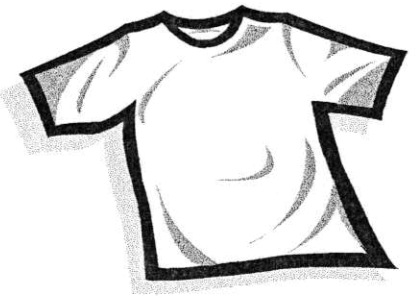
Mary's Shirt Solution



Mary is in charge of dying T-shirts for the cheerleaders to wear at the next pep rally. She has 10 white, 100% cotton T-shirts and wants to dye them to match the orange border on the cheerleader shirts. Mary buys a box of orange Ritz dye.

Mary is not sure how to dye the shirts the exact color of the skirts. She reads the dye label and discovers that the length of time that cloth is soaked in the dye will determine the shade of the color that the cloth will become.

She guesses that soaking the shirts for about fifteen minutes should be long enough to dye them the proper shade of orange. But she is still uncertain. She decides to use one extra shirt to test her prediction.

Mary cuts the shirt into 10 six inch squares. She places 2 grams of orange Ritz dye into 500 milliliters of water. She measures the temperature of the water and *finds that it is 28° C. She places the squares of cloth into the bowl, making sure* that each one is covered by the dye solution. She sets a timer and removes one square of cloth every 5 minutes. She labels each square and allows them to dry for three hours.

Mary observes the squares to discover which one best matches the skirts. She finds that the square that was soaked for 35 minutes is the best match.

QUESTIONS

1. What question did Mary have about dying the T-shirts?
2. Where did she find information about the Ritz dye?
3. How much time did she predict the shirts should be soaked?
4. Describe the experiment that she designed to test her prediction.
5. What was one thing that she did differently to each piece of cloth in her experiment?
6. List the ways that each piece of cloth was treated exactly the same in her experiment.
7. What did Mary observe?
8. Was her prediction correct?
9. How long do you think she decided to soak the 10 remaining T-shirts?
10. Why would it be important that Mary record how much dye she used, the amount of water she used, and the temperature of the water?