

NeoPixel LED Strips

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Electronics & Prototyping

NeoPixel LED strips are addressable RGB LEDs in one strip, each LED controlled individually through a single data wire, allowing animations, colours and patterns limited only by software. They light up models, wearables, signs and interactive displays.

Key Features

- 30, 60 and 144 LEDs per metre
- Individually addressable RGB (WS2812B standard)
- Single data pin controls the whole strip
- 5 V operation, 60 mA per LED at full white
- Cut lines every LED for custom lengths

Typical Uses in the Workshop

- Light props, models and costumes with animations
- Build reaction and game light displays
- Create ambient lighting and signage
- Teach serial data and colour mixing

Safe Operation

1. Check total current and use a suitable supply
2. Connect power, ground and data with a series resistor on data
3. Set the LED count in code exactly
4. Test a few LEDs before mounting
5. Place the strip away from metal shorts

SAFETY NOTES

- A full strip draws amps - size the power supply properly
- Keep strip joints insulated - they short easily
- Do not run strips folded or coiled for long
- Mount away from water and moisture
- Disconnect power when soldering new segments

Maintenance & Consumables

- Check solder joints at the cut points
- Clean the silicone coating with a cloth
- Test segments with a known-good program
- Keep spare strips and connectors
- Store strips rolled, not folded

Specification & Buying Notes

Buy WS2812B strips in 1 m lengths with connectors and a 5 V supply rated for the load. A strip tester and spare end connectors save class time. Note density: 60 per metre is a good balance.