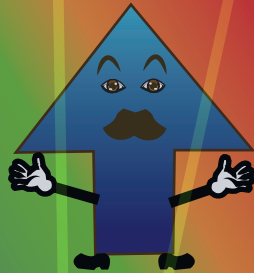


## Hydrogen (12 Points)

### Up Quark

Electric Charge:  $+2/3$   
Spin:  $1/2$   
Mass: 2.2 MeV  
Mean Lifetime: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Up Quark

Electric Charge:  $+2/3$   
Spin:  $1/2$   
Mass: 2.2 MeV  
Mean Lifetime: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Down Quark

Electric Charge:  $-1/3$   
Spin:  $1/2$   
Mass: 4.7 MeV  
Mean Lifetime: Stable

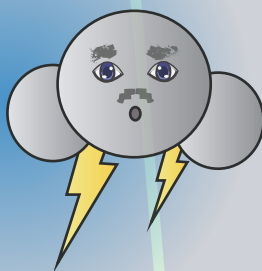
Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Electron

Electric Charge:  $-1$   
Spin:  $1/2$   
Mass: 0.511 MeV  
Mean Lifetime: Stable

Colour Charge: No  
Lepton Number (e): 1  
1st generation (1 point)



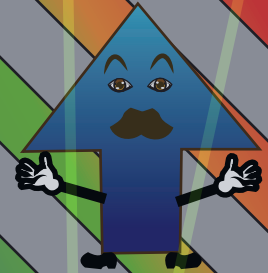
Hydrogen consists of a proton and an electron. Hydrogen was discovered in 1766 by Henry Cavendish.

## Anti-Hydrogen (50 Points)

### Anti-Up Quark

Electric Charge:  $-2/3$   
Spin:  $1/2$   
Mass: 2.2 MeV  
Mean Lifetime: Stable

Colour Charge: Yes  
Baryon Number:  $-1/3$   
1st generation (1 point)



### Anti-Up Quark

Electric Charge:  $-2/3$   
Spin:  $1/2$   
Mass: 2.2 MeV  
Mean Lifetime: Stable

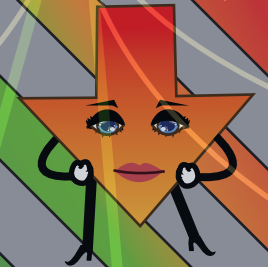
Colour Charge: Yes  
Baryon Number:  $-1/3$   
1st generation (1 point)



### Anti-Down Quark

Electric Charge:  $+1/3$   
Spin:  $1/2$   
Mass: 4.7 MeV  
Mean Lifetime: Stable

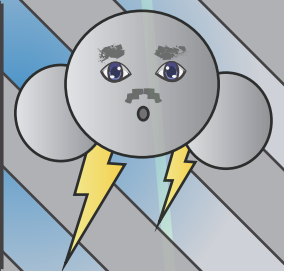
Colour Charge: Yes  
Baryon Number:  $-1/3$   
1st generation (1 point)



### Positron (Anti-Electron)

Electric Charge:  $+1$   
Spin:  $1/2$   
Mass: 0.511 MeV  
Mean Lifetime: Stable

Colour Charge: No  
Lepton Number (e):  $-1$   
1st generation (1 point)



Anti-hydrogen consists of an anti-proton and a positron. It was first produced in the 1990s.

# Particle Builder

Target Card

# Particle Builder

Target Card