

**FREE!**  
**#1**


UNIVERSITY OF YORK AND TEESIDE UNIVERSITY PRESENTS



# GREENKID




**STORIES! PUZZLES! GAMES! IN THIS ISSUE: THE SECRET OF CYRENE!**



**CYRUS!**

# GLOSSARY!



**SPROUT!**

NOT SURE WHAT SOME OF THE WORDS IN THE COMIC MEAN? THAT'S OKAY! SPROUT AND CYRUS ARE HERE TO HELP!

**CATALYSTS** - SOMETHING THAT LOWERS THE ENERGY AND TIME NEEDED TO MAKE A REACTION HAPPEN BUT DOESN'T GET USED UP

**CELLULOSE** - THE MOST ABUNDANT CARBON BASED CHEMICAL ON EARTH, EVERY YEAR 100 BILLION TONS IS PRODUCED BY PLANTS. CELLULOSE IS A POLYMER MADE UP OF THE SUGAR GLUCOSE

**CHEMICAL** - A DISTINCT THING MADE FROM ATOMS

**CIRCULAR ECONOMY** - A CLOSED LOOP, AT THE END OF LIFE, THINGS CAN BE MADE BACK INTO NEW THINGS

**COUNCIL** - A GROUP OF PEOPLE WHO MAKE DECISIONS TOGETHER

**CRUDE OIL** - A MIX OF CARBON AND HYDROGEN CONTAINING CHEMICALS MADE FROM ORGANISMS THAT LIVED MILLIONS OF YEARS AGO

**CYRENE™** - A SOLVENT MADE FROM CELLULOSE VIA LEVOGLUCOSENONE\*

**DNA** - DEOXYRIBONUCLEIC ACID, THE INSTRUCTIONS FOR LIFE FOR ALMOST ALL LIVING THINGS. NEARLY EVERY CELL IN YOUR BODY HAS YOUR DNA IN IT AND IT CONTAINS ALL THE INFORMATION NEEDED FOR YOUR BODY TO MAKE YOU

**EMISSIONS** - THE PRODUCTION AND RELEASE OF SOMETHING, USUALLY A GAS

**POLYMER** - FROM GREEK, POLY MEANING MANY AND MER MEANING UNITS. IT IS A LONG CHAIN WITH LOTS OF REPEATING UNITS

**PYROLYSE** - HEATING SOMETHING UP, BUT NOT IN AIR, SO THAT IT CHEMICALLY CHANGES BUT DOESN'T BURN


**SOLVENT** - A LIQUID THAT DISSOLVES OR DISPERSES THINGS. MOST SOLVENTS ARE MADE FROM CRUDE OIL, CYRENE IS NOT

**SUSTAINABLE** - MAKING SOMETHING IN A WAY THAT WE CAN KEEP ON MAKING IT FOREVER WITHOUT HARMING PEOPLE, THE ENVIRONMENT OR THE ECONOMY

**TIME IS RELATIVE** - HOW MUCH TIME PASSES DEPENDS ON YOUR FRAME OF REFERENCE


\* - ACKNOWLEDGED TO CIRCA GROUP PTY LTD

THE YEAR IS 2064. THE WORLD WAS RAVAGED BY THE EFFECTS OF CLIMATE DISASTER.



HOWEVER SOME AREAS OF THE WORLD WERE SAVED AND MANAGED TO ALTER THEIR WAY OF LIFE TO BE A CIRCULAR ECONOMY™.


THE WORLD IS NOW RULED BY A COUNCIL\* OF SCIENTISTS AND ACADEMICS WHO ENSURE THAT THE CIRCULAR ECONOMY STAYS IN PLACE.




I JUST WANT TO START BY THANKING THE SCIENCE COUNCIL FOR THEIR FUNDING OF MY PROJECT FOR THE PAST 2 YEARS.

HOWEVER, SOME SCARS CANNOT BE REPAIRED.

AS WE ARE FULLY AWARE, THE CLIMATE DISASTER BECAME INEVITABLE IN THE 2020s. THE AVERAGE GLOBAL TEMPERATURE INCREASED BEYOND 1.5°C AND SEA LEVELS ROSE ENOUGH TO BEGIN ENVELOPING COASTAL AREAS. WE AVERTED FURTHER DISASTER BY INTRODUCING THE CIRCULAR ECONOMY BUT LIVES WERE STILL LOST. HOWEVER, WHAT I PROPOSE IS A WAY TO SAVE THOSE LIVES.




WITH THIS.




BY SENDING THIS SEED BACK TO THE PEOPLE OF THE 2020s,

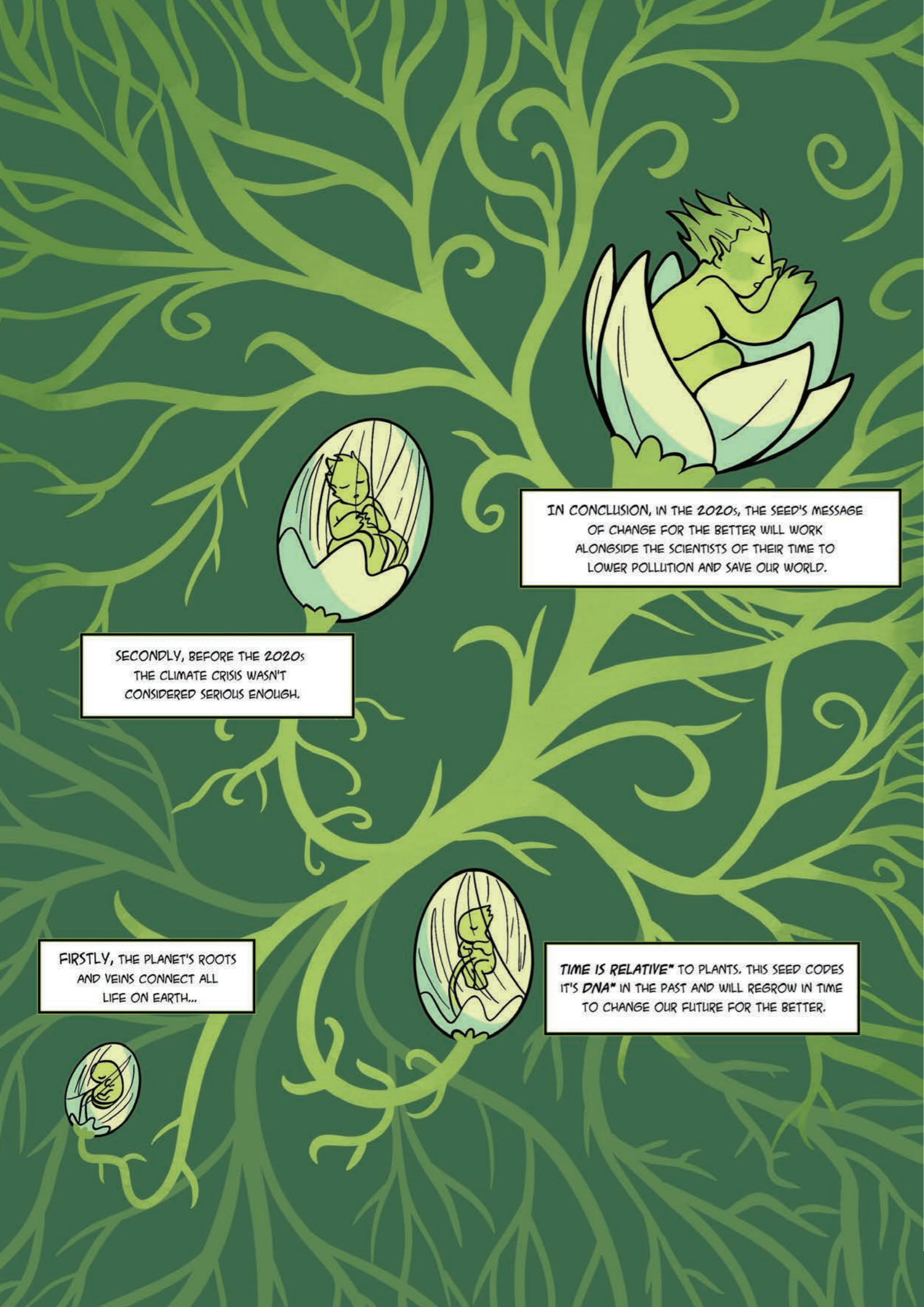
THEY WILL BE GUIDED TO PREVENT THE FUTURE CLIMATE DISASTER.



SO YOU'VE CREATED A TIME MACHINE?

NOT QUITE.





IN CONCLUSION, IN THE 2020s, THE SEED'S MESSAGE OF CHANGE FOR THE BETTER WILL WORK ALONGSIDE THE SCIENTISTS OF THEIR TIME TO LOWER POLLUTION AND SAVE OUR WORLD.



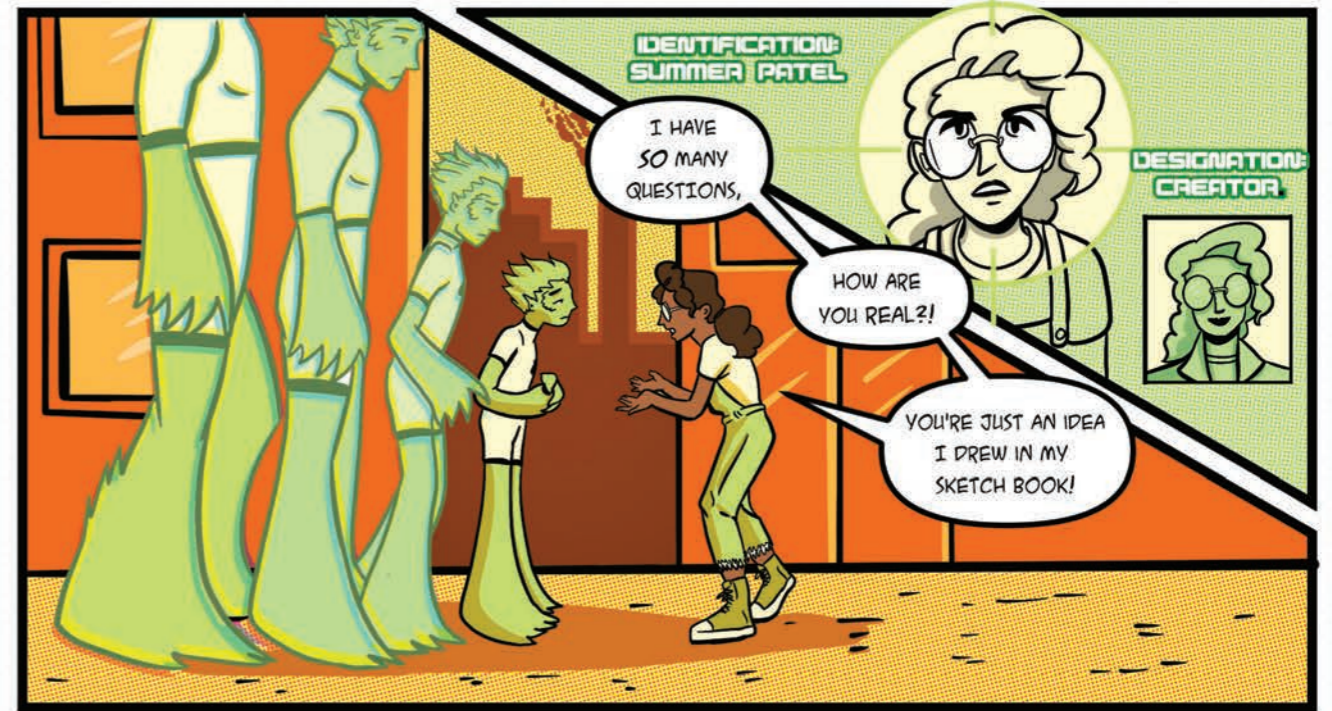
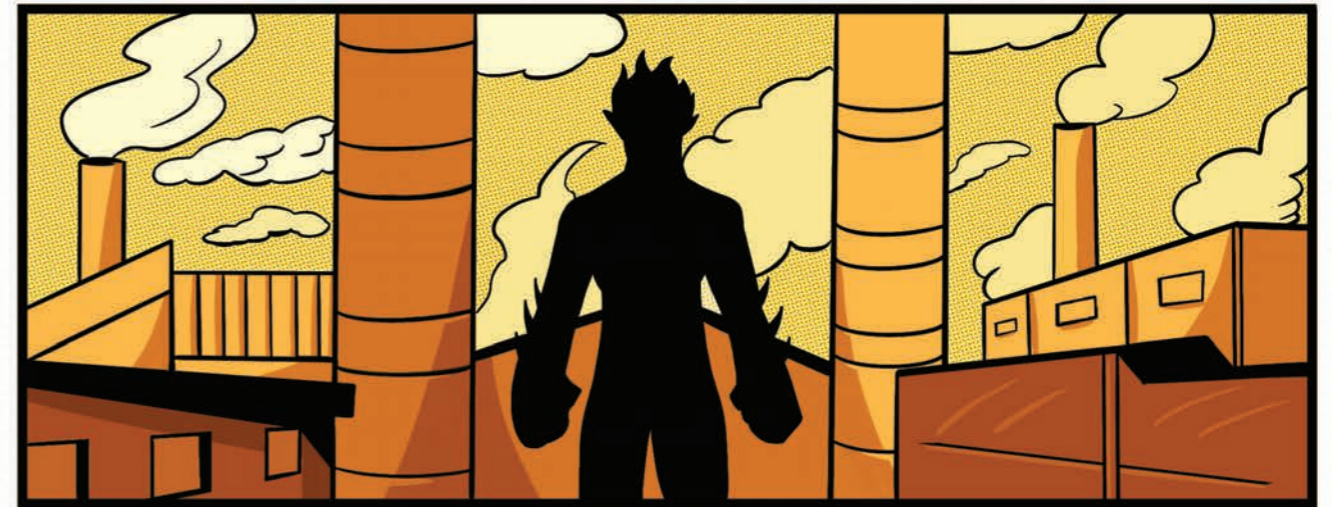
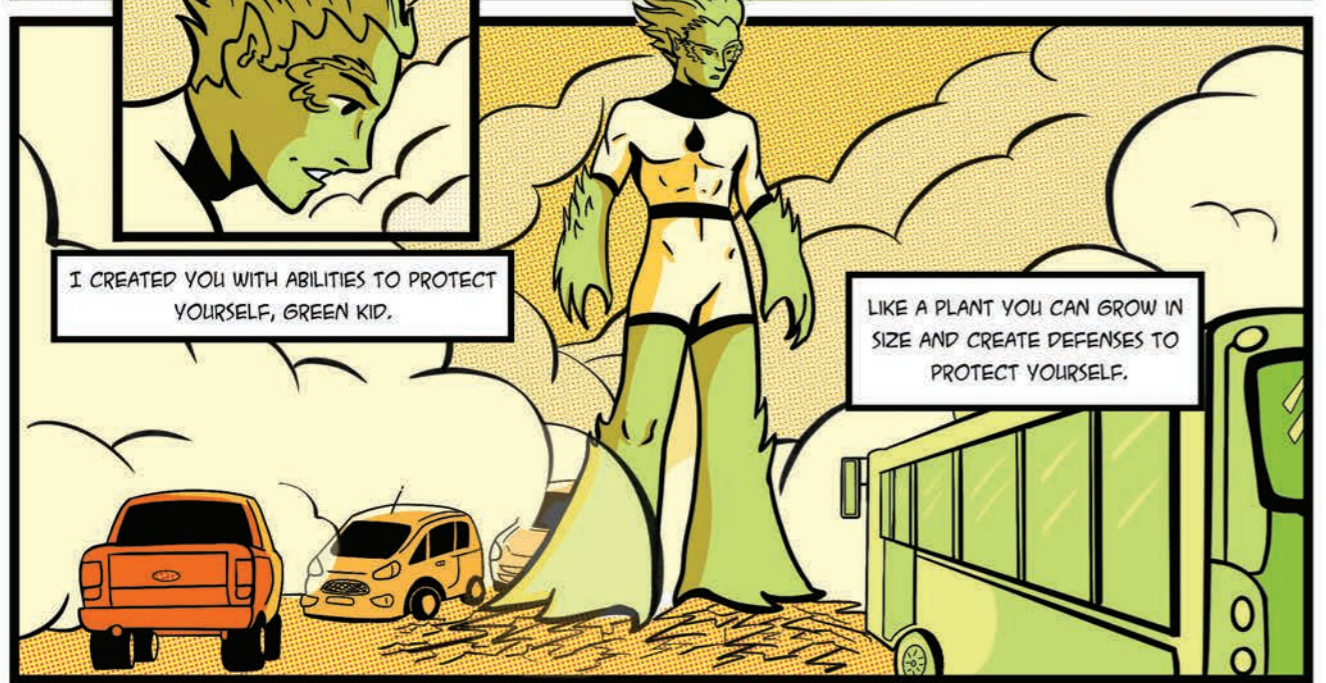
SECONDLY, BEFORE THE 2020s THE CLIMATE CRISIS WASN'T CONSIDERED SERIOUS ENOUGH.



TIME IS RELATIVE\* TO PLANTS. THIS SEED CODES IT'S DNA\* IN THE PAST AND WILL REGROW IN TIME TO CHANGE OUR FUTURE FOR THE BETTER.

FIRSTLY, THE PLANET'S ROOTS AND VEINS CONNECT ALL LIFE ON EARTH...







AND HOW ARE YOU HERE?

YOU CREATED ME IN THE FUTURE TO COME BACK TO THE PAST TO HELP PREVENT THE CLIMATE DISASTER.

I THOUGHT IF I DESTROY THIS FACTORY IT'D HELP...

I... WOW.



WELL YOU SHOULDN'T DESTROY THIS FACTORY ANYWAY. HERE THEY DO INCREDIBLY IMPORTANT WORK IN CREATING SUSTAINABLE SOLUTIONS!

OH?

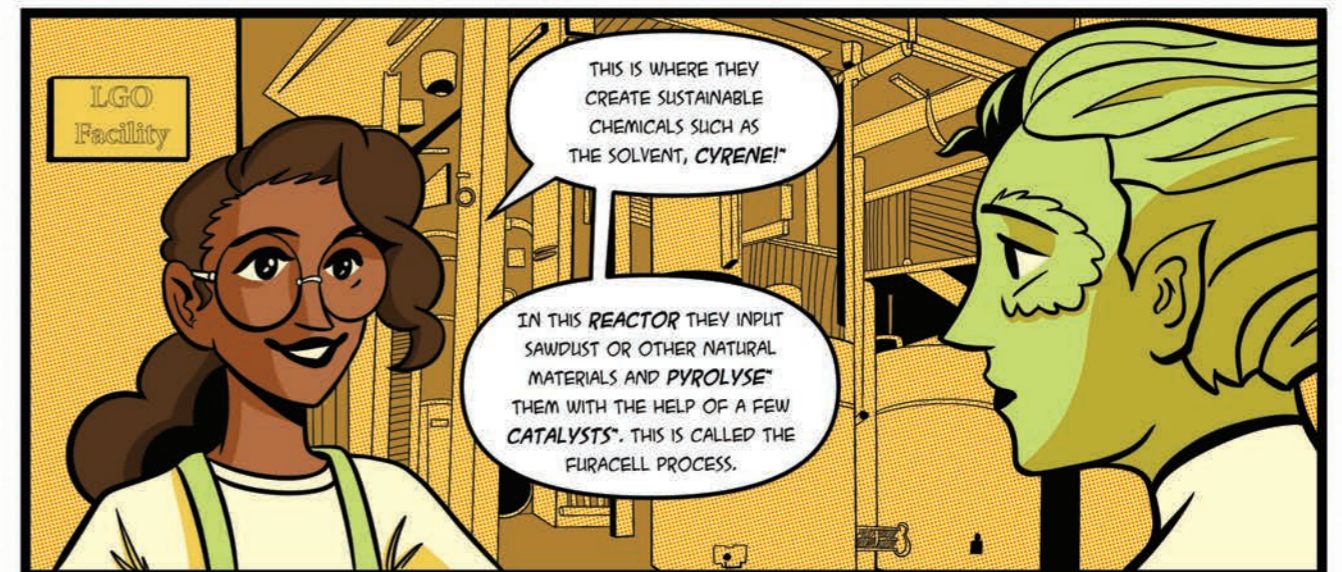


THE SMOKE STACKS YOU SAW PROBABLY MADE YOU THINK THEY WERE BURNING COAL HERE OR SOME OTHER FOSSIL FUEL. HOWEVER, THIS FACTORY AS WELL AS MANY OTHERS HAVE BEEN TAKEN OVER BY GREEN SUSTAINABLE PROJECTS.



WE JUST HAD A FIELD TRIP TO THIS SUSTAINABILITY FACILITY, LET ME SHOW YOU ONE OF THE AMAZING PROJECTS THAT THEY'RE WORKING ON!

PRETTY!



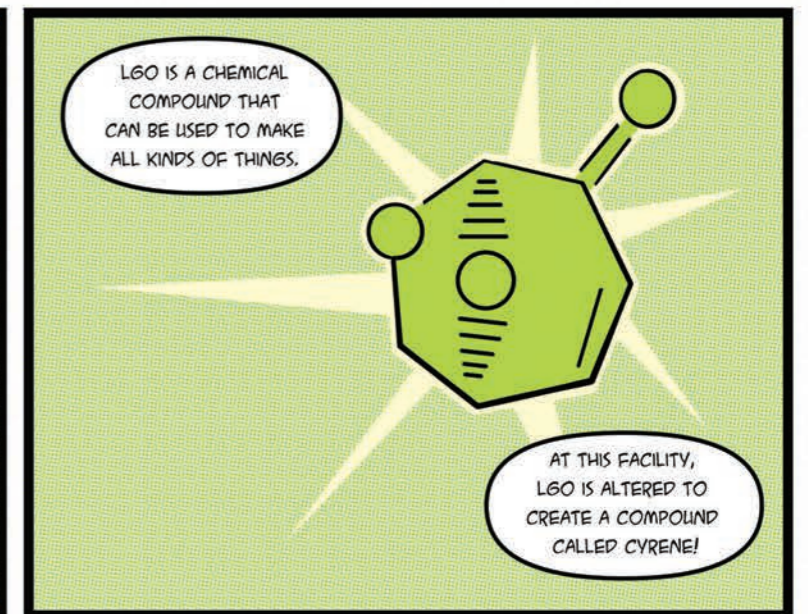
LGO Facility

THIS IS WHERE THEY CREATE SUSTAINABLE CHEMICALS SUCH AS THE SOLVENT, CYRENE!

IN THIS REACTOR THEY INPUT SAWDUST OR OTHER NATURAL MATERIALS AND PYROLYSE\* THEM WITH THE HELP OF A FEW CATALYSTS\*. THIS IS CALLED THE FURACELL PROCESS.



THIS CONVERTS THE CELLULOSE\* INTO SOMETHING CALLED LEVOGLUCOSENONE™ OR LGO FOR SHORT.

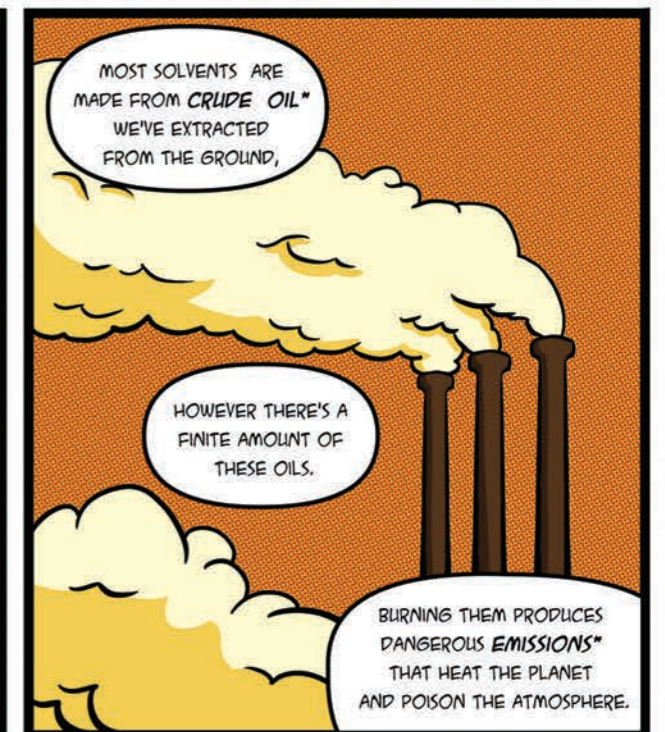


LGO IS A CHEMICAL COMPOUND THAT CAN BE USED TO MAKE ALL KINDS OF THINGS.

AT THIS FACILITY, LGO IS ALTERED TO CREATE A COMPOUND CALLED CYRENE!



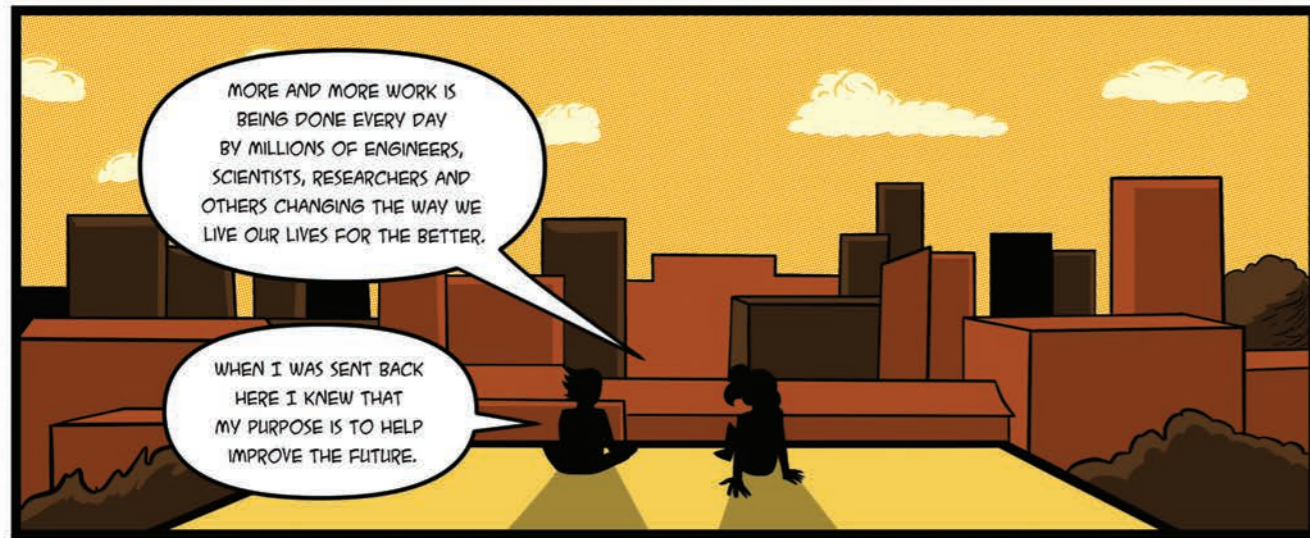
CYRENE IS A SOLVENT, A LIQUID THAT DISSOLVES THINGS, WHICH WE NEED TO USE TO MAKE ALL TYPES OF PRODUCTS!



MOST SOLVENTS ARE MADE FROM CRUDE OIL\* WE'VE EXTRACTED FROM THE GROUND,


HOWEVER THERE'S A FINITE AMOUNT OF THESE OILS.

BURNING THEM PRODUCES DANGEROUS EMISSIONS\* THAT HEAT THE PLANET AND POISON THE ATMOSPHERE.




# FUN AND GAMES!

GREENKID AND HIS FRIENDS ARE HERE! CAN YOU HELP OUT HIS FRIENDS SPROUT AND CYRUS?




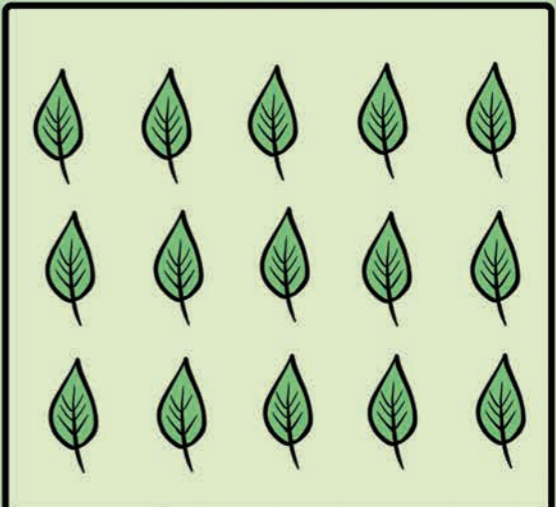
**COLOUR SPROUT AND GREENKID IN!**



**CAN YOU FIND THE ODD LEAF OUT?**

**BEST FRIENDS!**






**CAN YOU HELP CYRUS AND FIND THESE WORDS?**

S	O	S	G	R	E	N	E	W	A	B	L	E
U	E	C	C	A	T	A	L	Y	S	T	L	E
S	F	U	D	T	Y	O	C	R	S	L	P	S
T	E	Y	E	D	P	D	T	S	O	M	Y	O
A	E	I	N	S	U	N	F	S	N	G	R	L
I	D	P	E	B	E	I	A	T	E	R	O	U
N	S	I	E	L	L	L	T	H	L	E	L	L
A	T	S	S	O	L	V	E	N	T	E	Y	L
B	O	T	S	H	L	S	E	O	V	N	S	E
L	C	T	W	O	O	V	N	A	E	K	I	C
E	K	N	E	O	Y	I	P	Y	O	I	S	S
N	E	R	O	Y	A	E	S	A	E	D	L	T
P	H	O	T	O	S	Y	N	T	H	E	S	I
S	O	E	Y	L	R	S	L	A	T	T	N	O

GREENKID  
 CATALYST  
 SOLVENT  
 CELLULOSE  
 PYROLYSIS  
 SUSTAINABLE  
 RENEWABLE  
 PHOTOSYNTHESIS  
 POLYMER  
 FEEDSTOCK



DID YOU COUNT THE GREENKID LOGOS IN THE COMIC?

# ACKNOWLEDGEMENTS

TEESSIDE UNIVERSITY  
COMICS AND GRAPHIC NOVELS

EDITOR: JULIAN LAWRENCE

SCRIPT: JAMES PATRICKS

ART: JADE DORAN AND JAMES PATRICKS

PUZZLES AND DESIGN: KIRSTY STEBBINGS

UNIVERSITY OF YORK CHEMISTRY DEPARTMENT

DR ROB MCELROY: SCIENCE CONSULTANT

EXTRA THANKS: DR JASON CAMP CTO; CIRCA

FUNDING GENEROUSLY PROVIDED BY  
THE ROYAL SOCIETY OF CHEMISTRY

WITH SPECIAL THANKS TO ACOMB PRIMARY AND  
ALL SAINTS RC SCHOOL YORK FOR BETA TESTING.



ROYAL SOCIETY  
OF CHEMISTRY

MI  
MA

School of  
Art & Design



UNIVERSITY  
*of York*