

## PHYSICS      EXPERIMENT - ZEST WORKING OF HAIR DRYER.

### HAIR DRYER:

→ A hair dryer is an electromechanical device that blows ambient or hot air over damp hair to speed up the evaporation of water to dry the hair.

### INVENTION:

→ The first stationary model was created by Alexander Ferdinand Goddard in 1890, in his salon in France. His invention was a large, glazed version that consisted of a bonnet that was attached to the chimney pipe of a gas stove.

→ Armenian-American inventor Gabriel Kazanjian was the first to patent a hair dryer in the U.S in 1911.

→ The handheld, household hair dryer first appeared in 1920.

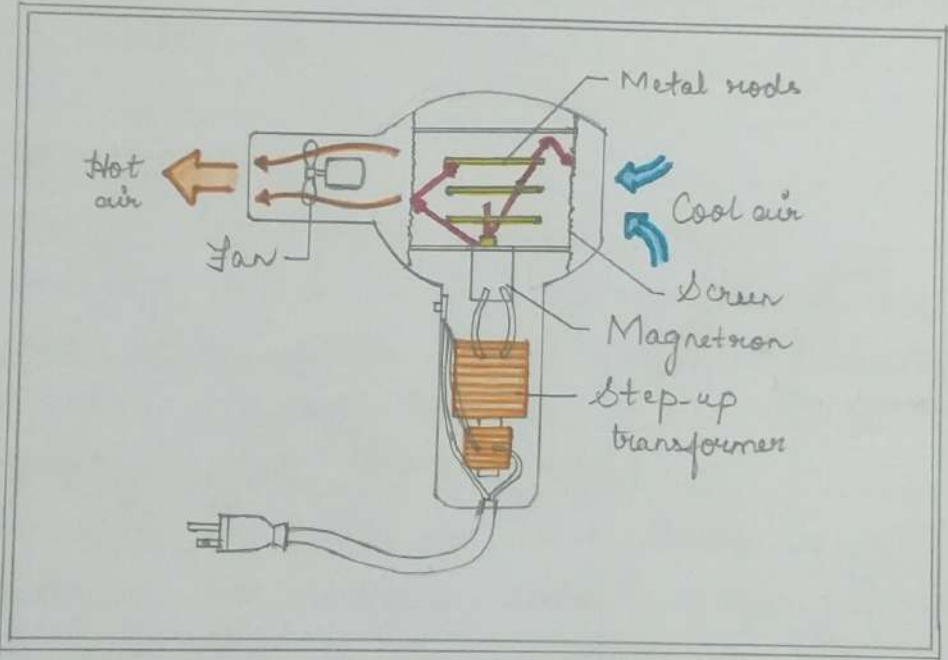
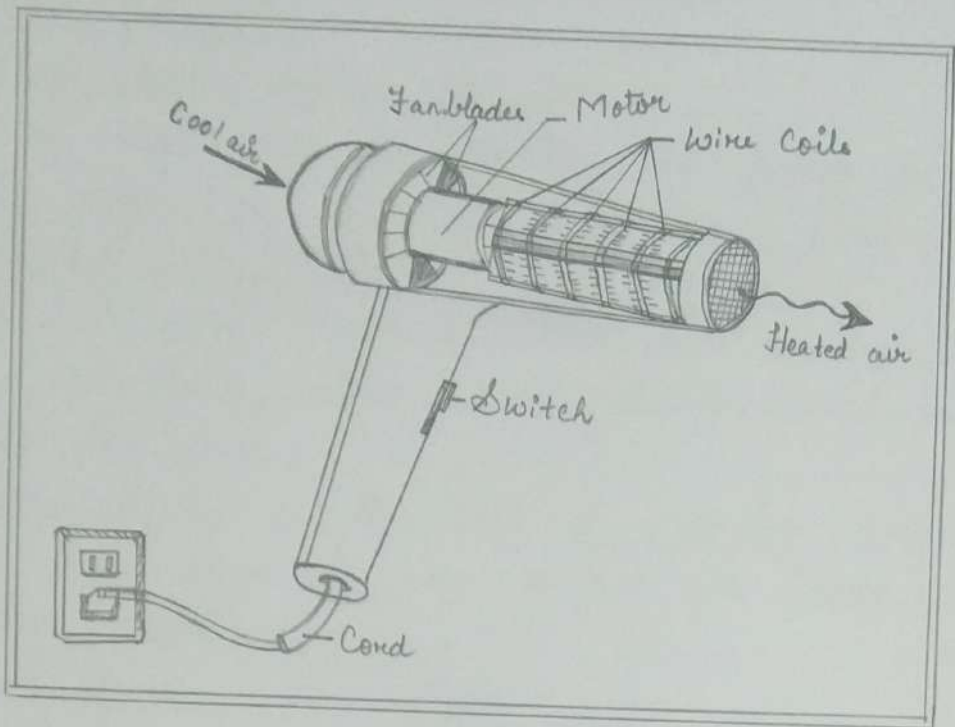
### TYPES:

→ Based on different heating and working methods, hair dryers are classified into four types:

- \* Ionic hair dryers
- \* Ceramic or Porcelain hair dryers.
- \* Tourmaline hair dryers.
- \* Titanium hair dryers.

## WORKING PRINCIPLE:

- > The hair dryer is an electromagnetic machine which means it uses electricity as its power source. Turning a hair dryer on causes electricity to power on the motor that spins a fan located inside the hair dryer. The fan is what brings the room temperature air inside the hair dryer.
- > The physical components of the hair dryer that help to get rid of water from the hair are the electric fan and the heating components, both of which are located inside the hair dryer.
- > Room temperature air comes into the hair dryer through the vents.
- > The air then passes a nichrome wire which is used as the heating element.
- > Nichrome is an alloy of nickel and chromium. The nichrome wire acts as a resistor of the electric energy, which in turn creates the heat that the room temperature air passes through, to become hot enough to get the moisture out of the wet hair.
- > The hot air is then blown out of the end of the barrel and onto the wet hair.
- > There is multiple options for the strength of air such as low, medium and high. The way these different power options are created is with the centrifugal motion of the blades.



PARTS and WORKING OF HAIR DRYER.



## ADVANTAGES & DISADVANTAGES:

### ADVANTAGES:

1. Hair dryers lighten the hair:
  - Hair dryers help to shorten and lighten thick and curly hair.
2. Decreases drying time:
  - A hair dryer evaporates water and moisture faster than conventional methods, hence reducing almost 3/4 of drying time.
3. Blow drying is the base of grooming.
4. A hair dryer is also suitable for furry pets.
5. Other advantages:
  - Help de-mist the bathroom mirror.
  - Blow-dry our personal care stuff like toothbrush.
  - Dry clothes after a wash.

### DISADVANTAGES:

1. Excessive hair drying damages hair:
  - Overdrying affects the hair growth as it weakens the hair follicles which become fragile and pores of the scalp open, increasing hair fall in the long run.
2. Overheating effects of hair dryer:
  - The ideal temperature for hair drying is  $45^{\circ}\text{C}$ . Blow drying hair everyday without proper temperature control may lead to burning effect on our scalp.
3. Hair dryers weaken hair strands:
  - Blow drying right after a shower takes away the

Minimum moisture needed for optimum growth of hair strands, leading to hair breakage or split ends.

4. Hair dryers affect hearing:

→ Recommended distance to use a hair dryer is 15 cm.

If kept very close the sheer and sharp sound of a hair dryer can damage our ear functions.

5. Hair dryers emanate EMF:

→ Hair dryers consist of intensive EMF - Electro Magnetic Field. Excessive exposure to EMF may alter the behaviour and induce irritation and sleep deprivation.

Ionic hair dryers emanate EMF that can disturb the alignment of our brain cells which alter the sleep cycles and mood changes.

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