Background Research

How to start…

Why do background research?

So that you can design an experiment
To help you understand the science theory behind your experiment
So you can make a prediction about what will happen
So you will be able to understand what you observe (regardless of whether your prediction was right or wrong)

Why do background research?

In other words,

Science fair judges want to see that <u>you understand</u> why your experiment turns out the way it does.

Background Research

Use a 5 step plan

- Determine your science fair question
- Brainstorm related keywords
- Generate questions to using the "Question Words" table
- Throw out irrelevant questions
- Start your looking up background info

Research Plan

Step 1:

Start with the question you have chosen to investigate for your science fair project

Ex 1. How does flow rate affect plant growth in streams and rivers?
Ex 2. Does storing your orange juice at different temperatures affects its acidity?

Research Plan

Step 2:

Brainstorm all words that may be helpful when searching for information about your topic

Ex 1. Flow rate, stream/river, plant growth, etc.
Ex 2. Acidity, temperature, cooling liquid, etc.

Research Plan

Step 3:

Generate questions using the question words table. Substitute your keywords (or variations of your keywords) for the blanks. **see next slide**

Ex 1. How do you measure flow rate? Who invented plant growth? What is the relationship between plant growth and flow rate?

Question Word Table

Question Word	Possible Questions (you can think of others)
WHY?	Why does _____ happen? Why does _____? Why _____?
HOW?	How does _____ happen? How does _____ work? How does _____ detect _____? How do you measure _____? How do we use _____? How _____?
WHO?	Who needs _____? Who discovered _____? Who invented _____? Who _____?

Question Word	Possible Questions (you can think of others)
WHAT?	What causes _____ to increase/decrease? What is _____ made of? What are the characteristics of _____? What is the relationship between _____ and _____? What do we use _____ for? What _____?
WHEN?	When does _____ cause _____? When was _____ discovered? When _____?
WHERE?	Where does _____ occur? Where does _____ get used? Where _____?

Research Plan

Step 4:

Throw out irrelevant questions

Ex 1. How do you measure flow rate? ~~Who invented plant growth?~~ What is the relationship between plant growth and flow rate?

Research Plan

Step 4 (cont):

Sometimes you won't be sure whether a question is relevant or not, and that's always a good time to get the opinion of more experienced people like your mentors, parents, and teachers (two or three heads are always better than one)!

Research Plan

Step 5:

Start looking up your background info

Also plan to do background research on the history of similar experiments. That way you will know if someone has already found the answer to your question. *If they have, then change or tweak your experiment so you can find new answers!*

Don`t forget

USE OTHER PEOPLE'S BRAINS!

Talk to people with more experience than you: your mentors, parents, and teachers. Ask them:

- "What other questions can I ask to find out more information about my project?"
- "What science concepts should I study to better understand my science fair project?

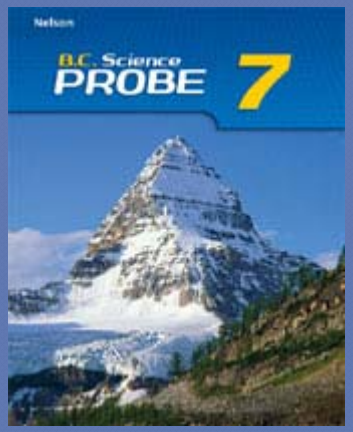
Where to find good information

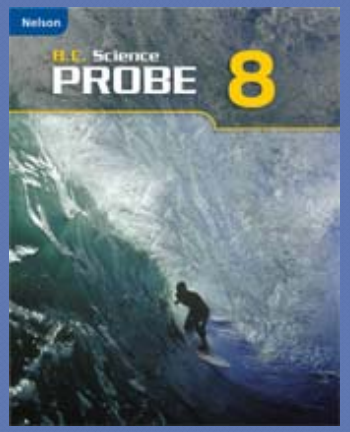
Textbooks
Books in the KLO (or public) library
World Book online
EasyBib (research section)
Internet (from website you have evaluated as credible)

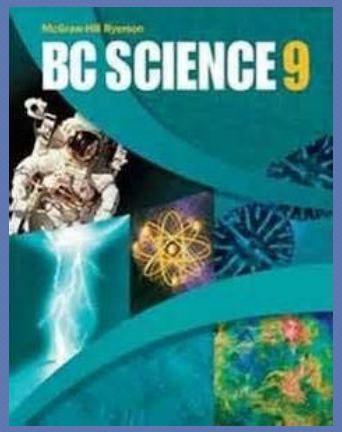
Textbooks

Your textbook OR other textbooks used in the school

Ask your teacher or the teacher-librarian to look at different science textbooks to see if there is information on your topic in any of them

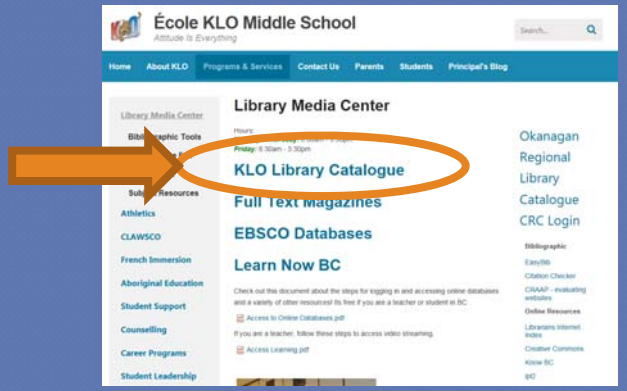


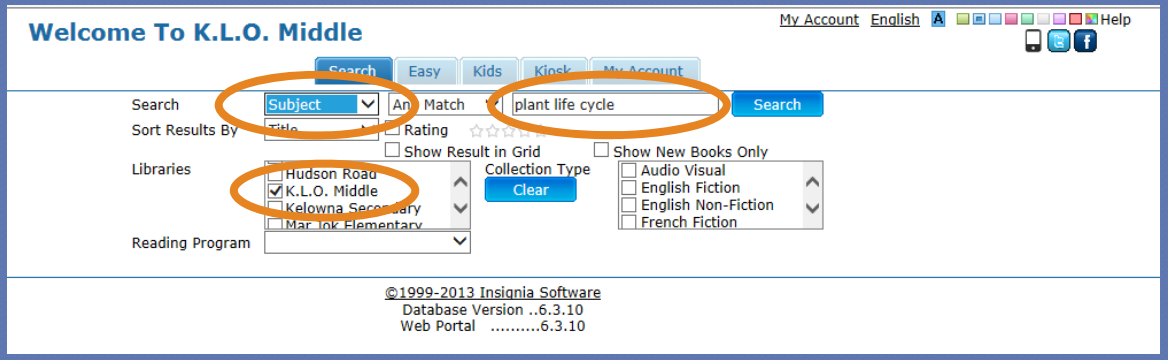




Books in the library

Look on the KLO Library webpage to search the catalogue to see if there are any books on your topic





Once you have the title (ex. The Plant Cycle) of the book(s) and Call No. (ex. ENF 580 MOR) you can come to the library to find them on the shelf. *Ask the teacher librarian if you need help!*

World Book Online

worldbookonline.com

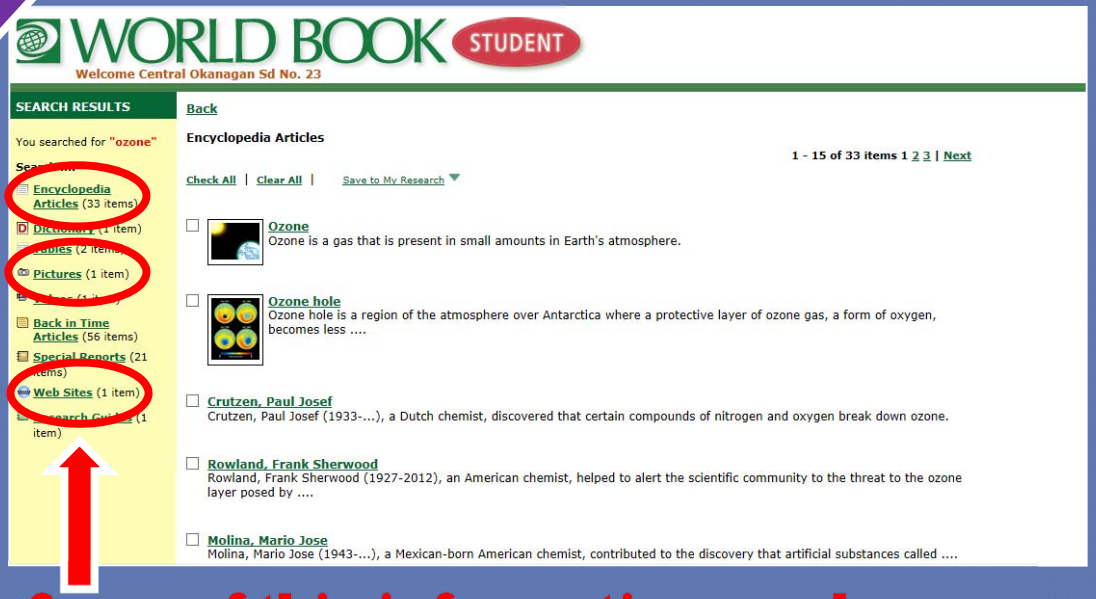
When at school you don`t need a password.

See your teacher or ask the teacher librarian for the password if you will be using logging in from home

World Book Online

1-pick student

2-type in keyword



3-any of this information can be trusted as credible information. Be sure to look at the encyclopedia articles, websites and pictures!

EasyBib Research

research.easybib.com

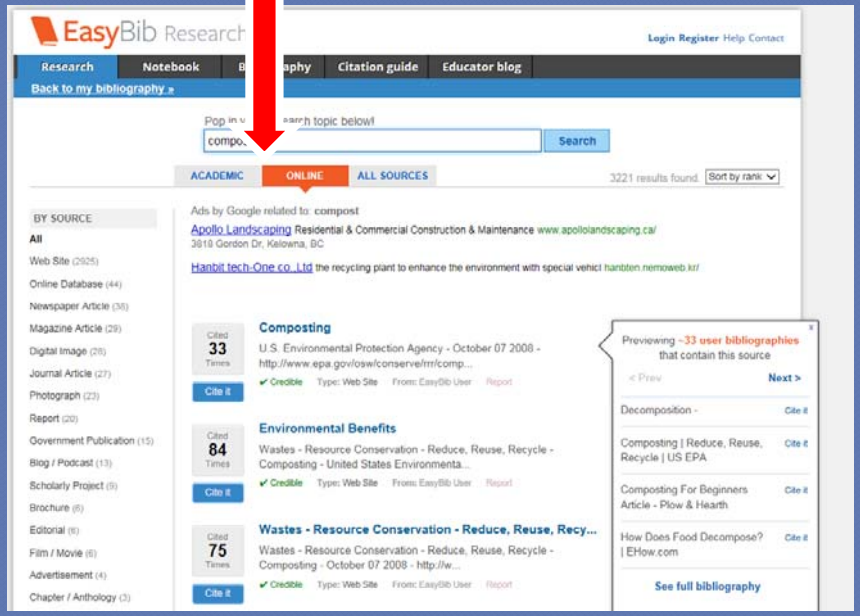
Use the research section to find articles

Use the bibliography section for correctly formatting your sources

EasyBib Research

Type in your keyword

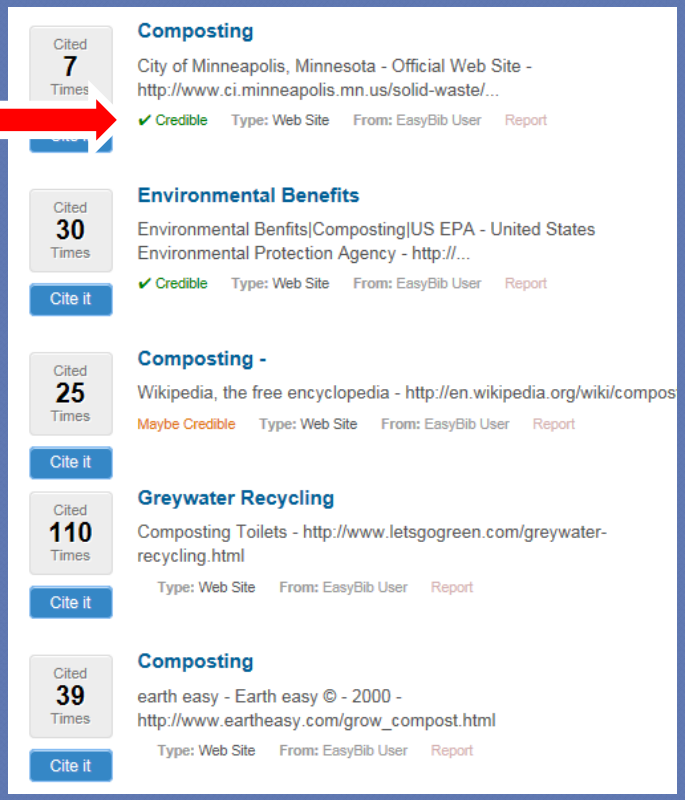
Look at "Online" info or "Academic" info by switching tabs



Use Credible Sources

Be sure to use credible sources

One way is by checking the "rating"



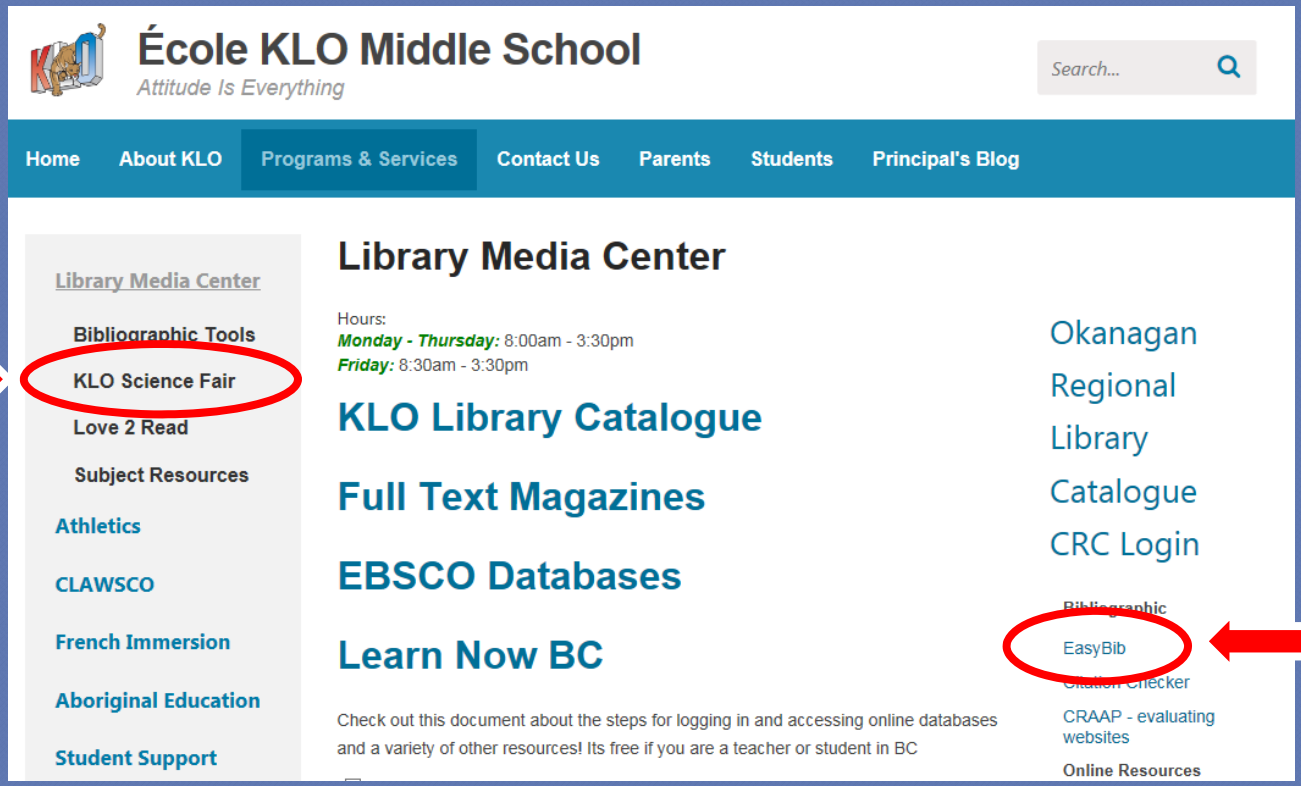
But Remember

Wherever you find your info be sure you understand it!

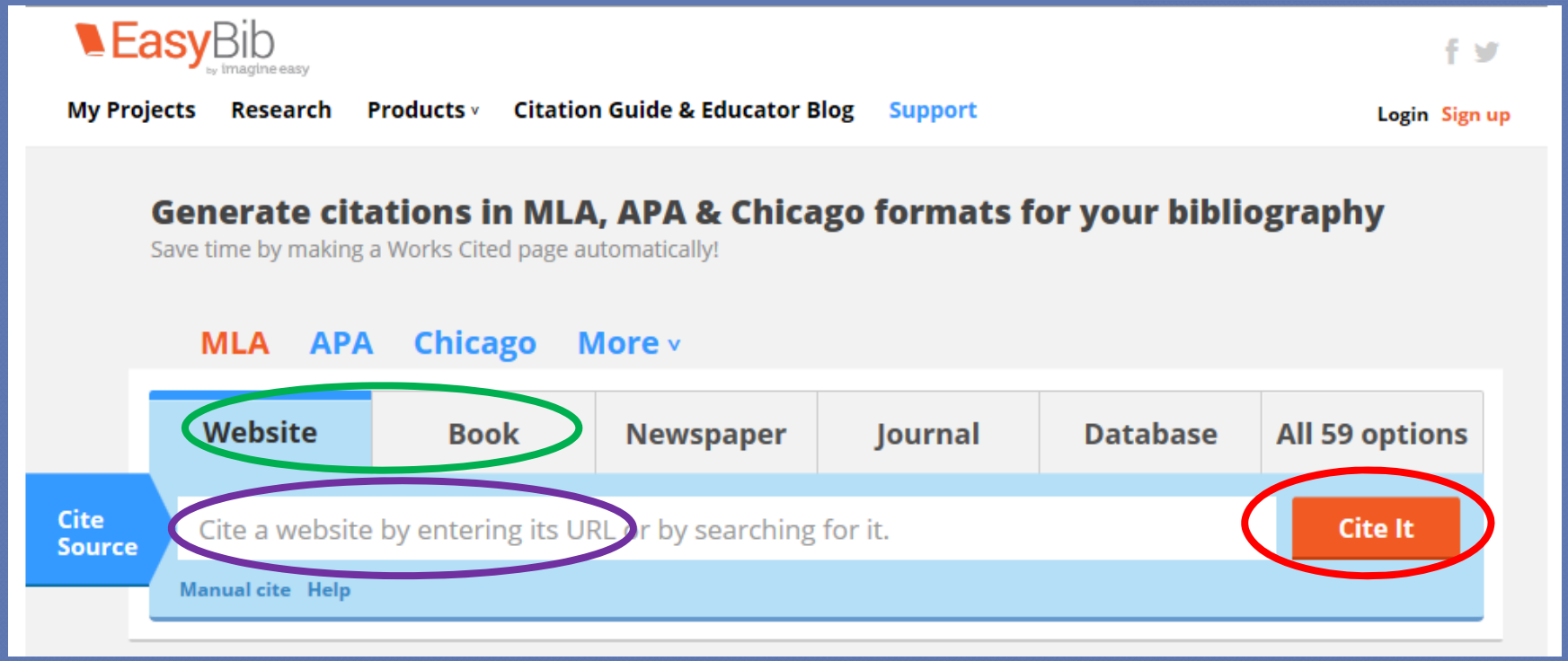
If you don't know some of the vocabulary either look it up OR find a different source of information at YOUR GRADE LEVEL

Another Good Place to Look

KLO Library Website



EasyBib Bibliography



1-pick correct information source, is it a website, book, etc.
2-copy/paste website URL or type in book title
3-click "Cite It"

KLO Science Fair