

Science Adventures with the

THUNDERBOLT KIDS



SHUTTLEWORTH
FUNDED


SIYAVULA
TECHNOLOGY-POWERED LEARNING

Sciences Adventures with the Thunderbolt Kids

Grade 4

by Siyavula and the Shuttleworth Foundation

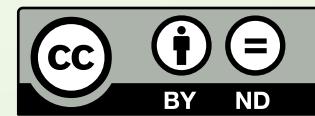
COPYRIGHT NOTICE

Your freedom to legally copy this book

You are allowed and encouraged to freely copy this book. You can photocopy, print and distribute it as often as you like. You can download it onto your mobile phone, iPad, PC or flashdrive. You can burn it to CD, email it around or upload it to your website.

The only restriction is that you cannot change this books, its cover or content in any way.

For more information, about the Creative Commons Attribution-NoDerivs 3.0 Unported (CC-BY-ND 3.0) license, see <http://creativecommons.org/licenses/by-nd/3.0/>



ATTRIBUTION

The Thunderbolt Kids characters and graphical stories in this book were developed as part of the Kusasa project (www.kusasa.org), initiated and funded by the Shuttleworth Foundation (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.

Contact Siyavula

Contact Siyavula to order printed copies or other digital titles at:

Siyavula Education (Pty) Ltd

website www.thunderboltkids.co.za

e-mail info@siyavula.com

tel +27 21 469 4771

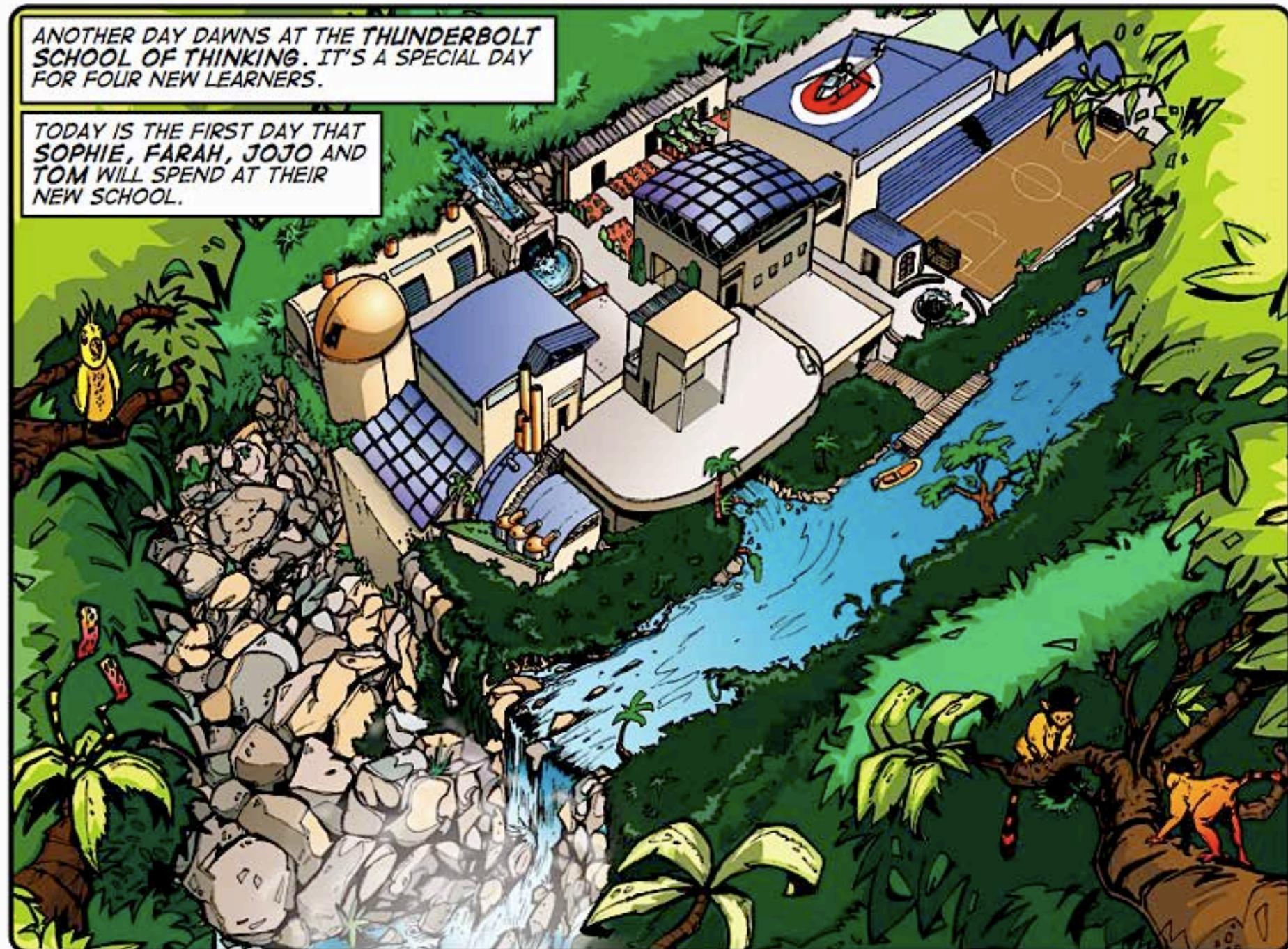
TABLE OF CONTENTS

1. The Thunderbolt Kids.....	7
2. The Race.....	28
3. The Lunar Menace.....	49
4. The River of Dreams.....	70
5. Detective Sophie.....	91
6. Apple of Knowledge.....	112
7. The Mushroom Effect.....	133
8. Trapped.....	154

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.



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!!!



IN THEIR FIRST LESSON, TIA SHOWS THE KIDS SOMETHING NEW, CALLED ETOYS.

IN ETOYS, YOU CAN MAKE ANY *OBJECTS* ACT LIKE THEY DO IN REAL LIFE.

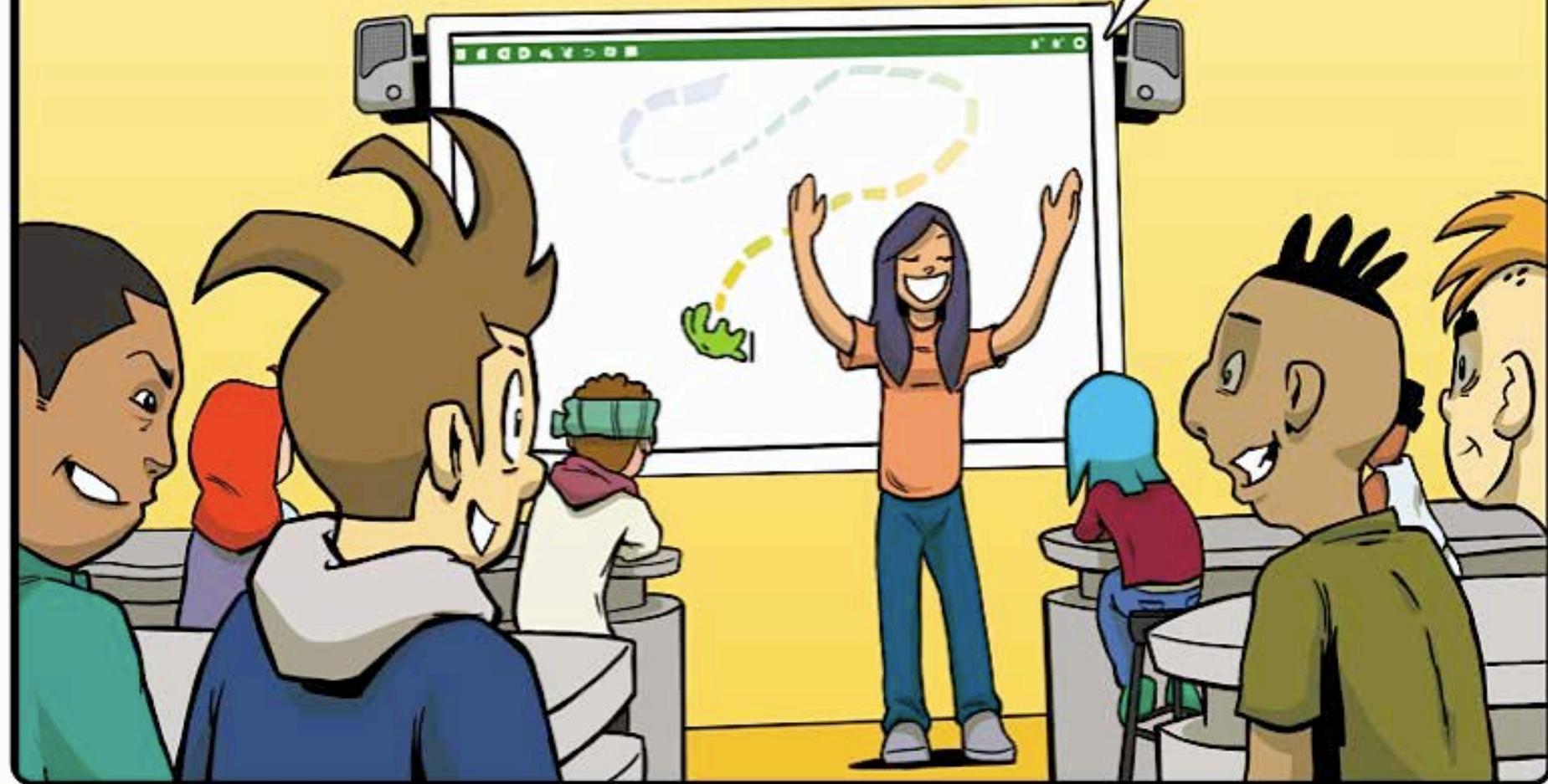
AND TODAY, YOU'RE GOING TO USE ETOYS TO MAKE A *MODEL* OF ONE OF YOUR OWN FAVOURITE THINGS.



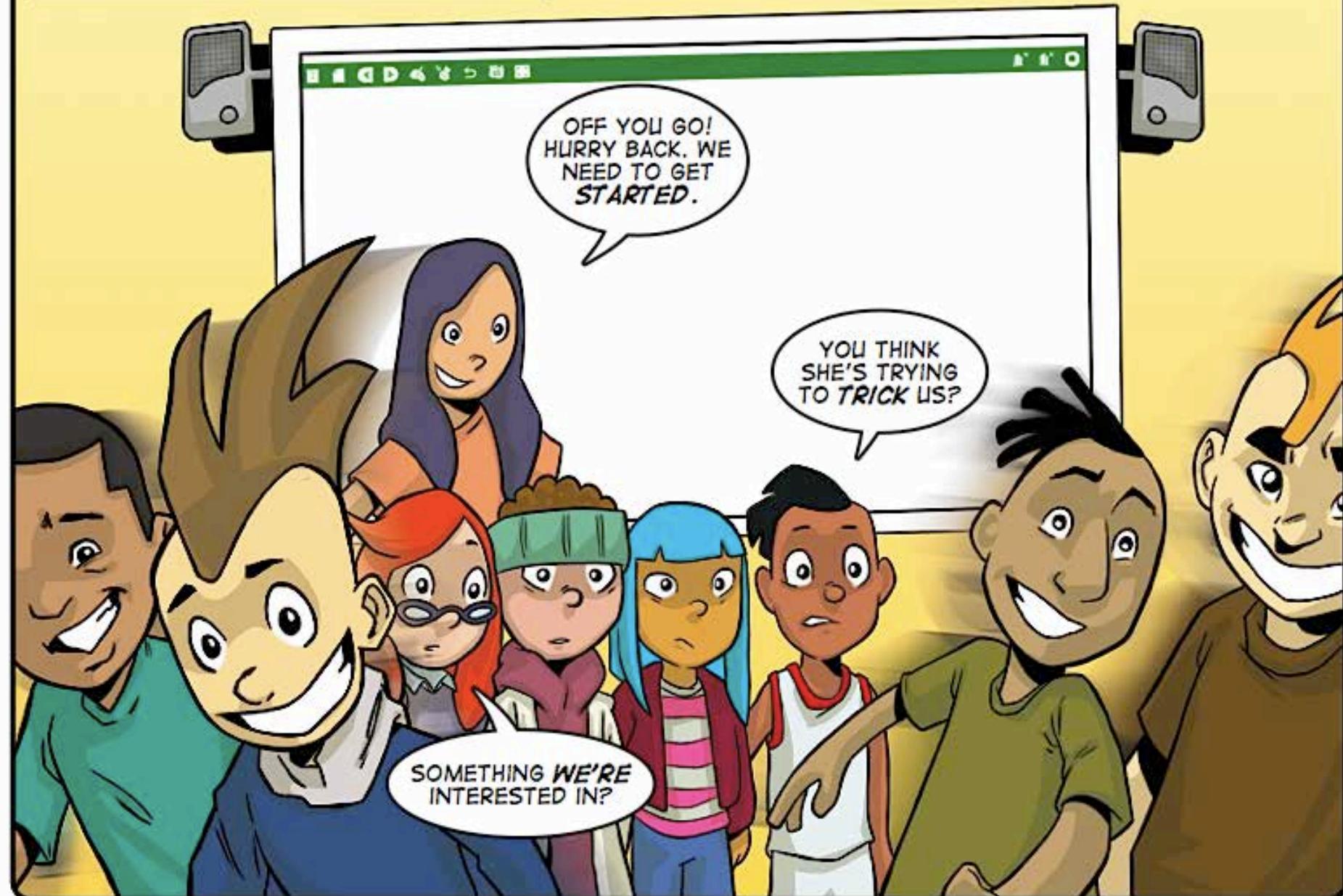
AS THE LITTLE GREEN ANIMAL FLIES ON THE SCREEN BEHIND HER, TIA TELLS THE CLASS SOMETHING THAT THEY DON'T EXPECT.

GO BACK TO YOUR ROOMS AND FETCH SOMETHING YOU LOVE. SOMETHING YOU'RE INTERSTED 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.

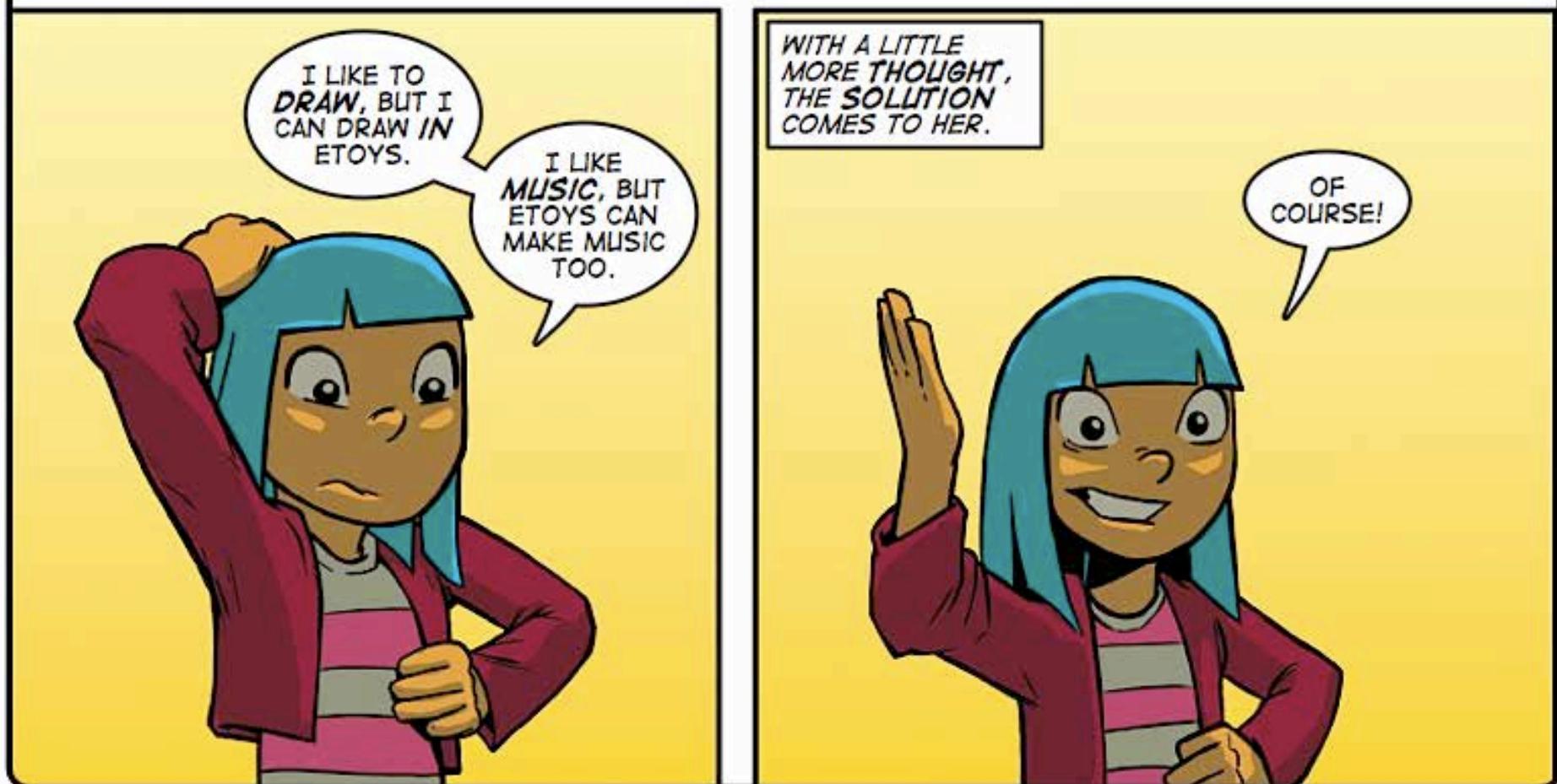
I CAN'T
BELIEVE I CAN
TAKE MY
FOOTBALL TO
CLASS!

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!

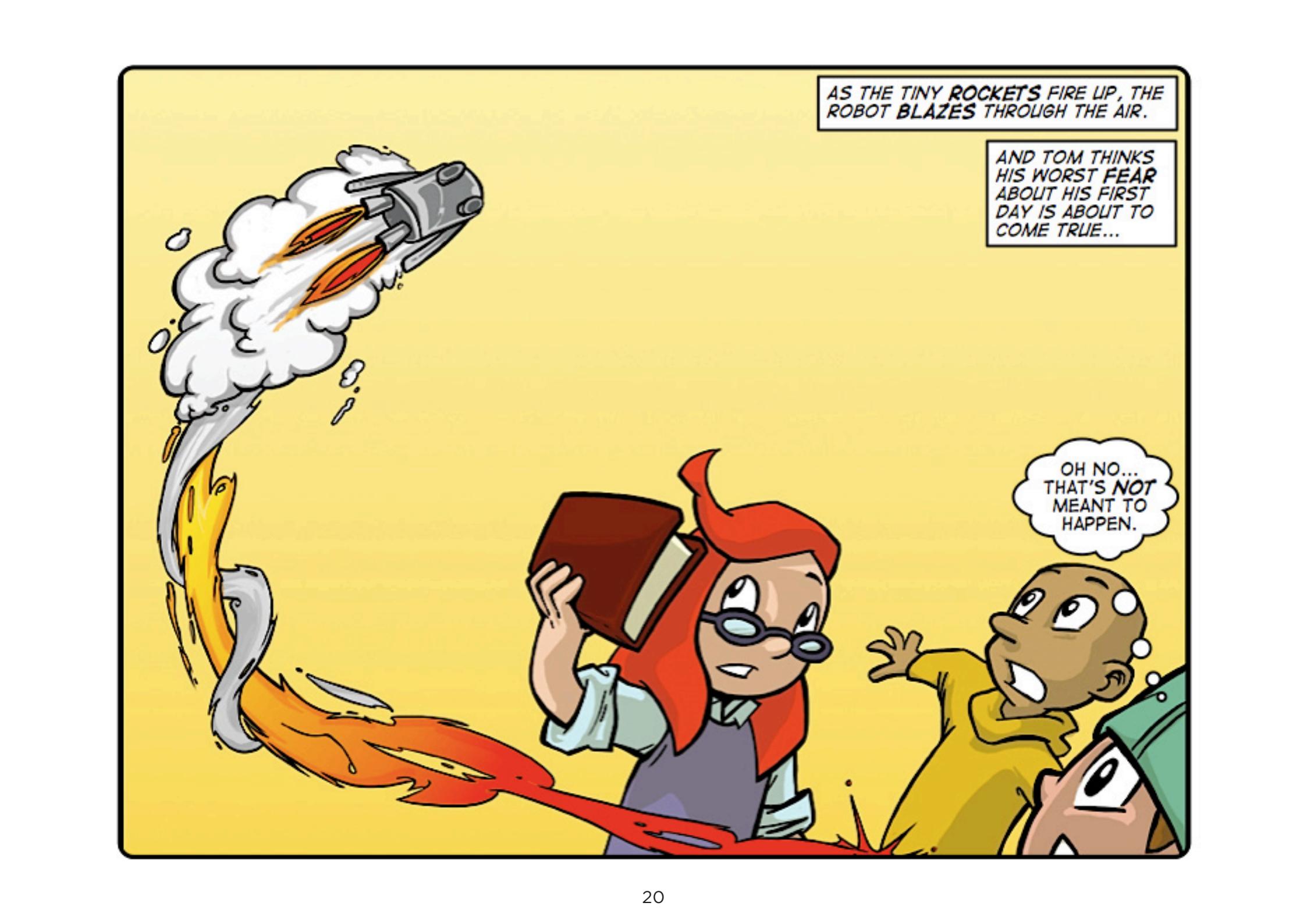


AS TOM PREPARES TO LAUNCH, THE REST OF THE CLASS IS COMPLETELY UNAWARE OF THE CHAOS THAT WILL FOLLOW...

REALLY? YOU WANNA SEE A BOOK MOVE?!

ONE, TWO, THREE... GO!





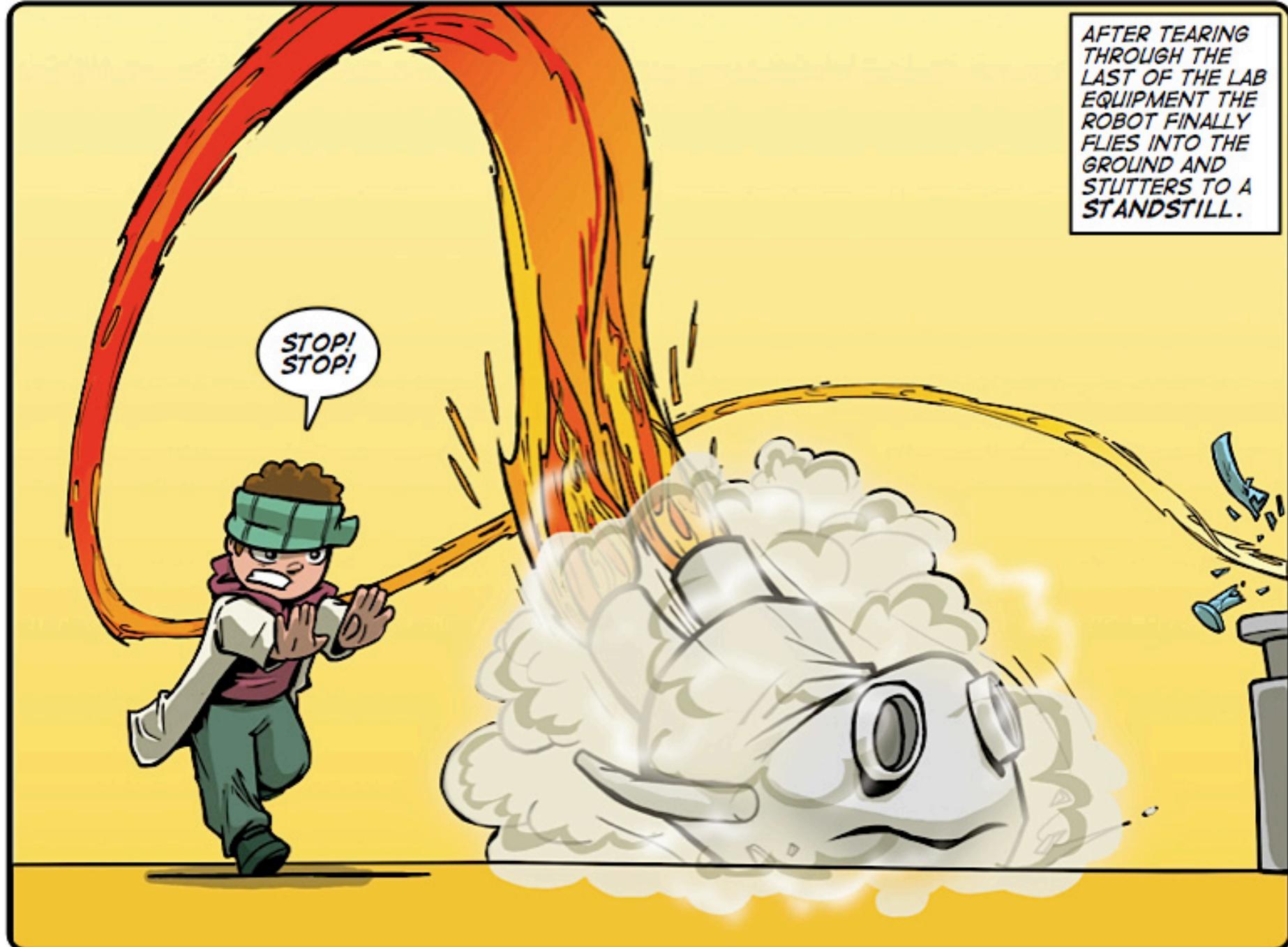
AS THE TINY ROCKETS FIRE UP, THE
ROBOT BLAZES THROUGH THE AIR.

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

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

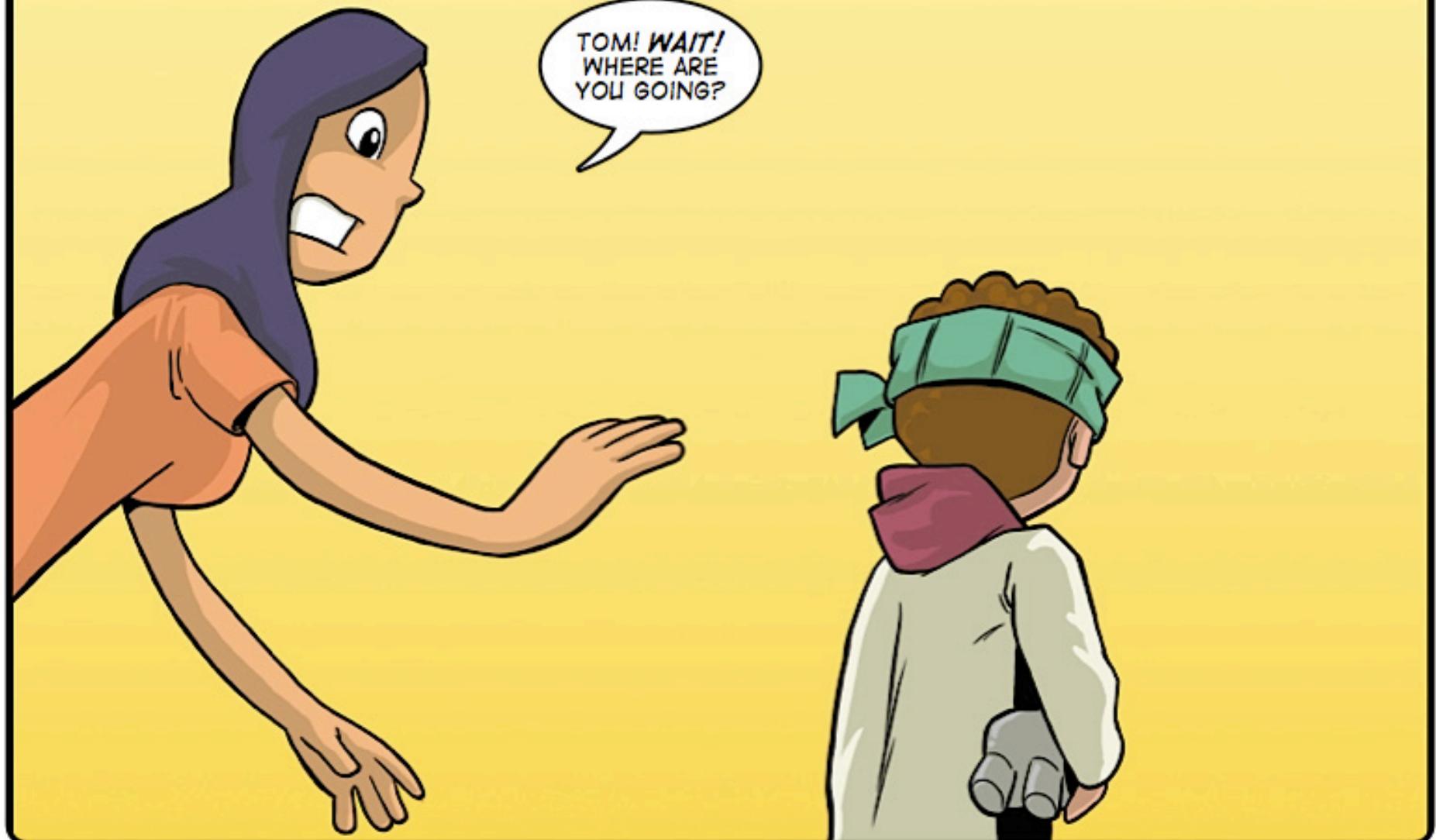
AS IT WRECKS EVERYTHING IN ITS PATH, TOM CAN ONLY HOPE THAT IT RUNS OUT OF FUEL QUICKLY.

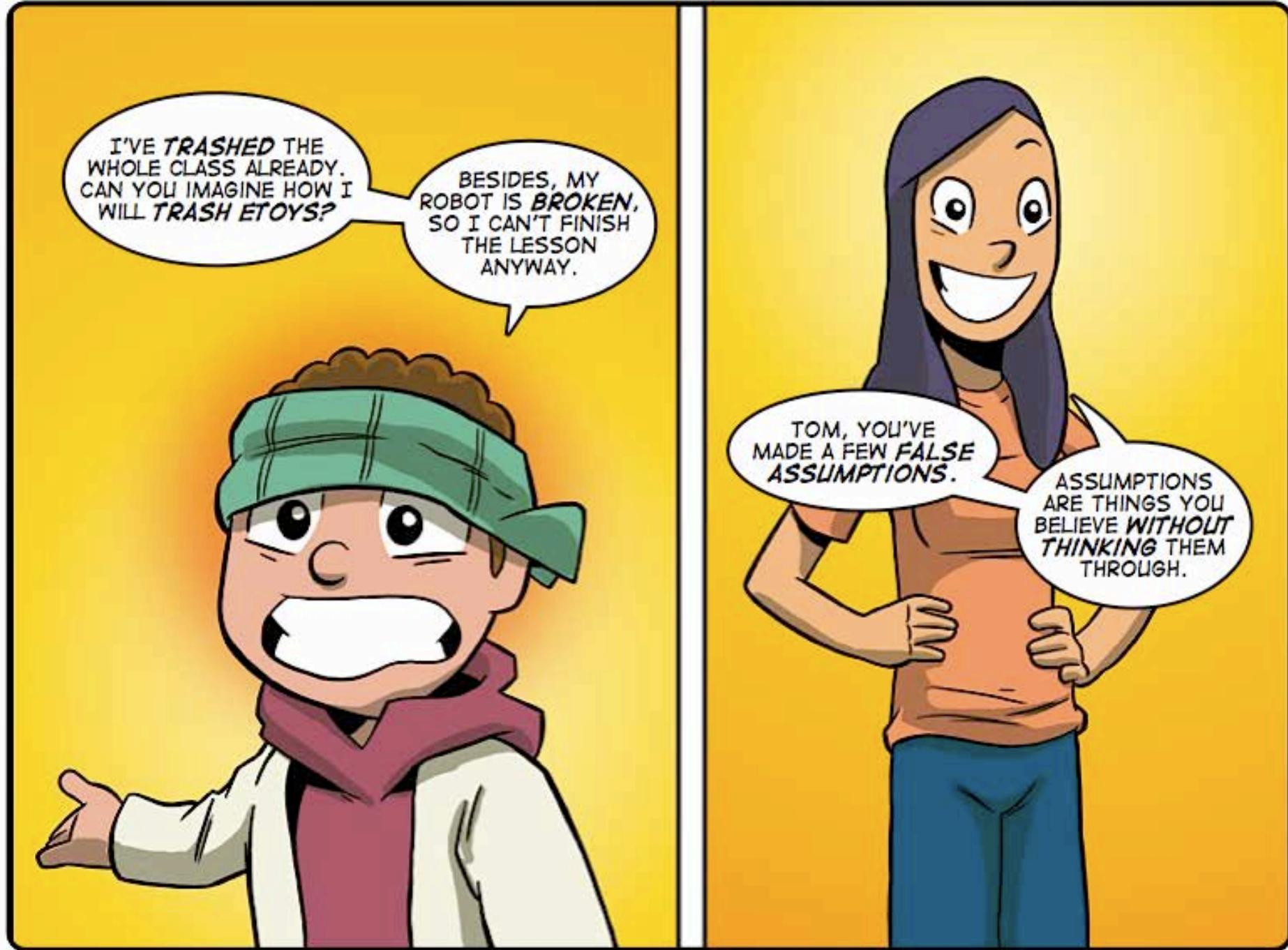




AFTER TEARING THROUGH THE LAST OF THE LAB EQUIPMENT THE ROBOT FINALLY FLIES INTO THE GROUND AND STUTTERS TO A STANDSTILL.

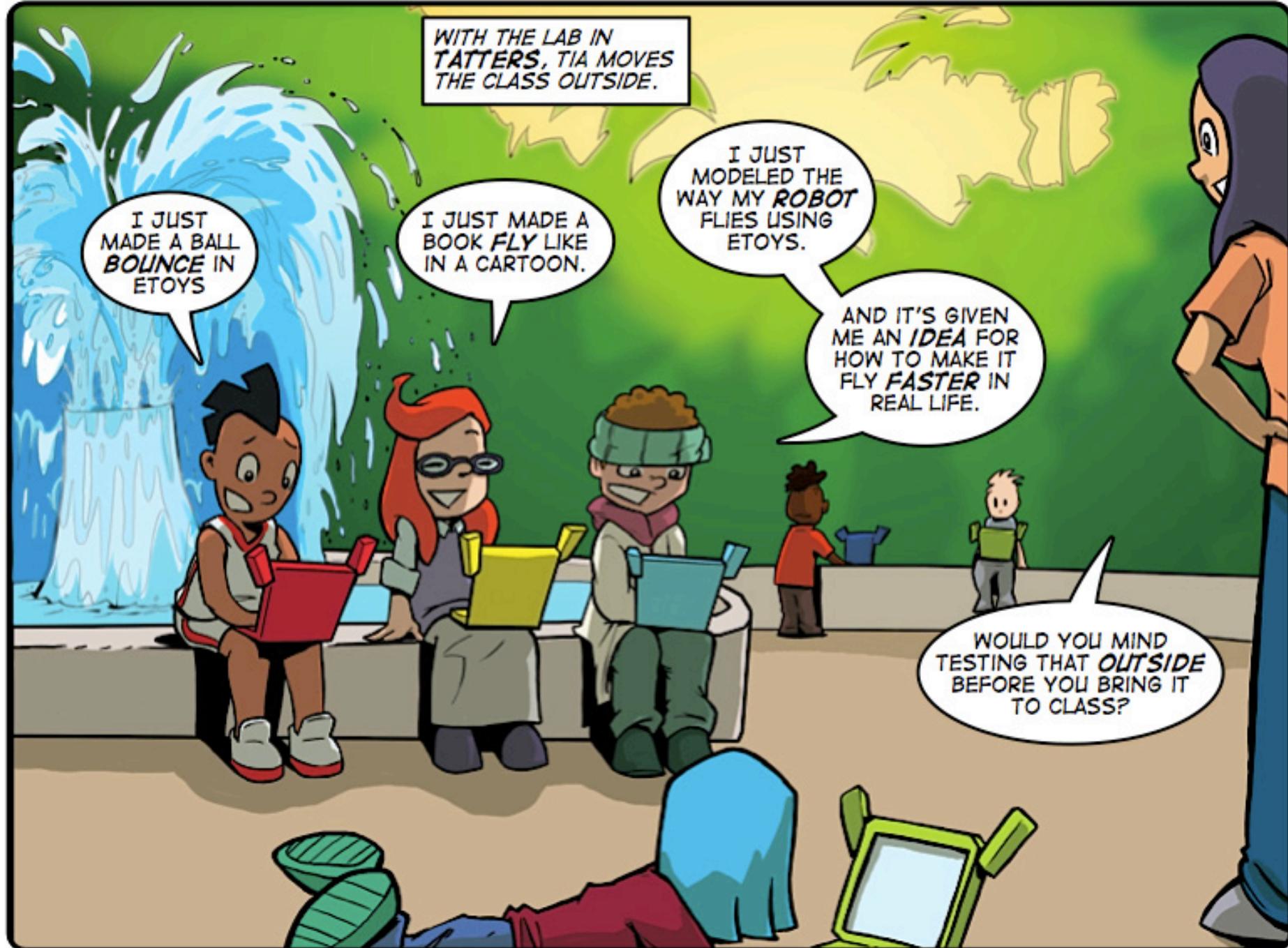
WITHOUT SAYING A WORD,
TOM PICKS UP HIS ROBOT
AND HEADS FOR THE DOOR.











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...



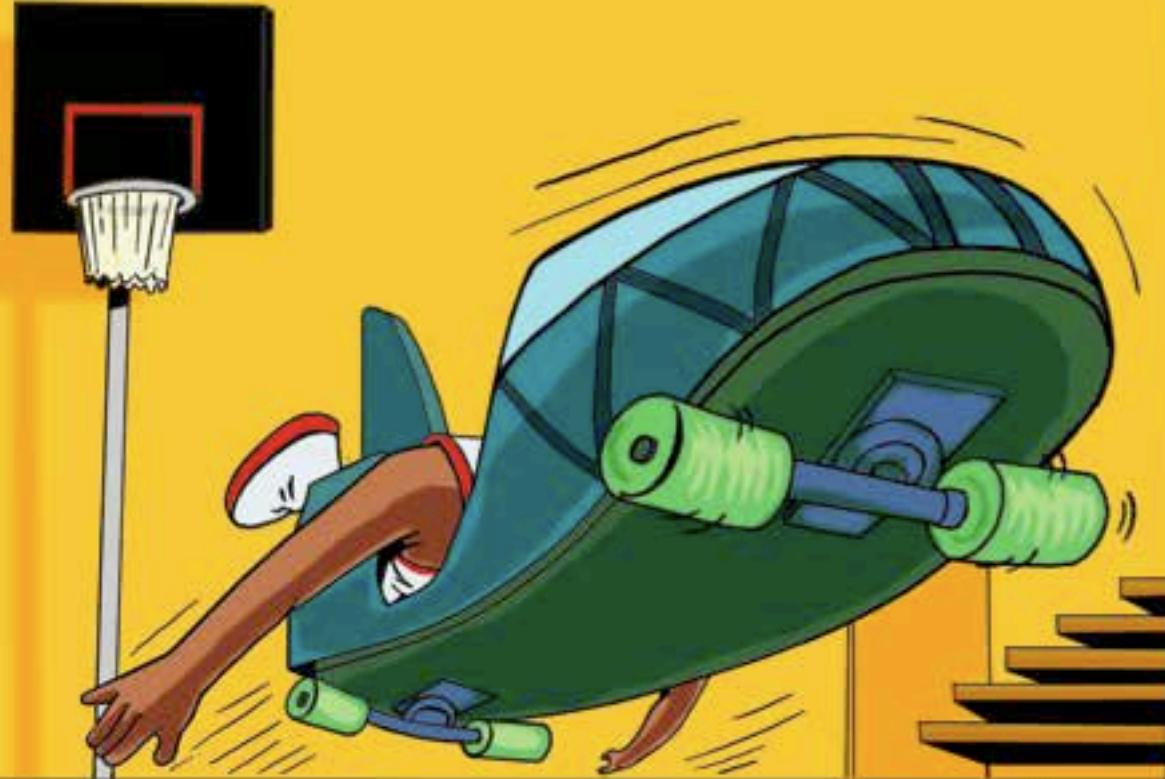


SCORE H A

JOJO FIGURES THAT HE CAN PUSH FURTHEST 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!

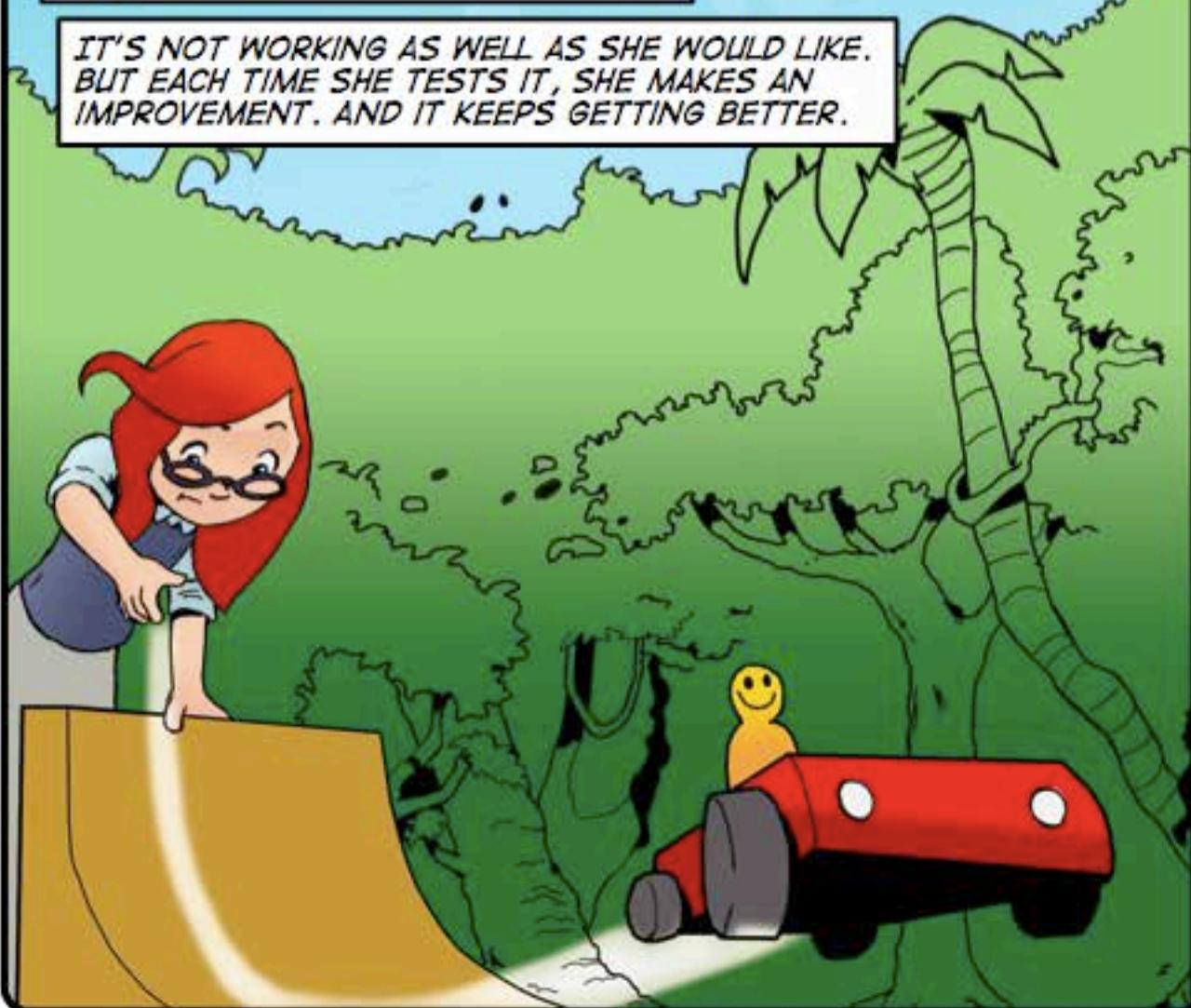
YEAH! WHAT WE WERE GONNA DO!



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?



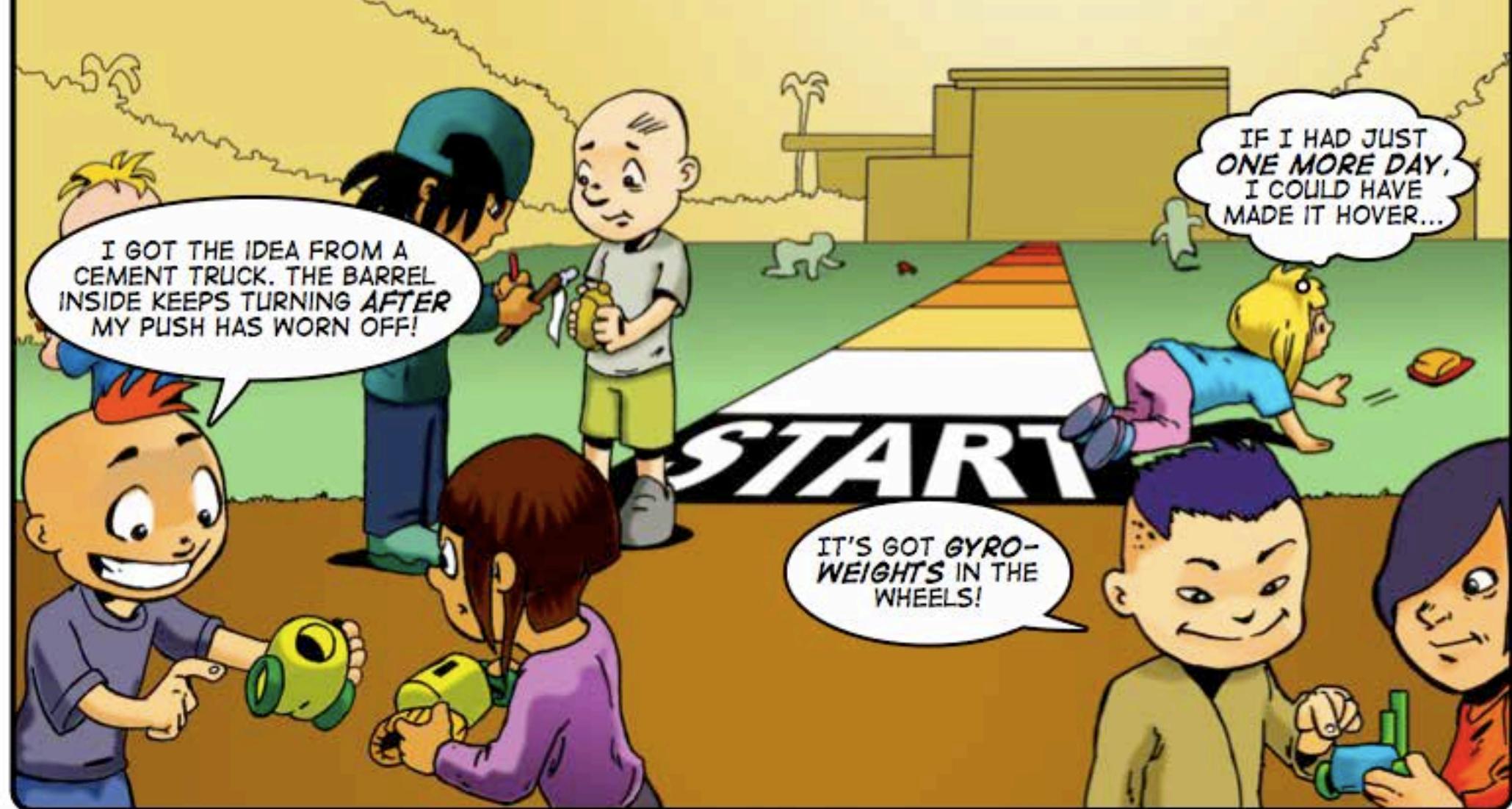
AND OF COURSE TOM IS BEING WATCHED.
EVERYONE EXPECTS HIM TO BUILD
SOMETHING AMAZING. AND HE HAS!

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.



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!



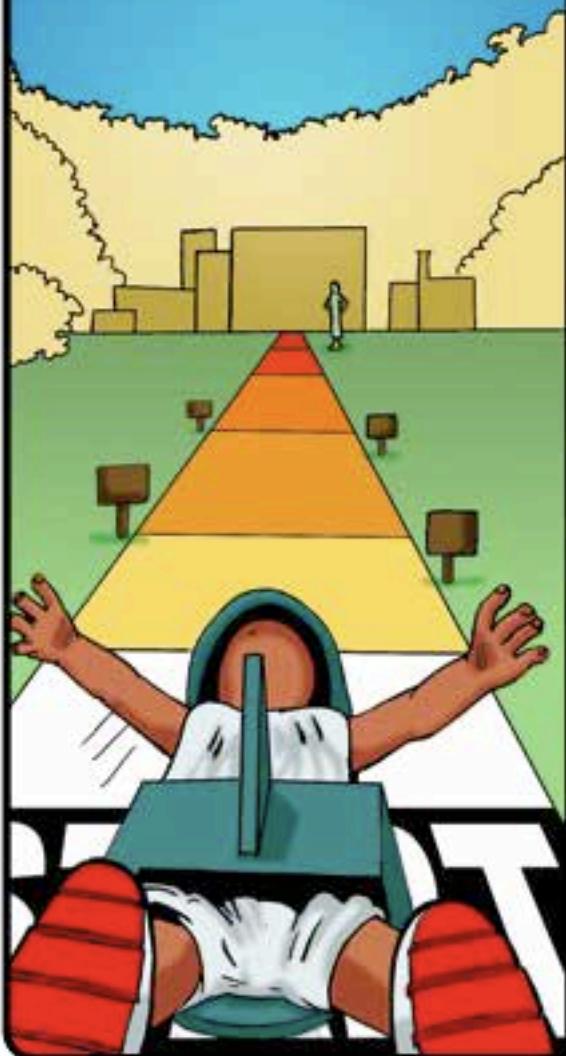
GUYS, DON'T YOU SEE?
HE'S RIPPED OFF OUR IDEAS,
BUT THERE'S **NO WAY** HE CAN
MAKE THEM WORK!



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 ROLLS TO A STOP.



• HE KNOWS WE STOLE THE SKATEBOARD IDEA. WHY DOES HE LOOK SO PROUD OF HIMSELF? •

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



ANOTHER WHOPPING DISTANCE! THE COMPETITION IS LOOKING TOUGH!



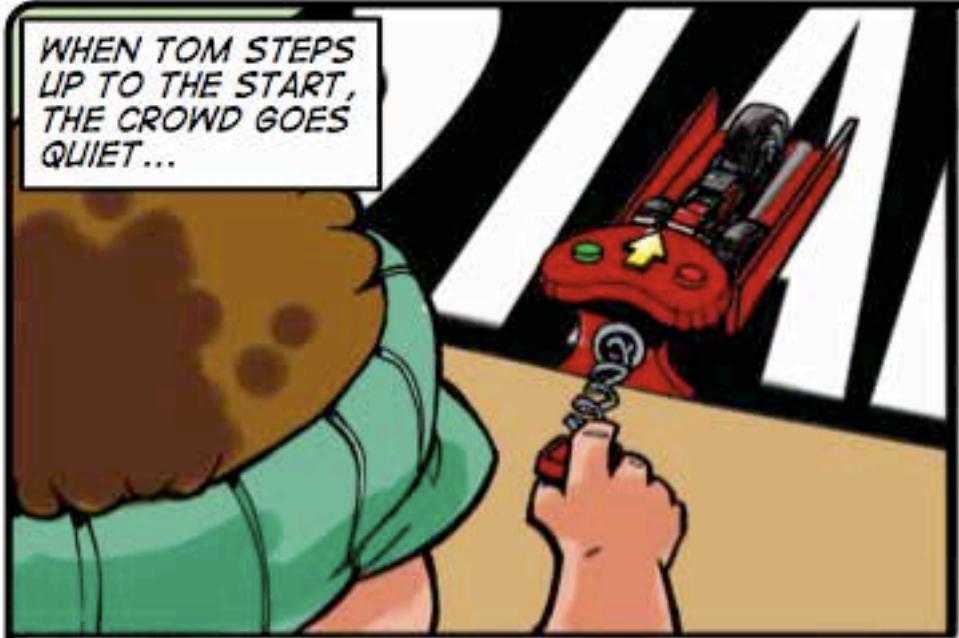
AT FIRST FARAH'S CAR DOESN'T GO VERY FAR...

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

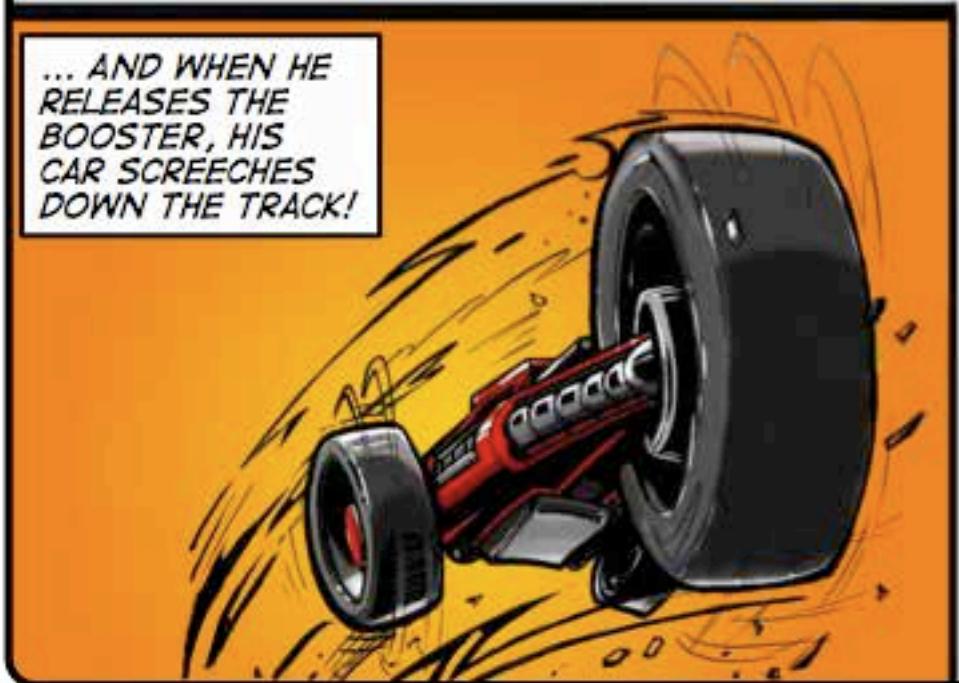


* HUH?! I DON'T GET IT. WHEN SHE SAW THE SAIL ON OUR CAR SHE WAS ANGRY. NOW... *

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



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

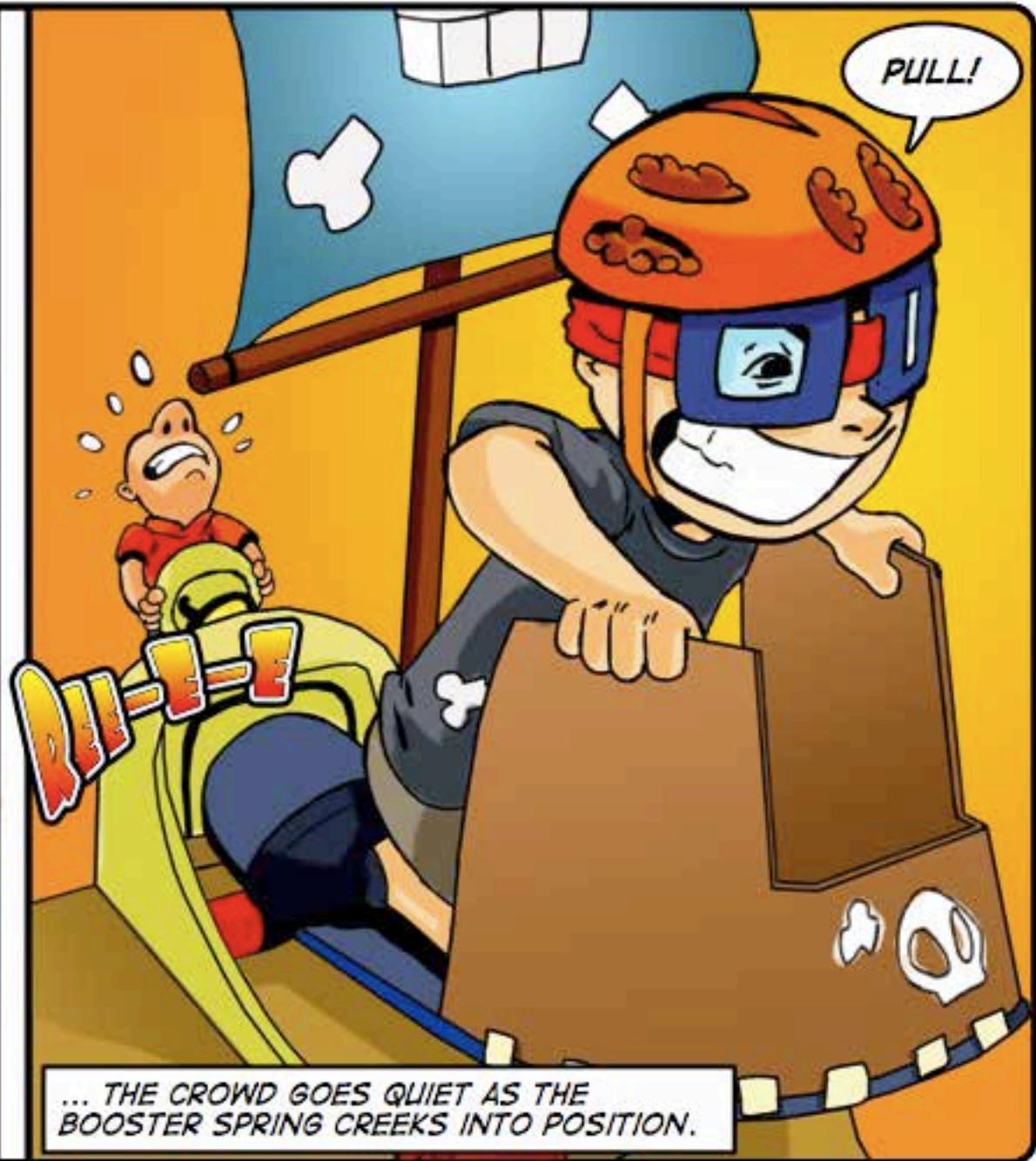
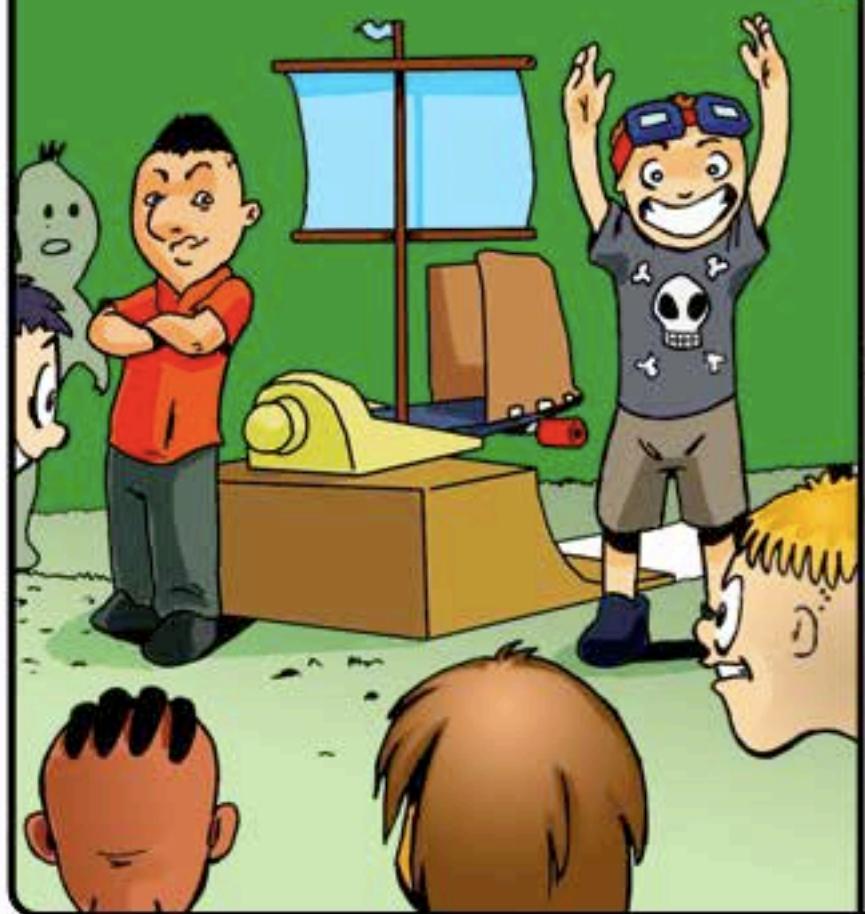


LIKE JOJO, SOPHIE AND FARRAH BEFORE HIM, TOM COULDN'T BE MORE PROUD OF HIS WORK.



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...



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





NOW ASK YOURSELF THIS:
DID YOU *EARN THE RIGHT* TO
USE *OUR IDEAS*?

LOOKS TO ME LIKE
HE EARNED THE RIGHT
TO *WIPE OUT!*



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

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

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.



NOW WHAT DO YOU SAY WE GIVE THOSE CARS ANOTHER PUSH?

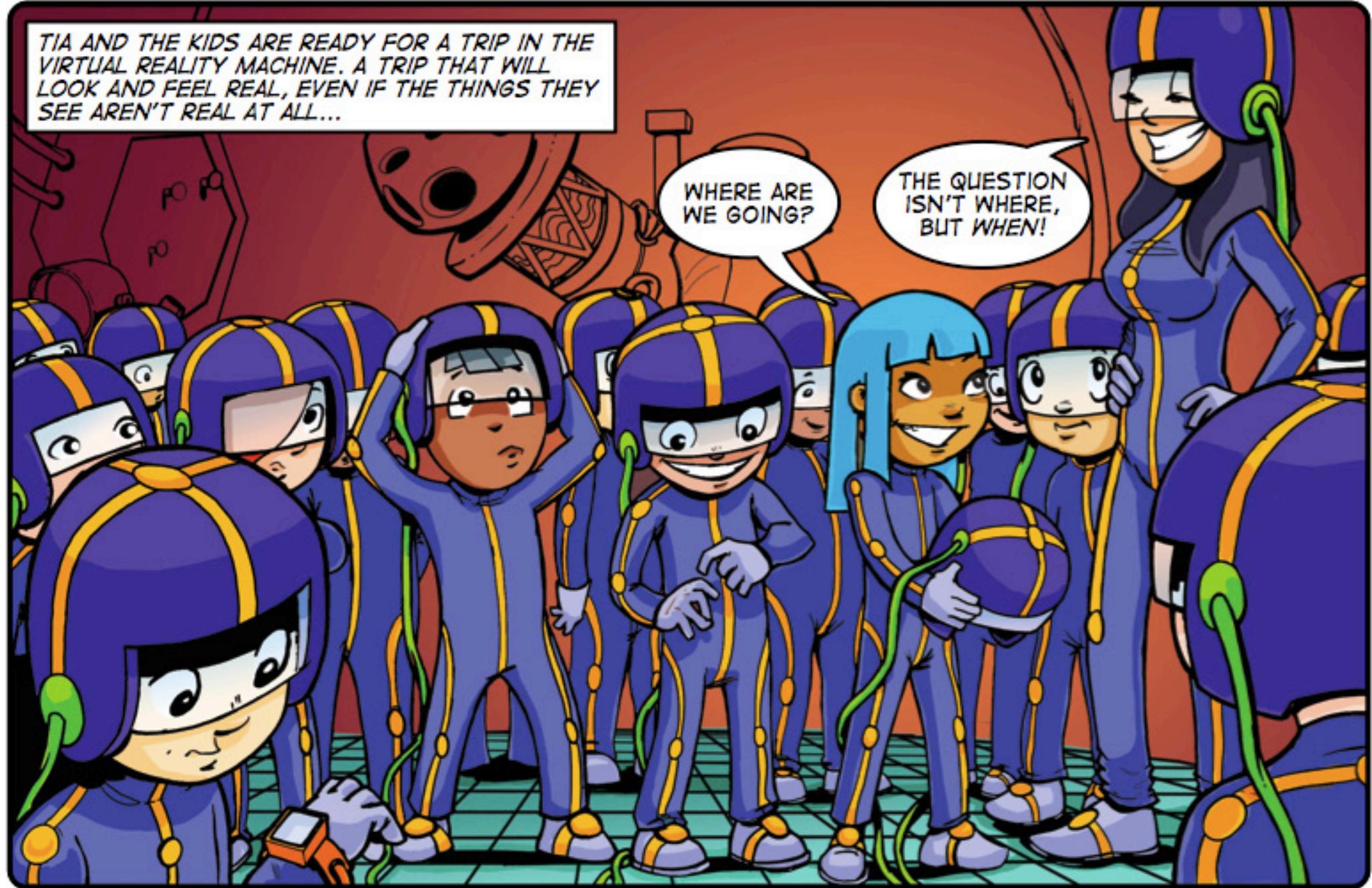
PERHAPS YOU TWO SHOULD GO BACK TO THE DRAWING BOARD. **YOUR OWN** DRAWING BOARD, THAT IS.

3. THE LUNAR MENACE

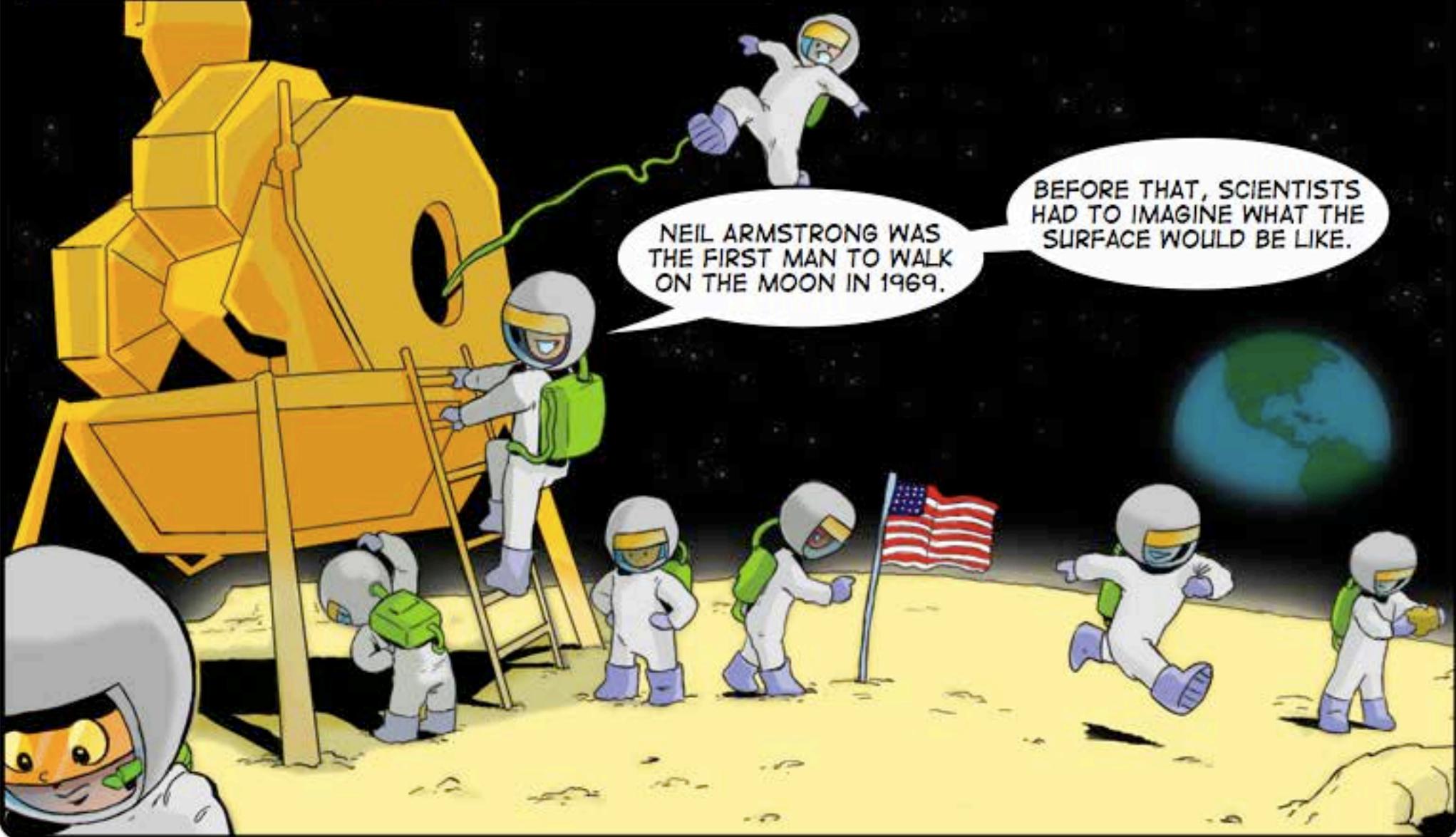
TIA AND THE KIDS ARE READY FOR A TRIP IN THE VIRTUAL REALITY MACHINE. A TRIP THAT WILL LOOK AND FEEL REAL, EVEN IF THE THINGS THEY SEE AREN'T REAL AT ALL...

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...



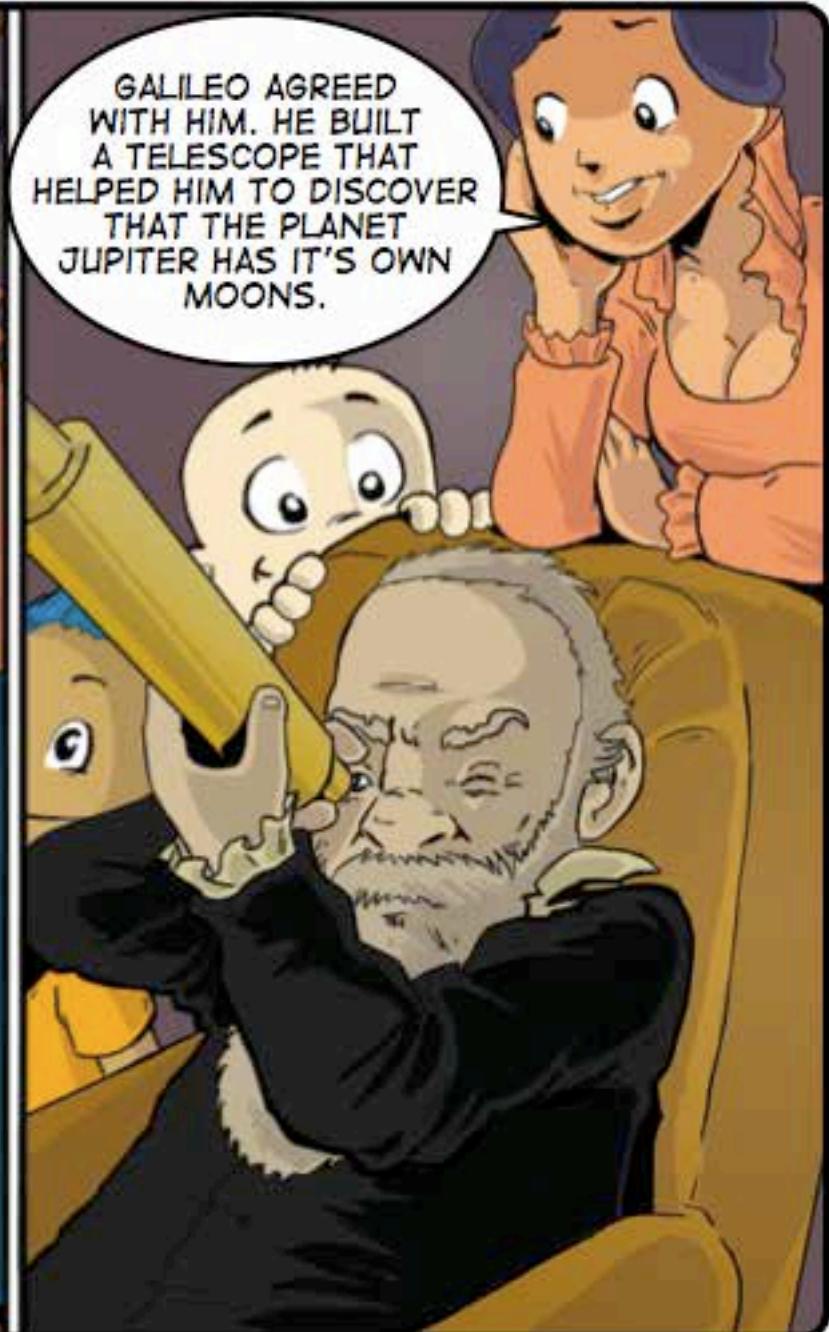
ANOTHER FLASH OF LIGHT AND THE KIDS ARE STANDING IN FRONT OF NICOLAUS COPERNICUS IN 1514.

IN COPERNICUS'S TIME, PEOPLE BELIEVED THE SUN REVOLVED AROUND THE EARTH.

BUT COPERNICUS'S STUDIES MADE HIM **SCEPTICAL** OF THIS POINT OF VIEW. HE BELIEVED THAT THE EARTH AND MOON TOGETHER REVOLVE AROUND THE SUN.



GALILEO AGREED WITH HIM. HE BUILT A TELESCOPE THAT HELPED HIM TO DISCOVER THAT THE PLANET JUPITER HAS IT'S OWN MOONS.



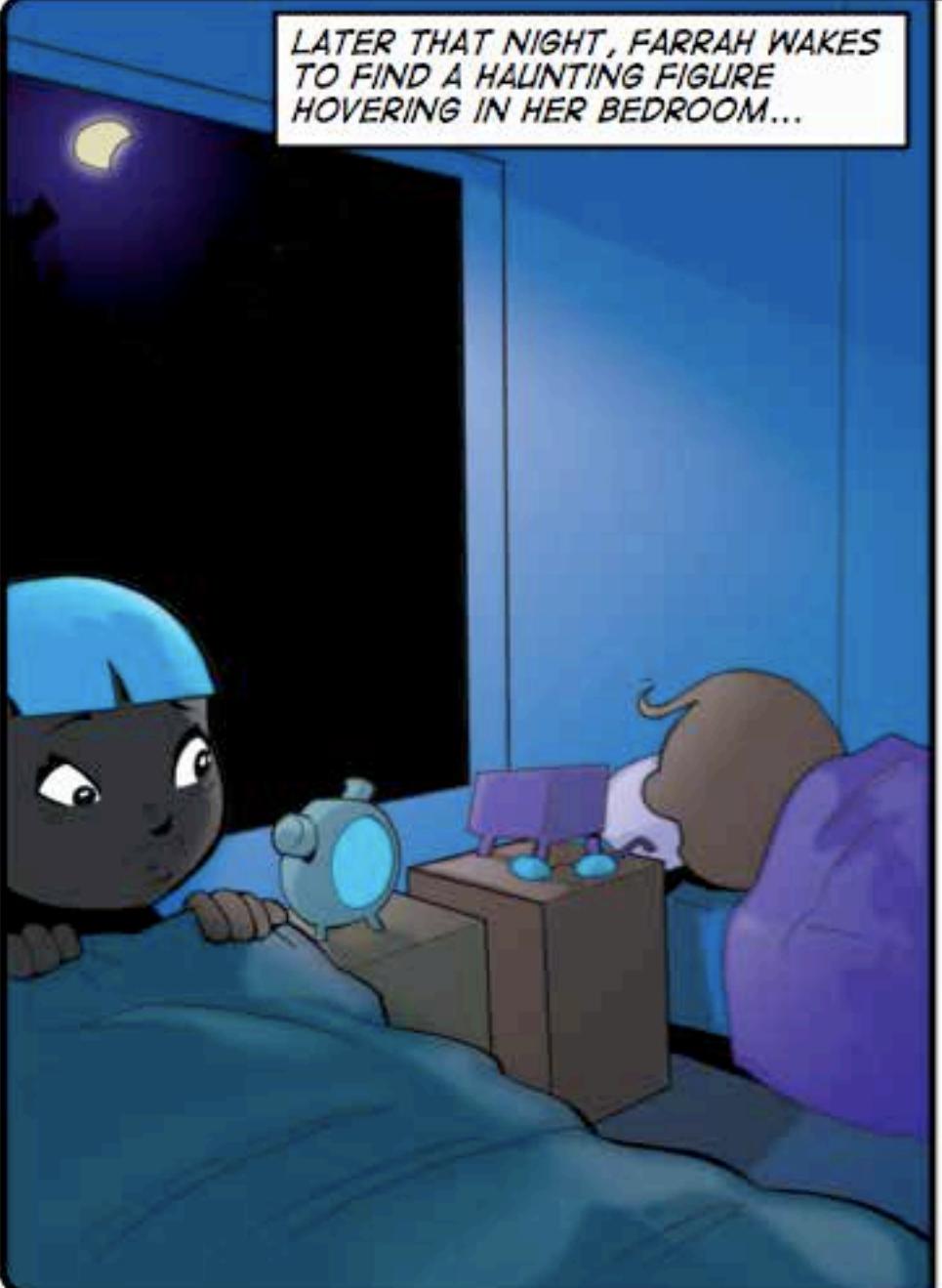
ANOTHER FLASH OF LIGHT AND THE MACHINE TAKES THEM TO A COLD, FOGGY FOREST IN TRANSYLVANIA...



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...

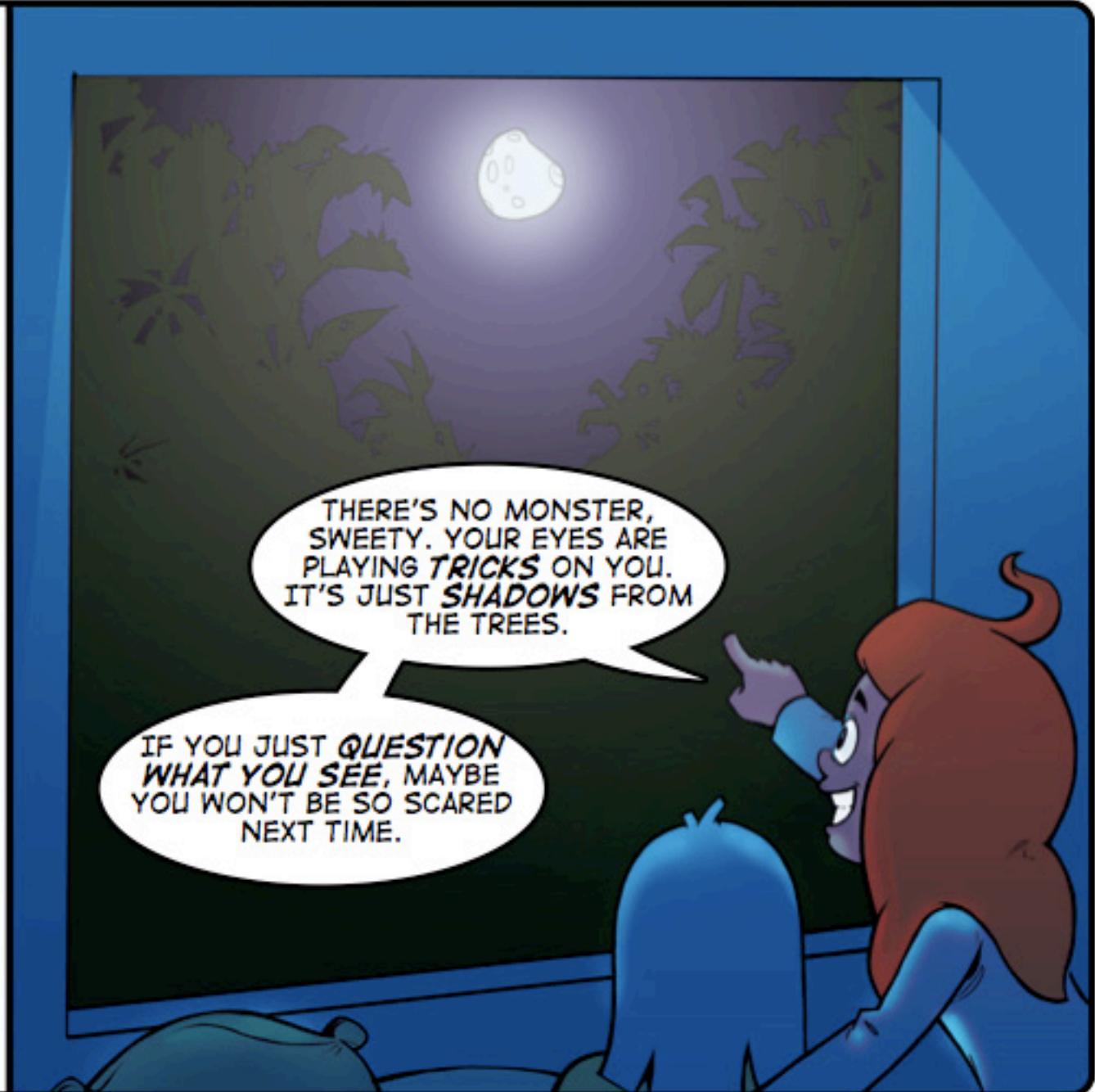


LATER THAT NIGHT, FARRAH WAKES TO FIND A HAUNTING FIGURE HOVERING IN HER BEDROOM...



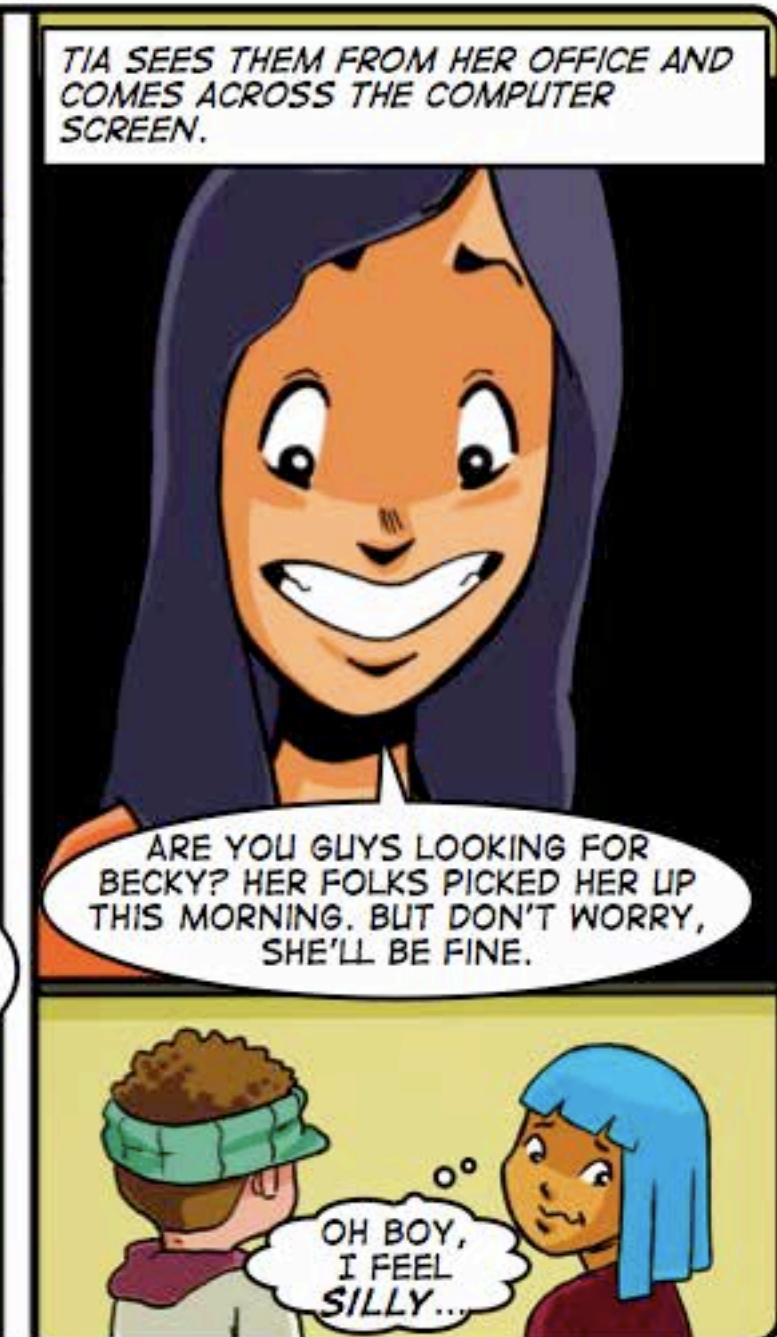
... AN ICY FEAR GRIPS HER HEART AND SHE MOANS IN TERROR...

SOPHIE HEARS HER FRIEND AND JUMPS OUT OF BED.



THE NEXT DAY
AT LUNCH...





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!



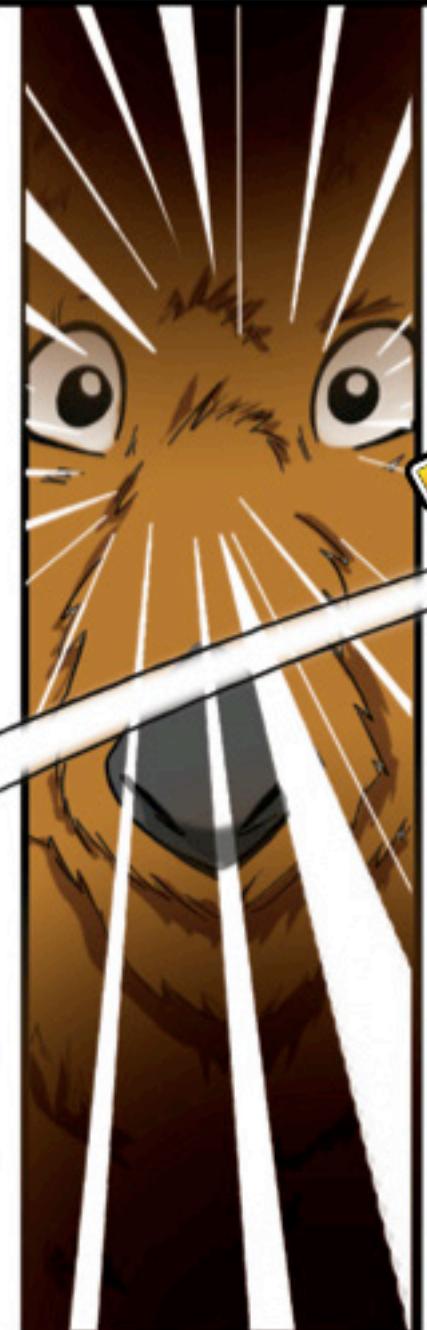
BUT FARRAH DOESN'T SCREAM
THIS TIME...



JUST AS I
THOUGHT! TAKE A
SECOND TO STUDY
THE PICTURE AND
THE ILLUSION
FALLS APART
AT THE SEAMS!

?!

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



AND THEN THE GAME IS UP!

WHAT'S GOING
ON? WHAT
THE...?

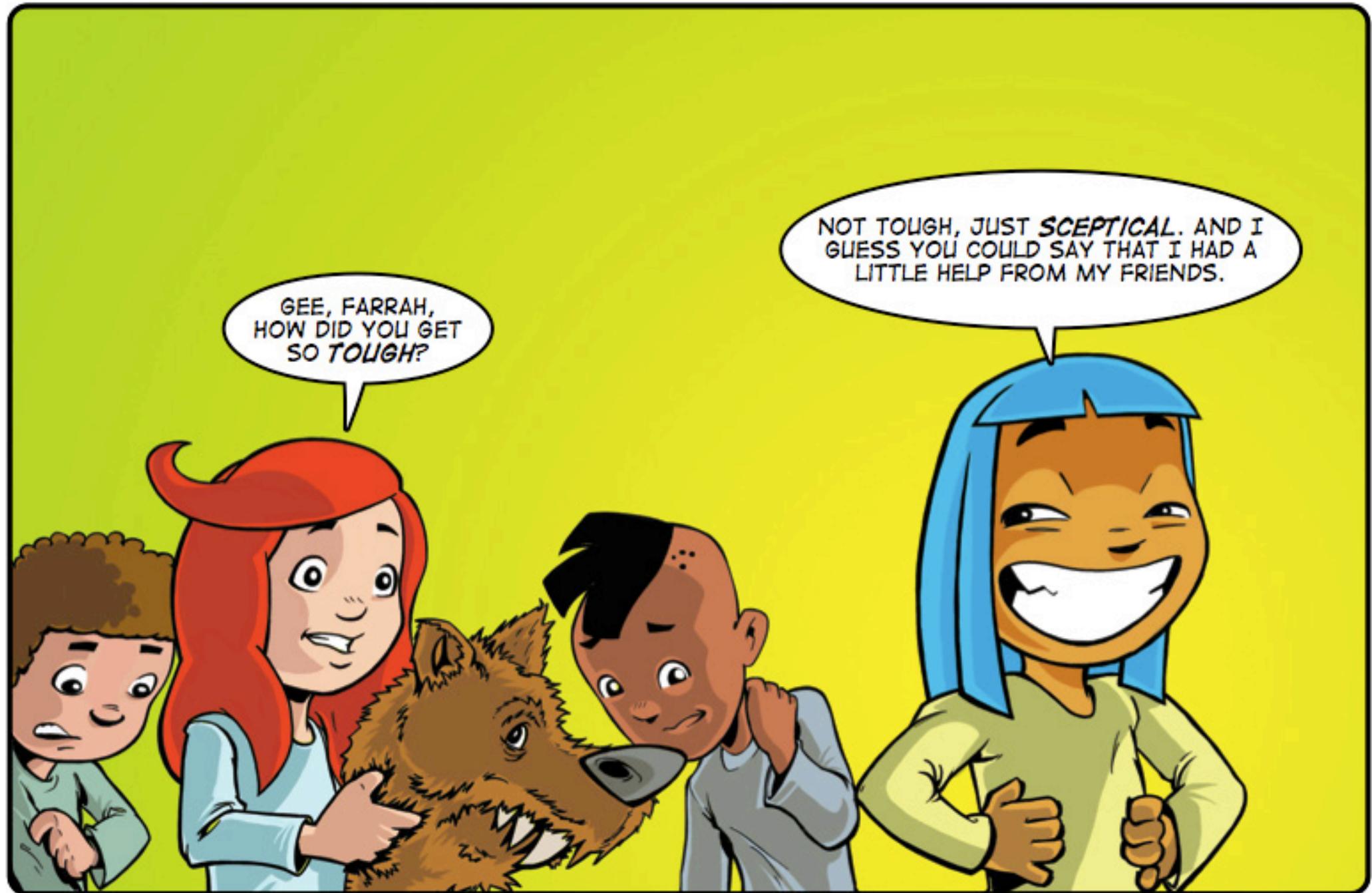
GET UP! I'M
NOT DONE WITH
YOU YET!

HELP!
SHE'S A
MANIAC!

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.



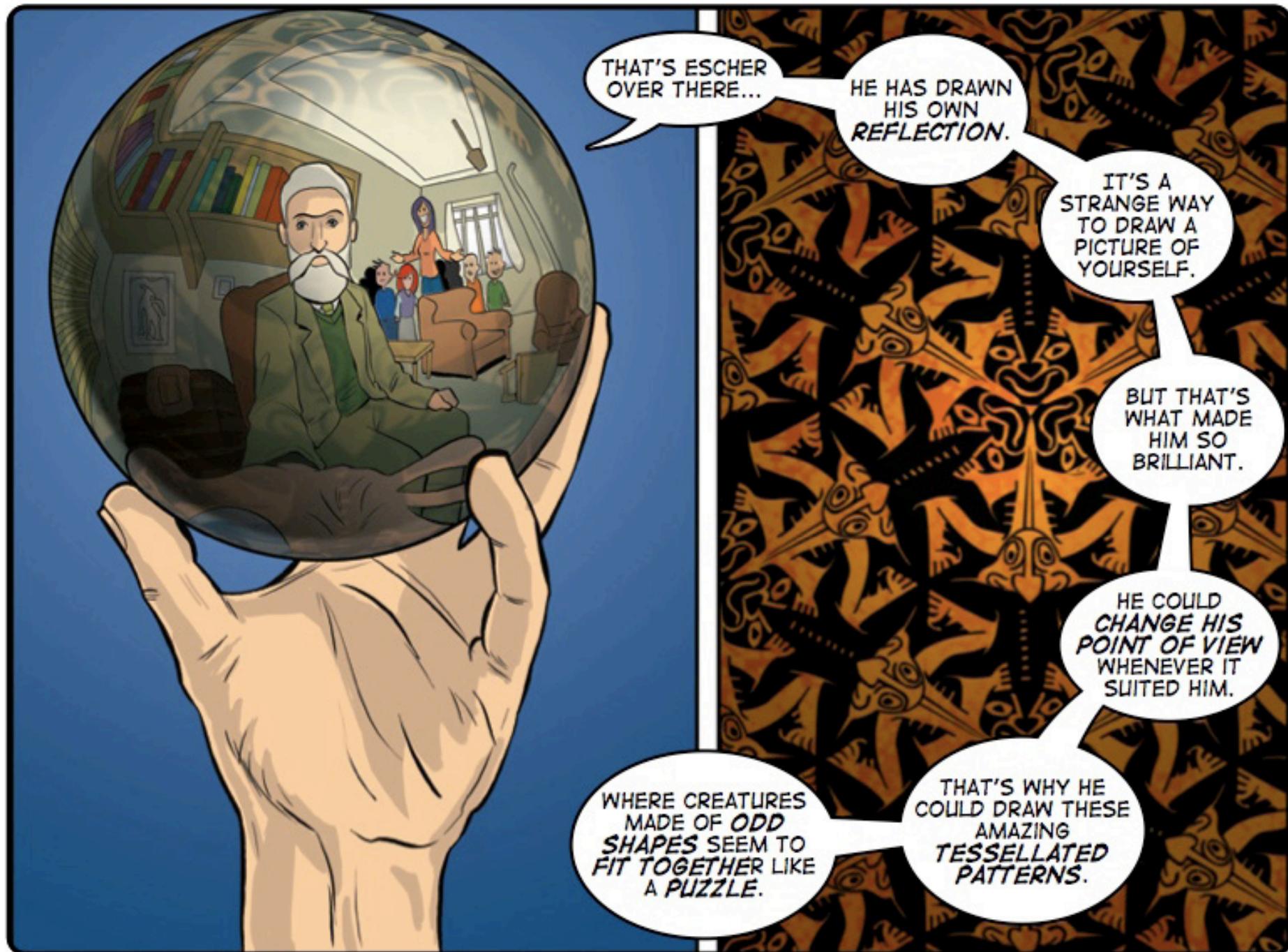
A FLASH OF BRIGHT LIGHT AND A SECOND LATER THEY ARE STANDING IN A STRANGE, STRANGE WORLD...

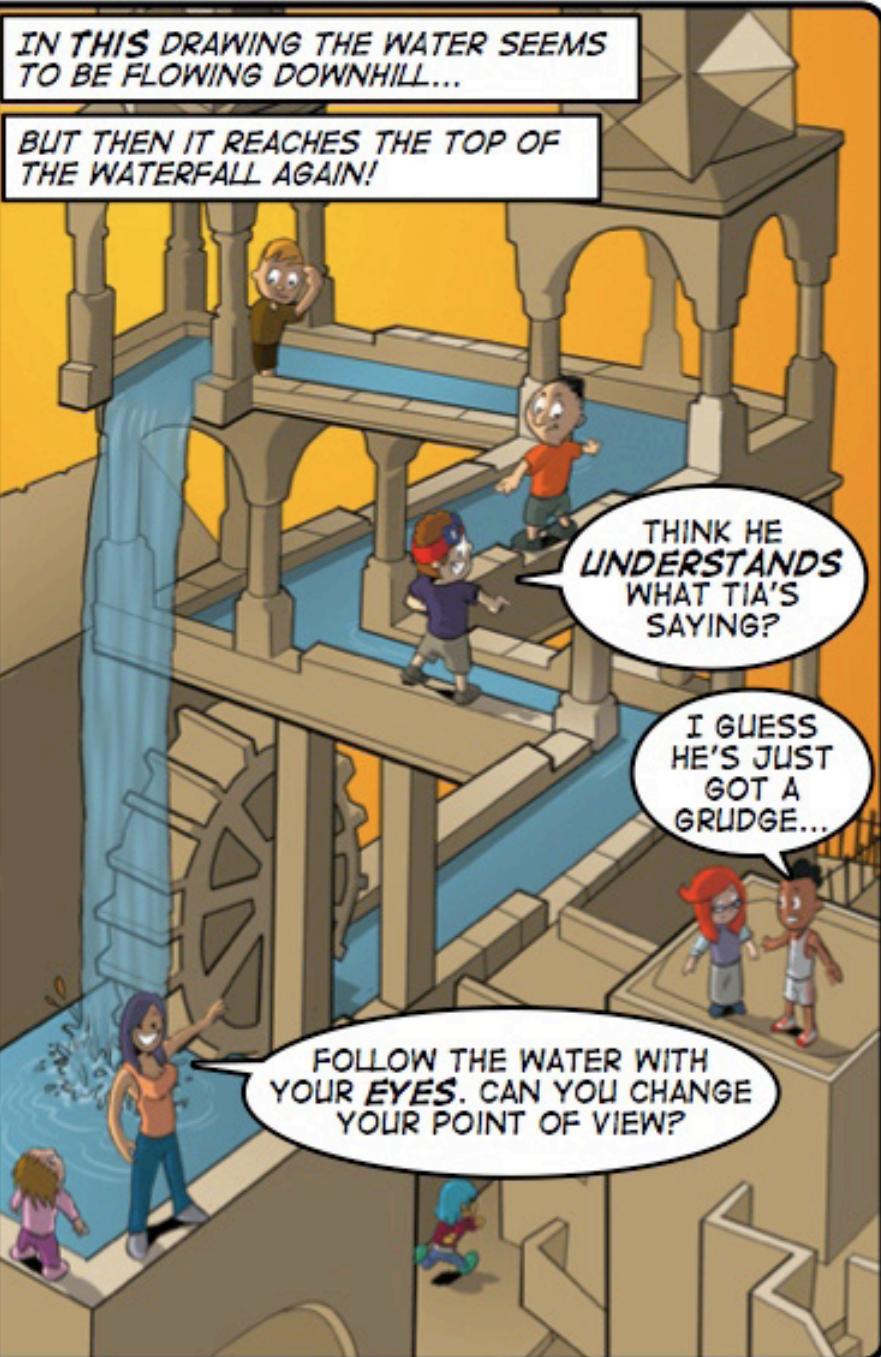
NOT A WORLD, ACTUALLY, BUT A DRAWING BY MC ESCHER. A DRAWING WHERE UP AND DOWN DEPEND ON YOUR POINT OF VIEW.

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!





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!

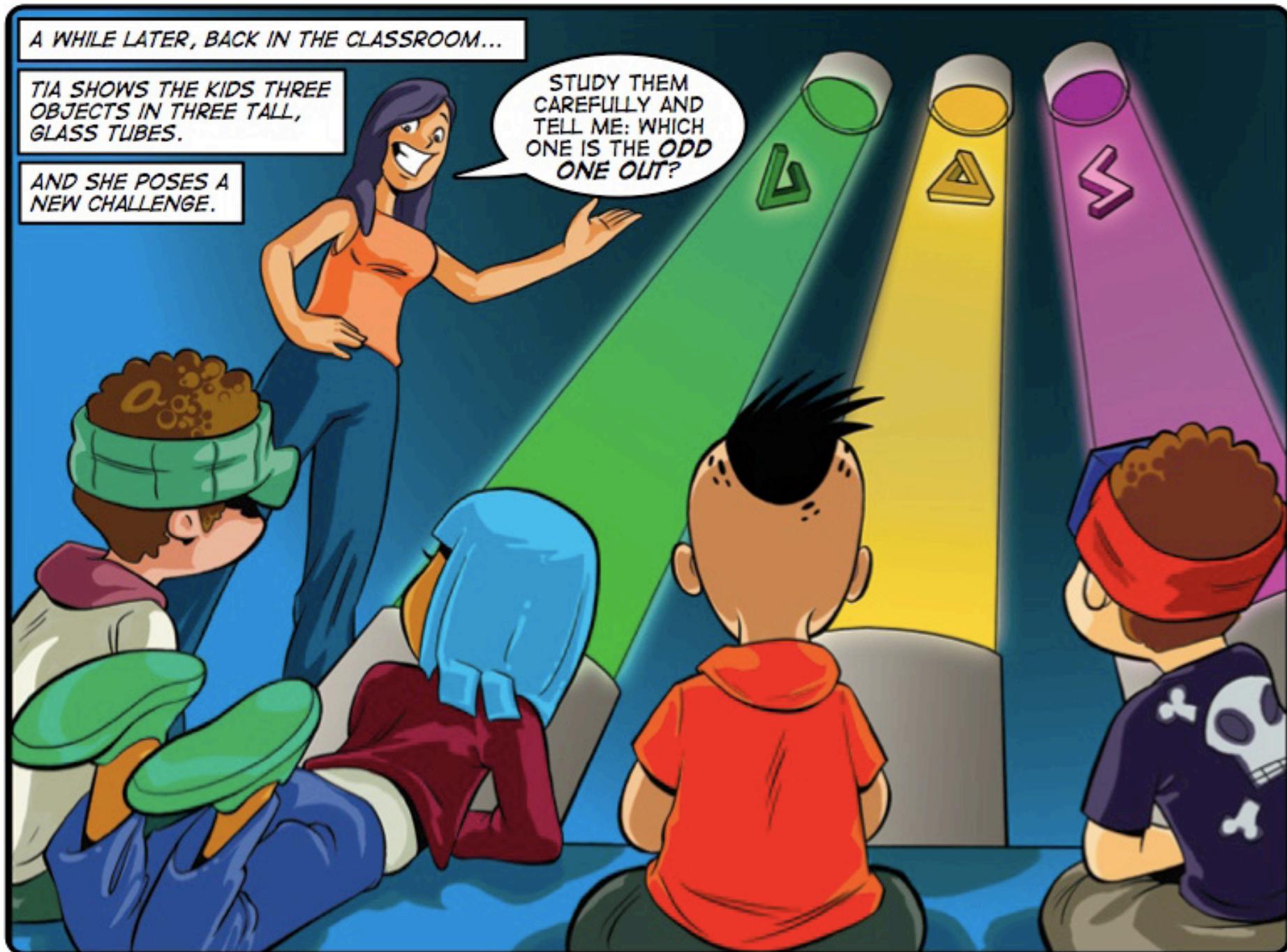
AND SOMETIMES HE DREW CREATURES IN **TESSELLATED PATTERNS**.

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...

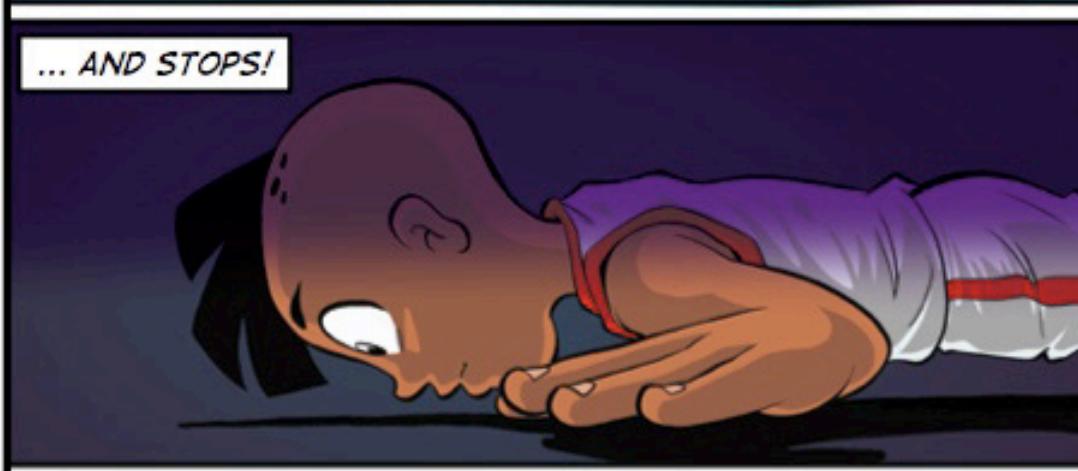


JOJO FALLS INTO A DEEP...



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



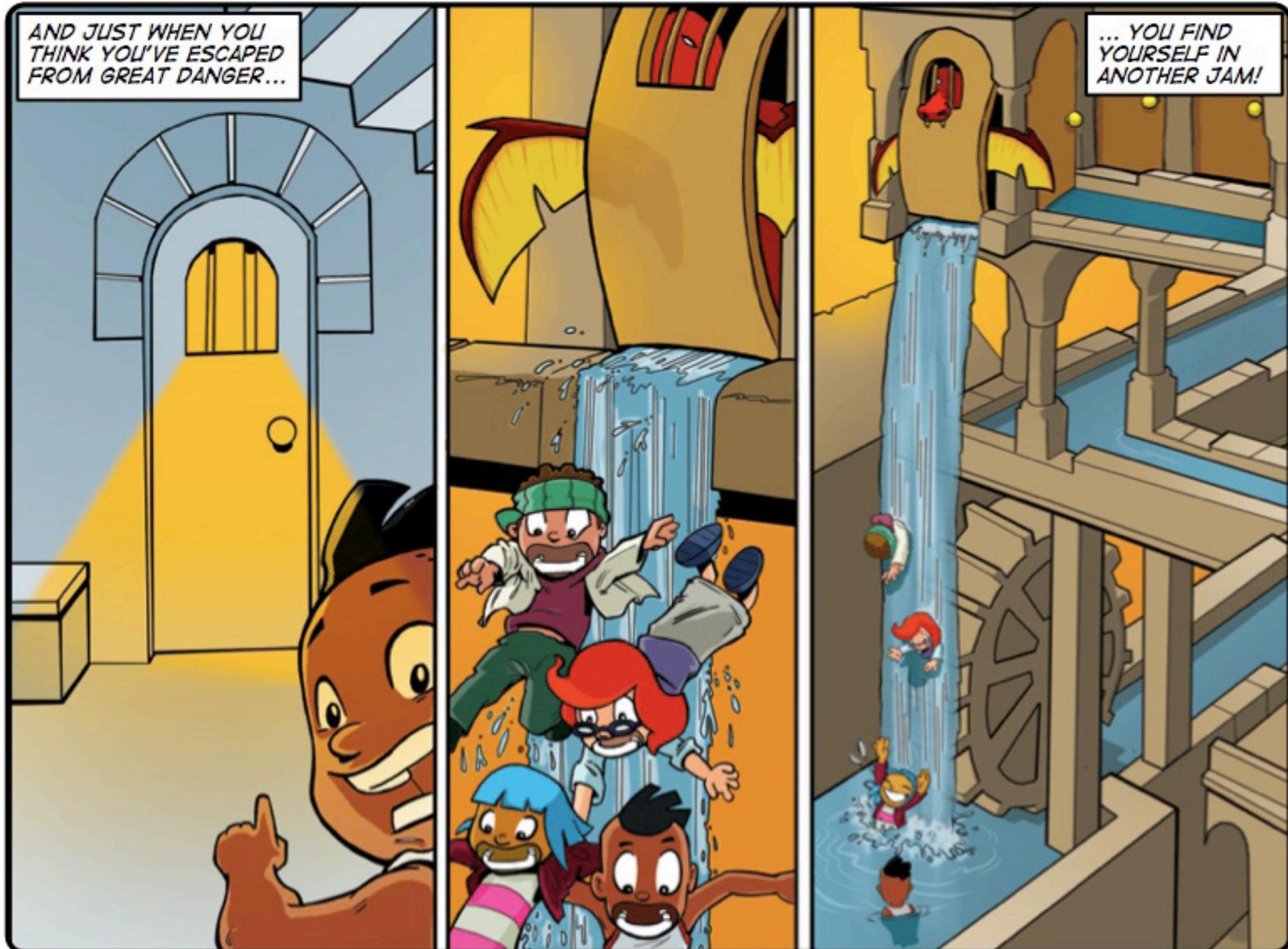


BUT, AS YOU KNOW, DREAMS ARE NEVER THAT SIMPLE!

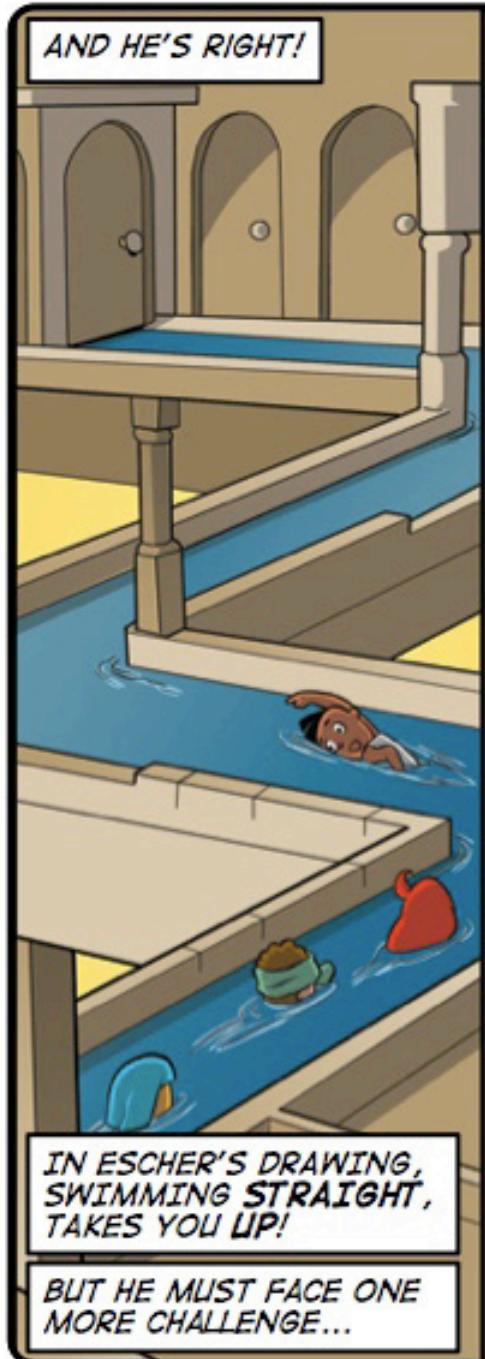


IN DREAMS YOU CAN'T ALWAYS
TELL WHICH WAY IS UP...











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?

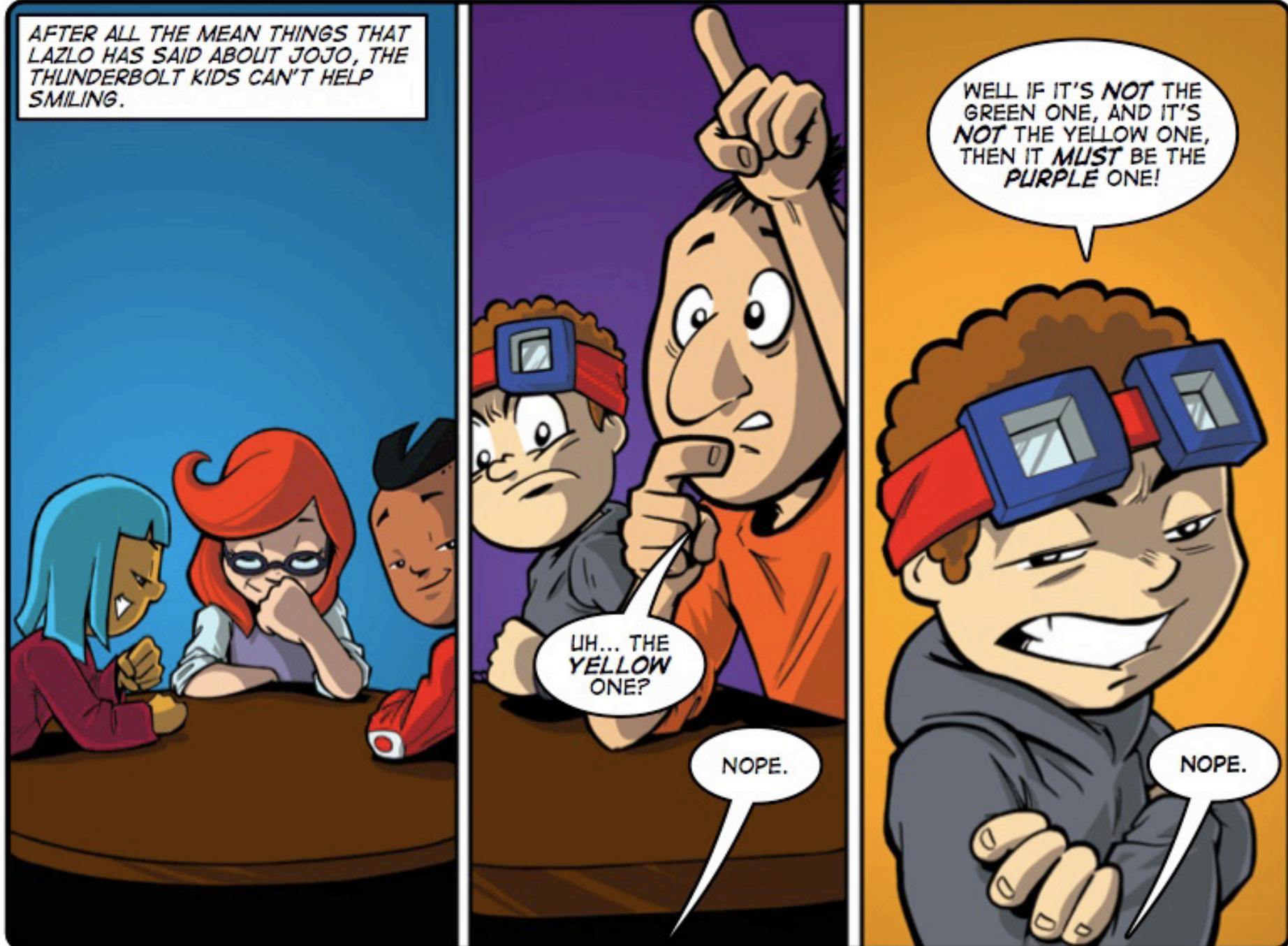
I CAN'T WAIT TO
HEAR WHAT CRAZY
IDEA HE HAS!

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.

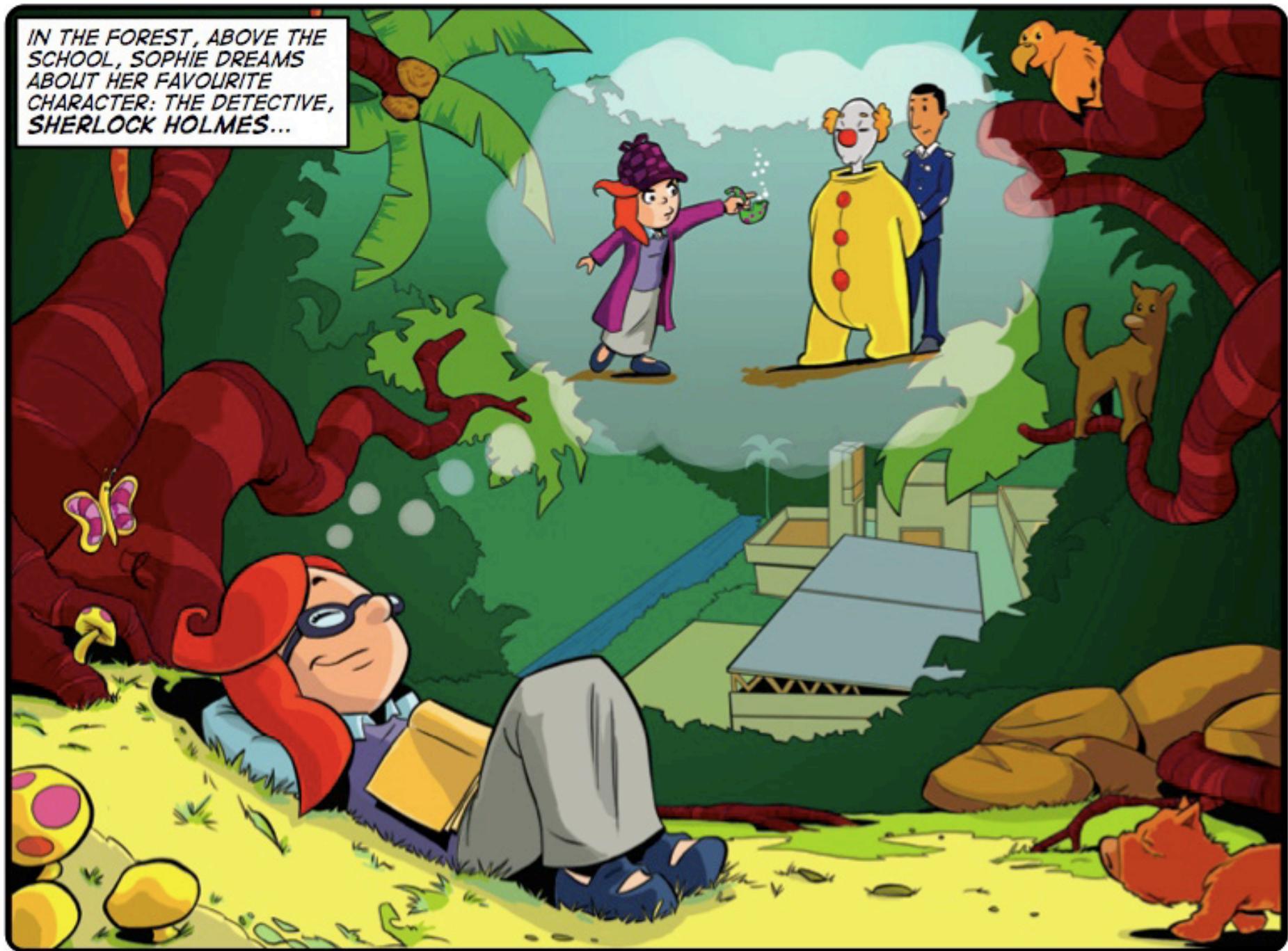


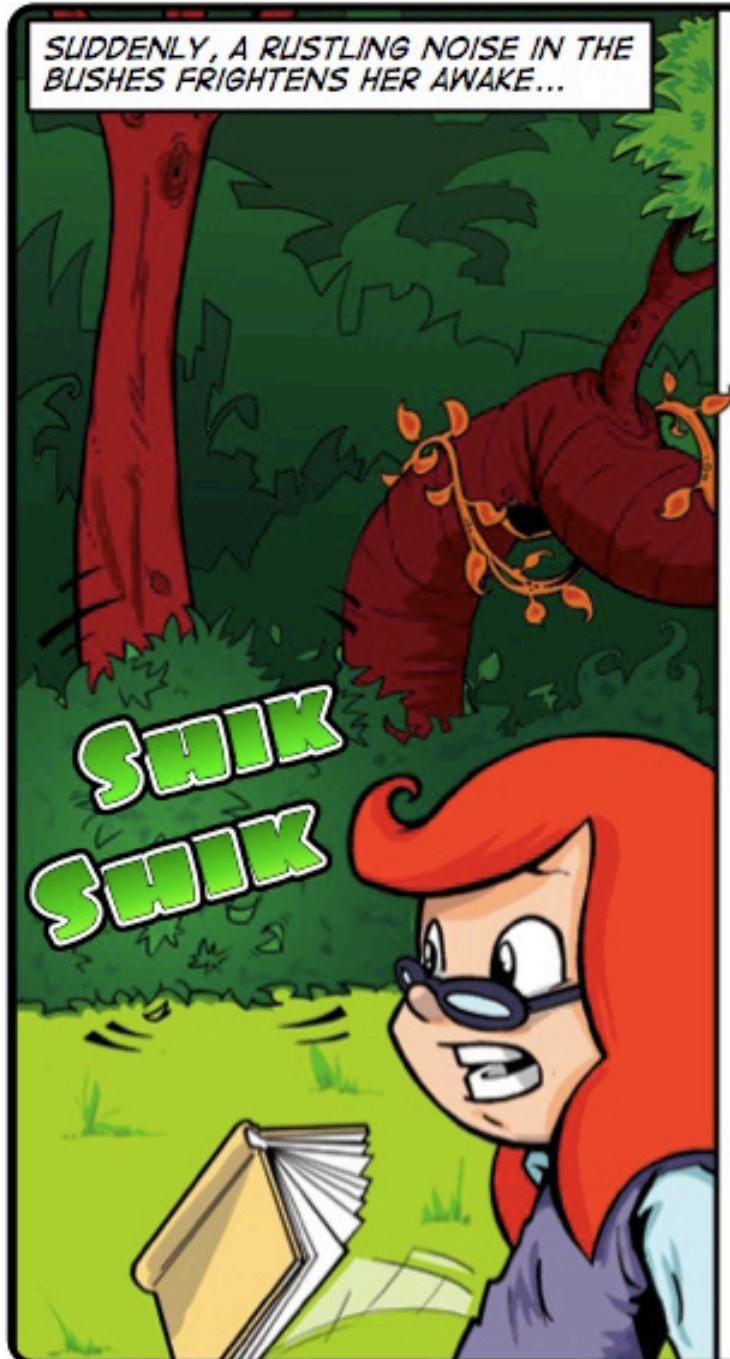




5. DETECTIVE SOPHIE

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









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

BUT SOPHIE ISN'T 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!





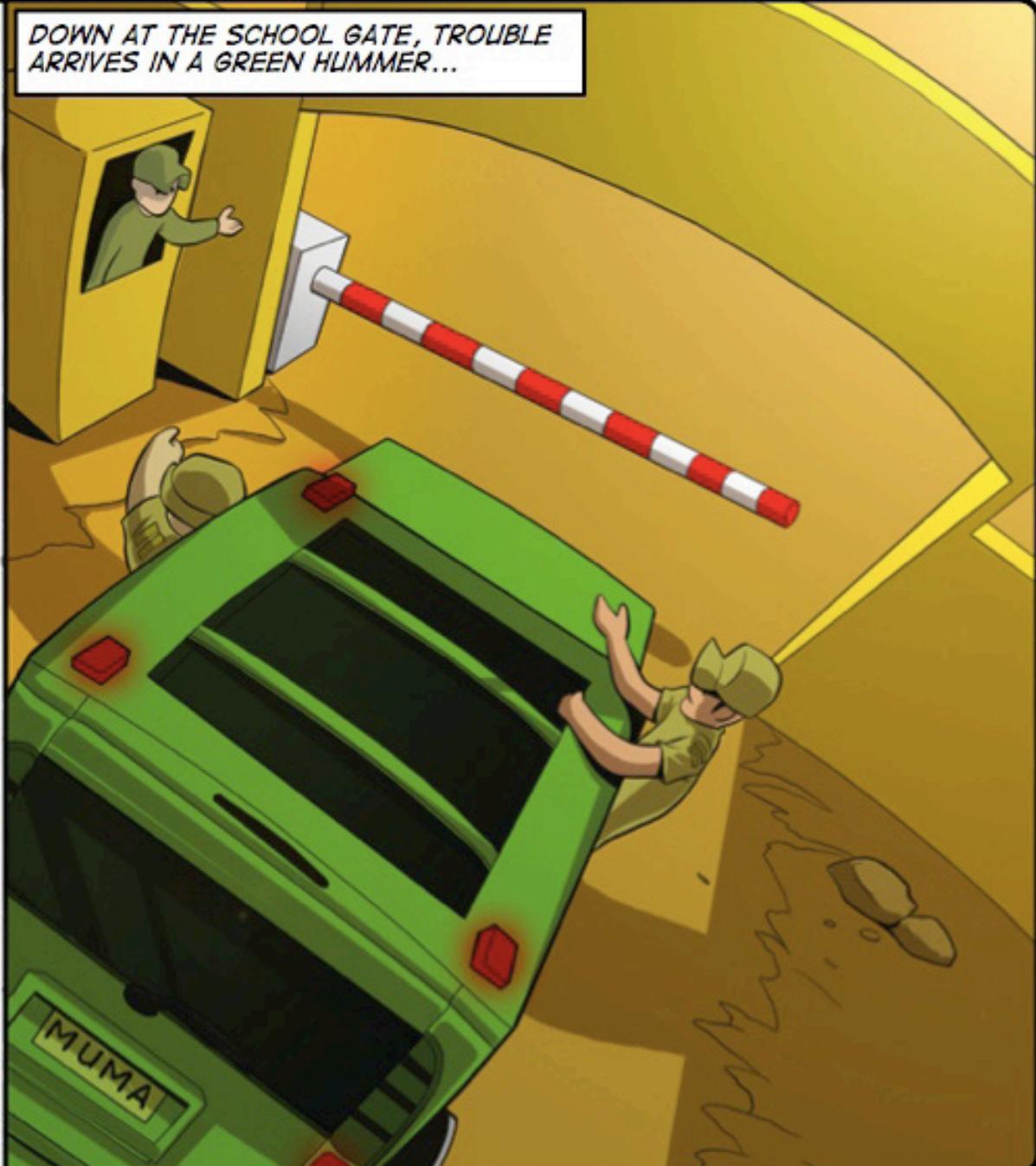
BUT SOPHIE DOESN'T CARE IF THE OTHERS LAUGH AT HER. SHE KNOWS SHE'S ONTO SOMETHING!

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

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

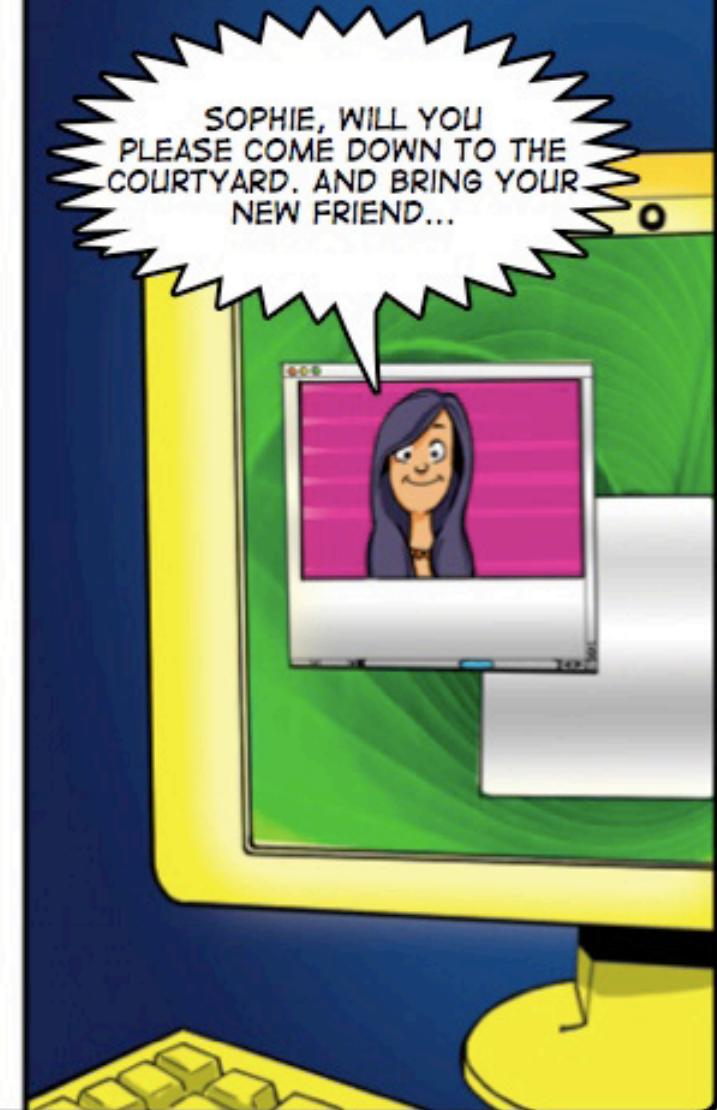


DOWN AT THE SCHOOL GATE, TROUBLE ARRIVES IN A GREEN HUMMER...





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

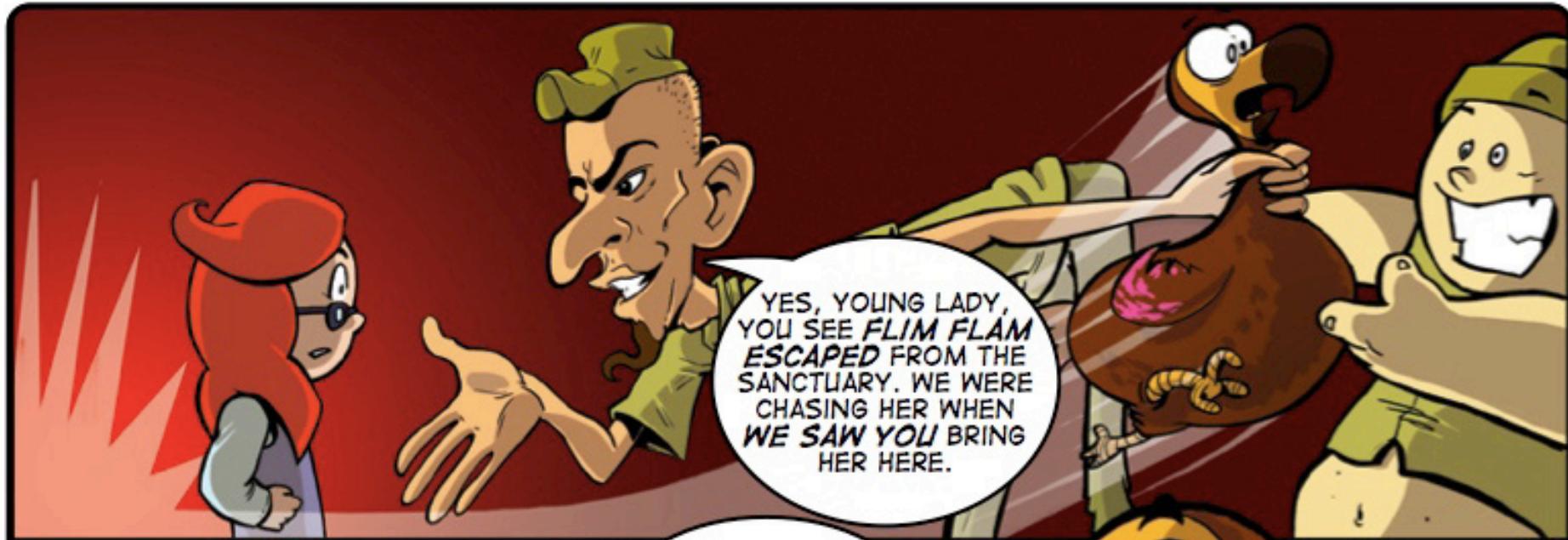


A FEW MINUTES LATER, IN THE COURTYARD OUTSIDE THE SCHOOL...

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!



AFTER THE POLICE ARREST ALL THE DODO THIEFS, THEY FIND THE REAL DR ROBERTS TIED UP ABOARD THE SHIP.



GENTLEMEN,
MAY I HAVE A
WORD WITH THE
YOUNG LADY?

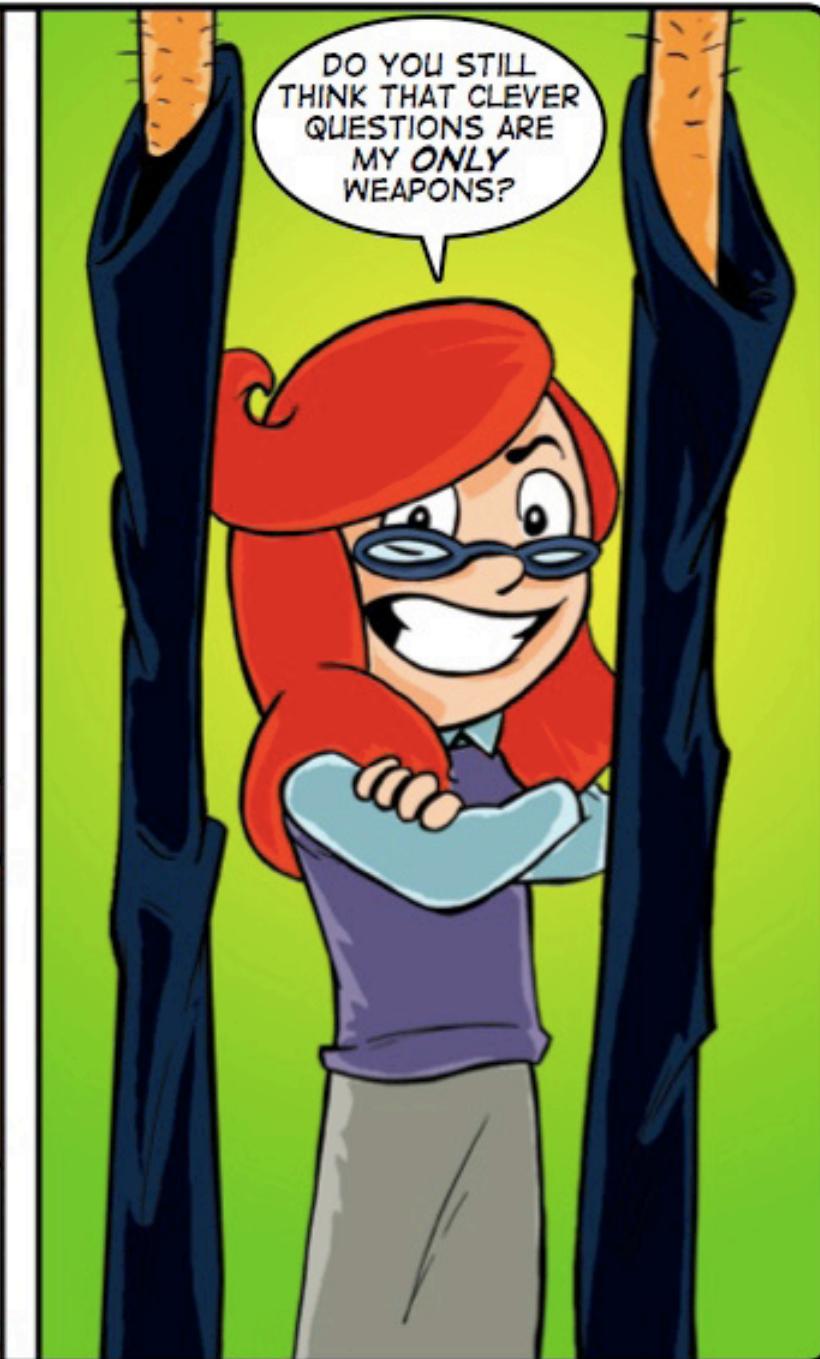
MAKE IT
QUICK!



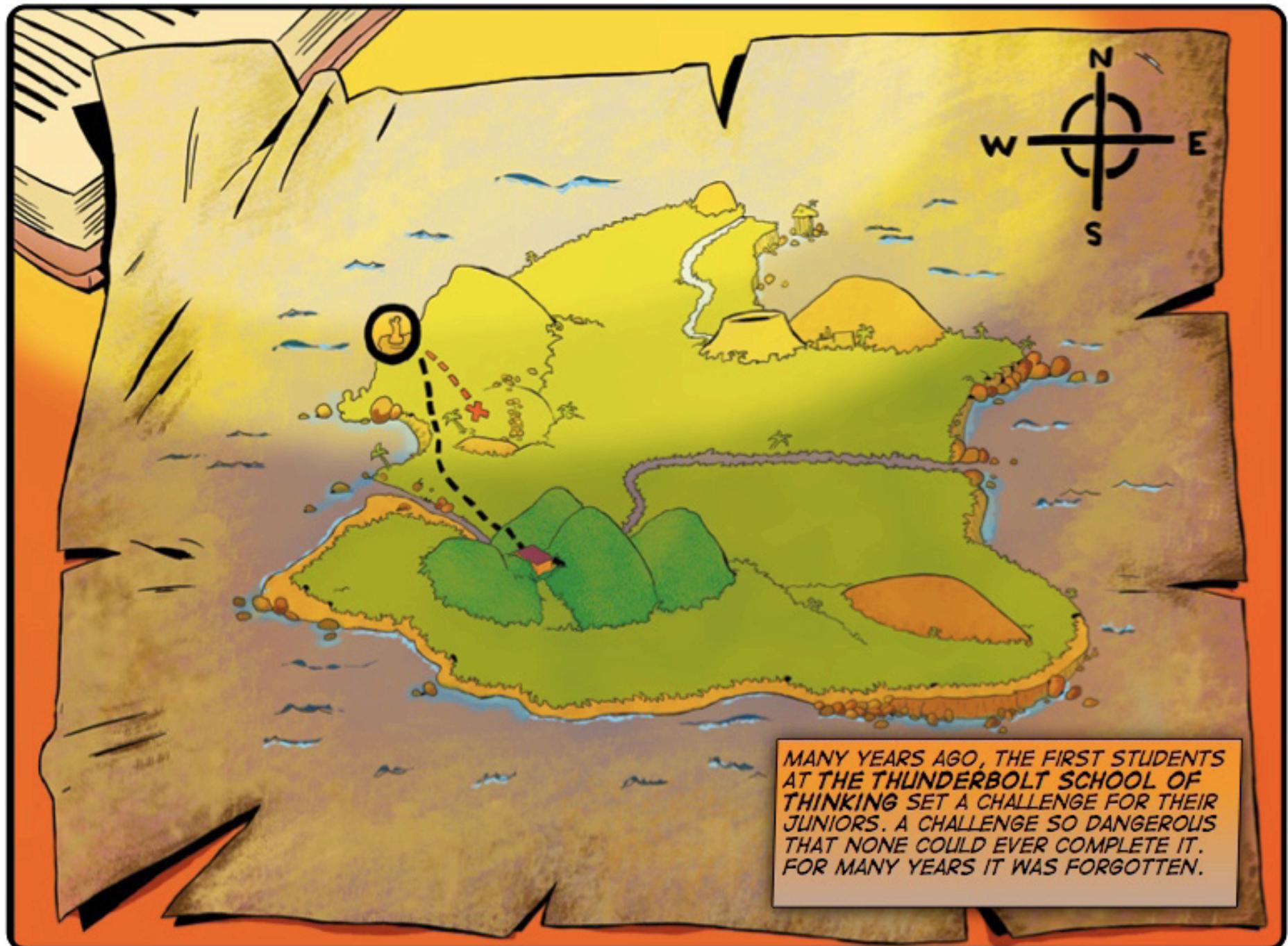








6. APPLE OF KNOWLEDGE



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.



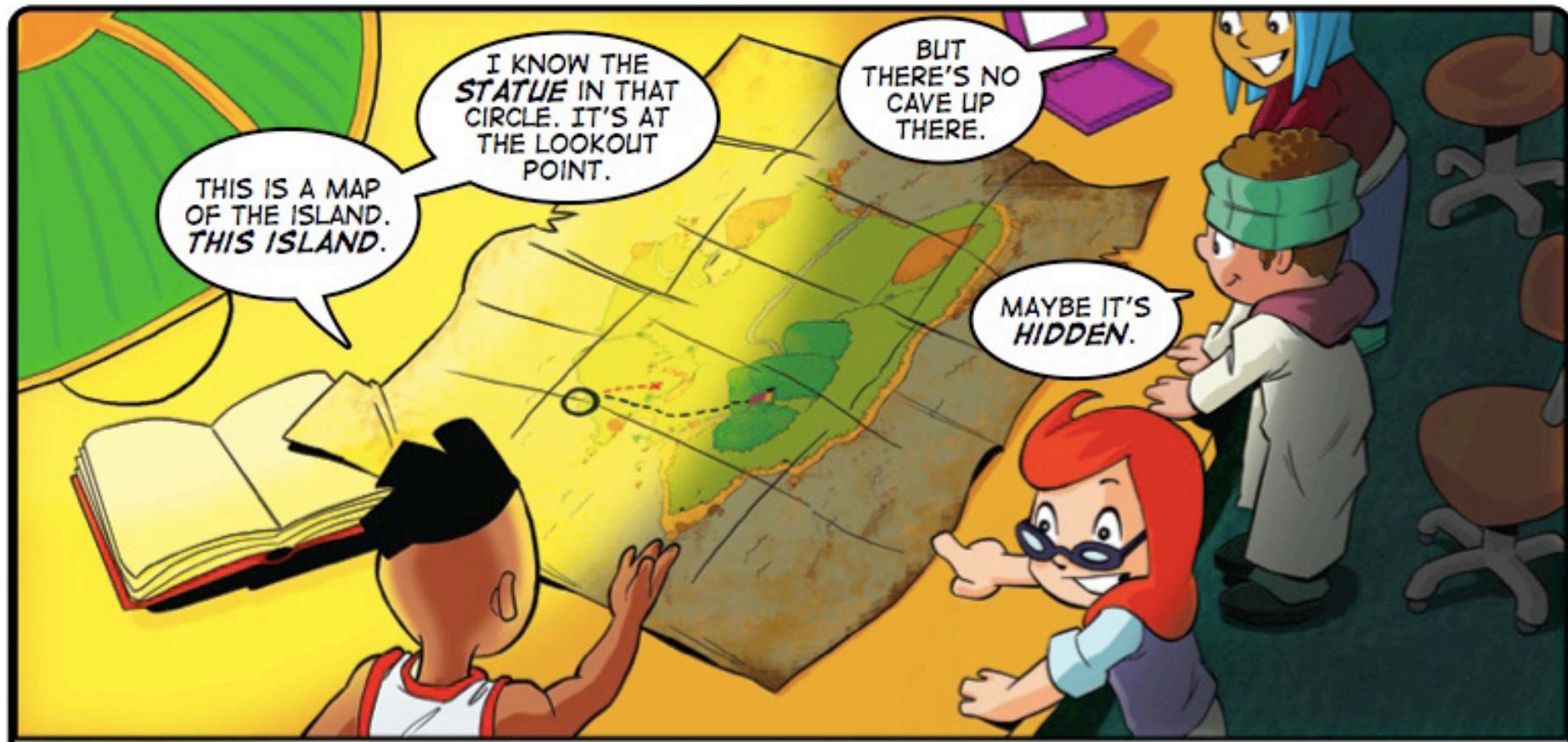
AS ALWAYS, HER CURIOSITY TAKES HOLD OF HER...

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.



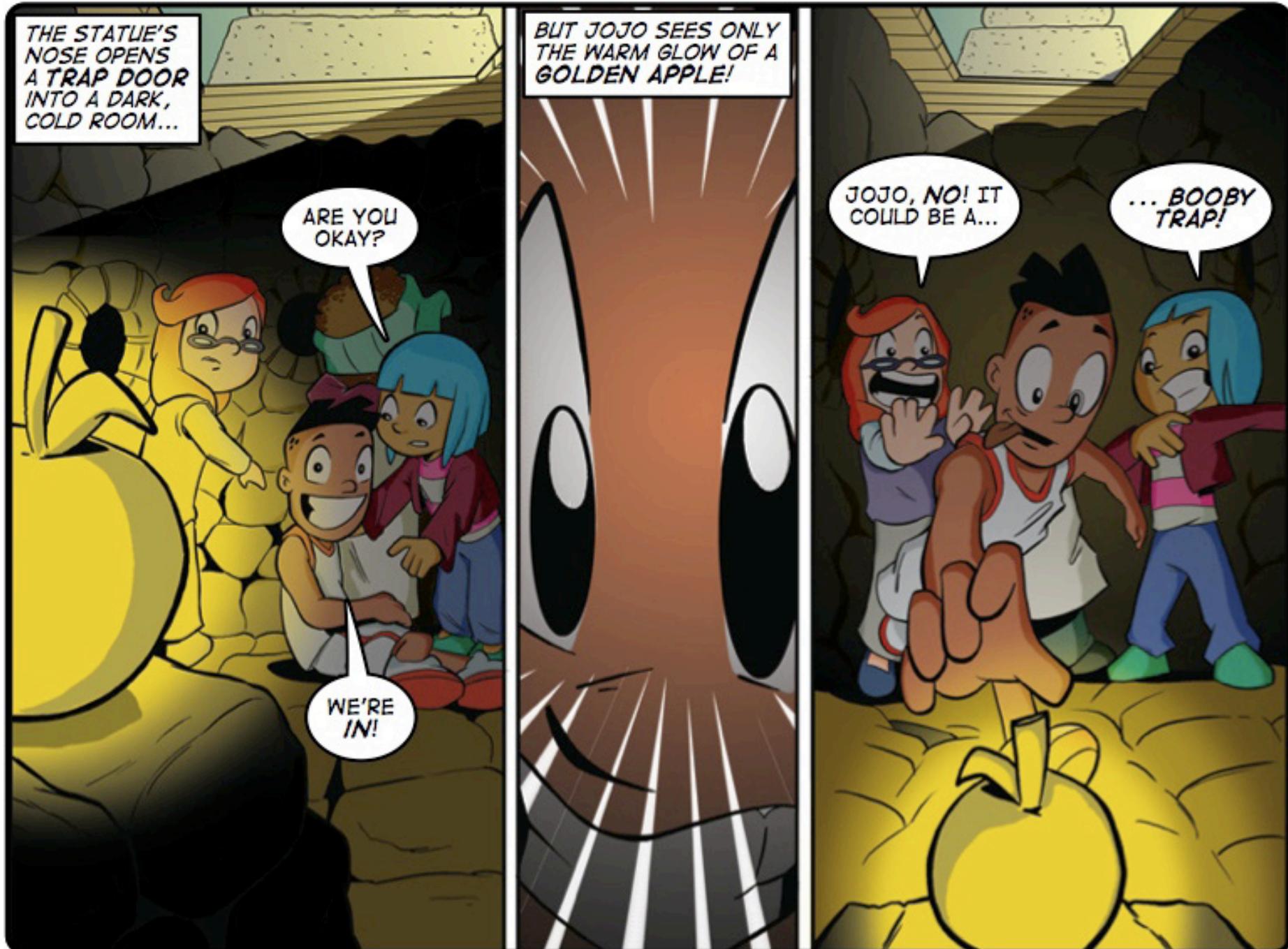
EVENTUALLY, JOJO GOES A LITTLE NUTS...

HE KNOWS WHERE IT IS. I KNOW HE KNOWS!

JOJO, CALM DOWN!

I KNOW HE KNO-

NOSE?!



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

OH NO...

WHY DO YOU
ALWAYS HAVE
TO TOUCH?!

HEY! THERE'S
SOMETHING
ON THE WALL.

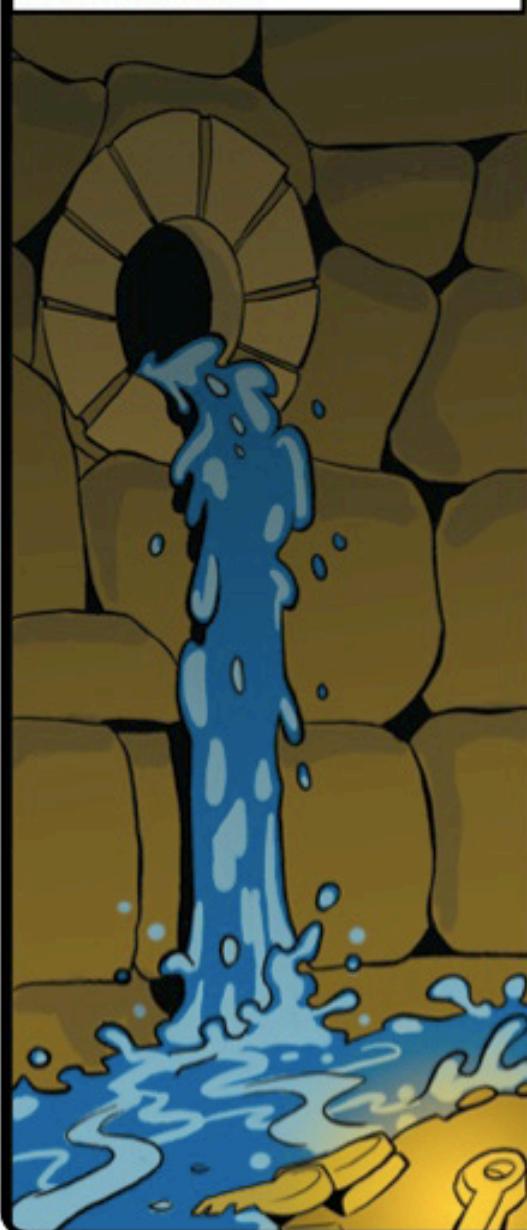
* SORRY... *

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.



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.





*JUST WHEN THEY CAN'T STAND ANYMORE,
SOPHIE THINKS SHE SEES THE KEY.*

WARD...
CLOVER
BOW...
GOLDEN...
THAT'S IT!

CATCH!



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...



YUCH!

IT SMELLS LIKE
A THOUSAND
ROTTEN EGGS!

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...





AS THE LID OPENS, AN HOURGLASS TURNS...

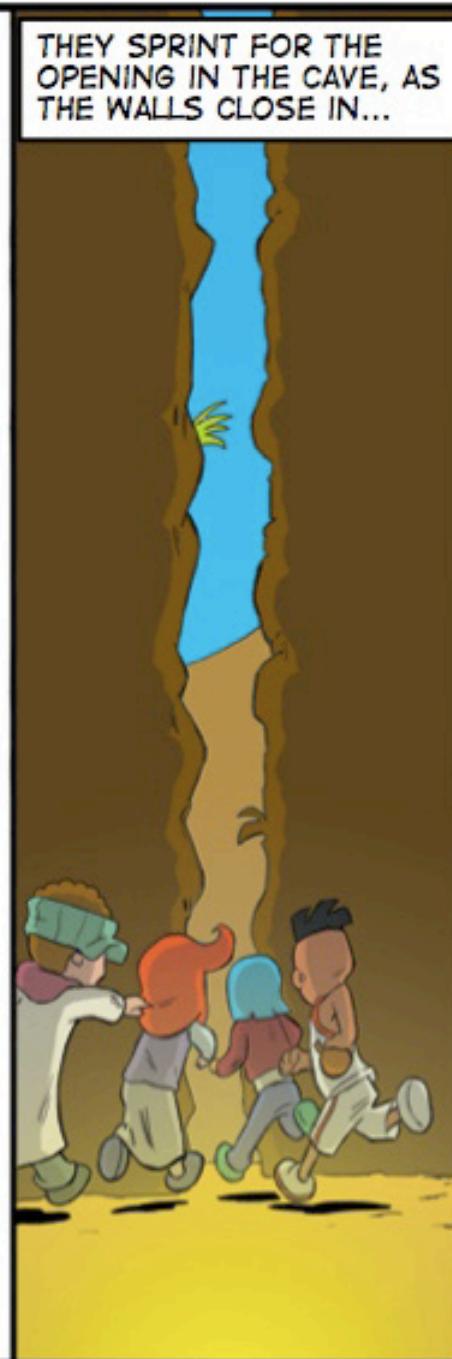
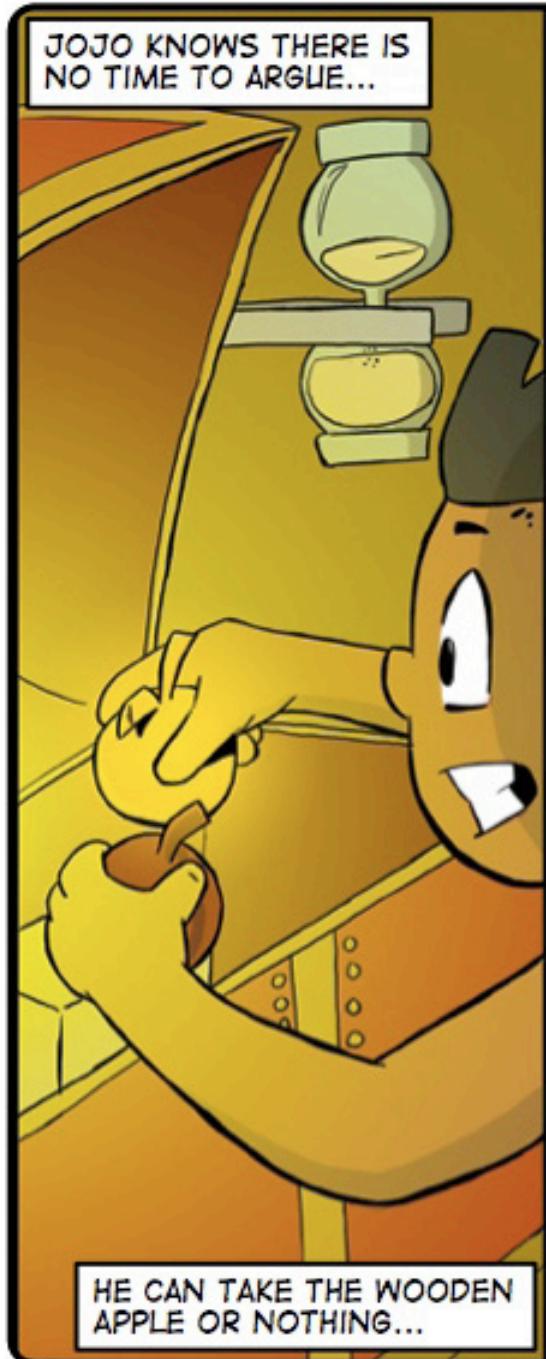


AND THE CAVE
WALLS OPEN,
LETTING IN THE
SUNLIGHT...

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!





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.

STAGE 3

STAGE 1

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

STAGE 2



BUT NO ONE CAN ANSWER TIA'S QUESTION.

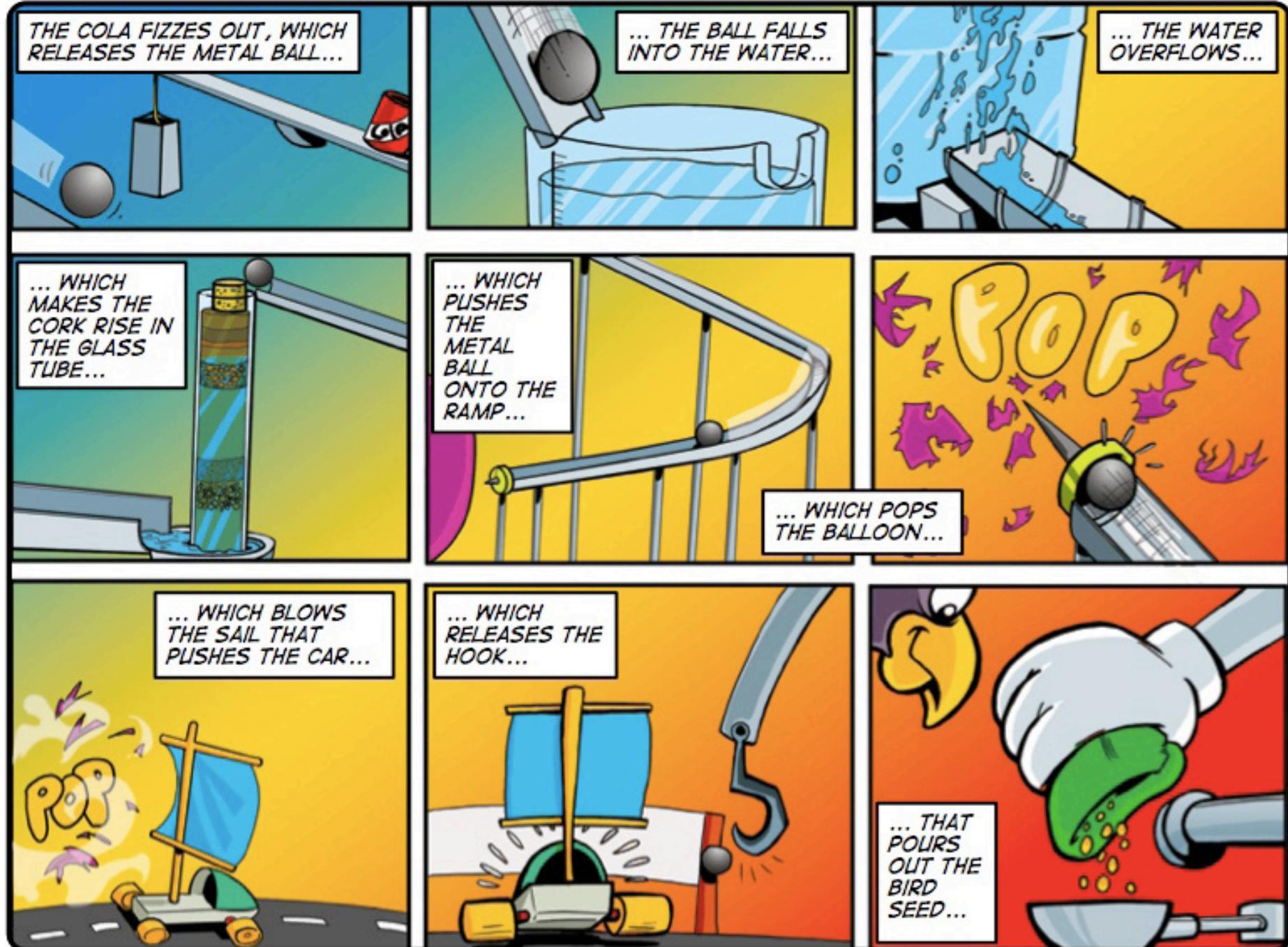


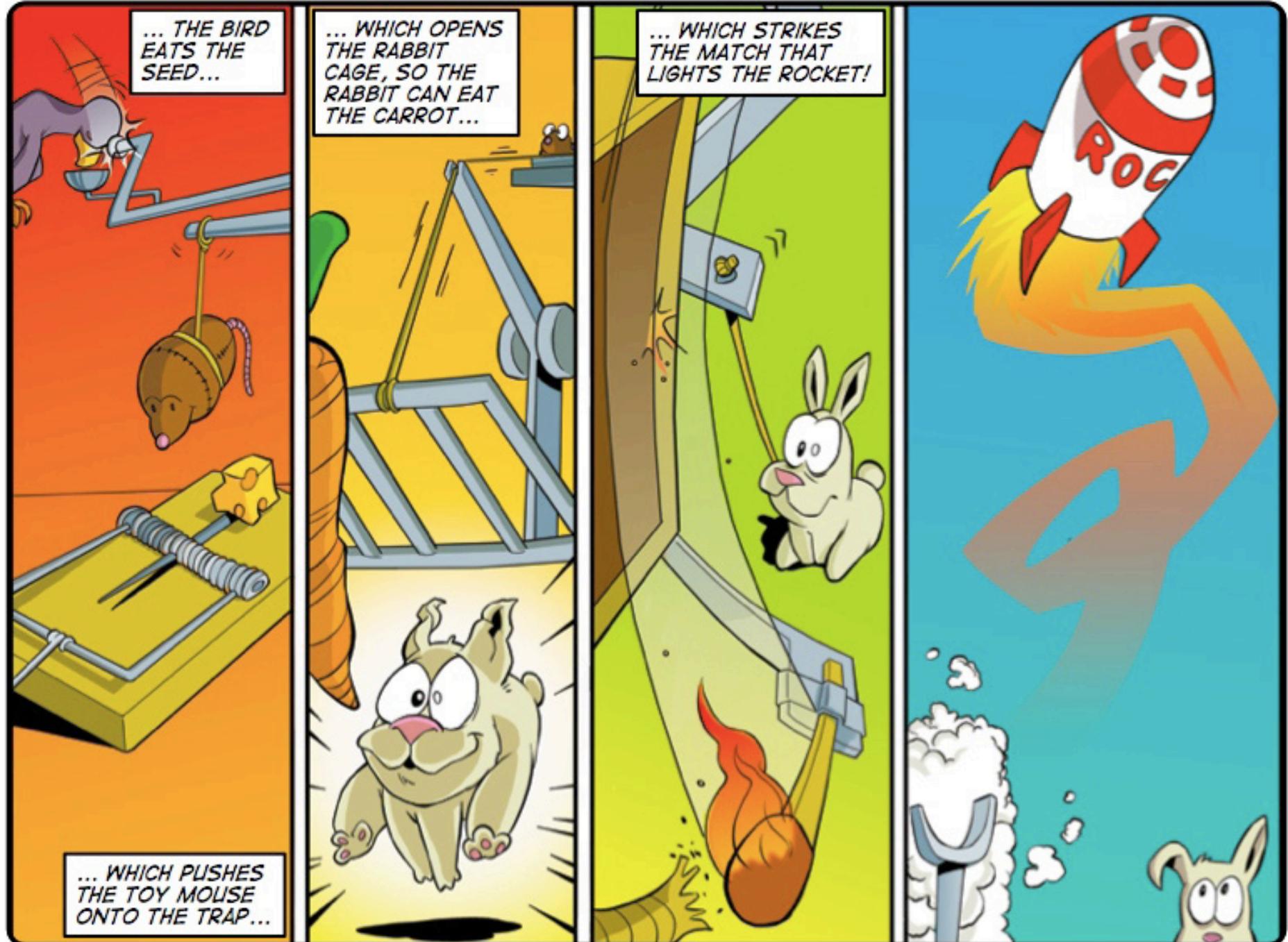
STAGE 1

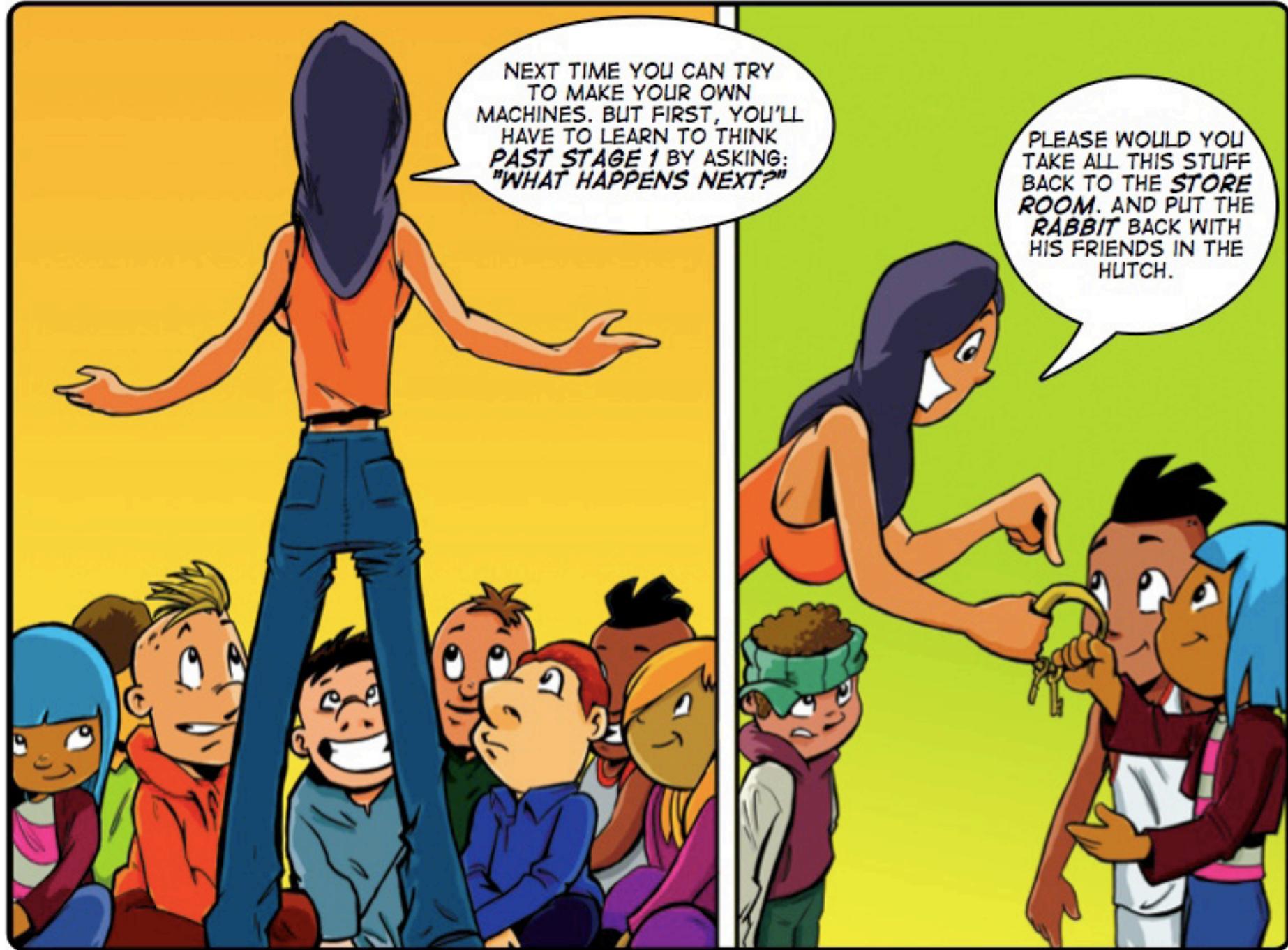


DON'T WORRY,
GUYS! IT'S NOT
EASY TO SEE PAST
STAGE 1. YOU HAVE
TO PRACTISE
THINKING THAT
WAY.

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







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!

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

THEN WE'LL HAVE MULTI-COLOURED RABBITS!



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

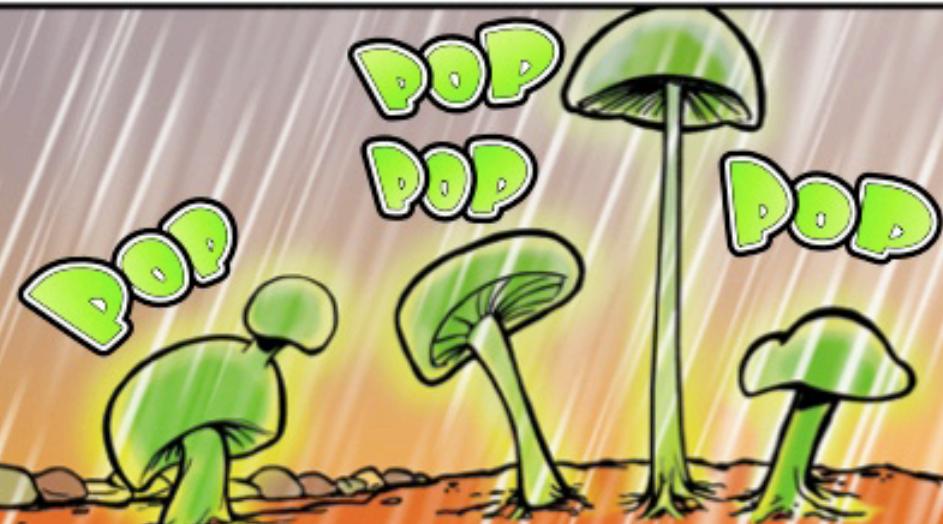
IN A BARE PATCH IN THE VEGETABLE GARDEN,
THEY PLANT THE LUMOSHROOM SPORES.



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

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

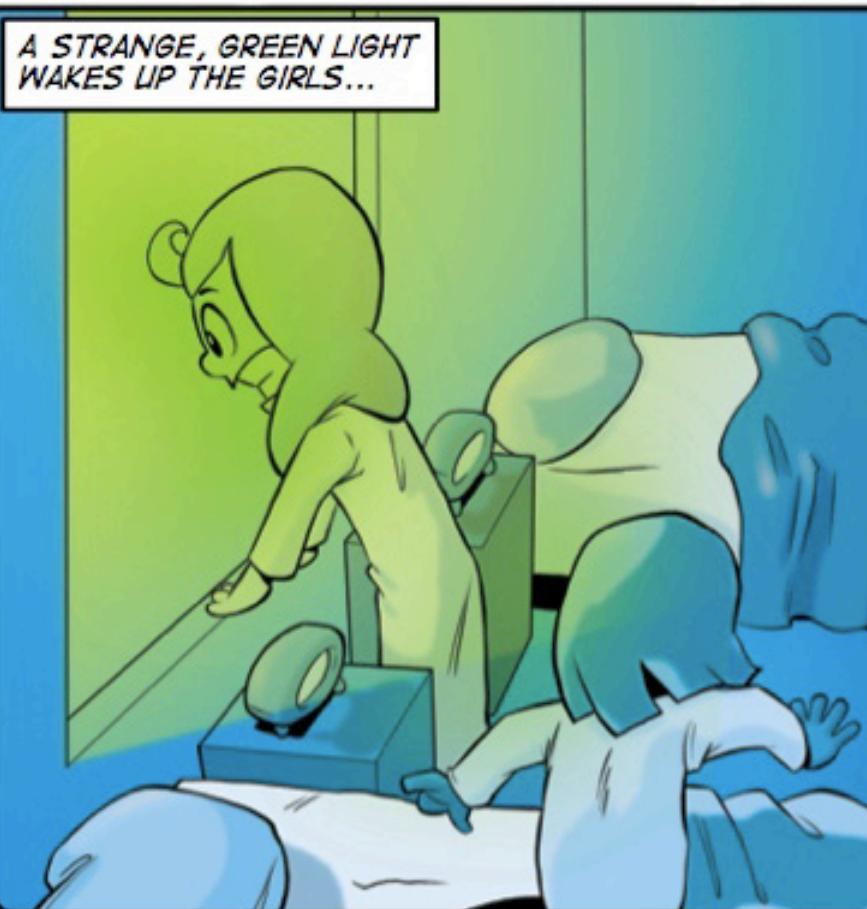
BUT "DROWNING" IS THE
LEAST OF THEIR WORRIES...



LATER THAT NIGHT...



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

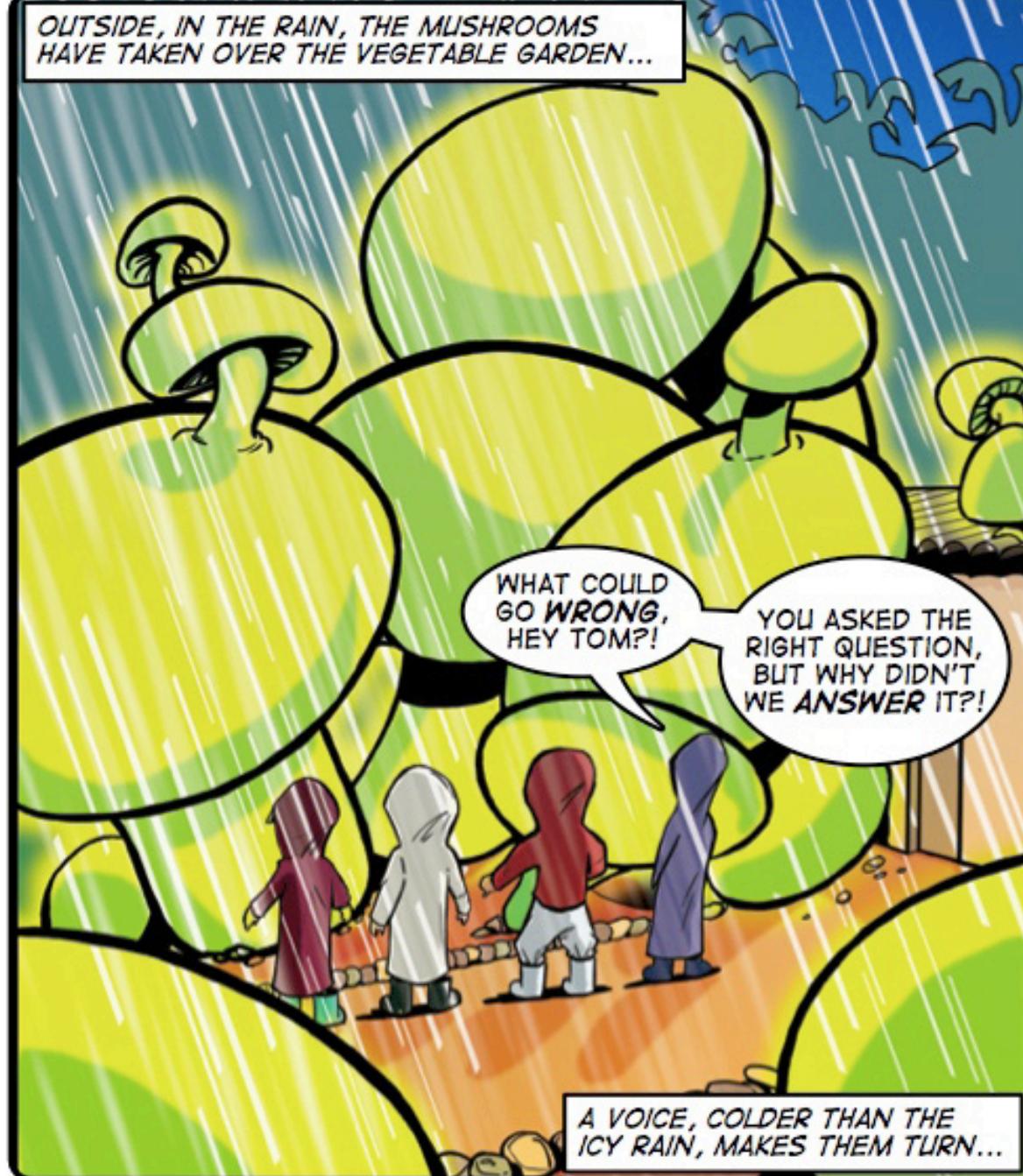


AND THE BOYS...



AND THEY WONDER
WHERE THEY MUST
HAVE GONE WRONG?!

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



BECUSE YOU DIDN'T READ THE INSTRUCTIONS!



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



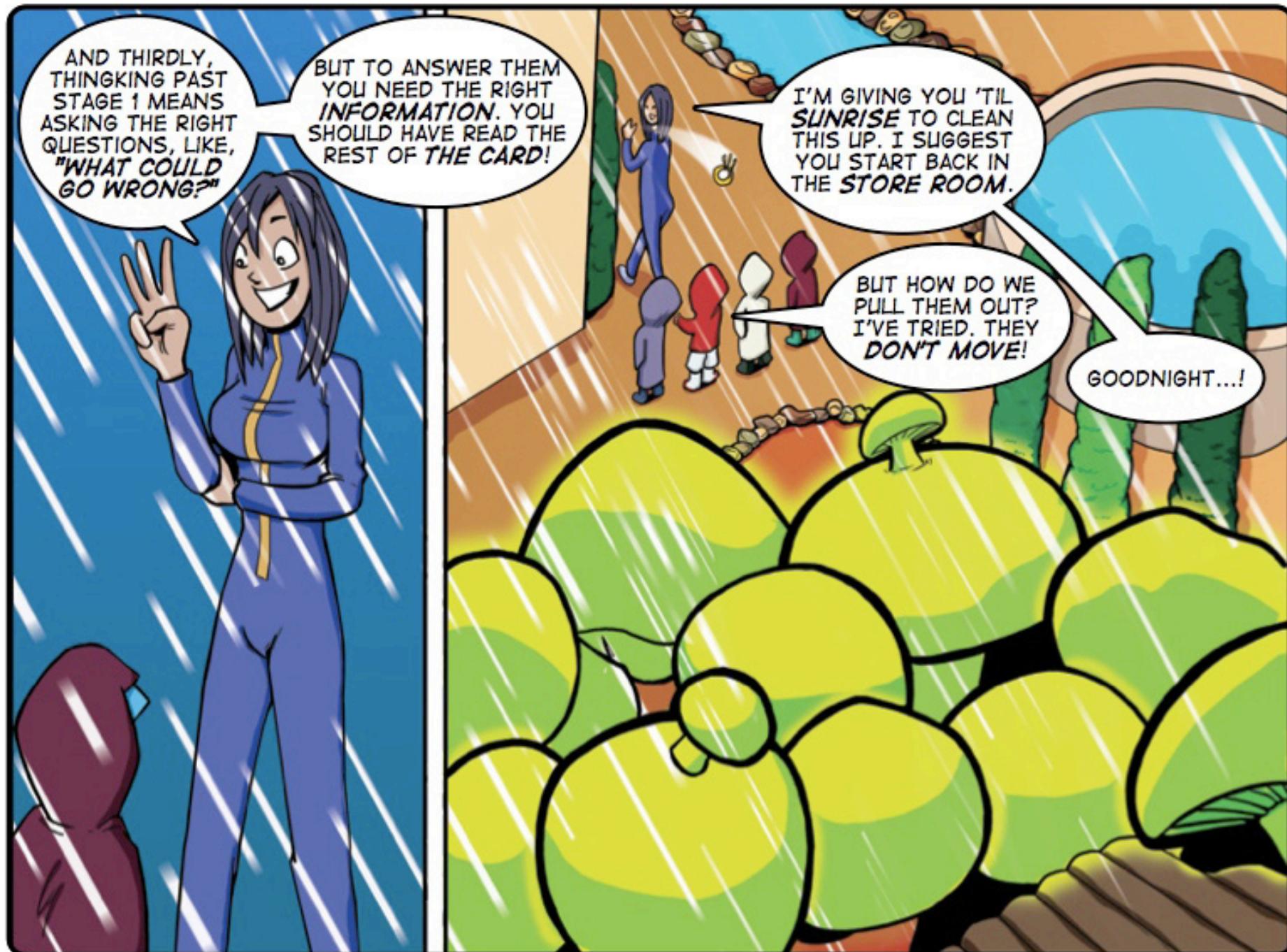
THEN THE LIGHT FROM THE LUMOSHROOMS WOKE US UP AND WE CAME DOWN. WE DIDN'T MEAN ANY HARM, I SWEAR!



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!



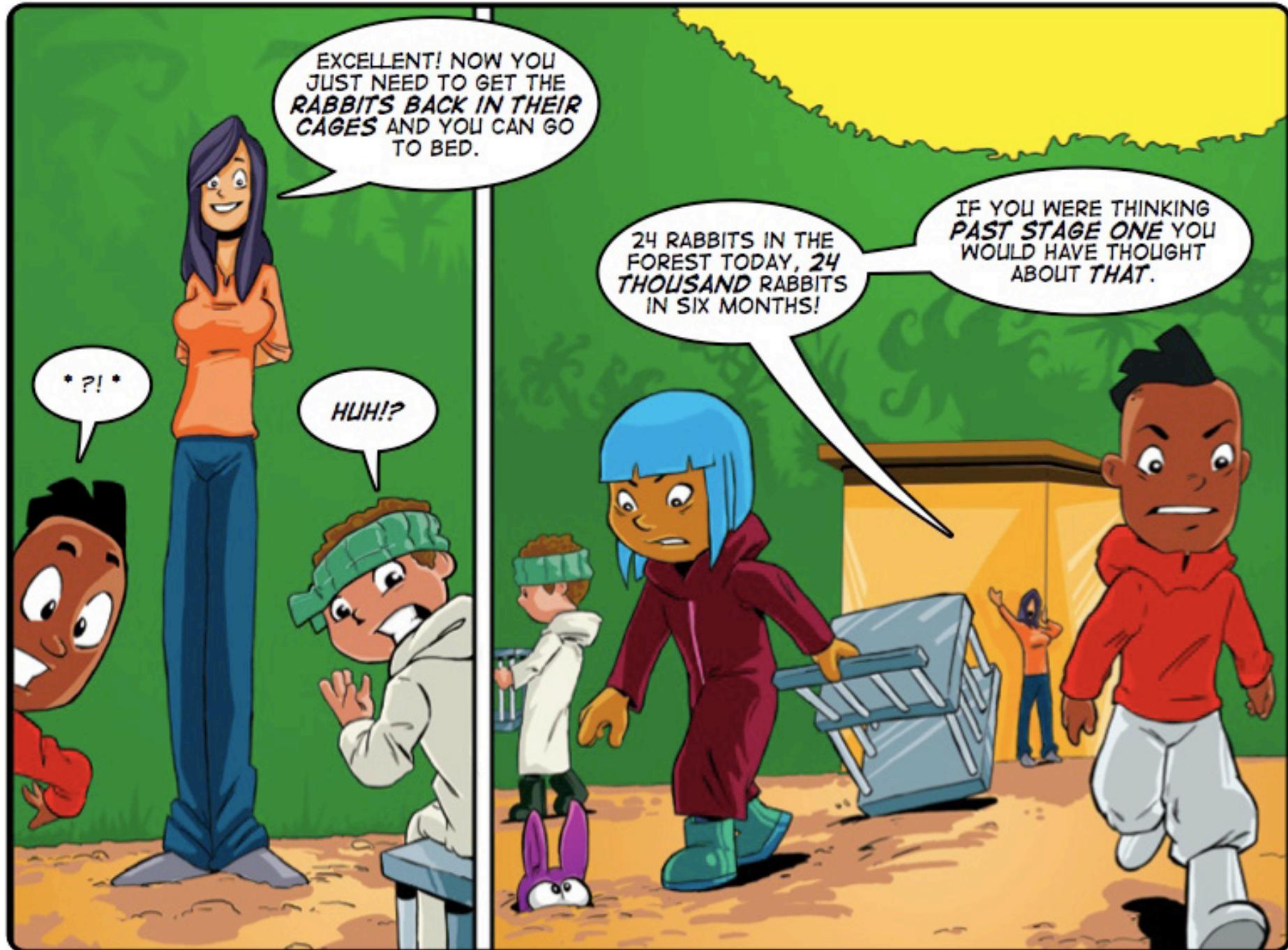


JUST BEFORE SUNRISE,
THE RABBITS ARE FAT
AND THE THUNDERBOLT
KIDS ARE EXHAUSTED.



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





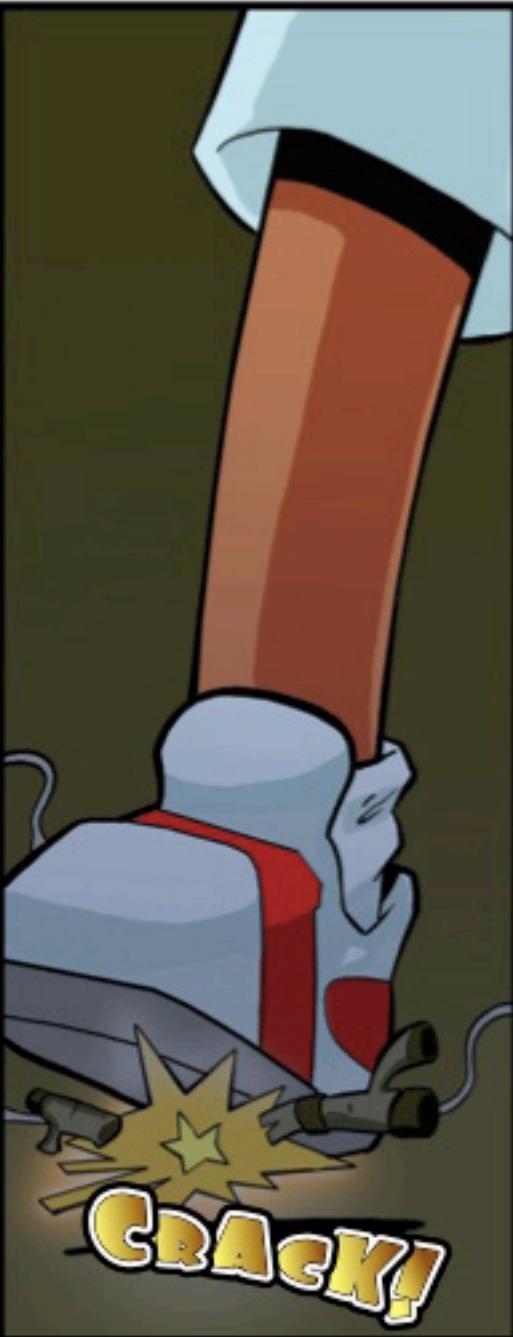


8. TRAPPED

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











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

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







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.



MURMUR
BLAH BLAH
MURMUR

PSST!
THERE'S A
CRACK IN THE
WALL.

MOVE IT BOYS! THE BOSS
WILL BE HERE FOR THE
DRUGS AT SUNRISE!

DRUGS!? OH, BOY, WE'VE
GOT TO GET OUT OF HERE!

ALRIGHT,
ALRIGHT! I'M
MOVING BRU!

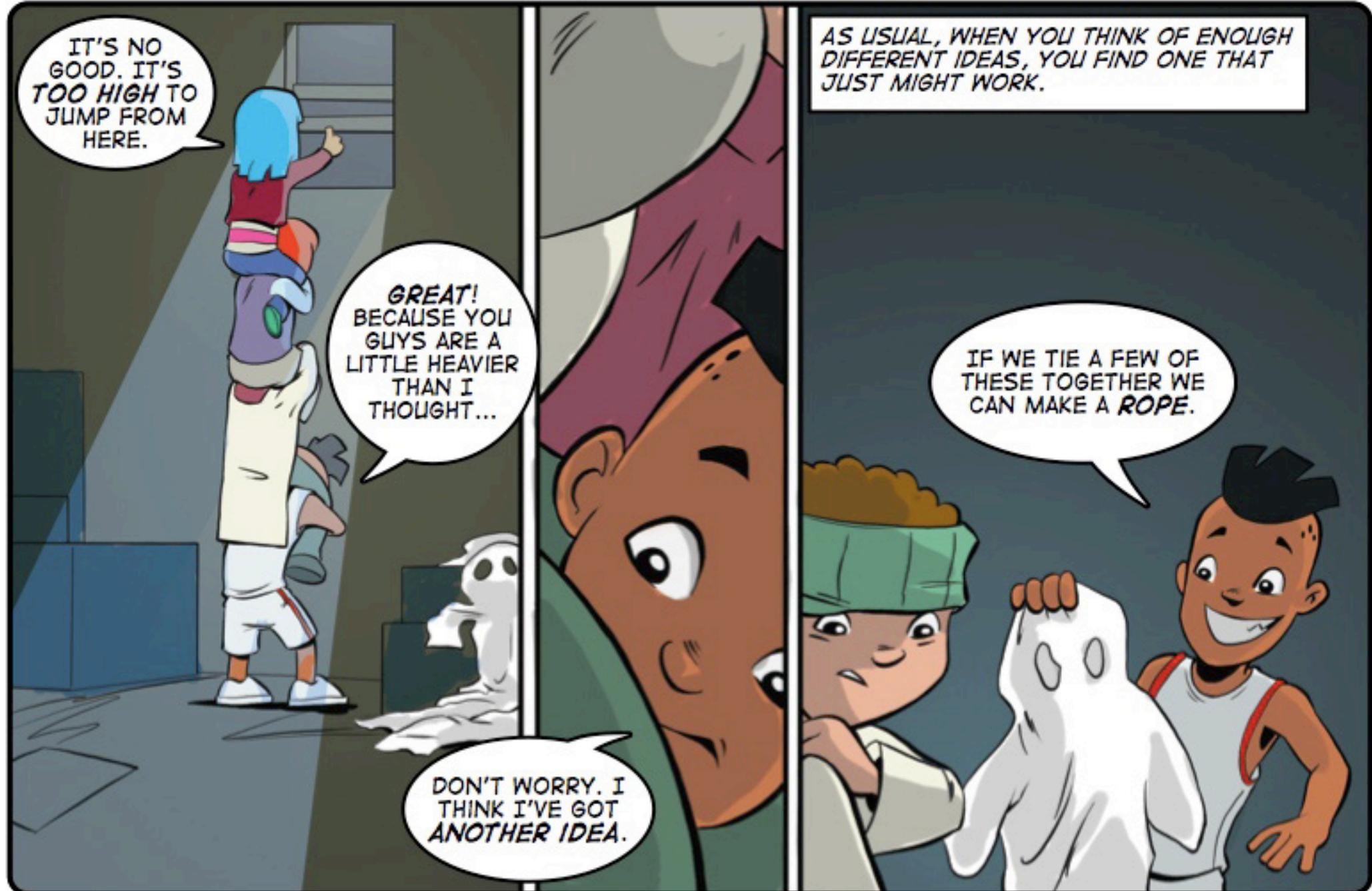


AS WITH ALL FIRST PLANS,
THERE ARE A FEW PROBLEMS...

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**.



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

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

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



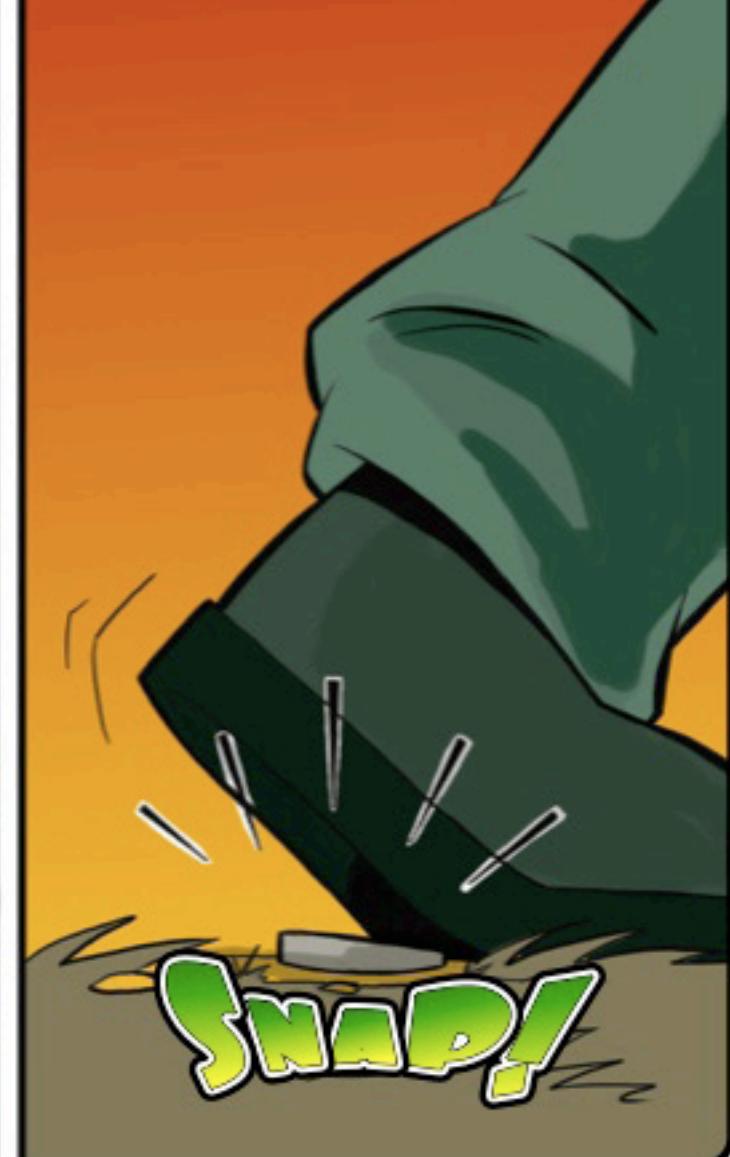


LUCKILY THE GANGSTERS DON'T FOLLOW...

AND QUIETLY, THEY STEAL INTO THE NIGHT...



UNTIL...





BUT THE GANGSTERS ARE
CLOSER THAN THEY THINK!









SCIENCE ADVENTURES WITH THE HUNDEBOLDT KIDS

