$$|0\rangle = \begin{bmatrix} 1\\0 \end{bmatrix}$$

$$\frac{1}{\sqrt{2}} \begin{bmatrix} 1\\1 \end{bmatrix}$$

$$|1\rangle = \begin{bmatrix} 0\\1 \end{bmatrix}$$

 $\frac{1}{\sqrt{2}}\begin{bmatrix}1\\-1\end{bmatrix}$