Introduction to Web Search

Lesson Synopsis: Effective web searchers employ a variety of techniques to find the material they're looking for. They build on background knowledge to form their query, think about what good results might be, try multiple keywords and read through results carefully.

This lesson begins by introducing the idea of a search engine and explaining how it works. It then helps you demonstrate how keywords can be used in conjunction with search operators to refine queries. Students practice searching individually or in small groups, and the lesson concludes with a teach-back.

Grade: 3 and up
Subject: Library and research
Time: One 50-minute class session

Driving questions & goals:
- What is a search engine? What does a search engine search?
- How do we tell a search engine to show results that we want to receive?
- What is search refinement?
- How do we retrieve the most accurate results possible using refinement?

Learning Objectives:
1. Students will learn what a search engine is, and what it does
2. Students will learn basic search operators, including keyword/phrase and exact keyword/phrase, “or”, and “not”.
3. Students will be able to select and utilize operators to refine their search results.
4. Alternative / add-in: Students will think about how their background knowledge can improve searches.

Website: [http://www.kidzsearch.com/boolify/](http://www.kidzsearch.com/boolify/)

Preparation:
1. Write the Activity 1 “do now” on the board.
2. Activity 5, an individual or group project (depending on computer access) is optional. Handouts should be printed beforehand if the activity will be used.
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Activity 1: Defining a search engine “do now”
Time: 10 minutes

As students enter the classroom, ask them to take out a sheet of paper and write their response to the following:

What is a web search engine? Be sure to write about what you think a search engine does, and what it searches. Try to explain how a search engine knows what to give you when you use it to search for something.

Select two students to read their responses. Do all the students agree with the definitions? Where might there be room for improvement? Discuss for five minutes. Try to understand their reasoning; lead the students toward a shared definition for what a search engine is, and what it does.

Activity 2: Modeling how a search engine works
Time: 10 minutes

Explain:

When we use search engines, we enter keywords - things we’re searching for. But we also need to use operators, which help us be more precise about what we’re searching for. Operators are words like NOT and OR. They help us be specific about removing or adding results from our search.

NOT means that we don’t want to receive something as a result. OR means we want EITHER thing 1 OR thing 2.

Let’s try that out, using ourselves as the search results. When you hear a search that sounds like it fits you, stand up. If it doesn’t fit you, remain seated.

Search 1: “Student” [All students should stand] … and, sit back down
Search 2: “Student” “girl” [All female students should stand]… and, sit back down
Search 3: “student” “girl” OR “boy” [All students should stand]… and, sit back down
Search 4: “student” NOT “wearing” “red” “shoes” [All students not wearing red shoes should stand]… and, sit back down

Ask several students to think of a search for something that will make between three and five fellow students stand up. Can the students use OR and NOT in the same search?

Search 5 and 6: Students give “searching” a try.

Ask: What does OR do?
Ask: What does NOT do?
Ask: How do you think you would use them when you’re searching for something?

Activity 3: Thinking about quotes
Time: 5 minutes
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Explain: There’s something else that’s important to know about search engines, and how they interpret what you want to find. Does anyone know what happens if you use quotes (make quotes in the air) around your words or phrases?

Quotes mean search for the exact phrase or word that you have entered. See, if you don’t use quotes, search engines also search for words similar to, but maybe different from, the word that you have entered. They try to help by finding words similar to what you want.

What do you think the difference might be if you search for John A. Macdonald with and without quotes?

Ask: What are some situations when using quotes might help?

Activity 4: Playing with search
Time: 10 minutes

Explain: Now that we have learned what a search engine is, and modeled how it retrieves information, let’s look carefully at the results that appear when you search.

The tool we’re going to use is called Boolify, which is located at http://www.kidzsearch.com/boolify/.

Boolify makes your searches explicit by using little blocks as operators.

Let’s try searching for Dolphins.

Ask: Based on what you know about Dolphins, what do you think will appear?

Drag a green piece to the board, and type in Dolphin to search for Dolphin.

Ask: Who can tell me what happened when I searched for Dolphin?

A discussion about Dolphins (the mammal) and The Dolphins (the football team) should ensue. Lead students through discovering the two kinds of search results that appeared for a single query.

Explain: That’s correct - we received results about both the football team and the mammal.

Thinking back to the operators, NOT, OR and quotes, who can recommend a way to get us to results only about the mammal?

Options: [not football], additional keyword mammal and others

Explain: This is a good example, but a more typical case is something like what happens with John A. Macdonald.

Do: Reset the board and add John A. Macdonald to the board.
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Ask:
Is this sufficient to find out what John A. Macdonald’s favorite food was?
What else do you see in the search results?
How would you refine these search results to find a site with information about John A. Macdonald’s favorite food?

Activity 5a Alternative 1: Basic Search Worksheet
Time: 10 minutes

This activity is helpful for younger students. If the activity will be used, split students into groups & ask for them to access a computer. Hand out the worksheet, and ask a student to read the instructions aloud.

Activity 5b Alternative 2: Background Knowledge Worksheet
Time: 10 minutes

This activity is helpful for students who might have a little more experience. If the activity will be used, split students into groups & ask for them to access a computer. Hand out the worksheet, and ask a student to read the instructions aloud.

Activity 6: TeachBack
Time: 5 minutes

To conclude the lesson, ask students to ‘teach back’ what they have learned to the class. Tell students that if they think they can provide a better answer, to raise their hand and add to what someone has already said.

Ask: Who can tell me what a search engine does?
Ask: What is a search operator?
Ask: What are some examples of search operators?
Ask: What do quotes do, if you use them in a search?
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Search - Worksheet

Directions: Individually, or in small groups (as your teacher prefers), use http://www.kizsearch.com/boolify/ to search for answers to these questions. Write your search terms and the answer in the spaces provided.

1. November 6, 1869, was the first time that a sport was played at the collegiate level. It was played at New Brunswick. What sport was this?

Search terms:

Answer:

2. List three different styles of skateboarding

Search terms:

Style 1:

Style 2:

Style 3:

3. What country did the Women’s Hockey Gold medalists represent in the 2010 Winter Olympics?

Search terms:

Answer:

4. Some people say that eating spinach is good for you. What are at least two reasons it is?

Search terms:

Reason 1:

Reason 2:

5. Find a Morse code translator and translate the following into English. Spaces have been left between individual letters.

Answer:
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Background Knowledge Worksheet

Directions: When you search, think about what you already know about a topic. Think about the language you know about the topic, and how you can use language and words to be as specific as possible. Even if you don’t know anything about a topic, you can still use precise language.

Individually, or in small groups (as your teacher prefers), use http://www.kidzsearch.com/boolify/ to think about answers to these questions.

1. How do you think the results will be different for ‘skateboarding’ and ‘vert skateboarding technique’? Try a search, and write about the differences that you find.

2. Why might the results differ between ‘equality’ and ‘education equality access challenges’? What kinds of topics show up in the first that don’t in the second, and vice-versa?

3. In 60 seconds, write everything that you can about Wayne Gretzky.

4. If you had to write an essay about Wayne Gretzky’s major impacts as a hockey player, what are some things you could search for as starting points?

5. Let’s pretend that you couldn’t think of very much about Wayne Gretzky (poor guy!). Where could you get good information about who he was, to guide your research about his major impacts?