**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!

**Copy Bits & Qubits**

Quantum computers are not so easy for classical bits to copy easily!

**No-Cloning Rule:**
A qubit's state cannot be copied to another qubit - without changing the original.

I'm just one of a kind!

**Quantum Computing Zines Here:**
https://www.epiqc.cs.uchicago.edu/resources/

Contributions by Sabine Salnave
April 2024

This work is funded in part by EPIQC, an NSF Expedition in Computing, under grant 1730449 & Q2Work under grant 2039745)

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

**STEP 2:**
Alice entangles two qubits:

- Fancy qubit
- Alice's qubit
- Bob's qubit

Alice measures her qubits:

**POSSIBLE OUTCOMES**

Fancy qubit
Alice's qubit
Bob's qubit

(She no longer has a fancy qubit, and her entangled pair: qubit with entangled part: Alice measures her entangled qubits.

**STEP 3:**
Alice measures her entangled two qubits.

**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!