Piezo Buzzers and Speakers

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

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Piezo buzzers and speakers generate tones from an electrical signal: active buzzers sound a fixed tone when powered, while passive buzzers and speakers produce different tones by driving them with frequencies. They add sound, alarms and music to projects.

Key Features

- Active buzzers: fixed tone on power
- Passive buzzers and small speakers: tone by frequency
- 5 V and 3.3 V compatible
- Very low current draw
- Simple 2-pin connections

Typical Uses in the Workshop

- Sound alarms and notifications
- Play melodies and beeps in code
- Build reaction games and doorbells
- Test speaker output timing and tone

Safe Operation

1. Use an active buzzer for simple on/off sound
2. Drive passive buzzers with tone frequencies
3. Check the working voltage and current
4. Add a transistor for larger speakers
5. Set volume by pulse width and amplitude

SAFETY NOTES

- Do not exceed the rated voltage
- Keep sound at safe levels - not painful
- Check polarity for active buzzers
- Protect from water
- Mount away from magnetic parts

Maintenance & Consumables

- Check the case and leads
- Retest tone output with a program
- Keep spares in modules stock
- Store in dry trays
- Check the solder on leads

Specification & Buying Notes

A class pack of both active and passive buzzers plus a few 8-ohm 0.5 W speakers covers every project. Buy a small amplifier module for louder builds.