**Bitcoin**

1. Proof of work  we need miners for 2 reason:
   1. 1. To secure the network
   2. To create new bitcoin   <https://www.youtube.com/watch?v=2hFvQhMRnc4> Miner -  1. they validate the transaction in two ways, by checking if the transaction follow certain rules 2. . the transcription gets broadcasted in the network, and then the tx gets saves in the memory pool

Diagram

Description automatically generated

The miner checks that you are not sending more bitcoin with what you actually have. And the tx have the valid digital signature showing that you are the true owner.

Now miners have to provide Proof of work ie. they have to provide the proof that he/she have invested computational power in the block.

Diagram

Description automatically generated

The poof of work = the miners invested computational power aimed at brute forcing a cryptography puzzle.

Cryptographic puzzle is more of a guessing game.

NONCE - Number used once is 32 bit numbers which is 32- 1s and 0s.

Right number ?

Diagram

Description automatically generated with medium confidence