

Name \_\_\_\_\_

## Acids and Bases: The Unsung Heroes of Everyday Life

### Open-Ended Response Answer Key

1. Chemical spills can have severe environmental consequences, including soil and water contamination, harm to wildlife, and long-term ecosystem damage. Neutralization with acids and bases can reduce the harm by transforming hazardous chemicals into less harmful substances, making cleanup and recovery efforts more manageable.
2. I would create a refreshing summer salad with a citrus vinaigrette. The vinaigrette would include lemon juice (acid) to brighten the flavors of the salad's fresh ingredients, such as mixed greens, tomatoes, and cucumbers. The acid from the lemon juice would add a zesty and tangy dimension to the dish.
3. In the production of soap and detergents, acids and bases are used to create surfactants, which break down and remove dirt and grease from surfaces. Fatty acids are combined with sodium hydroxide (base) to produce soap molecules, while detergents often contain sulfonic acids as surfactants. These substances reduce the surface tension of water, allowing it to penetrate and lift away dirt and stains.
4. Skincare products may contain acids such as alpha hydroxy acids (AHAs) or salicylic acid. AHAs can help exfoliate dead skin cells, improve skin texture, and reduce the appearance of fine lines. Salicylic acid is effective for treating acne by exfoliating inside the pores and preventing clogged follicles. These acids are used in carefully formulated concentrations to ensure safety and effectiveness.

