MODEL FOR SCIENTIFIC TEACHING

How you plan lessons

Learning Goals
Learning Outcomes
Summative Assessment
Formative Assessment
Activities

Inclusivity/Diversity
Alignment

How your students experience lessons

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WRITING LEARNING OUTCOMES

Audience
Who are the learners?

Behavior
What is the behavior?

Condition
Under what conditions do learners need to perform the behavior?

Degree
To what degree do learners need to perform the behavior?
Given a research question and a Wikipedia article about it, learners will be to generate a list of at least three keywords or phrases for each concept represented in the question.
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YOUR TURN!
OUTCOMES & ASSESSMENT WORK TOGETHER
How many of your assessments use a likert scale?
I feel confident that I can use commands in a Google search to find reliable information on a topic.

example: children health japan site:.org

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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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Strongly agree: 0 0 0 0 0

Strongly disagree:
1. Wikipedia has a user friendly interface.
How is your Pain Today?

No Pain  Slight  Mild  Moderate  Severe  Worst Pain
0  1  2  3  4  5  6  7  8  9  10

Pain is present but does not limit activity
Can do most activities with rest periods
Unable to do some activities because of pain
Unable to do most activities because of pain
Unable to do any activities because of pain
Select the response below that best describes your understanding of the difference between various database search strategies.

<table>
<thead>
<tr>
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<th>1</th>
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<tbody>
<tr>
<td>I DO NOT know the difference between database search strategies.</td>
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<tr>
<td>I have a general understanding of the difference between search strategies, but will need MORE GUIDANCE differentiating between some of them.</td>
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<tr>
<td>I know the difference between search strategies, but want MORE PRACTICE understanding when to use each one.</td>
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<tr>
<td>I know the difference between search strategies and I understand WHEN TO USE ALL of them.</td>
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- **Boolean Operators**
- **Truncation**
- **Limits (specifically Methodology)**
- **Subject Headings**
- **Abstracts**
- **Cited By**
- **Related Articles**
<table>
<thead>
<tr>
<th>Answer Choice</th>
<th>Proposed Standard</th>
</tr>
</thead>
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<tr>
<td>1. I DO NOT know the difference between database search strategies.</td>
<td>Unacceptable. If students select this answer choice after one-shot instruction, it would be evidence that the instruction was not successful.</td>
</tr>
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<td>2. I have a general understanding of the difference between search strategies, but will need MORE GUIDANCE differentiating between some of them.</td>
<td>Unacceptable. If students select this answer choice after one-shot instruction, it would be evidence that the instruction was not successful.</td>
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<td>3. I know the difference between search strategies, but want MORE PRACTICE understanding when to use each one.</td>
<td>Acceptable. If students select this answer choice after one-shot instruction, it would be evidence that the instruction was successful.</td>
</tr>
<tr>
<td>4. I know the difference between search strategies and I understand WHEN TO USE ALL of them.</td>
<td>Unlikely. It is not likely that students will be proficient after a one-shot instruction session, unless they had prior experience.</td>
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<tr>
<td>1</td>
<td>I am <strong>NOT ABLE</strong> to find features in a database.</td>
</tr>
<tr>
<td>2</td>
<td>I have a general understanding of where features are located, but will need <strong>MORE GUIDANCE</strong> to find them in the database.</td>
</tr>
<tr>
<td>3</td>
<td>I am able to find features within a database, but want <strong>MORE PRACTICE</strong> locating them in a variety of databases.</td>
</tr>
<tr>
<td>4</td>
<td>I am able to find features within <strong>ANY</strong> database <strong>ALL OF THE TIME</strong>.</td>
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YOUR TURN!
Given an overview of six search strategies that one can use to modify a search (i.e. Boolean, limits, related records, database subjects and keywords, times cited references, and bibliography/cited references), 90% of students will be able to use at least four of them to modify a search in a database for their lab report.
Rewrite your existing outcome(s) using the ABCD method and post on the Google Doc for feedback from us and each other.

https://tinyurl.com/loseyourlikert
What is one small change in your teaching you can make for next term?
Presentation goals:
• Workshop participants should feel confident writing and/or revising their LO to include ABCD criteria.
• Workshop participants should understand how to write measurable and actionable assessment/evaluation questions based on their LOs.

Presentation outcomes:
• Given a poorly constructed LO, the learner will be able to rewrite the LO using the ABCD method.
• Given an ABCD LO, the learner will be able to create an assessment based on smile sheet best practices.

Assessment:
• Revise a LO using ABCD criteria.
• Create an assessment question from the LO above.
• Revise LO from participants’ existing instruction material and share the question(s) on a google document for feedback.
RECOMMENDED RESOURCES


Kahoot: https://kahoot.com/

Performance-Focused Smile Sheets by Dr. Will Thalheimer
• Book: https://www.worklearning.com/smilesheets/
• Diagnostic Tool: https://smilesheets.com/smile-sheet-diagnostic/

Dr. Will Thalheimer’s Learning Transfer Evaluation Model:
• Overview https://www.worklearning.com/2018/02/14/the-learning-transfer-evaluation-model-item/
Slide 1:
- Rating stars by Nikita Kozin from the Noun Project

Slide 2:
- Goal by BomSymbols from the Noun Project
- Learning by Gregor Cresnar from the Noun Project
- Multiple choice by Aenne Brielmann from the Noun Project
- Thinking by corpus delicti from the Noun Project
- People working together by Margaret Hagan from the Noun Project

Slide 8:
- Meeting by Claire Jones from the Noun Project

Slide 9:
- teamwork by Mahmure Alp from the Noun Project

Slide 13:

Slide 18:
- Meeting by Claire Jones from the Noun Project

Slide 20:
- help by Gregor Cresnar from the Noun Project

Slide 21:
- Self Reflection by Aenne Brielmann from the Noun Project