



The
official
Magazine
of the
Artworkz
Photo
Group

epic

ARTWORKZ

Fire

- EPIC PHOTOGRAPHERS -



Fire

- Burning -

Fire is a natural occurrence that involves the rapid oxidation of materials in a chemical reaction known as combustion. This reaction is best known for the heat, light and gases it produces.

This small ePic explores some of the attributes of fire through pictures.

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CHEMICAL PROCESS

FIRE

A chemical process in which substances combine with oxygen from the air, usually producing heat, light and smoke.





IGNITION

SOME OF THE THINGS THAT CAN START FIRE

LIGHTNING





FLYING EMBERS









FUEL BURNER FLAME



USES OF FIRE

SOME OF THE WAYS FIRE CAN BE USED

WARMTH



LIGHT



RELIGIOUS CANDLES







CAMP FIRE



CAMP FIRE



BURNING TREE CUTTINGS





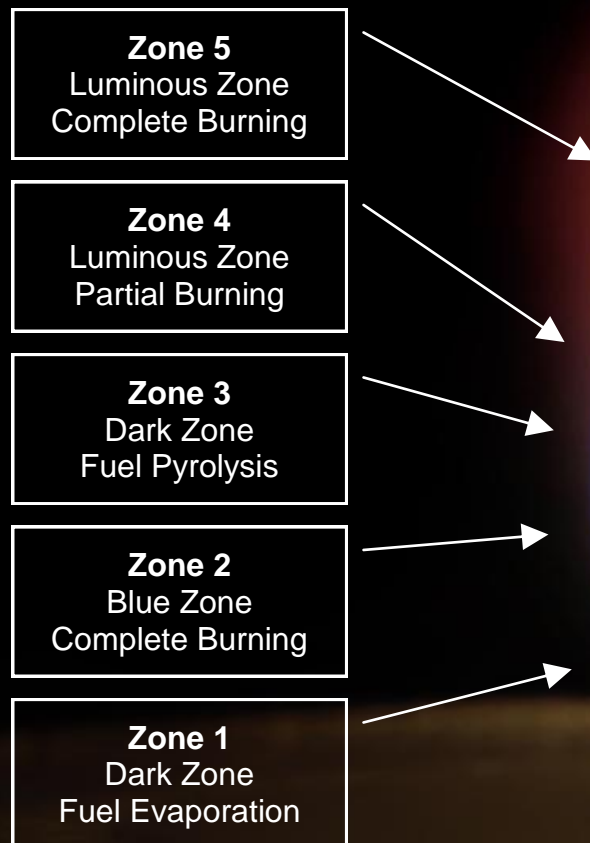
FIRE REDUCTION BURNING



Photograph © Allan Layton 2016

PYROLOSIS

HEAT CAUSING SEPARATION AND LEAVING CARBON



Pyrolysis describes the non-reversible thermo chemical decomposition of organic material at elevated temperatures in the absence of oxygen.

In simpler terms, pyrolysis is used to describe the process of heat causing a carbon based element such as wood, to separate into its elements, leaving carbon behind.

Oxygen is not needed for pyrolysis to occur. An example is when wood burns, gases are given off and charcoal is left behind.

Pyrolysis is central to baking food and achieving golden brown tops on cakes and meats.

Pyrolysis is from the Greek work pyro (fire) and lysis (separating).



PYROLYSIS



PYROLYSIS



PYROLYSIS



PYROLYSIS



NATURAL DISASTER CAUSED PYROLYSIS AND LEFT CARBON AND STEEL



SMOKE

VISIBLE SMOKE CAUSED BY FIRE

WE LIGHT FIRES FOR WARMTH AND COOKING



FIRES ARE LIT TO BURN ORGANIC MATERIALS



ORGANIC MATERIAL IS BURNT AT LOGGING COUPES



BURNING OFF UNUSED LOGS IN A LOGGING COUPE



AUTUMN HAZE IS PRODUCED BY BURNING MATERIAL



THE 2020 EAST COAST FIRES CAUSED UNPRECEDENTED SMOKE HAZE



HEAT TRANSFER

THE WAY HEAT IS TRANSFERRED BY FIRE



Heat Transfer

Heat from fire is transferred in three main ways:
Radiation, Convection and Conduction

Radiation is the transfer of heat through rays. It is the same way that the sun warms the earth. These rays travel at the speed of light and will cause burning if you are facing the fire and are too close to it.

Convection is the transfer of heat through warmed pockets of air, which move around and reach other things such as a person wanting to be warmed.

Conduction is the transfer of heat through an object or material. Holding an object such as a stick close to a fire will result in the fire transferring heat into the wood.

If you then touch the heated wood, warmth is transferred to you via conduction.

The lady being warmed in the previous photo is receiving warmth through radiation and convection. She is not receiving any heat through conduction, however if she was to touch the fire guard, the heat in it would be conducted to her.



A photograph of a bushfire with a diagram overlaid showing heat transfer mechanisms. The diagram consists of orange curved arrows pointing from the fire to various elements, each accompanied by a text box:

- Convection (rising from fire)**: Points upwards from the fire.
- Convection and Radiation (to trees)**: Points to trees on the left and right.
- Convection and Radiation (to grass)**: Points to the ground in the foreground.
- Conduction (into ground)**: Points downwards from the fire.

Convection
(rising
from fire)

Convection
and Radiation
(to trees)

Convection
and Radiation
(to trees)

Convection
and Radiation
(to trees)

Conduction (into ground)

Convection
and Radiation
(to grass)

Convection
and Radiation
(to trees)

Convection
and Radiation
(to trees)

PAREIDOLIA

THE ODD AND UNUSUAL SHAPES WE SEE

Pareidolia

(noun)

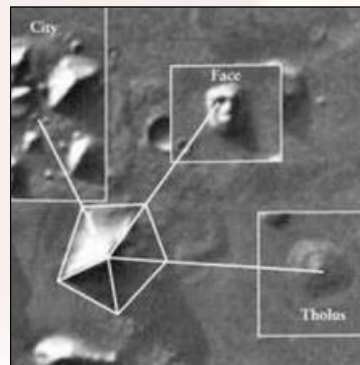
A psychological phenomenon where the human mind perceives familiar shapes in random patterns.





Humans find familiar shapes in things such as fire, smoke, clouds, water and other natural elements. This phenomenon is called Pareidolia. An example is the face on mars.

The storyline of the Hollywood Movie *Mission to Mars* included the Cydonia face seen on the right



Cydonia is a region on Mars best known for its face. Click the image for more. Image courtesy NASA

PAREIDOLIA - CAN YOU SEE THE FLYING BIRD?



PAREIDOLIA - CAN YOU SEE THE WOMAN'S FACE?



PAREIDOLIA - CAN YOU SEE THE THREE AMIGOS?



PAREIDOLIA - CAN YOU SEE THE ANT EATER?



PAREIDOLIA - CAN YOU FIND THE DONKEY'S HEAD?



REFRACTION

THE BENDING OF LIGHT

REFRACTION

Refraction is the phenomenon of light, radio waves etc being deflected or bent when another medium interferes with its trajectory while it is passing through it.



BURNING WASTE



HEAT CAUSING LIGHT TO BE REFRACTED (BENT)



HEAT CAUSING LIGHT TO BE REFRACTED (BENT)



HEAT CAUSING LIGHT TO BE REFRACTED (BENT)



'epic'

epic - (adjective) *Surpassing the usual or ordinary*

ePic - (noun) *Illustrated by **electronic pictures***



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