Stern-Gerlach Model:-

Table 1:

State	Z-response	Y-response
Z+	**+**	**+/- (50/50)**
Z-	**-**	**+/- (50/50)**
Y+	**+/- (50/50)**	**+**
Y-	**+/- (50/50)**	**-**

This table is inherently probabilistic. However, to model the outcomes of successive measurements, we must apply the Born rule.

Born Rule:

Any measurement "collapses the state of the "particle" into that state which will yield the same outcome under a re-measurement in the same basis.

So if a particle happen to be measured in the Z-basis and it resulted in a '-' outcome, then the particle can now be said to be in the Z- state, and its response to the next measurement will be dictated by table 1.

BB84 PROTOCOL

Step 1:
Alice will generate 10 random bits (1s and 0s) and write them down secretly.

Step 2:
Both Alice and Bob will generate 10 random basis lists (Rs and Gs) and write them down secretly.

Step 3:
Alice encodes photons with her random bit list (1s and 0s) one at a time using the basis in her basis list (Rs and Gs), and transmits them.

Step 4:
Bob will measure the photons using the basis entries in his basis list (Rs and Gs), and writes the outcomes down in the form of bits (1s and 0s).

Step 5:
Alice and Bob publicly share their basis lists, and mark their entry numbers where the basis entries match.

The corresponding bits will have been secretly shared between Alice and Bob, unless the photons have been measured enroute by Eve.qkdddddsqq