

University of Salahaddin – Erbil
College of Science
Physics Department



Prepare a Scientific Research

Lecture 6

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Scientific Research

*Is the organized search of scientific **theories and hypotheses** , allows us to develop new technologies, solve practical problems, and make informed decisions .*

*is defined as a study of a wide and deep detail one of the **old** or **new** scientific principles .*





Who Does Researcher?

➤ Individual

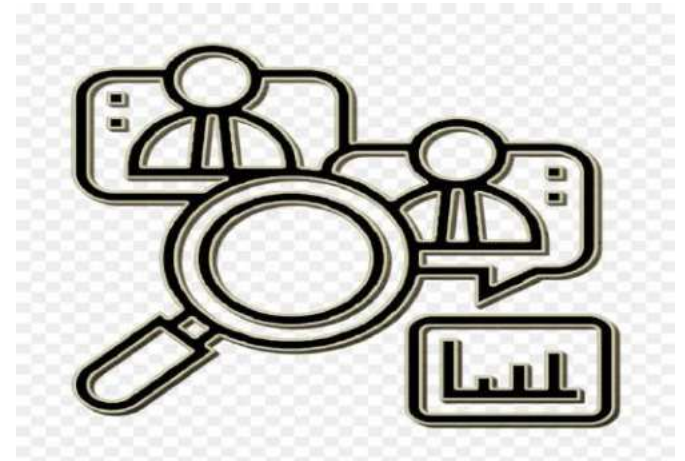
*studies are done to discover **new information** or to answer a question about **topic** by one **person** .*



STUDENT

➤ Teams

*by a team and each **member takes a role** .*



➤ *Teams always make the process easier*



Selection topic

*Choosing your topic is the **first step** in the report writing process.*

- Be aware that selecting a **good topic may not be easy** .*
- It must be narrow and focused enough **to be interesting***
- Broad enough **to find information** about it .*





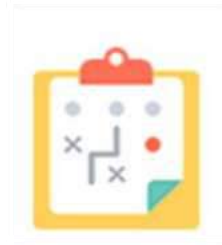
What is a Good Topic for a Report ?



Definite



inventive



Specific



What is a Good Topic for a Report ?



Definite

*is the subject that has **limits** and is **clear in meaning** .*

When you chose a topic for your report :-

- *be sure that it is **clear**.*
- *A reader should be able to **understand its purpose right away** .*
- *If the topic is **not clear to the reader**, then you **did not choose the topic well** .*





What is a Good Topic for a Research?



Specific

is to focus on **one important** concept and then search for **references related to it** .

- **The report must contain correct numbers or information** .
- **focus on correct data** .





A good topic

- ***Is not too broad***
- ***Is not too narrow***
- ***Has research source***
- ***Interests you.***





Limiting your subject / choosing a topic

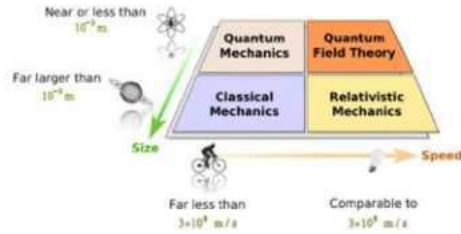
- Once you have a **general subject** that you are interested in .
- Next step is to narrow the subject to a **specific topic** that can be treated in a research report.



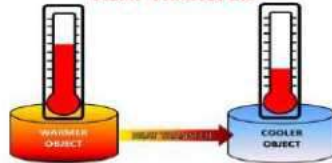
PHYSICS

Classical Physics

MECHANICS

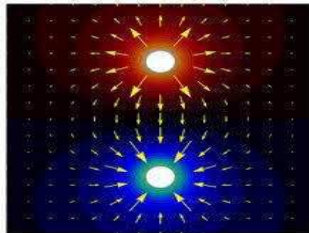


HEAT TRANSFER



THERMODYNAMIC

ELECTROMAGNETIC

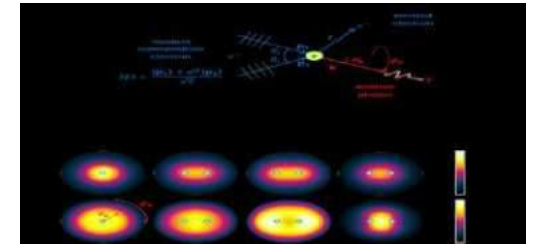


Optics

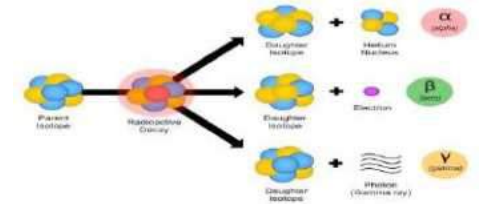


Modern Physics

QUANTUM



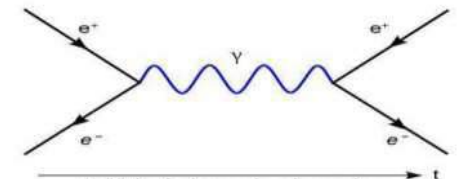
Nuclear



RELATIVELY



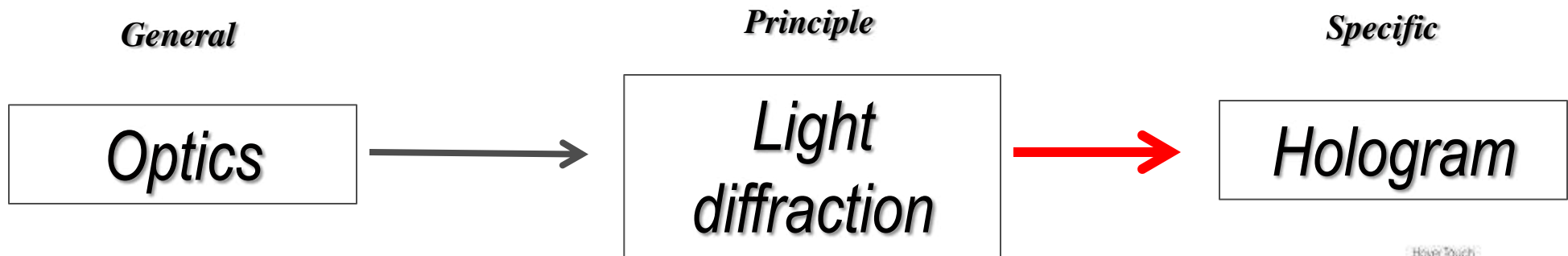
ELECTRODYNAMIC





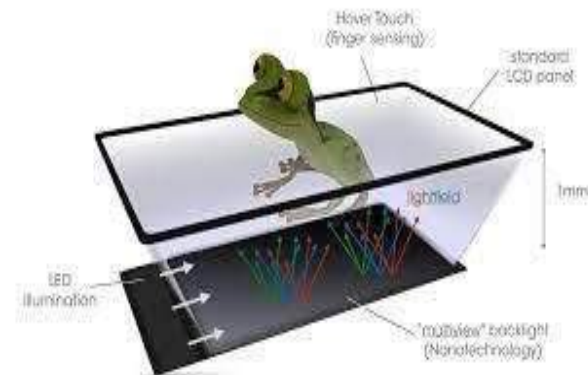
Limiting your subject / choosing a topic

- Once you have a general subject that you are interested in .
- Next step is to narrow the subject to a specific topic that can be treated in a research report. For Exp. *Rayan shno



The phenomena of Light Diffraction by Smartphone hologram

The Phenomena of Light Diffraction by Hologram





Limiting your subject / choosing a topic

General

Principle

Specific

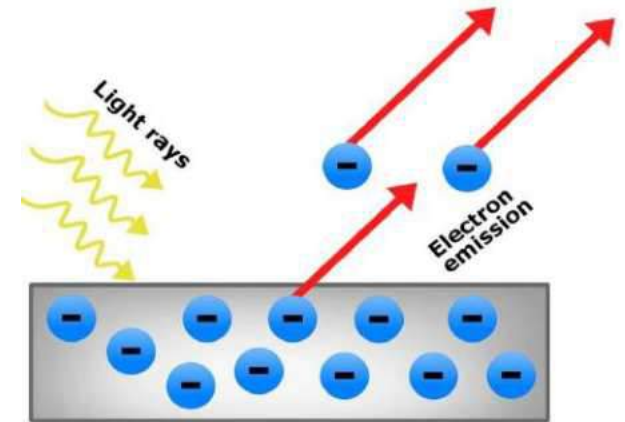
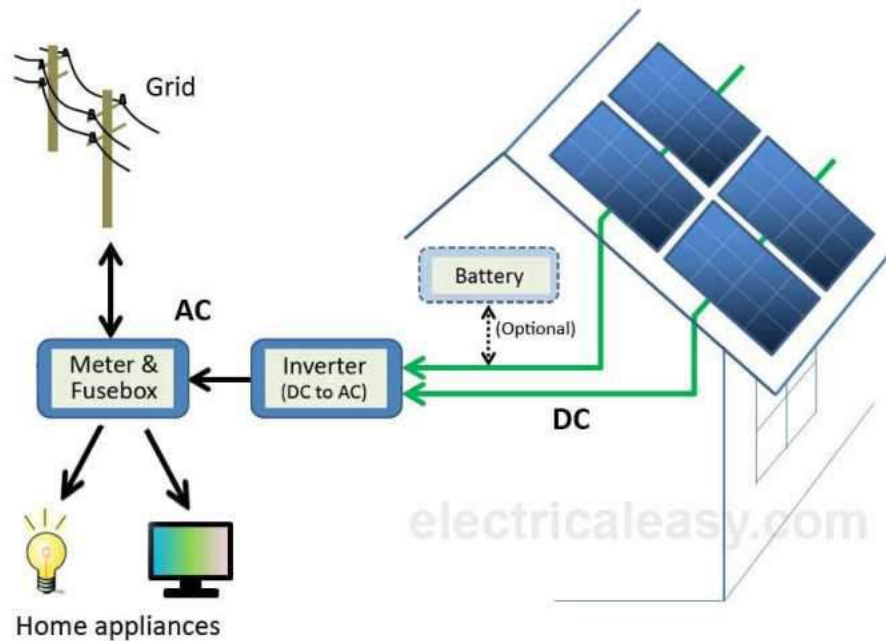
ELECTRODYNAMIC



Photoelectric



Solar energy /cell





Study the properties of solar cells and their applications

General

Principle

Specific

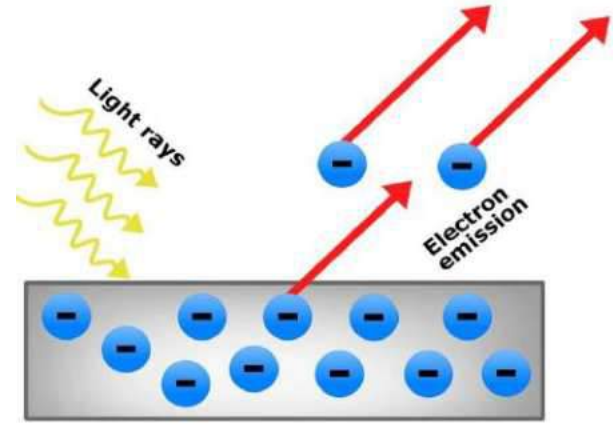
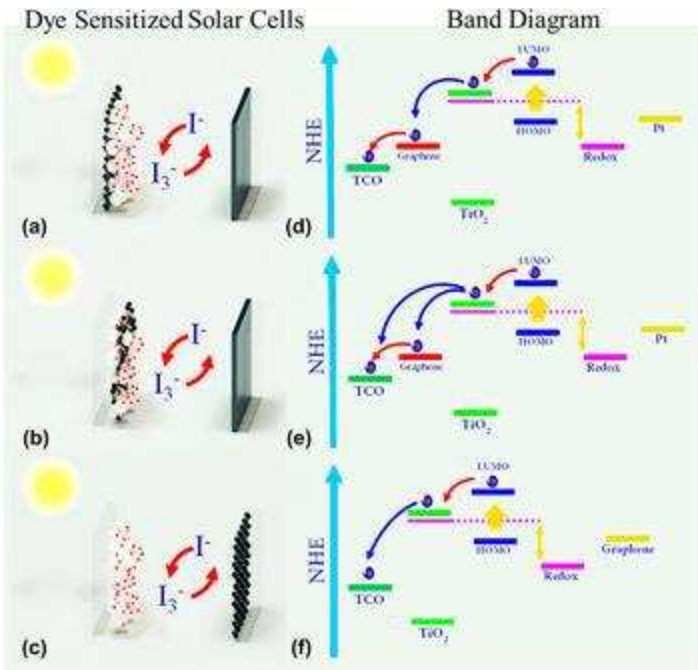
ELECTRODYNAMIC



Photoelectric



Solar cell





Limiting your subject / choosing a topic

General

Meteorology



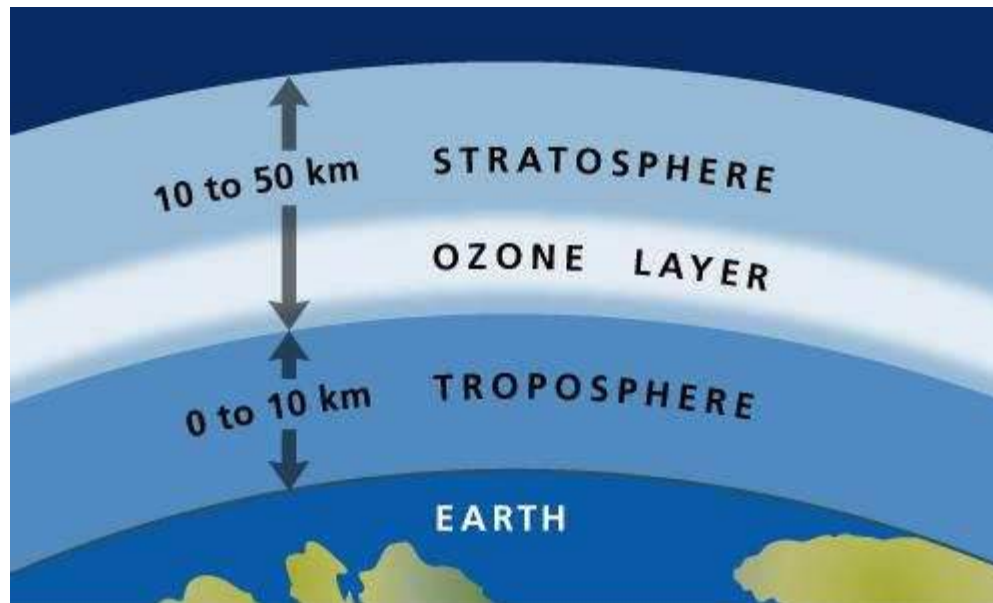
Principle

Atmosphere



Specific

Ozone layer





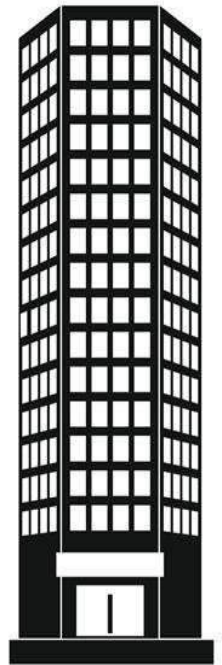
Next lecture 7

➤ *Research Structure*

12 part

- Title page
- Abstract (sometimes)
- Table of content
- Introduction
- Finding (analysis)
- Discussion
- Conclusion
- Reference

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Thanks