Did AI Rewrite the Rainbow?

A major music festival light show went very, very wrong colours clashed, rainbows vanished and there was an eerie glow in the sky. The crowd blamed the tech. The organisers blamed the weather. The lighting designer blamed a rogue AI update. Now, students must decode the disrupted waveforms and find out - did AI rewrite the rainbow, by exploring how light behaves, refracts and splits into visible colours.

Curriculum Links

Australian Curriculum v9:

Year 9 – AC9S9U05
Investigate wave behaviour and how energy is transferred

Year 10 – AC9S10U05
Explain energy transfer using scientific principles (wave behaviour, spectrum)

Senior Science Extension:
Use EM spectrum knowledge to model light - matter interaction and health/safety impact

Activity Idea:

Spectral Sabotage- Energy in the Spotlight

Theme link: Decoding energy, wavelength and the electromagnetic spectrum

You'll need:

- [ ] Equilateral Prism
- [ ] Right Angle Prism 90 x 45 x 45°
- [ ] Right Angle Prism 75 x 25 x 35mm
- [ ] Triangle Prism 60 x 60 x 60°
- [ ] Torch or LED light source
- [ ] Black background or paper
- [ ] Protractor, ruler, student log sheets

1. Students use prisms and a light source to explore how white light splits into its component colours.
2. They investigate the effects of angle, material and source on dispersion.
3. They connect visible colours to energy, wave frequency and real-world effects.
4. Students evaluate: Could this be an optical glitch or an AI interference?

Extend

Students write a 'Lighting Technician Report' to explain the malfunction and suggest fixes based on their findings.

Spectral Sabotage
Concert Light Investigation Report

Incident Brief

During a high-profile music festival, an AI - controlled light system caused unexpected visual disruptions. Lasers refracted strangely, colours appeared out of sequence and the rainbow finale was a no-show. Your task: Use science to decode what went wrong.

Materials

- [ ] Equilateral Prism
- [ ] Right Angle Prism (90°/45°/45°)
- [ ] Triangle Prism (60° angles)
- [ ] Torch or white light source
- [ ] Protractor, ruler, observation log

Your Tasks

1. Use different prisms to split white light into its component colours.
2. Record how light behaves through each type of prism.
3. Identify where colours appear and compare angles of refraction.
4. Apply energy and wave principles to explain anomalies.
5. Write a technician's repair memo with your scientific findings.

Light Observation Log

Sketch the prism and spectrum. Label colour positions and estimate the angle of deviation.

Prism Type	Light Source Used	Colours Observed (in order)	Angle/Spread Notes

Investigation Analysis

Which colour bent the most? The least? Why?

How does wavelength affect refraction and energy?

Could AI have miscalculated wavelength parameters?

What would missing or misaligned light colours mean for real-world tech?

Write a short 'Light Fix Memo' suggesting a science-backed solution.