

Learner Full Name: _____ School: _____
 Assigned Workstation: _____ Class: _____

Session 12: Search Like a Pro

The Web has billions of pages. Somewhere out there is the answer to almost any question you can ask, and also a lot of rubbish, adverts and rumours. Today you will learn to find the right page fast, and to tell a trustworthy source from a fake one. That is a skill you will use for every project in school and beyond.

1. Plain Talk: The Market Queen Who Knows Every Stall

Imagine you need a blue padlock in Makola Market. You could walk past thousands of stalls for hours. Or you could ask the **market queen**, who knows exactly which stalls sell padlocks, and which sellers are honest.

A **search engine** is the market queen of the Web. Long before you ask, its robot programs visit billions of pages and write down what is on each one in a giant catalogue called an **index**. When you type your **keywords**, it looks them up in the index and lists the best matches first.

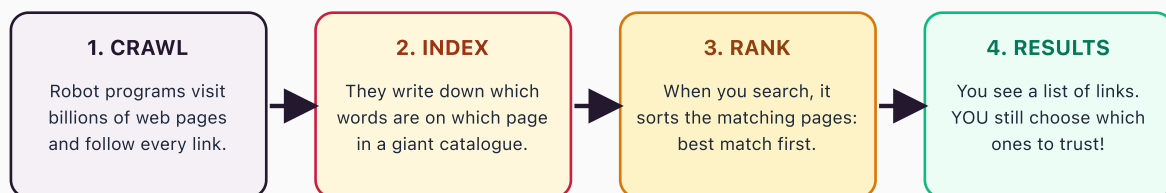


Figure 12.0: How a search engine works. The first result is the best match for your words, not always the truest page.

2. Browser vs. Search Engine: Don't Confuse Them!

THE WEB BROWSER (Your Window on the Web)

The program on your computer or phone (Chrome, Edge, Firefox, Safari). It is the window you look through to visit any web page. You met it in Session 11.

THE SEARCH ENGINE (The Market Queen)

A website you open *inside* the browser: **Google**, **Bing** or **DuckDuckGo**. Typing words (not an address) in the address bar also sends them to a search engine: Chrome usually uses Google, Edge uses Bing.

1. The Art of Keyword Searching

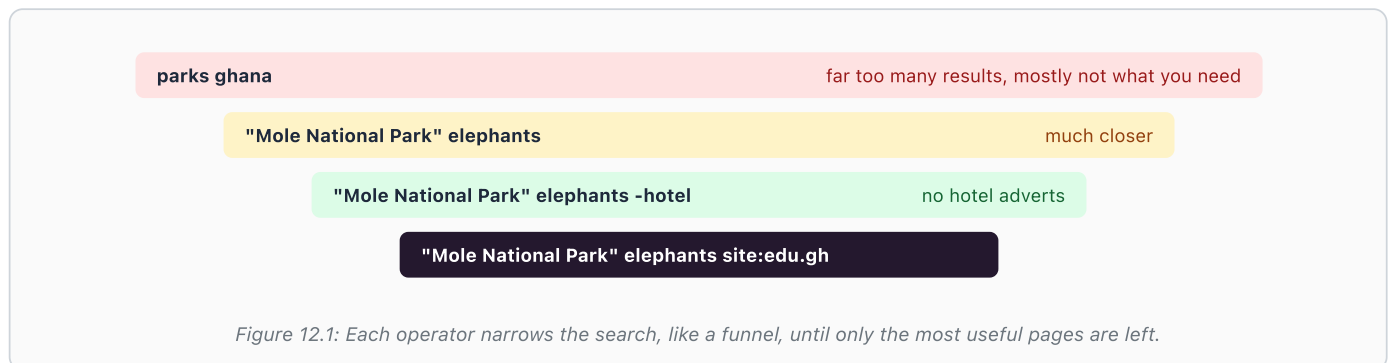
Search engines do not need chatty words like "please" or "tell me". They hunt for **keywords**: the 2–6 most important words, the ones you expect to see on the perfect page.

✗ Weak Search (too vague or full of filler)	✓ Smart Keyword Search (specific and direct)
trees in ghana (millions of random results)	mangrove trees coastal protection Ghana
how can our school get some clean drinking water?	ceramic pot water filter schools Ghana
plastic	plastic sachet recycling projects Accra

2. Search Operators: Your Power Tools

Operators are special symbols or words that give the search engine exact orders. They work in Google and Bing. DuckDuckGo understands quotes, minus and site:, but not OR.

Operator	What it orders	Example
"quotes"	Find these words together, in this exact order.	"Kakum National Park" canopy walkway
-minus	Leave out pages with this word. No space after the minus!	Mole National Park elephants -hotel
site:	Only show pages from this website or kind of website. No space after the colon.	scholarships site:edu.gh school calendar site:gov.gh
OR	Either word will do. Type OR in CAPITAL letters.	kenkey OR banku recipe



Your turn: Write a smart search, using at least one operator, for each task.

Pages about the Akosombo Dam from Ghanaian government websites only.	-----
The exact phrase "Volta Lake" and fishing, but no pages about hotels.	-----
Recipes for either waakye or jollof.	-----

1. Anatomy of a Results Page

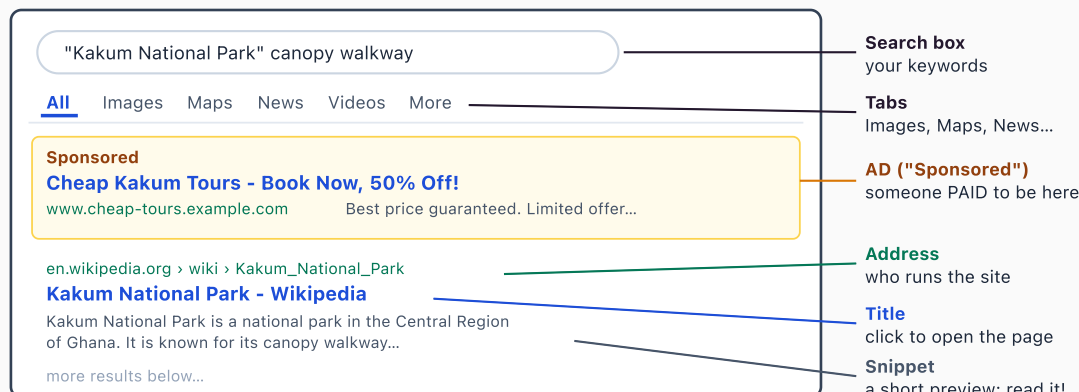


Figure 12.2: A results page (it may look slightly different). Adverts marked "Sponsored" or "Ad" often come first.

Read before you click: skip results marked **Sponsored** or **Ad** unless you really want to buy something. Read the **address** and the **snippet**, then choose. Some search engines now show an AI-written summary at the top: it can be wrong, so check it like any other source (Session 40).

2. Images, Maps & News Tabs

Tab	What it finds	Try it
Images	Pictures that match your words. Click one to see the page it comes from. Pictures belong to their owners (more in Session 27).	kente weaving Bonwire
Maps	Places, distances and directions on a map, with a satellite view.	Kejetia Market Kumasi
News	Recent news stories, with the date and the news organisation. Use <i>Tools</i> to show only the past week.	Ghana Meteorological Agency rain

3. Reverse Image Search: Is This Photo Old or Fake?

A **reverse image search** searches with a *picture* instead of words. It shows where else that picture appears on the Web, so you can find out whether a "today" photo is really years old, or from another country.

HOW TO DO IT

Chrome: right-click the picture and choose *Search with Google Lens* (the wording may differ). **Any browser:** go to images.google.com, click the **camera icon**, then upload the picture or paste its link. Bing Images has a camera icon too.

WHAT TO LOOK FOR

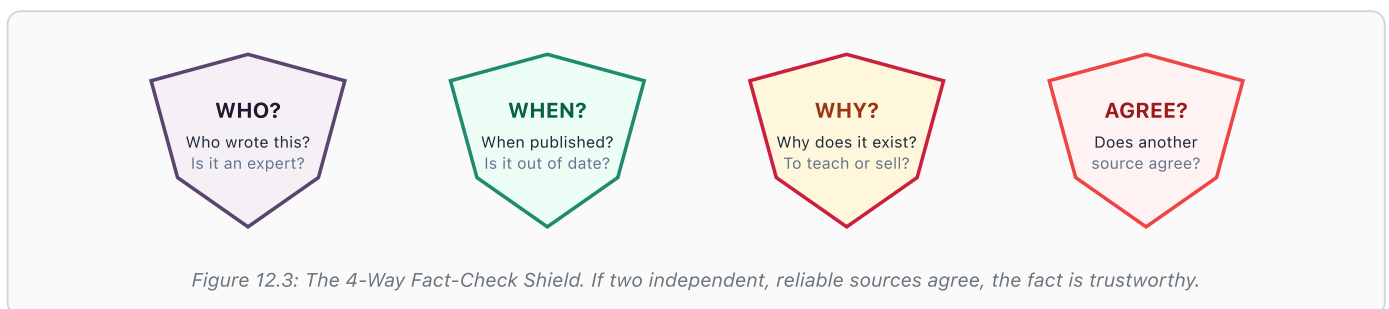
Pages showing the **same picture** (look for "Exact matches"). Which is the **oldest**? What did the first page say the picture shows? If it was online years ago, it is not "today's" news. Edited and AI-made fakes (deepfakes) come in Session 40.

1. Reliable Sources vs. Rumour Sites

✓ Good places to start (Ghana)	⚠ Warning signs of a rumour site
Government ministries and agencies (.gov.gh): e.g. the Ghana Education Service ges.gov.gh, Ghana Statistical Service statsghana.gov.gh, Ghana Health Service ghs.gov.gh.	No author's name and no date.
Universities (.edu.gh): e.g. ug.edu.gh, knust.edu.gh, ucc.edu.gh.	A shocking headline in CAPITALS, "SHARE BEFORE THEY DELETE THIS!!!"
Established national news: e.g. the Ghana News Agency, the Daily Graphic, GBC. They name their reporters and correct mistakes.	A strange address such as ghana-breaking-news24.example.net, lots of pop-ups and adverts.
Encyclopaedias like Wikipedia: a good start, but check the references at the bottom.	No other trustworthy site reports the same story.

2. The 4-Way Fact-Check Shield

Anyone in the world can make a web page and write false information. Before a fact goes into your project, pass it through the shield:



3. Citing a Source: Show Where You Found It

To **cite** a source means to write down where a fact came from, so your teacher (or anyone) can check it. Write three things: the **title** of the page, the **website**, and the **date** it was published or updated (or "no date"), plus the day you visited.

EXAMPLE CITATION

"Kakum National Park" · Wikipedia (en.wikipedia.org) · last edited (the date at the bottom of the page) · visited 14 November 2026

Your turn: Cite a page you visited today (or the Kakum page from Session 11).

POP-UP TRAP: "YOU HAVE WON A FREE PHONE & 5,000 CEDIS!"

While searching you may see flashing boxes saying you won a prize, or that your computer has a virus. **Rule:** if you did not buy a ticket, you did not win! Never click inside the box and never type your name, school or phone number. Close the tab (**Ctrl** + **W**) and tell your mentor.

1. Lab Mission: 5 Facts, 5 Sources

Your team draws a topic card: **Lake Volta, Mole National Park, Kente weaving, Cape Coast Castle** or **cocoa farming in Ghana**. Find **5 true facts**, each with its source. Points: 1 for every fact with a full citation that passes the shield, 1 for every different operator you use, and 2 extra for the first team to finish. First, sharpen your skills in the **Search Detective** 3D lab on your session page.

- 1 Plan your keywords:** Write 3–4 keywords for your topic before you touch the keyboard. Which words will be on the perfect page?
- 2 Search with power tools:** Open a search engine and use at least **two different operators** (for example "Lake Volta" fishing and site:gov.gh). Read the address and snippet of each result before you click. Skip "Sponsored" results.
- 3 Shield every fact:** Who wrote it? When? Why? Does a second, independent site agree? Use **Ctrl + F** to find the fact on the second page quickly. At least one fact must come from a .gov.gh, .edu.gh or national news website.
- 4 Cite it:** Write the title, website and date for each fact in the table. Bookmark your best source (**Ctrl + D**).
- 5 Bonus: photo detective.** Your mentor shows a "viral" photo with a caption. Do a reverse image search. Is the caption true? When and where did the photo first appear?

2. Search Race Record Sheet

Our topic:

#	Fact	Search I typed	Source: title · website · date	Agree?
1	_____	_____	_____	☐
2	_____	_____	_____	☐
3	_____	_____	_____	☐
4	_____	_____	_____	☐
5	_____	_____	_____	☐

Photo detective: What did you find out about the viral photo?

1. Choose the Best Search

For each task, tick the search that will work best.

Task	A	B	C
1. Facts about the Akosombo Dam from government websites.	☐ tell me about the dam	☐ Akosombo Dam site:gov.gh	☐ Akosombo -dam
2. Pages with the exact name Tetteh Quarshie.	☐ "Tetteh Quarshie"	☐ Tetteh OR Quarshie	☐ Tetteh -Quarshie
3. A WhatsApp photo says "Flood in Tamale today". Is it really new?	☐ Share it, just in case	☐ Search flood	☐ Reverse image search it
4. The first result says "Sponsored". What is it?	☐ The most correct page	☐ An advert someone paid for	☐ A government page

2. Written Review Questions

Question 1: Kofi says, "Google and Chrome are the same thing." Explain the difference to him.

Question 2: You find a surprising fact on a website with no author and no date. What should you do before you put it in your project?

3. Self-Assessment & Mentor Sign-Off

Tick the column that reflects your confidence at the end of Session 12:

Searching & Research Competency	With Help	Almost Alone	All By Myself!
1. I can explain the difference between a browser and a search engine.	☐	☐	☐
2. I can search with keywords and the operators "quotes", minus, site: and OR.	☐	☐	☐
3. I can use the Images, Maps and News tabs, spot adverts and do a reverse image search.	☐	☐	☐
4. I can check a source with the 4-Way Shield and cite it (title, website, date).	☐	☐	☐

Mentor Signature: _____

Date Completed: _____