Consider the following functions with domain and codomain the positive integers. Determine which are one-to-one, which are onto, and which are bijections. If a function is not one-to-one, give two values that have the same image. If a function is not onto, give a value that is not the image of anything.

1. \( f(n) = 2n. \)
   \[ \text{This is one-to-one. It is not onto, as 3 is not in the range} \]

2. \( g(n) \) is defined as the number of factors of \( n. \) (We define a factor as positive and include the number itself. For example, \( g(4) = 3. \))
   \[ \text{This is onto. It is not one-to-one, as } g(4) = g(9) \]

3. \( h(n) = \begin{cases} n - 2 & \text{if } n \text{ is a multiple of } 3 \\ n + 1 & \text{otherwise} \end{cases} \)
   \[ \text{This is a bijection!} \]