LAUNCH  
*THAT ROCKET.*

IT STARTS HERE,  
AT **STAGE 1**, BUT  
CAN ANYONE WORK  
OUT **WHAT HAPPENS  
NEXT?**





BUT NO ONE CAN ANSWER TIA'S QUESTION.

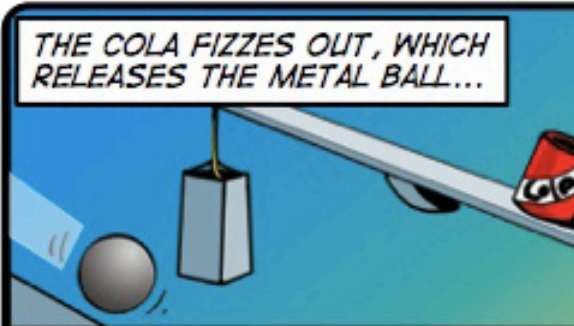


DON'T WORRY,  
GUYS! IT'S NOT  
EASY TO **SEE PAST**  
**STAGE 1**. YOU HAVE  
TO PRACTISE  
**THINKING THAT**  
**WAY.**

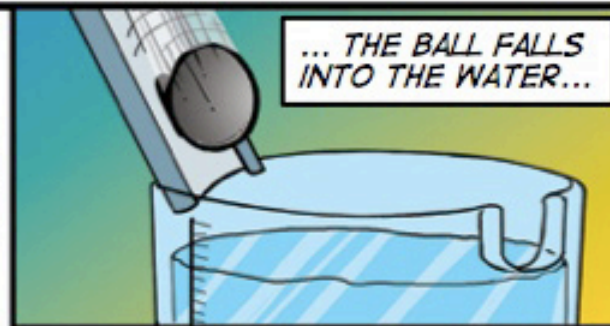
**STAGE 1**



AND THEN SHE DROPS THE  
CANDY INTO THE COLA AND...



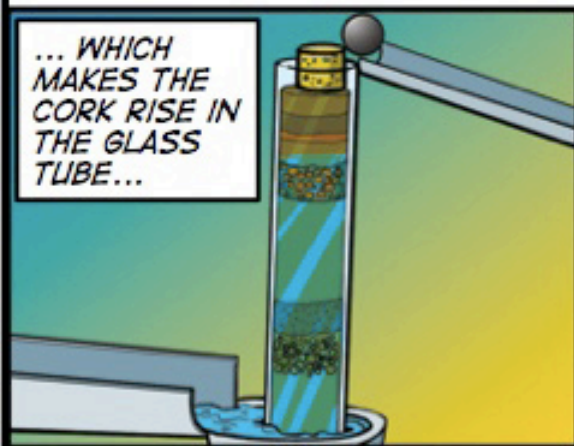
THE COLA FIZZES OUT, WHICH RELEASES THE METAL BALL...



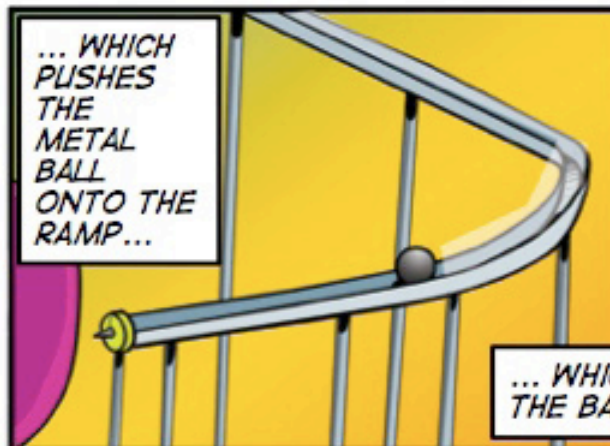
... THE BALL FALLS INTO THE WATER...



... THE WATER OVERFLOWS...



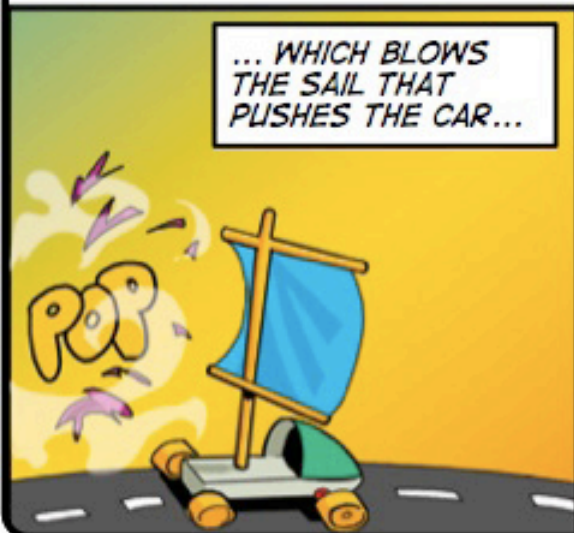
... WHICH MAKES THE CORK RISE IN THE GLASS TUBE...



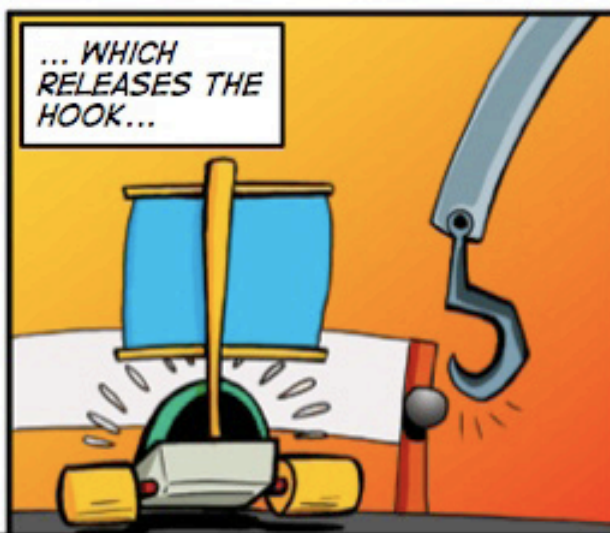
... WHICH PUSHES THE METAL BALL ONTO THE RAMP...



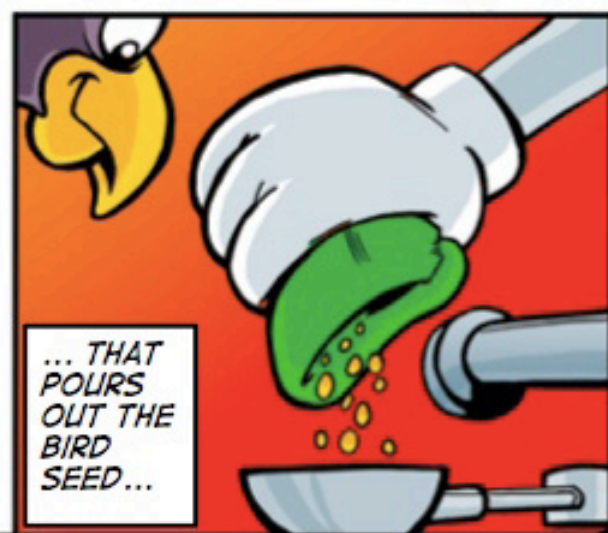
... WHICH POPS THE BALLOON...



... WHICH BLOWS THE SAIL THAT PUSHES THE CAR...

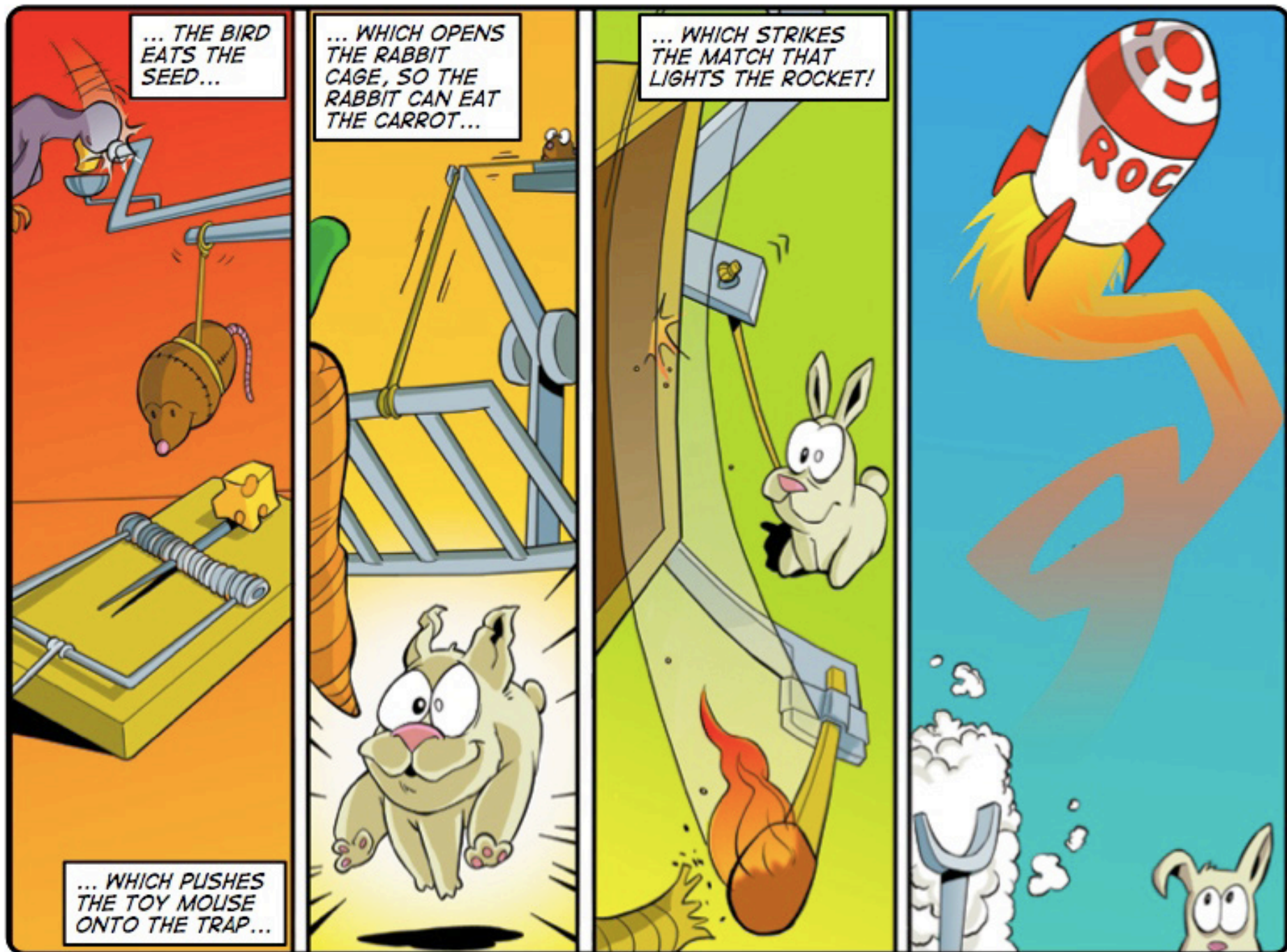


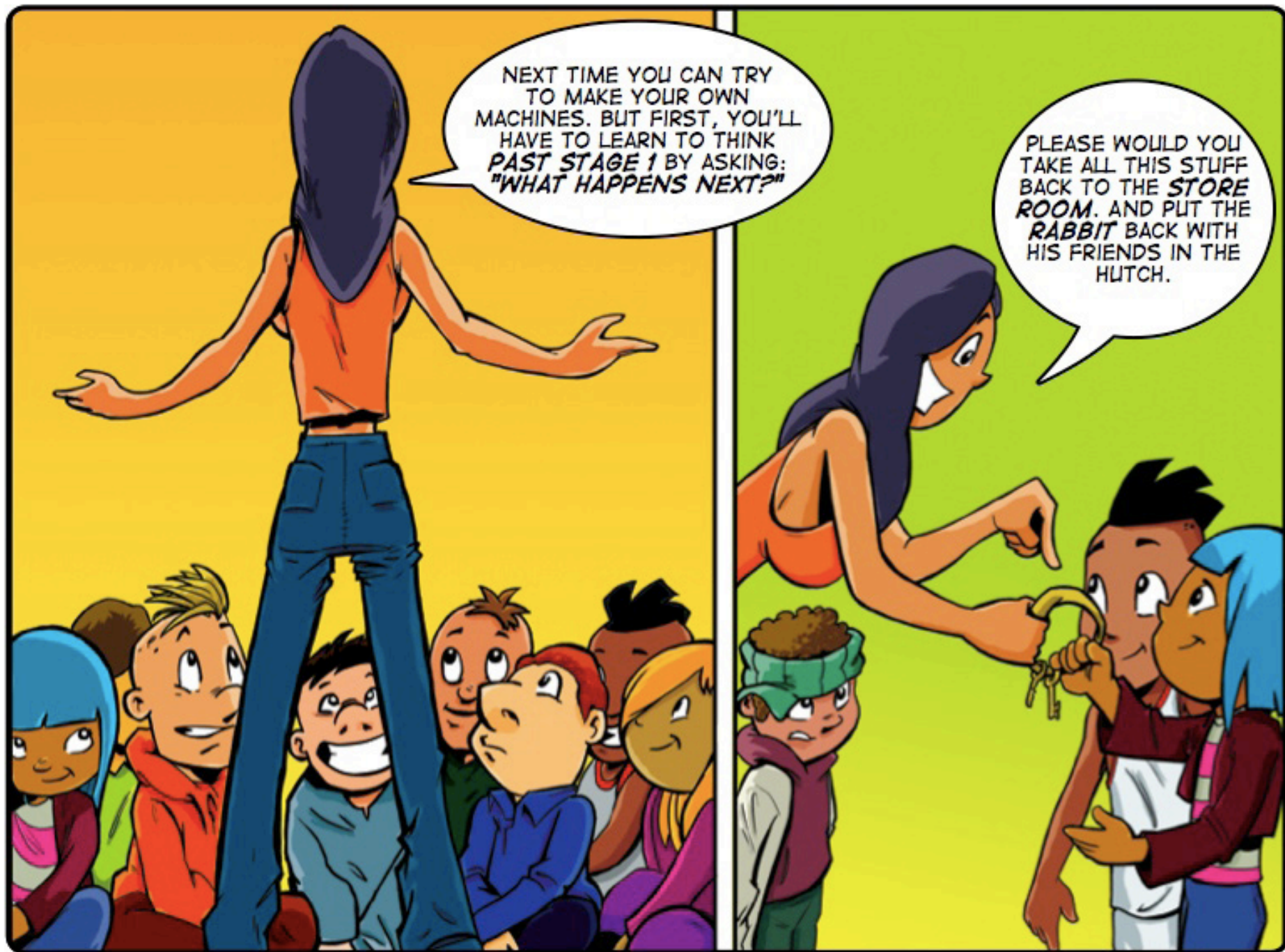
... WHICH RELEASES THE HOOK...



... THAT POURS OUT THE BIRD SEED...









A FEW MINUTES LATER,  
OUTSIDE THE STORE ROOM...

WHOA!  
GUYS! CHECK  
THIS OUT!



THE OTHERS WALK IN TO FIND TOM STARING  
AT A BRIGHT GREEN, LUMINOUS MUSHROOM!







THE THUNDERBOLT KIDS DO THEIR  
BEST TO THINK PAST STAGE 1...

THE RESULTS SEEM FANTASTIC!

WE CAN GROW  
THESE IN THE  
VEGETABLE  
GARDEN. ALL WE  
NEED IS *ONE OR  
TWO SPORES*. TIA  
WON'T MIND!

THEN WE'LL  
HAVE *MULTI-  
COLOURED  
RABBITS*!

AND WE CAN  
BREED THEM  
AND SELL  
THEM AND  
GET *RICH!*  
*WOOHOO!*



BUT WHEN YOU'RE LEARNING TO THINK PAST  
STAGE 1, YOU MUST REMEMBER TO CONSIDER  
ALL THE INFORMATION THAT YOU HAVE...

DO YOU  
*REALLY* THINK  
TIA WON'T  
MIND?

NAH! WE'VE GOT A  
WHOLE *PLAN*. WHICH  
MEANS WE'RE  
*THINKING PAST  
STAGE 1!*

SOPH, RELAX!  
WHAT COULD  
GO *WRONG?*

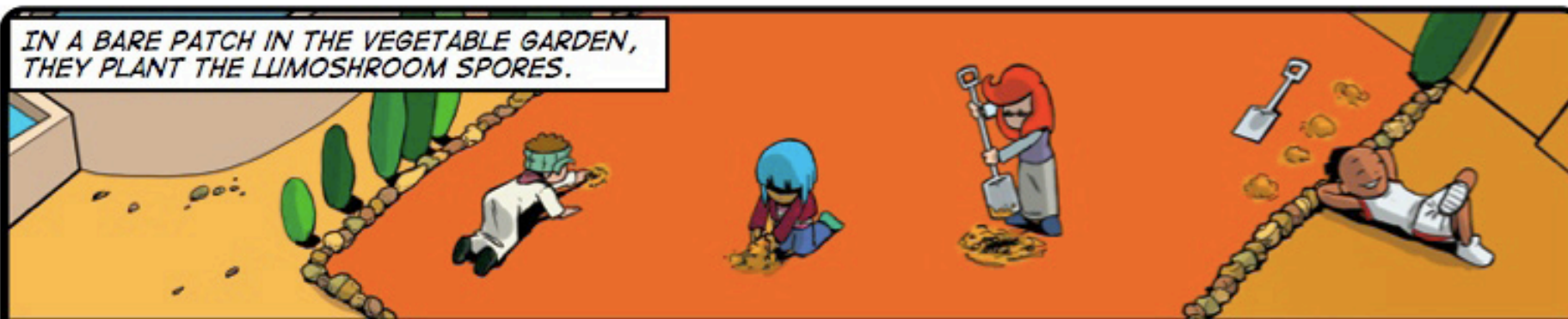


**CAUTION**  
DO NOT WATER





IN A BARE PATCH IN THE VEGETABLE GARDEN,  
THEY PLANT THE LUMOSHROOM SPORES.



WE BETTER  
SCOOT, GUYS.  
THE RAIN'S  
COMING.

I HOPE IT  
DOESN'T **DROWN**  
THE LUMOSHROOM  
SPORES...



BUT "DROWNING" IS THE  
LEAST OF THEIR WORRIES...

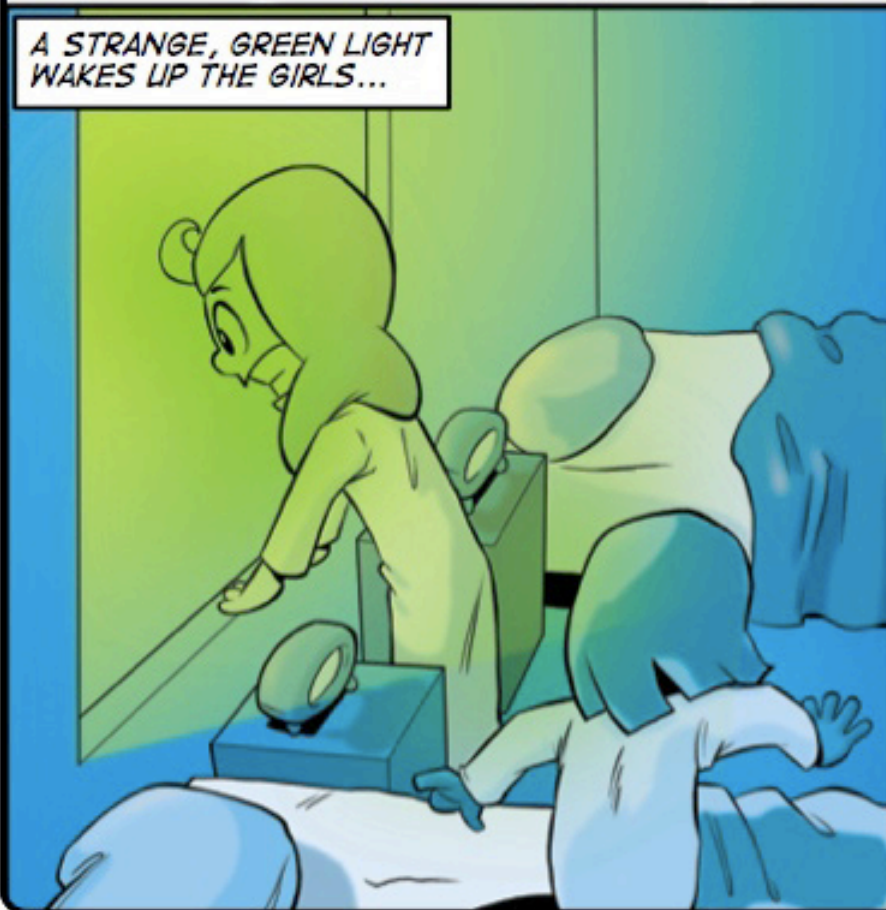




LATER THAT NIGHT...



A STRANGE, GREEN LIGHT  
WAKES UP THE GIRLS...



AND THE BOYS...



AND THEY WONDER  
WHERE THEY MUST  
HAVE GONE WRONG?!



OUTSIDE, IN THE RAIN, THE MUSHROOMS  
HAVE TAKEN OVER THE VEGETABLE GARDEN...

WHAT COULD  
GO *WRONG*,  
HEY TOM?!

YOU ASKED THE  
RIGHT QUESTION,  
BUT WHY DIDN'T  
WE *ANSWER* IT?!

A VOICE, COLDER THAN THE  
ICY RAIN, MAKES THEM TURN...

BECAUSE YOU  
DIDN'T READ THE  
*INSTRUCTIONS*!



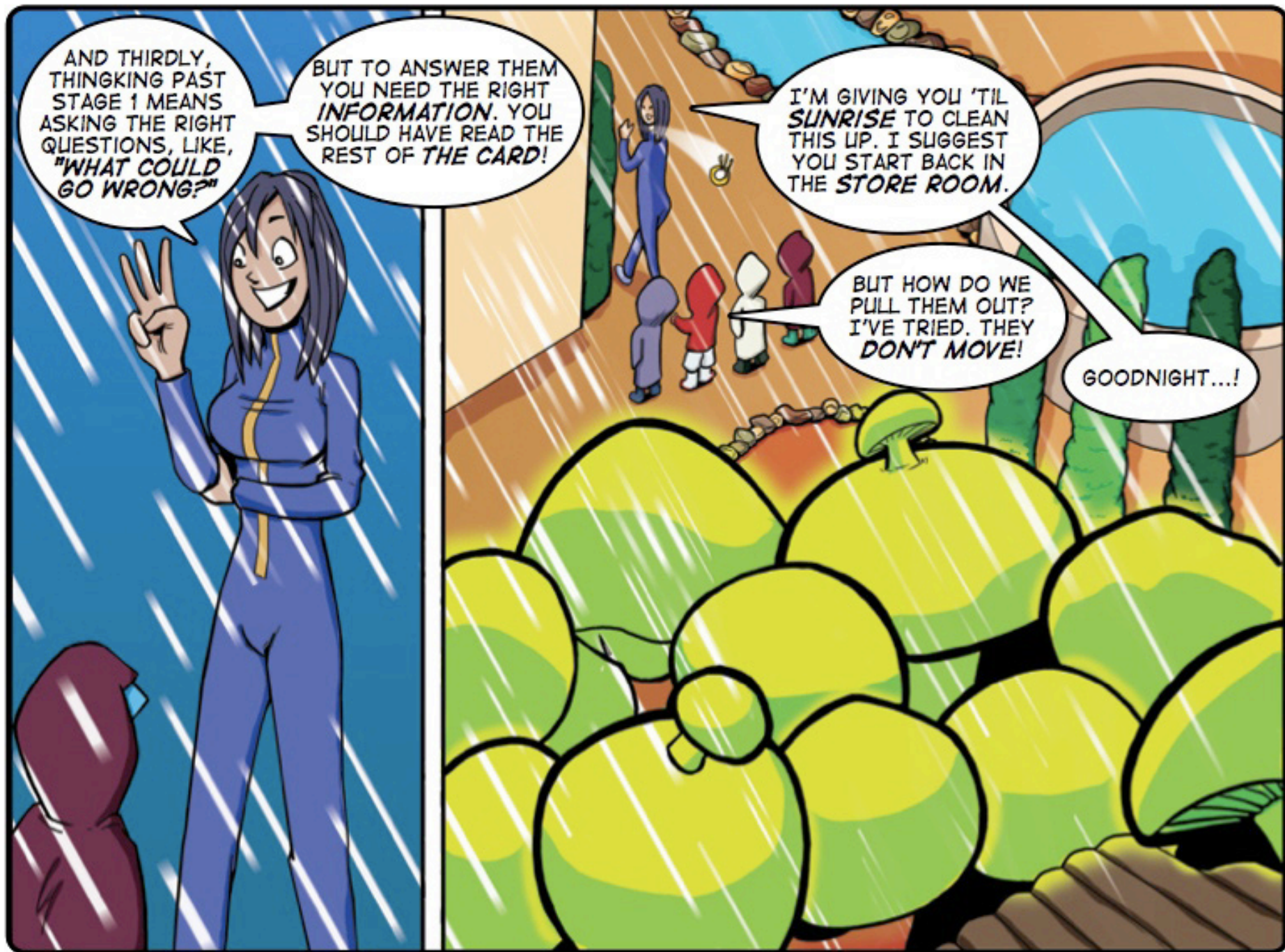
A FEW MINUTES LATER, SOPHIE HAS EXPLAINED THE WHOLE STORY...

THEN THE LIGHT FROM THE LIMOSHROOMS WOKE US UP AND WE CAME DOWN. WE DIDN'T **MEAN ANY HARM**, I SWEAR!

FIRSTLY, YOU SHOULD **NEVER TAKE ANYTHING** WITHOUT ASKING. YOU **KNOW** THAT!

SECONDLY, YOU SHOULD **ALWAYS BEWARE OF STRANGE THINGS** YOU'VE NEVER SEEN BEFORE.







IN THE STORE ROOM, SOPHIE READS THE INSTRUCTION CARD FOR THE LUMOSHROOM...

IT'S TOO LATE TO AVOID WATERING THEM... BUT TO **STOP THEM GROWING BACK** YOU HAVE TO SPRINKLE **SUGAR** ON THE SPOT WHERE YOU PICK THEM.

I'VE **TRIED** PICKING THEM. THEY'RE TOO TOUGH!



THE **KITCHEN** KEYS MUST BE ON THIS RING, SO WE'LL HAVE ALL THE **SUGAR** WE NEED.

BUT JOJO'S RIGHT: HOW ARE WE GOING TO GET THE LUMOSHROOMS **OUT THE GROUND?**



EUREKA!

RABBITS!!!

AS YOU KNOW, MOST GOOD PLANS  
START WITH A EUREKA MOMENT...

FARRAH, YOU AND  
TOM GET ALL THE  
**RABBITS** FROM THE  
HUTCH AND BRING  
THEM DOWNSTAIRS.

JOJO, YOU COME  
WITH ME TO THE  
**KITCHEN!**

A MIDNIGHT  
SNACK? I LIKE  
THE WAY YOU  
THINK!



ONLY MINUTES  
LATER, THEY'RE  
READY TO PUT  
THEIR PLAN  
INTO ACTION...

SO YOU'RE  
**SURE** YOU'VE  
READ ALL THE  
INFO ON THAT  
**CARD?**

**SURE!** IT SAYS  
RABBITS LOVE  
LUMOSHROOMS SO  
MUCH THAT THEY'LL  
EAT THEM RIGHT OUT  
OF THE GROUND.

THEN WE SPRINKLE  
**SUGAR** ON THE HOLES  
TO MAKE SURE THEY  
**DON'T GROW BACK.**

I HOPE  
THEY'RE  
HUNGRY!



THE RABBITS LEAP ONTO THE MUSHROOMS LIKE THEY'VE NEVER EATEN ANYTHING BEFORE...

AND, WITHIN SECONDS, THEY'RE CHANGING COLOUR!

WHOA!  
LOOK AT  
THEM GO!

HEY! *SUGAR*,  
JOJO! *SUGAR*!  
WE HAVE UNTIL  
*SUNRISE*!

YOU SAY THE  
*SWEETEST*  
THINGS!



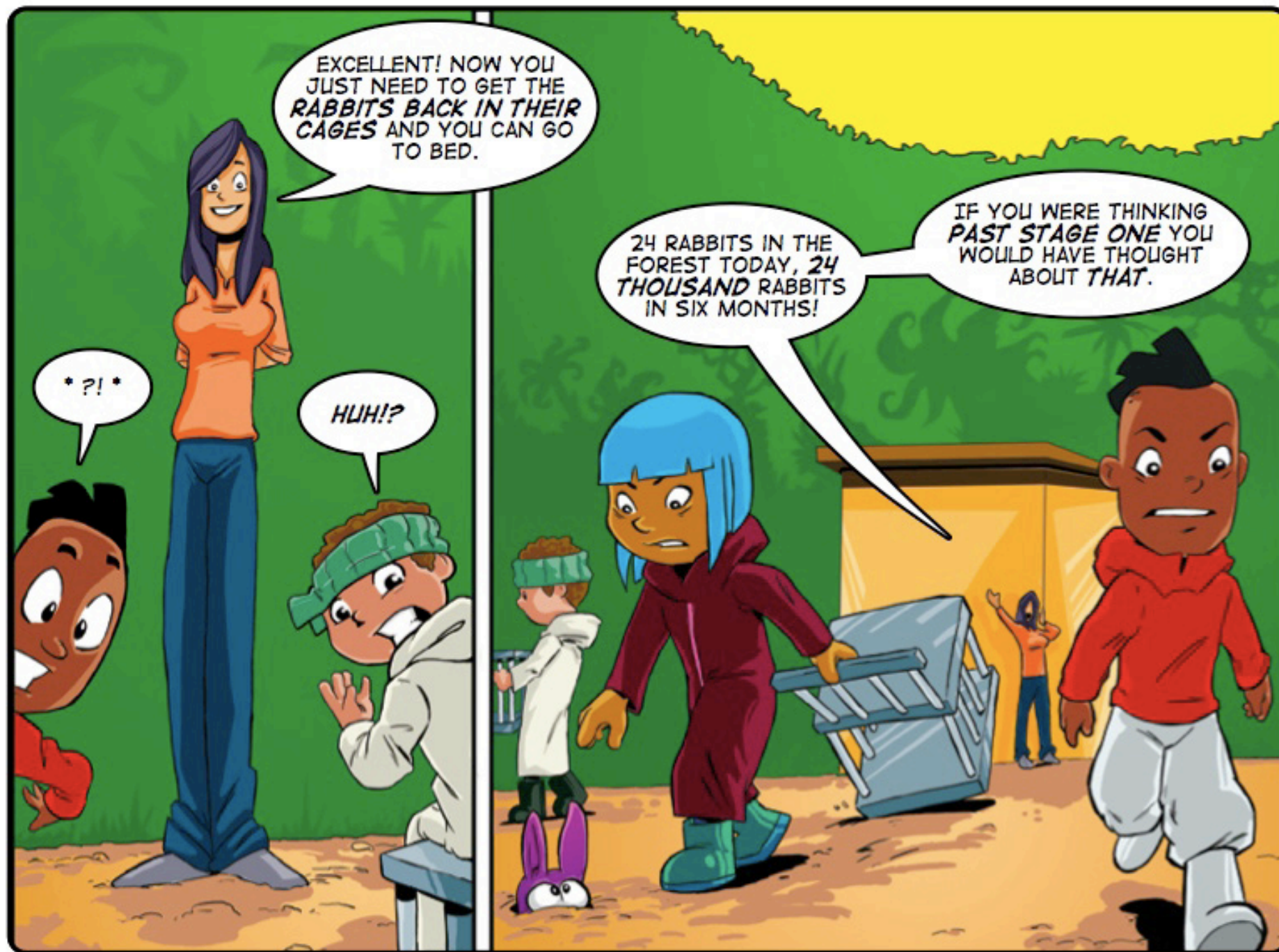
JUST BEFORE SUNRISE,  
THE RABBITS ARE FAT  
AND THE THUNDERBOLT  
KIDS ARE EXHAUSTED.



BY THE TIME TIA ARRIVES, THERE ISN'T A LUMOSRHOOM  
IN SIGHT. AND THE VEGETABLE GARDEN IS SPOTLESS!











## **8. TRAPPED**



SOMETIMES, THE MOST  
AMAZING STORIES START  
WITH A SIMPLE ACCIDENT...





HEY GUYS, CHECK THIS OUT!

THE KIND OF ACCIDENT THAT LEADS YOU TO A STRANGE, NEW PLACE...



IT'S OK, GUYS. TIA SAID NO-ONE LIVES THERE.

CREEPY!













SUDDENLY, FROM BEHIND THEM, COMES BONE-CHILLING LAUGHTER...

**MWAAAAA!**  
**MWAAAAA!**  
**MWAAAAA!**





FEARLESSLY, TOM RUNS STRAIGHT  
TOWARD THE EERY GREEN SMOKE...

WILL YOU GUYS  
**GROW UP?! IT'S  
PROBABLY JUST  
ANOTHER TRICK!**

WHAT DID I TELL YOU?  
THE LAUGHTER WAS A  
**RECORDING**. AND THE SMOKE  
CAME FROM A **SMOKE  
MACHINE!**

WE MUST HAVE  
**TRIGGERED**  
THEM!

**HUH?!**









BEFORE THEY CAN EVEN THINK OF  
ESCAPING, THEY'RE WAY UP HIGH  
IN A COLD, DARK ATTIC...

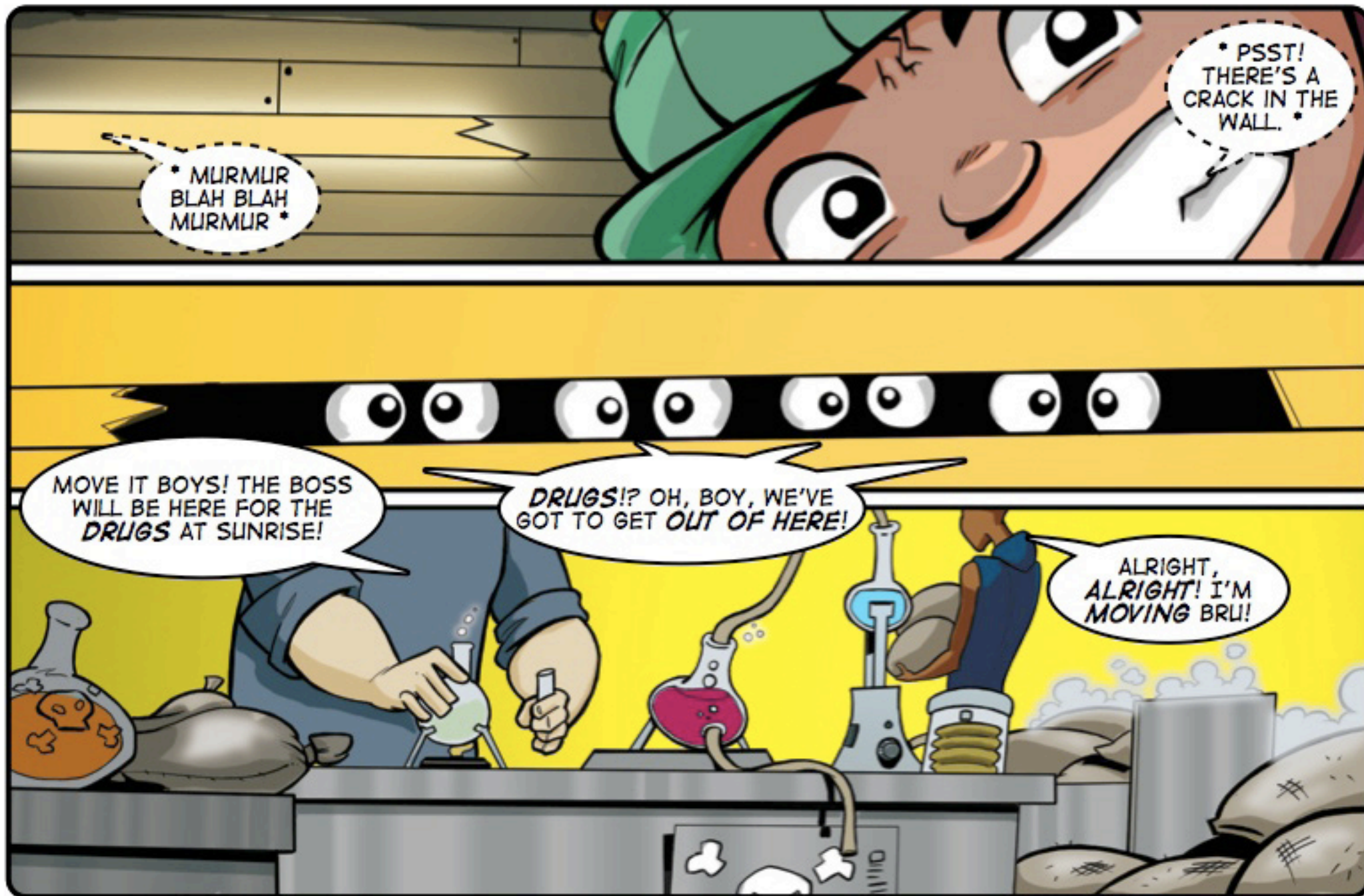
DON'T MAKE A  
SOUND. NOT  
EVEN A *PEEP*!

... AND THEN THE DOOR  
IS LOCKED BEHIND THEM.

WHAT NOW?

**CLICK**

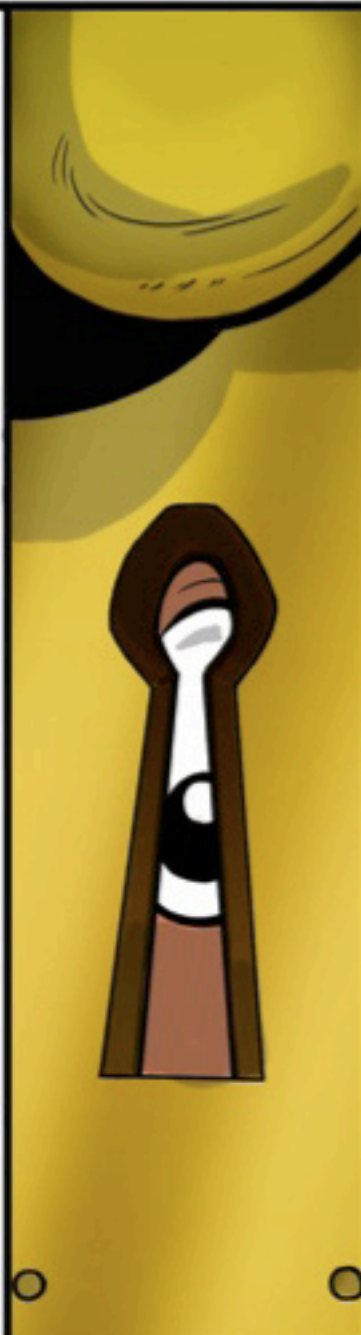
I WAS GOING TO  
ASK *YOU* THE  
SAME THING.





THE SECOND THAT THEY UNDERSTAND HOW SERIOUS THIS IS, THEY START MAKING PLANS TO GET OUT.

THE ONLY WAY OUT IS THROUGH THE WINDOW. BUT IT'S WAY TOO HIGH!



OR WE COULD TRY TO PICK THE LOCK.

IT'S WORTH A TRY!



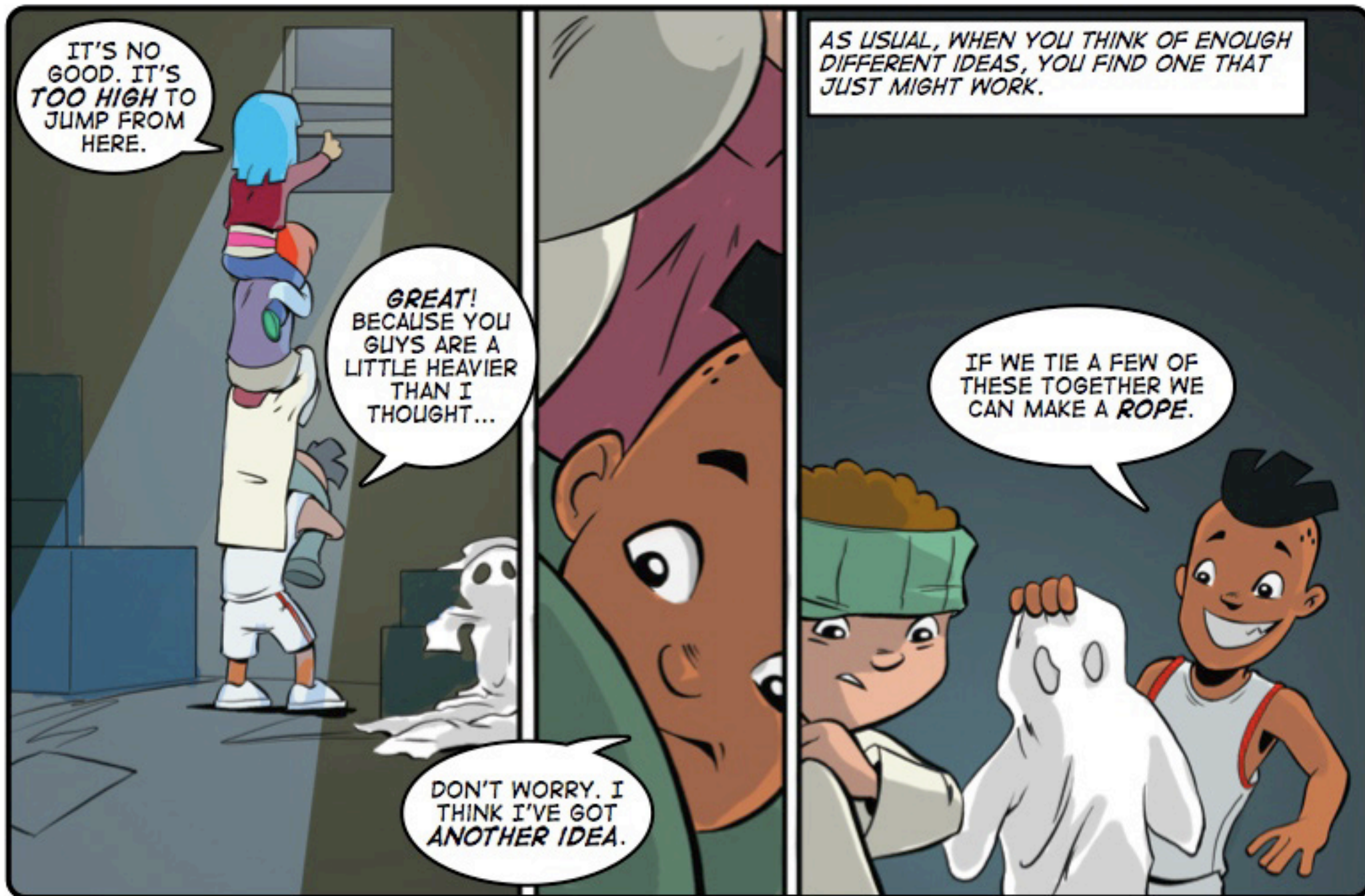
AS WITH ALL FIRST PLANS,  
THERE ARE A FEW PROBLEMS...

WAIT A SEC! WHAT  
HAPPENS WHEN WE GET  
*OUTSIDE* THE DOOR?

SOPHIE'S RIGHT.  
ONCE WE'RE OUTSIDE, WE'LL  
HAVE TO WALK RIGHT PAST  
THE GANGSTERS. *WE'LL GET  
CAUGHT* IN SECONDS.

WE'LL JUST HAVE TO TRY  
THE *WINDOW* AFTER ALL.  
JOJO, WE'LL HAVE TO GET  
ON YOUR *SHOULDERS*.





AS USUAL, WHEN YOU THINK OF ENOUGH DIFFERENT IDEAS, YOU FIND ONE THAT JUST MIGHT WORK.

IF WE TIE A FEW OF THESE TOGETHER WE CAN MAKE A *ROPE*.

SO THEY TIE A FEW SHEETS TO A  
PLANK OF WOOD...

THEN JOJO PREPARES TO THROW THEIR  
"GRAPPLING HOOK" THROUGH THE WINDOW...

CAREFUL,  
JOJO!

JOJO'S THROW IS EXCELLENT. BUT THE TINIEST NICK OF  
WOOD AGAINST WINDOW COULD GIVE THEM AWAY...



HEY! YOU HEAR  
SOMETHIN'?

HUH?!





LUCKILY THE GANGSTERS DON'T FOLLOW...

AND QUIETLY, THEY STEAL INTO THE NIGHT...



UNTIL...







BUT THE GANGSTERS ARE  
CLOSER THAN THEY THINK!













Science Adventures with the

THUNDERBOLTS  
KIDS



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