

**CLASS-8**  
**PHYSICAL AND CHEMICAL CHANGES**

**CHAPTER- 2**  
**SUB: CHEMISTRY**

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# Points of Discussion

- Different Types of Changes
- Physical and Chemical changes, their specific properties.
- Mentioning the above changes into Proper Chemical Equation forms

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# LEARNING OUTCOMES

- Students will be able to
  - Distinguish between the two types of changes like Physical and Chemical.
- They could also be able to recognize some changes of both types and could know how to represent the above reactions in chemical equations form.  
E.g. burning of Candle - melting of wax (physical)  
- burning of wax (chemical)

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## PREVIEW OF SOME GENERAL CHANGES

- 1. SOME TRADITIONAL CHANGES LIKE: FAST AND SLOW CHANGES, REVERSIBLE AND IRREVERSIBLE CHANGES, PERIODIC AND NON-PERIODIC CHANGES.**
- 2. PHYSICAL AND CHEMICAL CHANGES : CHARACTERISTICS WITH DISTINCT EXAMPLES**  
**PHYSICAL-** No new substance is formed, Reversible mostly and only some changes in state, odour, structure, color and heat. Ex. Melting of Wax.  
**CHEMICAL –** Completely new substance is formed, Irreversible and there must be a change in state, odour, structure, color and heat. Ex. Rusting of Iron.

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# DIFFERENCE BETWEEN PHYSICAL AND CHEMICAL CHANGE



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## DIFFERENCES BETWEEN PHYSICAL AND CHEMICAL CHANGES

**\*A VIDEO SHOWING PHYSICAL AND CHEMICAL CHANGE DIFFERENCES**

<https://www.youtube.com/watch?v=nRMyMly7U6E>

Physical Change	Chemical Change
When a substance undergoes a physical change, its composition remains the same despite its molecules being rearranged.	When a substance undergoes a chemical change, its molecular composition is changed entirely. Thus, chemical changes involve the formation of new substances.
Physical change is a temporary change.	A chemical change is a permanent change.
A Physical change affects only physical properties i.e. shape, size, etc.	Chemical change both physical and chemical properties of the substance including its composition
A physical change involves very little to no absorption of energy.	During a chemical reaction, absorption and evolution of energy take place.
Some examples of physical change are	A few examples of chemical

freezing of water, melting of wax, boiling of water, etc.	change are digestion of food, burning of coal, rusting, etc.
Generally, physical changes do not involve the production of energy.	Chemical changes usually involve the production of energy (which can be in the form of heat, light, sound, etc.)
In a physical change, no new substance is formed.	A chemical change is always accompanied by one or more new substance(s).
Physical change is easily reversible i.e. original substance can be recovered.	Chemical changes are irreversible i.e. original substance cannot be recovered.

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Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

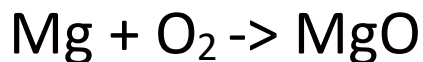
## PHYSICAL OR CHEMICAL CHANGES SORT

PHYSICAL CHANGE		CHEMICAL CHANGE	
A change from one state (solid or liquid or gas) to another without a change in chemical composition		A reaction that rearranges the atoms of one or more substances resulting in the formation of at least one new substance and new chemical properties.	
 Melting snowman	 Breaking a pencil	 Baking cookies	 Toasting a marshmallow
 Boiling water	 Dissolving Sugar	 Ripening banana	 Rusting nail
 Crushing a can	 Cutting an apple	 Frying an egg	 Digesting food

## How to represent a chemical reaction in equation form

Every chemical reaction can be represented in  
 An equation form (symbolical representation)

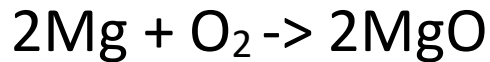
a) Burning of Mg-ribbon in air producing a white dazzling flame forming white ash of MgO.



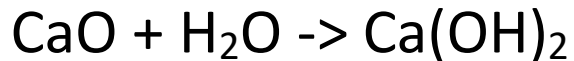
(s)            (g)            (s)



Which needs to get balanced just to satisfy the Law of Conservation of Mass.



Adding quick –lime with water, producing a hissing sound and forming slaked lime.



Adding

Vinegar with Baking Powder: A strong effervescence occurs with evolution of  $\text{CO}_2$  gas and formation of corresponding salt.

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## Baking Soda and Vinegar Balloon Experiment



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**THANKING YOU**

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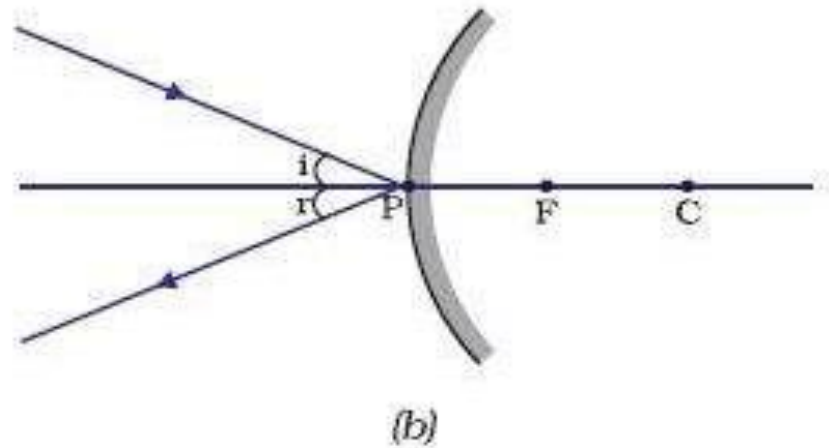
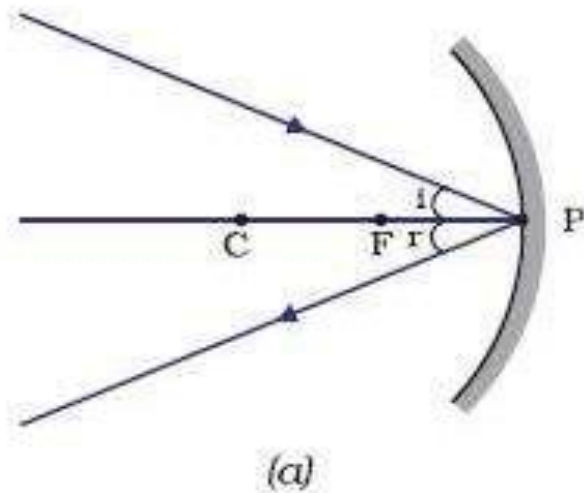
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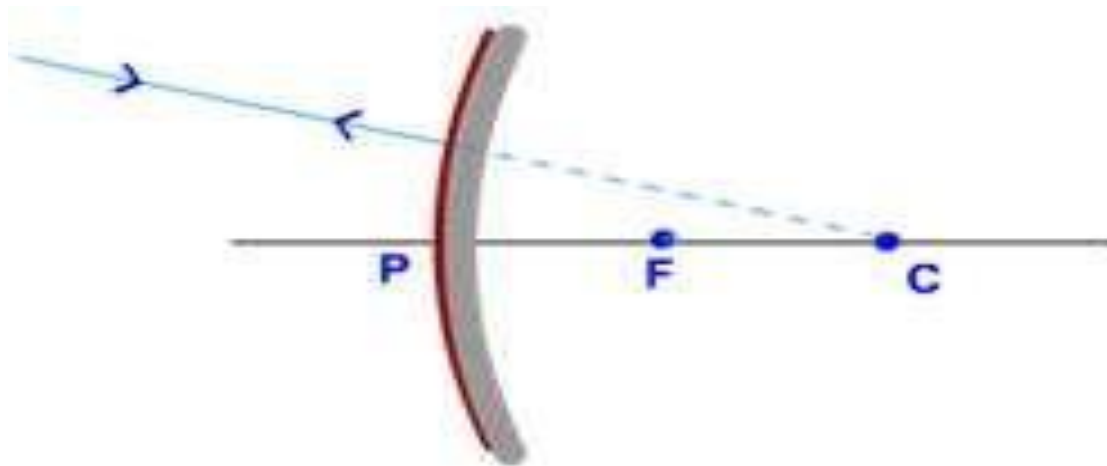
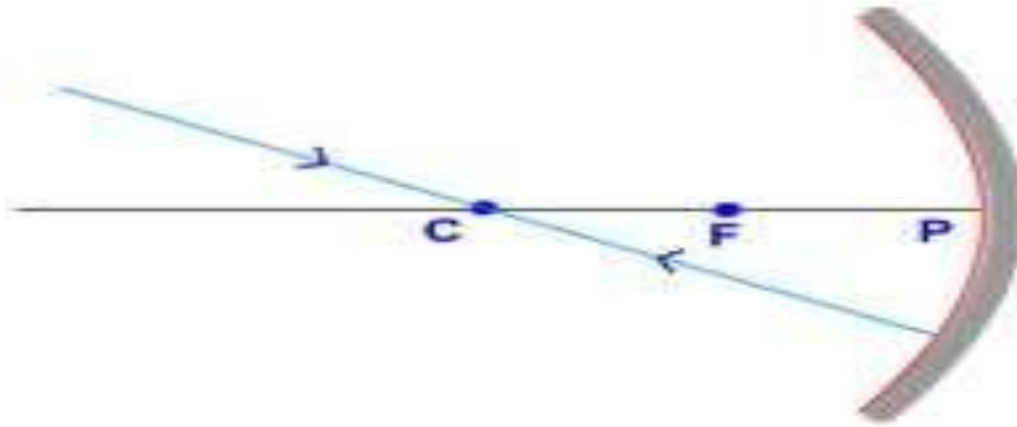
# RULES FOR DRAWING RAY DIAGRAM

## RULE:3



# RULES FOR DRAWING RAY DIAGRAM

## RULE:4

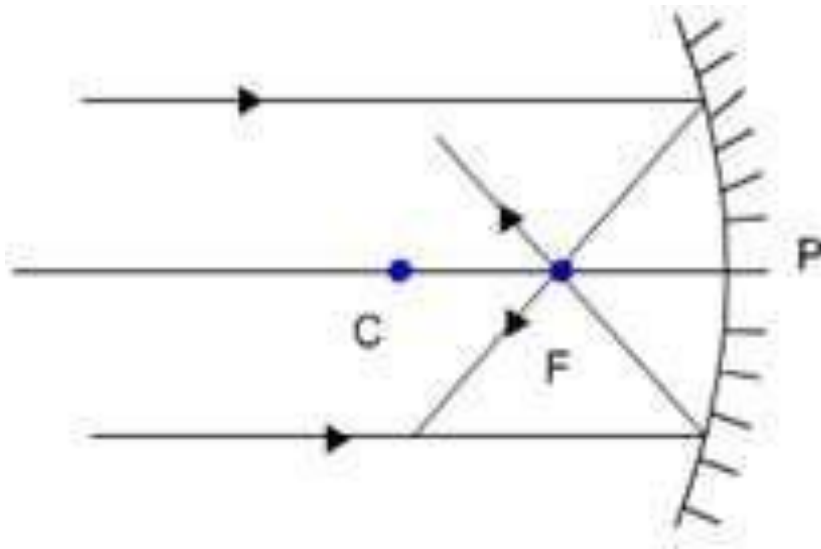


# RULES FOR DRAWING RAY DIAGRAMS:

<https://youtu.be/BuYkp5kuPHE>

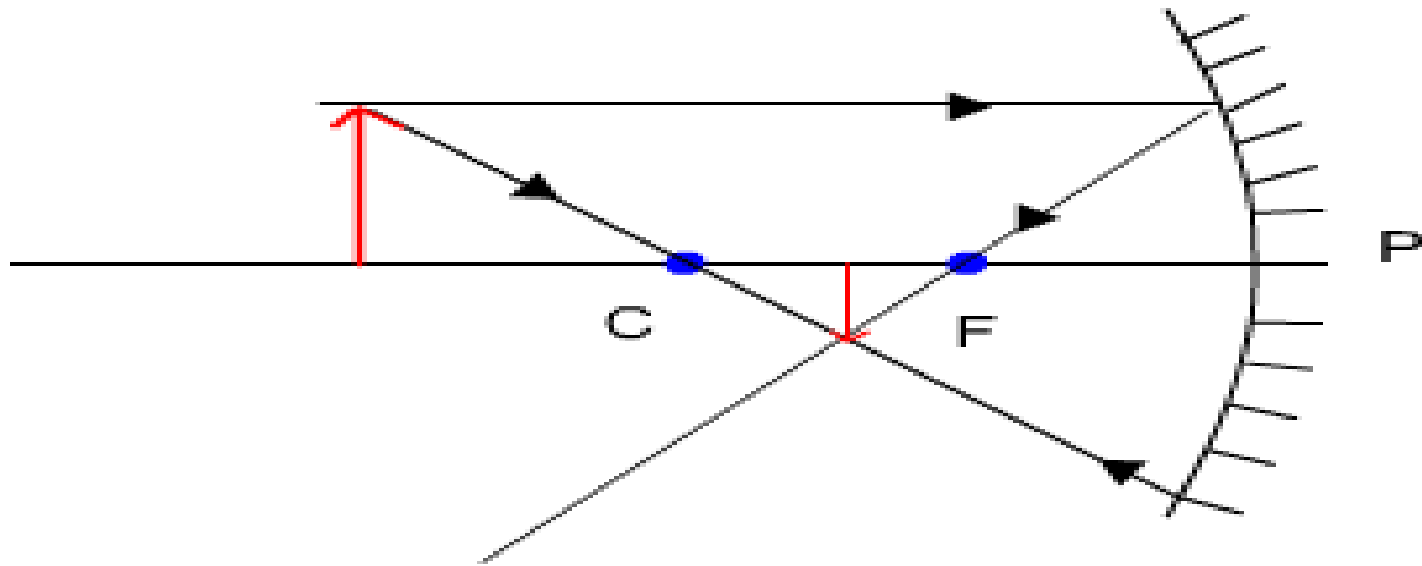
# IMAGE FORMATION BY A CONCAVE MIRROR

1. When the object is at infinity:

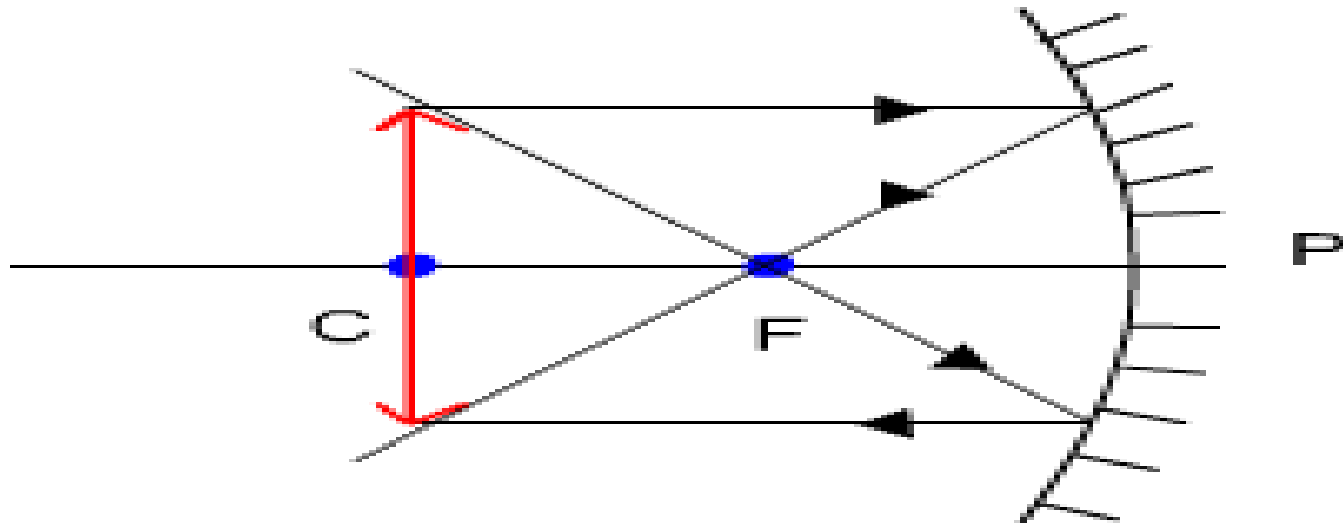




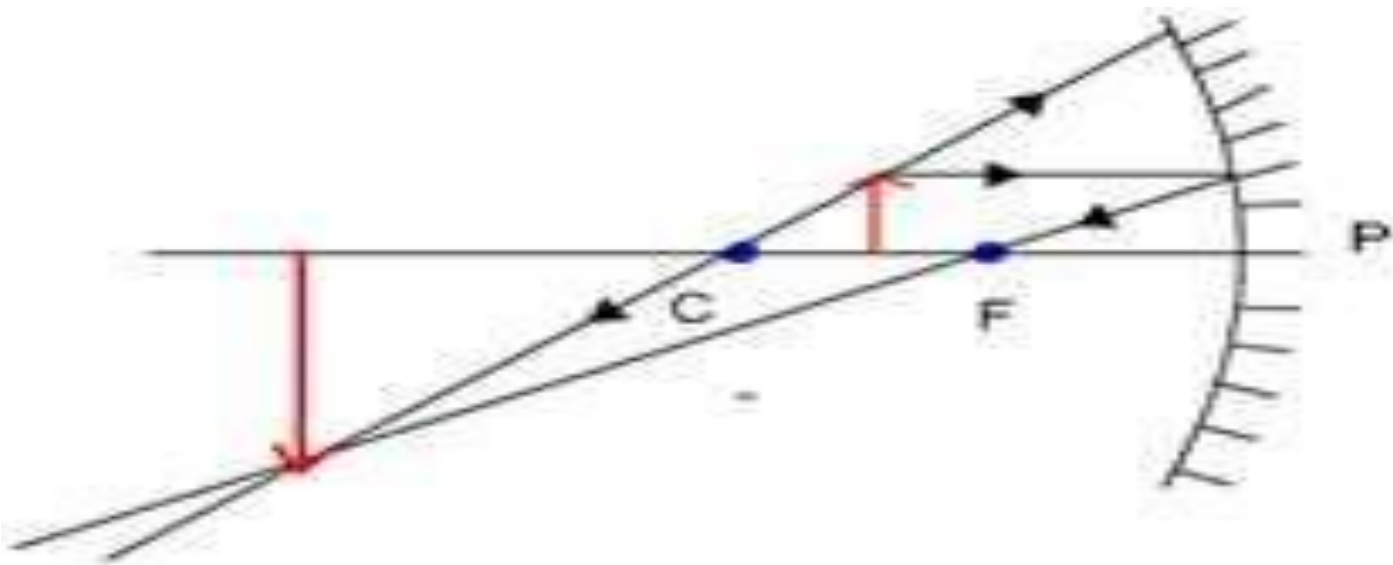
2. When the object is beyond C



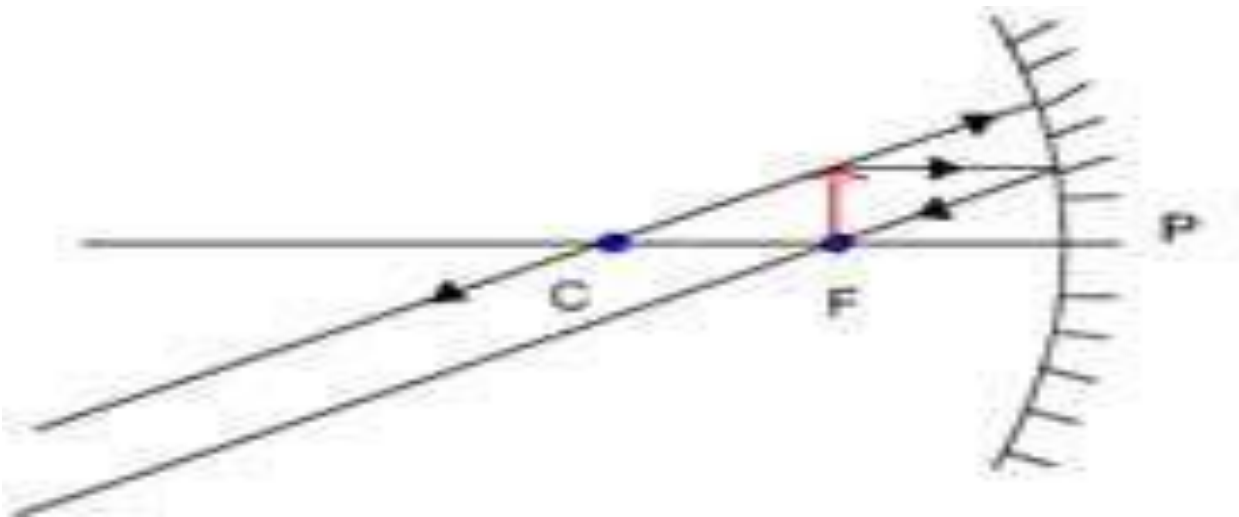
3. When the object is at C:



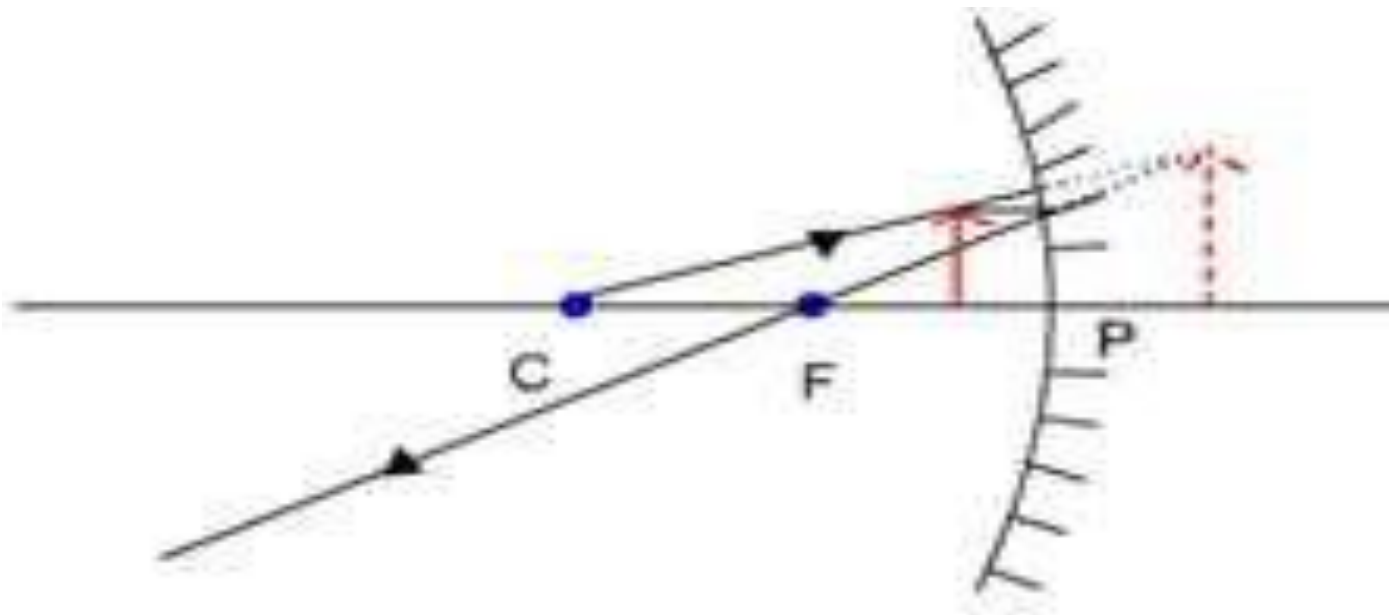
4. When the object is between C and F;



## 5. Object at Principal Focus (F):



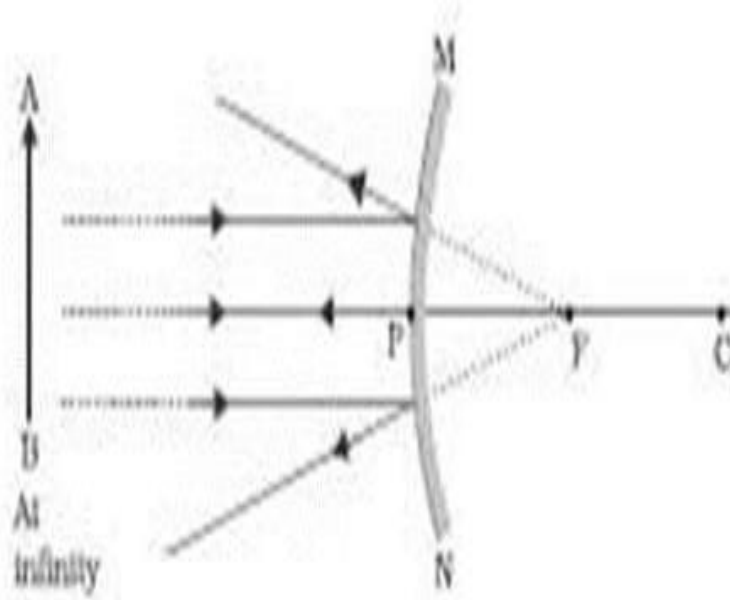
## 6. Object between F and C:



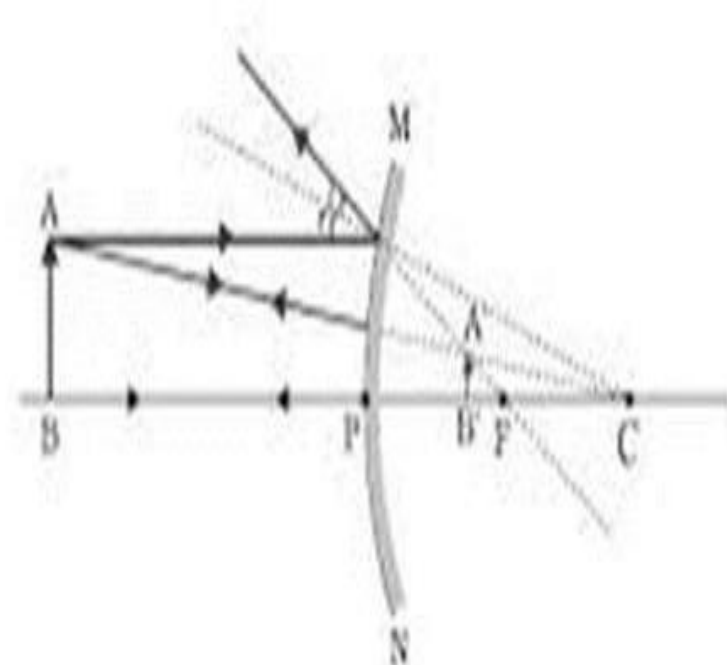
# RAY DIAGRAMS (CONCAVE MIRROR)

- <https://youtu.be/OHXOwz1NLh0>

# Ray diagrams for convex mirror



(a)



(b)



# Home Assignment

1. Where is the image formed when the object is placed
  - At Infinity
  - Beyond C
  - At C
  - Between C and F
  - At F
  - Between F and C of a concave mirror.

**THANKING YOU**  
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