**Segment 1: Determine Information Need (10 minutes)**

Overview: In this segment, you will read a case study and determine what information you would need to research in this scenario, and then generate a list of search terms.

Scenario:

**In 2011, KNB EFX Group and QuickSilver Controls were asked to develop a robotic dolphin to be used in filming a movie, particularly in scenes that would be too dangerous or time consuming with a live dolphin. The scenes with the robotic dolphin were to be filmed in saltwater aquarium tanks with human actors and other live dolphins in the water with the robot.**

**The requirement that the robot be fully operable under salt water necessitated some changes to the materials that might typically be used in robot construction. As the lead project engineer, you must ensure that the robotic dolphin will function in the saltwater aquarium tank without polluting it. There is a tight timetable for filming, so you have to get it right the first time! Before you begin designing your robot, what research do you need to do?**

Step 1: In the box below, list all of the information you will need to find. Add as many bullet points as you need, one for each piece of the research puzzle you need to put together. (limit to 5-6 items in the interest of time)

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| --- |
| *E.g. Research safe, non-toxic alternatives to oils and chemicals typically used in robotics.* |

For the rest of the activity, you will be working with the research question “**What materials are used to make robots for use in seawater?**”

Step 2: Identify keywords from the research question, and brainstorm synonyms for those keywords.

* Example: For the research question “What designs maximize the hydrodynamic efficiency of submersibles?” your table of keywords and synonyms might look like this:

|  |  |  |
| --- | --- | --- |
| **Keyword** | **Synonym 1** | **Synonym 2** |
| submersibles | “underwater craft” | “underwater robot” |
| hydrodynamic | “water flow” | streamlined |
| efficiency | productiv\* | performance |
| design | form | plan |

Use the table below to create your own list of keywords and synonyms for the research question “**What materials are used to make robots for use in seawater?**” Synonyms can also be broader or narrower terms (i.e. “truck” is a narrower term than “vehicle”).

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| --- | --- | --- |
| **Keyword** | **Synonym 1** | **Synonym 2** |
|  |  |  |
|  |  |  |
|  |  |  |
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**Segment 2: Devise Search Strategy (10 minutes)**

Overview: In this segment, you will generate a search strategy and try it out in a database.

Step 1: Use your table of keywords and synonyms to build a search strategy.

**Example**: using the example keywords/synonyms table above, one search strategy might be:

* + hydrodynamic\* AND efficien\* AND (submersible OR “underwater robot”)

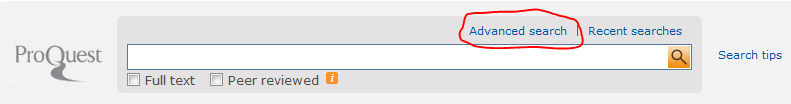
\*\*Tips\*\*

* Use AND, OR, and NOT (also known as “[Boolean Operators](http://www.columbia.edu/cu/lweb/help/clio/boolean_operators.html)”) to link your concepts
* Use an asterisk (\*) to cut off words if you want to search for all words with that root. For example, “develop\*” would search for develop, developing, developed, development, developmental, etc.
* Put quotes around a phrase that you want the database to search as a phrase, rather than as individual words.

Use this space to record your search strategy:

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Step 2: From the course guide, open the database called **ProQuest Engineering.** In ProQuest, click on the link for Advanced Search.



Step 3: Enter your search strategy in the advanced search window and click “Search.”

Step 4: Take a moment to scroll through the search results and evaluate their quality and relevance. Think about the following things:

* How many results are there? In your opinion, is this too many, too few, or just right?
* How many of the results relate to the research question? Only a few? About half? Most?
* Do most of the results leave out some part of the research question? For example, are the results about robots in general, not specifically underwater robots?

Use the box below to record your evaluation of the search results. Bullet points are fine.

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**Segment 3: Revise Search & Select Source (10 minutes)**

Overview: In this segment, you will revise your search strategy and choose one useful looking article from the search results and then evaluate its relevance.

Step 1: Look again at your search results and evaluation of them. Make a few changes to the search strategy that you think will lead to improved results.

Use this space to record your revised search strategy:

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Step 2: Go back to the advanced search page and enter your revised search strategy. Re-evaluate the list of results. Are they better than last time? Worse? How so?

Use the box below to record your evaluation of the new search results. Bullet points are fine.

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Step 3: As a group, select one journal article you think is very relevant to the research question.  How can you get to the full text of this article? Link to full text right in database or using HuskyFetch? If using HuskyFetch, can you find it online, in print, or through InterLibrary Loan?

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Step 4: Say why you think this article is relevant to the research question. Bullet points are fine

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