Lesson Title: Searching for Digital Information

Content Area: Information Literacy

Overview:
This lesson shares the importance of knowing how to access and evaluate digital information. Being able to determine the quality, credibility, and validity of websites and how to use search strategies to find information are important skills. Without this knowledge, false information could easily be perceived as factual.

Objectives:
After participating in this lesson, adult learners will be able to:
- Name credible sources of digital information
- Distinguish between a search engine and a meta-search engine
- Form effective internet search phrases
- Apply the website evaluation criteria to a site to determine trustworthiness, credibility, and usefulness of information

Materials & Supplies:
The following materials and supplies are needed for this lesson:
- Digital devices: computers, tablets, smartphones (activity 1, activity 2)
- Access to the Internet (activity 1, activity 2)
- Search Engine Dice (activity 1)
- Tape (activity 1)
- Pencils/Pens (activity 2)
- Search Topic Question Guide (activity 2)
- Website Credibility Handout (activity 2)

Preparation:
In preparation for this lesson, facilitators should:
- Review lesson plan
- Ensure Internet connectivity and check website links
- Print and assemble search engine dice – *recommended printing on cardstock*
- Print handouts

Terminology:
The following terms will be discussed during the lesson:
- **Search Engine**: a site that uses computer programs to search for information on the internet
- **Meta-Search Engine**: a site that sends inputted keywords to several different search engines at the same time
- **Search Terms or Phrases**: a word or combination of words or characters entered into a search engine in order to specify a particular thing to be searched for on the internet or in a database
- **Page Rankings** – a value assigned to a web page as a measure of its relativity to search terms or phrases

Background Information:
Years ago, finding information was a laborious process. With the invention of the Internet and devices that can easily access this information, finding answers to questions can take a few seconds. Over 1 billion websites exist, so knowing how to search for information effectively is the first step in this process. After accessing a website, it is important to determine the credibility of the content. Anyone can publish on the internet, so not all sites are equally trustworthy. People of all ages have fallen victim to believing false information found on the internet. The risk of believing false internet content can have serious implications.

Activity 1: Search Engines

A search engine is a site that uses computer programs to search for information on the internet. There are a variety of search engines that can be used to find information on the internet. Examples of search engines include Bing, Ask, and Yahoo. A meta-search engine is a site that sends inputted keywords to several different search engines at the same time. These are helpful when a person is looking for very specific information. Ixquick and Dogpile are two meta-search engines.

When accessing a search engine, using key terms or phrases to find the information you need rather than asking questions is recommended. For example, if a person wanted to find out the life expectancy of a West Indian manatee, it is suggested to search *West Indian manatee life expectancy* rather than simply *West Indian manatee* or *manatee life expectancy*.

Other strategies for searching include:
- Using a minus/hyphen to remove unwanted results. When searching for the caterpillar insect, a search for *caterpillar* would also include information about the company Caterpillar, Inc. To remove information about the company, search for *Caterpillar -company*.
- Quotation marks force a search engine to search for an entire phrase in a certain order. For example, searching for *blue dog leashes* would result in content that contains those three words in any order. However, searching for "blue dog leashes" would search for that phrase exactly as you typed it.
- You may want to limit your search to a specific website. If this is true, you can use a colon and the search engine will only search the website you list. For example, *football site:uga.edu* would yield information about football from the uga.edu website.

NOTE: *It is recommended for the facilitator to demonstrate some of these search strategies.*

Many search engines have tabs so that you can easily search for various content. Some of these specifics include images, news, maps, videos, etc.

Since the internet can seem almost infinite, having a plan to find the information is always a good idea. Common Sense Media recommends using the acronym **SEARCH** when looking for information on the internet:

- **S**elect particular research questions (what exactly do you want to know?) and appropriate search engines and tools.
- **E**xtract keywords and terms. Narrowing down your search focus to specific keywords can help you find information efficiently.
- **A**pply search strategies.   Using methods such as adding quotation marks, minus signs, etc. can help narrow a search.
- **R**un the search. Look at the different results. It is always recommended to check multiple sources to verify information.
- **CH**art your search. Keep good records of your search results, so that you can optimize your time finding information.

Have participants find a partner. Each partner pair will need one search engine dice assembled. Each partner will select a topic for the other person to search for on the internet. They will create three different questions about that particular topic for the other person to answer. For example, if the topic was rocks and minerals, the questions could be: What is the difference between rocks and minerals? What are some common uses of rocks? What is the most abundant mineral found in my state? For each question, participants will roll the search engine dice to determine which search engine they will use to find the answers to their questions. After participants answer all three questions, they will share their results with their partner.

NOTE: *If possible, facilitators should pair more-experienced participants with those less-experienced participants for optimum learning.*

Activity 2: URL Components & Credible Information

After completing a search, checking the credibility and trustworthiness of a website is important. Every webpage has a unique address called a URL or Uniform Resource Locator. This is how the Internet finds things and displays the content to your web browser. Understanding the components of a URL will help you clarify where information is coming from and can play a role in assessing the validity of the information source.

URLs are typically composed of 3 major parts: **protocol, domain, and path name.**

Secondary domain   Path name

https://www.microsoft.com/ie

Protocol   Top level domain
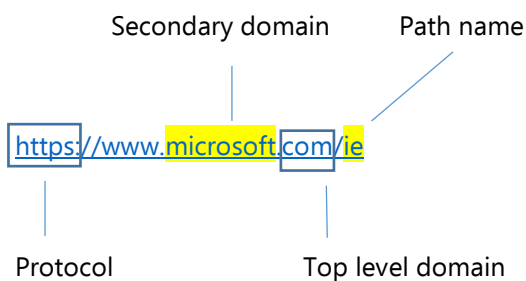
1. The **protocol** is the kind of connection established between your browser and the website. An 'https' protocol means that your connection is secured or encrypted. This type of connection is desired when transmitting private or sensitive information such as credit card information or usernames and passwords. HTTPS is becoming more of the standard protocol instead of HTTP.

2. The **domain** can have multiple parts and is best "read" from right to left. The **top-level domain** may describe the type of site where the page is located. This can tell you more information about the site's host or owner.

   Websites ending in
   - .com originally had a commercial or business affiliation, but now are open domains that anyone can register
   - .net have a network affiliation
   - .org originally had a non-profit organization affiliation, but now are open domains that anyone can register
   - .edu have a higher education institution affiliation
   - .gov have a U.S. government affiliation
   - .mil have a military affiliation

   While many .com, .net, and .org websites could have factual, accurate information, it is recommended to try to read information from an .edu or .gov website.

   There are also international domains which would appear to the right of the top-level domain. These are country abbreviations such as UK (United Kingdom), FR (France), etc.

   The **secondary level domain** can have multiple levels but is the detailed name of the site owner. In the case of the Microsoft URL used above, sub-level domains might include support.microsoft, products.microsoft, etc. These sub-domains are helpful for large and more complex websites.

3. The **path name** is a further description of the hierarchy where the particular webpage is located within the host website. These path names can get rather lengthy and, depending on the structure of the website, may not be fully descriptive of the actual page.

It is also important to note that one URL can be redirected to another on the host site or anywhere on the Internet. This is often a result of constant improvements to the host site, and a redirection facilitates the transition from the old URL to the new one. In the Microsoft example, https://microsoft.com/ie gets redirected to https://support.microsoft.com/..../internet-explorer-help.

The National Center for Complementary and Integrative Health, a division of the National Institute for Health, recommends five questions to ask yourself when visiting a website or using an app:
- Who runs or created the site or app? Can you trust them?
- What is the site or app promising or offering? Do its claims seem too good to be true?
- When was its information written or reviewed? Is it up-to-date?
- Where does the information come from? Is it based on scientific research?
- Why does the site or app exist? Is it selling something?

Using personal devices, participants will explore the Internet and review at least two different websites. Using the questions above as a guide, participants will determine the trustworthiness of the websites. It is recommended for the facilitator to encourage participants to view one website ending in .com, .net, or .org and one website ending in .edu or .gov.

NOTE: *Facilitators may need to provide examples of websites to review for the participants.*

Examples include:
Influenza
- https://www.cdc.gov/flu/index.htm
- https://www.familiesfightingflu.org/
- https://www.bcm.edu/departments/molecular-virology-and-microbiology/emerging-infections-and-biodefense/influenza-virus-flu
- https://medlineplus.gov/flu.html
- https://www.webmd.com/cold-and-flu/ss/slideshow-flu-symptoms-treatment
- https://www.scientificamerican.com/article/how-does-the-flu-actually-kill-people/

Ocean Pollution
- https://www.noaa.gov/education/resource-collections/ocean-coasts-education-resources/ocean-pollution
- https://www.rubiconglobal.com/blog-ocean-pollution-facts/
- https://ocean.si.edu/conservation/pollution
- https://oceanplasticslab.net/
- https://www.nytimes.com/2008/06/22/magazine/22Plastics-t.html
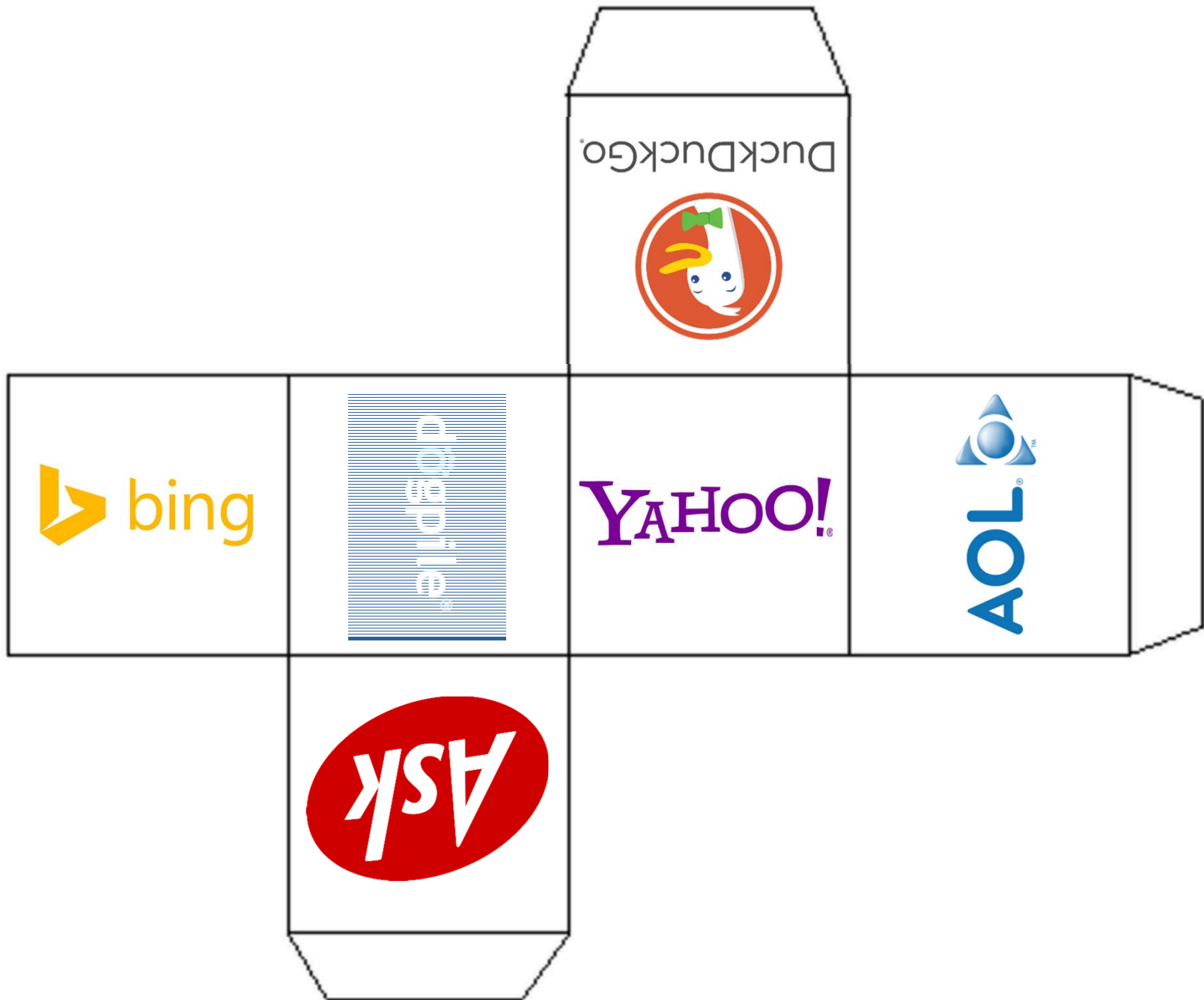
Reflection:
While the intent is for the activity to build information literacy skills related to technology, it is important for the facilitator to lead a debrief discussion at the end of the lesson. Potential debrief questions could include:
- Where can you find credible information on the Internet?
- How do search engines and meta-search engines differ?
- What are some effective strategies for searching for information on the Internet?
- When evaluating information on the internet to determine credibility and trustworthiness, what are some tips to consider?

Resources:
- https://www.library.georgetown.edu/tutorials/research-guides/evaluating-internet-content
- https://nccih.nih.gov/health/webresources
- https://www.commonsense.org/education/system/files/6-8-unit1-strategicsearching.pdf?x=1
- https://www.lifehack.org/articles/technology/20-tips-use-google-search-efficiently.html

Search Engine Dice Template: to be used with Searching for Digital Information Lesson, Activity 1

DuckDuckGo.

bing

Ask

YAHOO!

AOL.

Topic:

Question 1:

Question 2:

Question 3:

to be used with Searching for Digital Information Lesson, Activity 1

Topic:

Question 1:

Question 2:

Question 3:

to be used with Searching for Digital Information Lesson, Activity 1

National Center for Complementary and Integrative Health
Website Review Information

Who runs or created the site or app? Can you trust them?

What is the site or app promising or offering?
Do its claims seem too good to be true?

When was its information written or reviewed? Is it up-to-date?

Where does the information come from? Is it based on
scientific research?

Why does the site or app exist? Is it selling something?

to be used with Searching for Digital Information Lesson, Activity 2

National Center for Complementary and Integrative Health
Website Review Information

Who runs or created the site or app? Can you trust them?

What is the site or app promising or offering?
Do its claims seem too good to be true?

When was its information written or reviewed? Is it up-to-date?

Where does the information come from? Is it based on
scientific research?

Why does the site or app exist? Is it selling something?

to be used with Searching for Digital Information Lesson, Activity 2