

ENGINEERING CHALLENGE:

Invisible Messages



Some clues are invisible to the glancing eye,
but you can find them if you know how to look!

WHITE CRAYON MESSAGES: If you write on white paper with a white crayon, you can't see it. But if you then color over the paper with washable markers or paints, the message will appear! This is called wax resist. The wax in the crayons prevents the washable marker or paint from sticking to the paper wherever it is drawn.

PRESSURE ECHO MESSAGES: If you write on the top sheet of a pad of paper with a sharp pencil, then throw that sheet of paper away, the message disappears. But if you take a pencil or crayon and gently rub it over the next sheet of paper, the message will re-appear in echo. The places where the writing was on the previous paper will be lower than the rest of the paper. When you rub your pencil or crayon over the second paper, most of the paper will become crayon color, but the message won't!

LEMON MESSAGES: If you use lemon juice as writing ink and let it dry, it disappears. However, if you apply heat to the paper, the lemon juice turns brown and re-appears. **YOU SHOULD GET ADULT HELP TO APPLY HEAT TO THE PAPER.** One suggestion is to hold the paper carefully above a stove burner. Don't let it touch the burner and definitely don't touch the burner yourself! Another way to add heat is to iron your paper, but don't use steam!

