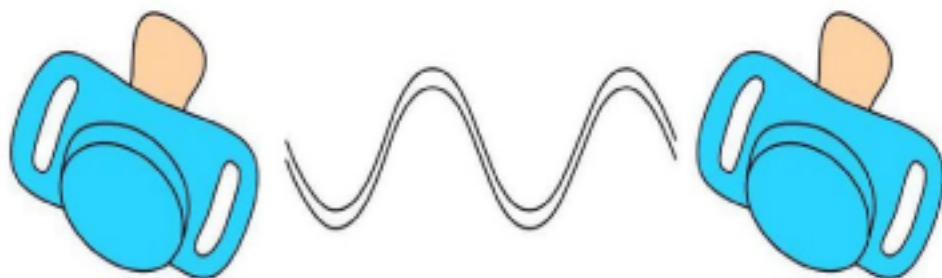


Quantum Entanglement for Babies 🎧



by Chris Ferrie

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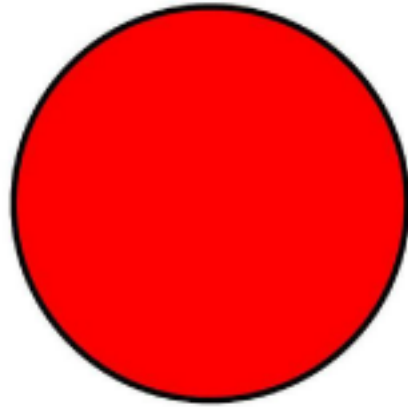
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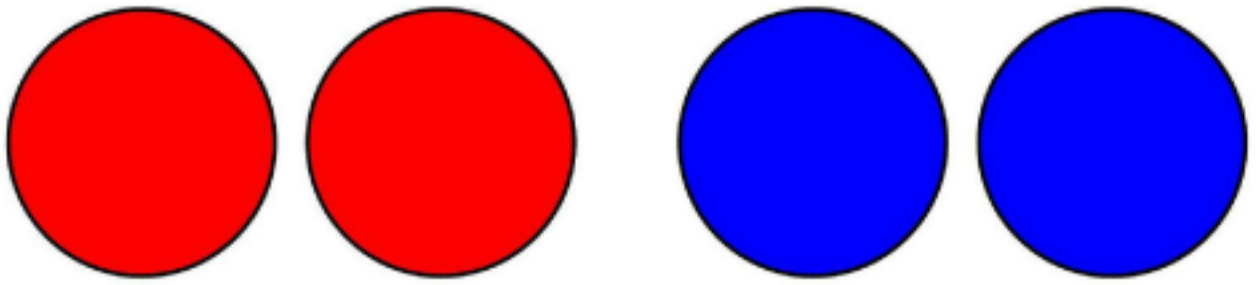


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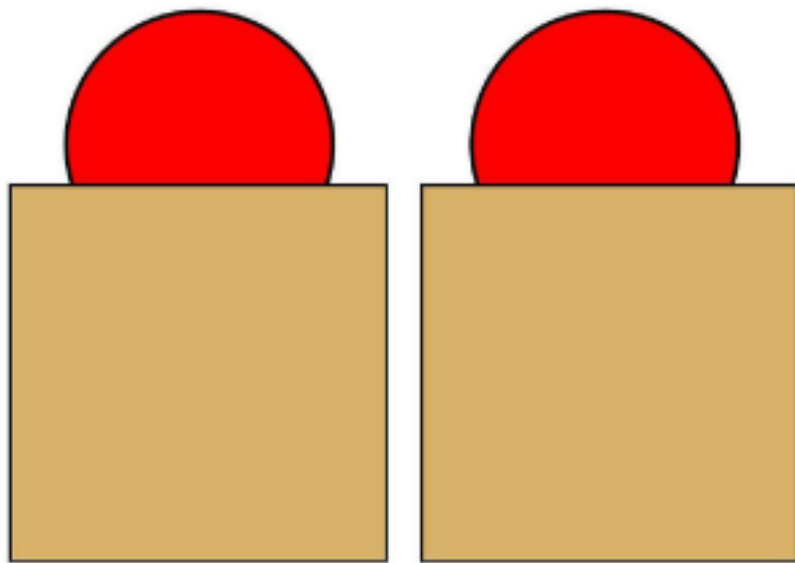
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This is a ball. 🗣️

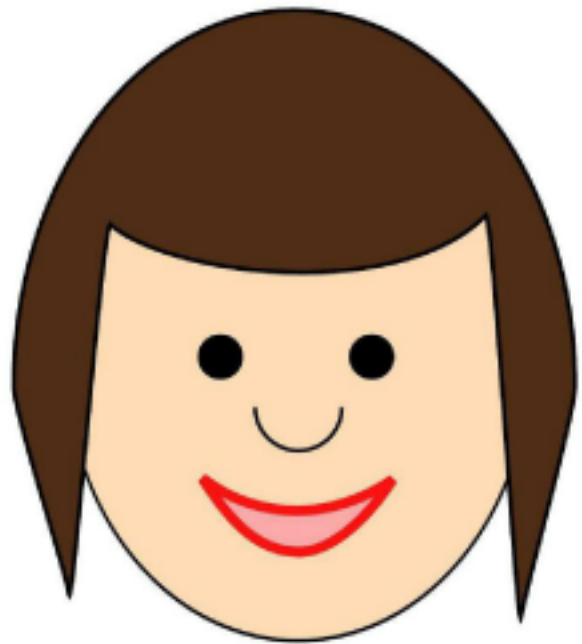
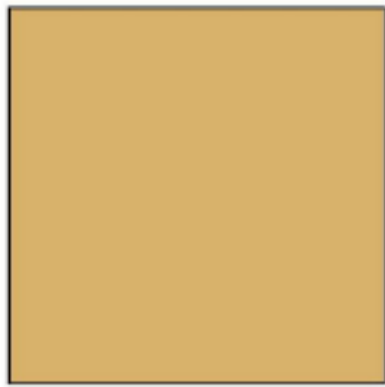


- Two **red** balls.
Two **blue** balls.



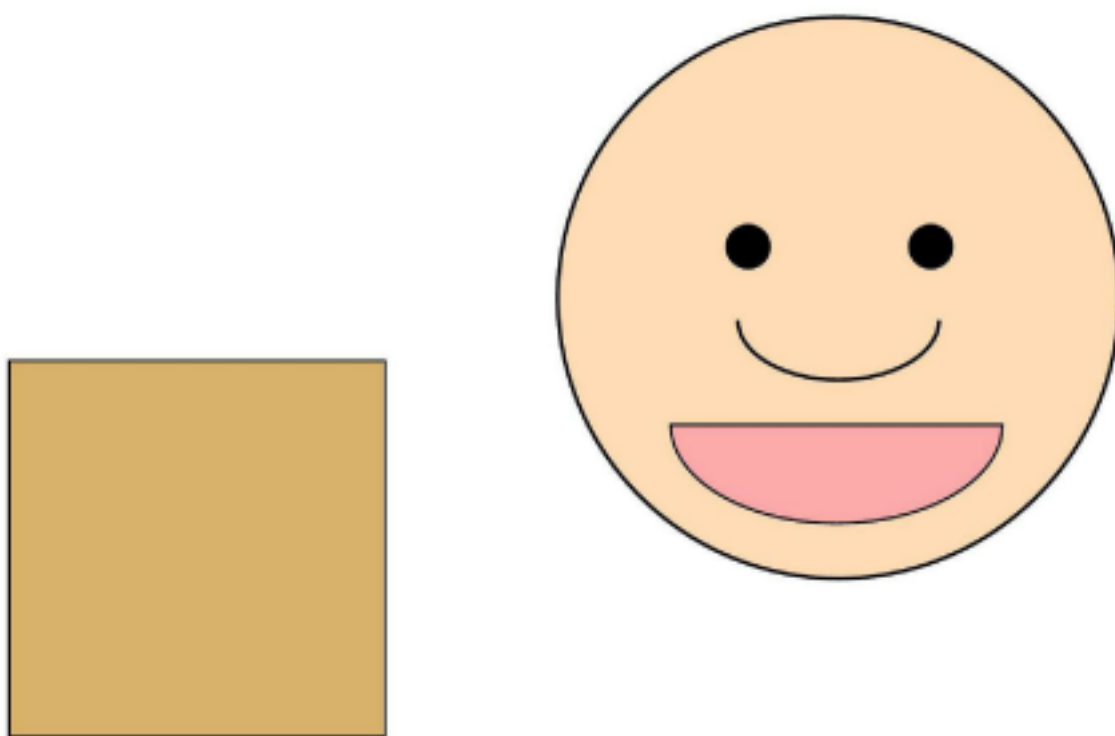
**We pick two balls of
the same color and
hide them in boxes.**



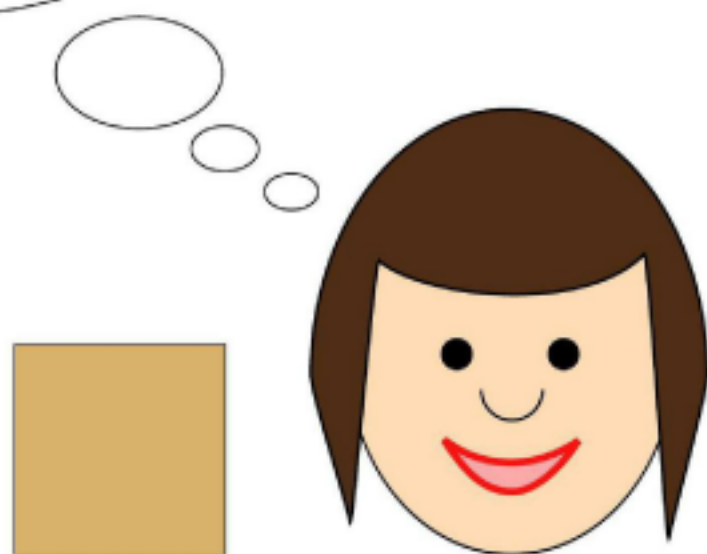
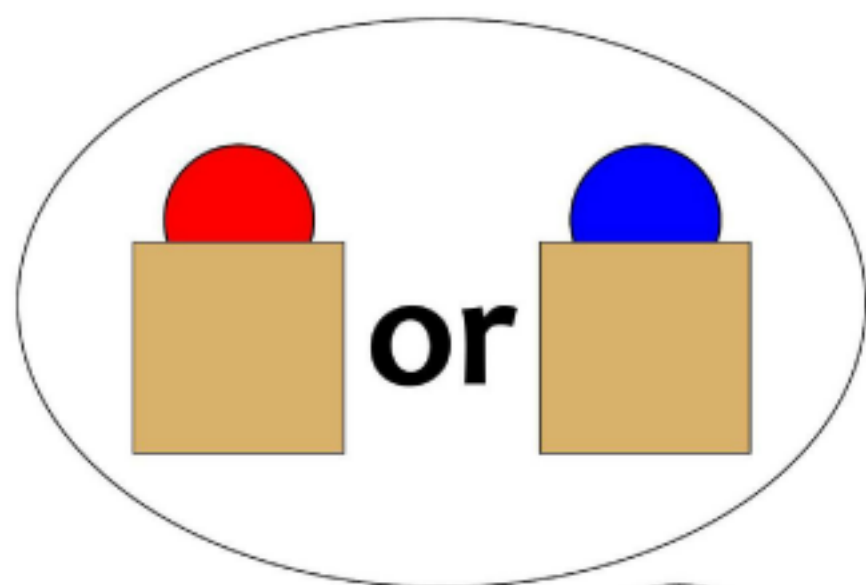


One box for Alice.



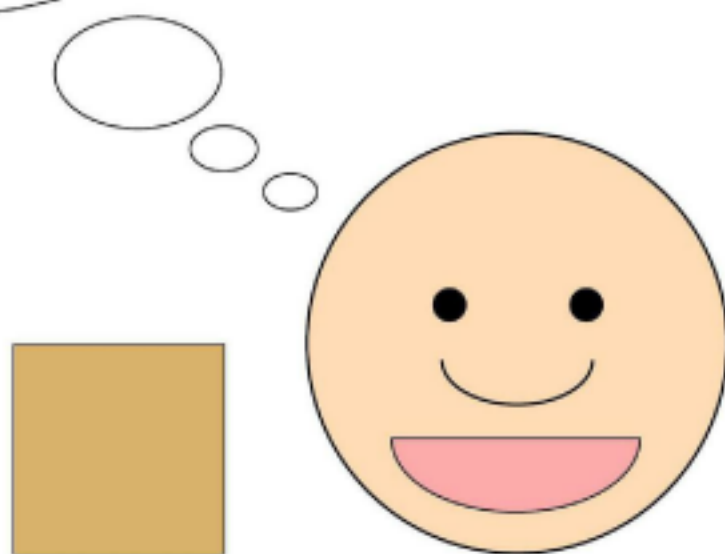
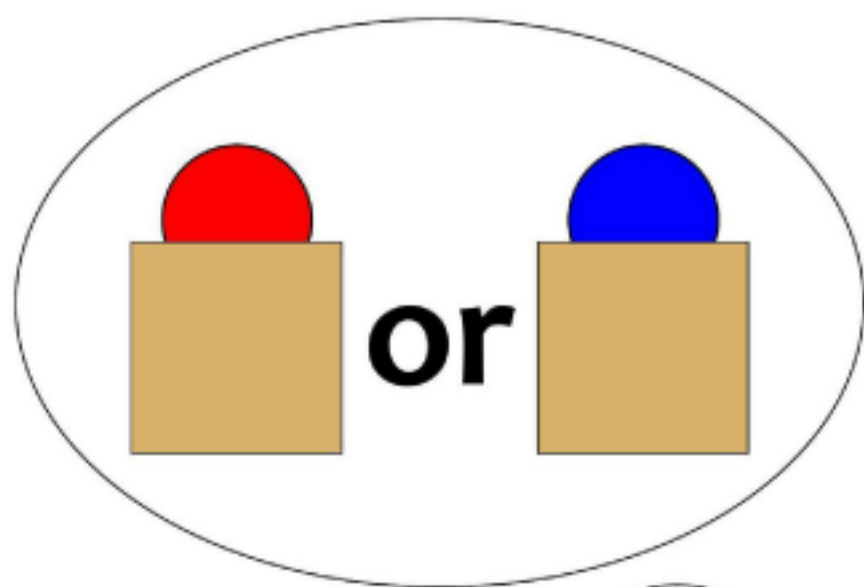


One box for Bob. 🗣️



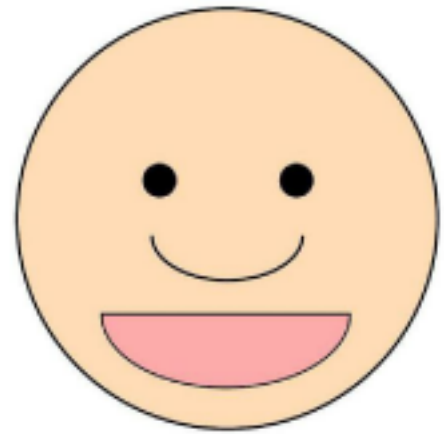
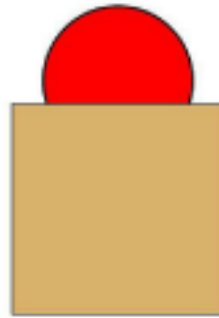
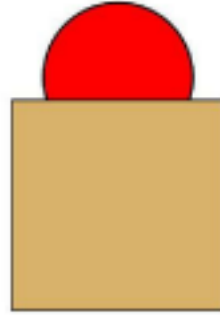
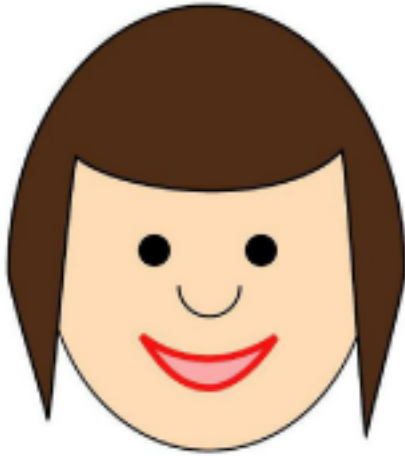
**Alice does not know
what is in her box.**



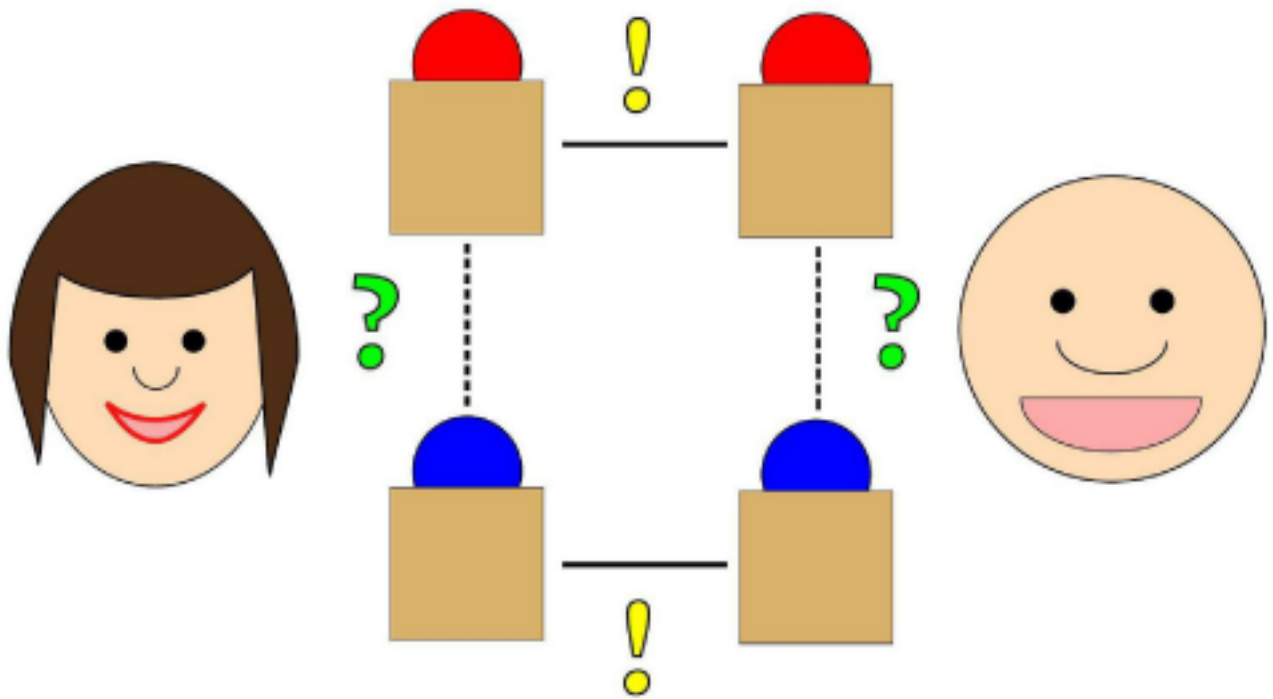


**Bob does not know
what is in his box.**



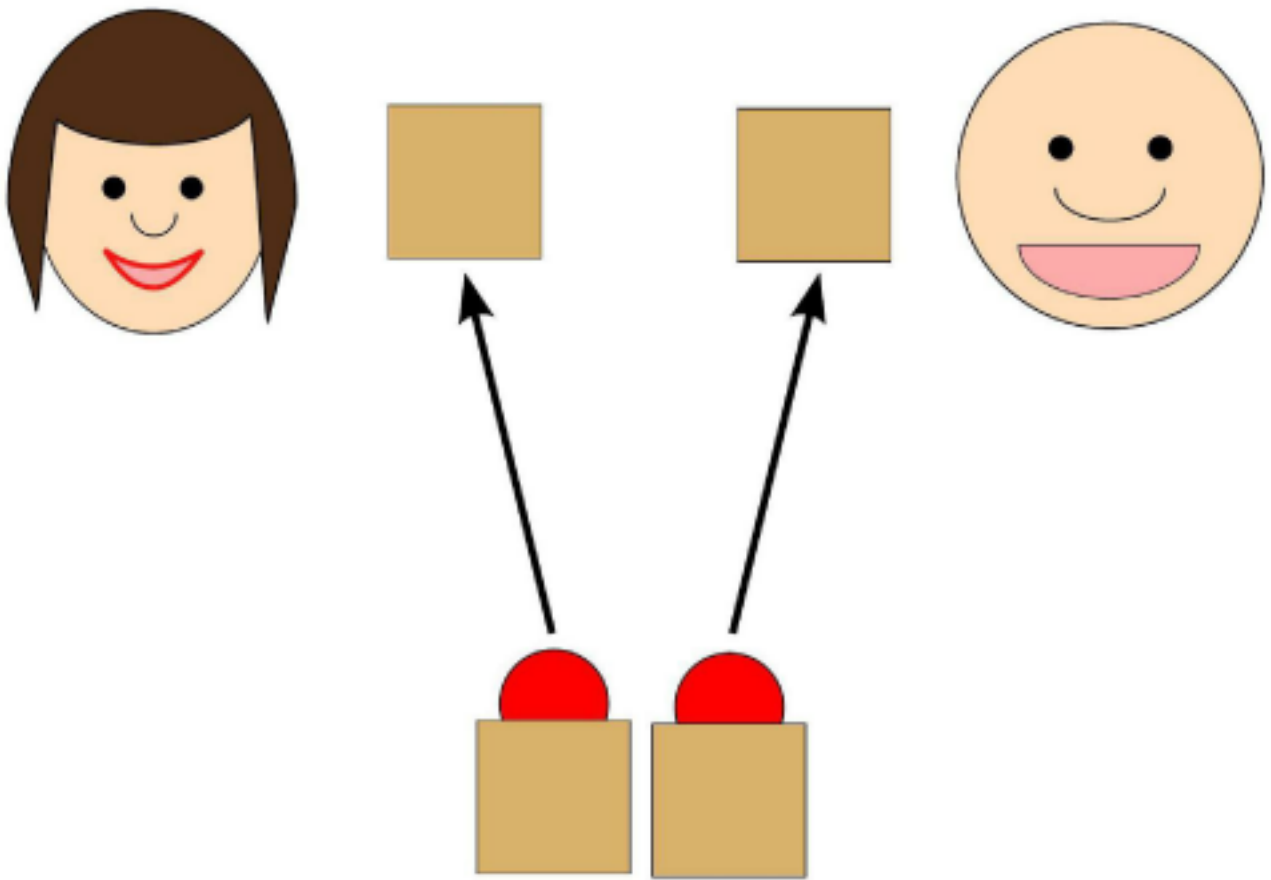


**But they always have
the same color! 🎧**

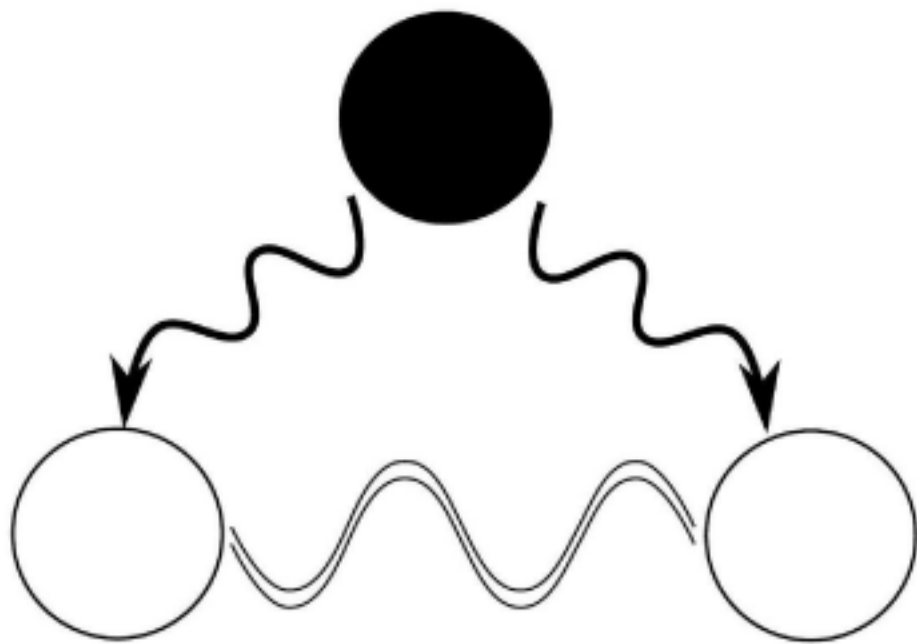


Alice and Bob **do not** know what is in each box. Alice and Bob **do** know that the contents of their boxes are the same. How?





**Because we put the balls in the
boxes, we always know what
color is in each box! 🎧**



In quantum physics, a particle can decay into two entangled particles.

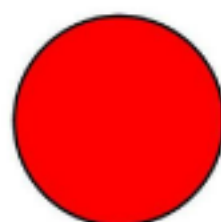
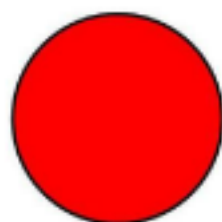




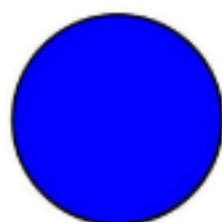
Entangled **particles**
share a special bond.

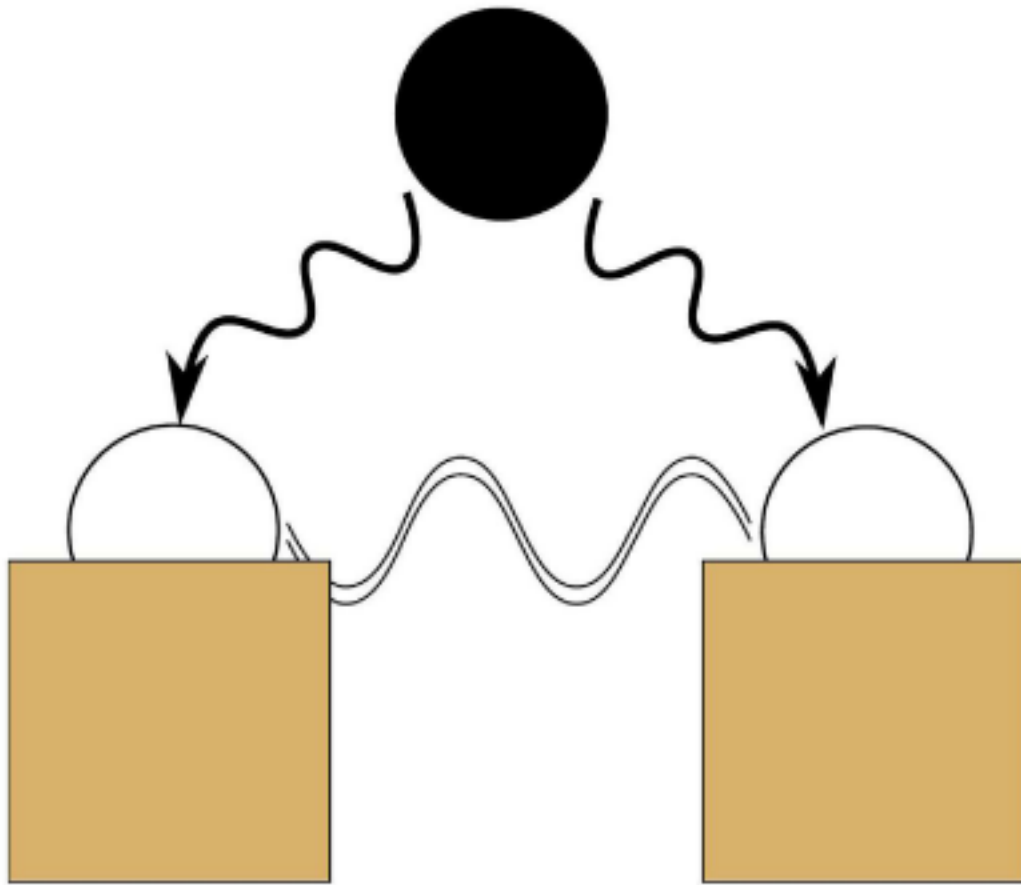


**When one is measured to be
red, the other will be red.**

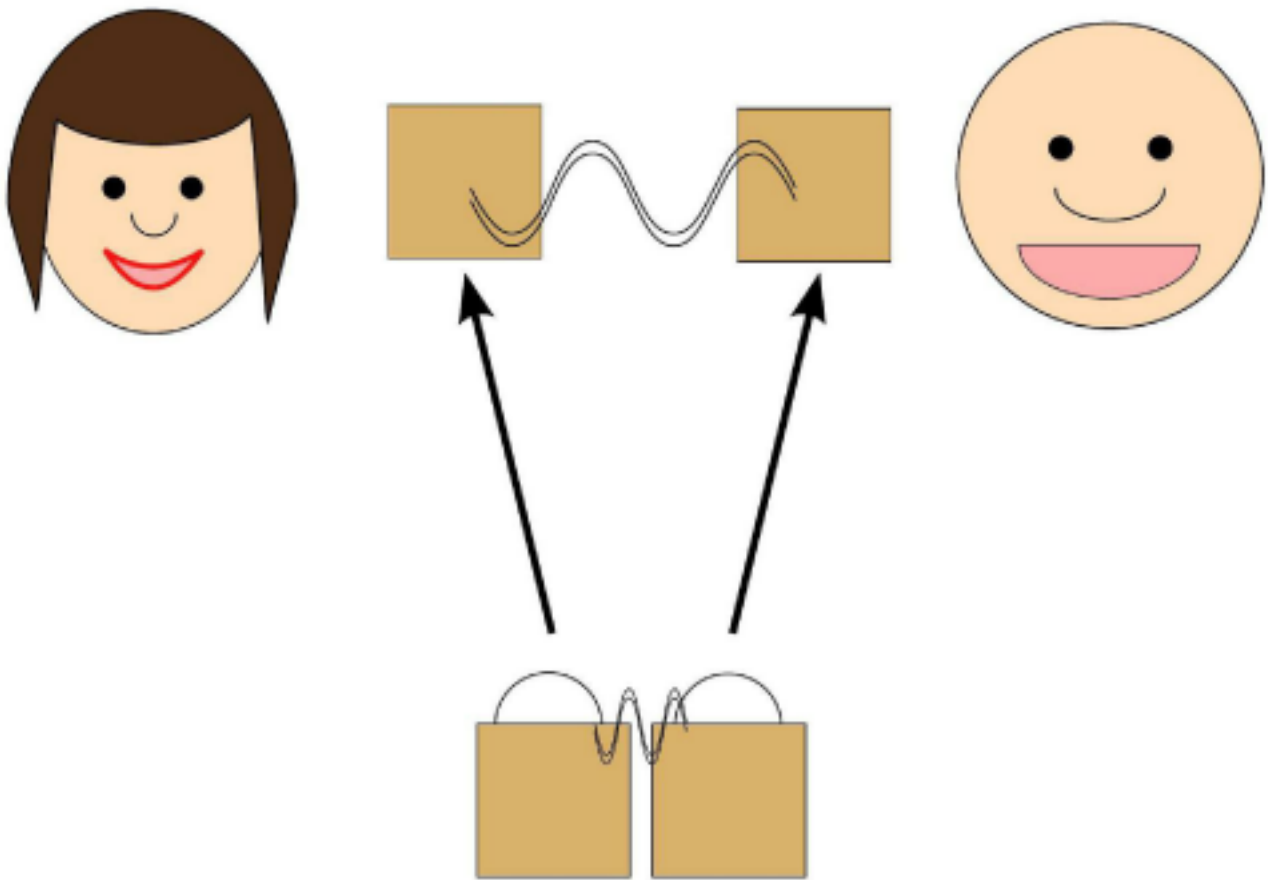


**When one is measured to be
blue, the other will be blue.**



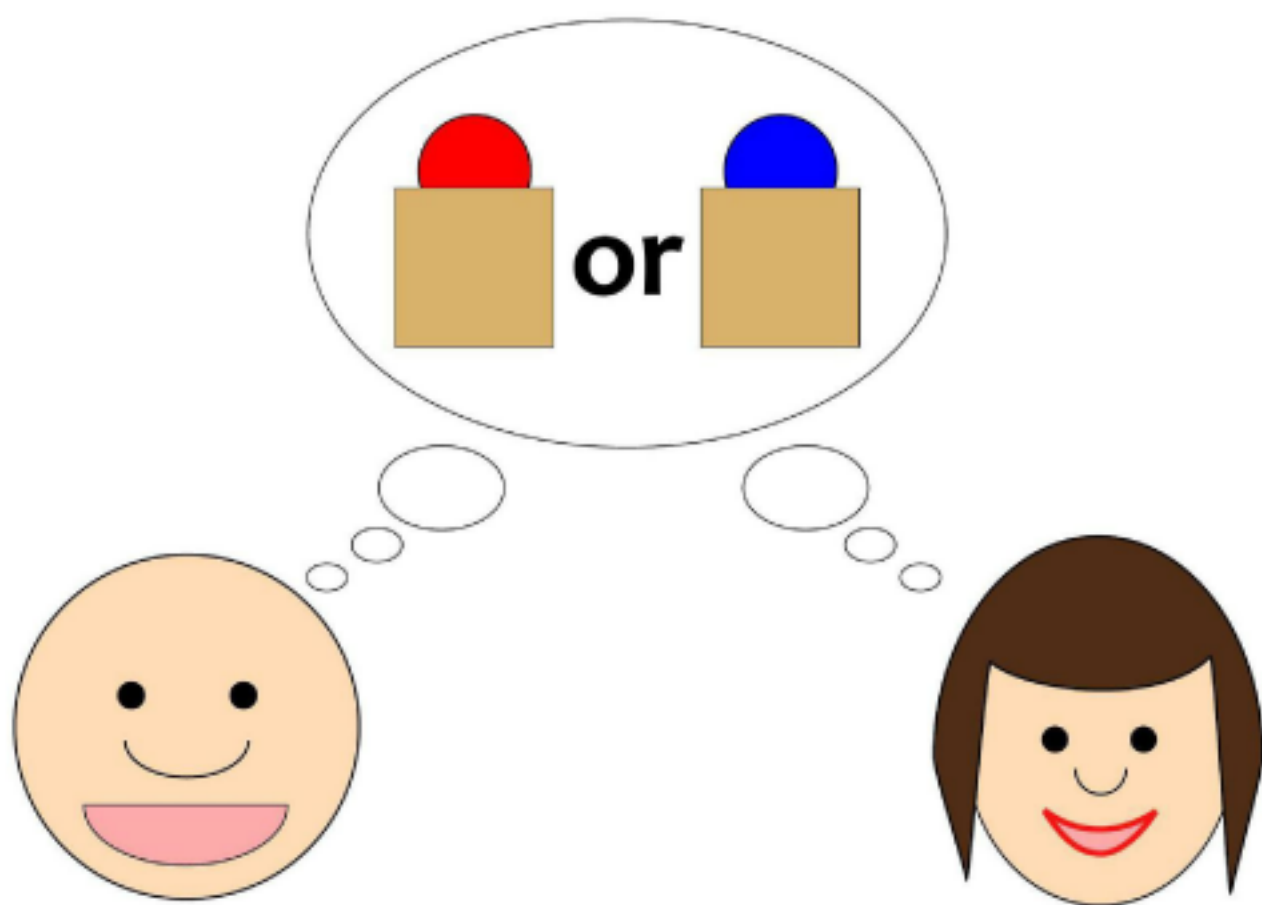


We let the entangled particles decay into the two boxes. 🎧



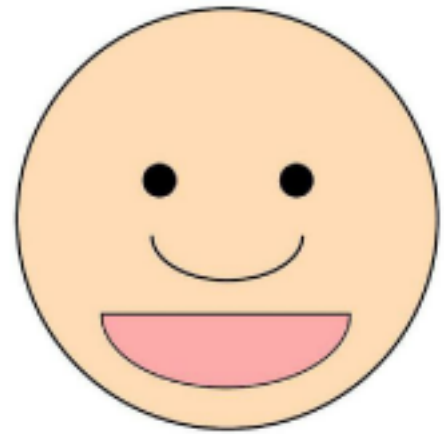
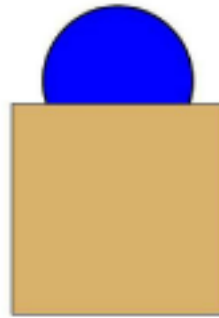
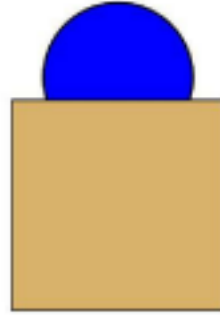
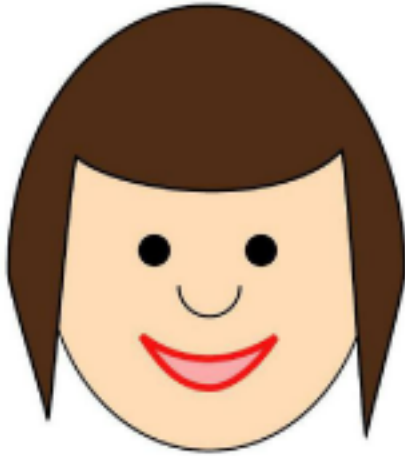
We give the boxes to Alice and Bob.



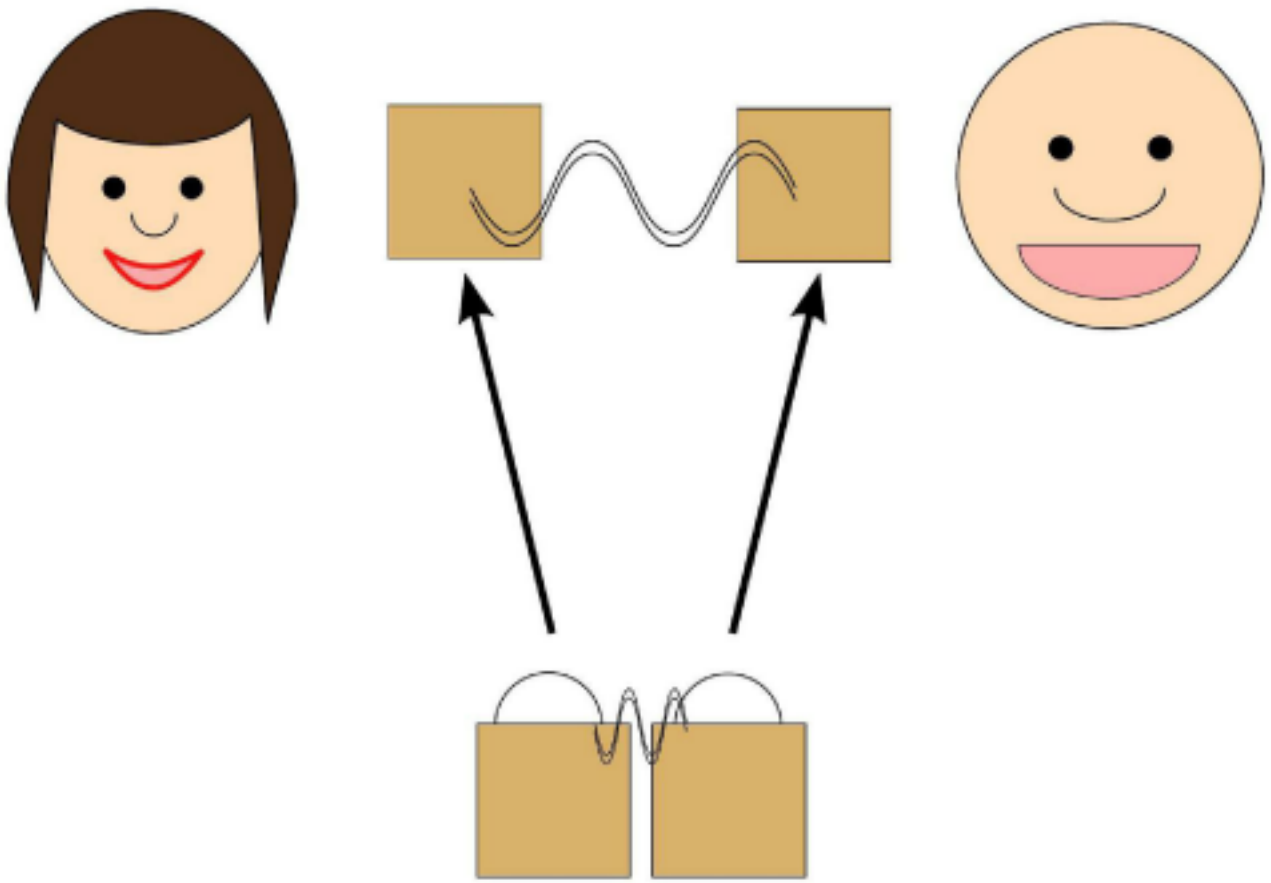


**Alice and Bob do not know
what color they will find.**



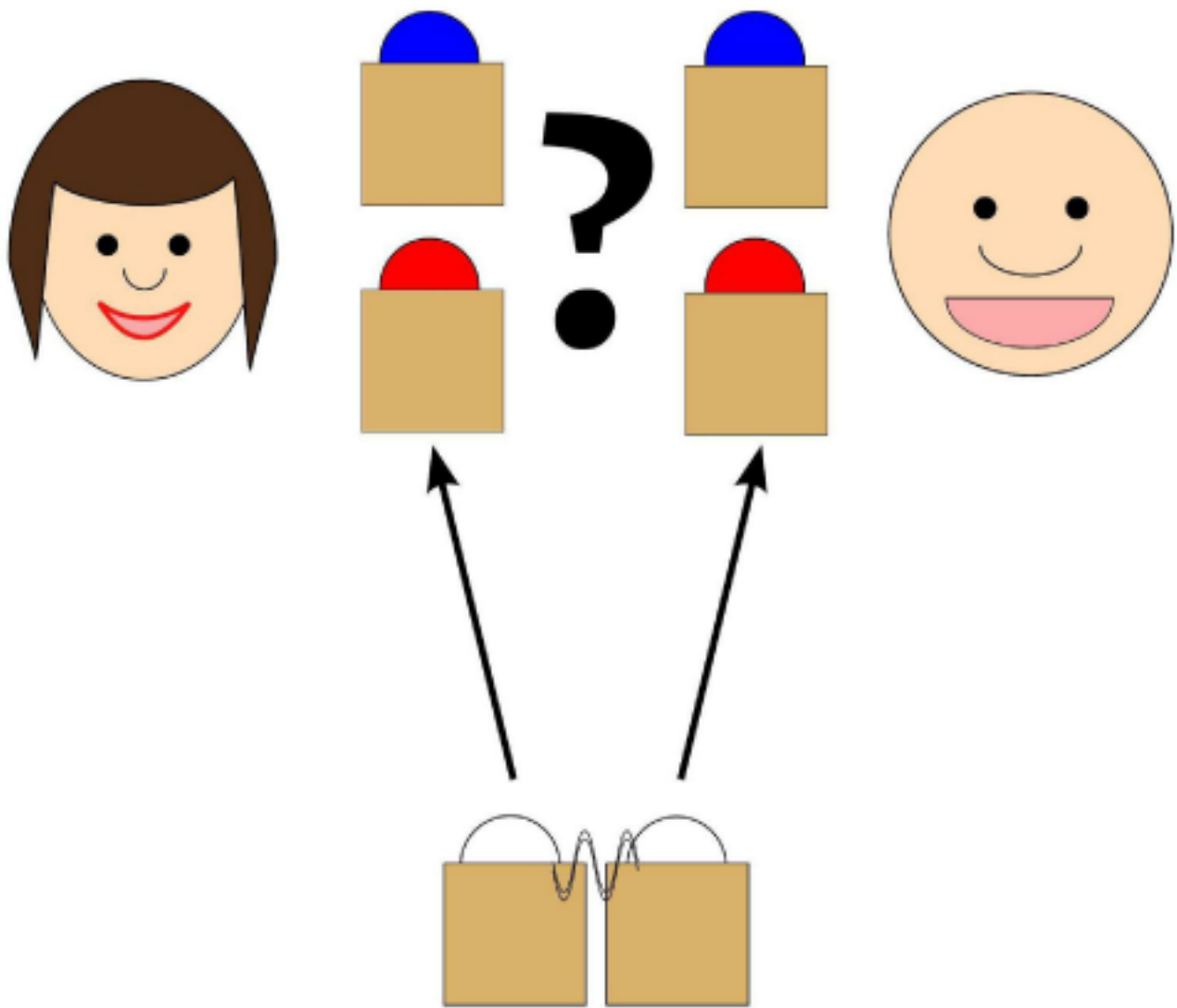


**And they always find
the same color! 🎧**



But this time even we do not know what they will find.





In fact, no one can know what Alice and Bob will find.



**It is as if the particles decide
what color they will be the
moment they are measured.**

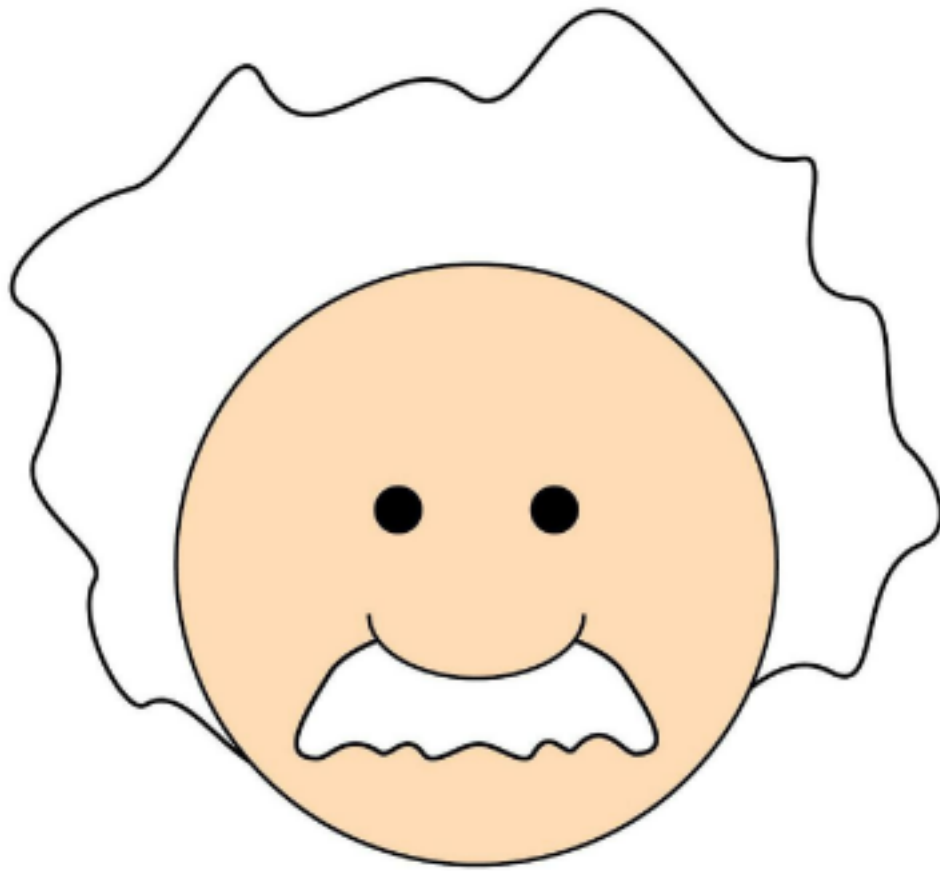


**And this is true no matter
how far apart they are.**





**You are right, Baby,
that is strange! 🗨️**



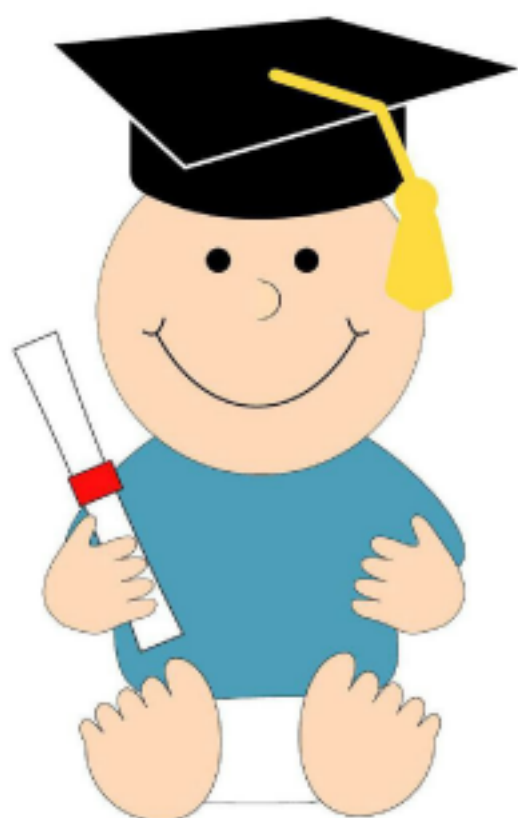
**Albert Einstein called this
"spooky action at a distance."**





**No one really understands
the nature of entanglement.**





**Baby, you could be the
first to understand it!**

