

॥ नमस्ते ॥

# FIRE EXTINCTION PRINCIPLES

- For a fire to sustain, it needs the following:
  - Heat to sustain itself and propagate
  - Fuel to keep burning and spread to new areas
  - Oxygen that is central to combustion of fuel



**Heat to sustain itself and propagate**

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**Fuel to keep burning and spread to new areas**

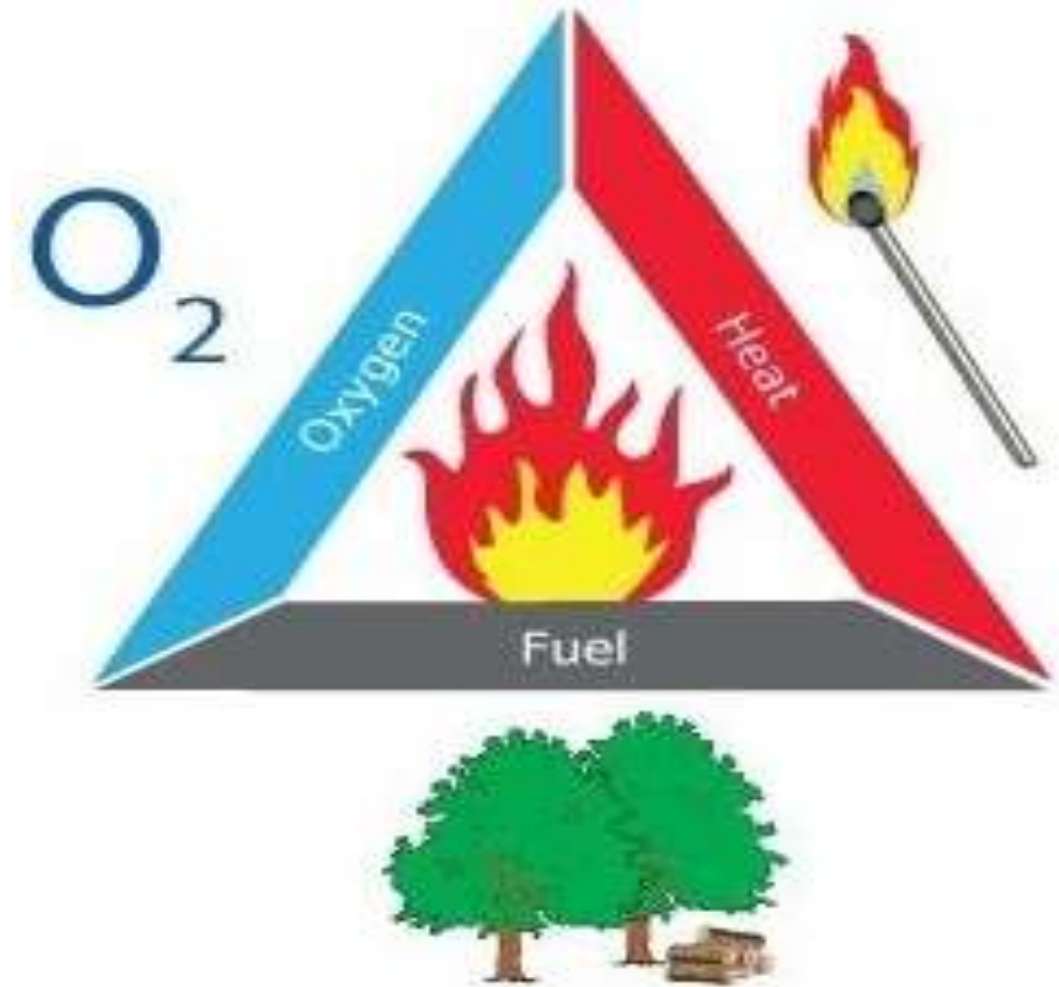


# Oxygen that is central to combustion of fuel





Even if one of these is taken away, the fire cannot sustain and will die off. This is the basic principle on which fire extinguishers are built that help to extinguish a fire. Different types of fire extinguishers remove different components that require the fire to sustain, thereby extinguishing it.



# Three main types of fire extinguishers

- **Water extinguishers**
- **Gas extinguishers**
- **Dry chemical extinguishers**

# 1) Water extinguishers:

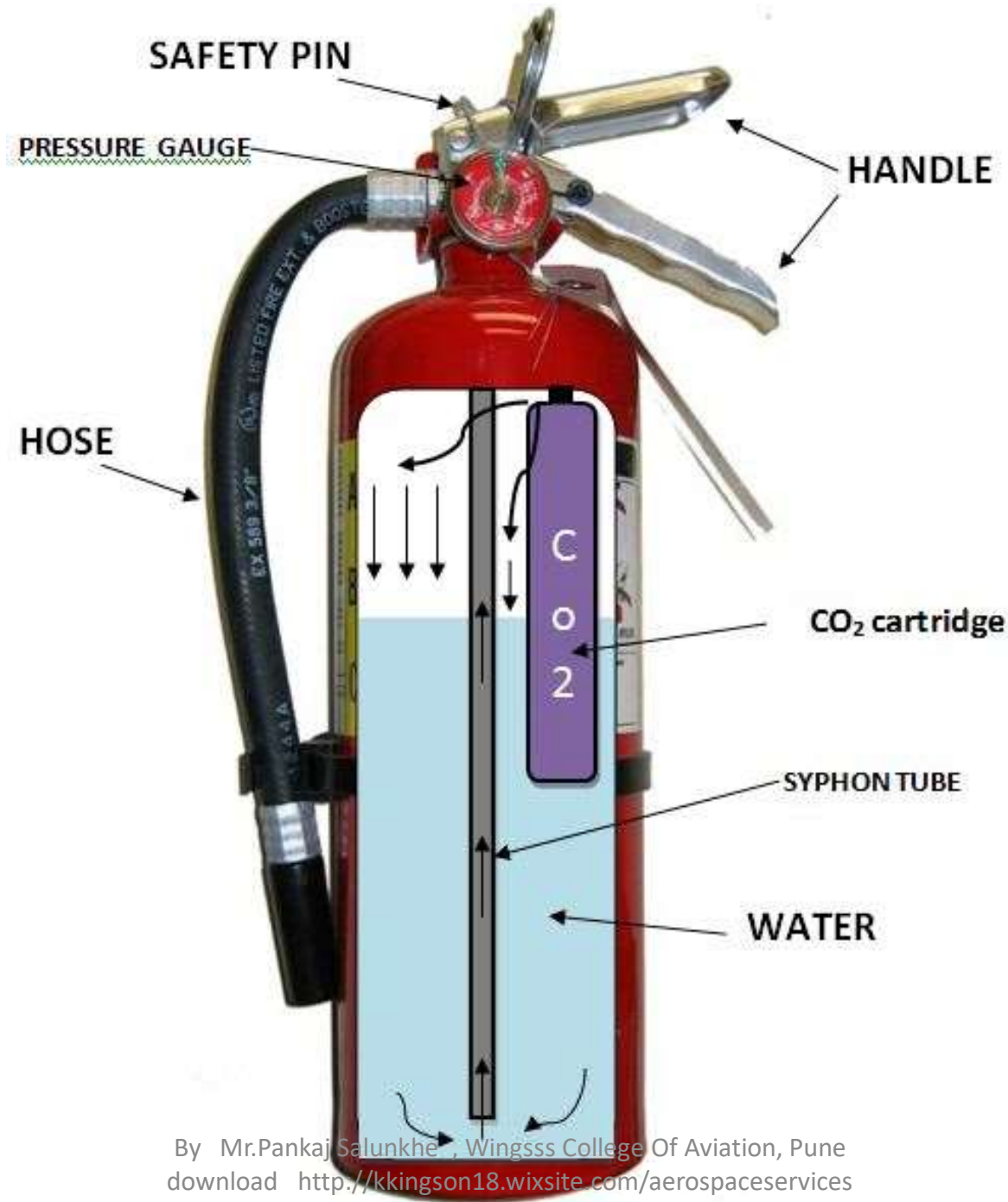
Water is one of the most commonly used fire extinguishing agent.

Water fire extinguishers work by removing heat from the surface, thereby killing the fire.

In water extinguishers, compressed air pushes water to come out of the tank to be sprayed on fire.









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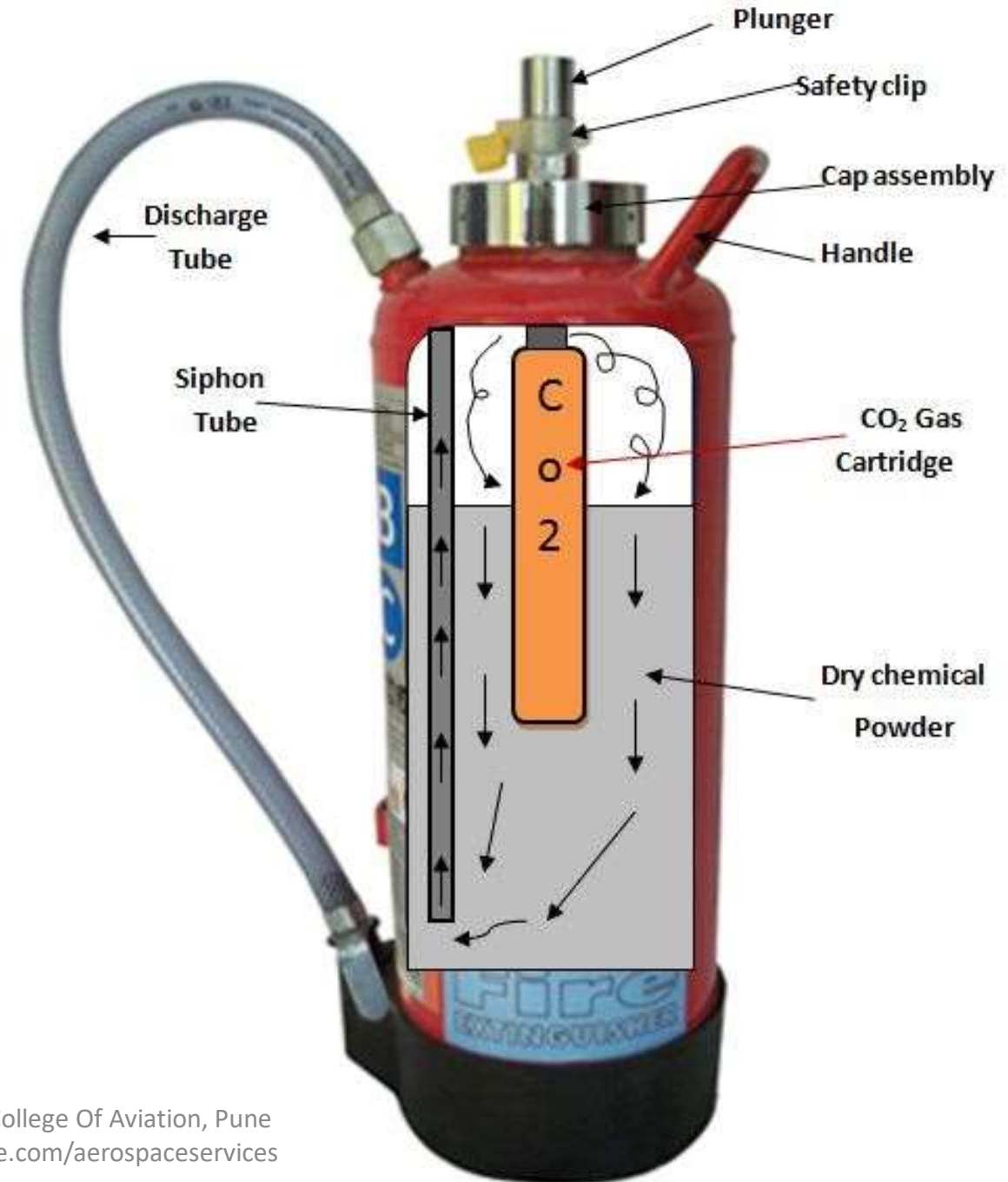


## 2) Gas extinguishers:

Carbon dioxide fire extinguishers contain high pressure carbon dioxide in the liquid form.

When this gas is suddenly released on a fire, the gas expands by a huge amount, thereby reducing its temperature. In addition, carbon dioxide is heavier than air, so it settles down.

This means that carbon dioxide fire extinguishers work by removing heat and also oxygen supply to the fire, and thus they are effective in extinguishing fires.



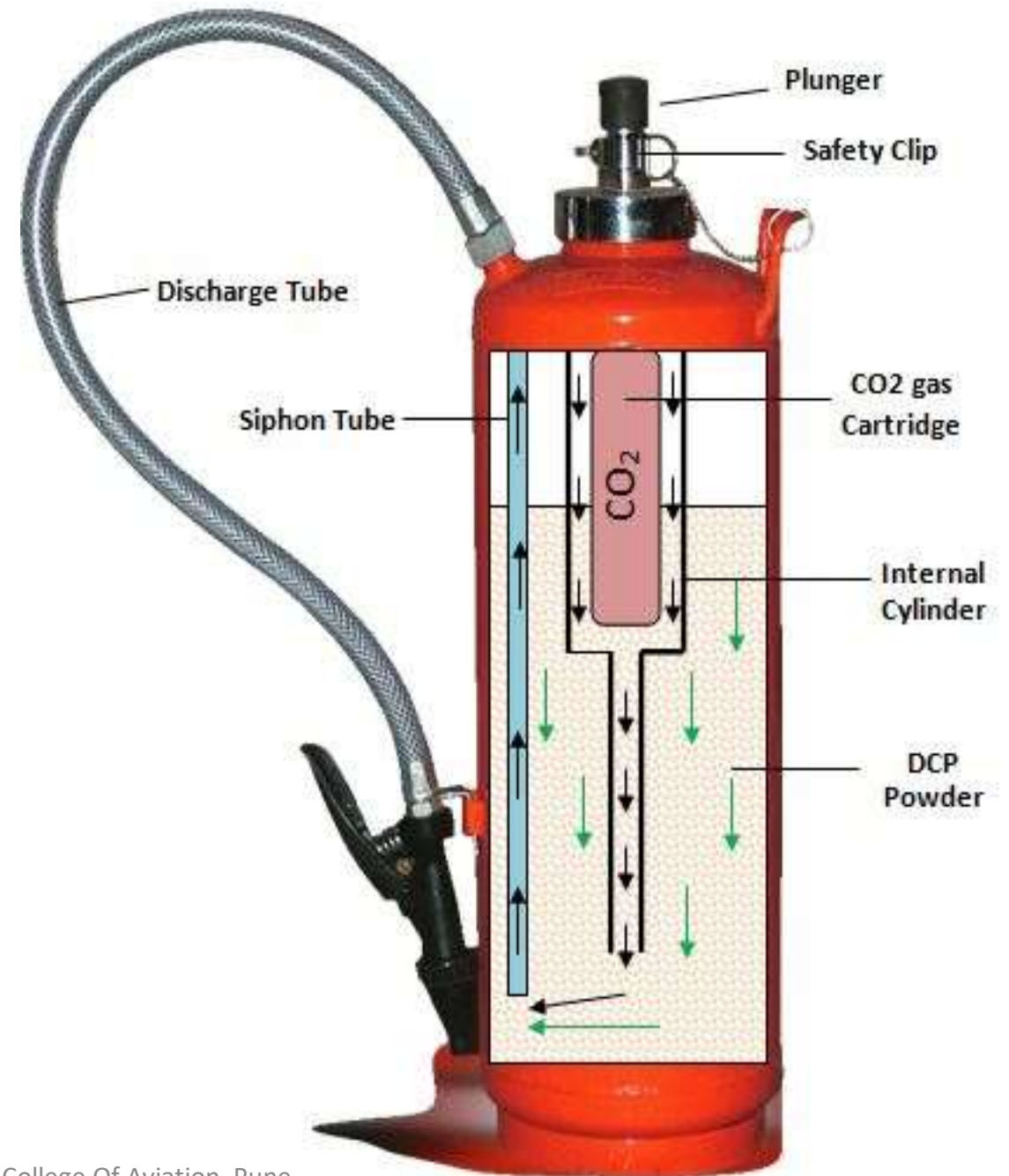


### 3) Dry chemical extinguishers

These work by cutting off the fuel supply to the fire.

When dry chemical powder is sprinkled around the fire, the powder tends to form a layer on top of the fuel and thus cuts it off from the fire.

The powder being non-flammable, the fire doesn't get the fuel to sustain itself and thus extinguishers.







# Proper use a fire extinguisher

- Fire emergencies can occur without warning and can be deadly. It is thus very essential to be prepared for a fire emergency.
- One of the primary things that all individuals should know is how to use a fire extinguisher. A fire extinguisher is a great tool that will help you to fight small fires and limit their reach before they become too big and engulf the whole area.
- In addition, fire extinguishers are like the first line of defence and can be very efficient too. Therefore it is very important that you know exactly how to use a fire extinguisher.

- There are several different types of fire extinguishers in the market today that work on a variety of principles. However, all of them essentially work in the same way. This is good news because otherwise you would have to learn about how to use a hundred types of fire extinguishers! You need to be proficient in using a fire extinguisher as you may need to use it on a very short notice in a quick manner during an emergency.
- The first thing to do is to read the instructions. Obviously you will not have the time to read the fine print when you most need it in an emergency, so it is important that you are prepared beforehand. Essentially, you may like to follow the PASS principle, which is simple to remember and should be kept in mind while using a fire extinguisher.

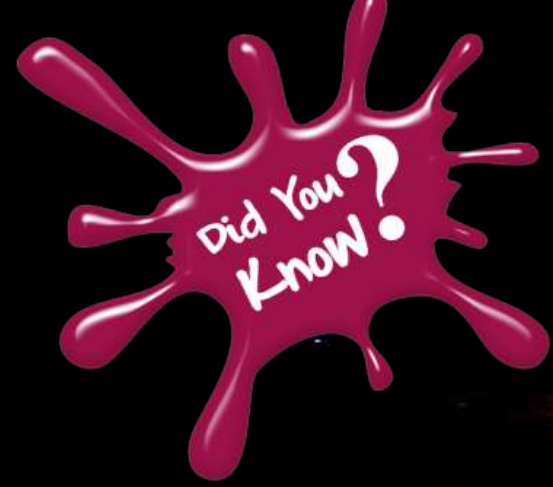
# P - A - S - S

- **Pull:** The pin at the top of the fire extinguisher should be pulled to release the locking mechanism and make the fire extinguisher ready for use.
- **Aim:** The fire extinguishing action should be aimed at the base where the fire is present and not at the flames, which are merely manifestations of the underlying cause.
- **Squeeze:** The lever needs to be squeezed slowly to release the extinguishing agent. Without this, the extinguishing action will simply stop.
- **Sweep:** The extinguisher should be moved in a sideways manner or front to back in a sweeping motion

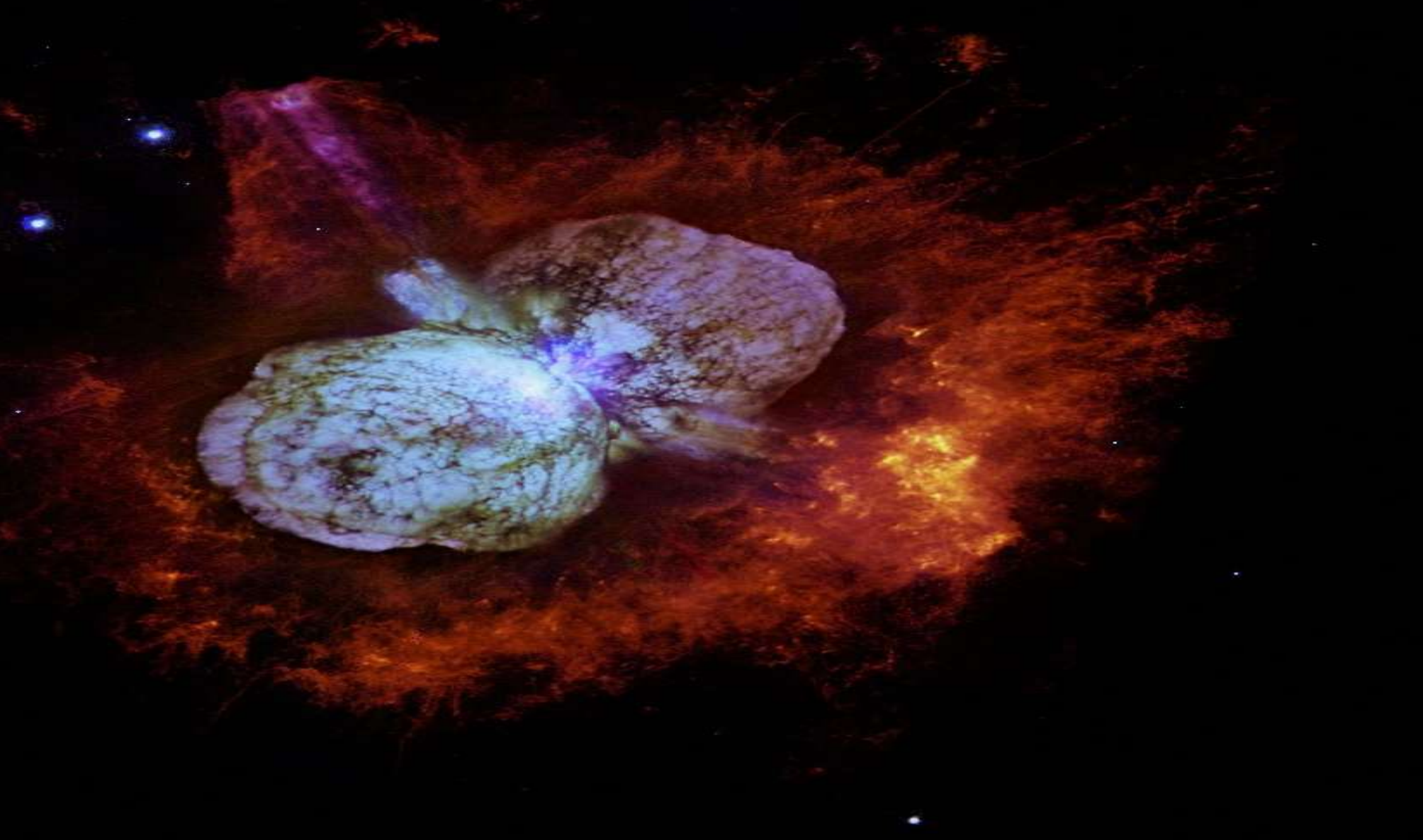
- These should be kept in mind before using a fire extinguisher. It is also important that you be careful while using a fire extinguisher and maintain a safe distance from the fire. You should also be able to assess the fire and the type of fire extinguisher to make sure the fire extinguisher will provide the reduction needed. Using this understanding of how to use a fire extinguisher, you can now be in a much better position to fight fires in case of an emergency.



**ANY QUESTIONS ?????**



THE HIGHEST TEMPERATURE RECORDED IN  
UNIVERSE IS 142 NONILLION KELVIN ( $10^{32}$  K)



# धन्यवाद

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