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Behind Every Great Sport There Is Chemistry

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- There are many different materials that are used in sport, particularly when making sports equipment, uniforms and clothing, but also for things like sports medals and trophies.
- Here are a few examples of common materials used in sport:



Materials Used In Sport

THINSULATE

Thinsulate is a special material used for making sports clothing such as gloves and jackets for sports like skiing and snowboarding.

They are designed to reduce heat loss and this is because they are made from polymers like Polyethylene terephthalate or a mixture of Polyethylene terephthalate and polypropylene.

ALLOYS

Alloys are mixtures of metals that can be used in sports to make trophies and Olympic medals in particular. Gold and silver medals are usually made from pure gold and silver, however, bronze medals are usually made from an alloy of copper and tin.



GORE-TEX

- Gore-Tex is another special material that is made from polymers such as expanded polytetrafluoroethylene (PTFE), nylon, polyester and teflon.
- Gore-Tex is a material used to prevent clothing from becoming wet, which as a result allows the athlete to perform better as water is shed and lost easily.
- This material can be used for sports wear and some sports kits too.



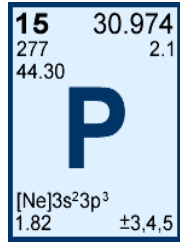
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Pole Volt- past



- Pole vaulting is a sport, where the objective is for a person to leap over a bar at a certain height using a long flexible pole.
- The pole used to be made from bamboo or aluminium, but these materials were quite stiff.





Pole Volt-today

- We now use fibreglass or carbon fibre, which is a more flexible allowing the athlete to leap at a much higher distances.
- Fibreglass is made up of a plastic surrounding substance which is reinforced using fine fibres of glass.

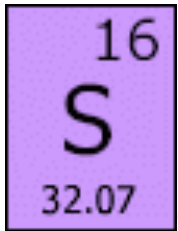


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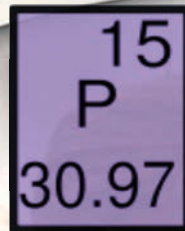
ole Volt-today

- Its characteristics are :that is very strong and lightweight meaning that athlete can easily carry it.
- Carbon fibre is similar to fibreglass, but instead of fibres uses glass it uses carbon fibres. Where it is extremely strong, however more expensive than fibreglass as its raw materials are cheaper.





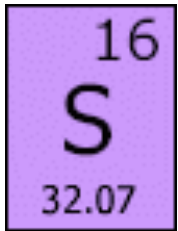
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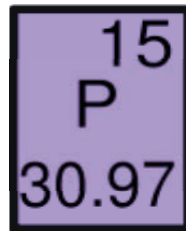
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- Shot put is a sport where an athlete's aim is to throw a ball as far as possible
- The shot put ball is usually made out of metal to make it harder to throw it at a greater distance.
- The materials it can be made from are: iron, cast iron, steel and brass.





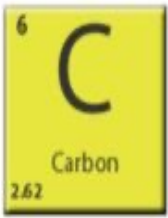
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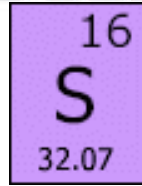
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- The ball varies in size depending on the density of material used to make it.
- E.g. The indoor shot ball are larger than outdoor ones due to it being made of a denser material.
Therefore indoor could be made out of brass and the outdoor out of iron as its less dense.

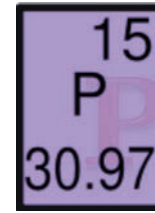




Chlorine In



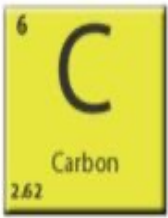
Swimming



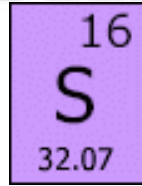
Pools

- Chlorine is used in swimming pools to clean water and get rid of any harmful bacteria
- Chlorine kills the bacteria by breaking down into different chemicals such as hypochlorous acid and hypochlorite ions.

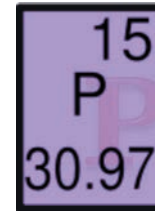




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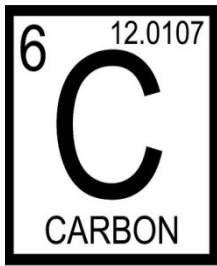
Swimming



Pools

- They kill bacteria by attacking the cell walls and destroying the enzymes inside the cell, making the water safe to use.

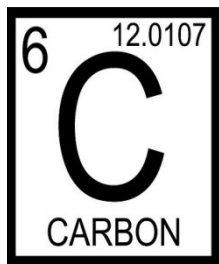




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- The speed of cleaning the swimming pools varies
- Hypochlorous acid cleans the pool water much more quickly. It takes just a few minutes to get rid of bacteria.
- Hypochlorite may take up to half an hour to clean a pool



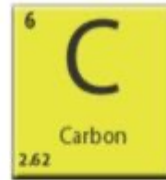
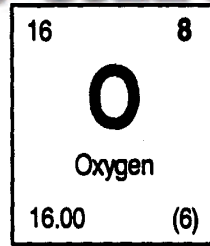


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- The speed at which a swimming pool is cleaned also depends on the pH of the water. The water should ideally have a pH of around 7-8. If the pH is too high, then it may take longer to clean the pool.
- Sunlight usually speeds the process up



Disadvantages



f hlorine

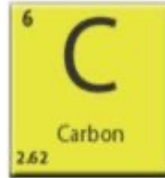
- Although chlorine is useful as it makes the water safe to use, it can also be unpleasant and also quite harmful.
- Chlorine has a strong smell and may also cause redness of the skin and itchiness.
- It can also cause fabrics to fade if not rinsed immediately after getting out of the pool
- Too much chlorine gas hovering above the pool can be hazardous if inhaled.





Not Everyone

Uses



Chlorine

- Some companies use alternatives to chlorine for cleaning pool water
- They use different chemicals and ion generators instead of chlorine gas.
- This however does not achieve the level of cleanliness that chlorine does and chlorine is also a lot cheaper.



Thank You
for Listening

