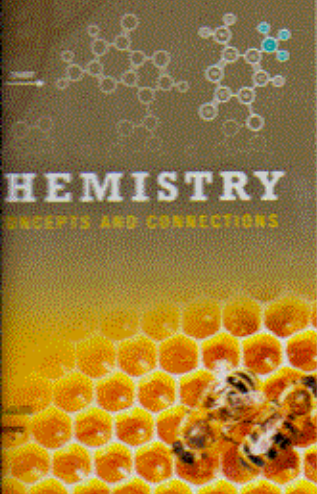




The images on the cover illustrate how the concepts of biochemistry connect to our everyday lives. Common honeybees (*Apis mellifera*) are critical for propagating many of the food crops that we consume everyday, but the process by which an individual honeybee develops into a fertile queen or a sterile worker differs greatly from other organisms, such as mammals. Rather than the X and Y chromosomes we're familiar with, both honeybee males and females develop from chromosomally identical larvae that vary in the expression of certain genes. The best understood of these genes is the DNA methyltransferase Dnmt3 gene. By either silencing or allowing the expression of this gene, researchers were able to mimic patterns of sexual development seen following differential feeding of royal jelly to larvae. Expression of Dnmt3 leads to the methylation of genes throughout the genome, shown on the front cover by the replacement of an H by a CH₃ group. This seemingly small *epigenetic* change, under control by nutritional input, profoundly shifts the development of honeybees and ultimately determines their role in the hive.

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