



طريقك إلى النجاح
YOUR WAY TO SUCCESS

English Language

Semesters 1 and 2: 2024-2025

Instructor

Manar S.M. Al-Jethelah, PhD

Text book: Headway Academic Skills: Reading, Writing, and Study Skills, Level 2. By: Sarah Philpot, Series Editors: John and Liz Soars



طريقك إلى النجاح
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CHAPTER 1

COLLEGE OF ENGINEERING - كلية الهندسة
Tikrit University - جامعة تكريت



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YOUR WAY TO SUCCESS

READING



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YOUR WAY TO SUCCESS

Effective Reading

- Skimming
- Scanning
- Intensive reading
- Extensive reading



Effective Reading

Skimming

Sometimes you will read just to get a **general idea of a text**. This is skim reading. First, identify your **reason for reading**, for example, to decide whether an article meets your needs or perhaps to understand a writers' attitude.





Effective Reading

Skimming

How to skim:

- ✓ Read the text very quickly. Don't worry about reading and understanding everything.
- ✓ Look particularly at the first and last paragraphs, and the first and last sentences of paragraphs. These often summarize the main points. (**Abstract and Conclusion**).
- ✓ Review tables and figures



Effective Reading

Scanning

Sometimes you will **read quickly** to **find particular pieces of information**, for example, **an equation, a device, properties, or a chart**. Again, you do not need to read every word to find this information.



Effective Reading



Scanning

How to scan

- ✓ Know what information you are searching for even before you start to read (write it down)
- ✓ Scan the text using your finger or a pencil to move quickly through the words. You could time yourself to see how long it takes you to find the information. Always try to improve your speed.
- ✓ Only look for the information which you need.



Effective Reading

Intensive reading

Sometimes you read for **every detail**, for example, a **description of a process**, the results of a scientific study, or a set literature text.



Effective Reading



Intensive reading

How to read intensively:

- ✓ Take your time.
- ✓ Stop and think about what you are reading. Have you understood the text?
- ✓ You may need to read the text more than once, in order to make notes or highlight important points for future reference.



Effective Reading

Extensive reading

Sometimes you will read for pleasure — perhaps as extra research, or purely for interest. You may concentrate, but you don't have to worry about detail. This is extensive reading.





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WRITING

Writing Emails



- Requesting a paper/papers
- Ordering device(s)/material(s)



Email construction

Dear ????,

Introductory statement

Body

Finishing statement

Warm Regards,

YOUR NAME

Your Affiliation

For paper request, the body includes:

- Introducing yourself
- The details of the requested paper: Title, journal, volume, issue, and publishing year

For device/material request, the body includes:

- Introducing yourself
- The device/material name, specifications, quantity, and price



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Requesting a paper/papers

Dear Dr. Rooker,

I hope my email finds you well.

I am a MSc student in Chemical Engineering Department- Tikrit University. I am working on Electrochemical microstructured reactors.

I read your amazing paper entitled “Electrochemical microstructured reactors: design and application in organic synthesis“ published in Reviews in Applied Electrochemistry 39, 2297 (2009).

<https://doi.org/10.1007/s10800-009-9939-6>. I find it very helpful for my work. I appreciate if you could send me a copy of it. This will greatly help me with my work.

Thank you for your consideration,

Warm regards,

Ahmed F. Ali, MSc student

Chemical Engineering Department, Tikrit University

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Ordering device(s)/ Material(s)

Dear Sir/Madam,

Thank you for taking time to read my email.

I am a MSc student in Mechanical Engineering Department- Tikrit University. I am working on nano-materials.

In my experimental work, I need a 35 g of nano-Cu. Would you please let me know if you have some? If so, please send me a quote.

Warm regards,

Ahmed F. Ali, MSc student

Mechanical Engineering Department, Tikrit University



Assignment

Write an email to request a paper or order a device or a material.





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VOCABULARY DEVELOPMENT



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Dictionary work

Word information in dictionaries:

- ✓ Part of speech (noun, pronoun, verb, adjective, adverb, preposition, conjunction, and interjection)
- ✓ Stress (Word stress indicates which syllables are stressed - or emphasised - in a word)
- ✓ Pronunciation
- ✓ Definitions
- ✓ Example sentences



Dictionary work

Text Documents

DETECT LANGUAGE ENGLISH ARABIC SPANISH

accommodation

pronunciation
stress

əˌkɑːməˈdeɪʃ(ə)n



13 / 5000

Definitions of accommodation

Noun

part of
speech
definition

1 a convenient arrangement; a settlement or compromise.

"management was seeking an accommodation with labor"

Synonyms:

- arrangement
- understanding
- settlement
- accord
- deal
- bargain
- compromise

example sentences

2 the process of adapting or adjusting to someone or something.

"accommodation to a separate political entity was not possible"

Synonyms:

- adjustment
- adaptation
- attunement
- fitting in
- habituation
- acclimatization
- acclimation
- acculturation
- inurement
- hardening
- seasoning
- conditioning
- familiarization
- assimilation
- integration

Dictionary work

pronunciation
no stress

part of speech

definition

example sentences

soil

soil

5 / 5000

Definitions of soil

Noun

1 the upper layer of earth in which plants grow, a black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles.
"blueberries need very acid soil"

Synonyms:
earth loam sod ground dirt clay turf topsoil mold humus
marl dust

2 waste matter, especially sewage containing excrement.

Verb

1 make dirty.
"he might soil his expensive suit"

Synonyms:
make mucky muck up dirty get/make dirty get/make filthy blacken
grime begrime stain muddy splash spot spatter splatter
smear smudge sully spoil defile pollute contaminate foul
befoul

2 feed (cattle) on fresh-cut green fodder (originally for the purpose of purging them).





Dictionary work

Google Translate

Text Documents

SELECT LANGUAGE ENGLISH ARABIC SPANISH

catalyst

ˈkɑd(ə)ləst

9 / 5000

Definitions of catalyst

Noun

1 a substance that increases the rate of a chemical reaction without itself undergoing any permanent chemical change.

"chlorine acts as a catalyst promoting the breakdown of ozone"

Examples of catalyst

" chlorine acts as a **catalyst** promoting the breakdown of ozone

stress pronunciation

part of speech

definition

example sentences



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CHAPTER 2



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New Prototype of Photovoltaic Solar Tracker Based on Arduino

Abstract: The global increase in energy demand and exponential exhaustion of fossil resources has favored the development of new systems of electricity production. **Photovoltaic solar energy** is undoubtedly one that has the highest application in housings, due to its simplicity and easy implementation. **In this work, a new prototype of photovoltaic solar tracker with Arduino platform was developed. Feedback control system that allows carrying out solar tracking with two axes using a stepper motor and linear actuator was established through an electronic circuit based on photodiodes.** Moreover, real construction of the prototype was carried out, where the effectiveness of the design and its capacity to draw a maximum benefit of an incident radiation can be observed, placing the panel perpendicularly to the received energy and improving its performance for its application in future installations in housings. **Results obtained from the comparison between the developed prototype and a static panel oriented according to the latitude of the area, show about 18% energy gain.**

W. Zhou, Z.M. Xu / Journal of Materials Processing Technology 63 (1997) 358-363

Skimming and Scanning

- ✓ What is the background of the topic?
- ✓ What is the novelty of the article?
- ✓ What are the studied devices, methods, materials, parameters, and/or ranges?
- ✓ What are the obtained results?

Casting of SiC Reinforced Metal Matrix Composites

Abstract

Composites based on two aluminium alloys (A536 and 6061) reinforced with 10% or 20% volume fraction of SiC particles were produced by gravity casting and a novel two-step mixing method was applied successfully to improve the wettability and distribution of the particles. The SiC particles were observed to be located predominantly in the interdendritic regions, and a thermal lag model is proposed to explain the concentration of particles. It was found that the SiC particles acted as substrates for heterogeneous nucleation of Si crystals in one of the cast composites. This observation can also be explained by the thermal lag model proposed.



Skimming and Scanning

- ✓ What is the background of the topic?
- ✓ What is the novelty of the article?
- ✓ What are the studied devices, methods, materials, parameters, and/or ranges?
- ✓ What are the obtained results?



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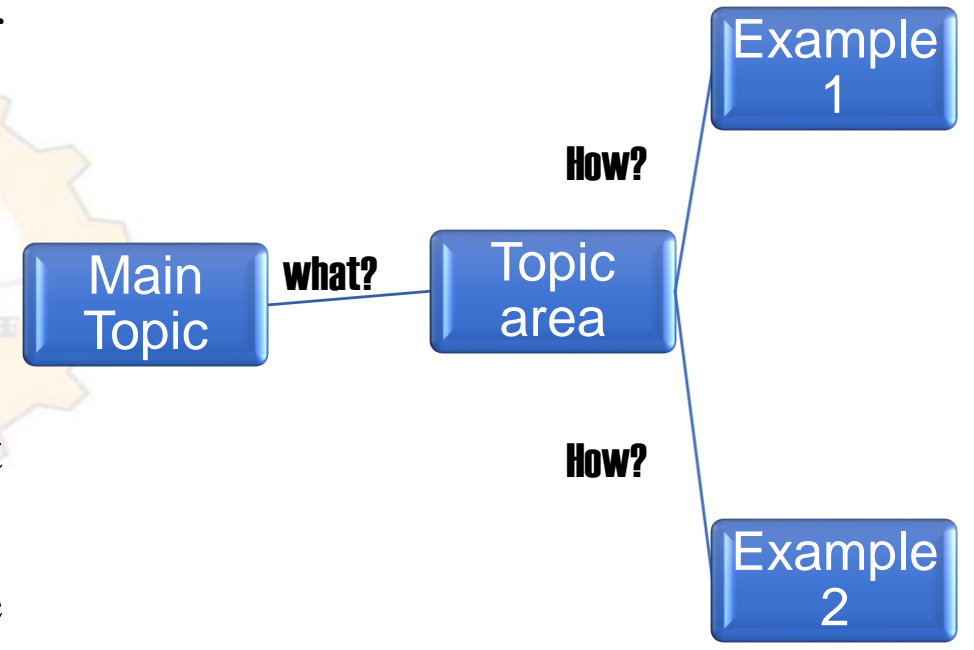
WRITING



STUDY SKILL: Brainstorming ideas

- ✓ Before you write, think about the topic.
- ✓ Use a diagram to help you organize your thoughts.
- ✓ Decide on topic areas, and think of examples.
- ✓ Write notes and single words on the diagram.
- ✓ Don't discard any ideas or thoughts at this stage.
- ✓ Don't worry about what is more or less important at this stage.

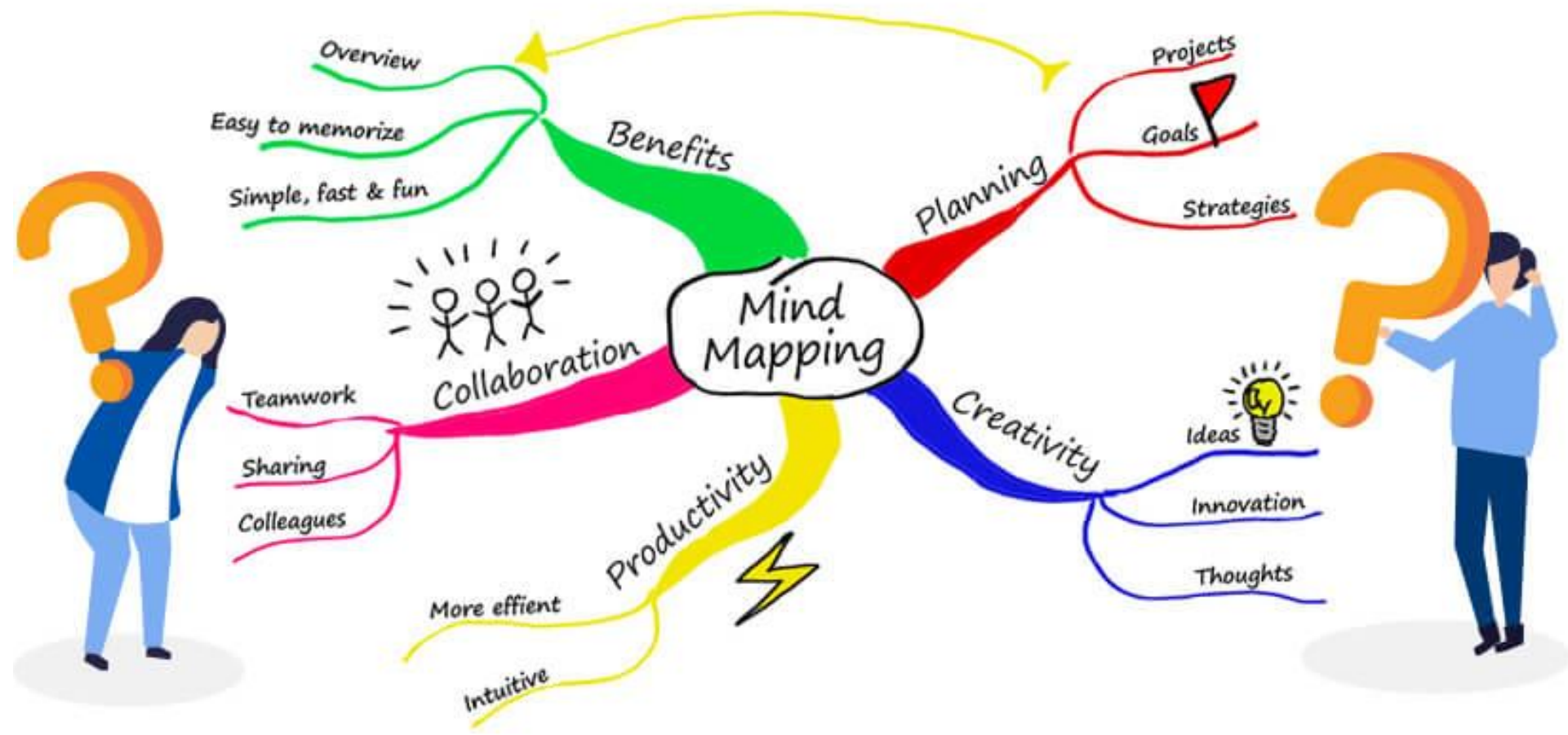
When you finish brainstorming ideas, choose which ideas you want to use in your writing, and decide on a logical order for them.





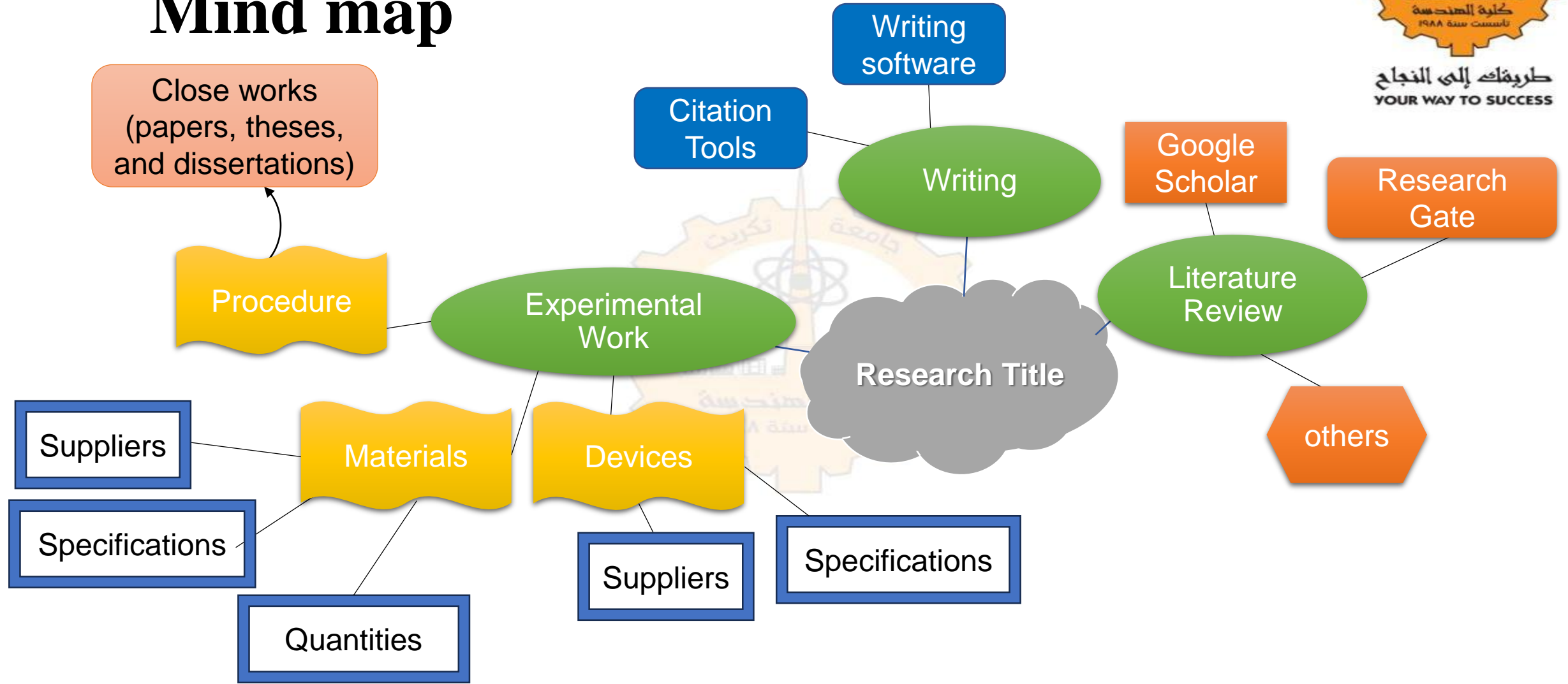
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Mind map





Mind map





ASSIGNMENT

Draw a mind map for a thesis/ paper plan





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VOCABULARY DEVELOPMENT



STUDY SKILL: synonym and antonym

A **synonym** is a word or phrase that has the same meaning as another word or phrase.

Example: show \approx reveal \approx indicate

Figure 1 **shows/ reveals/ indicates** the influence of heat on the upper layer.

An **antonym** is a word or a phrase that means the opposite to another word or phrase.

Example: dry \times wet

The soil was **not dry** when the experiment was conducted. \times

The soil was **wet** when the experiment was conducted. \checkmark



Suggest for me

Each department, please suggest two synonyms and two antonyms.



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CHAPTER 3



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READING



Predicting Content

Read (**The History of the Invention of Plastics**) then answer the questions following it.





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WRITING

STUDY SKILL: Sentences

- Write short, clear sentences. (\approx 20 words)
- Join ideas and sentences using linking words (conjunctions), e.g. however, after, etc.
- Punctuate correctly using capital letters, full stops, question marks, exclamation marks , commas, semi-colons, and colons.



Where to Use commas

1. Use commas to separate items in a **series of three or more words, phrases, or clauses**.
[*The paper was researched, drafted, and proofread.*]
2. Use a comma before a **coordinating conjunction** (FANBOYS: *for, and, nor, but, or, yet, so*) linking two main clauses when the subject is stated. [*The weather was getting foggy, so the experiment was canceled.*]
3. Use a comma to set off **introductory words, phrases, and clauses from main clauses**.
[*Finally, three grams of silicon were added to the mixture.*]
4. Use a comma (or a pair of commas) to separate from the rest of the sentence any word, phrase, or clause that is **not essential to the sentence's meaning** or that means the same as something else in the sentence. [*My professor, Dr. Khalid, has approved my proposal.*]
5. Use a comma between **coordinate adjectives** (adjectives which each modify the same noun) not joined by *and*. [*The figure shows an unexpected, dangerous contamination.*]

Where to Use semi-colon

1. Between two independent clauses NOT joined by a coordinating conjunction (and, but, or, nor, for, so, yet) [*Several years had passed since she started her research; she now realized that she was no longer interested in the project.*]
2. Between two independent clauses joined by conjunctive adverbs (however, therefore, moreover, nevertheless....) [*A contamination was detected; however, its level was within the safe range.*]
3. In a series of phrases or clauses with internal commas
The used measurements were voltmeter, ammeter, and Ohmmeter.
The used measurements were voltmeter, Omega; ammeter, Philips; and Ohmmeter, Siemens.

Where to Use colon

1. To formally introduce a quotation [*A successful manager should have three characteristics: intelligence, patience, and understanding.*]
2. After an independent clause to introduce a word, phrase or clause that explains the first
 - ✓ *Most people agree on one thing: we could all use more money.*

But not:

- ✗ *The three variables are: temperature, light, and humidity.*



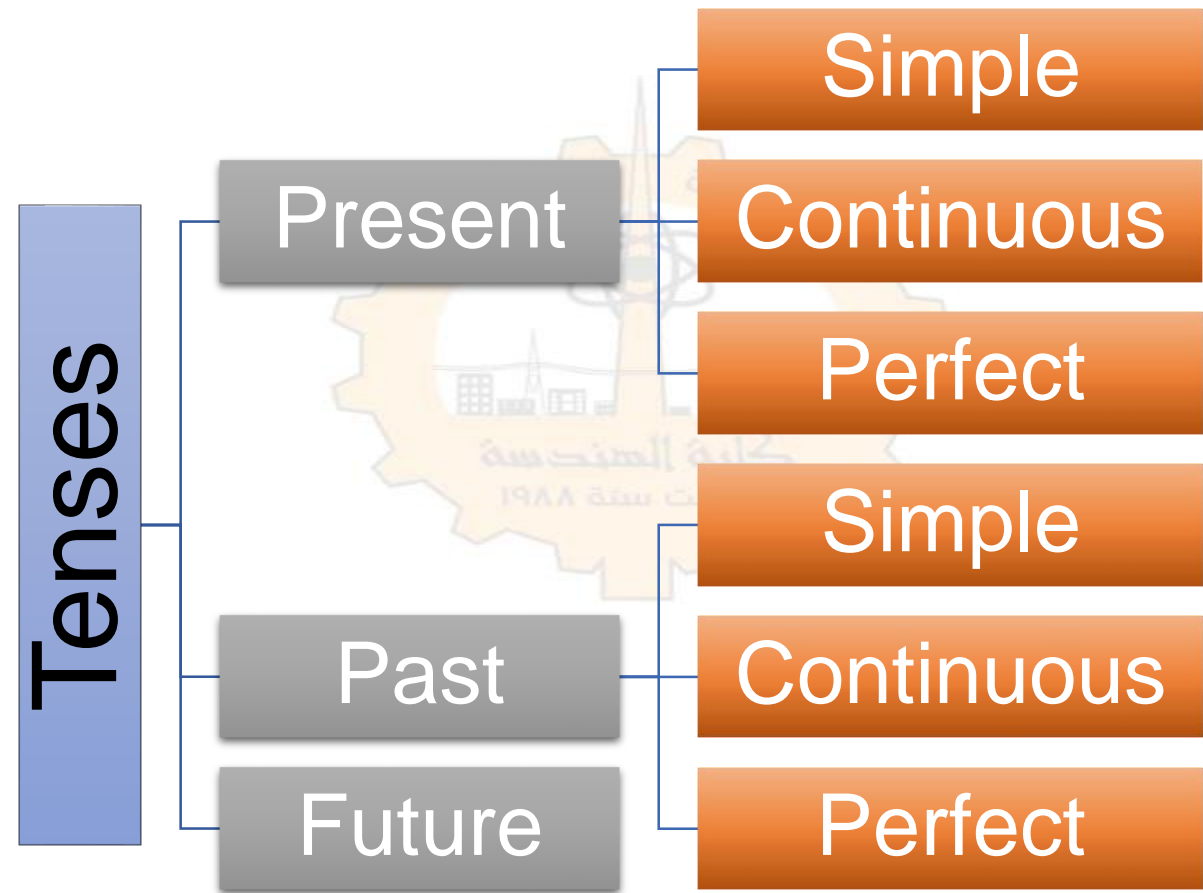
STUDY SKILL: Paragraphs

To help your writing flow:

- Group ideas on the same topic together in a paragraph.
- Make sure there is a clear link between the content of one paragraph and the next.



STUDY SKILL: Varying the structure





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STUDY SKILL: Varying the structure





STUDY SKILL: Varying the structure

Express writing a paper by yourself using different tenses.

PRESENT

I WRITE A PAPER.
I AM WRITING A PAPER.
I HAVE WRITTEN A PAPER.

PAST

I WROTE A PAPER.
I WAS WRITING A PAPER.
I HAD WRITTEN A PAPER.

FUTURE

I WILL WRITE A PAPER.
I AM GOING TO WRITE A PAPER.



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VOCABULARY DEVELOPMENT





STUDY SKILL: Antonyms from prefixes

The antonyms of some words can be made by adding a prefix such as un-, in-, im-,... etc.

Word	Antonym
expected	unexpected
regular	irregular
logical	illogical
visible	invisible
perfect	imperfect



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CHAPTER 4



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READING



Identifying the main message-topic sentences

Students are often required to do a large amount of reading. To save time and select the best text(s) for your needs, it is important to identify the main message as quickly as possible.

To do this:

- look at the title.
- quickly skim the text to find the topic sentences. They are usually the first sentence in each paragraph. They summarize what the paragraph is about.



Identifying the main message-topic sentences

THE SILENT PLANE

Annoyance from aeroplane noise could be a thing of the past as plans are announced to design a silent aircraft. The aim is to reduce the noise from a plane so that city-dwellers will no longer hear it passing overhead once it has left the airport. This noise reduction will be achieved in three main ways. Firstly, the plane is being designed as a single, wide wing. Secondly, the engines will be placed above the wing, inside the plane, rather than under the wings and outside, and thirdly the airplane will be flown differently, for example at a reduced speed when it is near the airport. The aircraft is just a design concept at the moment and many technological challenges will have to be met before we have silent planes overhead.

Identifying the main message-topic sentences

THE SILENT PLANE

Are the statements true (T) or false (F)?

1. Maybe one day planes won't make a noise.
2. Noise is being reduced in two ways.
3. The project to build the plane hasn't begun yet.



Identifying the main message-topic sentences

THE CAR THAT DRIVES ITSELF

- A. _____ It can steer itself and control its speed. This is the latest development in the long history of the automobile industry.
- B. _____ The first is a radar sensor in the front of the car. It scans the road in front of the car, looking for other vehicles. It then speeds the car up or slows it down according to the traffic conditions. The second device is a camera below the rear-view mirror which watches the white lines in the road. It uses these lines as a guide to steering the car.
- C. _____ Firstly, the system can only work on motorways, and secondly, they still need a driver. If the driver doesn't touch the steering wheel every 10 seconds, the devices can stop working.
- D. _____ They are already working on new models that will be able to drive on city roads. So, perhaps one day soon, we will be able to jump into our cars and sleep or read a book as we are driven to work!



Identifying the main message-topic sentences

THE CAR THAT DRIVES ITSELF

Match the summaries a-d with topic sentences 1-4. Do not read the article.

Summaries	Topic sentences
a- describing how the car works	1- A car manufacturer has designed and built a car that drives itself.
b- predicting future developments	2- Despite these disadvantages, car manufacturers see driverless cars as the future
c- outlining some problems	3- However, there are still two main drawbacks.
d- introducing the subject	4- The car works using two main devices.



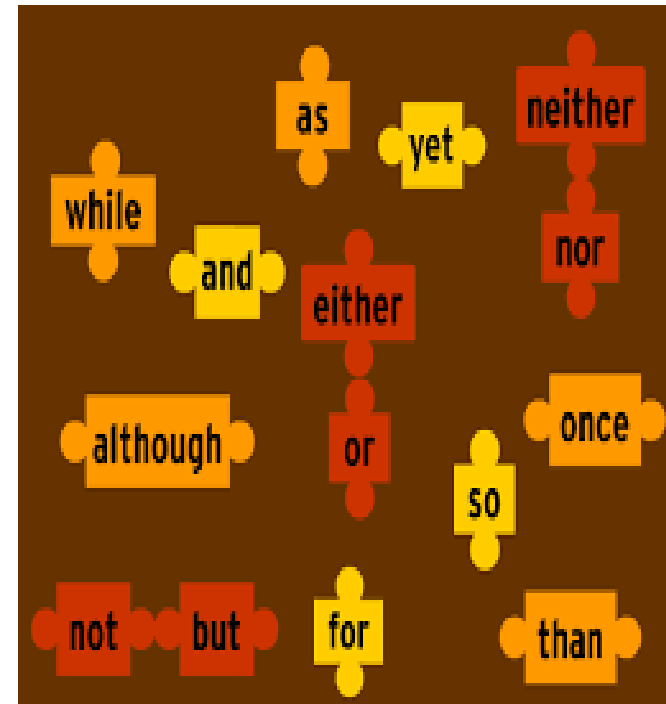
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WRITING

STUDY SKILL: Organizing ideas

To help the reader understand your writing and follow your ideas, link short, simple ideas. Use:

- firstly, secondly, ... **for more than one argument or idea**
- however, on the other hand, despite ... **for a contrast between two ideas**
- for instance, for example, ... **for an example to illustrate an idea**
- in conclusion, to sum up, ... **for the final comment**



ASSIGNMENT: Write sentences examples for the cases above.



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VOCABULARY DEVELOPMENT

STUDY SKILL: Varying Vocabulary/ avoiding repetition



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To avoid sounding repetitive in your writing, try not to use the same words too often. Where possible, use a synonym

Word	Synonym
Finally	Lastly
Firstly	In the first place
For example	For instance
However	But
In conclusion	To conclude
On the other hand	In contrast
Disadvantage	Drawback
Necessary	Essential
Increase	Rise



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CHAPTER 5



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READING

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NATIONAL UNIVERSITY OF TURKEY

We have pleasure in inviting Dr Ahmed Ali to
3rd International Conference for Engineers

5 October — 8 October, 2025 Venue: Istanbul City Hotel



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Program Day 1

- 9:00-10:30 Plenary Session
Chair Dr John Bryan, Head of Engineering, University of Leeds
- 10:30-11:00 Coffee break and exhibition
- 11:00-13:00 Choice between:
- Chemical Engineering
Dr Ahmed Ali, Senior Lecturer, Tikrit University, Iraq.
 - Mechanical Engineering
Dr. Mahmoud Suhbi, The University of Jordan, Jordan
 - Electrical Engineering
Dr Meral Soyer, Lecturer, National University of Turkey, Turkey
- 13:00-14:00 Lunch
- 14:00 Coach leaves hotel for sightseeing tour. Visits will include: Hagia Sophia/Blue Mosque/ Topkapi Palace
- 17:00 Return to hotel
- 20:00 Dinner

Program Day 4

- 16:00 Final Plenary Chair Dr John Bryan,
Head of Engineering, University
of Leeds
- 20:00 Farewell Dinner

NATIONAL UNIVERSITY OF TURKEY

We have pleasure in inviting Dr Ahmed Ali to
3rd International Conference for Engineers

5 October — 8 October, 2025 Venue: Istanbul City Hotel



Answer the following questions:

1. Where is the conference being held?
2. Who is the conference for?
3. When does the conference start and finish?
4. What time does the sightseeing tour start?
5. What time is the Farewell Dinner?



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WRITING

STUDY SKILL: Using formal expressions

When you write emails for academic or professional purposes, it is important to use a more formal tone. You can do this by learning fixed expressions by heart. For example:

- I have great pleasure in + -ing.
- I am writing + infinitive.
- I would like + infinitive.
- Please feel free + infinitive.
- I look forward to + -ing.
- Please find attached/ enclosed + noun.



STUDY SKILL: Using formal expressions

Dear Dr Bryan,

I have great pleasure in accepting your kind invitation to the 3rd International Conference for Engineering to be held in Istanbul from 5th to 8th October, 2025.

Please find attached my arrival and departure details as requested. It would be greatly appreciated if you could send me the contact details (email and telephone) for the City Hotel.

I look forward to meeting you and your colleagues in October.

Yours sincerely,

Dr Ahmed Ali

Tikrit University



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VOCABULARY DEVELOPMENT

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جامعة تكريت - Tikrit University



STUDY SKILL: Suffixes

Part of speech	Suffix	Meaning	Example
noun	-tion	A process, state, or result	construct, construction
	-ment	An action or state	measure, measurement
	-ity	Quality of	valid, validity
	-ness	A quality or state	rough, roughness
adjective	-al	Pertaining to	logic, logical
	-ful	Full of	use, useful
adverb	-ly	In a manner	quick, quickly



STUDY SKILL: prefixes



Adding a prefix changes the meaning of a word. Each prefix has a different meaning and can be found as a separate entry in the dictionary.

Prefix	Meaning	Example
Anti-	against	freeze, anti freeze
Mis-	wrong, not	use, mis use
Micro-	small/ tiny	channel, micro channel
Post-	after	graduate, post graduate
Bi-	two/ twice	monthly, bi monthly
Sub-	under	marine, sub marine
Trans-	across, change	form, trans form
Re-	again	view, re view
Auto-	by itself/oneself	pilot, auto pilot
Multi-	many	phase, multi phase



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CHAPTER 6

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READING

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Making Notes

Take time to make good notes. They will help you to organize, record, and remember important information you have read. Use your notes to prepare for paper/ thesis writing and for doing revision. To find and mark relevant information:

- ask yourself what information you need.
- read and underline/highlight relevant information in the text (use different colors to represent different types of information).
- rewrite the information as notes.

To organize your notes:

- use bullet points, headings, and numbering.

To be concise:

- don't write full sentences. Leave out words that are not central to understanding/meaning:
 - articles (a, an. the)
 - the verb to be
 - prepositions (in, at, on)
 - auxiliary verbs (has sent)
- Use some simple abbreviations and symbols as:

Making Notes

e.g. (for example)

& (and)

? (uncertain/ not sure)

∴ (therefore/ so)

∵ (because/ as/ since)

= (equals/ means/ same as)

≠ (does not equal/ is not the same as)

> (greater than)

< (less than)

≈ (about)

→ (leads to/ implies)

↑ (rising/ increasing/ growing)

↓ (falling/ decreasing/ dropping)



Making Notes

In this paper, forced-convection boundary-layer of MHD Al_2O_3 -water nanofluid flow over a horizontal stretching flat plate is investigated using Homotopy Analysis Method (HAM) and fourth order Runge-Kutta numerical method. Comparison between HAM and numerical method shows that HAM is an exact and high efficient method for solving these kinds of problems. The influence of the nanofluid volume fraction (ϕ) and magnetic parameter (Mn) on non-dimensional temperature and velocity profiles is investigated. As an important outcome, by increasing Mn number, thermal boundary layer thickness significantly increased but increasing the nanofluid volume fraction hasn't very sensible effect on it.

$\uparrow Mn \rightarrow \uparrow \delta$
 $\uparrow \phi \rightarrow \times \text{effect}$

Hatami, M., Nouri, R. and Ganji, D.D., 2013. Forced convection analysis for MHD Al_2O_3 -water nanofluid flow over a horizontal plate. *Journal of Molecular Liquids*, 187, pp.294-301.



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WRITING



PARAPHRASING AND SUMMARIZING

You often need to use other sources, for example other people's work, in your own work and reports.

This can be done by: Example sentence: "Cold water boils slower than hot water."

- **Paraphrasing** information, that is, rewriting information in your own words. Use synonyms wherever possible. "Warm water boils faster than chilled water".
- **Summarizing** the information, that is, linking the main points in your own words. "Hot water reaches the boiling point before cold water".

NOTE: You may **quote** directly from the piece of work, but it is essential to give the source of the quote and its author, e.g. Walker et al. [1] concluded that "... cold water boils slower than hot water".

The use of other people's work 'word for word' without saying you have done so (plagiarizing) is strictly not allowed.

PARAPHRASING AND SUMMARIZING



Paraphrase the following

According to the final results, the maximum thermal efficiency enhancement with the nanofluid was close to 0.8%, while the pumping work demand was increased up to 50% with the nanofluid.



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VOCABULARY DEVELOPMENT



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Noun/verb + preposition

To use a word correctly, it is necessary to know the words which are associated with it, e.g.,

noun+ preposition: **a connection between**

Verb + preposition: **to die from**

When you look up a new word in the dictionary, remember to

note the preposition(s) that go with it. The example sentences will help you to find the correct preposition.

Noun/verb + preposition

noun + preposition

A source of

An increase in

A connection between

A shortage of

verb +
preposition

Lead to

Contribute to

Decreased by

Looking at/ for
ways



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CHAPTER 7



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READING

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Using Original Sources

Decide what information you need from a source. Scan the text to find the relevant part.

Original sources often have difficult language and unknown vocabulary, so don't worry about not understanding *everything*. You can:

- ✓ guess the meaning of unknown words from context.
- ✓ use a dictionary.
- ✓ try a different source.



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RESEARCH

كلية الهندسة - COLLEGE OF ENGINEERING
جامعة تكريت - Tikrit University

Developing a Search Plan

To make an Internet search more efficient and reliable, develop a search plan.

Ask yourself the following questions:

- ✓ What is the general search topic?
- ✓ What information do I need to find out?
- ✓ What keywords and phrases will help me?

List the keywords and phrases in order of importance.



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Adding Extra Information

One way of adding extra information is to use a non-defining relative clause.

The first experiment was conducted in the morning. It was the main experiment.

- The first experiment, which was the main experiment, was conducted in the morning.
- The first experiment, which was conducted in the morning, was the main experiment.

Use commas and relative pronouns who (for people), which (for things and animals), and where (for places, but omit 'there').



Organizing Ideas

Always consider carefully the most appropriate way to organize the information in your writing. When writing, experiment procedure, for example, it is usual to follow the experiment order. **Assignment**



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VOCABULARY DEVELOPMENT

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Topic Vocabulary

Keep a vocabulary notebook or computer file and give each page a topic title, e.g. the arts, technology, etc. Record all new words of the same topic together on one page.



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Rephrasing and Explaining

In technological or scientific texts, some words are often rephrased or explained:

FAO

, that is,

, i.e.,

, in other words,

or

the Food and Agriculture Organization...

Sometimes, an example is given instead. Look out for:

Any metal contains iron is magnetic

, e.g.,

; for example,

; for instance,

steel contains iron, so it will be attracted to a magnet...



Avoiding Repetition

Pronouns are used instead of repeating the same words. Understanding what pronouns refer to help you understand a text.

➤ **it** replaces a singular noun or noun phrase, e.g.

The filler reduces the crystal's thickness. Also, **it** leads to a decrease in melting temperature.

➤ **they** replaces a plural noun or noun phrase, e.g.

Hamed et al. studied different cases. **They** compared the single-phase model ...



Avoiding Repetition

➤ **this** summarizes previous information and adds new information, e.g.

The reinforcing effect becomes significant at 30 wt.%. **This effect** is more pronounced for HDPE matrix ...

Using pronouns also makes a text more cohesive, or connected.



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Linking Ideas

To connect ideas that show the cause, result, and contrast use linking words and phrases.

➤ For **cause**, use **because**, **as**, and **since**:

result **linking word (conjunction)** reason

The temperature increased (because/ as/ since) the heater was turned on.

Linking Ideas

➤ For **result**, use **as a result**, **consequently**, **therefore**, and **so**:

Reason **linking word/phrase (conjunction)** result

- I dropped my laptop. As a result, the screen cracked.
- The weather was rainy; therefore, the experiment was canceled.
- The device was calibrated, so the results were adopted.

Linking Ideas

- For **contrast** (unexpected/ opposite), use **however, although, on the other hand, despite, and but**:

- The test is inaccurate. **However**, it is still used. unexpected
- **Although** the experiment procedure is complicated, it is widely used. unexpected
- The increase in conductivity was significant using parameter X. **On the other hand**, parameter X reduced the density. opposite

Coherent Writing

To write up your notes in a natural and coherent style:

- make good notes
- write simple sentences, and join them using linking words and phrases
(see previous slides)
- use synonyms and pronouns to avoid repetition



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Linking Ideas

Sequencing words are used to **link steps** in a description of a process. Some examples are:

- Firstly, ... **Secondly**, etc.
- Then ... **Next**, ... **After that**, ... **Subsequently**, ... etc.
- Finally/ Lastly,



Compound Nouns

A compound noun can be formed by putting two nouns together. Sometimes these are written:

- ✓ as two words, e.g., radio waves
- ✓ as one word, e.g., microwave
- ✓ with a hyphen, e.g., data-processing.

Compound Adjectives

A compound adjective can be made with:

- ✓ a noun + adjective. e.g., computer literate
- ✓ an adjective + present/past participle. e.g., easy-going
- ✓ an adverb + present/past participle. e.g., well-known
- ✓ an adjective + noun, e.g. blue-eyed

Examples:

long-term

poorly-written

well-written

small-scale

highly-qualified

high-speed



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The Passive Voice

When describing a process or a scientific experiment, it is important to write in a neutral style, as an observer. To do this, you can use the passive voice.

➤ The Present Simple Passive is often used in descriptions of processes:

(is/ are + past participle)

An optimization technique is used to determine the best parameters of the studied models.

➤ The Past Simple Passive is often used to talk about experimental work, inventions, and discoveries:

(was/ were + past participle)

Deionized water was obtained from Samarra Company.

Clarifying a Sequence

To describe a process clearly:

- divide the process into steps.
- make notes on each step.
- expand your notes into full sentences using the passive form.
- mark each step by using sequencing words.



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Interpreting Data

Many scientific and academic texts contain statistics. These are often illustrated in graphs or charts.

Referring to graphs and charts while you are reading will help you to understand the text, and interpret the statistical data better.

- ✓ Skim the titles of the text and graphs and charts to get a general idea.
- ✓ Read the description of the horizontal and vertical data.
- ✓ Look at the graph or bar chart. Ask yourself questions: What is the general picture or trend? Are there any unexpected points?
- ✓ As you read the text, refer to the appropriate part of the diagram. Compare the information in the text with the information in the graphs and charts.

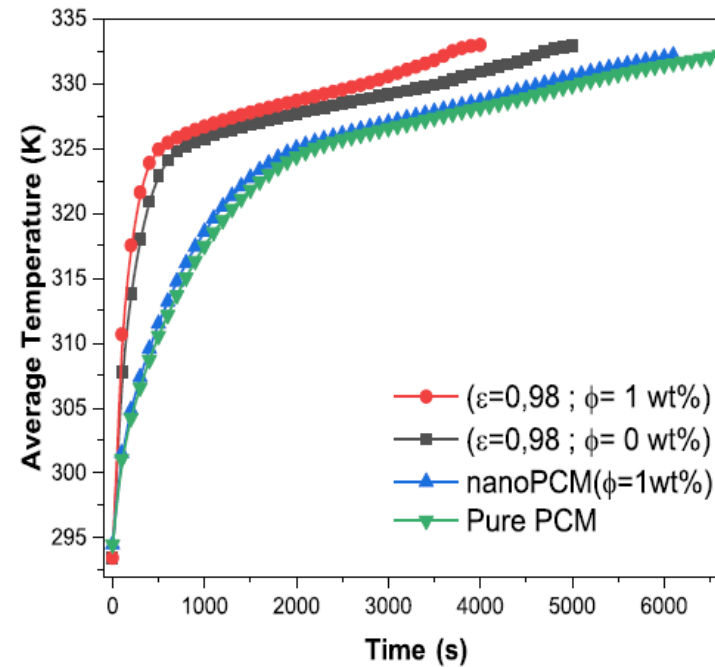


Figure 8. Average temperature evolution during the time for different composite PCMs.

4.2. Temperature distribution

Figure 8 shows the variation of the temperature for Composite PCMs with different parameters during the melting process. It can be seen from these curves that the evolution of temperature as a function of time of pure paraffin and of composite materials are divided into three steps (pre-melting, melting and post-melting). During the first step of the melting process, when $t < 1200$ s for pure PCM and nanoPCM and $t < 500$ s for the composite material, the temperature of the pure PCM and that of the composite increased by absorbing a large sensible of PCM and latent heat.



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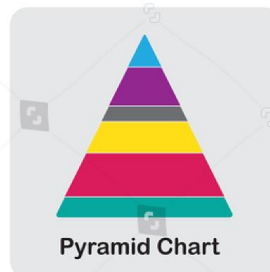
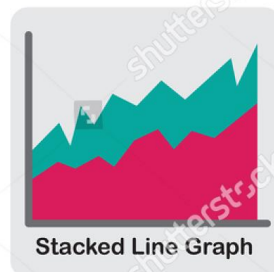
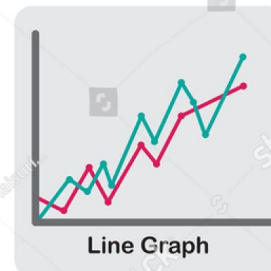
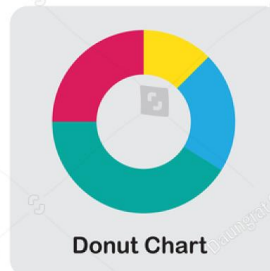
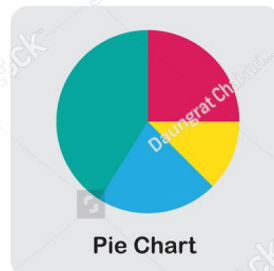
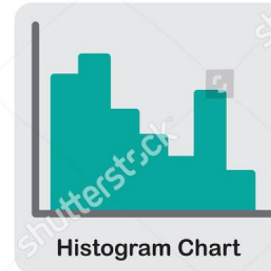
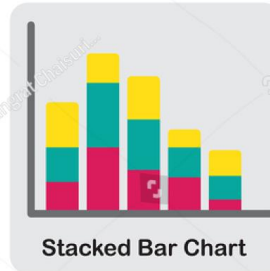
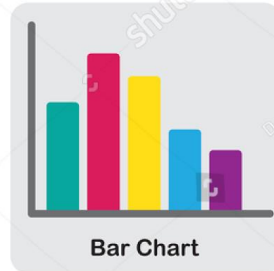
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Illustrating Data

Charts and Graphs



Describing a Graph or Chart

Students are often required to transform data from a graph or chart into text. Always:

- ✓ say what the graph or chart shows.
- ✓ describe the main changes.
- ✓ summarize the major trends and/or high and low points.

Vary the vocabulary you use.



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VOCABULARY DEVELOPMENT

Avoiding Repetition

Describing a curve

Go up ↑	Go down ↓	Go up and down ↔	Stay the same →
rise	fall	fluctuate	remain steady
increase	drop		remain stable
grow	decrease		

Avoiding Repetition

The language used to describe graphs can be repetitive. To avoid describing increasing for example, use:

- ✓ synonyms. e.g., increase = rise
- ✓ adjectives + nouns, e.g., slight increase
- ✓ verbs + adverbs, e.g., increased slightly

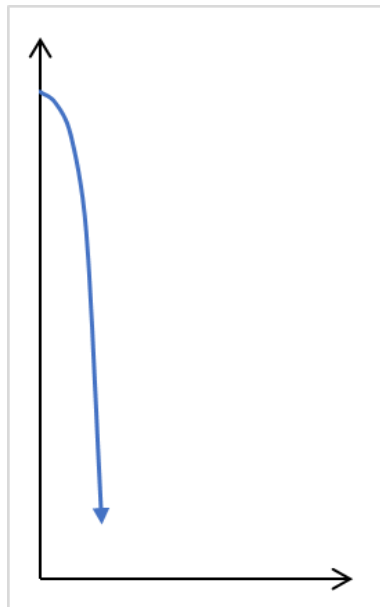
Avoiding Repetition

adjectives + nouns	verbs + adverbs
a steady growth	grow/grew steadily
a slight increase	increased slightly
a dramatic rise	rose dramatically
a sudden drop	drop/ dropped suddenly
a steady fall	fell steadily

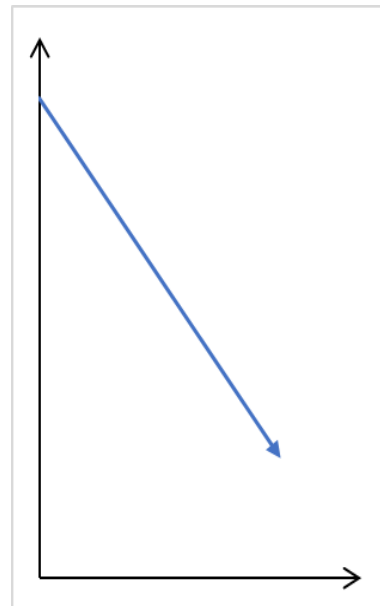


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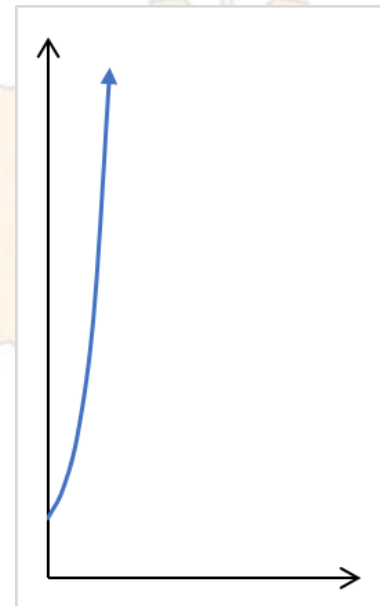
Avoiding Repetition



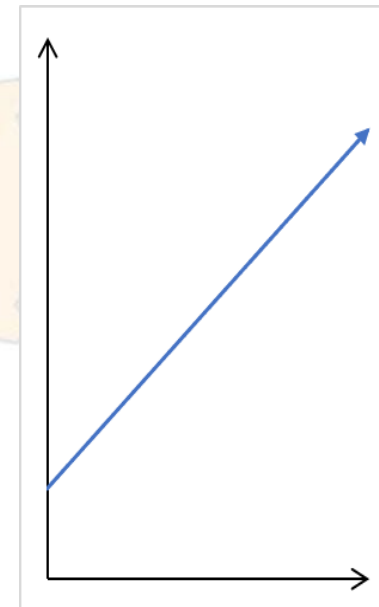
a sudden drop



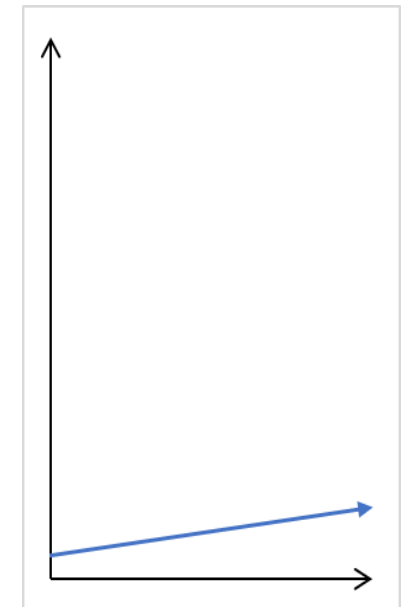
a steady fall



a dramatic rise



a steady growth



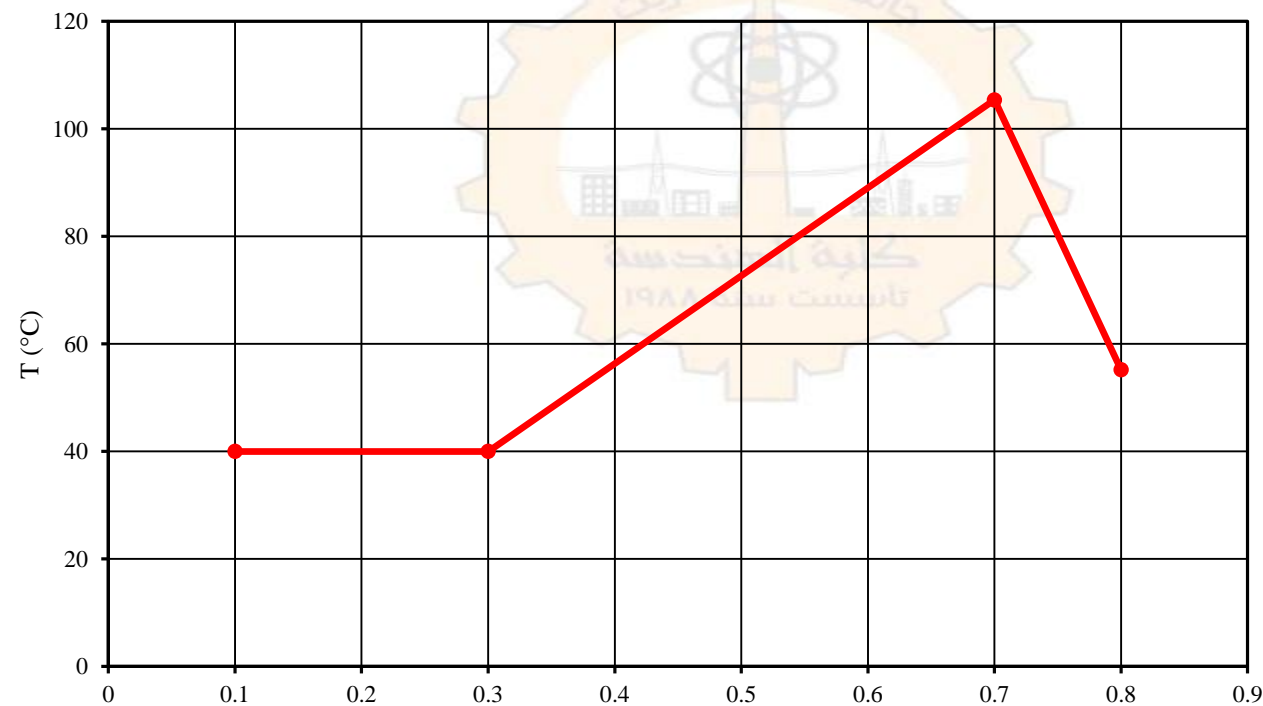
a slight
increase



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Avoiding Repetition

Describe the graph below





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