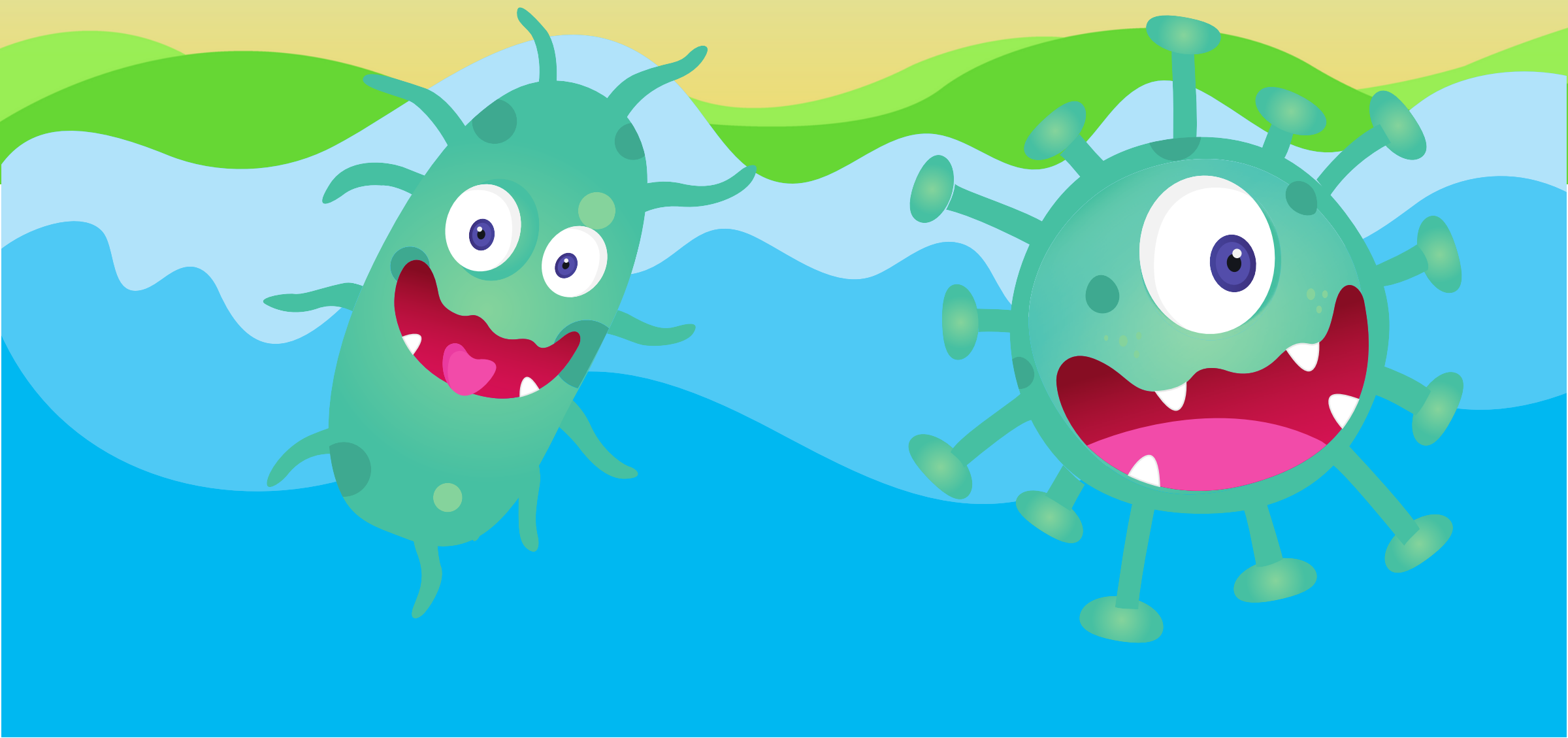


EXPLAINED FOR KIDS
BY TOBIAS STEUBE

FORWARD OSMOSIS





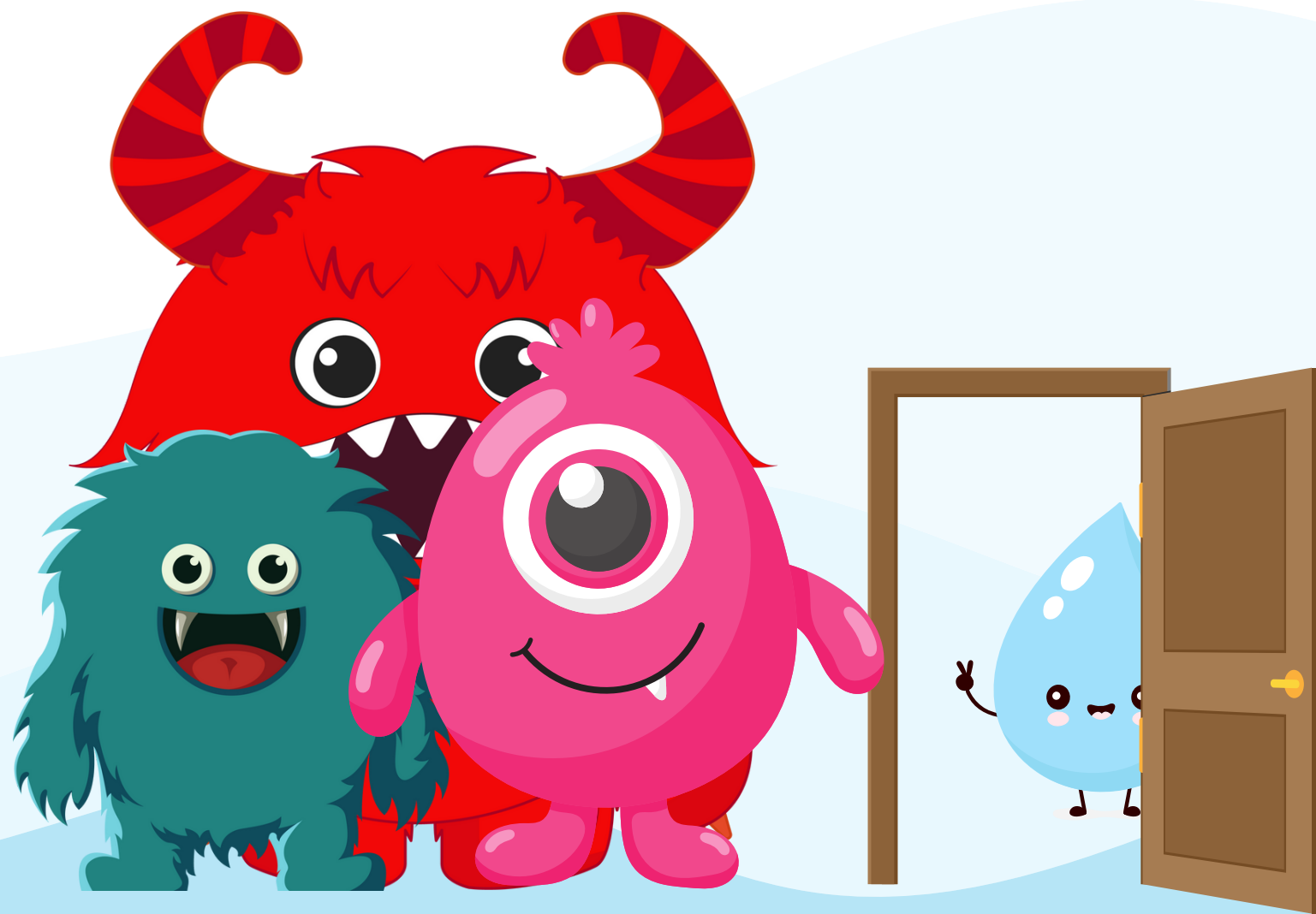
**SOMETIMES IT IS VERY HARD TO CLEAN
SOMETHING THAT GOT REALLY DIRTY.**



**SO IMAGINE, WE'D HAVE A VERY DIRTY
SOUP AND WE WANT TO CLEAN IT.**



**SOMETIMES, THE YUCKY STUFF SWIMS IN
THE WATER. THEN, WE SAY IT IS
"SUSPENDED" IN THE WATER.**



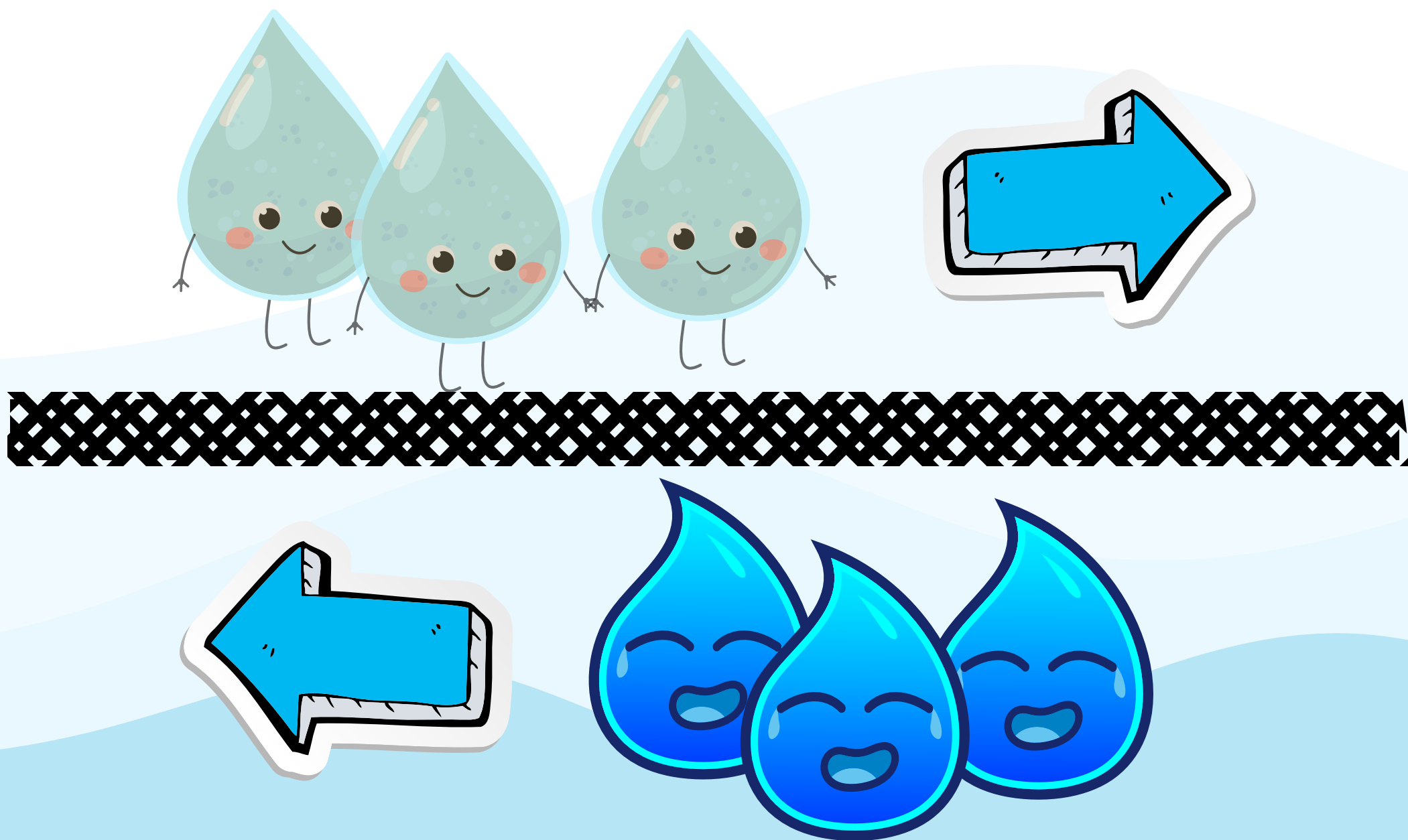
**YOU USE A FILTER TO REMOVE THE YUCKY STUFF
WHEN IT IS SUSPENDED. THE FILTER IS LIKE A DOOR
AND EVERYTHING TOO TALL OR TOO BIG DOESN'T
FIT THROUGH THE DOOR.**



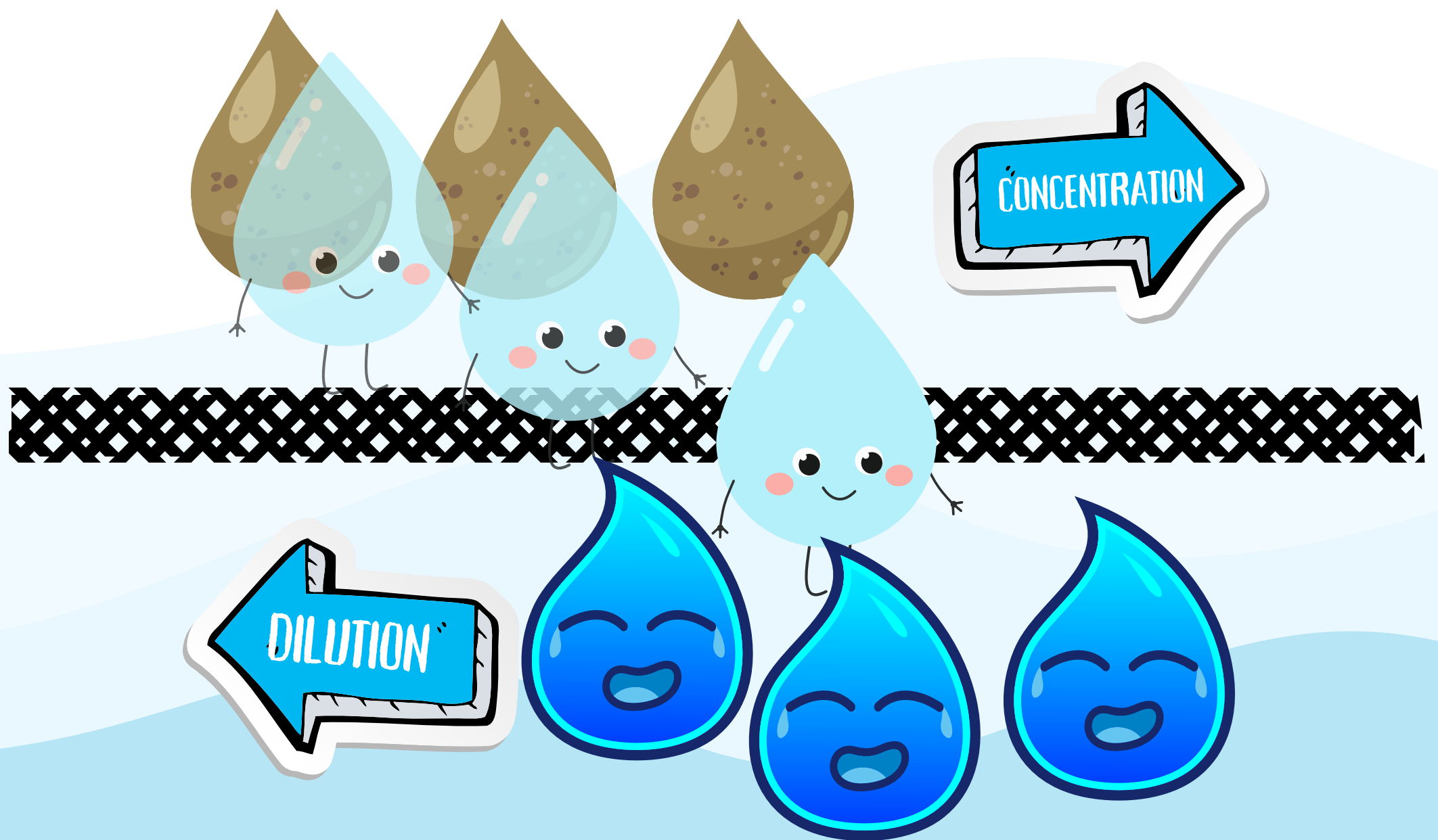
**SOMETIMES, THE YUCKY
STUFF HIDES IN THE WATER - LIKE SUGAR. YOU CAN
SEE IT, AS LONG AS IT IS ON THE SPOON BUT IT
DISAPPEARS WHEN YOU STIR IT IN THE WATER.
IT "DISSOLVES" IN THE WATER.**



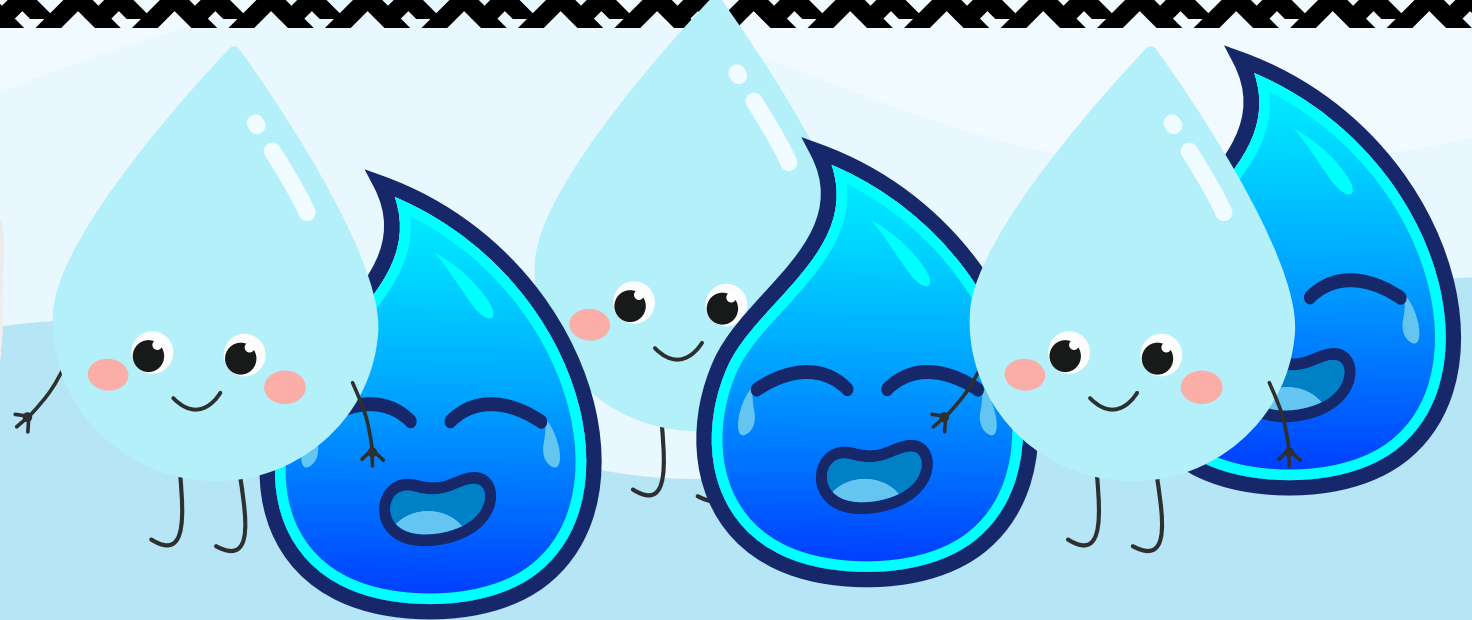
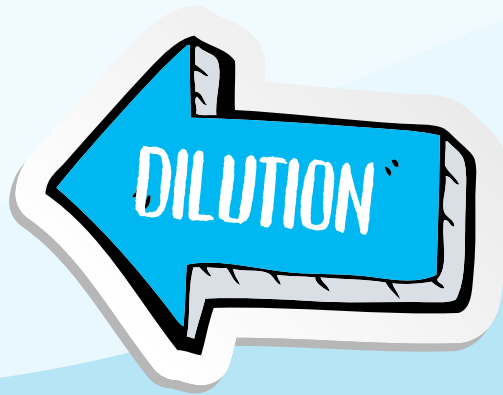
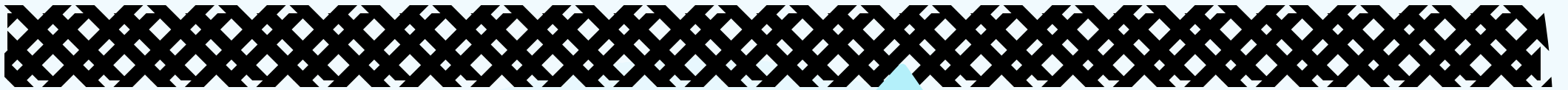
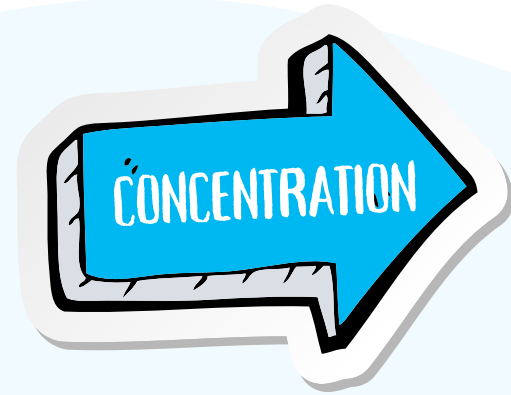
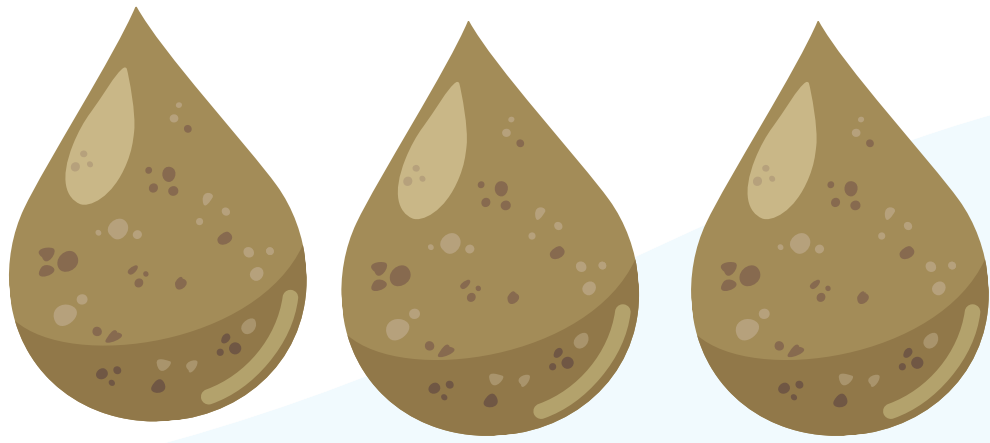
**NOW WE ARE USING A TRICK. WITH A SUPERDUPER
TIGHT FILTER IN BETWEEN, WATER THAT CARRIES LOW
AMOUNTS OF SALT FLOWS INTO THE WATER WITH A
HIGH AMOUNT OF SALT. IT ONLY STOPS FLOWING ONCE
THERE IS THE SAME CONCENTRATION OF SALT ON BOTH
SIDES OF THE FILTER.
THIS IS CALLED OSMOSIS.**



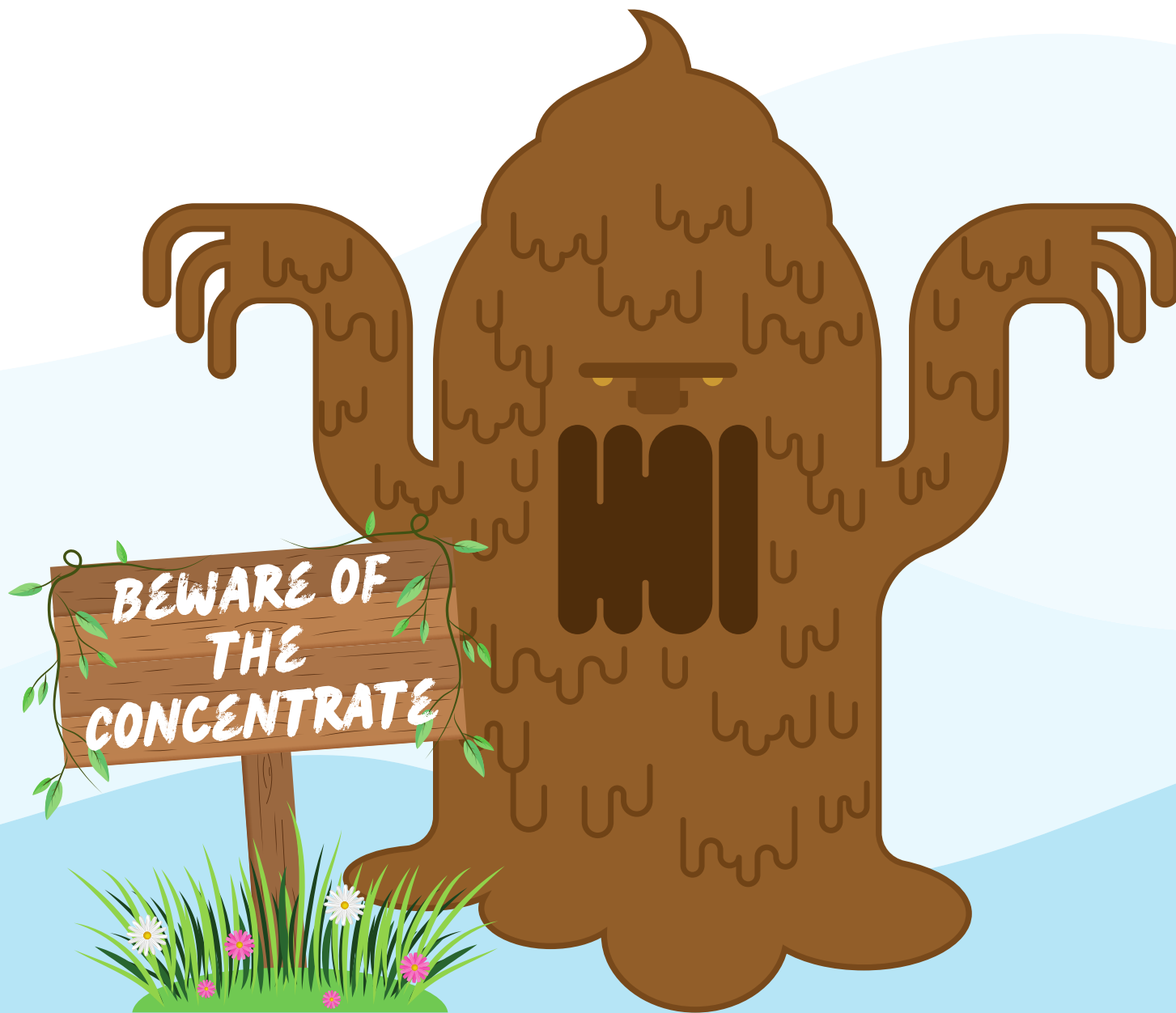
**WE CAN USE OSMOSIS TO CLEAN OUR WATER.
WE NEED A SPECIAL SUPERDUPER TIGHT FILTER
WITH OUR DIRTY SOUP ON THE ONE AND A VERY
SALTY WATER ON THE OTHER SIDE OF IT.
WE LET THE DIRTY SOUP AND THE SALT WATER
FLOW IN OPPOSITE DIRECTIONS.**



NOW, THE WATER IN THE DIRTY SOUP LIKES THE SALT WAY MORE THAN THE DIRT. IT FLOWS OVER ON THE OTHER SIDE OF THE FILTER. SINCE THE SALT WATER ATTRACTS THE WATER IN THE DIRTY SOUP, WE CALL THE SALT WATER THE "DRAW SOLUTION".



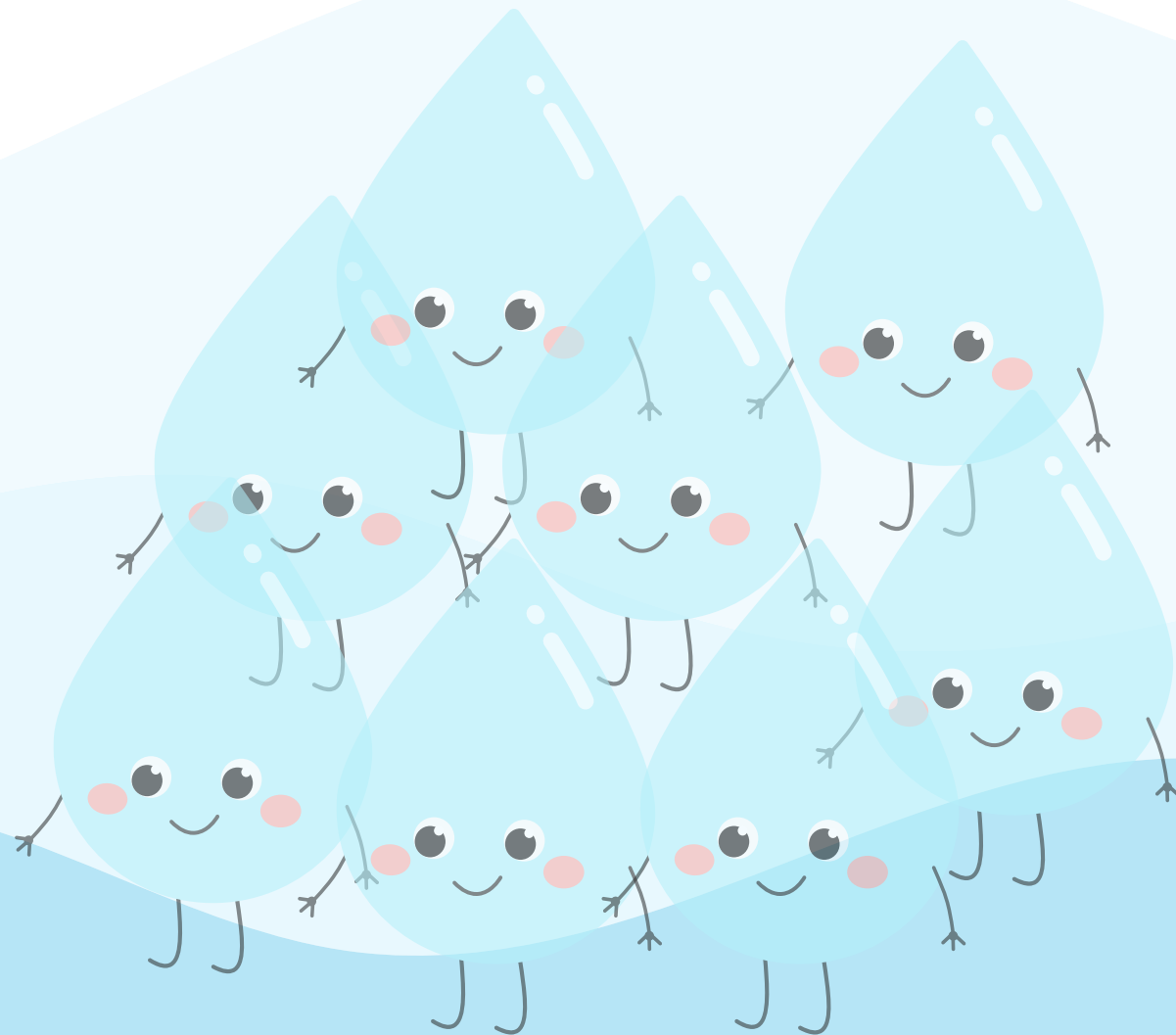
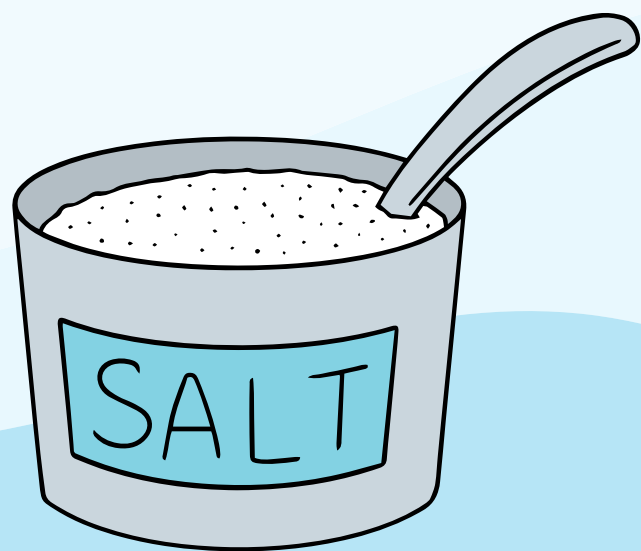
NOW, THAT THE WATER CAME OVER TO THE DRAW SOLUTION, THE DIRT IS LEFT ON THE OTHER SIDE OF OUR SPECIAL SUPERDUPER TIGHT FILTER. THIS PROCESS IS CALLED "FORWARD OSMOSIS".



**WITHOUT ALL THE WATER, OUR DIRTY SOUP GOT
REALLY THICK. WE'RE NOW CALLING IT A
"CONCENTRATE".**



**WHEN ENOUGH WATER HAS FLOWN INTO THE
DRAW SOLUTION, THE DRAW SOLUTION BECOMES
LESS AND LESS SALTY.
IT IS NOW "DILUTED".**



NOW, WE CAN SEPARATE SALT AND WATER FROM THE DILUTED DRAIN SOLUTION WITH LITTLE HEAT OR ANOTHER SPECIAL FILTER. WE MADE CLEAN WATER OUT OF A VERY DIRTY SOUP. YAY!



**FORWARD OSMOSIS REQUIRES LESSER ENERGY
THAN OTHER WATER PURIFICATION METHODS
TO MAKE CLEAN WATER OUT OF A VERY
DIRTY SOUP. THAT'S WHY IT IS USED MORE
AND MORE OFTEN.**



**NOW THAT WE ARE LEARNING SO MANY COOL
WAYS TO RECOVER WATER, WE MUST NOT FORGET
THAT WATER FOR DRINKING IS SCARCE IN MOST
REGIONS OF THE WORLD.**

**PLEASE USE WATER RESPONSIBLY AND SAVE
WATER WHENEVER POSSIBLE.**



- MIX SALT AND LITTLE WATER AND POUR IT ON A FLAT SAUCER OR IN A SMALL GLASS.
- PUT THE GLASS ON A PLATE AND PUT A BOWL ON TOP.
- NOW, PLACE IT OUTSIDE IN THE SUN.

AFTER SOME TIME IN THE SUN, YOU WILL FIND SOME WATER CONDENSING ON THE BOWL AND RUNNING DOWN ON THE PLATE. ONLY SALT WILL REMAIN IN THE GLASS.