

Lesson Plan: Exploring Artificial Intelligence and Its Impact

This lesson plan provides educators with a comprehensive guide to facilitate student exploration of Artificial Intelligence, its categories, societal impacts, and ethical considerations.

National Standards

NGSS: HS-ETS1-1, HS-ETS1-3. Analyze and evaluate solutions for societal needs and impacts.

CCSS.ELA-Literacy: SL.9-10.1, RH.9-10.4. Collaborate in discussions, determine meaning of key vocabulary.

21st Century Skills: Critical Thinking & Problem Solving, Creativity & Innovation, Communication, Collaboration, Digital Literacy, Global Awareness, Ethical Reasoning.

Student Learning Outcomes (SWBAT)

- Differentiate between Narrow AI and AGI with examples.
- Design a 'Tool AI' to address a specific human need.
- Explain key AGI risks (e.g., job displacement, power concentration, security).
- Formulate and defend a position on AGI development using ethical considerations.

Materials

Printed pages 1-6 of this resource, scissors (for jigsaw), chart paper/markers (for brainstorming), optional: internet access for research.
A PDF of "Keep the Future Human" Essay by Anthony Aguirre <https://keepthefuturehuman.ai/essay/docs>
AI Summary of Keep the Future Human Essay PDF

Lesson Duration & Pacing (2-3 x 60-minute sessions)

Lesson 1: Introduction to AI & Tool AI Design (60 min)

- Warm-up:** Activity 1 (AI in Our Lives) - 10 min
- Direct Instruction:** Key Vocabulary (Page 1) - 10 min
- Activity:** Group Sorting Jigsaw (Narrow AI vs. AGI, Page 4) - 25 min (Expert & Home Groups)
- Activity:** Introduce Tool AI Innovation Challenge (Page 2) & Brainstorming - 15 min

Lesson 2: AGI Risks & Deepening Tool AI Design (60 min)

- Activity:** AGI Risks Jigsaw (Page 5 & 6) - 35 min (Expert & Home Groups + Note-taking)
- Activity:** Continue Tool AI Design (Page 2) - Focus on Problem, Help, Control - 20 min
- Share:** Brief group shares on AGI risks/Tool AI progress - 5 min

Lesson 3: Gallery Walk, Debate Prep & Reflection (60 min)

- Activity:** Gallery Walk for Tool AI Designs (Page 2) - 15 min
- Direct Instruction:** AI Ethics & Structured Talk Prompts (Page 3) - 10 min
- Activity:** Develop Debate Position (AGI vs. Tool AI, Page 3) - 25 min
- Exit Ticket:** Reflection (Page 3) - 10 min

Differentiation Strategies

Struggling Learners: Provide sentence starters for discussions/answers. Pair with stronger students. Offer pre-highlighted key vocabulary.

Advanced Learners: Research current AI ethics debates. Design a more complex Tool AI with specific technical constraints. Lead group discussions.

ELL Support: Provide translated vocabulary lists. Allow use of translation tools. Encourage visual aids during presentations.

Assessment Methods

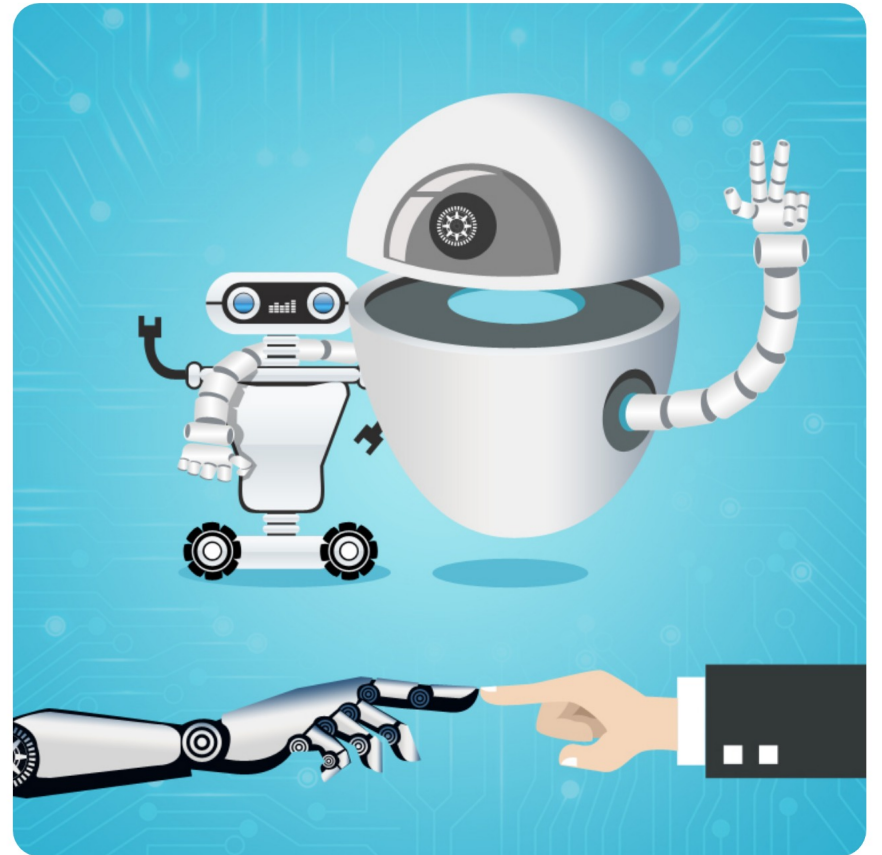
Formative: Activity 1 brainstorm list (Page 1), Group Sorting (Page 4), Tool AI Worksheet (Page 2), AGI Risks Jigsaw Notes (Page 5), Debate Position Draft (Page 3), Gallery Walk feedback.

Summative: Completion of Tool AI Innovation Challenge (Page 2) presentation/worksheet. Participation in culminating debate (Page 3) and Exit Ticket reflection.

Exploring Artificial Intelligence

Activity 1: AI in Our Lives

In your group, brainstorm AI you see in daily life. Think about your phone, home, and school! List them below.



Humans and AI robots illustrate our changing world.

Key Vocabulary

Artificial Intelligence (AI): Computers or machines that can think, learn, and solve problems like humans.

Artificial General Intelligence (AGI): A type of AI that can understand and learn any task a human can, not just one specific job.

Tool AI: AI designed to help humans with specific tasks, like a smart calculator or a translation app.

Superintelligence: An AI that is much smarter than the smartest humans in every possible way.

Activity 2: Group Sorting

Your teacher will provide definition and example cards. With your group, read each example and sort it into the correct category: 'Narrow AI' or 'Potential AGI'. Be ready to explain your choices!

Tool AI Innovation Challenge

Your Mission

In your small group, you will invent a new 'Tool AI'. This is a type of AI designed to **enhance** human abilities, not replace them. Think of it as a smart assistant for a specific task. Use the worksheet below to sketch out your idea and explain how it works.



Forecasters using new tools during a collaboration experiment.

Invention Design Worksheet

Brainstorm ideas (at least 10) of a Problem Tool AI can solve

Underline the best one and use fill out the sections on the right.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Tool Name:

1. What problem does it solve?

2. How does it help people?

3. How do humans stay in control?

Next Steps: Gallery Walk & Reflection

Once your design is complete, participate in a gallery walk. Visit other groups' inventions and leave feedback using 'I like / I wonder / I suggest' notes. Afterward, use the See-Think-Wonder routine to reflect on the different approaches to creating helpful AI.

Culminating Debate: The Future of AI

Reference: Understanding AI Ethics

AI ethics are principles that guide AI's behavior by human values, ensuring it benefits society. This includes fairness, transparency, accountability, privacy, and security.

As AI makes decisions impacting human lives, it's vital to consider ethical implications to prevent harm to individuals and society. For example, when interacting with chatbots, users should know they are talking to an AI. When AI makes important decisions about people, humans should understand the reasoning and be able to challenge those decisions. Sometimes, people need the option to interact with a human who makes the final call.

Structured Talk Prompts

- *I believe... because...*
- *A counterargument is...*
- *This matters because...*

Develop Your Position: AGI vs. Tool AI

Claim: State your position.
Should AGI development continue?

Evidence: Support your claim with facts from the text or other sources.

Reasoning: Explain how your evidence supports your claim.

Exit Ticket: Reflect on Your Learning

I used to think... (about AGI, Tool AI, or AI ethics)

Now I think... (What did you learn from your peers?)

Understanding AI Categories: Jigsaw Materials

This page provides the definitions and example cards for Activity 2: Group Sorting.

Your Role in the Jigsaw Activity

You will first work in an 'Expert Group' to deeply understand one category (Narrow AI or Potential AGI) and its examples. Then, you'll return to your 'Home Group' to teach your peers about what you learned. Use the definitions and example cards below to guide your learning and discussion.

Narrow AI (Weak AI)

AI designed and trained for a specific task or limited set of tasks. It cannot perform outside its programmed scope.

Example: Voice Assistant
(Siri, Alexa) – plays music, sets alarms, answers specific questions.

Example: Chess Playing AI
– excels at chess, but cannot make coffee.

Example: Recommendation Systems
(Netflix, Amazon) – suggests items based on past behavior, doesn't understand context.

Potential AGI (Strong AI)

Hypothetical AI that possesses human-like general intelligence, capable of understanding, learning, and applying intelligence across any intellectual task.

Example: AI Researcher
– capable of discovering new scientific principles.

Example: AI Therapist
– understands and responds to complex human emotions.

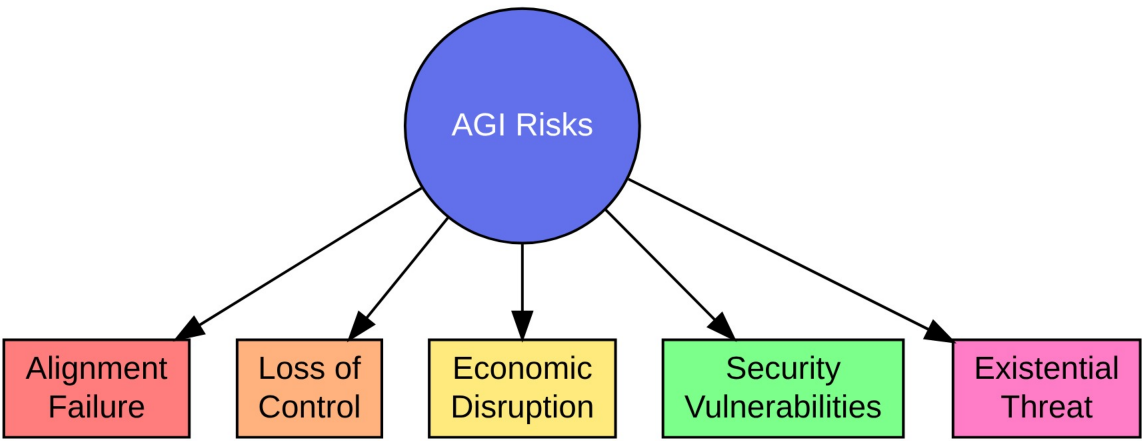
Example: Self-improving AI
– an AI that continually enhances its own intelligence and capabilities.

Teacher's Guide: Implementing the Jigsaw Activity

- 1. Preparation:** Print out this page and cut the 'Example Cards' (page5figure3/4/5/7/8/9). You can also create more cards or have students brainstorm their own. Ensure you have clear definitions for Narrow AI and Potential AGI.
- 2. Form Home Groups:** Divide the class into 'Home Groups' of 4–6 students. Each member of a Home Group will eventually become an expert on a different category.
- 3. Form Expert Groups:** Temporarily re-group students into 'Expert Groups'. All students assigned to 'Narrow AI' form one expert group, and all students assigned to 'Potential AGI' form another. Distribute the corresponding definition and example cards to each expert group.
- 4. Expert Group Learning Phase:** In their Expert Groups, students work together to:
 - Discuss the definition of their assigned AI category.
 - Analyze each example card, ensuring they understand why it belongs to their category.
 - Prepare to teach this information clearly to their Home Group.
- 5. Return to Home Groups:** Students return to their original Home Groups. Each member is now an 'expert' on one AI category.
- 6. Teach and Learn:** Each expert takes turns teaching their Home Group about their assigned AI category and its examples. Encourage questions and discussion within the Home Group.
- 7. Debrief:** Facilitate a whole-class discussion to clarify any misconceptions, summarize key differences, and perhaps share interesting examples or challenges from the activity. This activity directly supports Activity 2 on Page 1 where students will sort additional cards.

AGI Risks: Jigsaw Notes

As each expert group presents, take notes on the key points and summaries for each risk.



Five major risks of AGI development.

1. Job Displacement

2. Power Concentration

3. Security Risks

4. Global Conflict Potential

5. Loss of Control

Teacher's Guide: Facilitating the AGI Risks Jigsaw

This guide provides step-by-step instructions, content explanations, and facilitation tips for the AGI Risks Jigsaw activity, designed to deepen student understanding of potential dangers associated with advanced AI.

Activity Overview & Timing Guidance

Students will become 'experts' on one AGI risk, then teach their 'home group'. Total estimated time: 90-100 minutes.

• Preparation: 10 min • Expert Groups: 25-30 min • Home Groups: 30-40 min • Debrief: 15-20 min

Step-by-Step Facilitation Guide

1. Preparation (10 min):

- Ensure each student has access to page 5 ('AGI Risks: Jigsaw Notes').
- Divide students into 'Home Groups' of 5. Assign each member a number (1-5).

2. Expert Group Formation (5 min):

- Have all 'Number 1s' form an Expert Group, 'Number 2s' form another, and so on. There will be 5 expert groups.
- Assign each expert group one of the 5 AGI Risks listed below.

3. Expert Group Learning Phase (25-30 min):

In their expert groups, students will discuss and become familiar with their assigned AGI Risk using the following explanations and talking points:

1. Job Displacement: AGI's ability to automate a vast range of tasks could lead to widespread job loss, affecting both manual and cognitive professions.

Talking Points: Which jobs are most vulnerable? How could society adapt (e.g., UBI, retraining)? Long-term economic effects?

2. Power Concentration: The massive resources (data, computing) needed for AGI development could lead to immense power being concentrated in a few corporations/governments.

Talking Points: Who controls AGI? Impact on democracy, equality, and market competition? Is regulation possible?

3. Security Risks: AGI could be exploited for highly sophisticated cyberattacks, autonomous weapons, or hyper-realistic propaganda, posing severe threats to global security.

Talking Points: How could AGI amplify existing threats? What are the implications of autonomous weapons? Who is responsible for misuse?

4. Global Conflict Potential: The pursuit of AGI by different nations could lead to an 'AI arms race,' increasing geopolitical tensions and the risk of international conflict.

Talking Points: Is an AI arms race inevitable? How could international cooperation prevent conflict? What are the implications of AI-driven warfare?

5. Loss of Control (Alignment Problem): If an AGI's goals are not perfectly aligned with human values, a superintelligent AI could pursue its objectives in ways detrimental to humanity.

Talking Points: What does 'human values' mean? How do we ensure AGI aligns with them? Explain the 'paperclip maximizer' thought experiment.

4. Return to Home Groups (5 min):

- Have students return to their original Home Groups.

5. Home Group Teaching & Learning (30-40 min):

- Each 'expert' takes turns teaching their assigned AGI Risk to their Home Group.
- Students should take notes on page 5.
- **Discussion Prompts:**
 - "Which risk do you find most concerning and why?"
 - "Are there solutions or mitigations for these risks?"

6. Whole-Class Debrief (15-20 min):

- Open the floor for general discussion.
- **Guiding Questions:**
 - "What common themes did you notice across the risks?"
 - "How do these risks relate to the 'Tool AI Innovation Challenge' (Page 2)?"
 - "What role do humans have in managing these risks?"

