

**FREE
#6**

**UNIVERSITY OF LINCOLN, UNIVERSITY OF SHEFFIELD
AND TEESSIDE UNIVERSITY PRESENT**


Approved by
 *Dr Sciencel*

GREENKID



NEW FRIENDS JOIN FORCES FOR A WORLD WIDE JOURNEY TO FIND EACH OTHER

GLOSSARY

AGGREGATES: ROCKY OR GRAINY MATERIALS THAT MAKE CONCRETE SUPER TOUGH. THE MOST COMMON AGGREGATES ARE SAND, GRAVEL, AND CRUSHED LIMESTONE.

BLAST FURNACE SLAG: A ROCK-LIKE MATERIAL LEFT OVER FROM THE SMELTING OF IRON ORE IN A BLAST FURNACE. INSTEAD OF BEING THROWN AWAY, THIS MATERIAL CAN BE USED AS A SCM TO MAKE LOW CARBON CEMENT BY COOLING AND GRINDING IT UP.

BLENDED CEMENT: AN ECO-FRIENDLY CEMENT MADE BY MIXING PORTLAND CEMENT WITH A SCM.

BY-PRODUCT: AN EXTRA MATERIAL THAT'S PRODUCED WHEN THE MAIN MATERIAL IS BEING MADE. BLAST FURNACE SLAG AND FLY ASH ARE EXAMPLES OF BY-PRODUCTS.

CARBON EMISSIONS: ALSO KNOWN AS CARBON DIOXIDE (CO₂) EMISSIONS, THEY ARE CREATED WHEN FOSSIL FUELS LIKE COAL AND GAS ARE BURNED. THESE EMISSIONS CONTRIBUTE TO CLIMATE CHANGE, WHICH WARMS THE PLANET, SO IT'S IMPORTANT TO REDUCE THEM.

CEMENT: A FINE POWDER THAT, WHEN MIXED WITH WATER, TURNS INTO A STRONG GLUE. THIS GLUE HOLDS TOGETHER ALL THE AGGREGATES IN CONCRETE, MAKING IT STURDY AND DURABLE.

CONCRETE: THE MOST COMMONLY USED BUILDING MATERIAL IN THE WORLD. IT'S MADE BY MIXING TOGETHER WATER, CEMENT, AND AGGREGATES.

FLY ASH: A POWDERY MATERIAL LEFT OVER FROM BURNING COAL. INSTEAD OF LETTING IT GO TO WASTE, WE CAN USE IT AS A SCM TO MAKE LOW CARBON CEMENT.

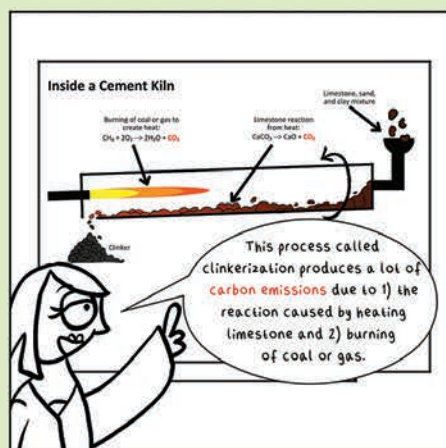
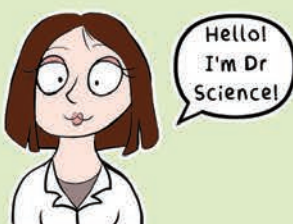
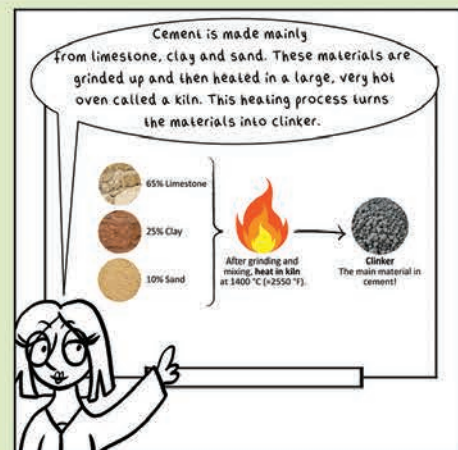
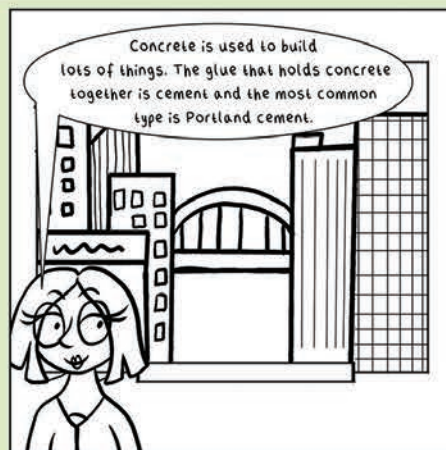
KAOLIN CLAY: A SPECIAL TYPE OF WHITE CLAY FOUND IN NATURE. WHEN HEATED UP IN A KILN, IT TURNS INTO CALCINED CLAY WHICH CAN BE USED AS A SCM TO MAKE LOW CARBON CEMENT.

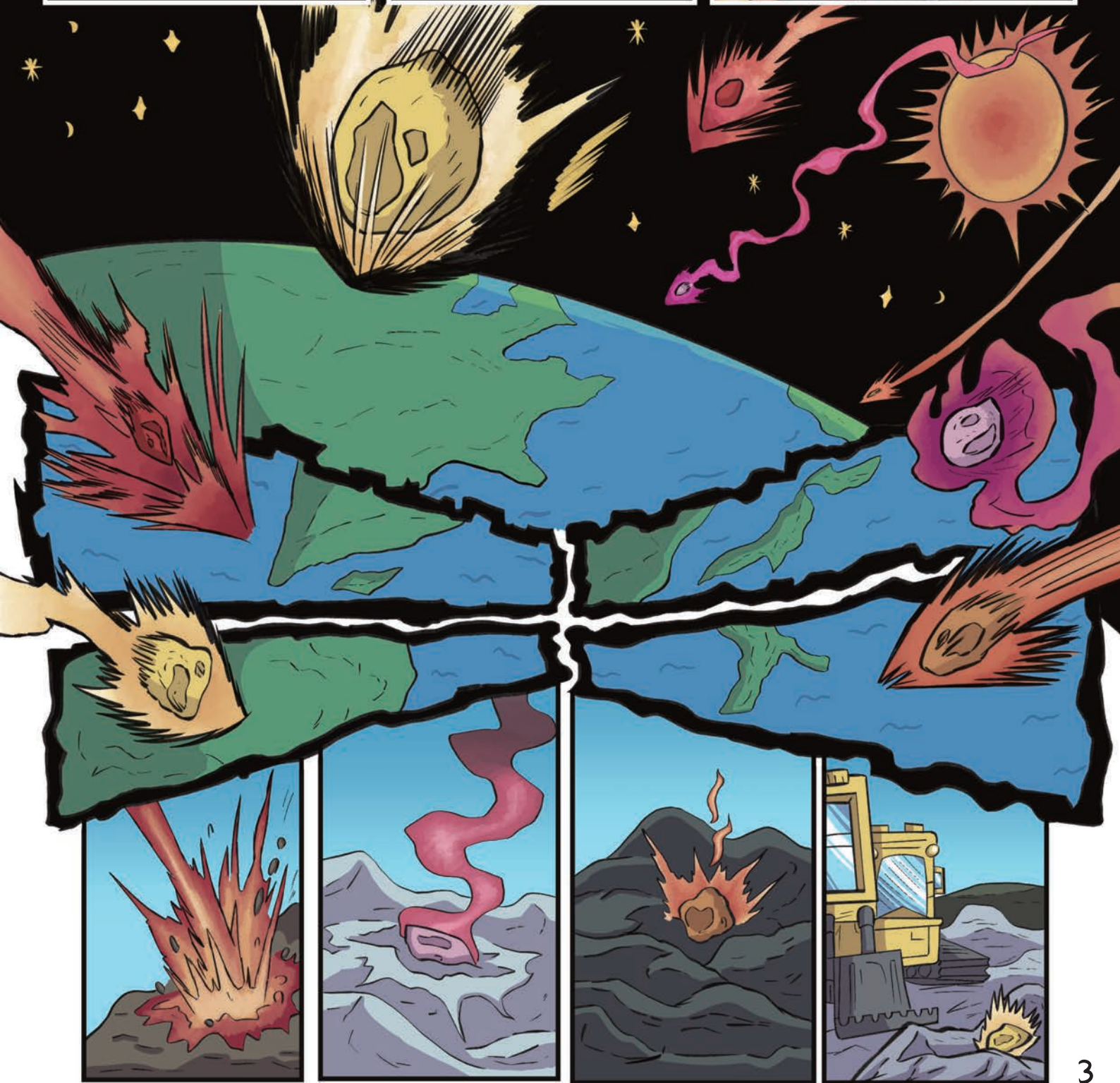
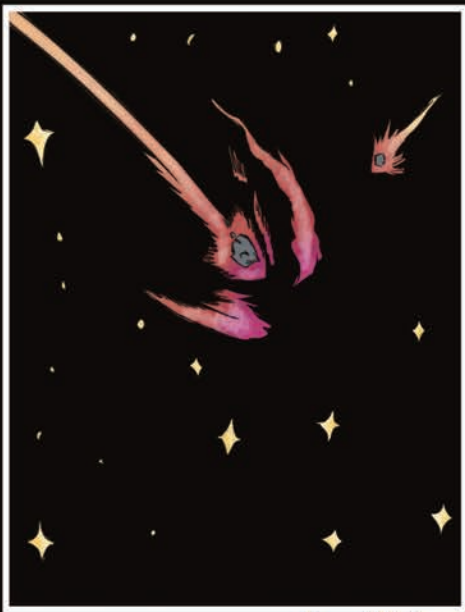
PORTLAND CEMENT: THE MOST COMMONLY USED TYPE OF CEMENT. WHILE IT'S STRONG, ITS PRODUCTION CREATES A LOT OF CARBON EMISSIONS.

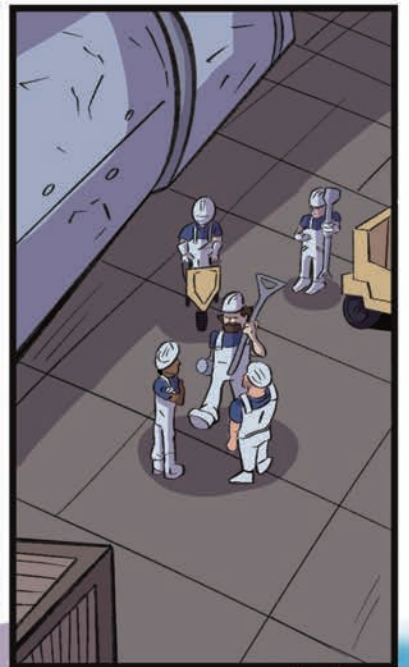
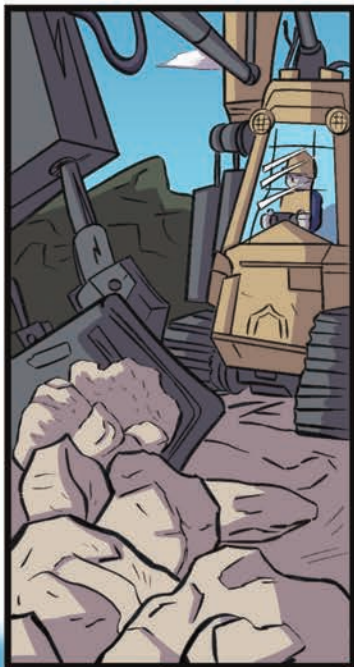
TERM OF THE ISSUE!

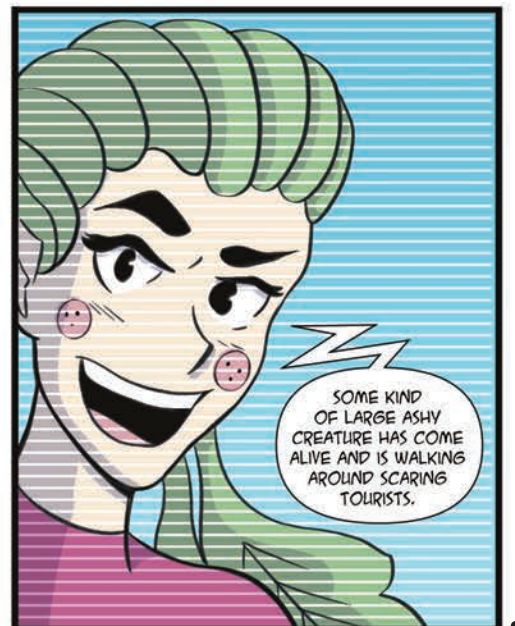
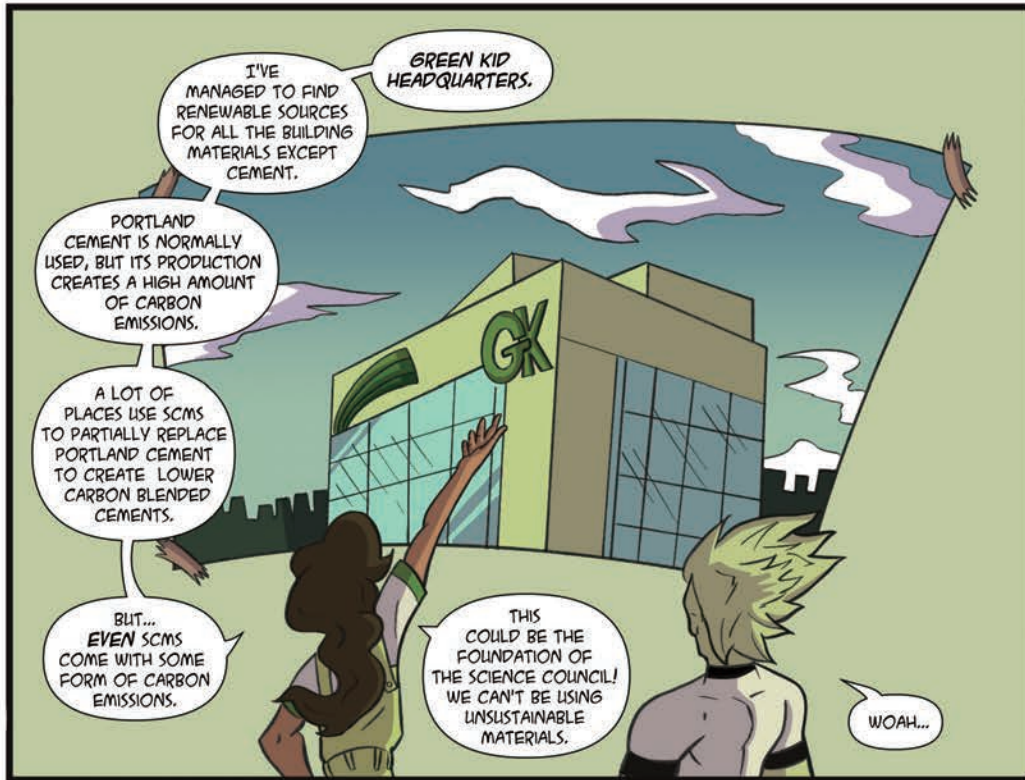
SUPPLEMENTARY CEMENTITIOUS MATERIALS (SCMs): MATERIALS WITH SIMILAR PROPERTIES TO PORTLAND CEMENT. THEY CAN BE USED TO REDUCE THE AMOUNT OF PORTLAND CEMENT NEEDED AND MAKE BLENDED CEMENT, WHICH HAS FEWER CARBON EMISSIONS AND BETTER DURABILITY.

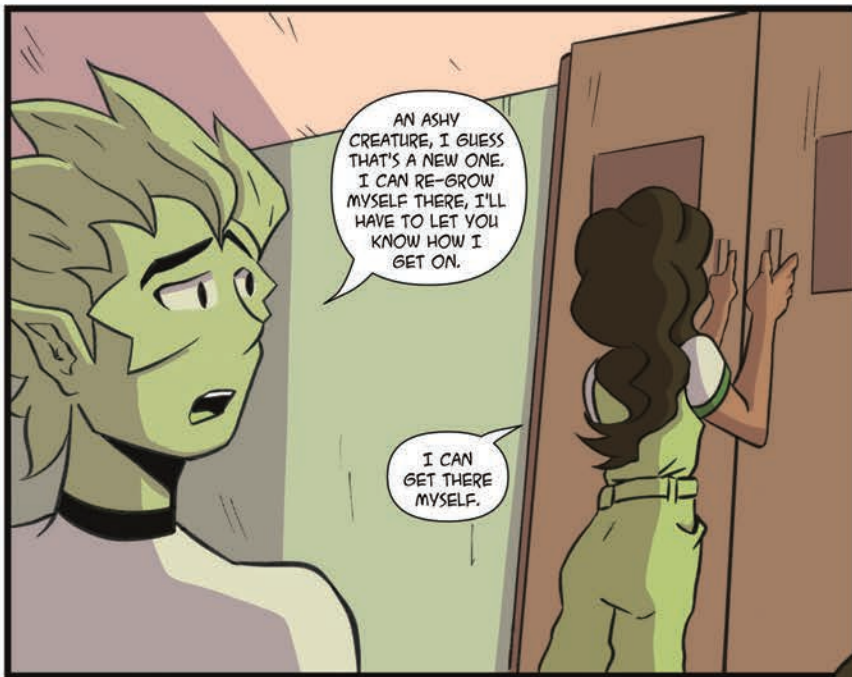
science!
with
Dr. Science!
COLOUR THE COMIC!

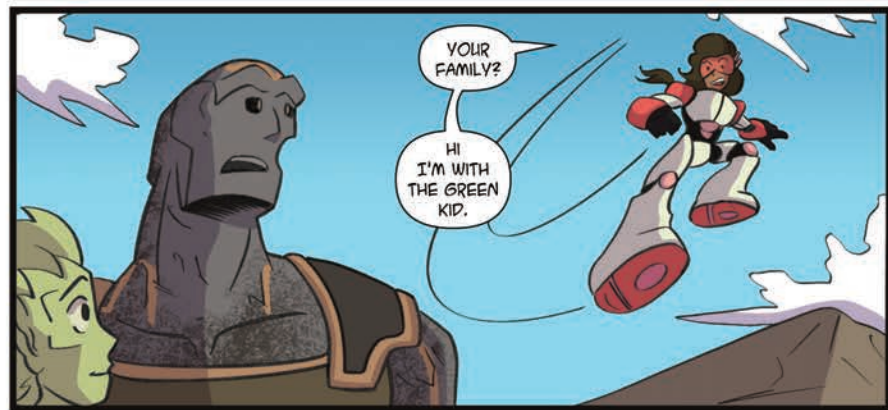


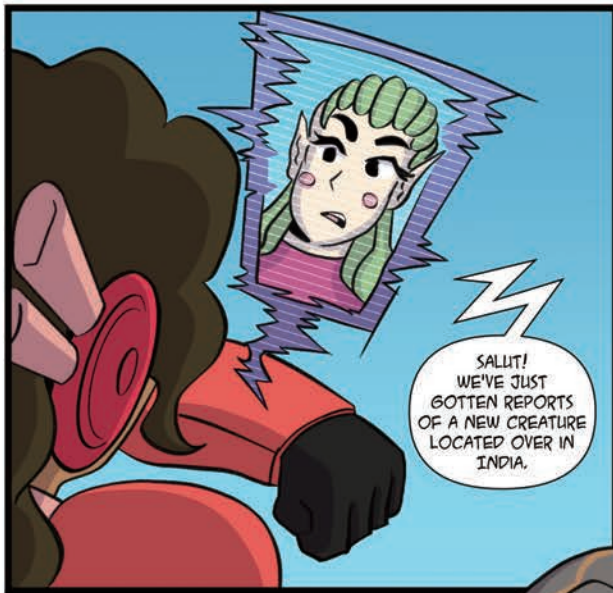












SALUT!
WE'VE JUST
GOTTEN REPORTS
OF A NEW CREATURE
LOCATED OVER IN
INDIA.



ANOTHER ONE,
THIS COULD BE ONE OF YOUR
SIBLINGS! BUT HOW CAN WE GET
YOU OVER THERE... UMM...
WHAT DID YOU SAY YOUR
NAME WAS?



HAVING
GIVEN IT SOME
THOUGHT I WILL NAME
MYSELF AFTER THE KIND
OF MATERIAL I HAVE
MERGED WITH,
POZZO.

AND AS
A CREATURE OF
PURE CONSCIOUSNESS I
CAN SEND MY MIND AND
RE-FORM MY BODY
ELSEWHERE.

I CAN
FEEL THEIR
PRESCENCE IN
THIS, INDIA.



YOU
SURE ARE FULL OF
SURPRISES.

INDIA.





HEY
WHAT'D I
MISS?



MY SIBLING!
YOU'RE OKAY!
AND IN SUCH A WELL
MADE VESSEL, IT
SUITS YOU.

I HAVE
TAKEN THE NAME
POZZO AFTER MY
FORM.

POZZO,
I LIKE IT.
I'M MADE OF FLY
ASH, SO MAYBE
ASHO WOULD
SUIT ME.



I'M SORRY,
I DON'T KNOW WHAT
HAPPENED...

YEAH...
THAT WAS
WEIRD.

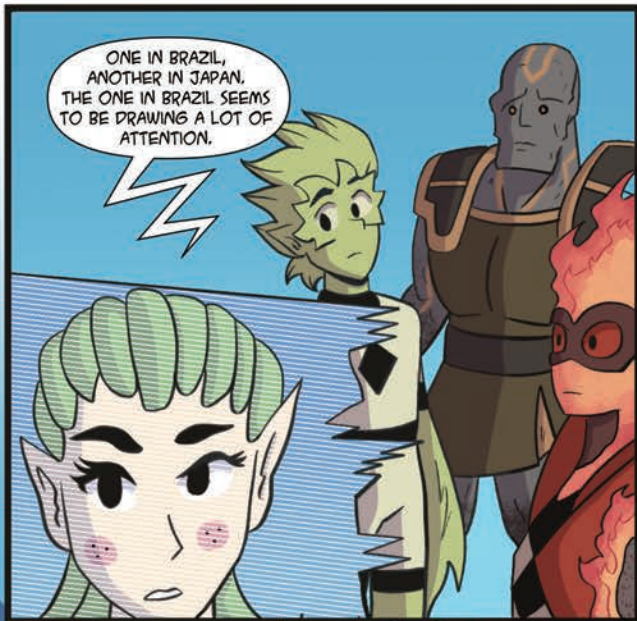


IT'S SOME
KIND OF MIRACLE.
WE WERE JUST ON OUR WAY
TO TRANSPORT THE FLY ASH TO
THE CEMENT FACTORY AND
SUDDENLY THIS BEING
JUMPED OUT, FULLY
FORMED.



WITH THE
AMOUNT OF HEAT ASHO
IS PRODUCING THE CARBON
EMISSIONS MUST BE
ASTRONOMICAL.

UNFORTUNATELY
IN INDIA WE'RE STILL
RELIANT ON COAL FOR
OUR ENERGY PRODUCTION.
FLY ASH IS JUST ANOTHER BY-
PRODUCT OF OUR COAL
BURNING.



JAPAN

HEY, ARE YOU OKAY?



HEY, IT'S ALRIGHT, I'VE MET YOUR SIBLINGS, THEY'RE REALLY EXCITED TO MEET YOU.

OH... NO ONE IS EXCITED TO MEET ME. I'M JUST BLAST FURNACE SLAG, A WASTE PRODUCT. THEY TOLD ME SO AT THE IRON FACTORY. IRON IS USED TO MAKE STEEL WHICH IS USEFUL.



HEY, SUMMER, I'VE LOCATED THE NEW CREATURE, ISHI. POOR LIL' THING, I FEEL SO BAD FOR THEM.

IMAGINE BEING BORN INTO THIS WORLD AND THE FIRST THING YOU FIND OUT IS THAT YOU'RE MADE OF WASTE MATERIAL.



I MEAN THAT'S WHAT THEY ARE.

WHY WOULD YOU SAY THAT?



BECAUSE THEY ARE WASTE MATERIAL, ALL THESE CREATURES ARE CREATED FROM PROCESSES THAT GENERATE CARBON EMISSIONS.

WHO'S TO SAY HOW MANY OF THEM THERE ARE OUT THERE?

WHO COULD START DEMANDING MORE AND MORE TO BE PRODUCED?

WHY ARE YOU SAYING THIS?



IS IT A COINCIDENCE THAT THESE CRYSTALS HAVE LANDED AT SCM SITES?

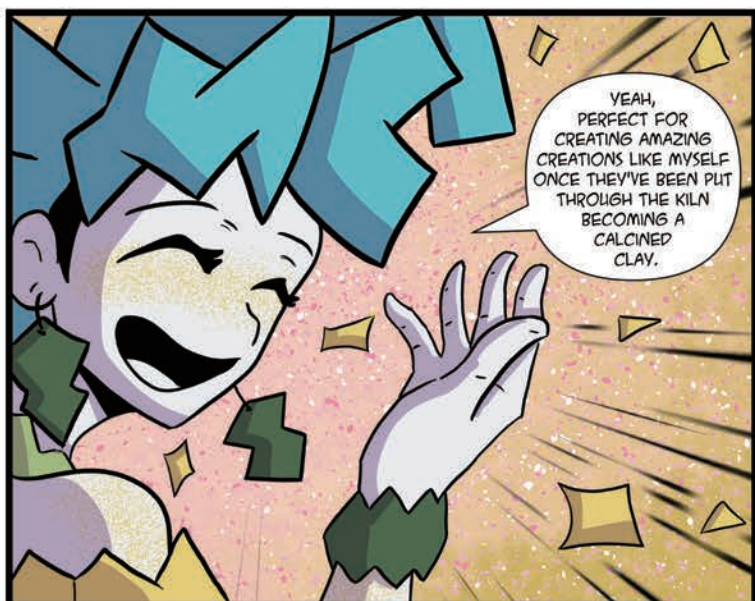
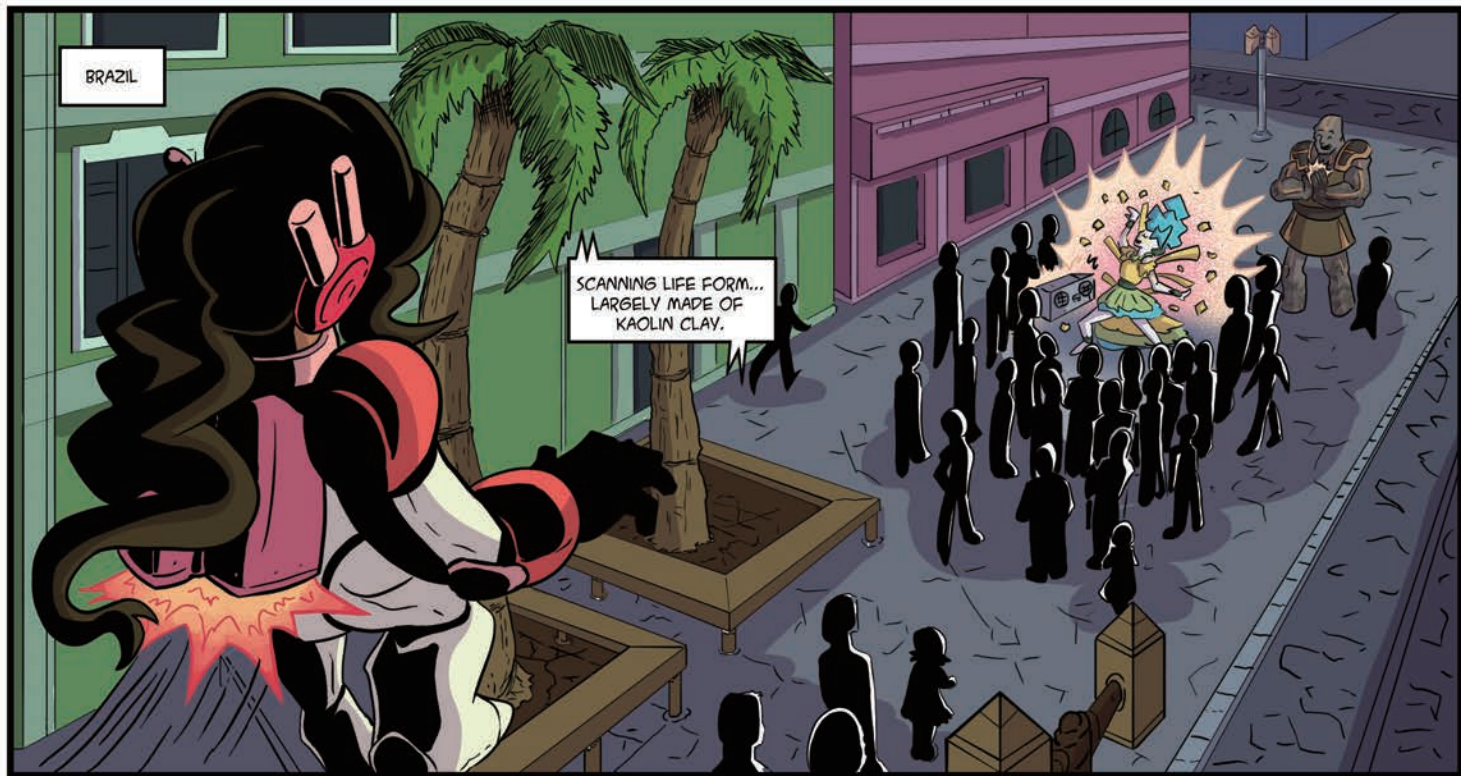
YOU CAN SUBSTITUTE PORTLAND CEMENT WITH SCMS ALL YOU WANT BUT AT THE END OF THE DAY THEY'RE MADE BY PRODUCING CARBON EMISSIONS!

NONE OF THEM ARE PERFECT SOLUTIONS!

THERE'S NOT ALWAYS GOING TO BE A PERFECT SOLUTION TO THESE THINGS.



WE NEED TO WORK HARDER AT IT!





OH... NO! OKAY, WHAT WOULD SUMMER DO?



OKAY, I'M GOING TO NEED YOUR HELP TO SAVE THOSE PEOPLE, THEY'RE IN DANGER!



KALI AND I ARE HERE, READY TO LEND A HAND!



LET'S SAVE THE DAY!

OKAY, YOU LOT!





SORRY ABOUT THIS!

WHAT ARE YOU DOING?



HEY!

WHAT THE-?!

HEY, WATCH MY HAIR!

COUGH! COUGH!



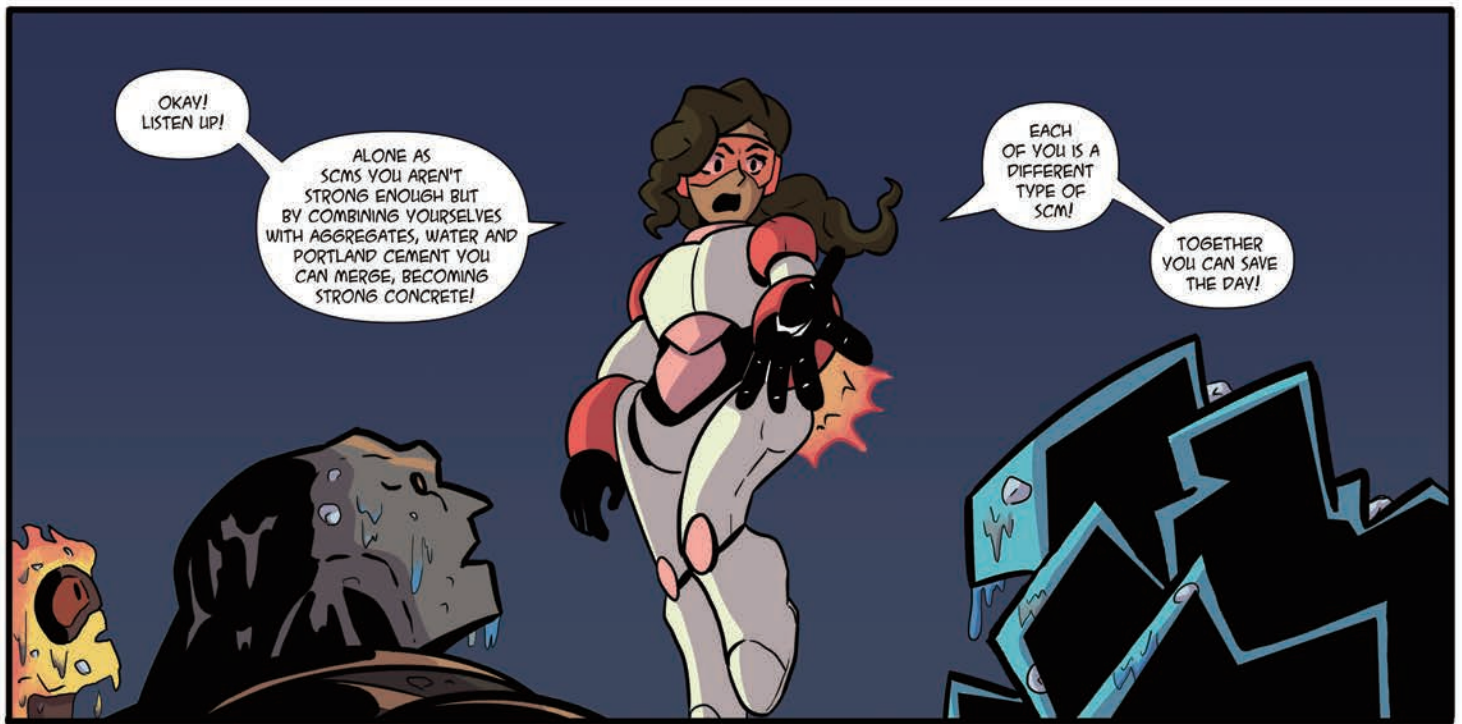
QUICK! GREEN KID THROW THOSE TWO CONTAINERS OVER THEM!



SORRY EITHER WAY!



I ASSUME SHE'S DOING THIS FOR A GOOD REASON AND NOT JUST TERRORISING YOU GUYS!

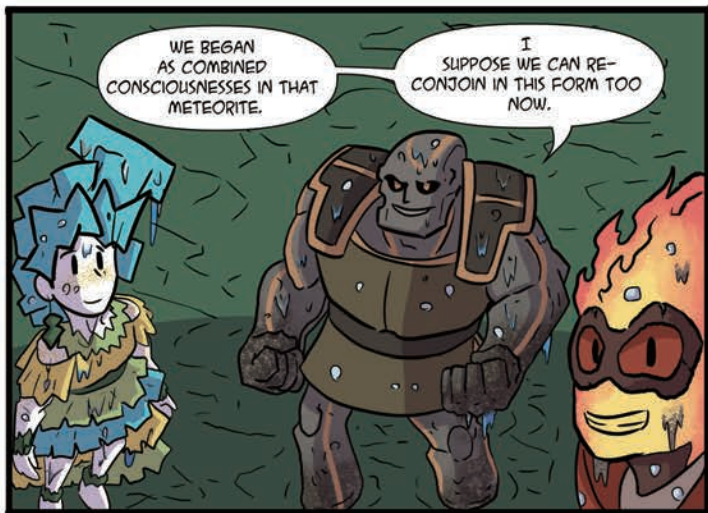


OKAY!
LISTEN UP!

ALONE AS
SCMS YOU AREN'T
STRONG ENOUGH BUT
BY COMBINING YOURSELVES
WITH AGGREGATES, WATER AND
PORTLAND CEMENT YOU
CAN MERGE, BECOMING
STRONG CONCRETE!

EACH
OF YOU IS A
DIFFERENT
TYPE OF
SCM!

TOGETHER
YOU CAN SAVE
THE DAY!



WE BEGAN
AS COMBINED
CONSCIOUSNESSES IN THAT
METEORITE.

I
SUPPOSE WE CAN RE-
CONJOIN IN THIS FORM TOO
NOW.



WOAH!
LET'S GO!

WOO
HOO!!



SUMMER,
I... I CAN'T
DO THIS! I'M
A... A WASTE
PRODUCT.



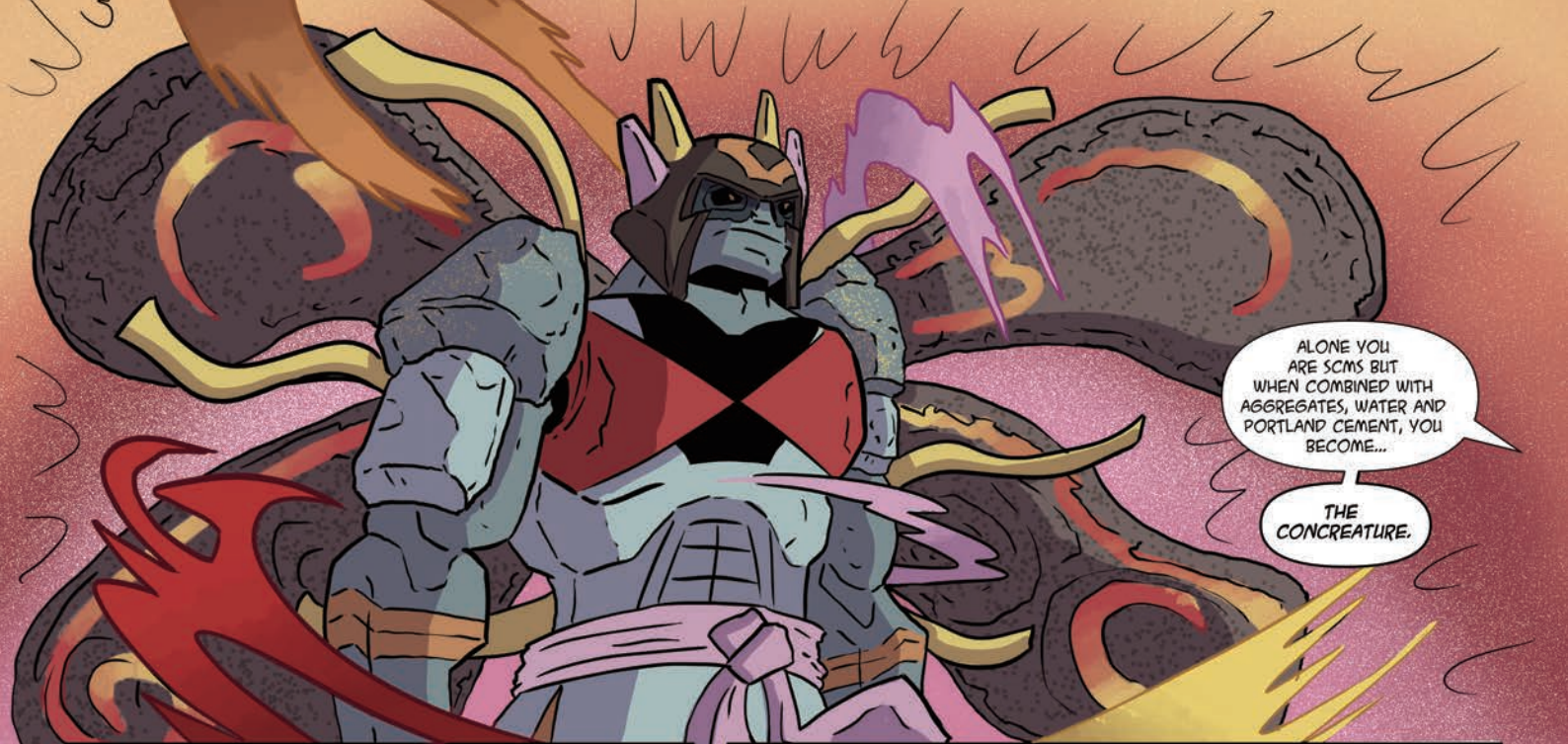
NOT AT
ALL. YOU WERE
CONSIDERED A WASTE
PRODUCT.
YOU'RE NOW
A BY-PRODUCT. ASHO
WAS IN THE EXACT SAME
PREDICAMENT.



I...
I GUESS
I CAN
TRY.

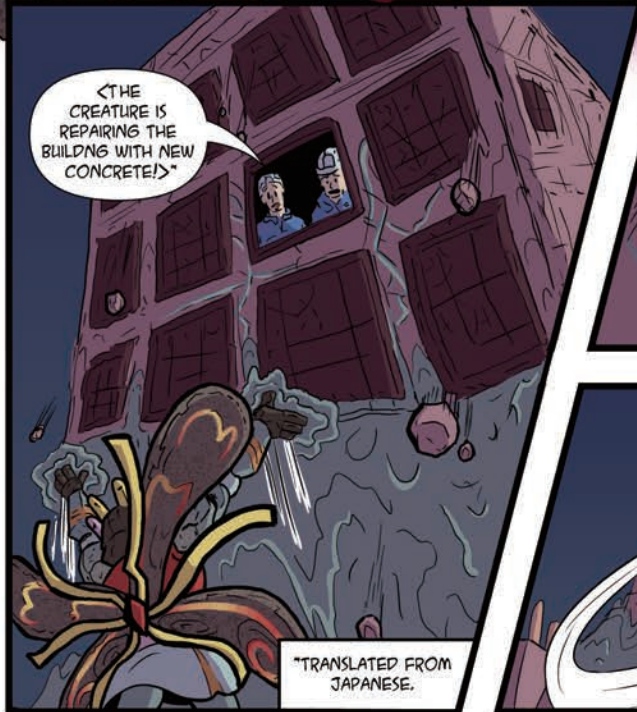


WOAH!!!



ALONE YOU ARE SCMS BUT WHEN COMBINED WITH AGGREGATES, WATER AND PORTLAND CEMENT, YOU BECOME...

THE CONCRETURE.



<THE CREATURE IS REPAIRING THE BUILDING WITH NEW CONCRETE!>

*TRANSLATED FROM JAPANESE.



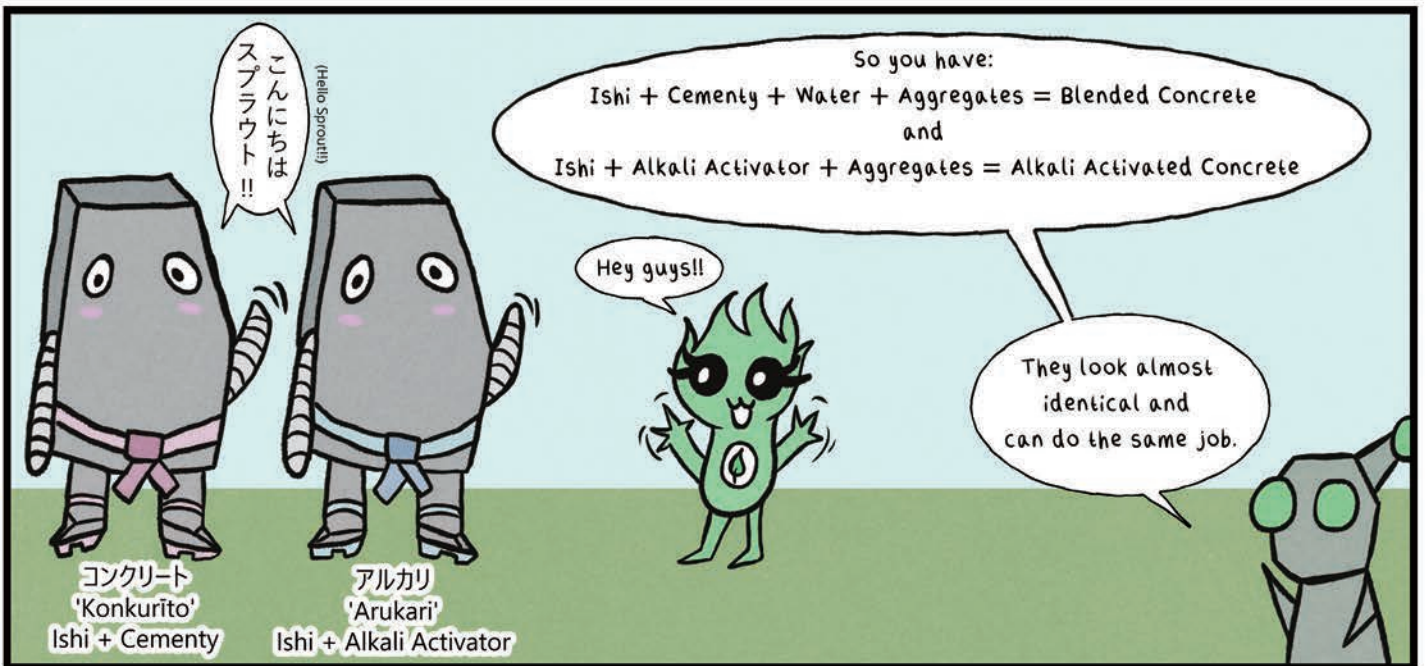
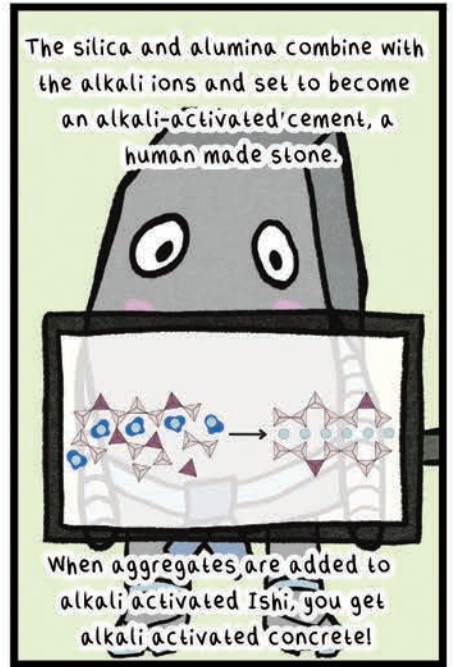
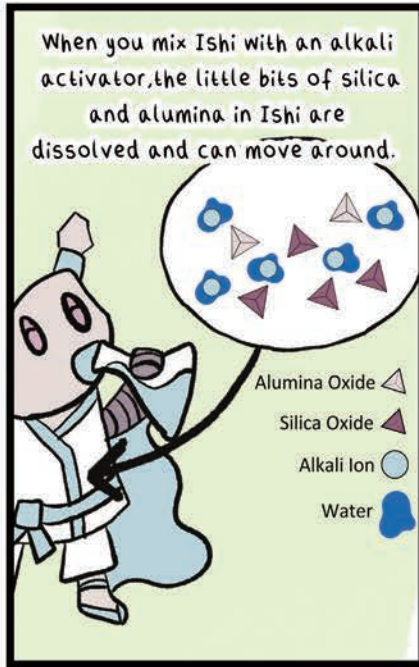
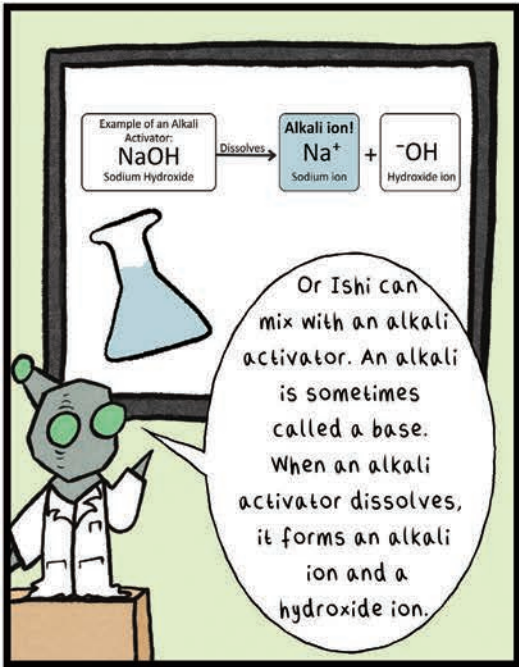
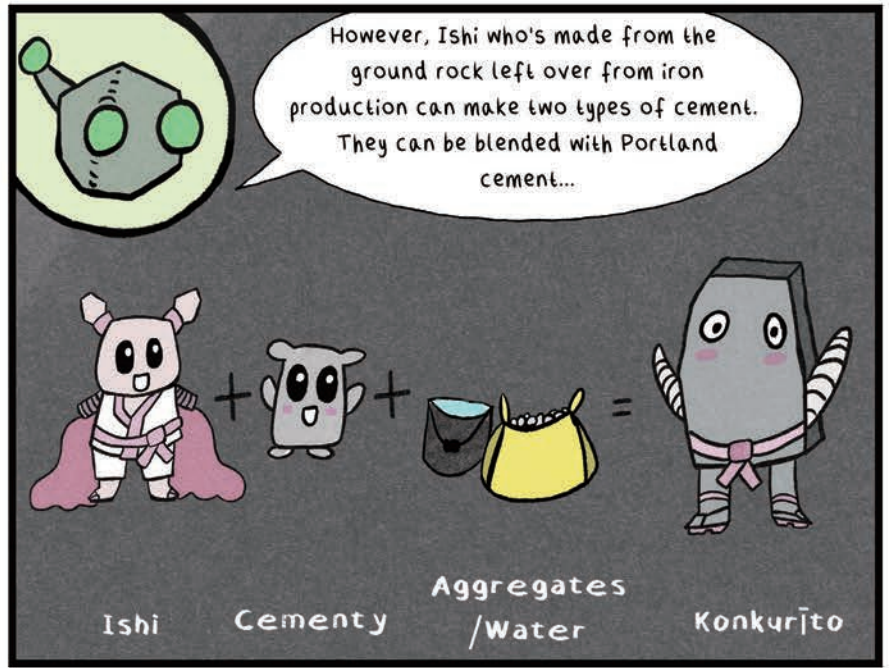
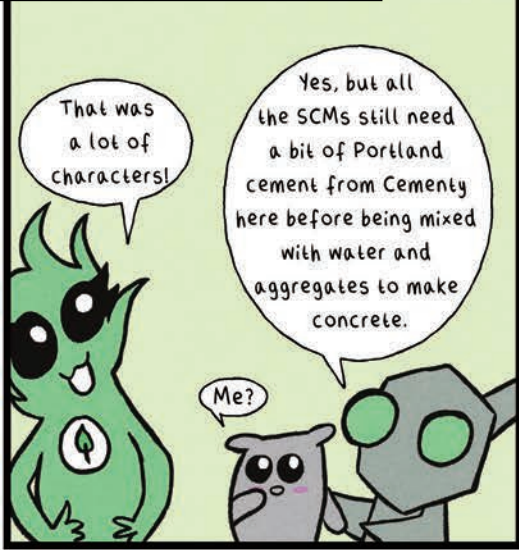
WOW, QUICK THINKING THERE. BUT I THINK YOU STILL OWE THEM AN APOLOGY.

I KNOW, I KNOW.

ARIGATO!

*THANKS! IN JAPANESE





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MATERIALS AT
SHEFFIELD



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