

20 Questions Review with ChatGPT

Why?

This review session actively engages students in the learning process, transforming passive listening into an interactive experience. It encourages critical thinking and problem-solving as students must formulate strategic questions to deduce a concept in a 20 Questions game led by a generative AI chatbot. The game format also reinforces knowledge retention by requiring students to recall and apply what they've learned about the topic. Additionally, it fosters a collaborative learning environment, as students often work together to come up with questions and hypotheses, enhancing their communication and teamwork skills.

Materials Needed

- A computer with a projector to display AI interactions in real time

Time needed

Approximately 20 to 30 minutes

Objectives

- Students will be able to engage critically with educational content by utilizing strategic questioning in the 20 Questions game, enhancing their comprehension and recall of various subjects.
- Students will be able to demonstrate critical thinking and problem-solving skills by formulating effective questions and hypotheses based on the information provided by the AI.
- Students will be able to collaborate effectively with peers by discussing and agreeing on questions to ask, thereby practicing teamwork and communication skills.
- Students will be able to reflect on their learning process by analyzing which questions led them closer to the answer and which did not, enhancing their metacognitive skills.

Key Concepts & Vocabulary

- **Generative AI:** Technology that creates new content based on learned data patterns.

Lesson

1. Before class, open a chat session with a generative AI chatbot, such as ChatGPT. Prompt the bot with the guiding information for the simulation. Use this prompt as a guide for prompting:
 - a. *"I'm planning a 20 Questions game for my class to review a specific topic. The topic we are focusing on is *The Water Cycle* [substitute your own topic]. Come up with a concept or idea related to that topic that students can guess. For this activity, you will need to respond only with "Yes," or "No" to the students' questions that we type in. The goal is for the*

students to identify key components and processes of the topic through their questions. Please ensure your answers are based strictly on standard understanding of the topic. Please number my guesses. Are you ready to assist in this educational activity?"

2. During class, explain the activity to students.
 - a. This is a review of key concepts, so students should attempt to determine what sorts of topics the AI is prompting them to discover.
 - b. Conversations and out-loud processing are encouraged for this activity. Students should collaborate with each other to clarify their group understanding.
 - c. Remind students that in 20 Questions, typically the guessers start with broad concepts and then gradually narrow their guesses to specific topics.
3. Ask students to suggest questions that you type into the chat bot to get feedback. (See an example at the end of the lesson.)
 - a. As they get yes/no feedback, remind students to work together to come to an agreement on what to guess next.
 - b. If they are arguing over the appropriate guess, consider instituting a voting system to get a majority opinion on what should be the next question to ask.
4. Reflection: Once the students figure out the topic through their questioning, look back over the question/answer sequence to verify their understanding.
 - a. Mention that AI chatbots may be inaccurate at times, so students should check that the AI's answers are accurate. This will also help them clarify their understanding of the concepts.
5. Repeat the 20 Questions activity several times, so the students get the chance to review multiple concepts.

Discussion Questions

- What strategies did you find most effective in formulating your questions?
- How did the responses from the AI influence your next question or hypothesis?
- What did you learn about the topic that you didn't know before playing the game?
- How did collaborating with your classmates impact the way you approached the game?
- In what ways did this game format help you think differently about the topic?

Supplemental Activity Ideas

- **Create Your Own AI Questions:** Students use ChatGPT on their own. Have students develop their own questions for the AI, based on the topic. This helps them think critically about what they've learned and how to frame questions effectively.
- **DIY 20 Questions:** Instead of the AI being the answerer, students take turns being the answerer, while the rest of the class asks questions. This variation encourages students to think deeply about the subject matter as they have to

anticipate and respond to their peers' inquiries.

- **Comparative Analysis:** After playing the game with several concepts, have students compare and contrast these concepts, discussing similarities, differences, and interrelations.
- **20 Clues Game:** Turn the game inside out, having students provide 20 clues about a concept instead of answering questions. Students then guess the concept based on the clues provided.

Sources to Learn More

- [Socrat.ai](https://socratai.com/) - Similar applications of interactive AI for school use, such as socratic dialogue, a debate partner, and “interviewing” people from history and literature

Example Chat with ChatGPT

User: I'm planning a 20 Questions game for my class to review a specific topic. The topic we are focusing on is *The Water Cycle*. Come up with a concept or idea related to that topic that students can guess. For this activity, you will need to respond only with "Yes," or "No" to the students' questions that we type in. The goal is for the students to identify key components and processes of the topic through their questions. Please ensure your answers are based strictly on standard understanding of the topic. Please number my questions. Are you ready to assist in this educational activity?

ChatGPT: Yes.

User: Does it have something to do with rain?

ChatGPT: 1. Yes.

User: Does it have to do with clouds?

ChatGPT: 2. Yes.

User: Is it a particular type of cloud?

ChatGPT: 3. No.

User: Is it a way in which clouds relate to rain?

ChatGPT: 4. Yes.

User: Is it the process of formation of rain within the clouds?

ChatGPT: 5. Yes.

User: Is it condensation?

ChatGPT: 6. No.

User: Is it water droplets?

ChatGPT: 7. No.

User: Is it precipitation?

ChatGPT: 8. Yes.

User: Yay!

ChatGPT: Great job! You've successfully identified the concept of precipitation in the context of the water cycle.