

# **Models of atoms and electrons and ions.**

What happens if you remove one of the H's (Hydrogen) from the red  $\text{H}_3\text{O}$ ?



- It becomes an ion
- It is no longer  $\text{H}_3\text{O}$ , it's now water
- The whole thing falls apart.
- Nuclear reaction – radiation
- Nothing serious, it's just charged now.

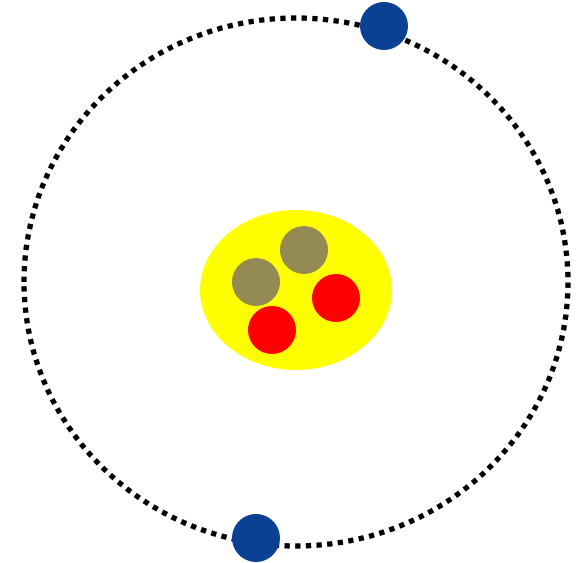
# Where are the electrons in these pictures?



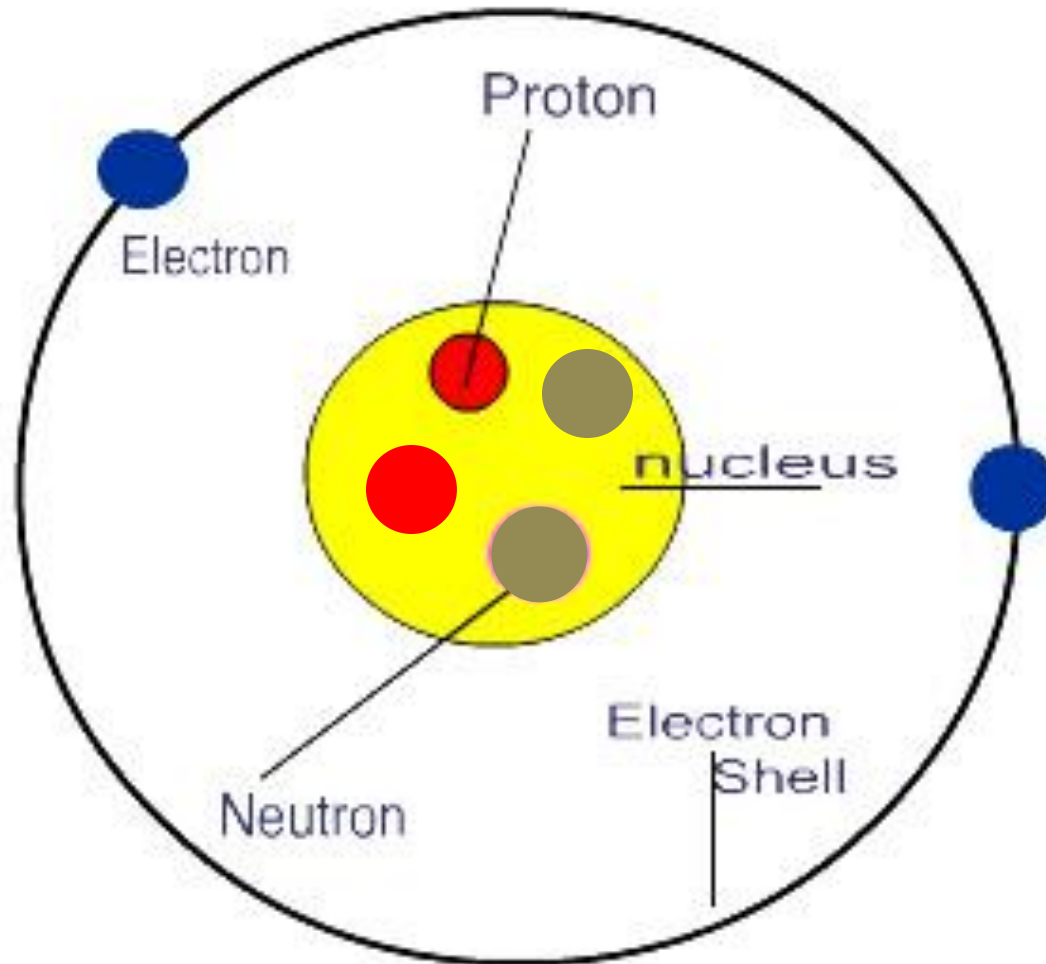
- They are the smaller balls.
- They are the bigger central balls
- They are not shown
- There are no electrons in  $\text{H}_2\text{O}$  or  $\text{H}_3\text{O}$ .

Where are the electrons in this picture?

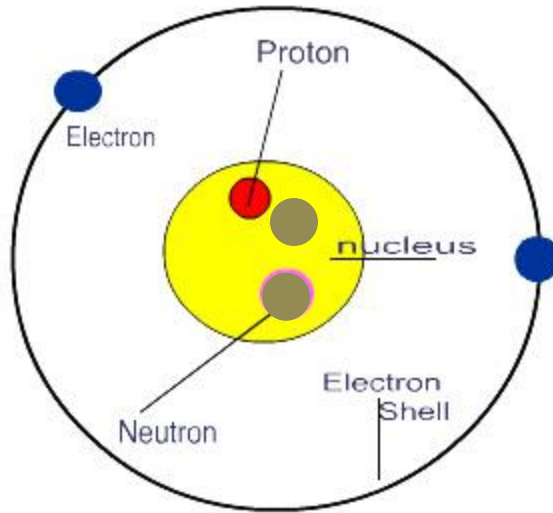
- a. The taupe dots
- b. The red dots
- c. The blue dots
- d. The yellow dot



# Model of an atom

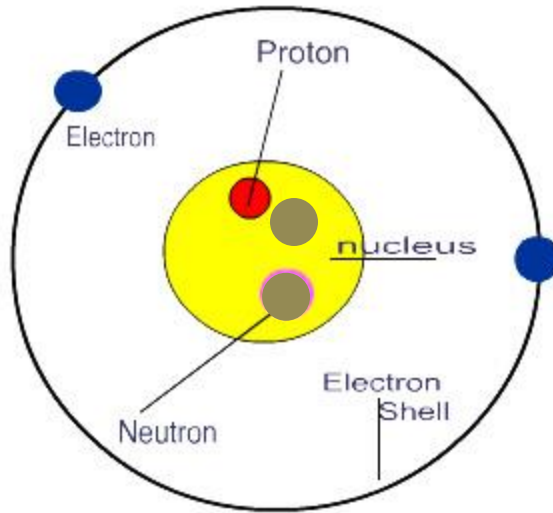


# What happens if you remove a proton?



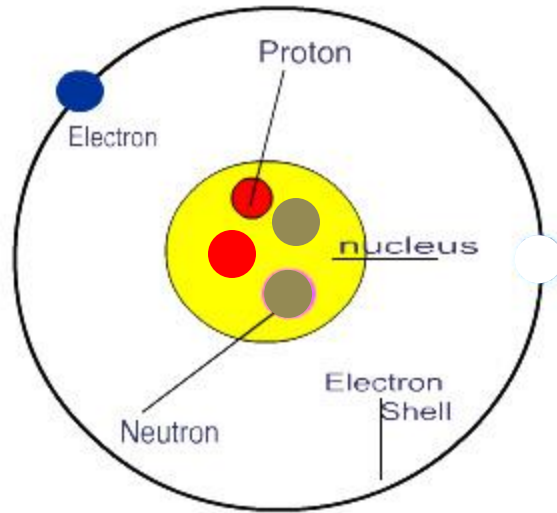
- It becomes an ion
- It is no longer Helium, it's now Hydrogen
- The whole thing falls apart.
- Nuclear reaction – radiation
- Nothing serious, it's just charged now.

# What happens if you remove a proton?



- a. It becomes an ion
- b. It is no longer Helium, it's now Hydrogen**
- c. The whole thing falls apart.
- d. Nuclear reaction – radiation
- e. Nothing serious, it's just charged now.

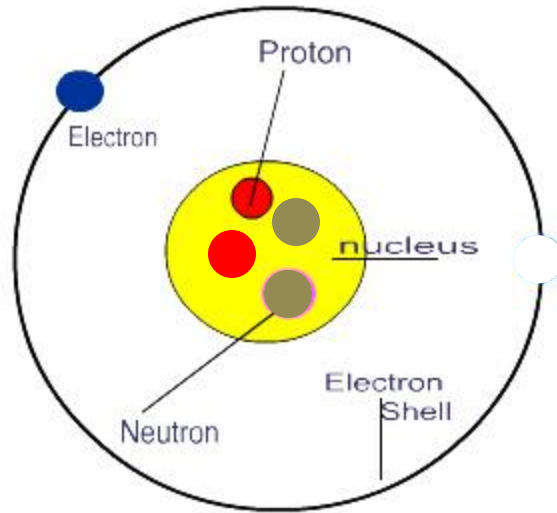
# What happens if you remove an electron?



- It becomes an ion
- It is no longer Helium, it's now Hydrogen
- The whole thing falls apart.
- Nuclear reaction – radiation
- Nothing serious, it's just charged now.



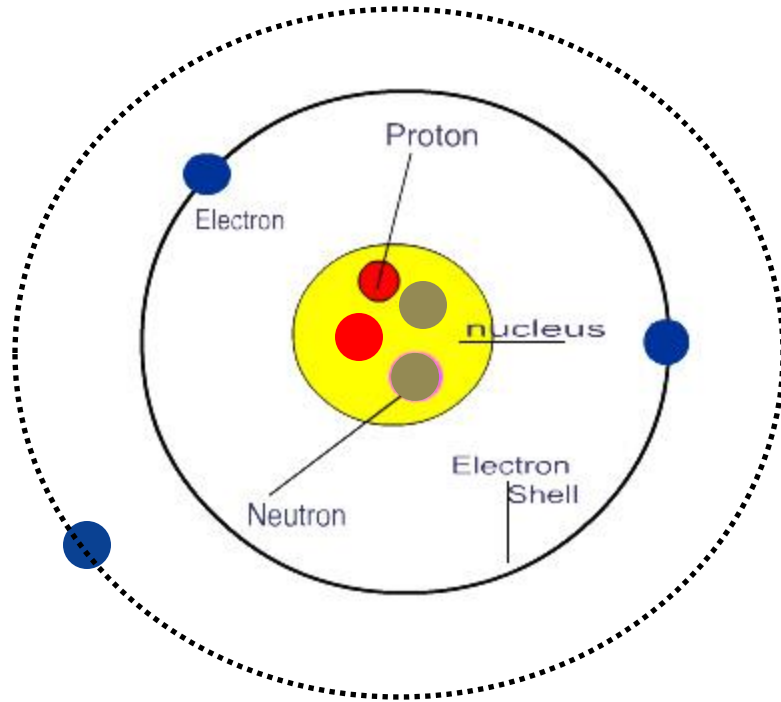
# What happens if you remove an electron?



**+ positive ion**

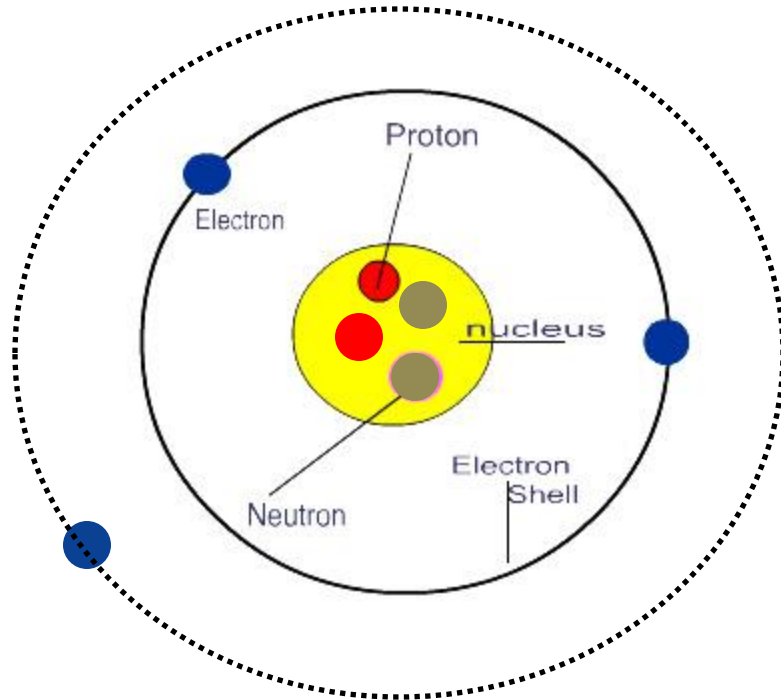
- a. It becomes an ion**
- b. It is no longer Helium, it's now Hydrogen
- c. The whole thing falls apart.
- d. Nuclear reaction – radiation
- e. Nothing serious, it's just charged now.**

# What happens if you *add* an electron?



- It becomes an ion
- It is no longer Helium, it's now Hydrogen
- The whole thing falls apart.
- Nuclear reaction – radiation
- Nothing serious, it's just charged now.

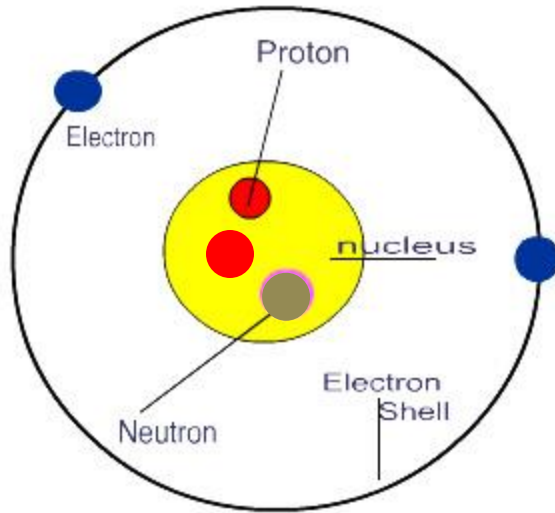
# What happens if you *add* an electron?



- negative ion

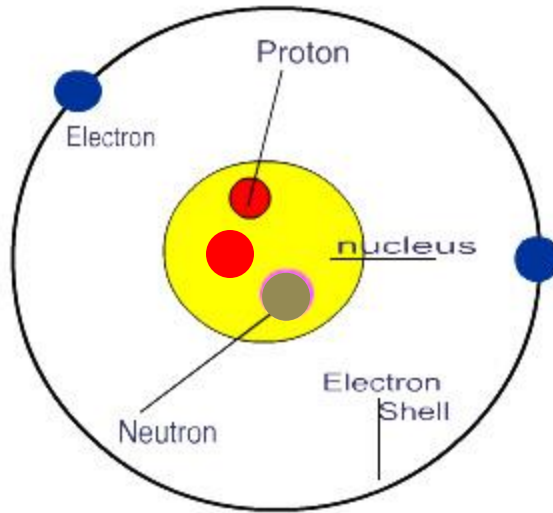
- a. **It becomes an ion**
- b. It is no longer Helium, it's now Hydrogen
- c. The whole thing falls apart.
- d. Nuclear reaction – radiation
- e. **Nothing serious, it's just charged now.**

# What happens if you remove a neutron?



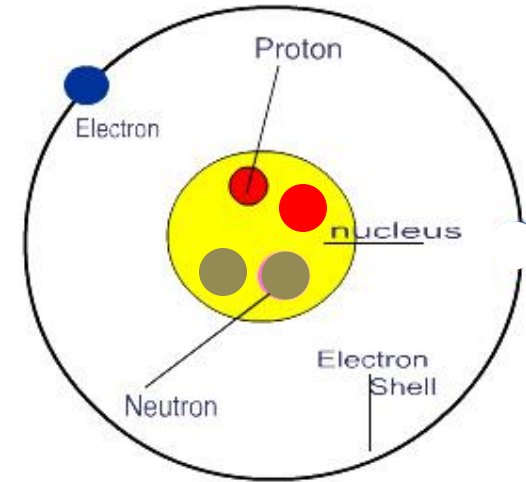
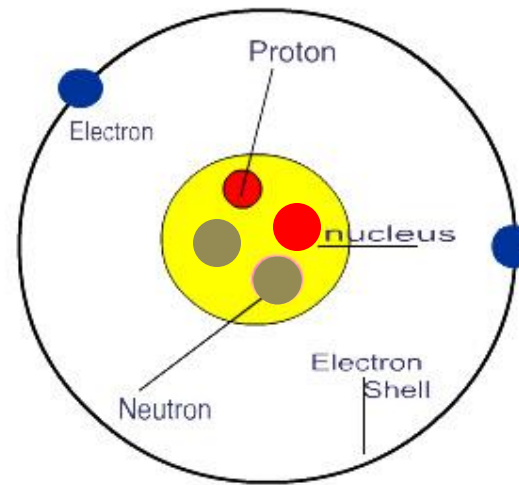
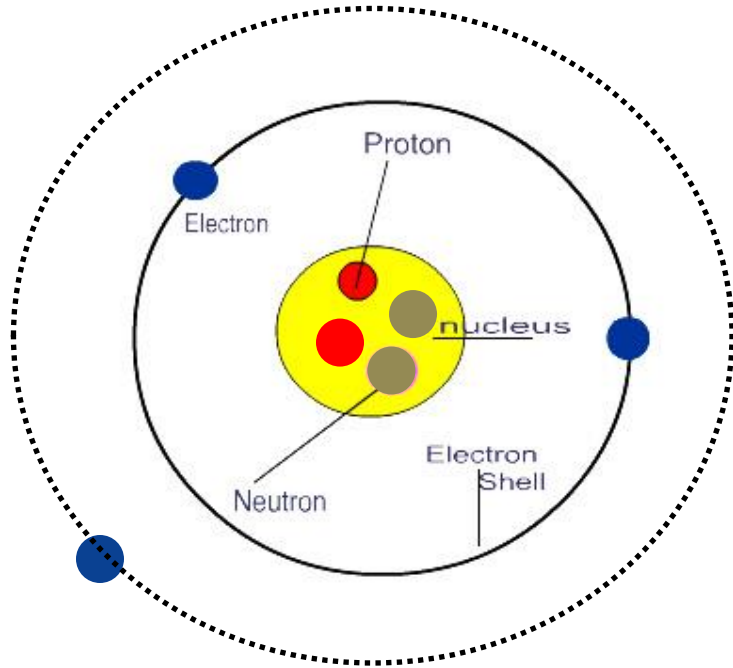
- It becomes an ion
- It is no longer Helium, it's now Hydrogen
- The whole thing falls apart.
- Nuclear reaction – radiation
- Nothing serious, it's just charged now.

# What happens if you remove a neutron?



- a. It becomes an ion
- b. It is no longer Helium, it's now Hydrogen
- c. The whole thing falls apart.**
- d. Nuclear reaction – radiation**
- e. Nothing serious, it's just charged now.

# Allowed atom configurations



- Negative He ion

He (Helium) Atom

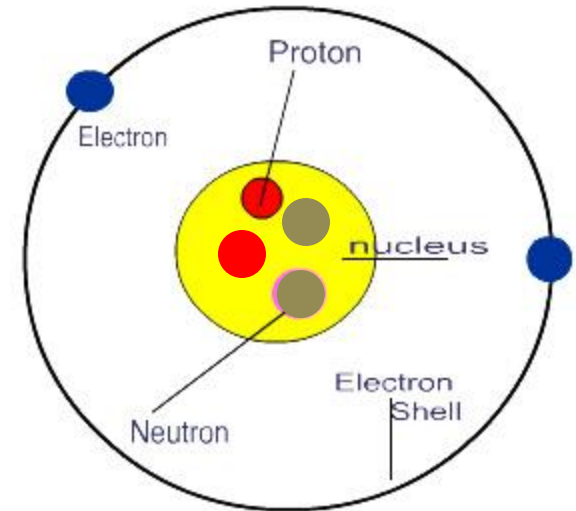
+ positive He ion

*Extra* electron

Equal electrons and protons

*Missing* an electron

# How do these two types of pictures go together?



Imagine the carpet molecules as atoms.

John is taking **electrons** away from the carpet atoms.

Not protons – it wouldn't be carpet anymore

Not neutrons – it would disintegrate –nuclear fission

Not ions – wouldn't be carpet anymore

