# AI Literacy and Game-Based Learning

**TLC Workshop Archive Categories**:

* Educational Technology
* Assignment Design
* In the Classroom

**Outreach Copy:**

This workshop introduces game-based strategies for teaching with and about artificial intelligence. Participants will learn how to develop students’ AI literacy through interactive storytelling, collaborative problem solving, doodling, and notecard exercises. We will also discuss how to teach methods of prompt engineering by designing—and playing—our own choose-your-own-adventure games. In turn, we will consider how game-based learning can foster critical thinking as well as creative, hands-on engagement with AI tools in the classroom.

This workshop took place on October 16, from 2-3:30pm, in-person, in Room 3317. The workshop and materials were developed by Zach Muhlbauer.

**Materials**:

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This folder contains workshop plans, slides, and a companion resource:

Materials Folder:[AI Literacy and Game-Based Learning [PUBLIC]](https://drive.google.com/drive/folders/1HkfMt9hWrFUesT85az75tZKHN_KoTsKI?usp=sharing)

**Workshop Agenda**

**Part I: Freewrite and Framing**:

* What brings you to this workshop today?
* How would you describe your understanding of AI literacy?

**Key Components of AI Literacy**:

* Ethical Engagement: Recognizing and addressing issues of bias, fairness, and transparency in AI
* Power & Control: Examining who builds, owns, and benefits from AI systems, including their role in surveillance and labor dynamics
* Bias & Representation: Understanding how AI can reproduce societal inequalities through biased data
* Participation & Agency: Empowering individuals to shape the future of AI through informed decision-making and civic engagement

**Thinking about Primitives**:

Primitives = the smallest processing unit of an AI model

“I think about… **primitives** as being akin to a pencil or brushstroke. A specific pattern of pencil strokes makes a face, a different pattern makes a banana. It took me a while to wrap my head around this: the process is very similar to how you learn to draw.

You learn your basic "**primitive**" or generic shapes. You draw a circle, an ellipse, a triangle, a square, and so on, and then you conjoin them into more complex objects and images. These are the basic building blocks of drawing. As you evolve as an artist, you tend to forget that this was how you thought about images, but it is also how **neural networks** operate while they are being trained: the generation of primitives, where an image is broken down into its component parts, will be used as the basis for assembling more and more complicated images in a machine learning system.”

* Trevor Paglen*, Adversially Evolved Hallucinations*

**Part II: AI Pictionary**

**On paper**: Doodle six consecutive images as they appear on the screen (2 minutes)

Pay attention to the component parts of the drawing—which features make the drawing more or less recognizable? What are its primitives?

Twenty seconds per doodle, roughly increasing in variance:

1. Zigzag: <https://quickdraw.withgoogle.com/data/zigzag>
2. Snowflake: <https://quickdraw.withgoogle.com/data/snowflake>
3. Apple: <https://quickdraw.withgoogle.com/data/apple>
4. Compass: <https://quickdraw.withgoogle.com/data/compass>
5. Animal migration: <https://quickdraw.withgoogle.com/data/animal_migration>
6. Camouflage: <https://quickdraw.withgoogle.com/data/camouflage>

**Next**: look at the dataset for one of your hand-drawn doodles:

* Modeling: How do drawings from the dataset compare with your own?
* Variability: Is the dataset what you expected? Is it consistent or variable?
* Tails: Are there outliers or edge cases? Why might the model struggle to identify them?

**Lastly:** play *Quick, Draw It!* eitheras a group or individually on a mobile device or personal laptop. Consider these questions as you play:

1. How do you draw differently on your own compared to the model?
2. How does the model reshape your sense of the image while you draw it?
3. What about the broader project interests you or raises an eyebrow?

**Part III: Companion Resource**

**Questions for segue**:

* Why should students think about AI models in terms of their latent processes?
* How can we use games to develop students’ critical judgement of AI technologies?

**Turn to the companion resource**: [AI Literacy & Game-Based Learning.pdf](https://drive.google.com/file/d/1B_pfrMeJriZcsVK8L-AA4cHa9HS11rr9/view?usp=sharing)

1. Annotate frontside with your thoughts on prompting methods and their examples
2. Add notes to the backside with any questions or ideas you have so far about the workshop

**Part IV. Prompt Your Own Adventure Game**

Prompting ChatGPT-4o to serve as an interactive text adventure game:

* [Zero Shot](https://chatgpt.com/share/670e786f-bc18-8002-9bec-e59173390332): [***action verb***] *a scaffolded text-based adventure game where I explore a haunted castle to learn about AI literacy*
* [Few Shot](https://chatgpt.com/share/670e786f-bc18-8002-9bec-e59173390332): [**action verb**] a scaffolded text-based adventure game where I explore a haunted castle to learn about AI literacy in terms of the key components listed here:
  + Ethical Engagement
  + Power & Control
  + Bias & Representation
  + Participation & Agency

Choose verbs that are sure to generate different outputs with an LLM like ChatGPT-4o:

* ***Run*** *a scaffolded text-based adventure game…*
* ***Craft*** *a scaffolded text-based adventure game…*

**Collaborative Prompting**

Invite group to fill in template for text adventure game with ChatGPT-4o on shared screen. Break it down as you go, soliciting input for the group; frame it as a game of [exquisite corpse](https://en.wikipedia.org/wiki/Exquisite_corpse), even.

1. Prompt Template: Text Adventure Game

*Design a [****genre****] adventure game where the player assumes the role of [****character or role****]. The game begins with [****starting scenario****], and at each decision point, the player is presented with [****number****] choices that will affect [****specific outcomes****].*

*Each choice should lead to [****different narrative branches or consequences****], while keeping [****key theme or challenge****] core to the experience.*

*Ensure that the game’s structure maintains [****specific pacing, tension, or level of difficulty****], and incorporate [****additional elements like puzzles, ethical dilemmas, or critical provocations****].*

1. Prompt Example: MTA Adventure Game

*Design a modern MTA adventure game where the player assumes the role of a student navigating New York City’s subway system for the first time. The game begins with the player standing in front of a subway entrance, holding a MetroCard.*

*At each decision point, the player is presented with 3 choices that affect their ability to reach their destination on time. Each choice should lead to different narrative branches—such as taking the wrong train, asking for directions, or figuring out how to transfer—while keeping the theme of learning public transit core to the experience.*

*Ensure that the game’s structure teaches essential skills like reading the subway map, understanding express vs. local trains, and handling delays, while incorporating challenges like rush hour crowds or service changes.*

**Conclusions**:Put it into practice—draft, run, and refine your own text adventure prompt!

* Discussion and Q&A
* Plug Laurie’s Assignment Remix: <https://forms.gle/wt5xSSbtKaqaZVyy8>
* Links and Resources