Outline
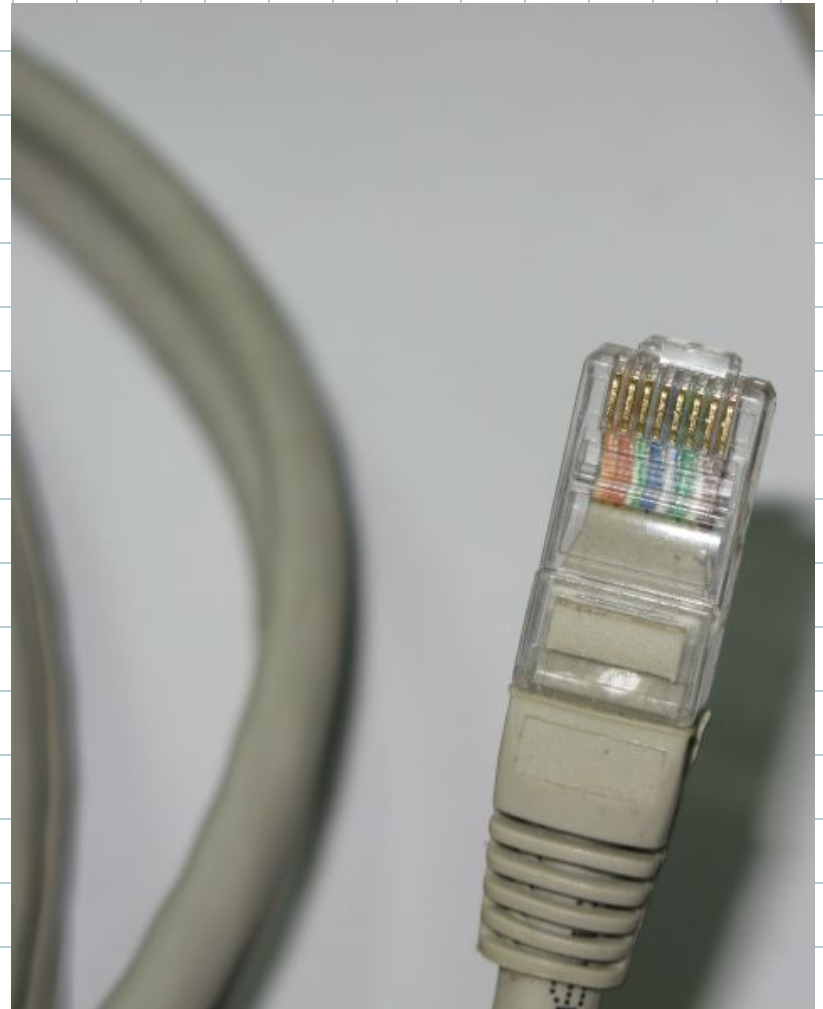
- Introduction
  - ❖ Ethernet Cable
  - ❖ Category
- How to wire
  - ❖ Straight through
  - ❖ Crossover
- Reference

Ethernet Cable

- The name, Ethernet Cable, always refers to the following category:
  - **Category 5**
  - **Category 5e**
 - **Category 6**
  - **Or more than those categories.**

Category

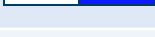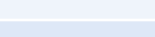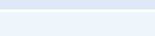| Category	Data Rate	Signal Frequency	Standard
Cat5	100 Mbps	100 MHz	TIA/EIA
Cat5e	100 Mbps /1 Gbps	100 MHz	TIA/EIA-568-B
Cat6	1Gbps / 10 Gbps	250 MHz	TIA/EIA-568-B
Cat6a	1Gbps / 10 Gbps	500 MHz	ANSI/TIA/EIA-568-B.2-10

- **TIA/EIA** is a set of three telecommunications standards from the Telecommunications Industry Association.

Ethernet Cable

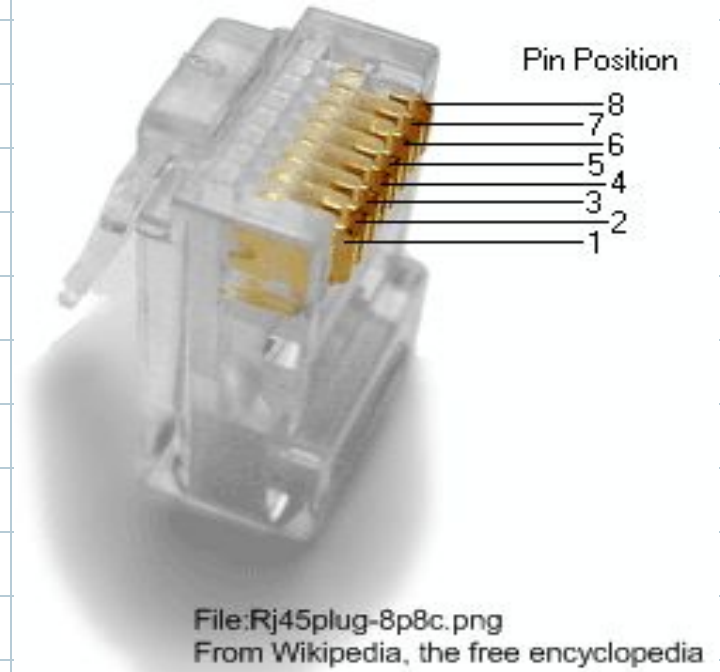◆ It is composed of 4-pair twist wirings.

  ❖ Orange

  ❖ Green

  ❖ Blue

  ❖ Brown

Conductor

Insulation

Sheath

Cat5e cable
http://www.cat5ecable.co.uk/
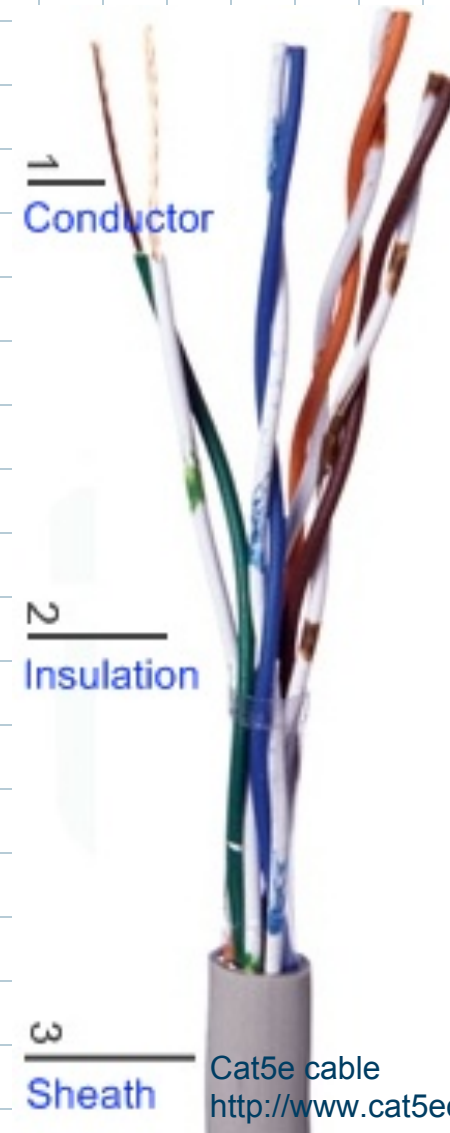
Ethernet Cable

Color	Pin (T568B)
White/Orange	1
Orange	2
White/Green	3
Blue	4
White/Blue	5
Green	6
White/Brown	7
Brown	8

Pin Position

8
7
6
5
4
3
2
1

File:Rj45plug-8p8c.png
From Wikipedia, the free encyclopedia

- You can use the order of rainbow colors to memorize the order of this wiring.

Ethernet Cable

Pin	Usage
1	Transmission (Tx+)
2	Transmission (Tx-)
3	Receive (Rx+)
4	--
5	--
6	Receive (Rx-)
7	--
8	--

Pin Position

File:Rj45plug-8p8c.png
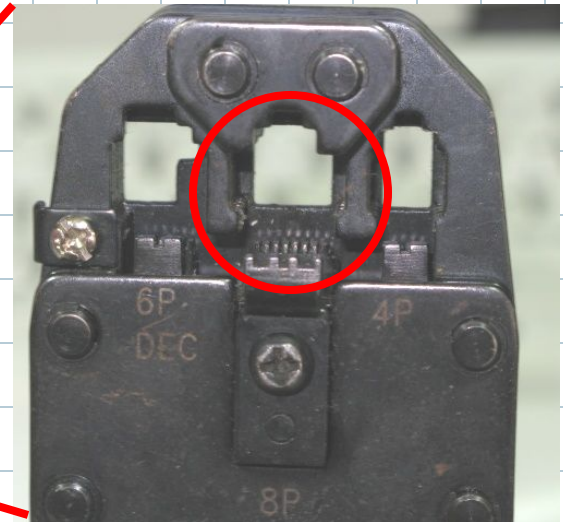From Wikipedia, the free encyclopedia
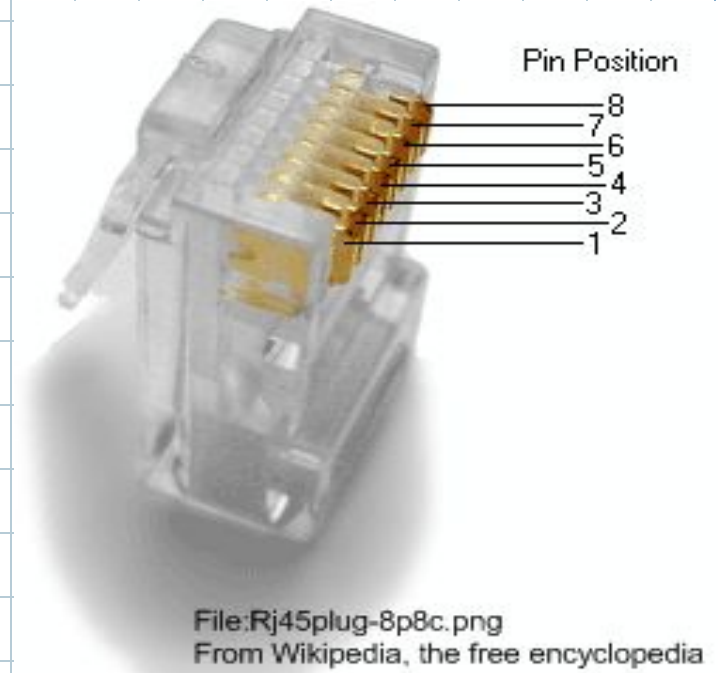
- We can use the concept to justify the order of the wiring colors of straight through and crossover.

How to wire

◆ Prepare the materials and tools.
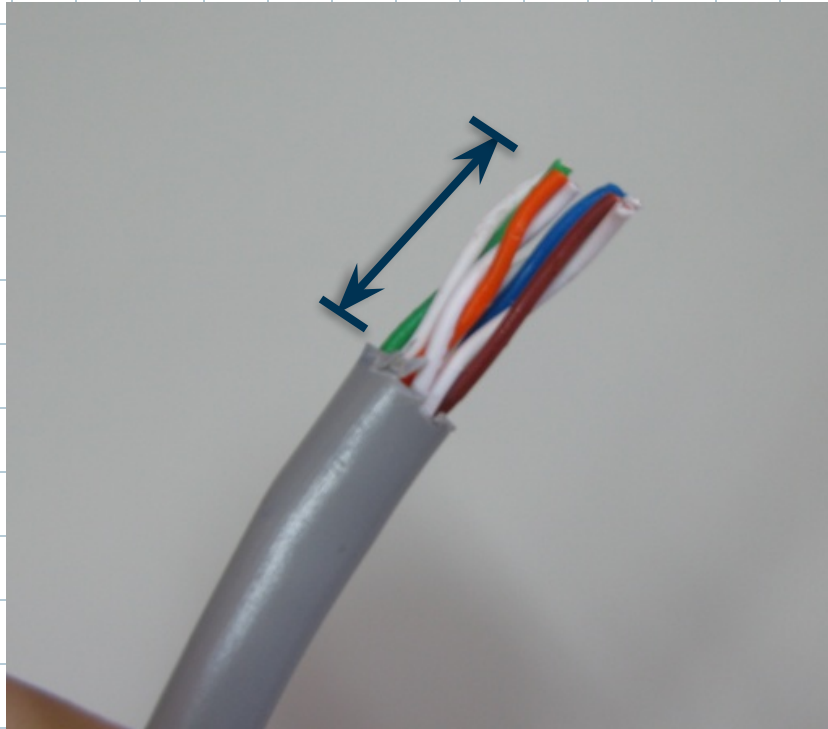
❖ Cable & RJ-45 plugs

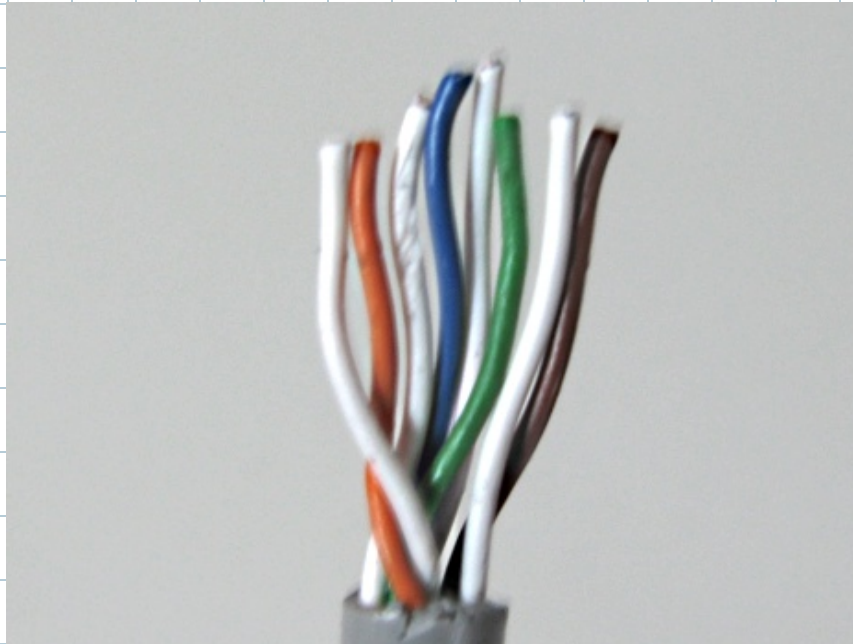❖ Scissors

❖ Crimping tool

Crimping tool

For RJ-45 plug.

How to wire

◆ Strip off suitable length of the cable sheath.

❖ About 2-2.5 cm

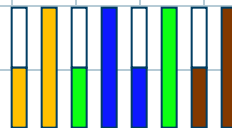❖ You can mark the position first.

How to wire

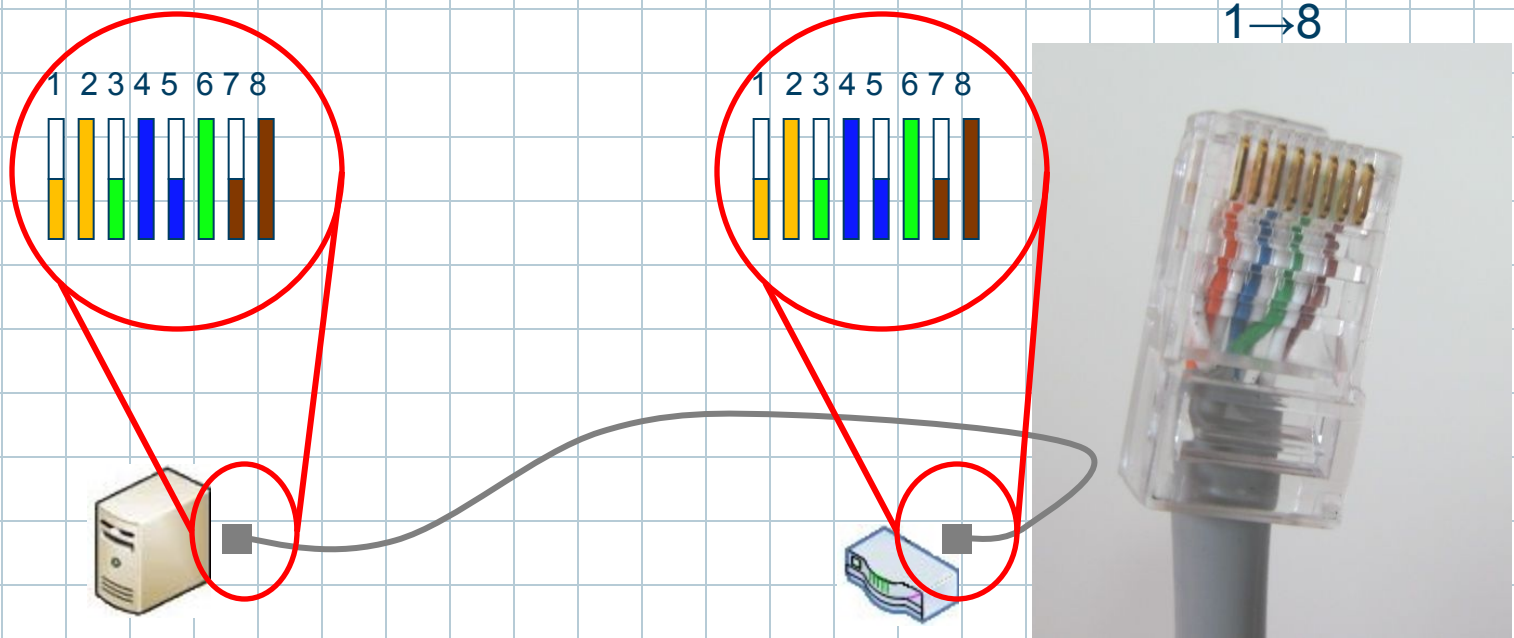◆ Align the colored wires according to the specific order. (Later we will talk about.)
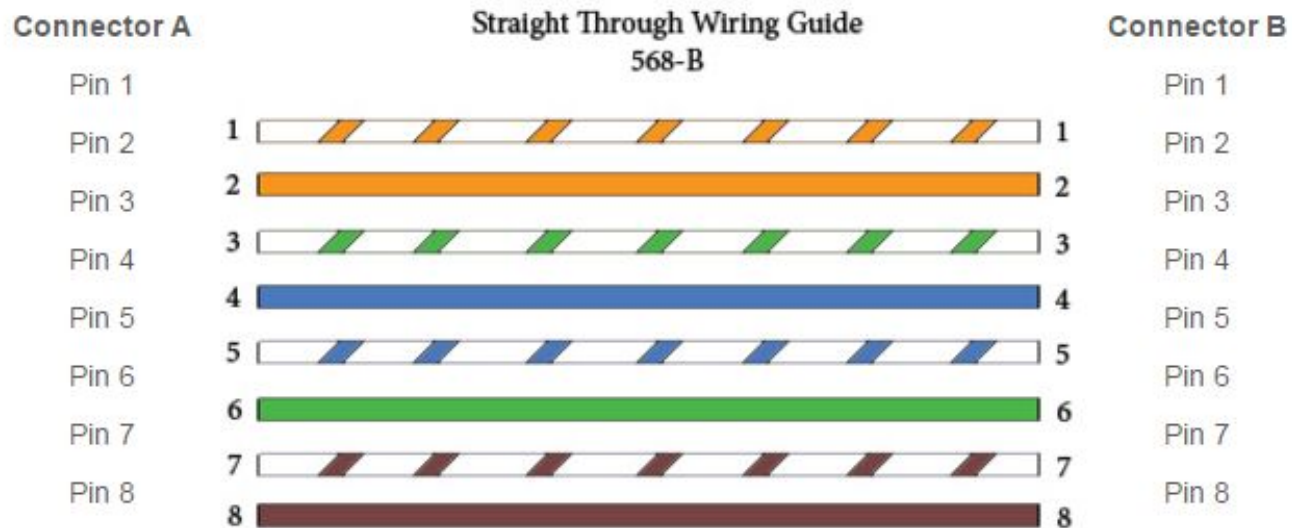

1 2 3 4 5 6 7 8

How to wire

- Straight Through (PC to Network Devices)
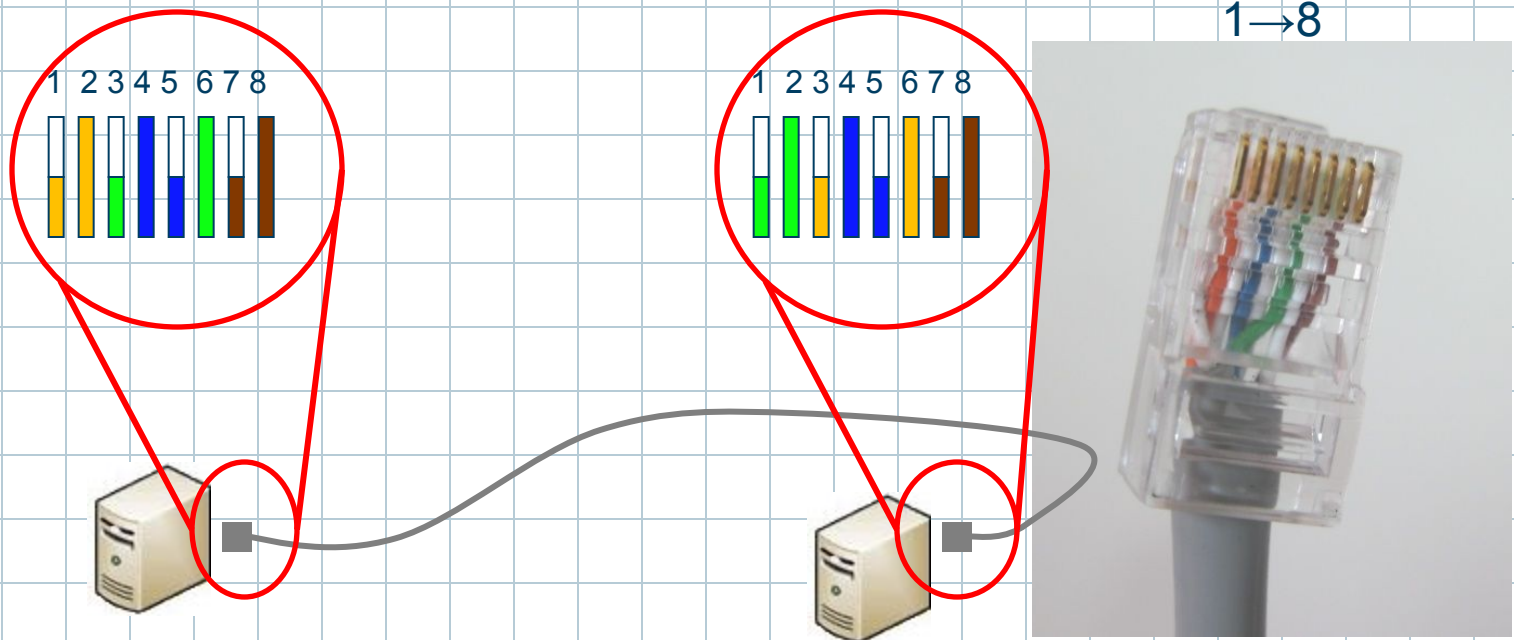 - ❖ All order of the wirings is the same as the other side.

1→8

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

Straight Through

Straight Through Wiring Guide 568-B

How to wire

- Crossover (PC to PC)
  - ❖ We need to change the order of the transmission and receiving wirings.
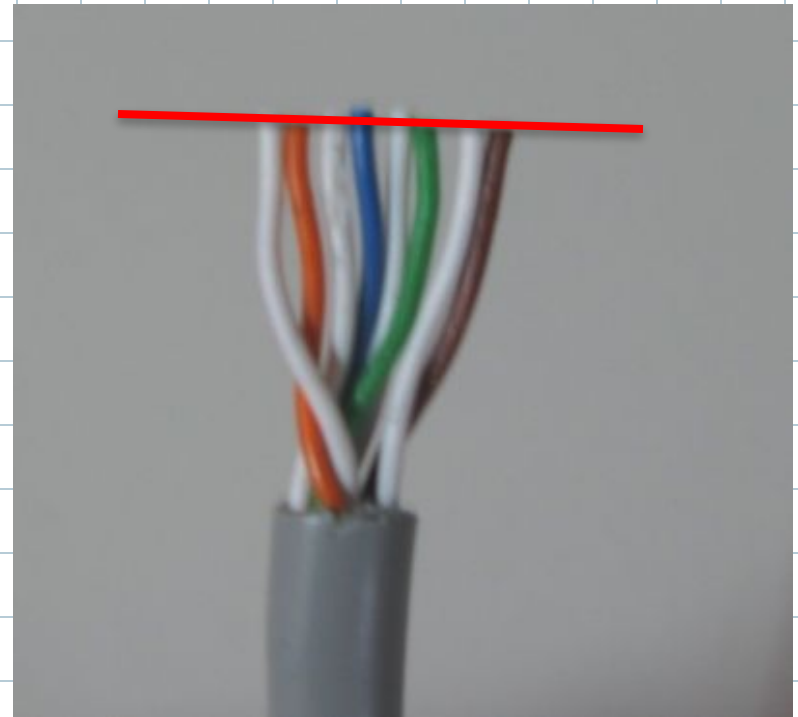
1→8

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

Crossover

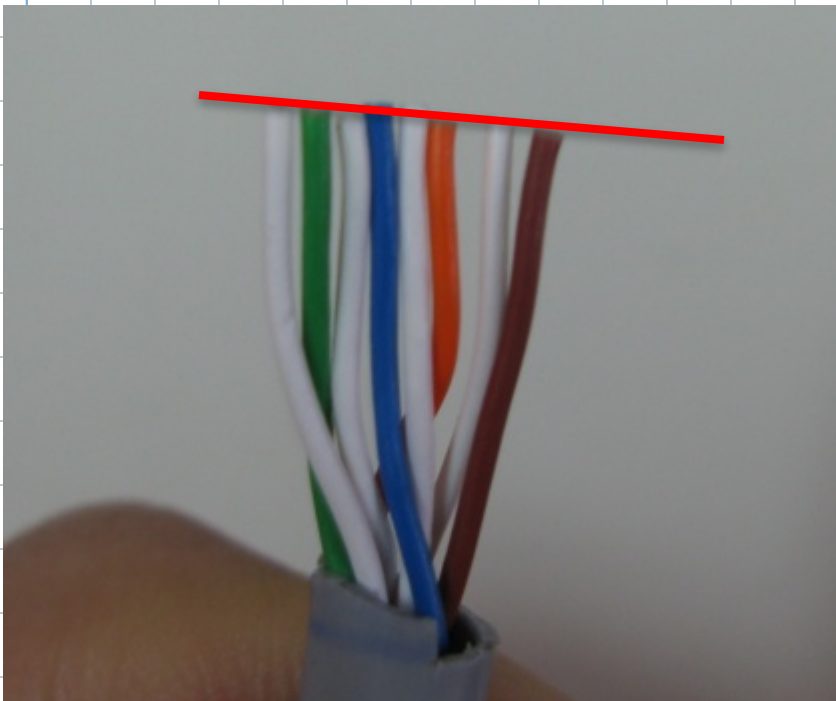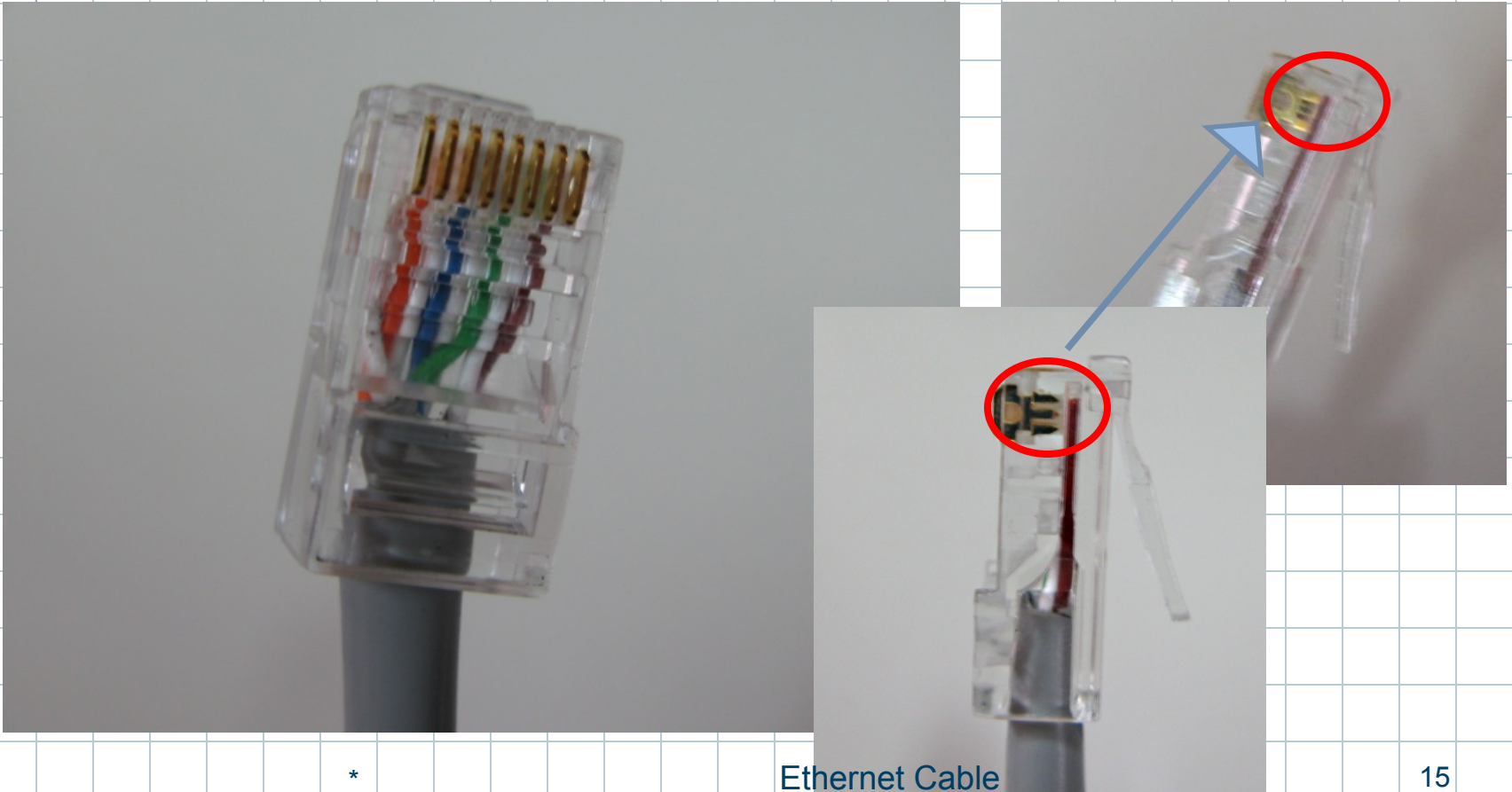# *How to wire*

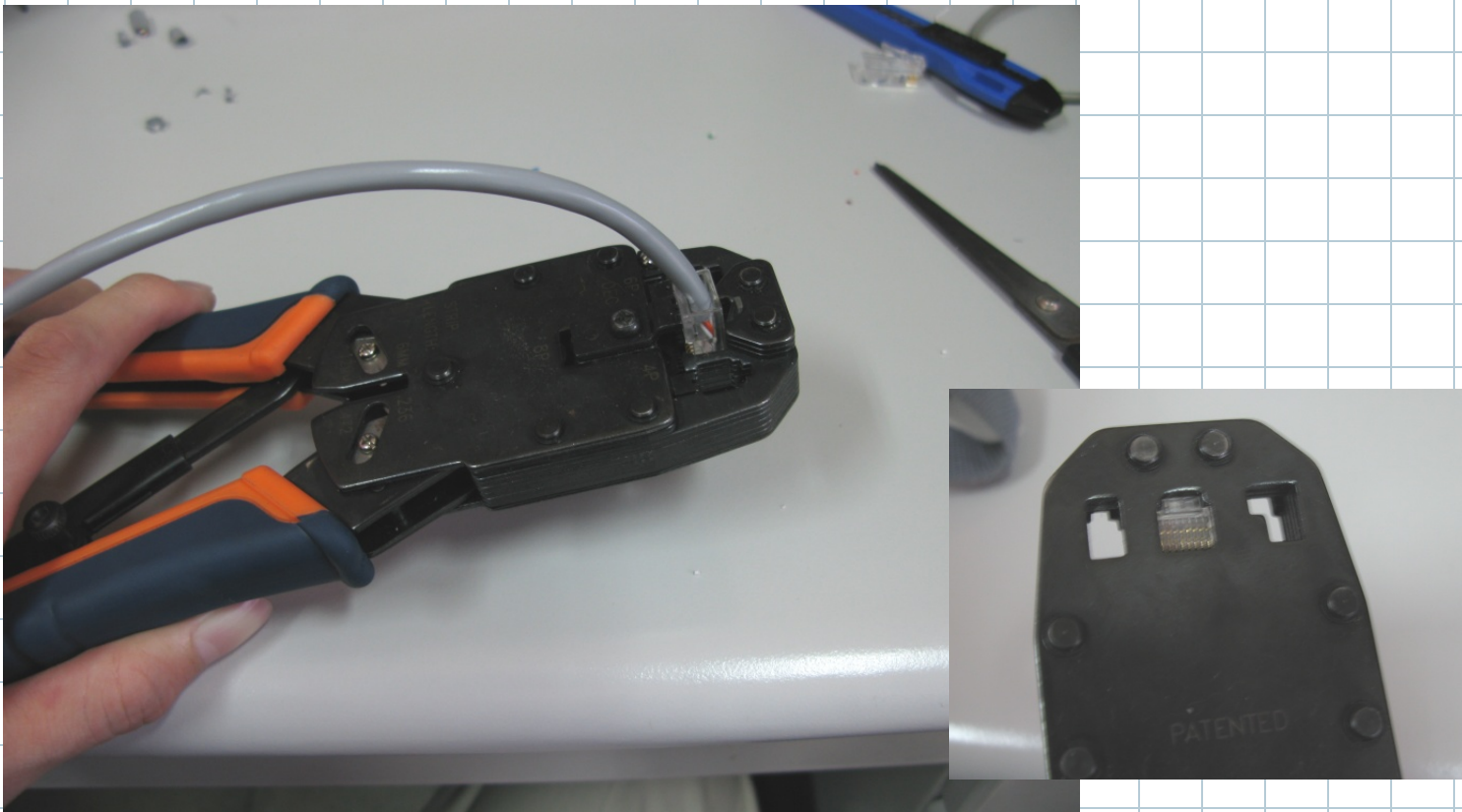◆ Trim all the wires to the same length.

How to wire

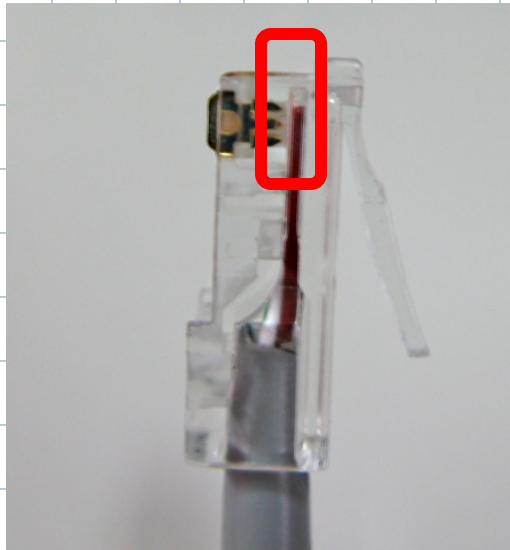◆ Insert the wires into the RJ45 plug.

How to wire

◆ Crimp the RJ45 plug with the crimping tool.

How to wire

◆ Verify the order of the wires is correct and all the wires are correctly making good contact with the metal contacts in the RJ45 plug.

Correct

Incorrect

Let's go to work!