

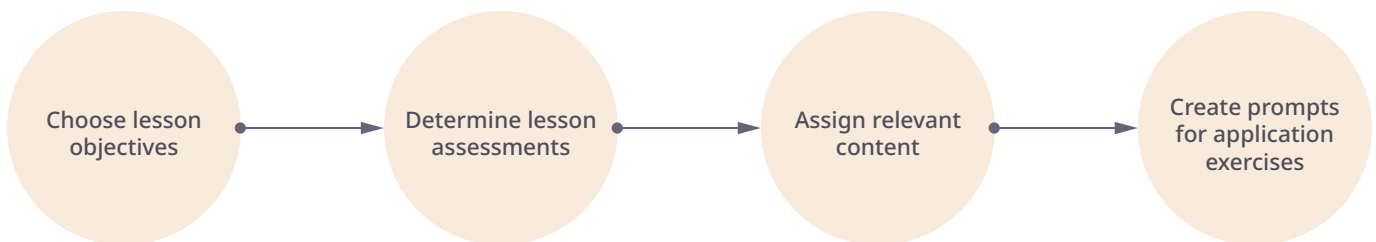
Learning Science

ChatGPT in the Classroom



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Ensuring Alignment



Although students may find it fun and engaging to interact with ChatGPT and other language models, it is crucial to ensure that classroom activities are aligned with course goals. This can be achieved by ensuring alignment among the lesson's

objectives, assessments, content, and course activities. Samples are given below, but instructors should tailor them to their course and test the prompts to ensure functionality.

Student Applications

COMMUNICATION

Learning Objective

Learners will use a given communication framework to deliver bad news.

(*ChatGPT recognizes multiple frameworks. Verify the functionality of your preferred framework with ChatGPT before using.)

Exercise	<ol style="list-style-type: none"> 1. Give a sample dialogue between a doctor and patient for a given condition. Have learners assess the dialogue using a given framework. Then have ChatGPT evaluate the dialogue. Have a class discussion to compare results. 2. Have learners role play (see below) with ChatGPT as the patient, then get feedback on their communication.
Prompt	<ol style="list-style-type: none"> 1. "Evaluate the following conversation based on the SPIKES framework." (with copy and paste) 2. "ChatGPT, play the role of a terminal cancer patient." After the role play, "Evaluate the previous conversation based on the SPIKES framework."
Measuring Outcomes	<ol style="list-style-type: none"> 1. Have learners compare their answers to ChatGPT responses. Learners could be assessed with a discussion post online, a written submission, a small group discussion, or have learners evaluate a similar dialogue without access to ChatGPT. 2. Learners could self-evaluate based on their feedback from ChatGPT and a rubric. Learners could compare results in a small group discussion or online discussion. Learners could correct their dialogue based on feedback and submit as a written exercise.

CLINICAL SKILLS

Learning Objective	Learners will take a complete patient history.
Exercise	Have students practice taking a patient history using ChatGPT.
Prompt	"I will play the role of a doctor and you will play the role of a 20 year old patient with mild chest pain so I can take your history."
Measuring Outcomes	Have students self-assess or use peer evaluation with their results based on a rubric (e.g. OSCE rubric). Have students role play in class based on their feedback.

CLINICAL SKILLS

Learning Objective	<ol style="list-style-type: none"> 1. Given a patient history, learners will select appropriate diagnostic tests. 2. Given a complete history and preliminary diagnostic test results, learners will form a differential diagnosis. 3. Given a differential diagnosis, learners will use additional diagnostic testing to reach a diagnosis.
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<p>Exercise</p>	<ol style="list-style-type: none"> 1. Given a patient history (or one developed by the learner in an exercise), have learners determine the appropriate diagnostic tests for the given presentation. 2. Give (or have ChatGPT create) a case history. Have learners form a differential diagnosis. 3. From learners' differential diagnosis (or have ChatGPT generate one), use additional tests to reach a diagnosis.
<p>Prompt</p>	<p>"Create a case history for a patient with ____." (Give appropriate conditions for learning objectives.)</p> <ol style="list-style-type: none"> 1. Students will generate a series of prompts based on the given situation such as: "Would a chest x-ray be appropriate for these conditions?" or "Give possible results for a chest x-ray." 2. "My differential diagnosis is _____. Is this an appropriate differential diagnosis?" 3. "Create a case history for a patient with _____ including a differential diagnosis." "Now give possible results for _____ test."
<p>Measuring Outcomes</p>	<p>Give learners the same case and conditions. Results may vary depending on information given by ChatGPT. Students can ask ChatGPT to give them feedback on their choice(s) of diagnostics and diagnoses. Students can compare in small group discussions. Students can also be assessed using similar cases.</p> <p>Challenge students to find any discrepancies or flaws in clinical reasoning in responses given by ChatGPT. Not all clinicians agree with results given by ChatGPT and similar language models (1). Students should recognize this is a useful exercise but ChatGPT is not an expert in clinical reasoning.</p>

CRITICAL APPRAISAL

<p>Learning Objective</p>	<ol style="list-style-type: none"> 1. Learners will evaluate examples of clinical reasoning. 2. Learners will critically appraise claims of evidence.
<p>Exercise</p>	<ol style="list-style-type: none"> 1. Have students critically appraise examples of clinical reasoning given by ChatGPT. 2. Have students critically appraise "evidence" and citations given by ChatGPT.
<p>Prompt</p>	<ol style="list-style-type: none"> 1. "Create a differential diagnosis for a patient with ____." 2. "What is the evidence supporting _____, given with citations."

Measuring Outcomes

Have students confirm or disprove clinical reasoning or evidence given by ChatGPT through small group discussion or written assignment.

Have students use similar analyses on a peer-reviewed article and compare it to their analysis of ChatGPT "evidence".

Instructor Applications

Ask ChatGPT to quickly create tools for classroom use

1. "Generate learning objectives for finding a patient history."
2. "Create a case for a 30 year old man with mild chest pain."
3. "Create possible diagnostic test results for a 30 year old man with mild chest pain."

Use ChatGPT to create classroom activities for a given objective

1. "Create a differential diagnosis for a patient with ____."
2. "What is the evidence supporting ____, given with citations."

Prompt Tips

ChatGPT and similar models are rapidly changing; what works one time might work differently another time. If you find prompts are not giving the results you expect, try some of the following tips:

- Determine in advance what your objectives are and what type of output you want.
- Be concise. Tell ChatGPT exactly what you want and no more.
- Avoid jargon. Use clear, unambiguous language.
- Provide context and relevant key words.
- Break complicated requests into smaller step-wise tasks.
- Tell ChatGPT to adjust its responses if you don't get the desired response.
- Test your prompts thoroughly before using them in the classroom.