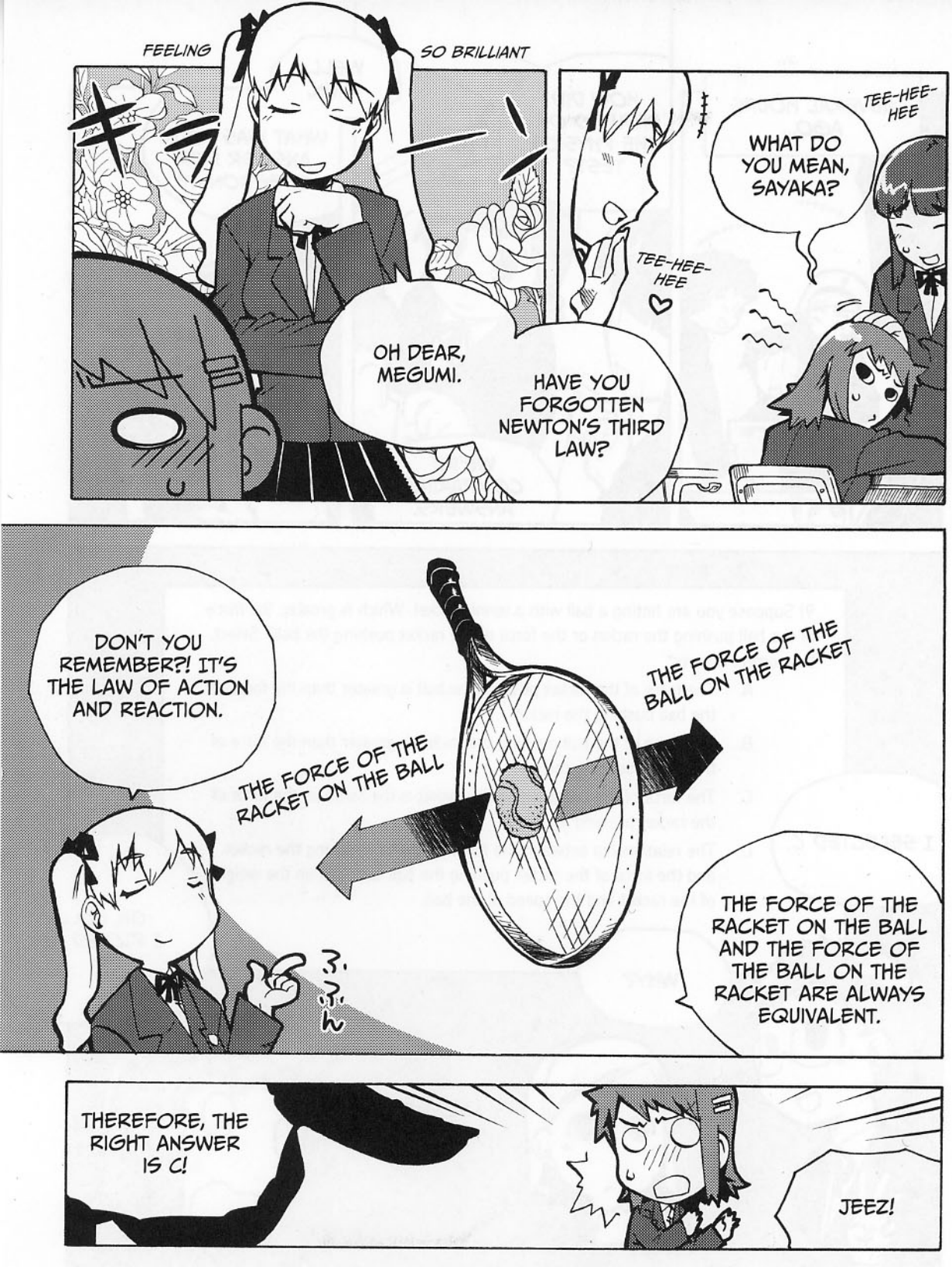
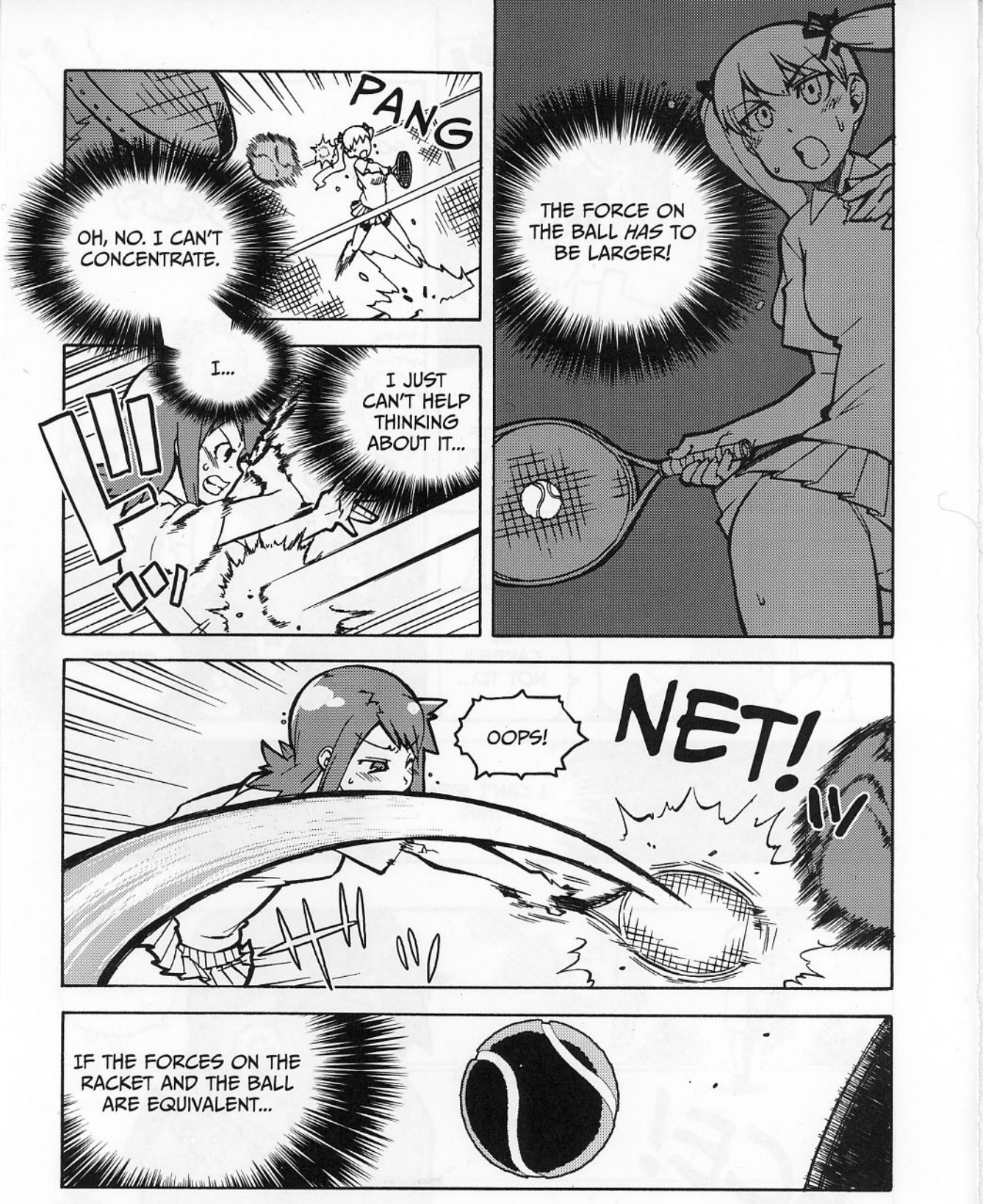
PROLOGUE


SHH-TOCK!
SHH-TOCK!
BLAP!
MY GOD!
WHIZ!
POW!
SHAZAM!
STAY IN THE GAME, MEGUMI!
I GOTTA CONCENTRATE...


SEVERAL HOURS AGO...
HOW DID YOU DO ON THE PHYSICS TEST?
WE'RE COMPARING ANSWERS.
WELL, THEN,
WHAT WAS YOUR ANSWER FOR QUESTION 9?
9) Suppose you are hitting a ball with a tennis racket. Which is greater, the force of the ball pushing the racket or the force of the racket pushing the ball? Select the correct answer.
A. The force of the racket pushing the ball is greater than the force of the ball pushing the racket.
B. The force of the ball pushing the racket is greater than the force of the racket pushing the ball.
C. The force of the ball pushing the racket is the same as the force of the racket pushing the ball.
D. The relationship between the force of the ball pushing the racket and the force of the racket pushing the ball depends on the weight of the racket and the speed of the ball.
I SELECTED C.
WHY?
OH, NO... I PICKED A.


FEELING
SO BRILLIANT
OH DEAR, MEGUMI.
HAVE YOU FORGOTTEN NEWTON'S THIRD LAW?
TEE-HEE-HEE
WHAT DO YOU MEAN, SAYAKA?
TEE-HEE-HEE
DON'T YOU REMEMBER?! IT'S THE LAW OF ACTION AND REACTION.
THE FORCE OF THE RACKET ON THE BALL
THE FORCE OF THE BALL ON THE RACKET
THE FORCE OF THE RACKET ON THE BALL AND THE FORCE OF THE BALL ON THE RACKET ARE ALWAYS EQUIVALENT.
THEREFORE, THE RIGHT ANSWER IS C!
JEEZ!


BY THE WAY, HAVE YOU ALSO FORGOTTEN
ABOUT OUR MATCH AFTER SCHOOL?
EH, WELL...
OF, OF...OF COURSE NOT!
SCREW UP IN THE GAME, TOO!
TEE-HEE-HEE
EASY NOW.
GRRRR...
...WELL...
CLICK
BE CAREFUL NOT TO...
I CAN'T STAND HER!
CLANG!
ACE!
WHAT?


PANG
OH, NO. I CAN'T CONCENTRATE.
I...
I JUST CAN'T HELP THINKING ABOUT IT...
THE FORCE ON THE BALL *HAS* TO BE LARGER!
OOPS!
NET!
IF THE FORCES ON THE RACKET AND THE BALL ARE EQUIVALENT...

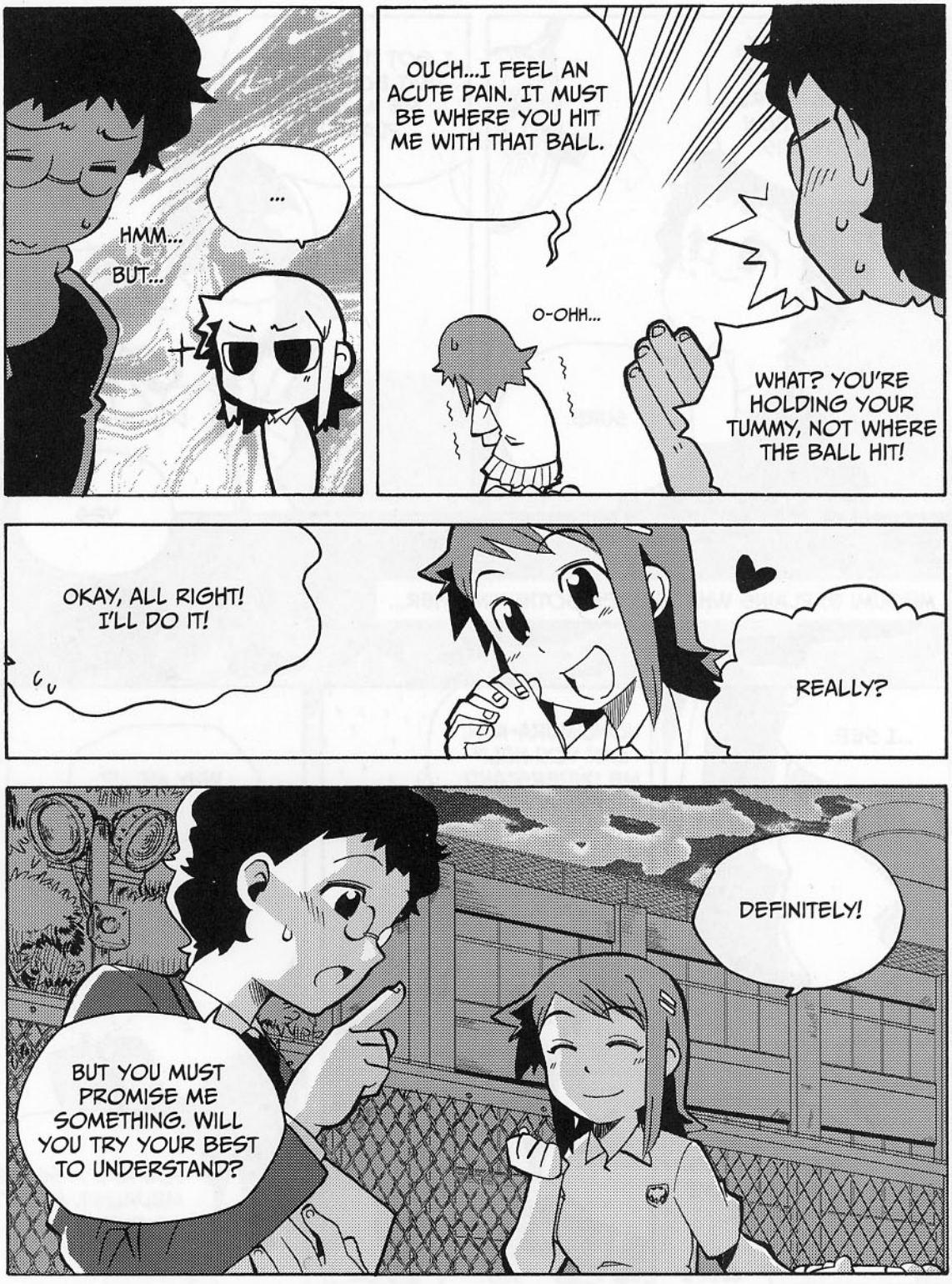

ARGH!
OOF!
IF THEY ARE EQUIVALENT...
WOULDN'T THEY CANCEL EACH OTHER OUT?
BUT THEN THE BALL WOULDN'T MOVE? THAT DOESN'T MAKE SENSE!
FFT
FFT
GAME, SET, MATCH!
SAYAKA WINS!
CRAP.
ALL RIGHT. THE LOSER HAS TO CLEAN UP.
TEE-HEE-HEE


LATER THAT AFTERNOON...
コーン
コーン
SIGH.
I LOST AGAINST SAYAKA...
AND I STILL DON'T GET IT.
WHOOSH
BONK!
AHHH...
WHAT THE...?!
OH, I'M SORRY!
RYOTA NONOMURA, MY CLASSMATE?

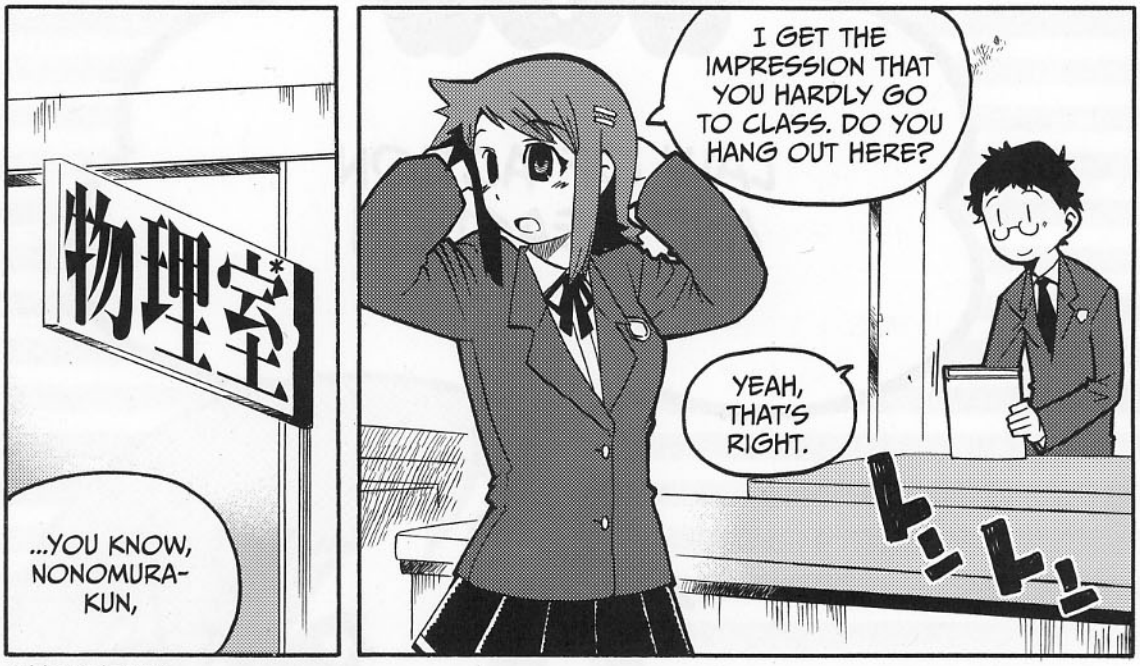

HE IS WELL KNOWN AT SCHOOL, HAVING WON A SILVER MEDAL
IN THE INTERNATIONAL PHYSICS OLYMPIC GAMES.
WELL, LET ME SEE... WHY DID YOU...
WELL, EH... I FOUND A BALL BY MY FEET.
I THOUGHT I MIGHT HELP, AND I MEANT TO THROW IT INTO THE BASKET.
BUT I'M SO UNCOORDINATED.
IT WOULD HAVE BEEN BETTER IF YOU'D JUST HANDED IT TO ME LIKE A NORMAL PERSON.
WELL... I GUESS YOU'RE RIGHT.


BUT IT'S OKAY, SINCE IT WAS AN ACCIDENT.
WHAT ARE YOU DOING HERE, ANYWAY?
I WAS CALCULATING THE MOTION OF THE BALL WHILE WATCHING YOUR GAME.
WOW! JUST LIKE A PHYSICS OLYMPICS SILVER MEDALIST WOULD!
THMP
THMP
SO... YOU SAW ME LOSE, TOO!
WELL, YEAH.
LISTEN!
LET ME TELL YOU WHY I LOST THAT GAME.
HUFF
WHAT DO YOU MEAN?


REMEMBER IN THE PHYSICS TEST WE HAD TODAY, THERE WAS A QUESTION ABOUT TENNIS.
SURE.
I GOT IT WRONG. THAT BOTHERED ME WHILE I PLAYED.
BOTHERED YOU?
YES.
MEGUMI EXPLAINS WHAT'S BEEN BOTHERING HER...
...I SEE.
I COULDN'T CONCENTRATE ON THE GAME AT ALL.
CAN I ASK—
NONOMURA-KUN, CAN YOU HELP ME UNDERSTAND PHYSICS?
WHY ME...!?
??
WHA...?
YOU ARE A SILVER MEDALIST, AREN'T YOU? PLEASE HELP ME!


...
HMM...
BUT...
OUCH...I FEEL AN ACUTE PAIN. IT MUST BE WHERE YOU HIT ME WITH THAT BALL.
O-OHH...
WHAT? YOU'RE HOLDING YOUR TUMMY, NOT WHERE THE BALL HIT!
OKAY, ALL RIGHT! I'LL DO IT!
REALLY?
BUT YOU MUST PROMISE ME SOMETHING. WILL YOU TRY YOUR BEST TO UNDERSTAND?
DEFINITELY!


1
LAW OF ACTION
AND REACTION


物理室*
...YOU KNOW, NONOMURA-KUN,
I GET THE IMPRESSION THAT YOU HARDLY GO TO CLASS. DO YOU HANG OUT HERE?
YEAH, THAT'S RIGHT.
トン トン

* LABORATORY


IT'S NICE WITH ALL THESE EXPERIMENTS AND INSTRUMENTS. BUT THE BEST PART IS THAT IT'S QUIET.
IS IT OKAY FOR US TO STUDY HERE?
YES, CERTAINLY. I ALREADY HAVE OUR TEACHER'S PERMISSION.
WOW!!
THEY MUST REALLY TRUST YOU!
ぱちぱち


I HEAR A LOT ABOUT YOU, TOO, NINOMIYA-SAN, AS AN ALL-STAR ATHLETE.
NO KIDDING...? WELL, IT'S JUST WHAT I LIKE, YOU KNOW.
WELL, THEN, PLEASE STUDY PHYSICS AS MUCH AS YOU PRACTICE SPORTS.
I WILL! AND THANK YOU FOR YOUR HELP!
HOW THE LAW OF ACTION AND REACTION WORKS
NOW, LET'S GET STARTED.
YOU WANT TO LEARN ABOUT THE LAW OF ACTION AND REACTION, RIGHT?
YES, I DO.
AT LEAST THAT'S WHAT SAYAKA MENTIONED...
BEFORE WE THINK ABOUT IT USING A RACKET AND A BALL...

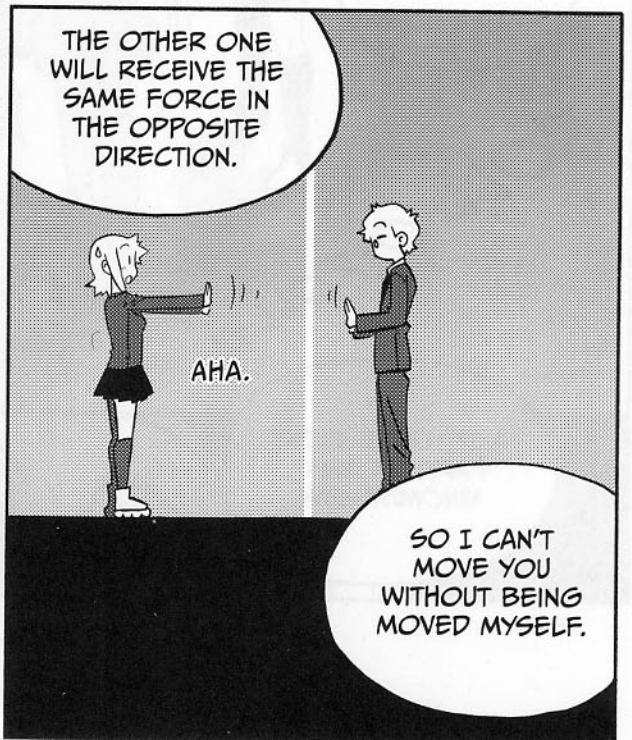

LET'S FEEL HOW THE LAW WORKS ON OUR BODIES.
ON OUR BODIES?
YES, ON OUR BODIES.
THIS LESSON IS GETTING A BIT WEIRD...
...NO, NO, YOU'VE GOT ME ALL WRONG.
ARE THOSE... ROLLERBLADES?!
JUST PUT THEM ON.
WHAT?
OOPSY-DAISY. LIKE THIS?
WOW, THEY FIT!
GOOD. I WILL PUT SOME ON, TOO.
SEE, I HAVE A MASS OF ABOUT 60 KG.
AND YOU, NINOMIYA-SAN, ABOUT...
AH...HA-HA..
CRUNCH
...LET'S SAY, YOU'RE 40 KG. YOU MUST BE LIGHTER THAN I AM.


NOW...AS I HOLD MY HANDS IN PLACE LIKE THIS, PUSH ME WITH YOUR HANDS.
DO YOU THINK YOU CAN MOVE ME WITHOUT MOVING YOURSELF, NINOMIYA-SAN?
JUST LIKE THIS? JUST LIKE THIS.
HOICK!
HA!
WITH A MASS OF 40 KG, I WILL PUSH YOU, NONOMURA-KUN, WHO HAS A MASS OF 60 KG.
YES...ME, 40 KG!
EXACTLY.
WHY ARE YOU GRINNING AT ME LIKE THAT?
HEY, LOOK.
ROLL-O-ROLL-O
ROLL-O-ROLL-O
SEE, BOTH OF US ARE MOVING.
AND YOU'VE GONE FARTHER AWAY, NINOMIYA-SAN.
HEY, YOU'RE RIGHT...


LET'S TRY IT THE OPPOSITE WAY.
IF I PUSH, BOTH OF US WILL MOVE BACKWARD AGAIN.
REALLY?

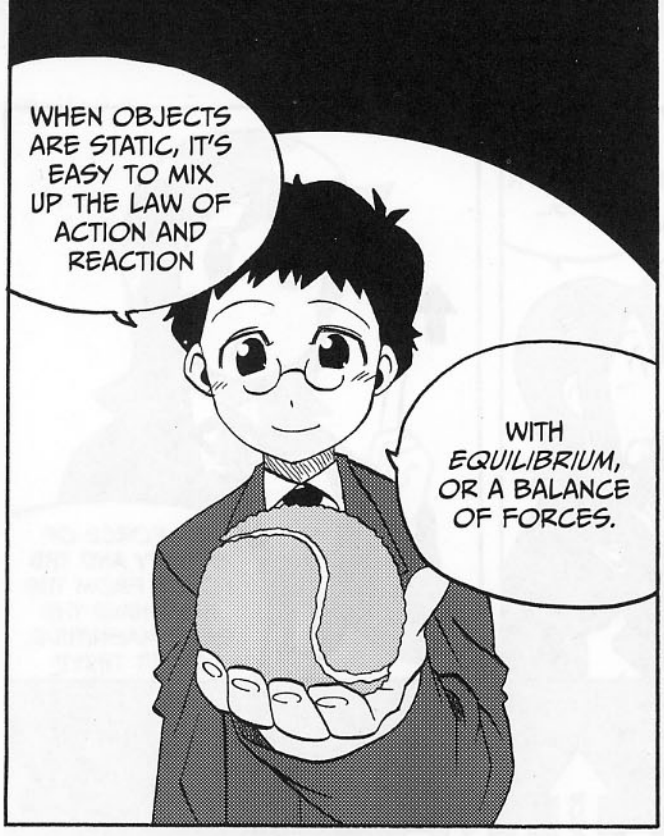

WHEN YOU ATTEMPT TO USE FORCE ON ME,
EVEN IF I DON'T MEAN TO PUSH YOU BACK,
FORCE WILL BE APPLIED TO YOUR BODY, NINOMIYA-SAN.

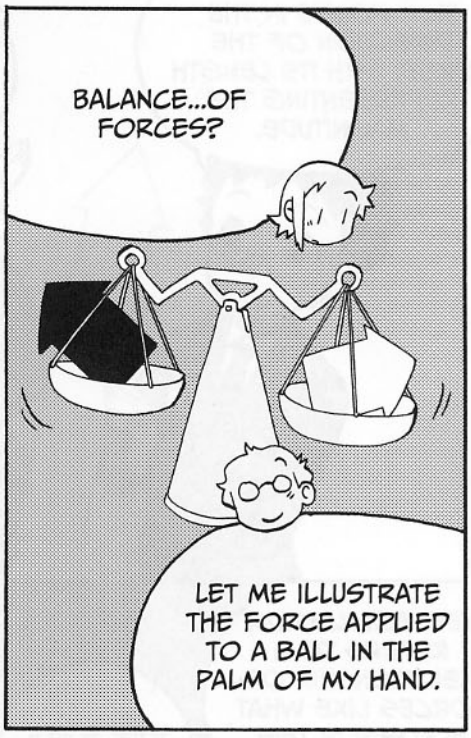

HOWEVER AND WHENEVER EITHER OF US APPLIES FORCE TO THE OTHER,
SHAZAM!

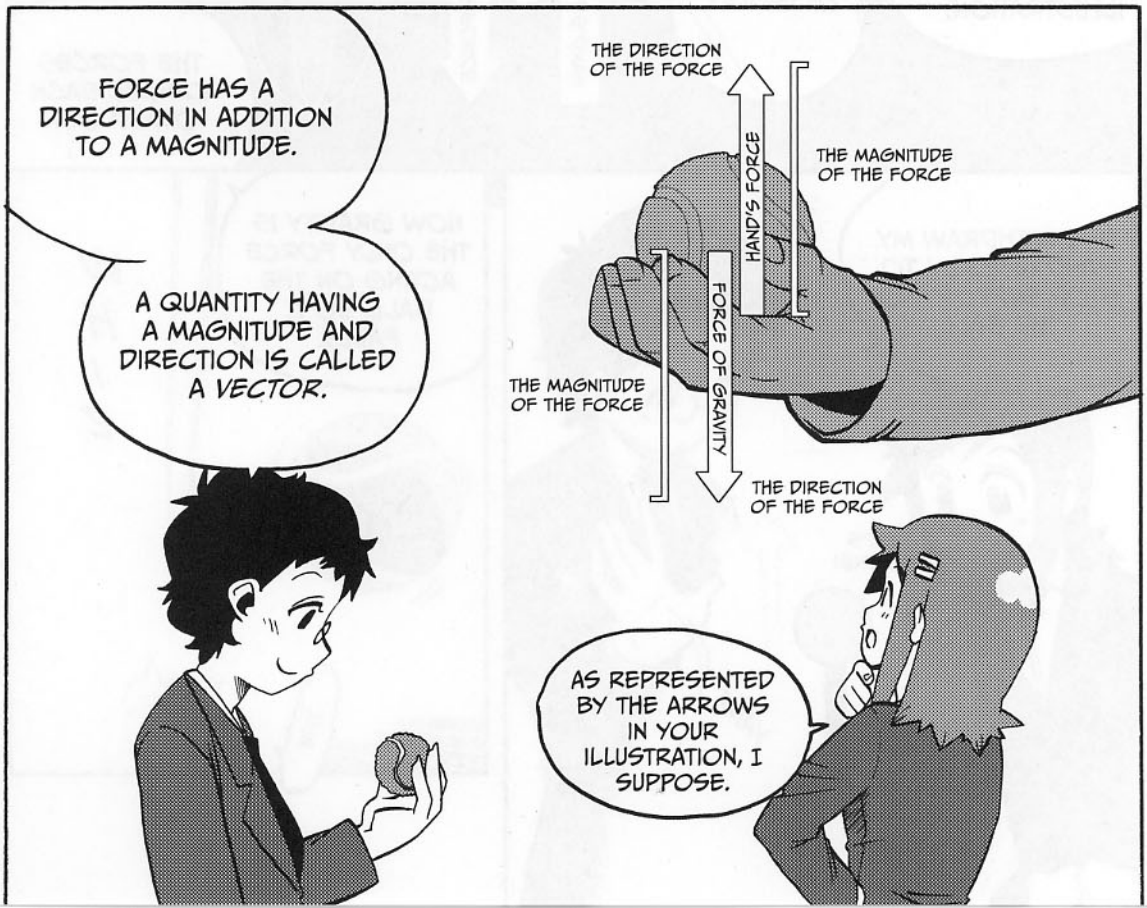

THE OTHER ONE WILL RECEIVE THE SAME FORCE IN THE OPPOSITE DIRECTION.
AHA.
SO I CAN'T MOVE YOU WITHOUT BEING MOVED MYSELF.


IN ADDITION, THE MAGNITUDE OF THE FORCE IS ALWAYS THE SAME ON BOTH SIDES.
THIS IS CALLED THE *LAW OF ACTION AND REACTION*, AND IT ALSO EXPLAINS WHY FORCE IS ALWAYS GENERATED BETWEEN A PAIR OF OBJECTS.
THAT'S NEWS TO ME.
HMM...
WE CAN SUMMARIZE IT CLEARLY AS FOLLOWS:
THIS LAW DESCRIBES THE NATURAL BEHAVIOR OF TWO OBJECTS. WHEN OBJECT A EXERTS A FORCE ON OBJECT B, OBJECT B EXERTS AN EQUAL AND OPPOSITE FORCE.
FOR EVERY ACTION, THERE IS AN EQUAL AND OPPOSITE REACTION.
A
B


IT'S A LAW IN THE NATURAL WORLD, EH?
DAYDREAMING AGAIN...
THAT'S RIGHT.
NEXT, LET'S—
SSSLICK
BANG!
SK-SKD-DD
LET ME TAKE THESE OFF.
ARE YOU ALL RIGHT?
THAT LOOKED SO PAINFUL.
EQUILIBRIUM
OOF. UH... LET ME PULL MYSELF TOGETHER.


WHEN OBJECTS ARE STATIC, IT'S EASY TO MIX UP THE LAW OF ACTION AND REACTION
WITH *EQUILIBRIUM*, OR A BALANCE OF FORCES.


BALANCE...OF FORCES?
LET ME ILLUSTRATE THE FORCE APPLIED TO A BALL IN THE PALM OF MY HAND.


FORCE HAS A DIRECTION IN ADDITION TO A MAGNITUDE.
A QUANTITY HAVING A MAGNITUDE AND DIRECTION IS CALLED A *VECTOR*.
THE DIRECTION OF THE FORCE
HAND'S FORCE
THE MAGNITUDE OF THE FORCE
FORCE OF GRAVITY
THE MAGNITUDE OF THE FORCE
THE DIRECTION OF THE FORCE
AS REPRESENTED BY THE ARROWS IN YOUR ILLUSTRATION, I SUPPOSE.


DRAW AN ARROW THAT POINTS IN THE DIRECTION OF THE FORCE, WITH ITS LENGTH REPRESENTING THE MAGNITUDE.
SO THE ILLUSTRATION SHOWS...
THE FORCE OF GRAVITY AND THE FORCE FROM THE HAND HAVE THE SAME MAGNITUDE, DON'T THEY?
YES. EQUILIBRIUM REFERS TO A RELATIONSHIP OF FORCES LIKE WHAT YOU SEE IN THIS ILLUSTRATION.
TOTAL FORCE ON THE BALL
=
HAND'S FORCE
+
GRAVITY'S FORCE
=
ZERO
0
THE FORCES CANCEL EACH OTHER OUT.
IF I WITHDRAW MY HAND QUICKLY TO STOP SUPPORTING THE BALL,
IT'S GONE!
YANK
NOW GRAVITY IS THE ONLY FORCE ACTING ON THE BALL, SO IT FALLS.
WHIZ
TUM

EQUILIBRIUM VS. LAW OF ACTION AND REACTION

NOW LET'S THINK ABOUT THE DIFFERENCE BETWEEN EQUILIBRIUM AND THE LAW OF ACTION AND REACTION.

OOPSY-DAISY

ALL RIGHT.

TO MAKE IT EASIER TO SEE, I'LL COMPARE THE TWO USING TWO BALLS.

WHEN CONSIDERING EQUILIBRIUM, JUST FOCUS ON THE FORCE APPLIED TO THE BALL.

FOR THE LAW OF ACTION AND REACTION, HOWEVER, YOU NEED TO CONSIDER BOTH THE BALL AND THE HAND.

FORCE FROM THE HAND

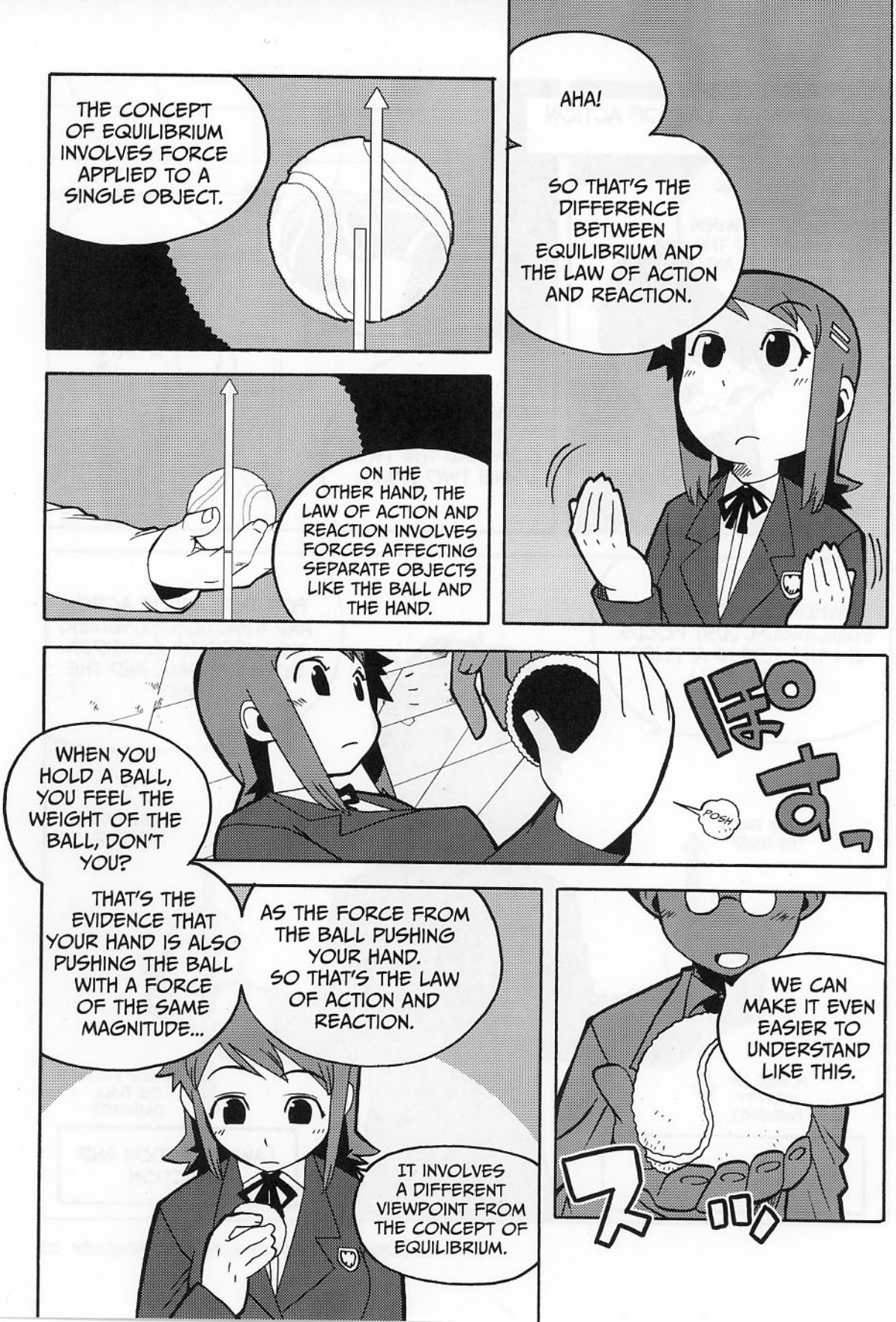
FORCE OF GRAVITY (WEIGHT)

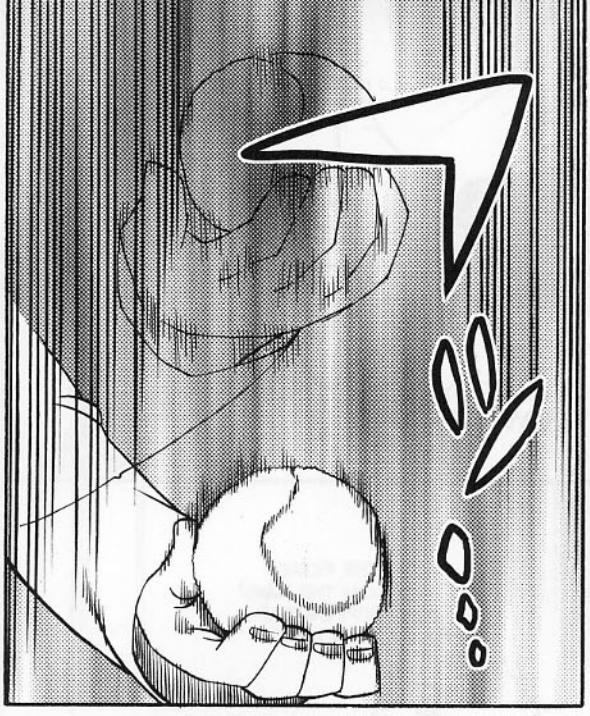
FORCE FROM THE HAND

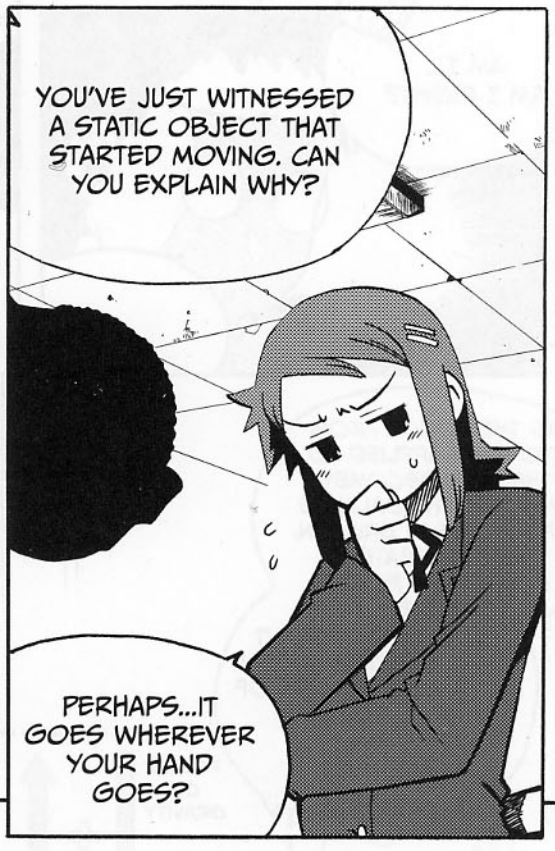
FORCE FROM THE BALL (WEIGHT)

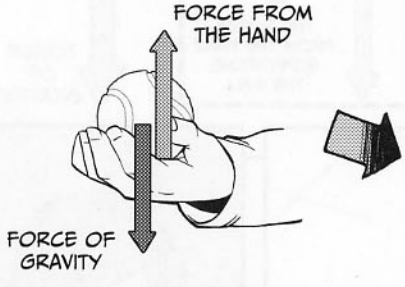
EQUILIBRIUM

LAW OF ACTION AND REACTION


THE CONCEPT OF EQUILIBRIUM INVOLVES FORCE APPLIED TO A SINGLE OBJECT.
AHA!
SO THAT'S THE DIFFERENCE BETWEEN EQUILIBRIUM AND THE LAW OF ACTION AND REACTION.
ON THE OTHER HAND, THE LAW OF ACTION AND REACTION INVOLVES FORCES AFFECTING SEPARATE OBJECTS LIKE THE BALL AND THE HAND.
ぽな。
POSH
WHEN YOU HOLD A BALL, YOU FEEL THE WEIGHT OF THE BALL, DON'T YOU?
THAT'S THE EVIDENCE THAT YOUR HAND IS ALSO PUSHING THE BALL WITH A FORCE OF THE SAME MAGNITUDE...
AS THE FORCE FROM THE BALL PUSHING YOUR HAND. SO THAT'S THE LAW OF ACTION AND REACTION.
IT INVOLVES A DIFFERENT VIEWPOINT FROM THE CONCEPT OF EQUILIBRIUM.
WE CAN MAKE IT EVEN EASIER TO UNDERSTAND LIKE THIS.
フニ

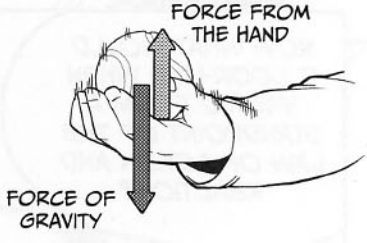


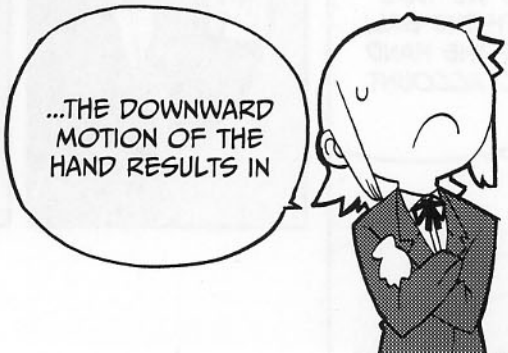


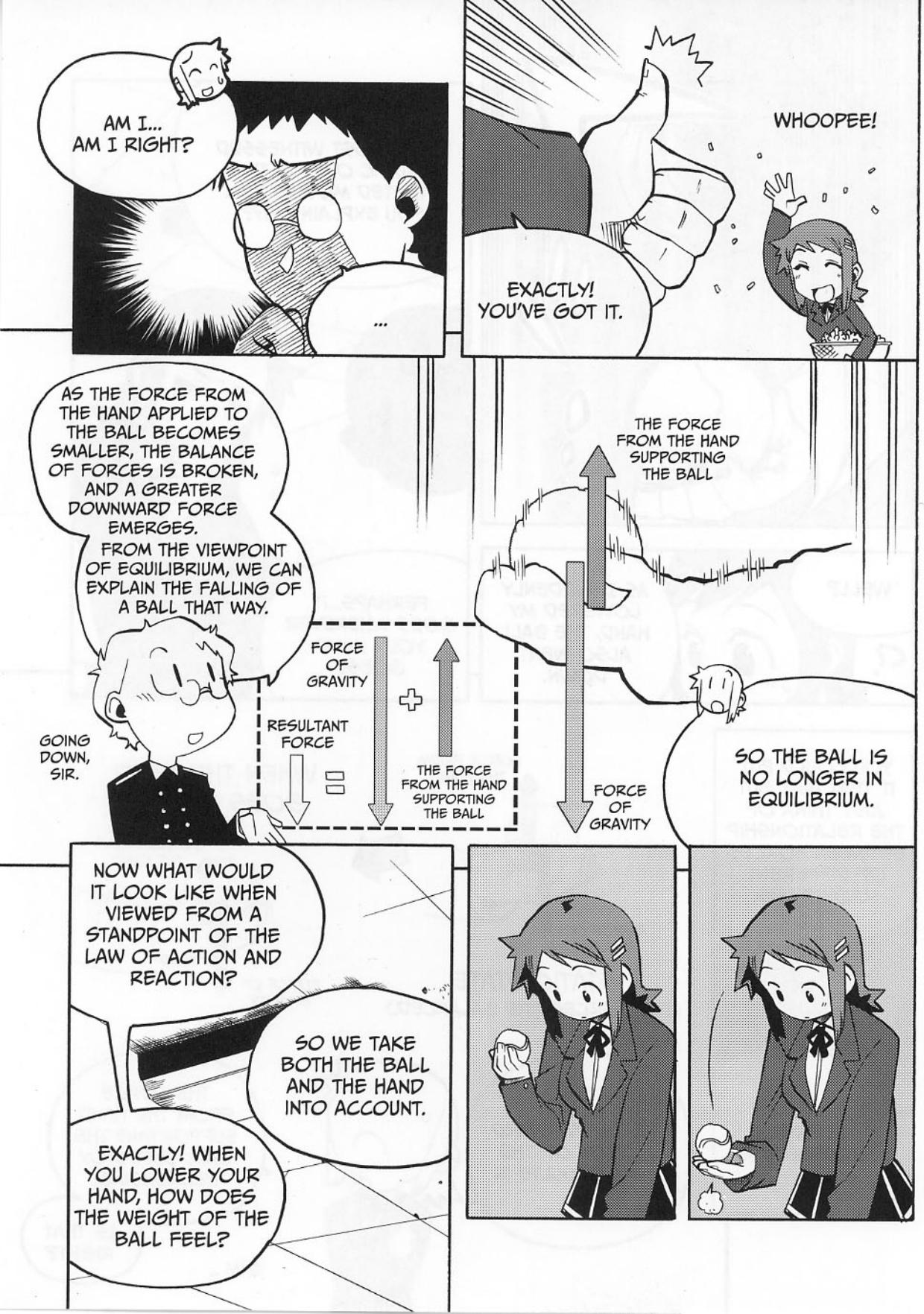


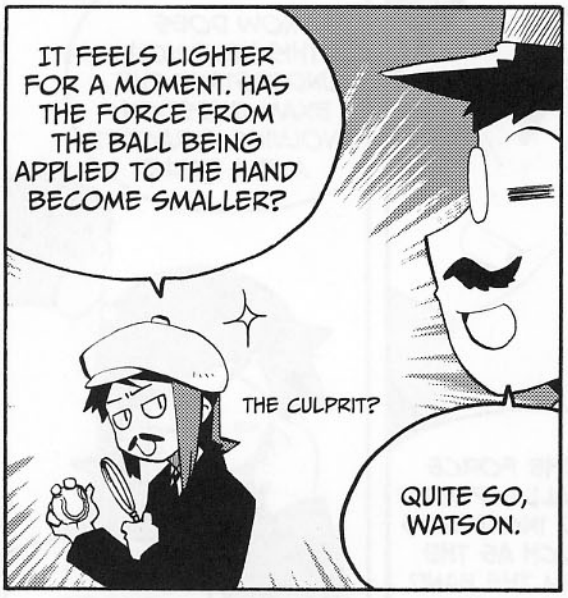
STATIC STATE
(THE FORCES ARE BALANCED.)

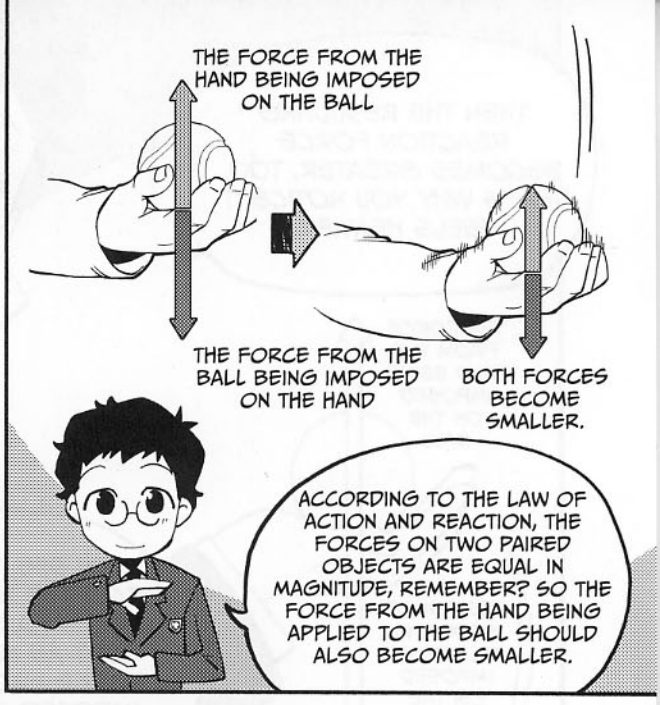
WHEN THE HAND GOES DOWN...



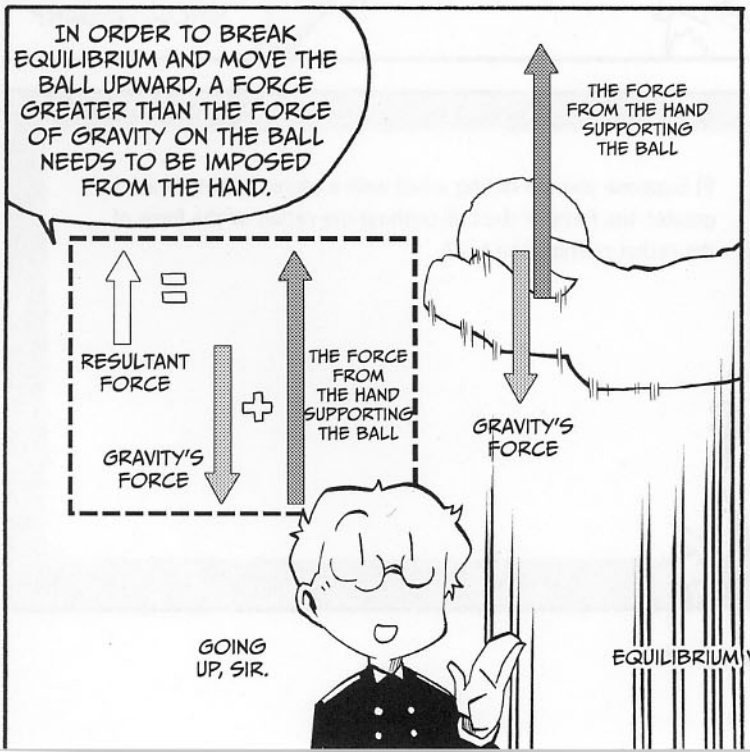



AM I...
AM I RIGHT?
...
EXACTLY!
YOU'VE GOT IT.
WHOOPEE!
AS THE FORCE FROM THE HAND APPLIED TO THE BALL BECOMES SMALLER, THE BALANCE OF FORCES IS BROKEN, AND A GREATER DOWNWARD FORCE EMERGES.
FROM THE VIEWPOINT OF EQUILIBRIUM, WE CAN EXPLAIN THE FALLING OF A BALL THAT WAY.
GOING DOWN, SIR.
FORCE OF GRAVITY
RESULTANT FORCE
THE FORCE FROM THE HAND SUPPORTING THE BALL
THE FORCE FROM THE HAND SUPPORTING THE BALL
FORCE OF GRAVITY
SO THE BALL IS NO LONGER IN EQUILIBRIUM.
NOW WHAT WOULD IT LOOK LIKE WHEN VIEWED FROM A STANDPOINT OF THE LAW OF ACTION AND REACTION?
SO WE TAKE BOTH THE BALL AND THE HAND INTO ACCOUNT.
EXACTLY! WHEN YOU LOWER YOUR HAND, HOW DOES THE WEIGHT OF THE BALL FEEL?


IT FEELS LIGHTER FOR A MOMENT. HAS THE FORCE FROM THE BALL BEING APPLIED TO THE HAND BECOME SMALLER?
THE CULPRIT?
QUITE SO, WATSON.


THE FORCE FROM THE HAND BEING IMPOSED ON THE BALL
THE FORCE FROM THE BALL BEING IMPOSED ON THE HAND
BOTH FORCES BECOME SMALLER.
ACCORDING TO THE LAW OF ACTION AND REACTION, THE FORCES ON TWO PAIRED OBJECTS ARE EQUAL IN MAGNITUDE, REMEMBER? SO THE FORCE FROM THE HAND BEING APPLIED TO THE BALL SHOULD ALSO BECOME SMALLER.

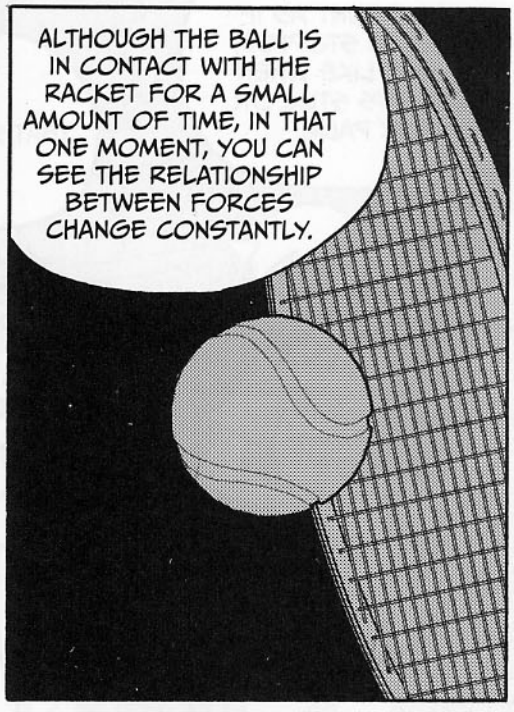

IN TURN, IF YOU SUDDENLY RAISE THE BALL, WON'T YOU SUDDENLY FEEL THE BALL BECOMING HEAVIER?
BONK
OH!
YEP, IT FEELS HEAVIER.


IN ORDER TO BREAK EQUILIBRIUM AND MOVE THE BALL UPWARD, A FORCE GREATER THAN THE FORCE OF GRAVITY ON THE BALL NEEDS TO BE IMPOSED FROM THE HAND.
RESULTANT FORCE
GRAVITY'S FORCE
THE FORCE FROM THE HAND SUPPORTING THE BALL
THE FORCE FROM THE HAND SUPPORTING THE BALL
GRAVITY'S FORCE
GOING UP, SIR.

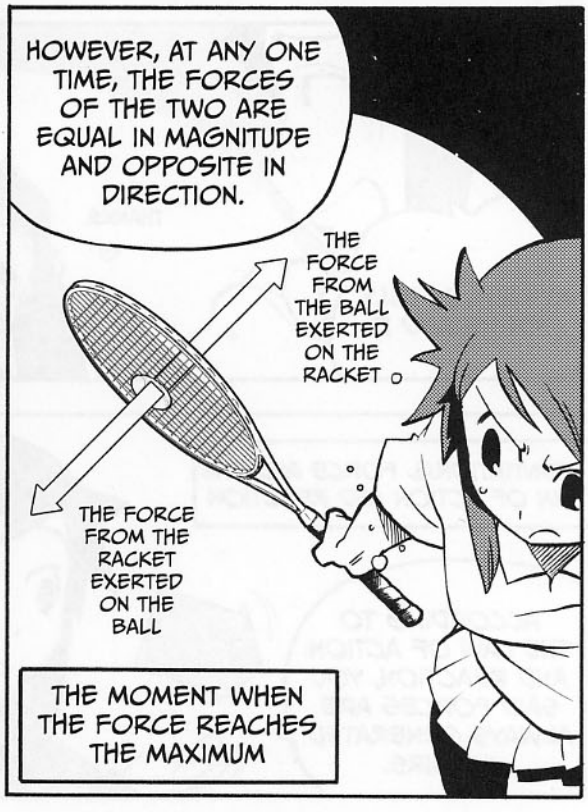

I FEEL A LITTLE EMBARRASSED.
REALLY.


THEN THE RESULTING REACTION FORCE BECOMES GREATER, TOO. THAT'S WHY YOU NOTICE IT FEELS HEAVIER.
THE FORCE FROM THE HAND BEING IMPOSED ON THE BALL
THE FORCE FROM THE BALL BEING IMPOSED ON THE HAND
YOU SEE, THE FORCE FROM THE BALL IMPOSED ON THE HAND INCREASES JUST AS MUCH AS THE FORCE FROM THE HAND IMPOSED ON THE BALL INCREASES.
NOW DOES THIS HELP YOU UNDERSTAND THE EXAM QUESTION INVOLVING A RACKET AND A BALL?
FLASH-BACK
UMMMM...
NONE OF YOUR BUSINESS!
!?
WHAT'S THE MATTER WITH YOU, NINOMIYA-SAN?
AHEM. SORRY. I THINK THE QUESTION WENT LIKE THIS.
9) Suppose you are hitting a ball with a tennis racket. Which is greater, the force of the ball pushing the racket or the force of the racket pushing the ball?


YOU SEE, WHEN YOU HIT THE BALL, THE FORCE OF THE RACKET IMPACTING THE BALL VARIES DEPENDING ON YOUR STROKE AND THE SPEED OF THE BALL.
YES, I KNOW.

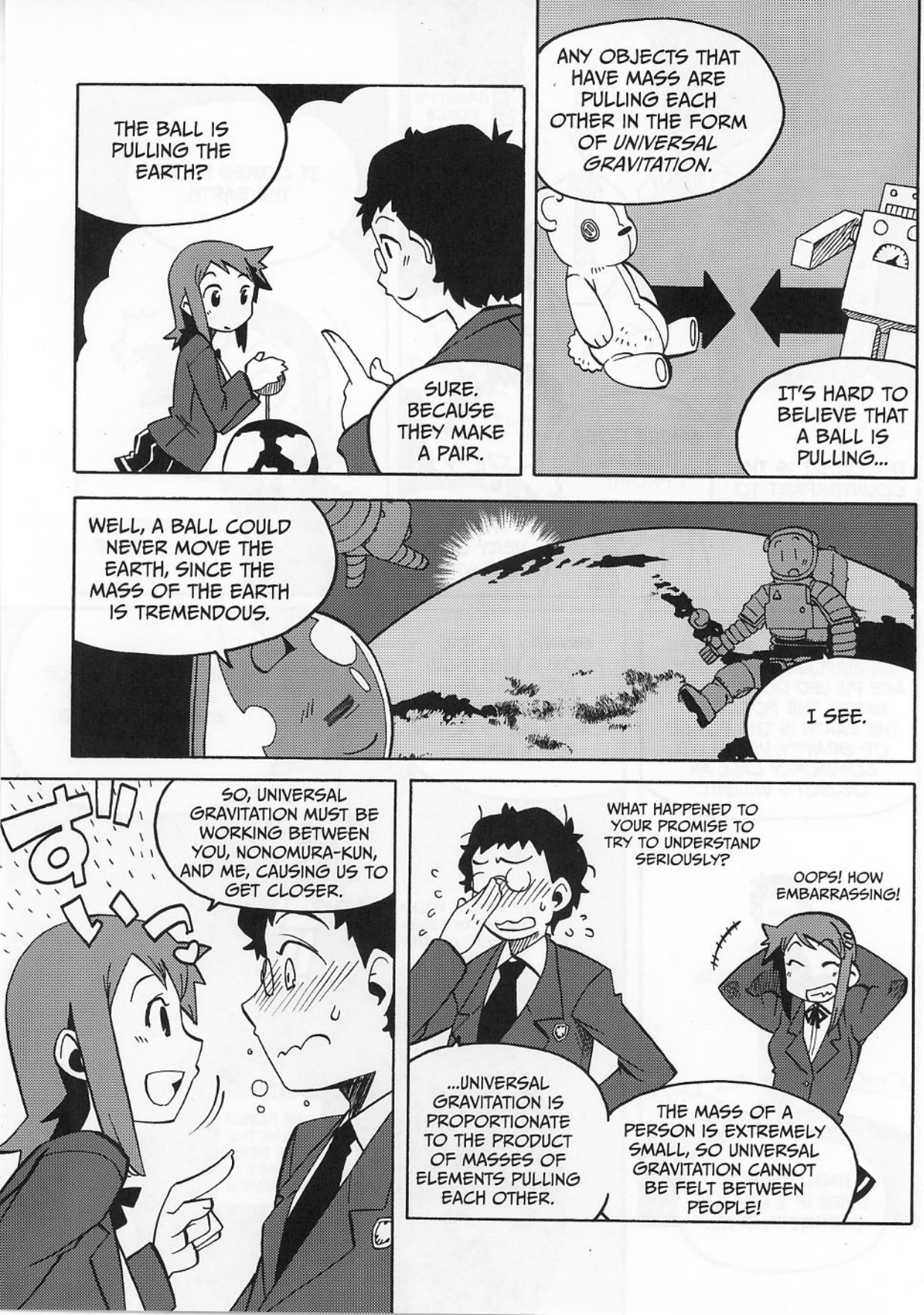

ALTHOUGH THE BALL IS IN CONTACT WITH THE RACKET FOR A SMALL AMOUNT OF TIME, IN THAT ONE MOMENT, YOU CAN SEE THE RELATIONSHIP BETWEEN FORCES CHANGE CONSTANTLY.


NATURALLY, THE FORCE EXERTED ON THE BALL BY THE RACKET ALSO KEEPS CHANGING.
THE FORCE FROM THE BALL EXERTED ON THE RACKET
THE FORCE FROM THE RACKET EXERTED ON THE BALL
THE START OF CONTACT WITH THE RACKET

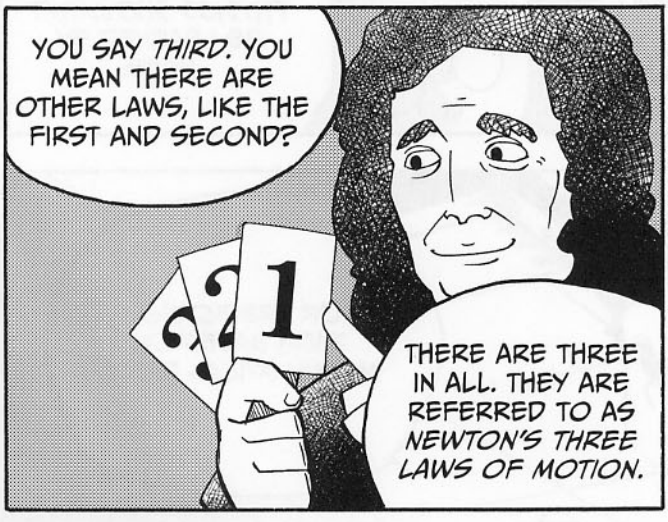

HOWEVER, AT ANY ONE TIME, THE FORCES OF THE TWO ARE EQUAL IN MAGNITUDE AND OPPOSITE IN DIRECTION.
THE FORCE FROM THE BALL EXERTED ON THE RACKET
THE FORCE FROM THE RACKET EXERTED ON THE BALL
THE MOMENT WHEN THE FORCE REACHES THE MAXIMUM


SO, IF YOU LOOK AT EACH MOMENT AS IF TIME WERE STOPPED, IT IS JUST LIKE WHEN A BALL SITS STILL ON YOUR PALM.
THAT'S RIGHT.
YOU CAN ALWAYS FIND THE LAW OF ACTION AND REACTION EITHER IN MOTION OR IN STATIC STATES.
GET IT?
AT LAST, I FULLY UNDERSTAND IT.
THANKS.
THAT'S GOOD.
WAIT.
GRAVITATIONAL FORCE AND THE LAW OF ACTION AND REACTION
ACCORDING TO THE LAW OF ACTION AND REACTION, YOU SAID FORCES ARE ALWAYS GENERATED IN PAIRS.
YEAH, THAT'S RIGHT...

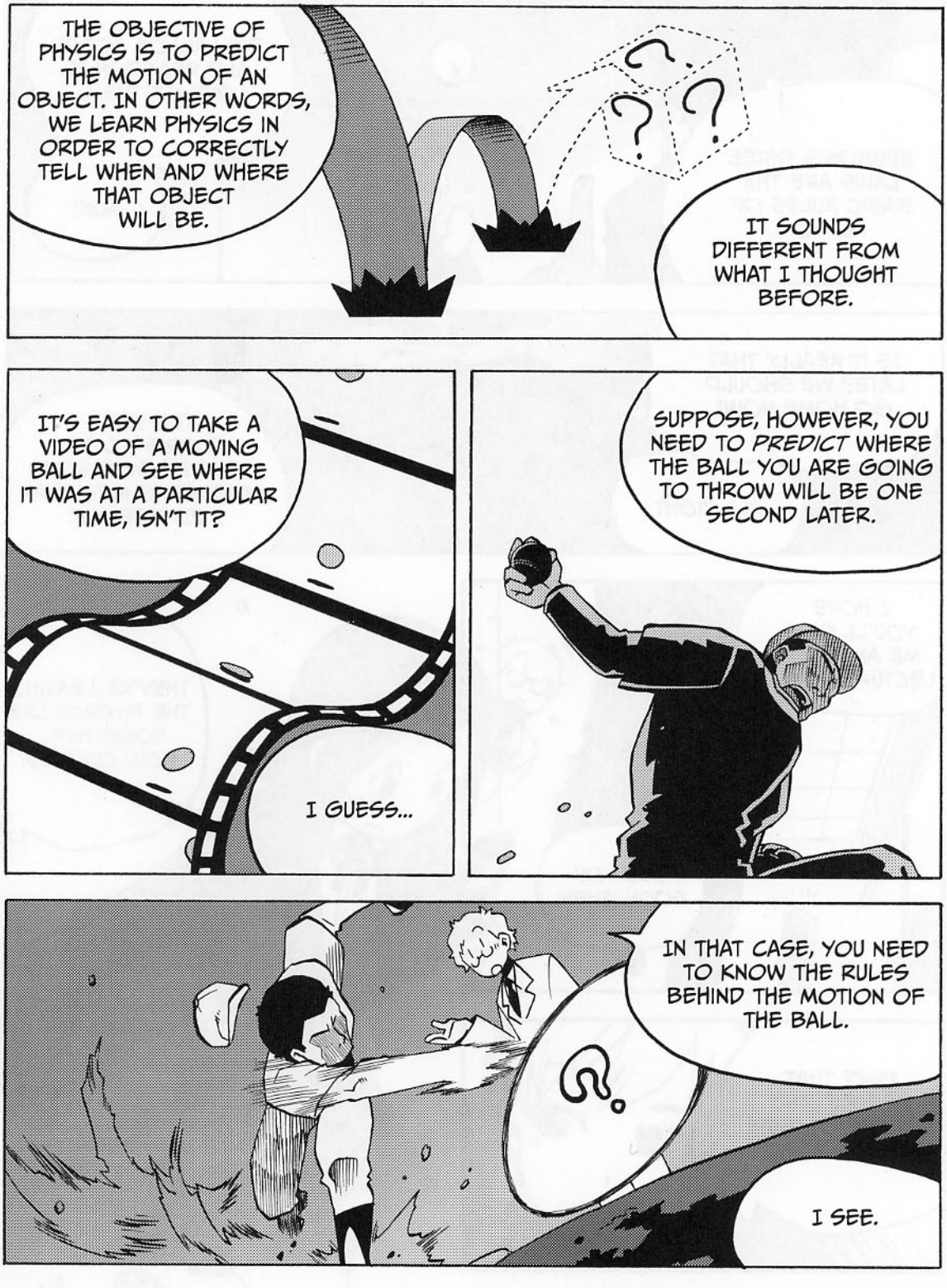

GRAVITY'S FORCE ON THE BALL
??
THEN WHAT IS THE COUNTERPART TO GRAVITY'S FORCE ON THE BALL?
WHERE DOES IT COME FROM?
THAT'S A VERY GOOD QUESTION.
IT COMES FROM THE EARTH.
WHAT? THE EARTH?
NOT ONLY A BALL BUT ALSO YOU, ME, AND EVEN AN AIRPLANE IN THE SKY ARE PULLED DOWN BY THE EARTH. THE FORCE OF THE EARTH IS THE FORCE OF GRAVITY, WHICH WE COMMONLY CALL AN OBJECT'S WEIGHT.
HMM. I'M NOT SURE IF I REALLY UNDERSTAND IT...
GRAVITY WORKS FROM A DISTANCE. AND JUST AS GRAVITATIONAL FORCE PULLS DOWN ON A BALL,
THE PULLING FORCE OF THE BALL IS EXERTED ON THE EARTH.
THE FORCE FROM THE EARTH BEING IMPOSED ON THE BALL
THE FORCE FROM THE BALL BEING IMPOSED ON THE EARTH


THE BALL IS PULLING THE EARTH?
SURE. BECAUSE THEY MAKE A PAIR.
ANY OBJECTS THAT HAVE MASS ARE PULLING EACH OTHER IN THE FORM OF *UNIVERSAL GRAVITATION.*
IT'S HARD TO BELIEVE THAT A BALL IS PULLING...
WELL, A BALL COULD NEVER MOVE THE EARTH, SINCE THE MASS OF THE EARTH IS TREMENDOUS.
I SEE.
SO, UNIVERSAL GRAVITATION MUST BE WORKING BETWEEN YOU, NONOMURA-KUN, AND ME, CAUSING US TO GET CLOSER.
WHAT HAPPENED TO YOUR PROMISE TO TRY TO UNDERSTAND SERIOUSLY?
OOPS! HOW EMBARRASSING!
...UNIVERSAL GRAVITATION IS PROPORTIONATE TO THE PRODUCT OF MASSES OF ELEMENTS PULLING EACH OTHER.
THE MASS OF A PERSON IS EXTREMELY SMALL, SO UNIVERSAL GRAVITATION CANNOT BE FELT BETWEEN PEOPLE!

NEWTON'S THREE LAWS OF MOTION




MEMORIZING LOTS OF EQUATIONS FOR TESTS. I USED TO SEE IT THAT WAY.
BUT AFTER LISTENING TO YOUR EXPLANATION, NONOMURA-KUN, MY VIEW MAY HAVE CHANGED A LITTLE.
SO, MAYBE IT'S TO HELP UNDERSTAND THE MECHANICS OF MOTION. RIGHT?
THAT'S GREAT.
PHYSICS SHOULDN'T BE LEARNED BY ROTE.
IN MY OPINION, PHYSICS MEANS, "EXPLAINING NATURAL PHENOMENA USING LAWS—
OR PREDICTING THEM BASED ON MATHEMATICAL DATA."
WOW! THAT'S CONVINCING ENOUGH.
AND THE FOUNDATION OF PHYSICS IS CLASSICAL MECHANICS—WHAT WE'RE STUDYING IN CLASS.


THE OBJECTIVE OF PHYSICS IS TO PREDICT THE MOTION OF AN OBJECT. IN OTHER WORDS, WE LEARN PHYSICS IN ORDER TO CORRECTLY TELL WHEN AND WHERE THAT OBJECT WILL BE.
IT SOUNDS DIFFERENT FROM WHAT I THOUGHT BEFORE.
IT'S EASY TO TAKE A VIDEO OF A MOVING BALL AND SEE WHERE IT WAS AT A PARTICULAR TIME, ISN'T IT?
I GUESS...
SUPPOSE, HOWEVER, YOU NEED TO *PREDICT* WHERE THE BALL YOU ARE GOING TO THROW WILL BE ONE SECOND LATER.
IN THAT CASE, YOU NEED TO KNOW THE RULES BEHIND THE MOTION OF THE BALL.
I SEE.


NEWTON'S THREE LAWS ARE THE BASIC RULES OF MOTION.
THE LAW OF ACTION AND REACTION IS ONE OF THEM.
ACK!
IS IT REALLY THAT LATE? WE SHOULD GO HOME NOW!
ALL RIGHT.
TEE-HEE. THANKS A LOT. I FIND PHYSICS MORE INTERESTING NOW THAN I DID BEFORE.
I HOPE YOU'LL GIVE ME ANOTHER LECTURE SOON.
SEE YOU SOON, THEN.
THEY'RE LEAVING THE PHYSICS LAB TOGETHER... HOW CURIOUS.
ISN'T THAT MEGUMI...AND NONOMURA, THAT PHYSICS GEEK?