



Virtual Reality
Applied to
School Education

CHEMISTRY

A project funded by:



Co-funded by
the European Union

With the participation of:



STARTING THE USE OF THE GLASSES

- 1.- Clear the Operating Area
- 2.- Put the wrist straps on
- 3.- Put your headset on and turn the power on
- 4.- Check the battery level of your Meta Quest and controllers
- 5.- Establish a boundary
- 6.- Enter the Headset menu, go to where App is loaded and start the App.
- 7.- Before Starting the app, read the App instructions of use

CHEMISTRY VR EXPERIENCE – OBJECTIVES OF VIRION VR PROJECT

- *“Periodic Table and Elements:* Exploring the periodic table in virtual reality can help students visualize trends and patterns in elemental properties.

So, when designing this experience, we establish as the main objective that the students should be able to:

- 1.- Interact with the elements of the periodic table and its respective families of elements (each one of them represented both in the periodic table as well as in the galleries in the same colour)
- 2.- Manipulate the elements, in order to search its info and position in the periodic table, having the opportunity to practice with its elements symbols, mass, atomic numbers and its names, all under a **“game” format.**

CHEMISTRY VR EXPERIENCE CONTENT

The Chemistry Mine

The environment chosen for the chemistry experience –due to the nature of its metals, gases and mineral content- was a coal mine.

This mine is divided in 9 galleries, each representing a different family of elements of the Periodic Table:



1. NOBLE GASES
2. HALOGENS
3. NO METALS
4. METALLOIDS
5. OTHER METALS
6. TRANSITION METALS
7. ALKALINE EARTH
8. ALKALI METALS
9. LANTANIDES and ACTINIDES

CHEMISTRY VR EXPERIENCE CONTENT



The Chemistry Mine

Each one of the 9 galleries is represented with its lights and decoration in the same colour as the family of elements represented on the periodic table.

Periodic Table

1 H Hydrogen																	2 He Helium																																																										
3 Li Lithium	4 Be Beryllium																	5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon																																																				
11 Na Sodium	12 Mg Magnesium																	13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon																																																				
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton											37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon																														
55 Cs Cesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon											87 Fr Francium	88 Ra Radium	89 Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Nh Nihonium	114 Fl Flerovium	115 Mc Moscovium	116 Lv Livermorium	117 Ts Tennessine	118 Og Oganesson																														
																																58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium																	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

Atomic Mass

Atomic Number

Element Symbol

Element Name

NOBLE GASES

HALOGENS

NO METALS

METALLOIDS

OTHER METALS

ALKALINE EARTH

ALKALINOTERREOS

ALKALI METALS

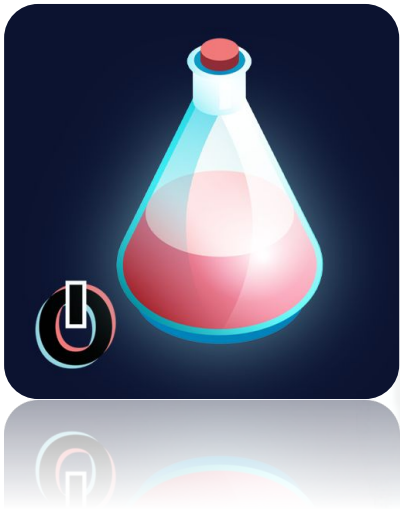
LANTANIDES

ACTINIDES

CHEMISTRY VR EXPERIENCE CONTENT

The configuration of the experience

(Left controller pushing “I” button will deploy instructions).



From the beginning of the experience, a Hologram representing the complete periodic table will appear on the side of the student (pushing “X” button on his left controller).

When the journey through the full mine starts, in each of the 9 galleries, student will find many boxes located in random places. Each of those boxes representing one elements of the periodic table, with its symbol an its main info printed in the outside walls of the box and with the colour of its own family.

* He can light them with the torch in his hand pushing the “B” button on his right controller.

Student will need to find at least 3 boxes belonging to each family of the gallery and introduce them one by one in its correct spot on the Periodic Table. If he don't complete 3 elements in each of the families, he will not be able to advance and complete the experience...

CHEMISTRY VR EXPERIENCE CONTENT

Interface design:



CHEMISTRY VR EXPERIENCE CONTENT

The configuration of the experience



In the entrance of each gallery student will find a information panel providing information of this family of elements on the periodic table represented in the gallery that student is about to walk through.

Once completed the 9 galleries and inserted at least 3 elements on each of them on the periodic table, student will obtain his **certificate of accomplishment**

CHEMISTRY VR EXPERIENCE CONTENT

Interface design:

