

EDUCATIF

periode

groupe

Californium

98

251

2, 8, 18, 32

lanthanides

actinides

# 'NUCLEAR'



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*En ordonnant les symboles des éléments chimiques par ordre de masse atomique croissante dans un tableau à double entrée, le chimiste russe Dimitri MENDELEIEV (1834-1907) s'est aperçu en 1869, que l'on trouvait dans une même colonne des éléments ayant des propriétés communes et le même nombre d'électrons dans la couche périphériques de leur structure électronique. Chaque élément occupe une case de ce tableau, le numéro d'ordre de la case étant identique au numéro atomique de l'élément (nombre de protons du noyau).*



"NUCLEAR" (de nucléon : ensemble des protons et neutrons d'un noyau) est un programme destiné aux classes de 2<sup>nde</sup> de chimie, traitant de l'utilisation de ce tableau de MENDELEIEV, appelé aussi tableau de la classification périodique des éléments.

Le programme comporte deux parties :

### 1 - Etude :

En déplaçant le carré clignotant sur le tableau à l'aide des flèches, vous obtenez, après appui sur [COPY], la carte d'identité complète de l'élément sélectionné :

- Symbole
- Nom
- Numéro atomique
- Nombre d'électrons sur les différentes couches.
- La couleur de fond de la fiche indique la famille de l'élément.
- La couleur d'écriture indique l'état de l'élément dans les conditions normales :
  - Noir = solide
  - Bleu = gazeux
  - Rouge = liquide à 30°C
  - Blanc = obtenu artificiellement.

### 2 - Jeu

Après choix du niveau, l'ordinateur tire au sort et affiche le symbole d'un élément.

- Niveau 1 : vous entrez le nom de l'élément.
- Niveau 2 : vous ajoutez le numéro atomique.
- Niveau 3 : (réservé aux très doués!) vous devez entrer en plus la masse atomique.

A l'issue des 20 questions, vous prenez connaissance de votre note.

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10 ***** >PB<
20 *   N U C L E A R   * >HC<
30 *           p a r           * >ND<
40 *   Gerard Tanniere   * >TE<
50 ***** >UF<
60 BORDER 13:INK 0,13:INK 1,0:INK 2 >QB<
   ,20:INK 3,6:MODE 1:PAPER 0:PEN 1:CL
   S:DEG:ORIGIN 200,200
70 PEN 3:LOCATE 26,4:PRINT "N U C L >BH<
   E A R":PEN 1:LOCATE 31,12:PRINT"pa
   r":PEN 2:LOCATE 28,20:PRINT"G.Tanni
   ere":PEN 1
80 PRINT CHR$(23)+CHR$(1)::TAG:PLOT >AJ<
   6,-250,2:MOVE 6,6:PRINT CHR$(231);
   :PLOT 0,-250,3:MOVE 0,0:PRINT CHR$(
   231)::PLOT 0,-250,1:FOR a=1 TO 1800
   STEP 10:xcg1=200*COS(a):ygl=100*SIN(
   a):xg2=100*COS(a+120):yg2=180*SIN(
   a+120):
90 MOVE xg1,yg1:PRINT CHR$(144)::MO >TK<
   VE xg2,yg2:PRINT CHR$(144);
100 NEXT:TAGOFF:PRINT CHR$(23)+CHR$ >XB<
   (0);
110 RESTORE 660:DIM tn(13,110),t$(2 >DC<
   ,110):FOR x1=1 TO 105:SOUND 7,x1,15
   ,7:FOR x2=1 TO 13:READ n:tn(x2,x1)=
   n:NEXT x2:FOR x3=1 TO 2:READ n#:t$(
   x3,x1)=n#:NEXT x3:NEXT x1
120 *** Mode d'emploi *** >ED<
130 CLS:RESTORE 1720:FOR nbl=1 TO 3 >QE<
   9:READ x1,y1,cray,phr$:PEN cray:LOC
   ATE x1,y1:PRINT phr$::NEXT:CALL &BB
   18:PEN 1:PRINT CHR$(7);
140 *** Utilisation du tableau *** >BF<

150 DRIGIN 0,0:CLG:MOVE 127,270:DRA >LB<
   W 417,270:DRAW 417,384:DRAW 127,384
   :DRAW 127,272:WINDOW#1,9,26,2,8:WIN
   DOW#2,28,36,2,4:LOCATE 2,1:PRINT CH
   R$(24);"CLASSIFICATION PERIODIQUE D
   ES ELEMENTS";CHR$(24);
160 RESTORE 1780:FOR x=1 TO 28:READ >AH<
   xd,xa,ya:MOVE xd,ya:DRAW xa,ya:NEX
   T:FOR y=1 TO 60:READ ya,yd,xa:MOVE
   xa,ya:DRAW xa,yd:NEXT:PRINT CHR$(22
   )+CHR$(1)::LOCATE 1,2:PRINT "period
   e":LOCATE 2,3:PRINT CHR$(241):LOCAT
   E 18,17:PRINT CHR$(241);" lanthanid
   es"
170 LOCATE 1,21:PRINT "groupe ":LOC >EJ<
   ATE 5,22:PRINT CHR$(241):LOCATE 18,
   22:PRINT CHR$(240);" actinides":LOC
   ATE 7,20:PRINT CHR$(243)::LOCATE 9,
   17:PRINT CHR$(241)::PRINT CHR$(23)+
   CHR$(1)::TAG:FOR y=0 TO 6:MOVE 8,34
   2-(y*32):PRINT y+1::NEXT

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180 FOR g=1 TO 7:MOVE g*32,38:PRINT >EK<
   g;:MOVE g*32+30,38:PRINT "a";:NEXT
   :MOVE 300,38:PRINT "8";"a";:FOR g=1
   TO 7:MOVE g*32+320,38:PRINT g;:MOV
   E g*32+350,38:PRINT "b";:NEXT:MOVE
   600,38:PRINT "0";
190 FOR x=1 TO 105:MOVE tn(1,x)-6*( >AL<
   LEN(t$(1,x))<2),tn(2,x)-8:PRINT t$(
   1,x)::NEXT:TAGOFF:PRINT CHR$(23)+CH
   R$(0):PRINT CHR$(22)+CHR$(0);
200 PEN#1,1:PAPER#1,0:CLS#1:PEN#2,1 >NC<
   :PAPER#2,0:LOCATE#1,7,2:PRINT#1,CHR
   $(24);"MENU";CHR$(24):LOCATE#1,5,4:
   PRINT#1,"1--> etude":LOCATE#1,5,6:P
   RINT#1,"2--> jeu":WHILE rub$<>"":ru
   b$=INKEY$:WEND:WHILE rub$<>"2" AND
   rub$<>"1":rub$=INKEY$:WEND
210 PRINT CHR$(7)::ON VAL(rub$) GOT >CD<
   0 220,300
220 *** partie etude *** >CE<
230 GOSUB 420 >TF<
240 xc=49:yc=350 >FG<
250 xc=xc+(32*(INKEY(8))>-1))-(32*(I >MH<
   NKEY(1))>-1)):IF xc>593 THEN xc=xc-3
   2 ELSE IF xc<49 THEN xc=xc+32 ELSE
   GOSUB 450
260 yc=yc+(32*(INKEY(2))>-1))-(32*(I >DJ<
   NKEY(0))>-1)):IF yc>350 THEN yc=yc-3
   2 ELSE IF yc<93 THEN yc=yc+32 ELSE
   GOSUB 450
270 IF INKEY(9)>-1 THEN CLS#1:PRINT >KK<
   CHR$(7)::GOSUB 470
280 IF INKEY(38)>-1 THEN PRINT CHR$ >DL<
   (7)::GOTO 200
290 GOTO 250 >YM<
300 *** partie jeu *** >RD<
310 CLS#2:CLS#1:PRINT#1:PRINT#1,SPC >BE<
   (7);"JEU":PRINT#1:PRINT#1,SPC(2);CH
   R$(24);"1";CHR$(24)"-> debutant",SP
   C(2);CHR$(24);"2";CHR$(24)"-> moyen
   ",SPC(2);CHR$(24);"3";CHR$(24);"->
   chimiste":
320 WHILE niv$<>"":niv$=INKEY$:WEND >WF<
   :WHILE niv$<>"3" AND niv$<>"2" AND
   niv$<>"1":niv$=INKEY$:WEND:niv=VAL(
   niv$)
330 sco=0:FOR quest=1 TO 20 >KG<
340 RANDOMIZE TIME:x=INT(RND*105)+1 >ZH<
   :INK 2,tn(3,x):PAPER#1,2:CLS#1:INK
   3,tn(4,x)
350 PEN#1,3:PAPER#2,2:PEN#2,3:c1$=C >LJ<
   HR$(15)+CHR$(1)+CHR$(24):c2$=CHR$(1
   5)+CHR$(3):c3$=CHR$(24):CLS#2:PRINT
   #2,c1$;"niv ";c3$;c2$;niv,c1$;"ques
   ";c3$;c2$;quest,c1$;"sco ";c3$;sco;
360 IF niv>0 THEN LOCATE#1,9,2:PRIN >DK<
   T#1,c2$;t$(1,x):PRINT#1,SPC(INT(15-
   LEN(t$(2,x)))/2)::quest$=UPPER$(t$(

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2,x)):q=1:GOSUB 550
370 IF niv>1 THEN PRINT#1,c1$;"nb a >ZL<
to:";c3$;c2$;:quest$=UPPER$(STR$(tn
(5,x)):quest$=RIGHT$(quest$,LEN(qu
est$)-1):q=2:GOSUB 550
380 IF niv>2 THEN PRINT#1,c1$;"m. a >FM<
to:";c3$;c2$;:quest$=UPPER$(STR$(tn
(6,x)):quest$=RIGHT$(quest$,LEN(qu
est$)-1):q=3:GOSUB 550
390 NEXT quest >DN<
400 CLS#2::PRINT#2," niv ";niv," no >HE<
te":,PRINT#2,USING "##.#";sco/niv;
:PRINT#2,"/20";
410 GOTO 200 >LF<
420 '*** sp-1:affichage menu etude >RG<
***
430 CLS#2:CLS#1:LOCATE#1,2,2:PRINT# >MH<
1,CHR$(240);CHR$(241);CHR$(242);CHR
$(243);" deplacement";" curse
ur":PRINT#1,SPC(10);" [COPY] fiche"
;" [M] retour menu"
440 RETURN >MJ<
450 '*** sp-2:impression croix *** >UK<
460 PRINT CHR$(23)+CHR$(1);:TAG:MOV >CL<
E xc+8,yc-8:PRINT CHR$(233);:FOR t=
1 TO 25:NEXT:MOVE xc+8,yc-8:PRINT C
HR$(233);:TAGOFF:PRINT CHR$(23)+CHR
$(0);:RETURN
470 '*** sp-3:test limites *** >JM<
480 FOR x=1 TO 105:IF xc=tn(1,x) AN >RN<
D yc=tn(2,x) THEN GOSUB 500 ELSE NE
XT x
490 RETURN >TP<
500 '*** sp-4:affichage fenetre *** >RF<
510 INK 2,tn(3,x):PAPER#1,2:CLS#1:I >DG<
NK 3,tn(4,x):PEN#1,3:c1$=CHR$(15)+C
HR$(1)+CHR$(24):c2$=CHR$(15)+CHR$(3
):c3$=CHR$(24)
520 PRINT#1,SPC(8);t$(1,x),SPC(INT( >KH<
17-LEN(t$(2,x)))/2);t$(2,x),c1$;"nb
ato:";c3$;c2$;tn(5,x),c1$;"m. ato:
";c3$;c2$;tn(6,x)
530 PRINT#1,c1$;"couches elect:";c3 >EJ<
$;c2$;tn(7,x);", ";tn(8,x);", ";tn(9,
x);", ";tn(10,x);", ";tn(11,x);", ";tn
(12,x);", ";tn(13,x);
540 RETURN >NK<
550 '*** sp-5:entree reponse et con >RL<
trole ***
560 INPUT#1," ",rep$:IF rep$="" THE >AM<
N GOTO 560 ELSE IF UPPER$(rep$)=que
st$ THEN FOR s=105 TO 1 STEP-1:SOUN
D 7,s,1,7:NEXT:sco=sco+1:GOSUB 580
ELSE GOSUB 610
570 RETURN >RN<
580 '*** sp-6:Affichage fenetre 2 * >GP<
**
590 PEN#2,3:LOCATE#2,5,2:PRINT#2,qu >GQ<
est;:LOCATE#2,5,3:PRINT#2,sco;
600 RETURN >KG<
610 '*** sp-7:solution reponse faus >DH<
se ***
620 IF q=1 THEN LOCATE#1,1,3:PRINT# >HJ<
1,SPACE$(17):LOCATE#1,1,3:PRINT#1,S
PC(INT(17-LEN(t$(2,x)))/2);quest$
630 IF q=2 THEN LOCATE#1,9,4:PRINT# >UK<
1,SPACE$(9):LOCATE#1,9,4:PRINT#1,qu
est$
640 IF q=3 THEN LOCATE#1,9,5:PRINT# >YL<
1,SPACE$(9):LOCATE#1,9,5:PRINT#1,qu
est$
650 q=0:FOR s=1 TO 105:SOUND 7,s,1, >CM<
7:NEXT:FOR t=1 TO 1000:NEXT:RETURN
660 '*** DATA elements chimique *** >ZN<
670 DATA 49,350,13,1,1,1.008,1,0,0, >VP<
0,0,0,0,H,Hydrogene
680 DATA 593,350,26,1,2,4.00,2,0,0, >GQ<
0,0,0,0,He,Helium
690 DATA 49,318,24,0,3,6.94,1,2,0,0 >AR<
,0,0,0,Li,Lithium
700 DATA 81,318,25,0,4,9.013,2,2,0, >MH<
0,0,0,0,Be,Beryllium
710 DATA 433,318,14,0,5,10.82,3,2,0 >HJ<
,0,0,0,0,B,Bore
720 DATA 465,318,5,0,6,12.01,4,2,0, >LK<
0,0,0,0,C,Carbone
730 DATA 497,318,16,1,7,14.00,5,2,0 >JL<
,0,0,0,0,N,Azote
740 DATA 529,318,7,1,8,16,6,2,0,0,0 >ZM<
,0,0,0,Oxygene
750 DATA 561,318,13,1,9,19.00,7,2,0 >FN<
,0,0,0,0,F,Fluor
760 DATA 593,318,26,1,10,20.18,8,2, >AP<
0,0,0,0,Ne,Neon
770 DATA 49,286,24,0,11,22.99,1,2,0 >XQ<
,0,0,0,0,Na,Sodium
780 DATA 81,286,25,0,12,24.32,2,2,0 >XR<
,0,0,0,0,Mg,Magnesium
790 DATA 433,286,14,0,13,26.98,3,8, >ET<
2,0,0,0,0,Al,Aluminium
800 DATA 465,286,5,0,14,28.09,4,8,2 >XJ<
,0,0,0,0,Si,Silicium
810 DATA 497,286,16,0,15,30.97,5,8, >ZK<
2,0,0,0,0,P,Phosphore
820 DATA 529,286,7,0,16,32.06,6,8,2 >TL<
,0,0,0,0,S,Soufre
830 DATA 561,286,13,1,17,35.45,7,8, >NM<
2,0,0,0,0,Cl,Chlore
840 DATA 593,286,26,1,18,39.94,8,8, >NN<
2,0,0,0,0,Ar,Argon
850 DATA 49,254,24,0,19,39.1,1,8,8, >WF<
2,0,0,0,0,K,Potassium
860 DATA 81,254,25,0,20,40.08,2,8,8 >HQ<
,2,0,0,0,Ca,Calcium
870 DATA 113,254,15,0,21,44.96,2,9, >HR<
8,2,0,0,0,Sc,Scandium
880 DATA 145,254,15,0,22,47.90,2,10 >HT<
,8,2,0,0,0,Ti,Titane
890 DATA 177,254,15,0,23,50.95,2,11 >VU<
,8,2,0,0,0,V, Vanadium
900 DATA 209,254,15,0,24,52.01,1,13 >BK<
,8,2,0,0,0,Cr,Chrome
910 DATA 241,254,15,0,25,54.94,2,13 >ZL<
,8,2,0,0,0,Mn,Manganese
920 DATA 273,254,19,0,26,55.85,2,14 >ZM<
,8,2,0,0,0,Fe,Fer
930 DATA 305,254,19,0,27,58.94,2,15 >UN<
,8,2,0,0,0,Co,Cobalt
940 DATA 337,254,19,0,28,58.71,2,16 >DP<
,8,2,0,0,0,Ni,Nickel
950 DATA 369,254,9,0,29,63.54,1,18, >HQ<
8,2,0,0,0,Cu,Cuivre
960 DATA 401,254,9,0,30,65.38,2,18, >RR<
8,2,0,0,0,Zn,Zinc
970 DATA 433,254,14,6,31,69.72,3,18 >FT<
,8,2,0,0,0,Ga,Gallium
980 DATA 465,254,5,0,32,72.60,4,18, >TU<
8,2,0,0,0,Ge,Germanium
990 DATA 497,254,16,0,33,74.91,5,18 >XV<
,8,2,0,0,0,As,Arsenic
1000 DATA 529,254,7,0,34,78.96,6,18 >RB<
,8,2,0,0,0,Se,Selenium
1010 DATA 561,254,13,6,35,79.91,7,1 >EC<
8,8,2,0,0,0,Br,Brome
1020 DATA 593,254,26,1,36,83.80,8,1 >AD<
8,8,2,0,0,0,Kr,Krypton
1030 DATA 49,222,24,0,37,85.48,1,8, >FE<
18,8,2,0,0,0,Rb,Rubidium
1040 DATA 81,222,25,0,38,87.63,2,8, >ZF<
18,8,2,0,0,0,Sr,Strontium
1050 DATA 113,222,15,0,39,88.92,2,9 >FB<
,18,8,2,0,0,Y,Yttrium
1060 DATA 145,222,15,0,40,91.22,2,1 >PH<
0,18,8,2,0,0,Zr,Zirconium
1070 DATA 177,222,15,0,41,92.91,1,1 >MJ<
2,18,8,2,0,0,Nb,Niobium
1080 DATA 209,222,15,0,42,95.95,1,1 >JK<
3,18,8,2,0,0,Mo,Molybdene
1090 DATA 241,222,15,26,43,99,1,14, >TL<
18,8,2,0,0,Tc,Technetium
1100 DATA 273,222,19,0,44,101.1,1,1 >HC<
5,18,8,2,0,0,Ru,Ruthenium
1110 DATA 305,222,19,0,45,102.91,1, >XD<
16,18,8,2,0,0,Rh,Rhodium
1120 DATA 337,222,19,0,46,106.4,0,1 >KE<
8,18,8,2,0,0,Pd,Palladium
1130 DATA 369,222,9,0,47,107.88,1,1 >JF<
8,18,8,2,0,0,Ag,Argent
1140 DATA 401,222,9,0,48,112.41,2,1 >ZG<
8,18,8,2,0,0,Cd,Cadmium
1150 DATA 433,222,14,0,49,114.82,3, >TH<
18,18,8,2,0,0,In,Indium
1160 DATA 465,222,5,0,50,118.70,4,1 >JJ<
8,18,8,2,0,0,Sn,Etain
1170 DATA 497,222,16,0,51,121.76,5, >TK<

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18,18,8,2,0,0,Sb,Antimoine  
 1180 DATA 529,222,7,0,52,127.61,6,1 >XL<  
 8,18,8,2,0,0,Te,Tellure  
 1190 DATA 561,222,13,0,53,126.91,7, >LM<  
 18,18,8,2,0,0,I,Iode  
 1200 DATA 593,222,26,1,54,131.30,8, >GD<  
 18,18,8,2,0,0,Xe,Xenon  
 1210 DATA 49,190,24,6,55,132.91,1,8 >AE<  
 ,18,18,8,2,0,Cs,Caesium  
 1220 DATA 81,190,25,0,56,137.36,2,8 >TF<  
 ,18,18,8,2,0,Ba,Baryum  
 1230 DATA 113,126,17,0,57,138.92,2, >RG<  
 9,18,18,8,2,0,La,Lanthane  
 1240 DATA 145,126,17,0,58,140.13,2, >JH<  
 9,19,18,8,2,0,Ce,Cerium  
 1250 DATA 177,126,17,0,59,140.92,2, >DJ<  
 9,20,18,8,2,0,Pr,Praseodyme  
 1260 DATA 209,126,17,0,60,144.27,2, >AK<  
 8,22,18,8,2,0,Nd,Neodyme  
 1270 DATA 241,126,17,26,61,145.2,8, >AL<  
 23,18,8,2,0,Pm,Prometheum  
 1280 DATA 273,126,17,0,62,150.35,2, >DM<  
 8,24,18,8,2,0,Sm,Samarium  
 1290 DATA 305,126,17,0,63,152.0,2,8 >MN<  
 ,25,18,8,2,0,Eu,Europium  
 1300 DATA 337,126,17,0,64,157.2,2,9 >CE<  
 ,25,18,8,2,0,Gd,Gadolinium  
 1310 DATA 369,126,17,0,65,158.93,2, >KF<  
 9,26,18,8,2,0,Tb,Terbium  
 1320 DATA 401,126,17,0,66,162.51,2, >FB<  
 9,27,18,8,2,0,Dy,Dysprosium  
 1330 DATA 433,126,17,0,67,164.94,2, >KH<  
 9,28,18,8,2,0,Ho,Holmium  
 1340 DATA 465,126,17,0,68,167.27,2, >YJ<  
 9,29,18,8,2,0,Er,Erbium  
 1350 DATA 497,126,17,0,69,168.94,2, >XK<  
 8,31,18,8,2,0,Tm,Thulium  
 1360 DATA 529,126,17,0,70,173.04,2, >LL<  
 8,32,18,8,2,0,Yb,Ytterbium  
 1370 DATA 561,126,17,0,71,174.99,2, >GM<  
 9,32,18,8,2,0,Lu,Lutecium  
 1380 DATA 145,190,15,0,72,178.6,2,1 >NN<  
 0,32,18,8,2,0,Hf,Hafnium  
 1390 DATA 177,190,15,0,73,180.95,2, >JP<  
 11,32,18,8,2,0,Ta,Tantale  
 1400 DATA 209,190,15,0,74,183.86,2, >EF<  
 12,32,18,8,2,0,W,Tungstene  
 1410 DATA 241,190,15,0,75,186.22,2, >LB<  
 13,32,18,8,2,0,Re,Rhenium  
 1420 DATA 273,190,19,0,76,190.22,2, >NH<  
 14,32,18,8,2,0,Os,Osmium  
 1430 DATA 305,190,19,0,77,192.2,0,1 >PJ<  
 7,32,18,8,2,0,Ir,Iridium  
 1440 DATA 337,190,19,0,78,195.09,1, >PK<  
 17,32,18,8,2,0,Pt,Platine  
 1450 DATA 369,190,9,0,79,197.0,1,18 >ZL<  
 ,32,18,8,2,0,Au,Or  
 1460 DATA 401,190,9,6,80,200.61,2,1 >YM<  
 8,32,18,8,2,0,Hg,Mercur

1470 DATA 433,190,14,0,81,204.39,3, >KN<  
 18,32,18,8,2,0,Tl,Thallium  
 1480 DATA 465,190,5,0,82,207.21,4,1 >VP<  
 8,32,18,8,2,0,Pb,Plomb  
 1490 DATA 497,190,16,0,83,209.00,5, >AQ<  
 18,32,18,8,2,0,Bi,Bismuth  
 1500 DATA 529,190,7,0,84,210.6,18,3 >QG<  
 2,18,8,2,0,Po,Polonium  
 1510 DATA 561,190,13,0,85,210.7,18, >KH<  
 32,18,8,2,0,At,Astate  
 1520 DATA 593,190,26,1,86,222,8,18, >EJ<  
 32,18,8,2,0,Rn,Radon  
 1530 DATA 49,158,24,6,87,223,1,8,18 >WK<  
 ,32,18,8,2,Fr,Francium  
 1540 DATA 81,158,24,0,88,226.05,2,8 >LL<  
 ,18,32,18,8,2,Ra,Radium  
 1550 DATA 113,94,10,0,89,227,2,9,18 >UM<  
 ,32,18,8,2,Ac,Actinium  
 1560 DATA 145,94,10,0,90,232.05,2,9 >VN<  
 ,19,32,18,8,2,Th,Thorium  
 1570 DATA 177,94,10,0,91,231,2,9,20 >DP<  
 ,32,18,8,2,Pa,Protactinium  
 1580 DATA 209,94,10,0,92,238.07,2,9 >RQ<  
 ,21,32,18,8,2,U,Uranium  
 1590 DATA 241,94,10,26,93,237,2,9,2 >WR<  
 2,32,18,8,2,Np,Neptunium  
 1600 DATA 273,94,10,26,94,242,2,9,2 >GH<  
 3,32,18,8,2,Pu,Plutonium  
 1610 DATA 305,94,10,26,95,243,2,9,2 >DJ<  
 4,32,18,8,2,Am,Americium  
 1620 DATA 337,94,10,26,96,245,2,9,2 >AK<  
 5,32,18,8,2,Cm,Curium  
 1630 DATA 369,94,10,26,97,249,2,9,2 >FL<  
 6,32,18,8,2,Bk,Berkelium  
 1640 DATA 401,94,10,26,98,249,2,9,2 >GM<  
 7,32,18,8,2,Cf,Californium  
 1650 DATA 433,94,10,26,99,255,2,9,2 >XN<  
 8,32,18,8,2,Es,Einsteinium  
 1660 DATA 465,94,10,26,100,255,2,9, >XP<  
 29,32,18,8,2,Fm,Fermium  
 1670 DATA 497,94,10,26,101,256,2,9, >PQ<  
 30,32,18,8,2,Md,Mendelevium  
 1680 DATA 529,94,10,26,102,253,2,9, >ER<  
 31,32,18,8,2,No,Nobelium  
 1690 DATA 561,94,10,26,103,253,2,9, >ET<  
 32,32,18,8,2,Lw,Lawrencium  
 1700 DATA 145,158,15,26,104,260,2,1 >NJ<  
 0,32,32,18,8,2,Ku,Kourchatovium  
 1710 DATA 177,158,15,26,105,260,2,1 >TK<  
 1,32,32,18,8,2,Ha,Hahnium  
 1720 DATA 10,1,3, N.U.C.L.E.A.R,6,2 >BL<  
 ,1,Donne la ,15,2,2,classification  
 periodique,1,3,2,des,5,3,1,"105",9,  
 3,2,elements chimiques,28,3,1,connu  
 s.,2,4,1,"Le programme comporte 2 p  
 arties:",3,5,2,1-->,8,5,3,ETUDE  
 1730 DATA 1,6,1,"Vous deplacez le c >ZM<  
 urseur clignotant a l'aide des tou  
 ches du curseur puis ,enappuyant

sur [COPY] la fiche complete del'e  
 lement apparait."  
 1740 DATA 1,10,1,Chaque element a >FN<  
 un symbole de couleur differente s  
 elon qu'il est solide dans les cond  
 itions normales (couleur,34,12,2,no  
 ire,39,12,1,""),",1,13,1,gazeux (cou  
 leur,17,13,2,bleue,22,13,1,""),",24,  
 13,1,liquide a 30 deg  
 1750 DATA 1,14,1,(,2,14,2,rouge,7,1 >MP<  
 4,1,)ou obtenu artificiellement(,35  
 ,14,2,blanc,40,14,1,)1,15,1,La cou  
 leur de fond de la fiche represen  
 ,1,16,1,-te les differentes famille  
 s de produits,1,17,1,Le trait gras  
 a droite du tableau separe  
 1760 DATA 1,18,1,les,5,18,2,metaux, >JQ<  
 12,18,3,(a gauche),23,18,1,et les,3  
 1,18,2,non-metaux,1,19,3,(a droite)  
 .,2,20,1,Retour au menu en appuyant  
 sur [M],3,21,2,2-->,8,21,3,JEU,1,2  
 2,1,A chaque niveau vous devez entr  
 er 1 2 ou 3 reponses.  
 1770 DATA 12,23,1, Une note vous e >BR<  
 st attribuee,1,24,1,apres 20 questi  
 ons.,4,25,2,---> APPUYER SUR UNE TO  
 UCHE <---  
 1780 \*\*\* DATA tableau \*\*\* >DT<  
 1790 DATA 17,79,352,591,623,352,15, >DU<  
 111,320,431,623,320,15,111,288,431,  
 623,288,15,623,256,15,623,224,15,62  
 3,192,15,111,160,143,623,160,15,111  
 ,128,111,591,128,111,591,96,111,591  
 ,64,47,623,48,47,623,16,112,132,184  
 ,95,111,86,19,43,350  
 1800 DATA 19,43,130,47,623,18,47,62 >XK<  
 3,46,431,591,318,431,463,286,463,49  
 5,254,495,527,222,527,559,190  
 1810 DATA 128,352,15,16,48,47,128,3 >EL<  
 52,47,16,48,79,128,352,79,86,128,95  
 ,16,48,111,64,320,111,16,48,143,64,  
 256,143,16,48,175,64,256,175,16,48,  
 207,64,256,207,16,48,239,64,256,239  
 ,16,48,271,64,128,271  
 1820 DATA 160,256,271,64,128,303,16 >EM<  
 0,256,303,64,128,335,160,256,335,16  
 ,48,367,64,128,367,160,256,367,16,4  
 8,399,64,128,399,160,256,399,16,48,  
 431,64,128,431,160,320,431,16,48,46  
 3,64,128,463,160,320,463,16,48,495,  
 64,128,495,160,320,495,16,48,527  
 1830 DATA 64,128,527,160,320,527,16 >EN<  
 ,48,559,64,128,559,160,320,559,16,4  
 8,591,64,128,591,160,352,591,16,48,  
 623,160,352,623,130,184,135,130,350  
 ,17,130,350,45,18,46,49,18,46,621,2  
 88,320,433,256,288,465,224,256,497,  
 192,224,529,160,192,561,320,352,593