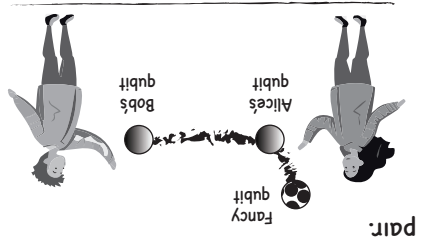
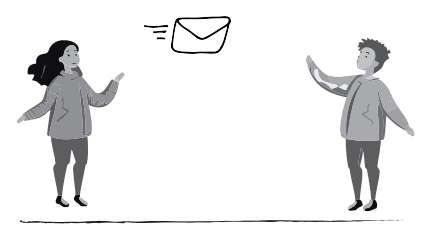


STEP 3: Alice measures her qubits. (She no longer has a fancy qubit, and her qubits are no longer entangled with Bob's.)



STEP 2: Alice entangles the fancy qubit with her half of the entangled pair.

STEP 4: Alice uses classical bits to send her measurements to Bob.



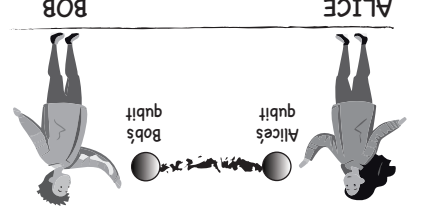
STEP 5: Bob uses this information to adjust his qubit.



NOW, BOB HAS THE FANCY QUBIT!

* Moving known qubit states is more reliable than unknown states, like Alice's fancy qubit!

Alice also has a fancy qubit that she wants Bob to have.



STEP 1: Alice entangles two qubits and sends one of them to Bob. (Bob can be nearby or far away.)

HOW DOES QUANTUM TELEPORTATION WORK?

QUANTUM TELEPORTATION: NECESSARY, NOT FICTION!

Why not just send the fancy qubit?

- Sending measurements is faster
- Sending entangled qubits can be done ahead of time & more reliably

This is how quantum computers move their qubits around to perform calculations!

Without quantum teleportation, the capabilities of quantum computers would be much more limited!

It's a bit like how in Newton's cradle, the balls transfer their movement to each other.

Quantum Teleportation makes it possible to transfer a qubit's complex state to another qubit.

A protocol to move quantum information from one location to another location.

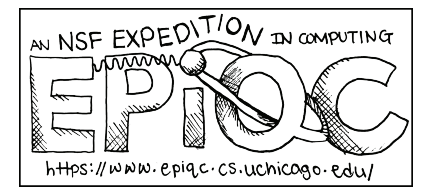
QUANTUM TELEPORTATION

FIND MORE QUANTUM COMPUTING ZINES HERE:

<https://www.epiqc.cs.uchicago.edu/resources/>

Contributions by Sabine Salnave
April 2024

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The NO-CLONING RULE: A qubit's state cannot be copied to another qubit - without changing the original.

IT'S NOT SO EASY FOR QUANTUM COMPUTERS!

CLASSICAL BITS ARE EASILY COPIED (That's how computers calculate things!)

COPYING BITS & QUBITS

QUANTUM TELEPORTATION