



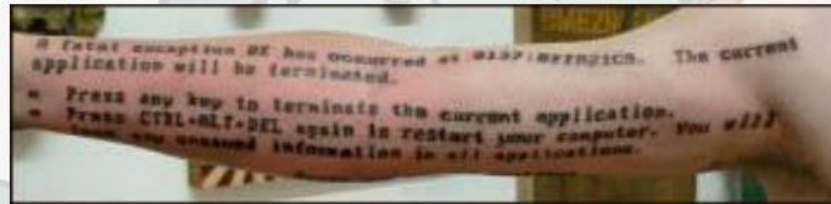
# USB, or Ultimate Sneaky Box

Ben G #52

# Steganography

- **No high-tech whizz-bangery needed**
- **Hidden in plain sight**

## Steganography in Ancient Greece -- Tattoo message on head



An ancient Greek historian Herodotus reports that messages were tattooed onto the shaved heads of slaves. Once the hair grew back, the slaves were sent to the recipient, with the message hidden "in plain sight".

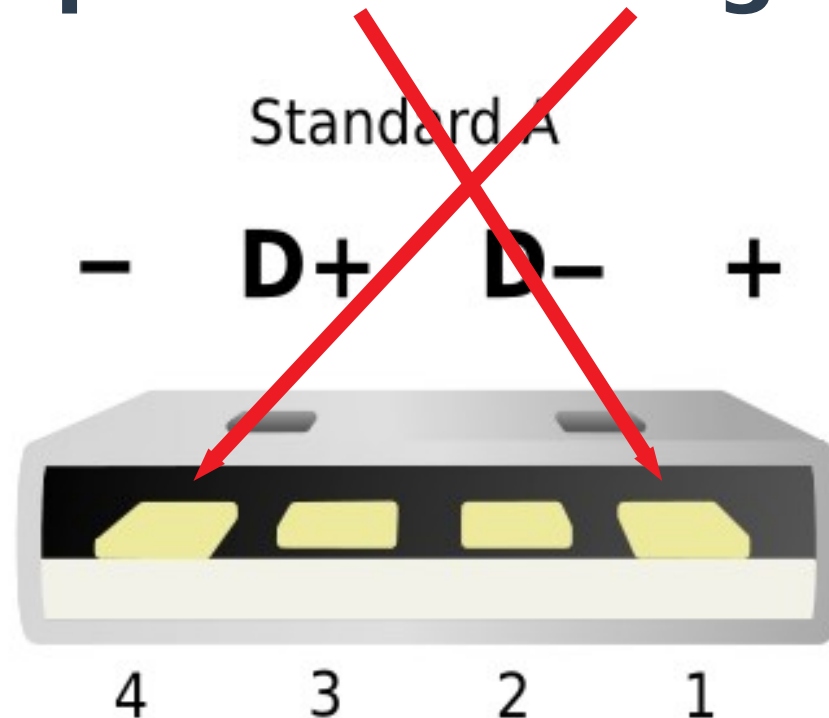
# USB

- **Just talking about USB-A 1.0–2.0 here**
- **Just forget USB-A 3.0+, USB-B and USB-C exist**



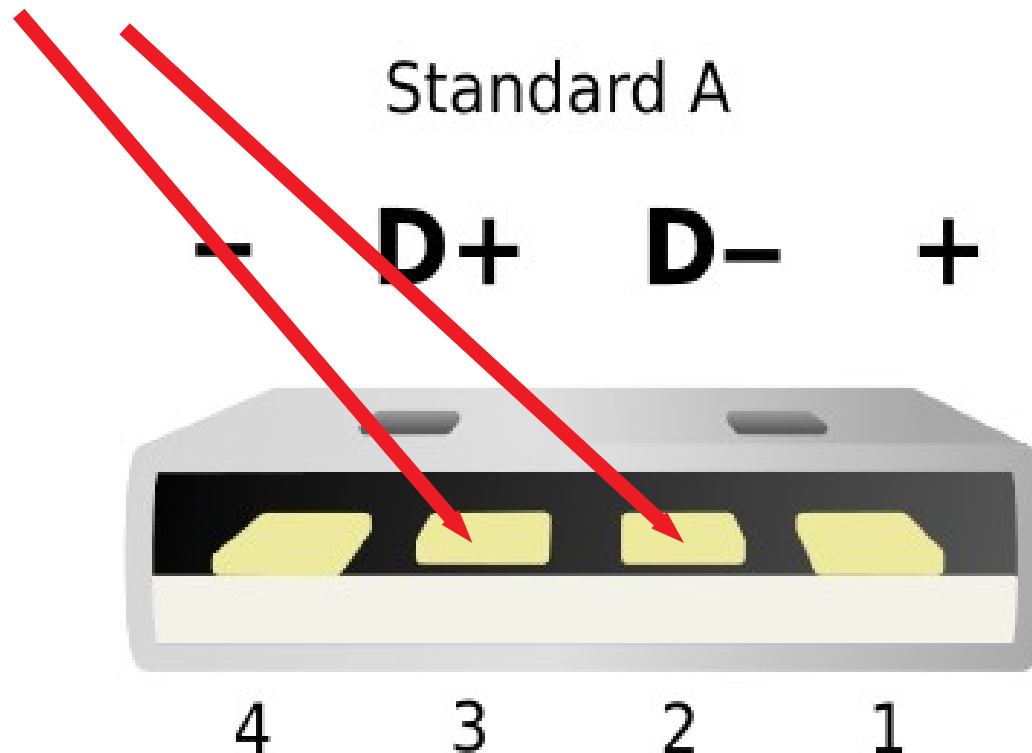
# The USB-A Connector

- **Standard USB-A has four pins on its connector**
- **The outer pins are voltage and ground**



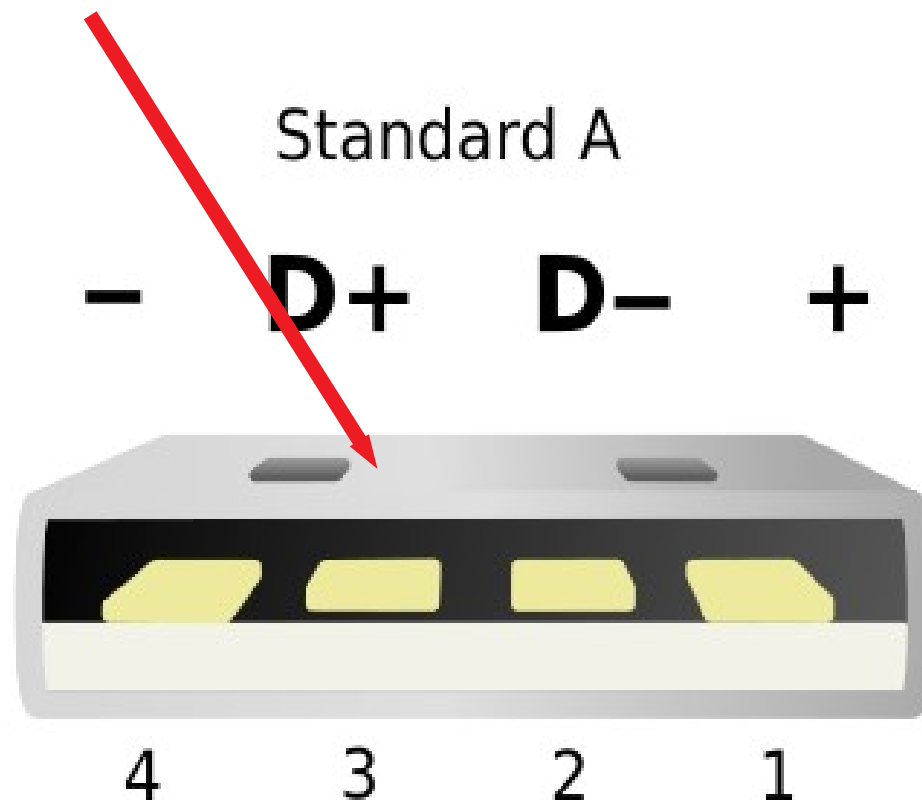
# The USB-A Connector

- The inner pins are differential data signals
- The inner pins are shorter than the outer pins



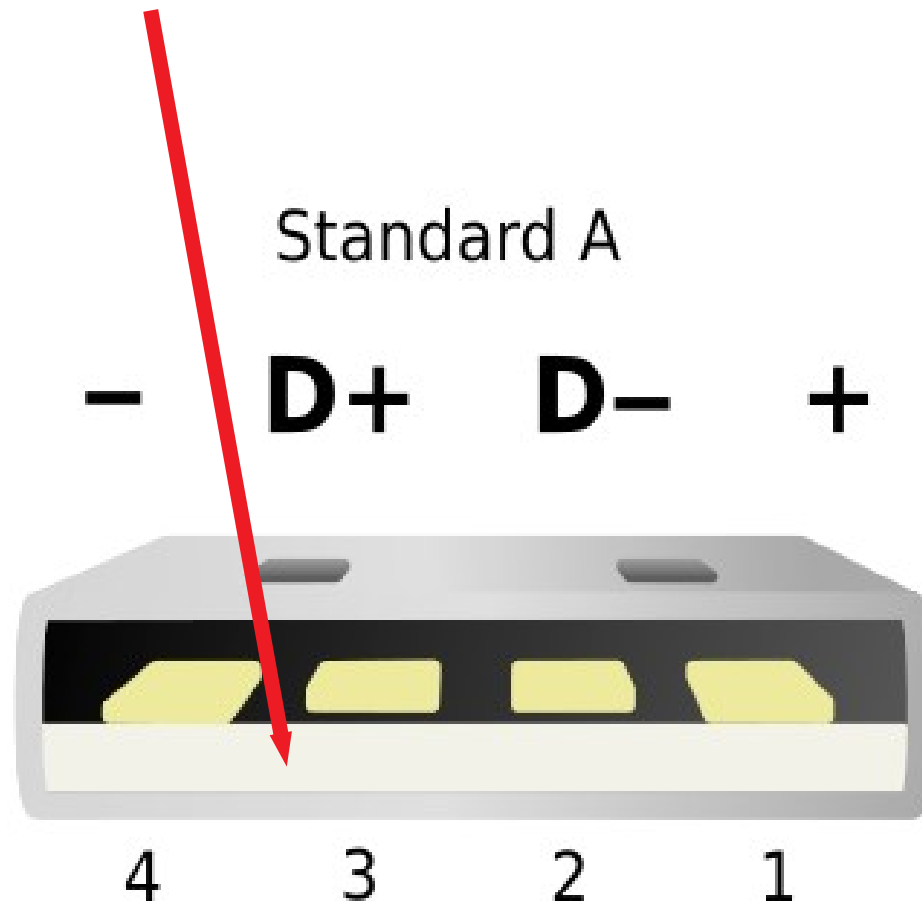
# The USB-A Connector

- The protective shell limits noise interference in noisy environments



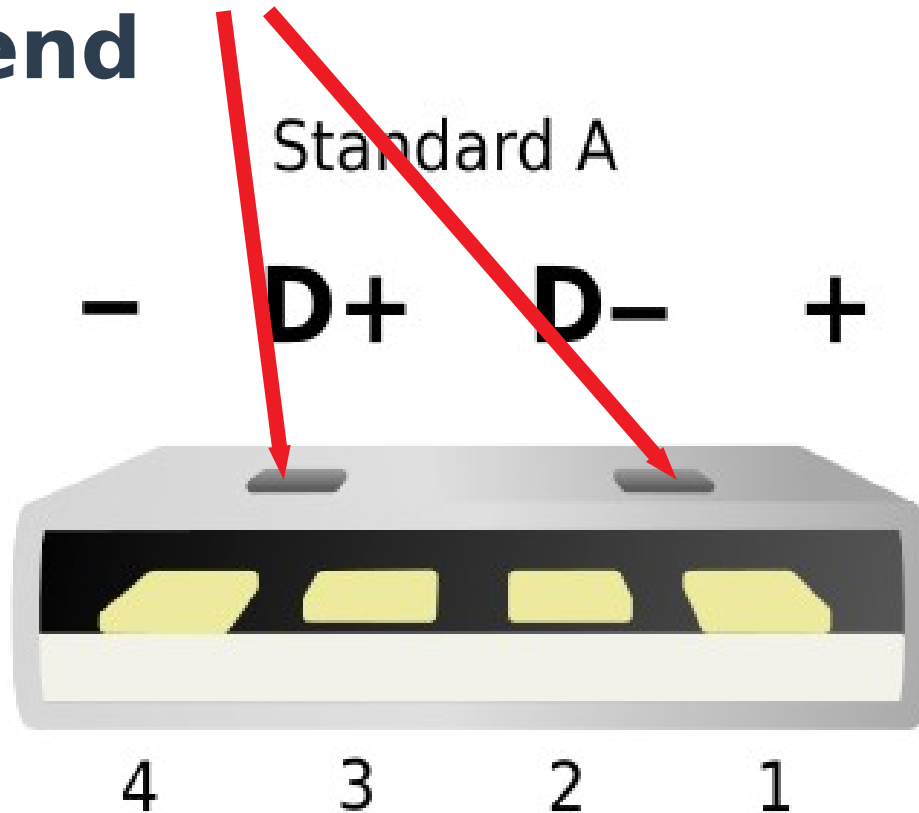
# The USB-A Connector

- The plastic tongue serves to mount the pins



# The USB-A Connector

- These holes are to help mount the male connector more securely in the female end





# So What Am I Thinking?

- In a USB flash drive, the wires coming off of these four pins run off to a flash memory board



# So What Am I Thinking?

- In a USB flash drive, the wires coming off of these four pins run off to **JUST THE ONE** flash memory board
- What a failure of imagination



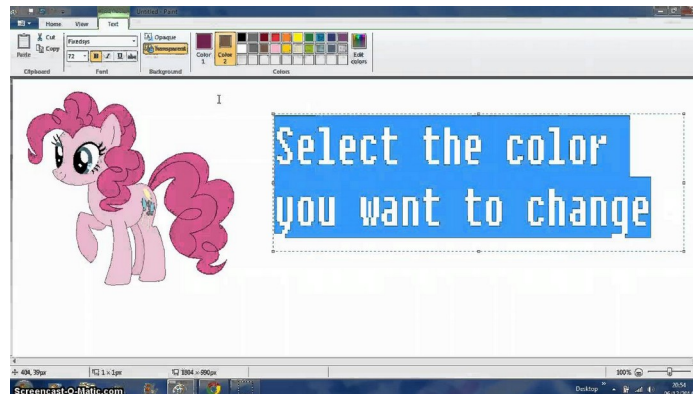
# Neat Thing #1: Jesus Man Just Buy USB-C

- **Never insert a USB upside-down again!**

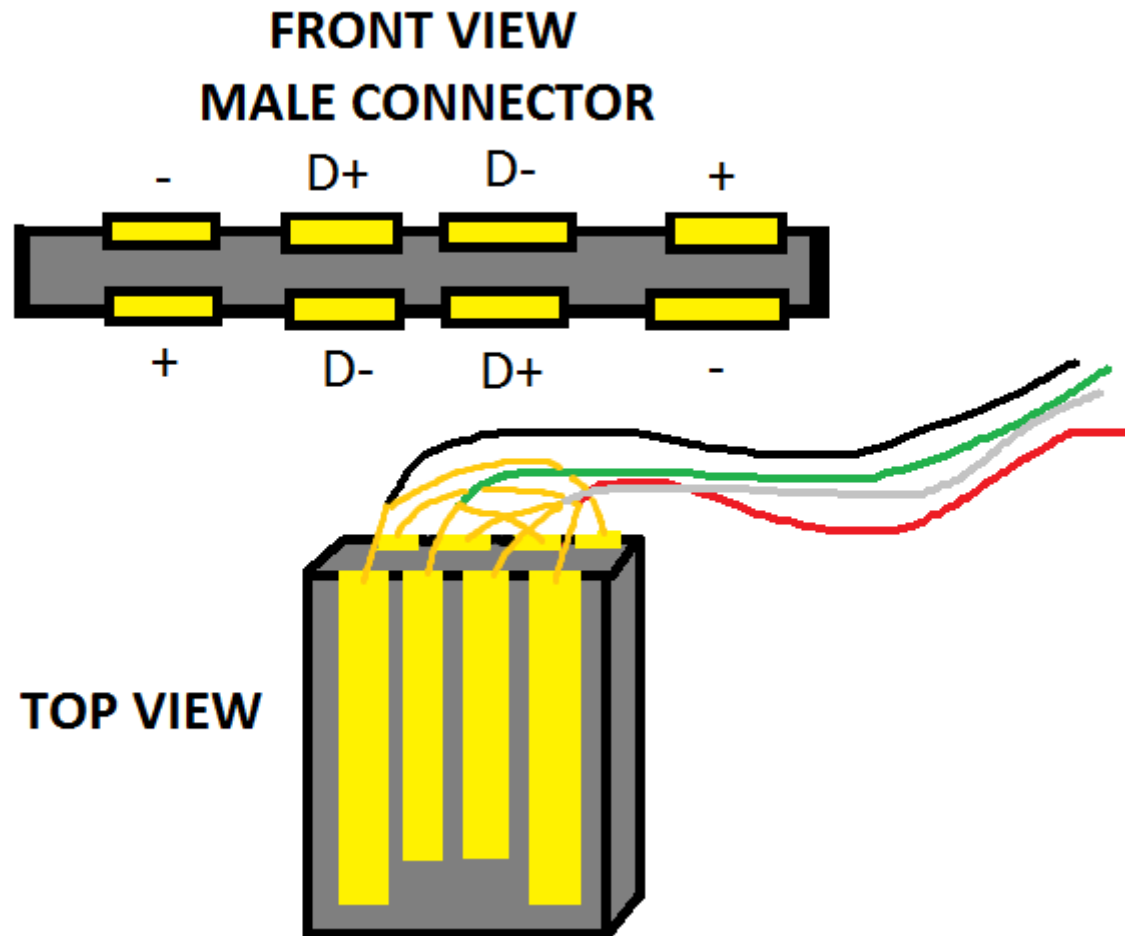


# Neat Thing #1: Jesus Man Just Buy USB-C

- The pin layout is not symmetrical BUT pins that are not currently connected to anything won't be drawing any current
- SO, let's give this over to the finest MS Paint artisans money can buy:

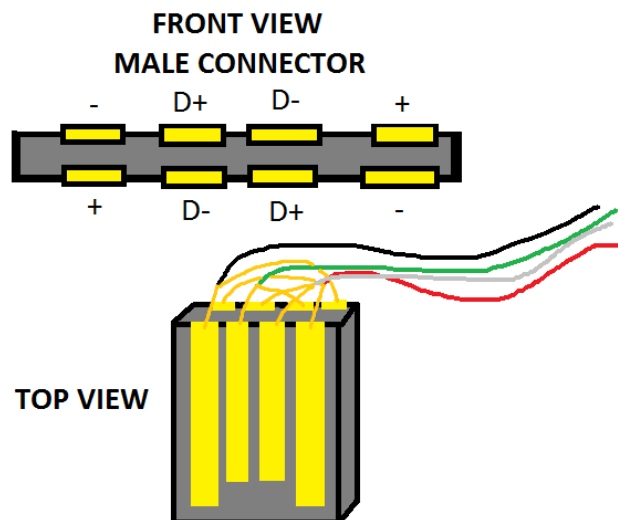


# Neat Thing #1: Jesus Man Just Buy USB-C



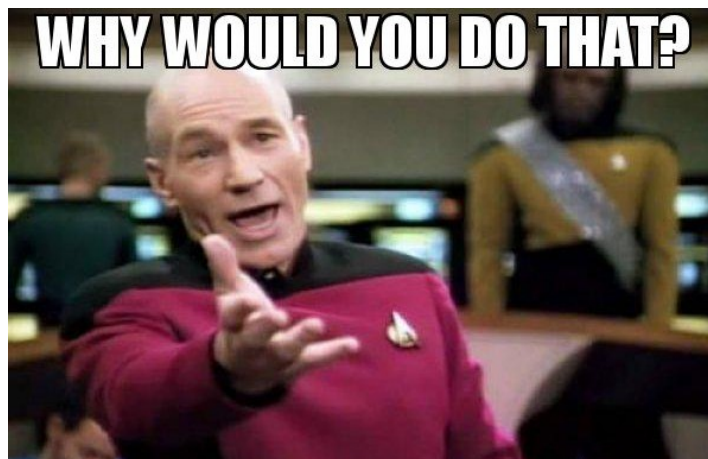
# Neat Thing #1: Jesus Man Just Buy USB-C

- Mirror the pins on the underside, lose the shell
- Connect each wire to both of its pins
- Whichever way the USB is inserted, it (should) work!



# Neat Thing #1: Jesus Man Just Buy USB-C

- This is an awful lot of effort though
- Seriously just buy USB-C
- OR look for the USB logo on one side of the connector (you can thank me for that one later)



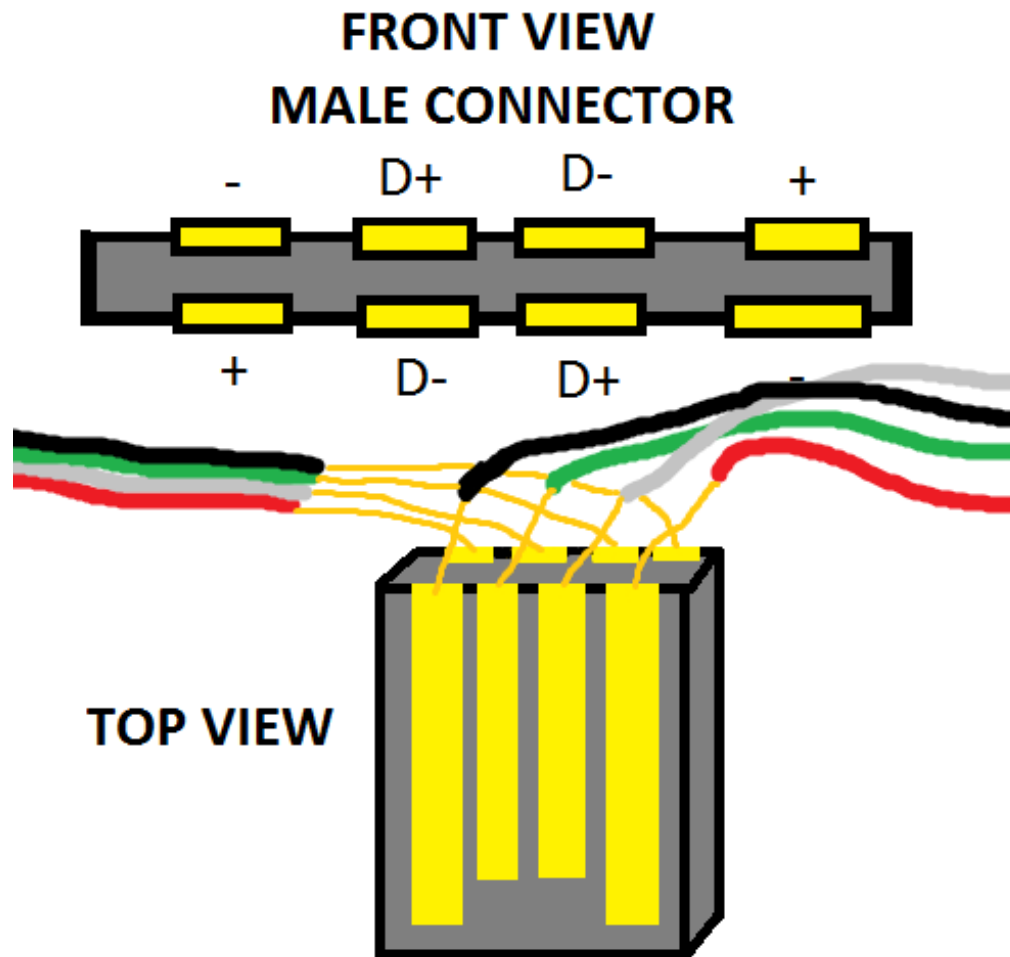
# Neat Thing #2: Separation Anxiety

- What if you wanted to separate your work and home stuff, but within one handy drive?
- c.f. *Seinfeld* S07E07 “The Pool Guy”



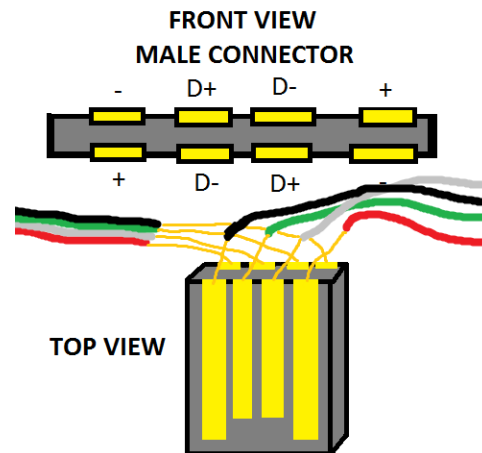


# Neat Thing #2: Separation Anxiety



# Neat Thing #2: Separation Anxiety

- **Smoosh two flash drives into one case, connect each to a different set of pins**
- **Boom, access a different drive depending on which way up the drive is inserted**



# Neat Thing #2: Separation Anxiety

- You could even etch little pictures onto the case so you know which way up is which
- Arts and crafts!

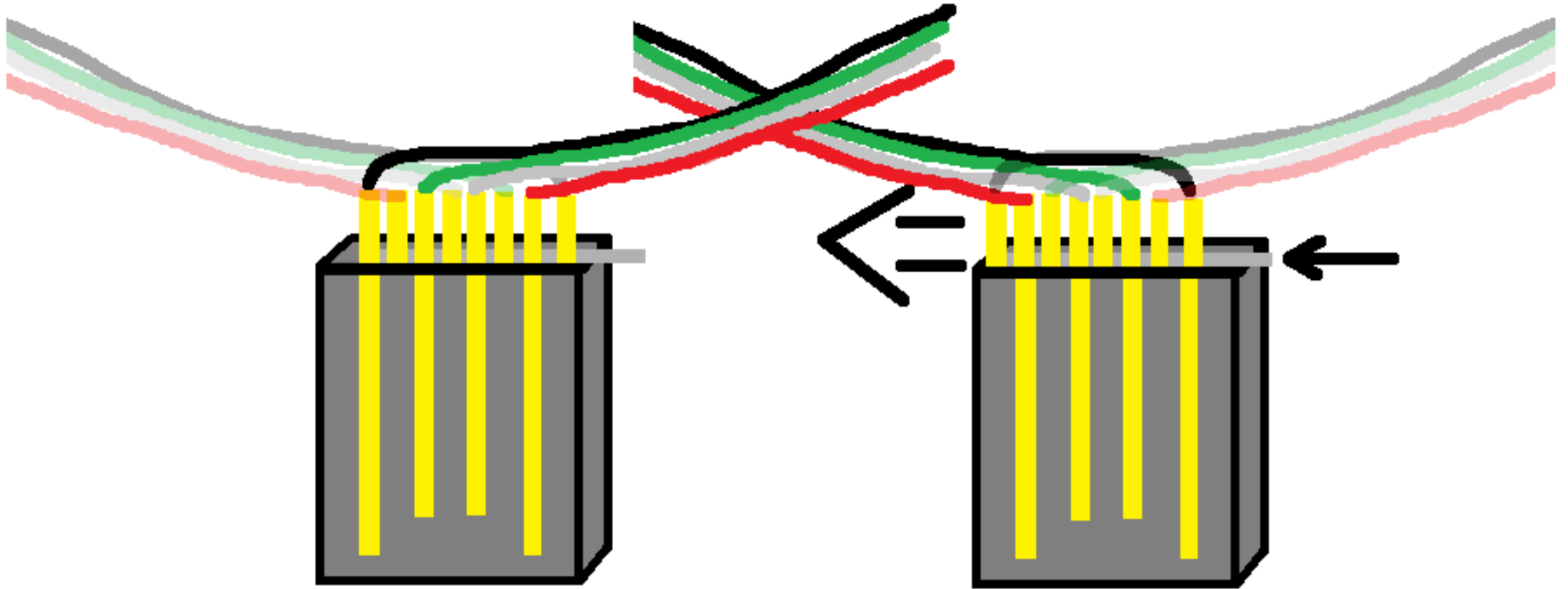


# Neat Thing #3: Ultimate Sneaky Box

- **BUT WAIT**
- **What if you didn't want those state nuclear secrets to be so obvious?**



# Neat Thing #3: Ultimate Sneaky Box



# Neat Thing #3: Ultimate Sneaky Box

- Pushing a little tab changes the current contacts used, which determines the drive to connect to

