

FINDING FLOPTOPIA

PRACE

CO-WRITTEN AND ILLUSTRATED BY ALANAH KNIBB



THAT IS YOUR GRANDPA'S **RADIO** MY BUD. YOU CAN EXPLORE THE WHOLE UNIVERSE WITH THAT THING. RADIO WAVES CAN GO INTO **OUTER SPACE** AND YOU NEVER KNOW WHO'S GOING TO BE **LISTENING** ON THE OTHER SIDE.



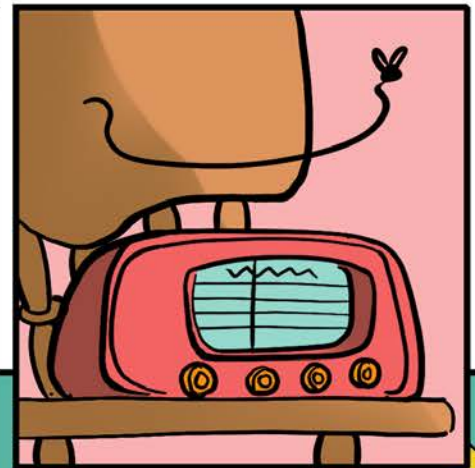
LATER THAT EVENING.



Alannah Knibb



SKYE GET YOUR BUTT DOWNSTAIRS OR THAT CRAZY LADY MS. NELSON IS GONNA CALL ME TO SAY YOU'RE SKIPPING SCHOOL TO TALK TO ELDER GODS AGAIN.



WELCOME EVERYONE TO SUMMER OF SPACE! ALRIGHT PEEPS, WHILE YOU'RE HERE YOU'RE GOING TO BE SUSSING OUT SPACE WEATHER.

WE'VE GOT A TEAM WORKING ON **SIMULATIONS** TO FIGURE OUT HOW SPACE WEATHER AFFECTS COMMUNICATION. WE WANT TO FIND OUT WHICH STATE OF THE IONOSPHERE IS BEST FOR SENDING **RADIO** WAVES.

BUT IT'S NOT GOING TO BE EASY. ARE YOU UP FOR THE **CHALLENGE**?

DR ENIGMA RAE, I'VE GOT THIS **RADIO** AT HOME BUT IT'S HAVING TROUBLE REACHING OUT TO...**SOMEONE**.

COULD THAT BE BECAUSE OF SPACE WEATHER TOO?

FOR SURE! SPACE WEATHER CAN TURN RADIO COMMUNICATION INTO GOBBLEDYGOOK. ESPECIALLY **SOLAR FLARES**! SEE, THE SOLAR WIND CARRIES ENERGETIC PARTICLES WHICH **INTERACT** WITH THE MAGNETIC FIELD OF THE EARTH AND THE MAGNETOSPHERE, AND ALSO THE ATMOSPHERE TO FORM THE **IONOSPHERE**.

IT'S MEGA COMPLICATED, THAT'S WHY WE'VE GOT SOME OF THE BIGGEST, FASTEST **COMPUTERS** IN THE WORLD RUNNING SIMULATIONS AND CALCULATIONS TO UNDERSTAND SPACE WEATHER. IT'S THE CRAZIEST AND **COOLEST** THING I'VE EVER WORKED ON.

OUR SUN

SOLAR WIND

EARTH

IONOSPHERE

MAGNETOSPHERE

HOW DO THEY WORK?

SUPERCOMPUTERS

Alamy Kille

WELL YOUR **SMARTPHONE** IS A COMPUTER. IMAGINE A **GIANT BALL POOL** WHERE EACH BALL IS A PHONE AND THEY'RE ALL **CONNECTED** AND WORKING TOGETHER. IT'S LIKE HAVING 100 PEOPLE DO YOUR **HOMEWORK** FOR YOU, IT WOULD BE DONE IN **NO TIME!**



SCALE THAT UP TO ALL YOUR HOMEWORK FOR A WHOLE YEAR. A **SUPERCOMPUTER** COULD DO IT IN **LESS THAN A MINUTE!**

IN EUROPE, **PRACE** PROVIDES ACCESS TO THE LARGEST MACHINES AVAILABLE.



WE'VE GOT 26 COUNTRIES IN THIS GROUP, ALL WITH **SUPERCOMPUTERS**, ALL WORKING TOGETHER.

NICEEE... SO HOW DOES THAT HELP YOU PREDICT SPACE WEATHER?

A **SPACE WEATHER** FORECAST IS MUCH LIKE A NORMAL WEATHER FORECAST. FIRST, WE **OBSERVE** SPACE WEATHER WITH THE HELP OF **SATELLITES**, **RADARS** AND **MAGNETOMETERS**.

THEN, WE FEED THAT INFORMATION INTO THE **SUPERCOMPUTER MODEL** WHICH **SIMULATES** HOW MATTER AND ENERGY FLOW AND INTERACT.



THEN WE FIRE UP THE **SUPERCOMPUTER** AND IT DOES A **HUMONGOUS** AMOUNT OF CALCULATIONS UNTIL THE FORECAST IS READY. WE LOOK AT THE **RESULTS**, UNDERSTAND THEM AND PREDICT WHAT COULD HAPPEN.

AND TO DO ALL THAT WE NEED TO UNDERSTAND **CODING**, SO WE CAN ACTUALLY **USE** THE SPACE WEATHER DATA.

NO PEEPS, IT'S **EASY**. I JUST NEED TO CALCULATE THE BEST SPACE WEATHER CONDITIONS TO REACH SOMEWHERE **FAR FAR AWAY** BY RADIO.

THEN I CAN FIND OUT IF ALL THIS FLOPTOPIA STUFF IS FOR **REALS** OR JUST IN MY BRAIN SPACE.



AND TO DO IT, I'LL USE **SUPERCOMPUTERS!** THAT'S IT! I'M GOING TO BECOME THE BEST SCIENTIST IN THE WORLD AND FIND FLOPTOPIA **MYSELF!**



Alanah Knibb

