

# LET'S TALK LANDFILLS (HINT.. IT'S NOT A DUMP)



A LOT OF PEOPLE  
CALL IT A DUMP!

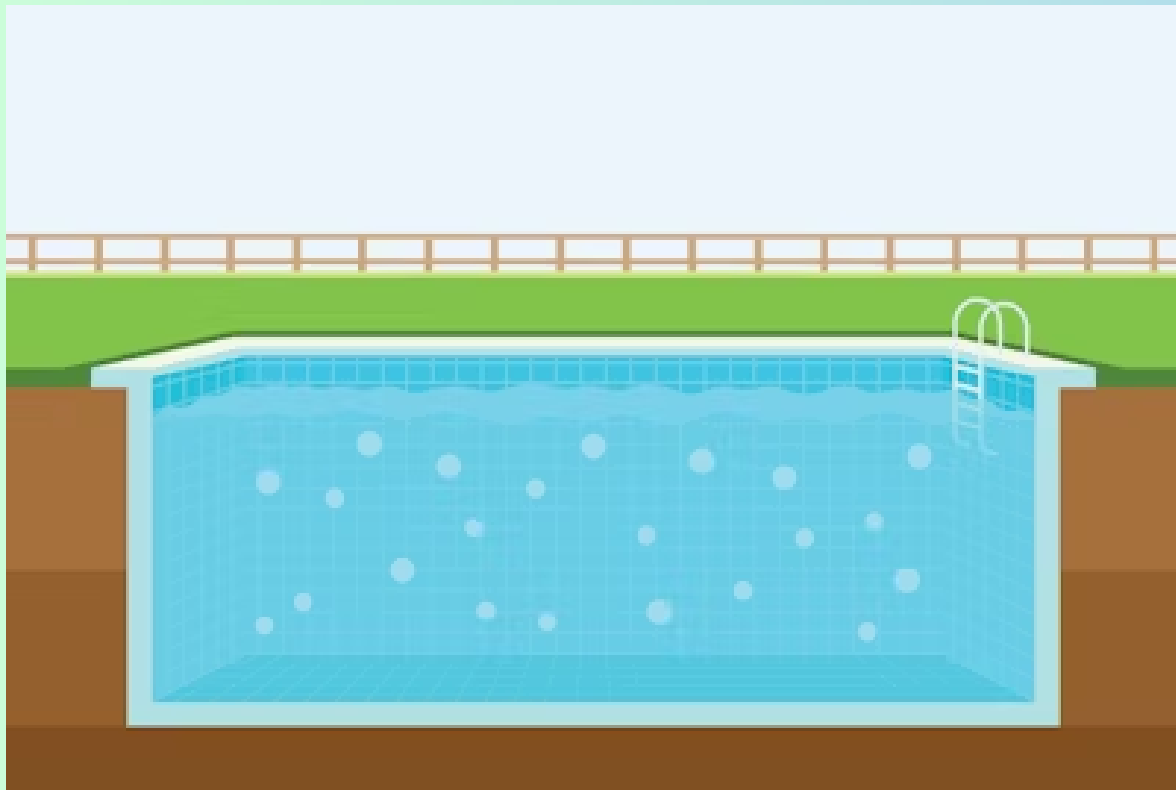
BUT IT IS ACTUALLY  
A SANITARY LANDFILL!



# DUMP

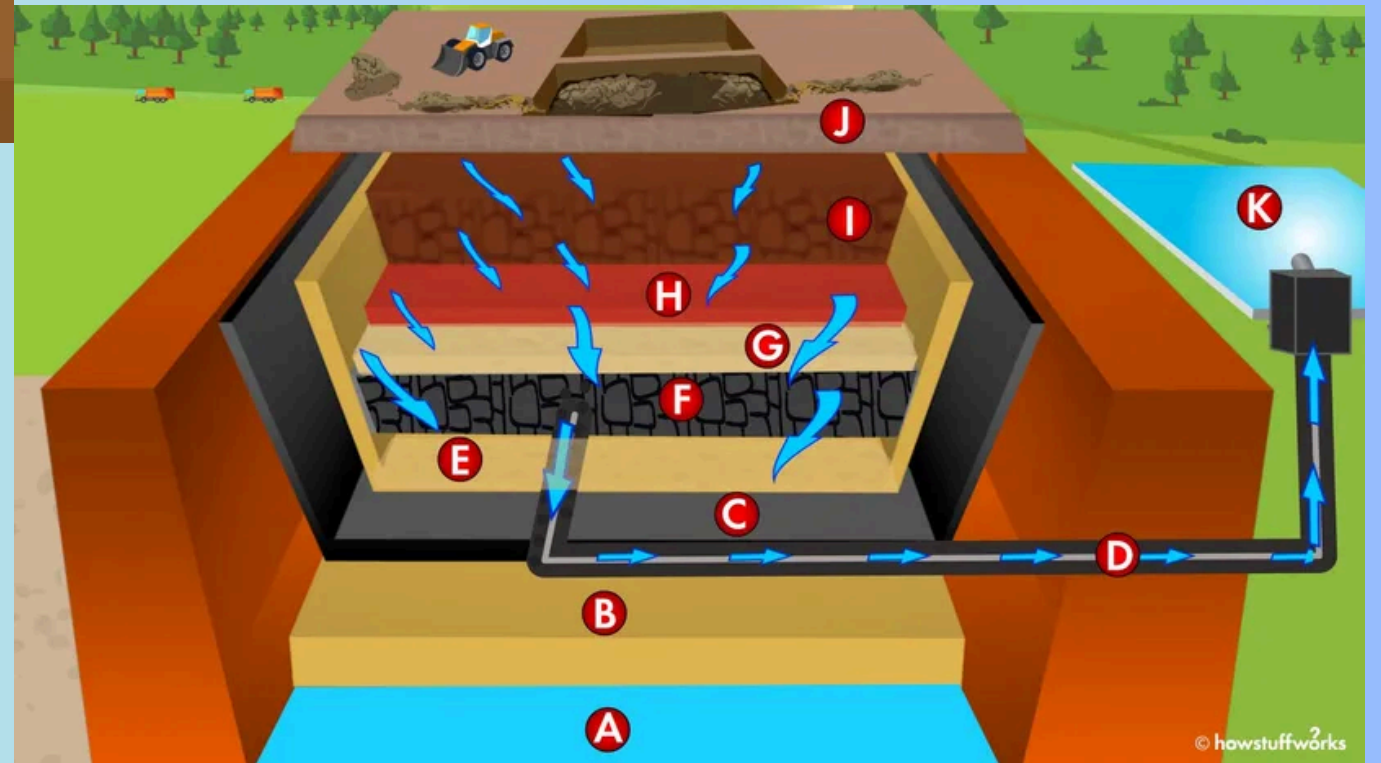
**HOLE IN THE GROUND WHERE  
GARBAGE IS THROWN WITH NO  
REGULATIONS OR PROTECTION  
FOR THE ENVIRONMENT.**





# SANITARY LANDFILL

**A STRUCTURED AREA FOR GARBAGE DISPOSAL WITH REGULATIONS AND STRICT PROTECTION FOR THE ENVIRONMENT.**

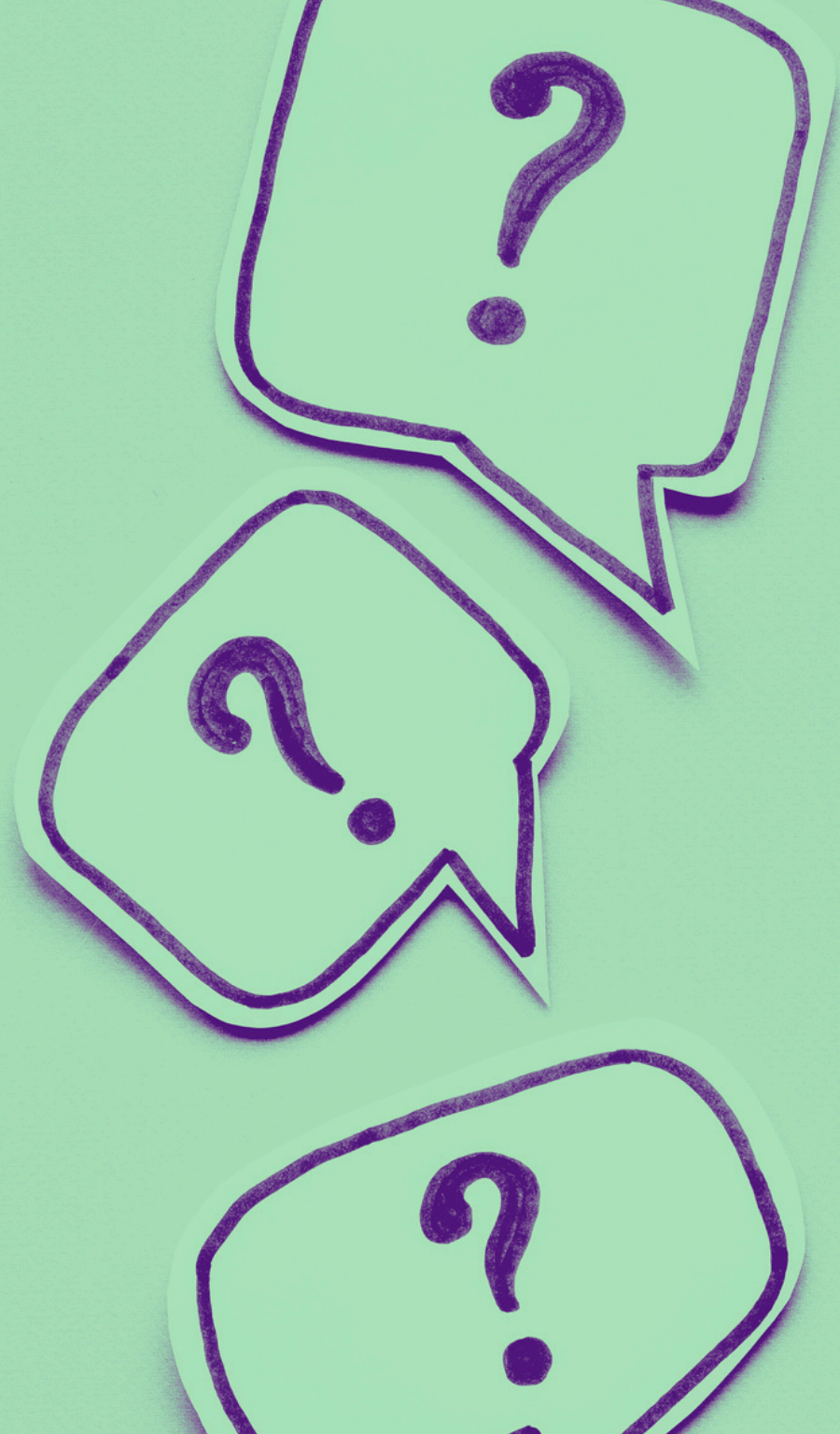


**THINK 30 YEARS INTO  
THE FUTURE.....**





**AFTER THIS  
GARBAGE  
HAS BEEN  
BURIED  
UNDER DIRT  
FOR 30  
YEARS....**



**IF WE DUG IT  
UP, WHAT  
WOULD IT  
LOOK LIKE?**



**Closer**

**LOOK**



**CORE  
SAMPLES  
FROM  
1977**

**PULLED IN  
2010**

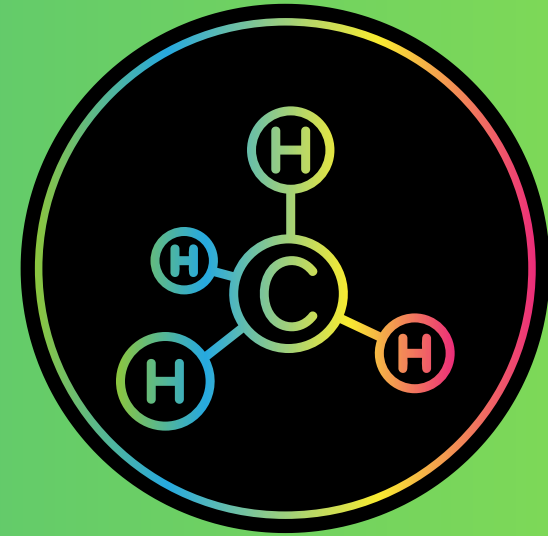
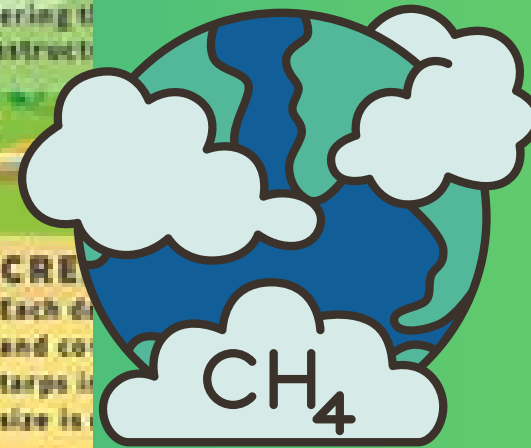
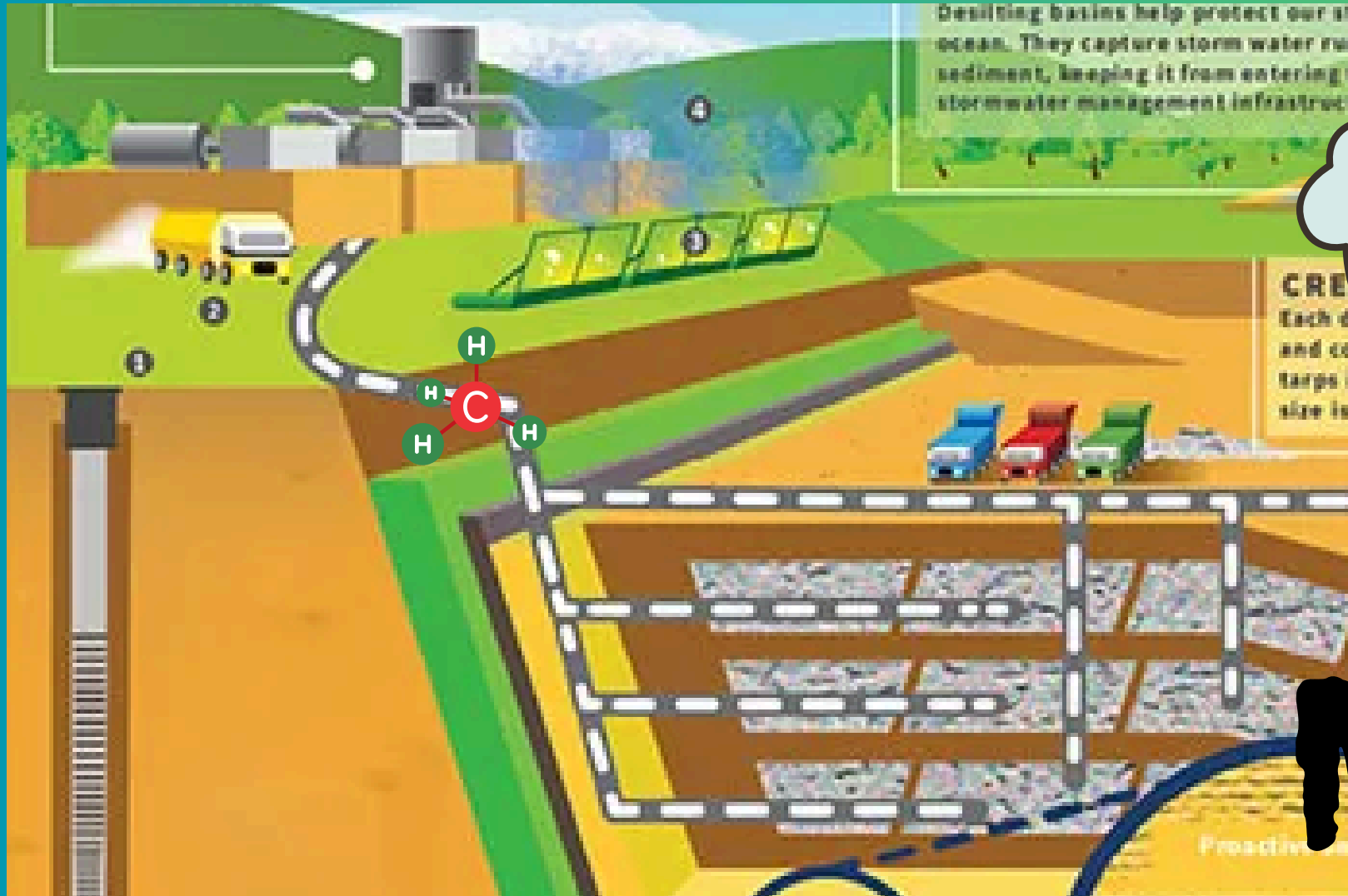
# JOHNSON CANYON LANDFILL GONZALES MODULE 7



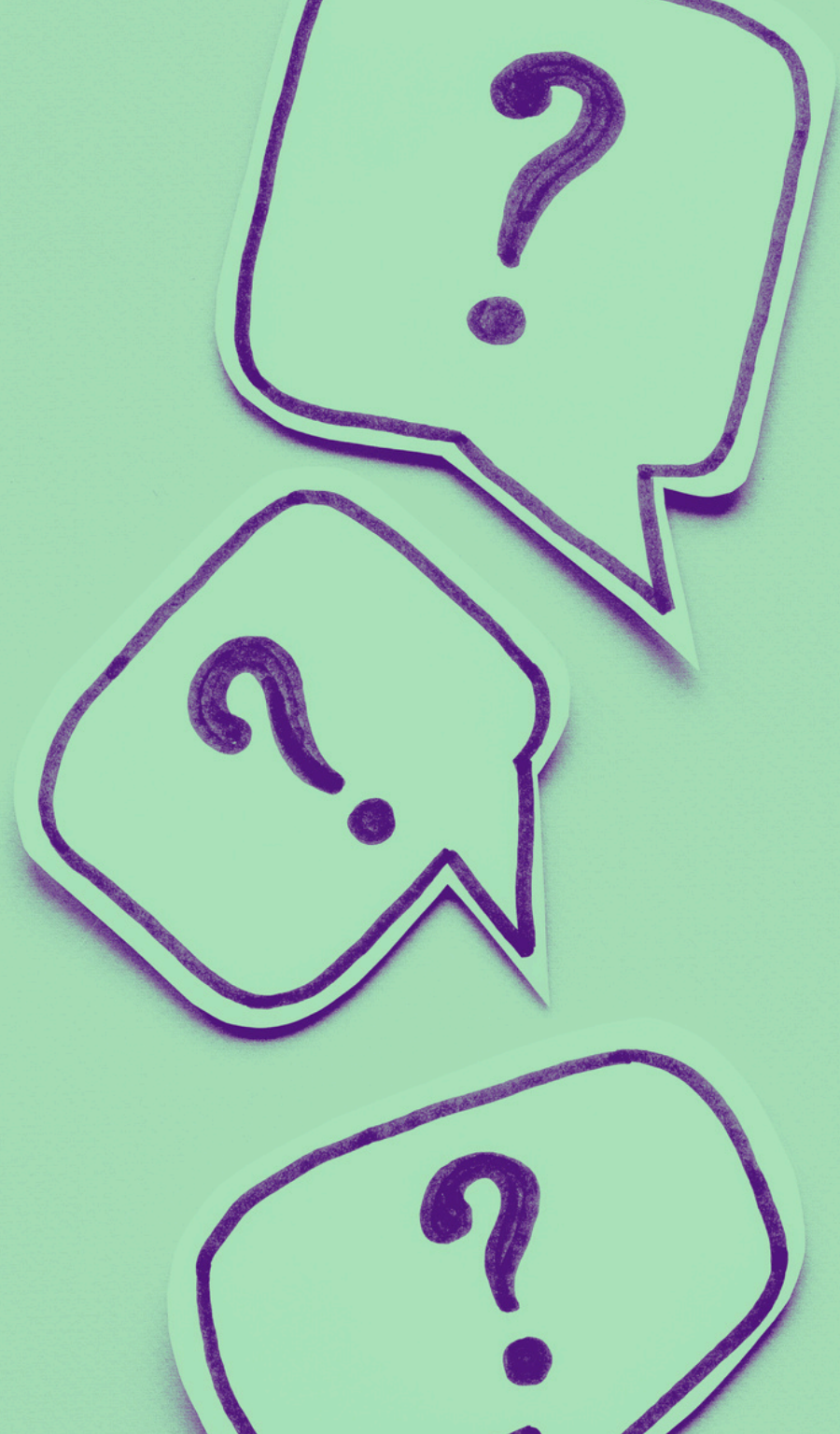


At completion, this  
Landfill Cell will have  
**200 FEET** of Garbage;  
the height of roughly  
20 school busses

# LET'S TALK LANDFILL GAS



# METHANE!



**WHERE DOES  
LANDFILL  
METHANE COME  
FROM?**

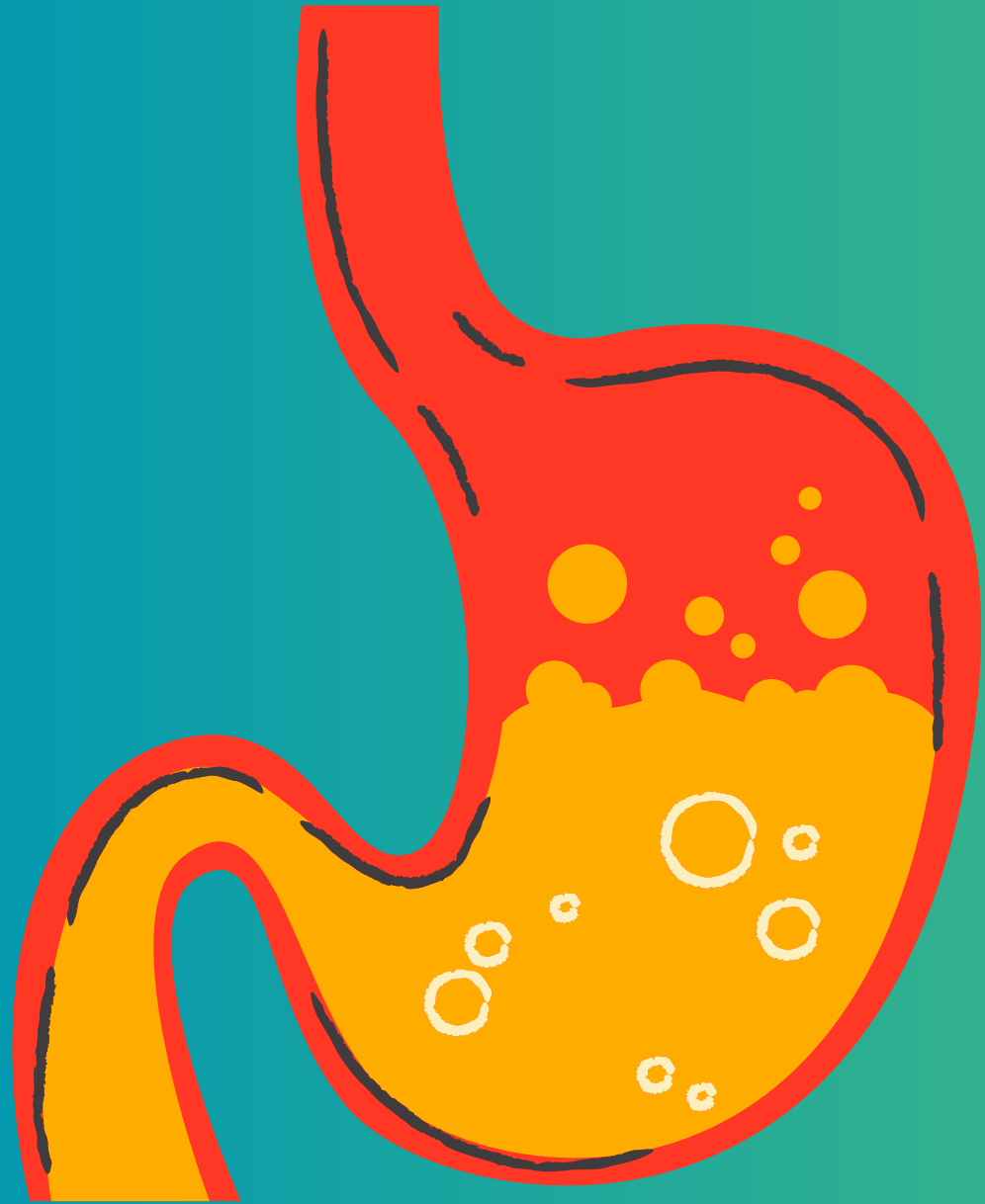


**ORGANICS  
FOOD & YARD WASTE**

**WITHOUT ACCESS TO  
OXYGEN AND WATER, FOOD  
WASTE DOES NOT ROT (OR  
AEROBICALLY DIGEST)....**

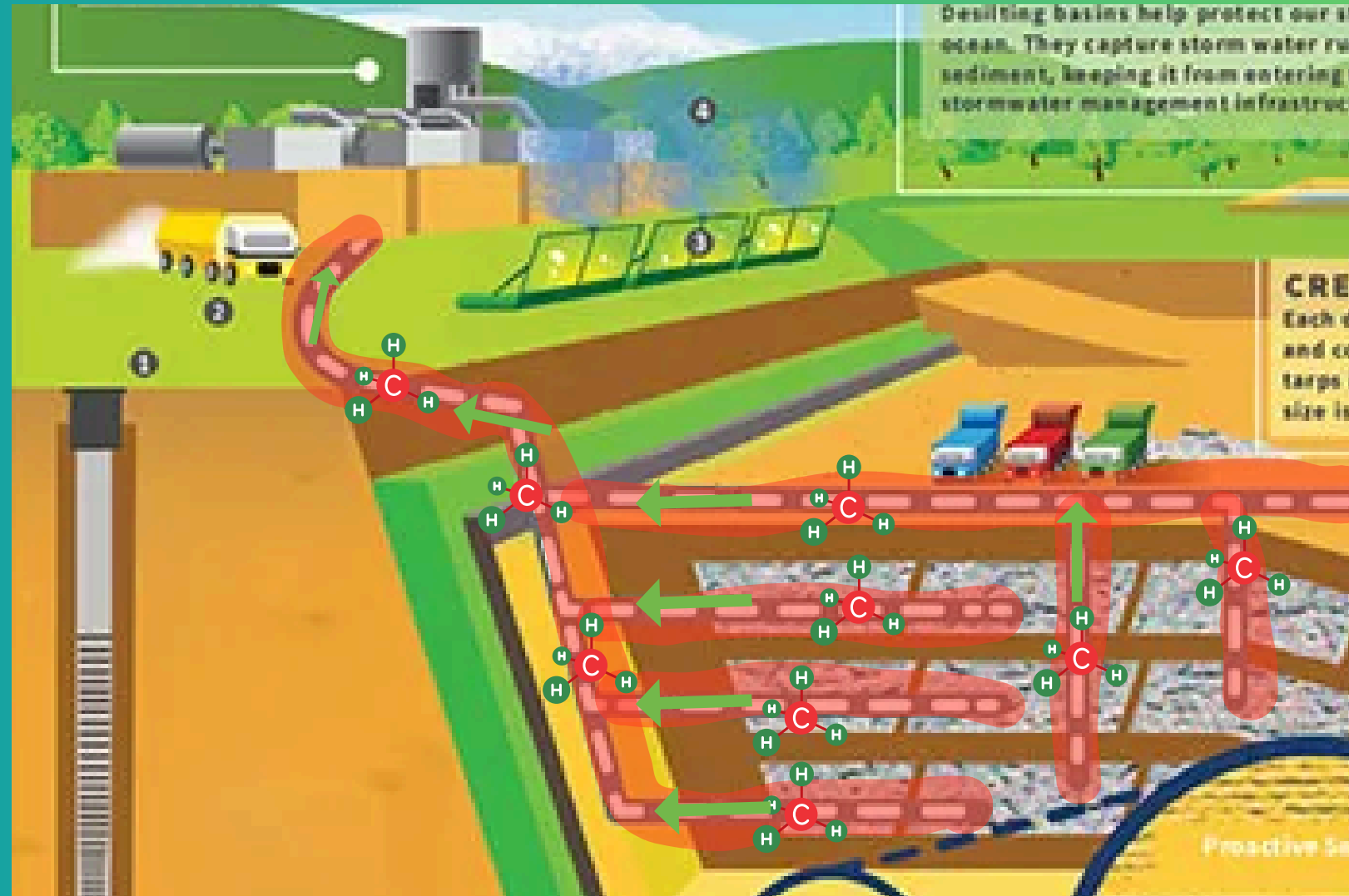
The background features a green-to-blue gradient. There are four stylized biological entities: a green rod-shaped bacterium with cilia in the top left, a purple rod-shaped bacterium with cilia in the top right, a red spherical virus with cilia in the bottom left, and a purple spherical virus with cilia in the bottom right. The text is centered and reads: 

**INSTEAD, BACTERIA BREAKS  
IT DOWN THROUGH  
ANAEROBIC DIGESTION**



**ANAEROBIC  
DIGESTION  
CREATES  
METHANE GAS**

# WE CAPTURE THE METHANE.....



# JOHNSON CANYON LANDFILL METHANE USE:

24.6%  
TURNED INTO  
ELECTRICITY



75.4%  
FLARED  
OFF

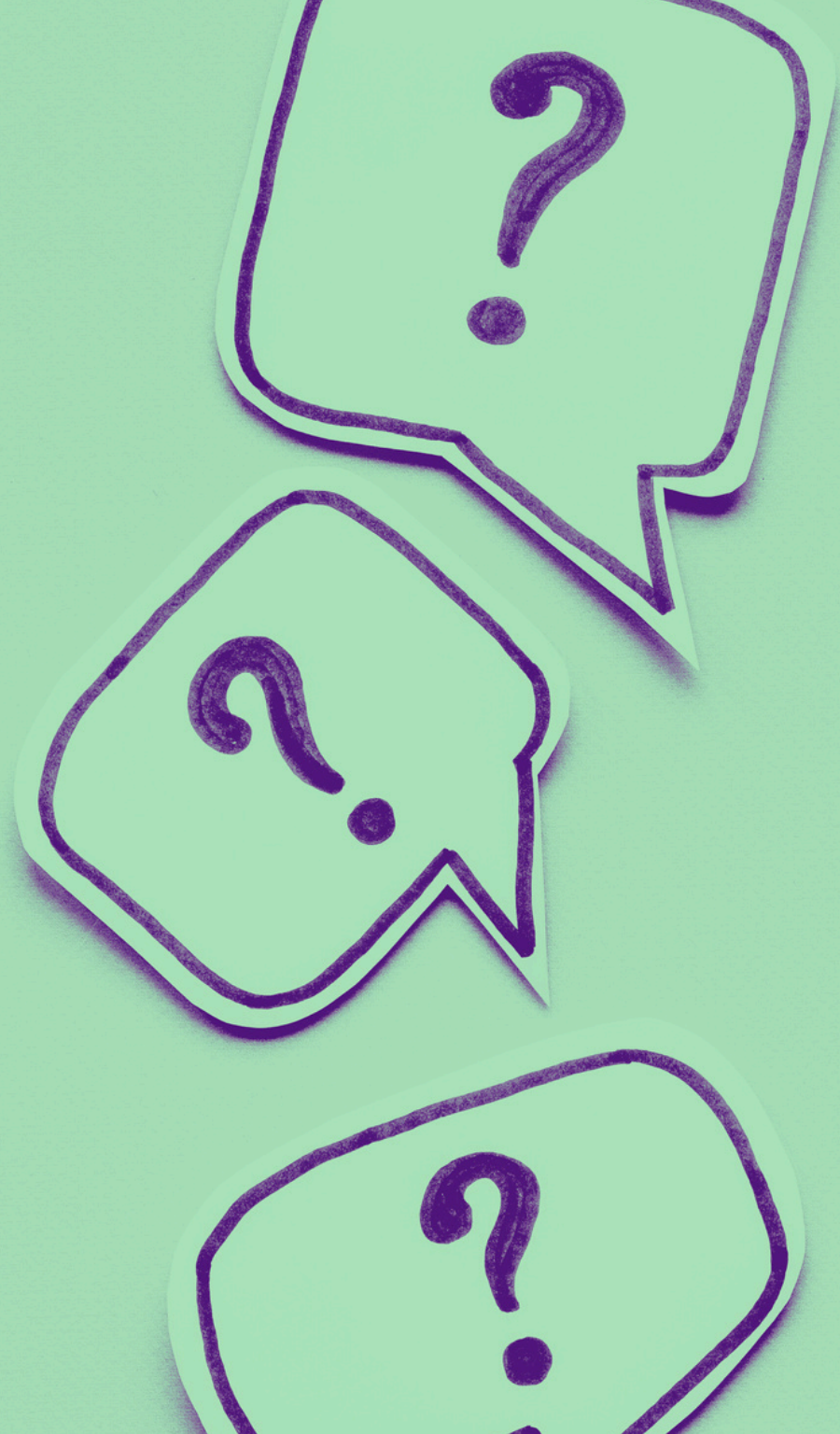


**METHANE GAS  
IS BAD FOR THE  
ENVIRONMENT!**

**MOST METHANE  
IS MADE BY SOMETHING  
THAT HUMANS  
DO!**

**ALMOST ALL METHANE FROM  
LANDFILLS IS FROM FOOD  
WASTE & YARD WASTE!**

**WHAT DO  
YOU DO  
WITH YOUR  
FOOD  
SCRAPS ?**



**THE AVERAGE AMERICAN CREATES  
400 LBS (EACH!) OF  
FOOD SCRAPS  
EVERY YEAR.**

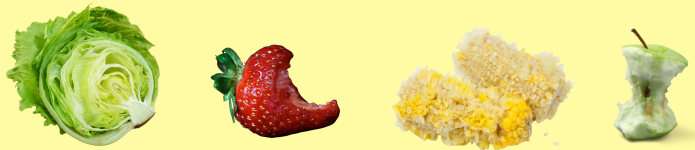


# IT IS THE LAW THAT ALL EVERYONE RECYCLE THEIR FOOD SCRAPS!



# ACCEPTABLE FOOD SCRAPS

## DESPERDICIOS de COMIDA ACEPTABLES



Fruits & Vegetables  
Frutas y Vegetales



Cooked Meat & Bones  
Carne Cocidas  
y los Huesos

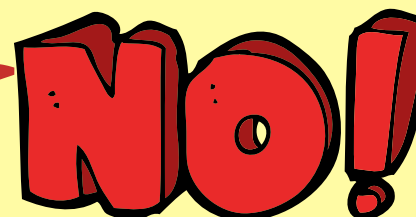


Leftover Food  
Despericios de Comida



Dairy  
Lacteos

Grains  
Granos

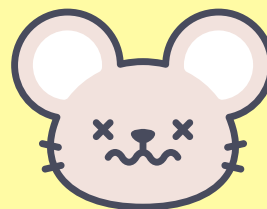


## UNACCEPTABLE MATERIAL MATERIAL NO ACEPTABLE

No Liquids (milk, juice, and other beverages - pour liquids in the sink)  
No Líquidos (leche, jugo y otras bebidas; vacié líquidos en el lavadero)

No Raw Meat or Bones  
No Carne Cruda y huesos cruda

No Oil or Grease  
Sin Aceite ni Grasa



REC



**SHORT VIDEO**

**LEFTOVER LUNCH**



**THE ADVENTURES  
OF YOUR  
LEFTOVER LUNCH!**

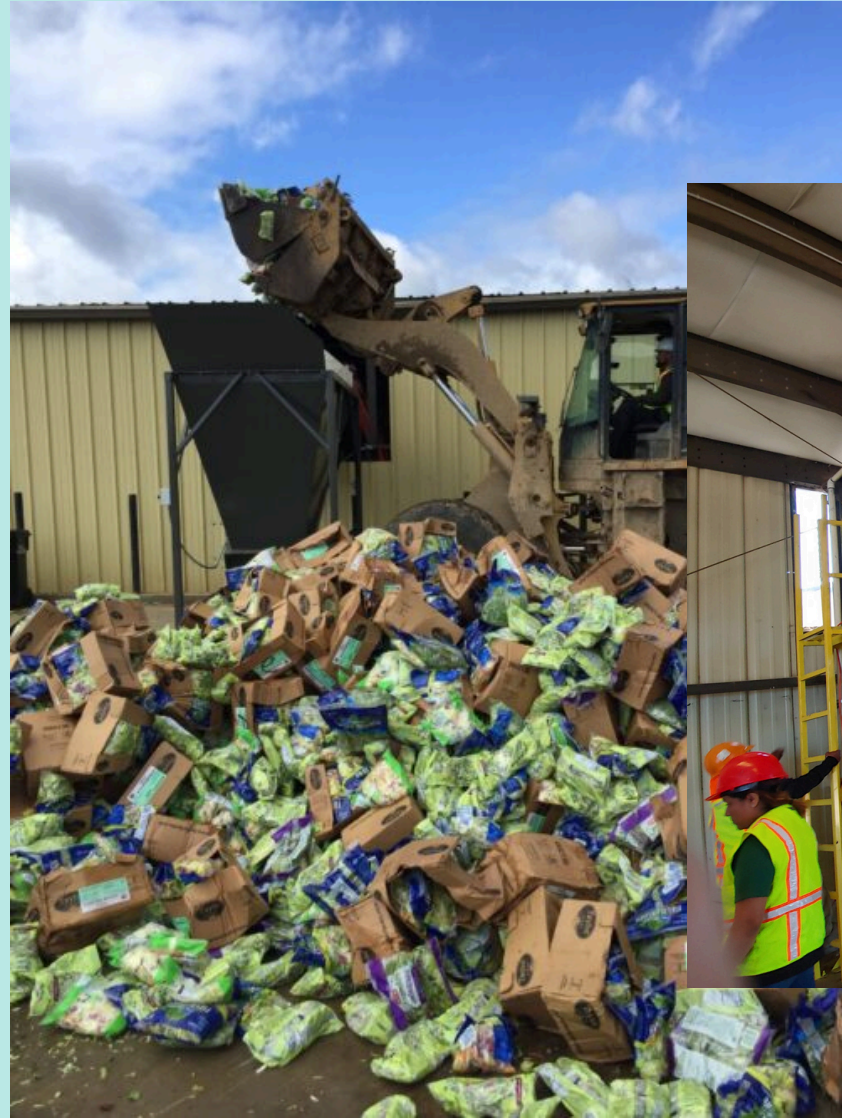


# COMMON TYPES OF COMPOSTING

BACKYARD  
COMPOSTING

Aerated  
Static  
Pile

# AERATED STATIC PILE (A.S.P.)







# BACKYARD COMPOSTING



PREPARED BY  
MANAGING THE AEROBIC  
DECOMPOSITION OF  
ORGANIC MATERIALS  
LIKE YARD DEBRIS,  
GRASS, LEAVES,  
KITCHEN SCRAPS,  
PAPER, MANURES,  
STRAW, HAY, WOOD  
CHIPS AND SAWDUST

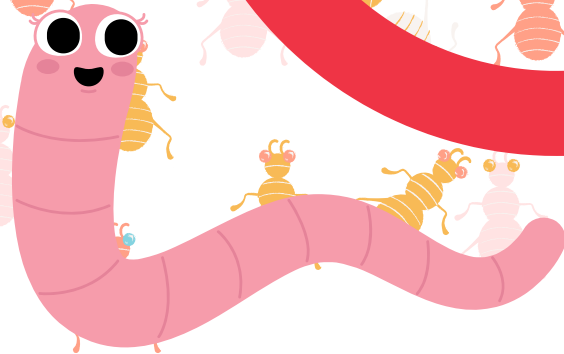
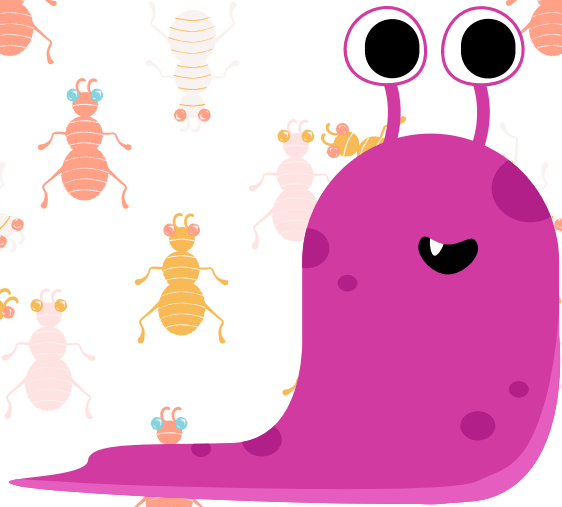
# VERMICOMPOSTING



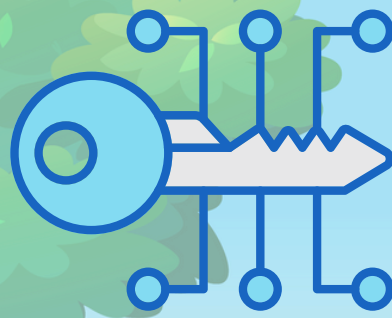
VERMICOMPOSTING IS A PROCESS THAT RELIES ON EARTHWORMS AND MICROORGANISMS TO HELP STABILIZE ACTIVE ORGANIC MATERIALS AND CONVERT THEM TO A VALUABLE SOIL AMENDMENT AND SOURCE OF PLANT NUTRIENTS.



# MEET OUR DECOMPOSERS

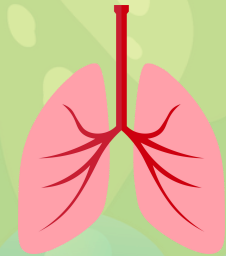


# DECODER



**A MAGNIFYING GLASS ON THE PAGE MEANS YOU WILL NEED TO USE THE MAGNIFYING GLASS TO SEE THAT CRITTER.**

**LUNGS MEAN THAT, THAT CRITTERS MAIN JOB IS TO HELP AERATE THE COMPOST.**



**CHOMP**

**CHOMP MEANS THE CRITTERS MAIN JOB IS TO BREAK DOWN THE FOOD INTO SMALLER PIECES.**

**THIS BADGE IS FOR CRITTERS WHO HELP KEEP THE BAD BUGS AWAY.**



## HOW WE HELP IN THE COMPOST PILE...

# RED WIGGLER



WE TRANSFORM DECAYING FOOD AND PLANT MATERIAL INTO AN EXCELLENT SOIL AMENDMENT AND CONDITIONER CALLED VERMICOMPOST.

### FUN FACTS ABOUT RED WIGGLERS

- HAVE 5 HEARTS
- BREATHE THROUGH THEIR SKIN
- DON'T HAVE LUNGS, EYES OR EARS
- SENSE LIGHT AND VIBRATIONS
- DON'T HAVE BONES
- MAKE NUTRITIOUS WORM CASTINGS (WORM POOP)

♥ ♥ ♥ ♥ ♥  
STAR OF THE SHOW  
Estrella del espectáculo

# CENTIPEDE **BYE!**



## HOW WE HELP IN THE COMPOST PILE...

WE DON'T ACTUALLY HELP AT ALL. WE ARE NOT WORM FRIENDLY AND CAN HUNT AND KILL THE WORMS. WE ARE THE BAD GUY IN THIS COMPOST STORY!



## **FUN FACTS ABOUT CENTIPEDES**

- NOT WORM FRIENDLY - MUST REHOME
- NEVER HAVE 100 LEGS
- CAN REGROW THEIR LEGS
- MOST ACTIVE AT NIGHT
- HUNT THEIR PREY
- JAWS NOT POWERFUL ENOUGH TO PUNCTURE HUMAN SKIN

# HOW WE HELP IN THE COMPOST PILE... CÓMO AYUDAMOS EN LA PILA DE COMPOST...

## SOW BUG

**Chomp**



WE ASSIST IN BREAKING DOWN VEGETABLE  
MATTER INTO SMALLER FRAGMENTS, WHICH  
AIDS IN DECOMPOSITION

## FUN FACTS ABOUT SOW BUGS

- ONLY EARTH CRUSTACEAN
- RELATED TO THE SHRIMP & LOBSTER
- DO NOT CURL UP LIKE THEIR COUSIN THE ROLY POLY
- THEY ARE LONGER, WIDER AND MORE FLAT THAN THE ROLY POLY
- PURPLE BUGS ARE SICK WITH A VIRUS

## HOW WE HELP IN THE COMPOST PILE...

**ROLY POLY** **Chomp**

WE ASSIST IN BREAKING DOWN VEGETABLE MATTER INTO SMALLER FRAGMENTS, WHICH AIDS IN DECOMPOSITION

### FUN FACTS ABOUT ROLY POLYS

- BREATHE THROUGH GILLS
- DON'T PEE
- CAN DRINK WITH THEIR BUTT
- CURL INTO A BALL WHEN THREATENED
- BLOOD IS BLUE
- NOT A BUG BUT A CRUSTACEAN

## HOW WE HELP IN THE COMPOST PILE....

WE BREAK DOWN ORGANIC MATTER AND  
CREATE TUNNELS THROUGH WHICH  
MICROBES CAN READILY MOVE AROUND THE  
PILE.

### FUN FACTS ABOUT MILLIPEDES

- WORM FRIENDLY
- BABY MILLIPEDES ONLY HAVE 3 SETS OF LEGS WHEN THEY ARE BORN
- MILLIPEDES CAN GROW AS MANY AS 200 SETS OF LEGS
- THEY DO NOT HAVE 1000 LEGS
- NOT AN INSECT THEY ARE DIPLOPADA
- TO PROTECT THEMSELVES THEY CURL UP IN A TIGHT BALL



# HOW WE HELP IN THE COMPOST PILE...



**MITES**



**Chomp**

**WE BREAK DOWN ORGANIC MATTER.**

## **FUN FACTS ABOUT MITES**

- FEED ON ROTTING FRUITS AND VEGETABLES
- LOVE MELONS ESPECIALLY WATERMELON
- VERY SLOW MOVING
- SOMETIMES THEY HITCH RIDES ON FASTER MOVING CRITTERS LIKE SOW BUGS



## HOW WE HELP IN THE COMPOST PILE...

WE ARE EXPERTS AT BREAKING DOWN ORGANIC MATTER, THUS CONTRIBUTING TO THE PROCESS OF DECOMPOSITION.

SLUGS

Chomp



- ### FUN FACTS ABOUT SLUGS
- SLUGS CAN ABSORB OXYGEN DIRECTLY FROM THE ATMOSPHERE
  - HAVE A BLOWHOLE
  - HAVE THOUSANDS OF TEETH
  - SLUG SLIME IS A LIQUID CRYSTAL
  - THE SLUG IS THE MASCOT AT UC SANTA CRUZ
  - LARGEST SLUG WEIGHS UP TO 30 LBS

## HOW WE HELP IN THE COMPOST PILE...

**SNAILS**

**CHOMP**

**WE ARE EXPERTS AT BREAKING DOWN ORGANIC MATTER, THUS CONTRIBUTING TO THE PROCESS OF DECOMPOSITION.**

### **FUN FACTS ABOUT SNAILS**

- CAN LIVE 2-5 YEARS
- CAN HAVE 20,000 TEETH
- ARE BORN WITH SHELLS
- SNAIL SLIME IS OFTEN USED IN MAKEUP AND CREAMS BECAUSE IT IS KNOWN TO SOFTEN AND RELAX SKIN



## HOW WE HELP IN THE COMPOST PILE...

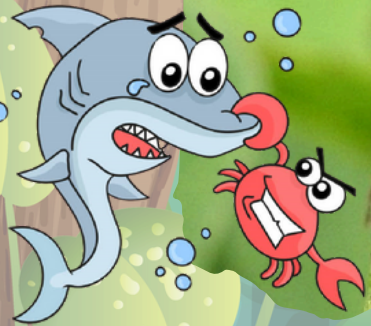
WE EAT NUISANCES LIKE APHIDS, MITES, AND UNDESIRABLE NEMATODES, AS WELL AS OTHER INSECT LARVAE.

### EARWIG



### FUN FACTS ABOUT EARWIGS

- DON'T ACTUALLY LIKE YOUR EARS
- HAVE WINGS BUT DON'T EVER USE THEM
- EAT BAD BUGS SO DON'T KILL THEM UNLESS YOU OWN A VINEYARD. THEY ARE BAD FOR WINE GRAPES.
- CHICKENS THINK THEY ARE A TASTY TREAT
- CAN'T ACTUALLY PINCH THROUGH HUMAN SKIN
- CAN BE UP TO 3 INCHES LONG



## HOW WE HELP IN THE COMPOST PILE...

WE FEED ONLY ON ROTTING ORGANIC MATTER, AIDING THE COMPOSTING PROCESS, HELPING TO RETAIN NITROGEN AND EVEN KEEPING FUNGAL DISEASE IN CHECK.

## FUN FACTS ABOUT SPRINGTAILS

- ARE HEXAPODS
- DO NOT HAVE WINGS SO THEY
- CAN NOT FLY BUT CAN JUMP UP TO 8"
- ARE OFTEN MISTAKEN FOR FLEAS
- DIE IN A DROUGHT BECAUSE THEY NEED THE WATER TO LIVE ARE MOST ACTIVE IN THE AFTERNOON AND AT NIGHT



## HOW WE HELP IN THE COMPOST PILE...

IN SMALL QUANTITIES WE HELP TO AERATE THE SOIL. IN LARGE QUANTITIES WE CAN SIGNIFY THAT THE SOIL IS TOO ACIDIC WHICH IS A CONDITION THAT RED WIGGLERS DO NOT LIKE.

### FUN FACTS ABOUT POT WORMS

- HELP AERATE THE SOIL
- ONLY SURVIVE IN A REALLY WET ENVIRONMENTS
- ASSIST RED WIGGLERS IN DECOMPOSING ORGANICS
- LIKE A HELPER WORM
- HELP BY ABSORBING NITROGEN OUT OF THE COMPOST



## HOW WE HELP IN THE COMPOST PILE...

**WE ARE BABY WORMS.  
WE KEEP THE POPULATION EXPANDING.**

### **FUN FACTS ABOUT WORM COCOONS**

- LOOK LIKE TINY POPCORN KERNELS
- UP TO 20 TINY EGGS ARE INSIDE THE COCOONS
- EACH EGG HATCHES 2-4 BABY WORMS
- IT TAKES 23 DAYS FOR BABY WORMS TO HATCH
- EGGS CAN FREEZE AND THEY WILL WAIT UNTIL IT IS WARMER TO HATCH

## WORM COCOON



## HOW WE HELP IN THE COMPOST PILE...

**WE HAVE NO PURPOSE IN THE COMPOST BIN.  
WE ARE JUST HERE FOR THE FREE FOOD!**

### ANTS



### FUN FACTS ABOUT ANTS

- THEY DON'T HAVE EARS
- CAN LIFT 10-50X THEIR BODY WEIGHT
- ARE THE LONGEST LIVING INSECT
- THEY ALL HAVE SPECIFIC JOBS
- THEY DON'T HAVE LUNGS
- THERE ARE 12,000 DIFFERENT KINDS OF ANTS ON EARTH

# TAKING CARE OF OUR CRITTER FRIENDS



- **BE VERY GENTLE. THESE ARE LIVE CRITTERS.**
- **KEEP THE CRITTERS OVER THE BOX**
- **NOTHING IN THESE BOXES WILL HURT YOU!**
- **TURN THINGS OVER**
- **LOOK WITH THE MAGNIFYING GLASSES**
- **ASK QUESTIONS**
- **HAVE FUN!**
- **EXPLORE!**