

4565: Computing Foundations for a Digital Age

Unit 5

Day 8: Lesson Plan: Ethical Trade-Offs in Computing

Objective

Students will analyze the pros and cons of emerging technologies and evaluate ethical trade-offs from multiple perspectives.

Warm-Up: Would You Rather?

Pose a few “Would You Rather?” prompts on the board or via digital poll. Ask students to choose a side and briefly justify their answer:

- Would you rather ride in a self-driving car or never drive again?
- Would you rather let an AI recommend your next doctor or choose on your own?
- Would you rather give up social media or allow it to track everything you do?

Use responses to spark curiosity about the ethical decisions behind technology adoption.

Mini-Lesson: Understanding Trade-Offs

Introduce or review the concept of a **trade-off** — the idea that every benefit comes with a cost.

Examples:

- **Automation** increases efficiency but can reduce job opportunities.
- **Smart assistants** offer convenience but collect personal data.
- **Facial recognition** can enhance security but raises privacy and bias concerns.

Emphasize that ethical decision-making often requires evaluating multiple sides and considering **long-term impact** on people, communities, and systems.

Main Activity: Tech Trade-Off Analysis + Debate

- **T-Chart Exploration (Small Groups)**
Assign or let students choose one of the following technologies:
 - Self-driving cars
 - Facial recognition in schools
 - AI-generated art and media
 - Automation in fast food or retail
 - Predictive policing
 - Algorithmic hiring systems
- Students complete a **T-Chart** for their tech:
 - Left: **Potential Benefits**
 - Right: **Potential Ethical Concerns**

- **Classroom Debate (Whole Class or Fishbowl Style)**

Bring groups together to compare findings. Pose a central question:

- *“Which of these technologies poses the most difficult ethical trade-offs?”*

Each group presents a 1–2 minute case. Optionally, hold a quick class vote or ask for written reflections defending their position.

Project Connection

Encourage students to apply this discussion to their **Ethical Technology Case Study**:

- What trade-offs does your chosen tech present?
- Are there hidden costs (e.g., environmental impact, bias, job loss)?
- Who benefits the most? Who might be harmed?

Ask them to write a **short paragraph** summarizing these trade-offs and how they might shape public acceptance or regulation.

Exit Ticket

Prompt:

- “Would you support or oppose your case study tech being adopted in schools or workplaces? Why?”

Encourage students to use at least one trade-off in their answer.

Word Bytes – Today’s Vocabulary

Term	Definition
Automation	The use of technology to perform tasks without human input.
Trade-Off	A balance between two desirable but conflicting features or outcomes.
Ethical Implication	A possible ethical consequence or issue that arises from an action or decision.
Transparency	The quality of being open and clear about how a system works or makes decisions.

Student-Friendly Word Byte Examples

- **Automation** → A robot making your fries instead of a person.
- **Trade-Off** → Faster service, but fewer human jobs.
- **Ethical Implication** → Is it fair if the AI picks who gets interviewed?
- **Transparency** → Can users tell *why* they were denied a loan or flagged by an algorithm?