



# THE EGG EXPERIMENT

EGG SHELLS AND TEETH HAVE SOMETHING IN COMMON: BOTH CAN BE WEAKENED BY ACID. WHEN YOU PUT AN EGG IN VINEGAR (A WEAK ACID SIMILAR TO WHAT CAUSES CAVITIES), IT ATTACKS THE SHELL, MAKING IT SOFT AND WEAK. WHEN TEETH ARE EXPOSED TO ACIDS IN YOUR MOUTH, YOUR TEETH BECOME VULNERABLE TO CAVITIES. THIS EXPERIMENT SHOWS YOU HOW YOU CAN HELP LOCK THE CALCIUM IN AN EGGSHELL—AND YOUR TEETH— BY PROTECTING THEM WITH A FLUORIDE TOOTHPASTE.

## WHAT YOU'LL NEED...

- GLASS MEASURING CUP
- 4.6 OZ TUBE OF REGULAR TOOTHPASTE (active ingredient: Sodium Fluoride)
- FRESH EGG(S) WITHOUT CRACKS
- TABLE VINEGAR
- PLASTIC WRAP
- MARKER
- CLEAR NAIL POLISH
- PAPER TOWEL
- TEASPOON



**1** **WARM THE EGG** TO ROOM TEMPERATURE. WITH CLEAN HANDS, WASH THE EGG WITH WARM WATER AND THEN DRY IT WITH THE PAPER TOWEL.

**2** **EMPTY THE TUBE** OF TOOTHPASTE INTO THE GLASS MEASURING CUP. PAT THE TOOTHPASTE DOWN WITH A TEASPOON TO LEVEL IT AND REMOVE ANY AIR BUBBLES.

**3** **MARK ONE SIDE** OF THE EGG WITH A MARKER AND COVER THIS MARK WITH CLEAR NAIL POLISH TO PROTECT IT FROM THE VINEGAR.

**4** **PLACE THE EGG** INTO THE MEASURING CUP, MARKED SIDE DOWN, SO THAT THE TOOTHPASTE COVERS HALF THE EGG. MAKE SURE THAT THE EGG DOESN'T TOUCH THE BOTTOM OF THE CUP.

**5** **COVER THE CUP** TIGHTLY WITH PLASTIC WRAP AND LEAVE IT IN A SAFE PLACE AT ROOM TEMPERATURE FOR AT LEAST FOUR FULL DAYS.

**6** **WITH CLEAN HANDS**, RINSE ALL THE TOOTHPASTE OFF THE EGG WITH WARM TAP WATER AND LET THE EGG DRY OVERNIGHT.

**7** **POUR** ENOUGH VINEGAR INTO THE CLEAN MEASURING CUP TO COVER THE EGG AND THEN CAREFULLY PLACE THE EGG INTO THE VINEGAR WITH THE SPOON. REST THE SPOON ON TOP OF THE EGG TO KEEP IT UNDER THE VINEGAR. COVER THE CUP WITH PLASTIC WRAP. WATCH AS BUBBLES FORM ON THE UNPROTECTED SIDE OF THE EGG.

**8** **LEAVE** THE EGG IN THE VINEGAR UNTIL THE UNPROTECTED SIDE (THE UNMARKED SIDE) OF THE EGG SOFTENS. THIS WILL TAKE 7-13 HOURS.

**9** **AFTER 7 HOURS** IN THE VINEGAR, REMOVE THE EGG AND CHECK IF THE UNPROTECTED SIDE HAS SOFTENED BY TAPPING IT VERY LIGHTLY WITH YOUR FINGER OR A PENCIL. IF IT IS SOFT, GO TO STEP 11.

**10** **IF** THE UNPROTECTED SIDE IS STILL HARD, PUT THE EGG BACK INTO THE VINEGAR. CHECK THE EGG EVERY COUPLE OF HOURS UNTIL THE UNPROTECTED SHELL HAS SOFTENED.

**11** **WHEN** THE UNPROTECTED EGG SIDE IS SOFT, REMOVE THE EGG AND GENTLY WASH IT WITH WARM WATER. THE EGG IS VERY FRAGILE NOW, SO BE CAREFUL!

## CONCLUSION...

- ACIDS, LIKE VINEGAR, WEAKEN THE PROTECTIVE SHELL OF THE EGG. THIS WEAKENING IS VERY SIMILAR TO THE DAMAGE CAUSED TO THE OUTER LAYER OF YOUR TEETH BY PLAQUE.
- THE FLUORIDE IN THE TOOTHPASTE PROTECTED THE SIDE OF THE EGG WITH THE "X". THIS SAME PROTECTION IS GIVEN TO YOUR TEETH BY TOOTHPASTE WITH FLUORIDE WHEN YOU BRUSH REGULARLY.