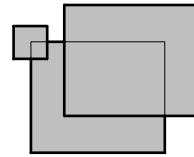


POLARIZED Light

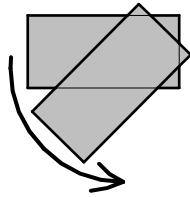
WHAT would you think of a window that you could turn on and off? Now you see THROUGH it, now you don't! If it sounds INTERESTING, you'll like THIS EXPERIMENT.

WHAT YOU NEED:

YOUR polarizing filters. THESE ARE THE DARK PLASTIC RECTANGLES.



WHAT TO DO:



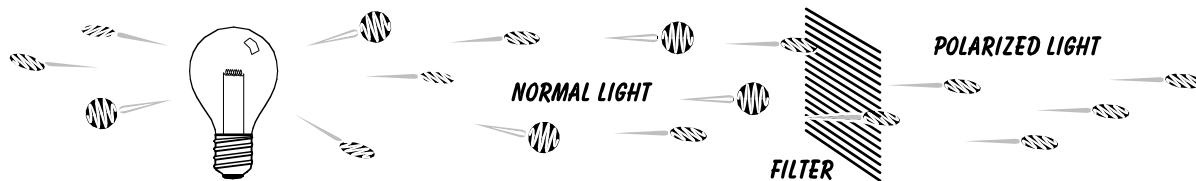
LOOK THROUGH THE TWO big filters TOWARD a light while you slowly TURN ONE of the filters. WATCH CAREFULLY.

IMPORTANT: NEVER LOOK AT THE SUN, EVEN THROUGH filters blocking OUT all the visible light. It's still DANGEROUS.

WHAT happens? WRITE OR DRAW YOUR OBSERVATIONS HERE:



THEORY:

Think of light as little bundles of energy that vibrate as they go. Some bundles vibrate FROM side to side, some vibrate UP AND DOWN. Usually THESE ARE ALL MIXED TOGETHER.



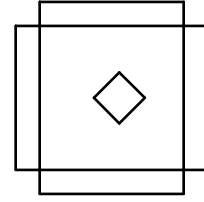
A polarizing filter will block HALF the bundles. The light that gets THROUGH the filter is all vibrating THE SAME way, and is called polarized light.

SUPER CHALLENGE QUESTION:

Why do you think light comes THROUGH two filters that are turned THE SAME way,  BUT NOT THROUGH two filters that are PERPENDICULAR? 

THE PORTABLE HOLE

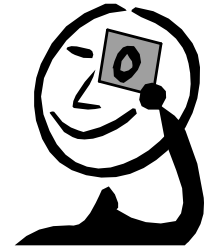
TAKE YOUR TWO LARGER FILTERS AND TURN THEM SO THAT NO LIGHT GETS THROUGH. NOW PUT THE TINY FILTER BETWEEN THEM, LIKE THIS: →



PICK UP YOUR SANDWICH AND LOOK THROUGH IT AT THE LIGHT.
WHAT HAPPENS?

POLARIZED LIGHT AROUND YOU

YOU CAN FIND POLARIZED LIGHT BY LOOKING THROUGH JUST ONE FILTER. ANYTHING THAT GETS BRIGHTER AND DIMMER AS YOU TURN THE FILTER IN FRONT OF YOUR EYE IS REFLECTING POLARIZED LIGHT.



WHAT TO DO:

SEARCH INSIDE AND OUTSIDE FOR EXAMPLES OF POLARIZED LIGHT. SOMETIMES IT'S HARD TO FIND. HERE ARE SOME PLACES YOU CAN START YOUR SEARCH:

CAR WINDSHIELDS

PUDDLES

SKY

DIGITAL WATCH DISPLAYS

CALCULATOR DISPLAYS

RAINBOWS

List the places you found polarized light:

DID YOU KNOW . . .

BEES CAN RECOGNIZE **POLARIZED LIGHT**.

SOME PARTS OF THE SKY ARE POLARIZED AND SOME ARE NOT.

THE BEES USE THIS TO HELP THEM FIND THEIR WAY AROUND.!

SO I DON'T
GET LOST!

