Background sheet: AI in medicine

Should AI be used in diagnosing diseases?

Overview: Artificial intelligence (AI) is transforming healthcare by helping doctors diagnose diseases faster and more accurately. For example, AI can analyse medical images like biopsies or X-rays in minutes—something that might take a human specialist hours or even days. AI tools can also identify patterns in large datasets that humans may overlook, potentially catching diseases earlier and improving patient outcomes. However, while AI offers many benefits, there are significant concerns around privacy, bias, accountability, and the role of human judgment in medicine. These issues make AI a controversial topic for healthcare policy, ethics, and practice.

Key facts:

- AI systems can detect some cancers up to 20% faster than humans in studies of biopsy and imaging data.
- AI can reduce human error, but is only as accurate as the data it is trained on; biased or incomplete datasets can lead to misdiagnoses.
- Patient data used to train AI must comply with privacy laws such as GDPR in the UK.
- AI cannot yet fully replace the nuanced judgment of human doctors, particularly in complex or unusual cases.
- Early adoption of AI in healthcare is already happening in hospitals worldwide, from radiology to dermatology.

Suggested lesson timing:

- 1 lesson per topic (~30–40 minutes)

Tips:

- Assign roles randomly or let students choose
- Encourage respectful disagreement
- For quieter classes, use small groups first

Curriculum links:

- Science: biology, chemistry, physics, computing
- Citizenship & ethics
- Cross-curricular: English, geography, PSHE

Roles: AI in medicine

For example, in a class of 30 students, split them into five teams of six and assign each team one of the following roles.

Role 1: NHS Doctor

- **Position:** Support AI if it improves diagnosis and patient care
- **Consider:** Accuracy vs human oversight, trust in technology

Role 2: AI Company CEO

- **Position:** Advocate for AI adoption; highlight efficiency and innovation
- **Consider:** Business ethics, data use, safety checks

Role 3: Patient Representative

- **Position:** Support AI but demand safety and privacy
- **Consider:** Consent, potential bias, accountability

Role 4: Data Privacy Activist

- **Position:** Oppose AI that compromises personal data
- **Consider:** Law, ethics, security risks

Role 5: Health Minister

- **Position:** Make policy recommendations balancing tech use, costs, and public trust
- **Consider:** Public opinion, healthcare budgets, regulation