★ ★ ★ Difficulty 3/3

BEFORE THE GAME ... REMOVE :

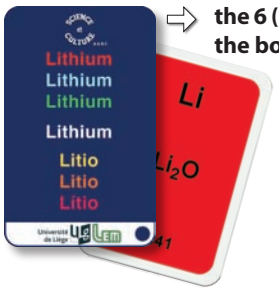
⇨ **the 2 identification cards (white face)** bearing on the back **a white dot in the top left-hand corner and the mention " Periodical Puzzle "** in various languages.

⇨ **the 4 (yellow face) cards bearing on the back a white dot in the top right-hand corner :**

beryllium with its real relative atomic mass :	9,0122
gallium with its real relative atomic mass :	69,723
germanium with its real relative atomic mass :	72,64
indium with its real relative atomic mass :	114,82

⇨ **the 2 (yellow face) cards bearing on the back a white dot in the two top corners :**

ekaaluminium with the symbol "Ga" on the front face
ekasilicium with the symbol "Ge" on the front vvface.



⇨ **the 6 (red face) cards** bearing on the back a **dark blue dot in the bottom right-hand corner, the alcalines :**

lithium
sodium
potassium
rubidium
cesium
francium

AND NOW ... THE GAME !

The 42 remaining cards are shuffled and laid down, front face up. They must then be classified.

Once the classification is over, the students can put back the cards for ekaaluminium (Ga) and ekasilicium (Ge), which had been put aside at the beginning of the game.

EDUCATIONAL ASPECT

The students find themselves in a situation that is closer to the one Mendeleev encountered :

a) two cards are missing : gallium and germanium, unknown to Mendeleev
b) the beryllium card includes two possible values of the relative atomic mass : 9,4 and 14,1
c) the indium card includes three possible values of the relative atomic mass : 38 and 76 and 114

On top of the problems they encounter in the simpler versions (the inversion of potassium and argon and of tellurium and iodine), the pupils have to

- select the relative atomic mass of beryllium and of indium.
- leave two free spaces for gallium and germanium.

The students are guided by the fact that iodine (I) belongs to a family (halogens) characterized by the colour of the card (blue face).