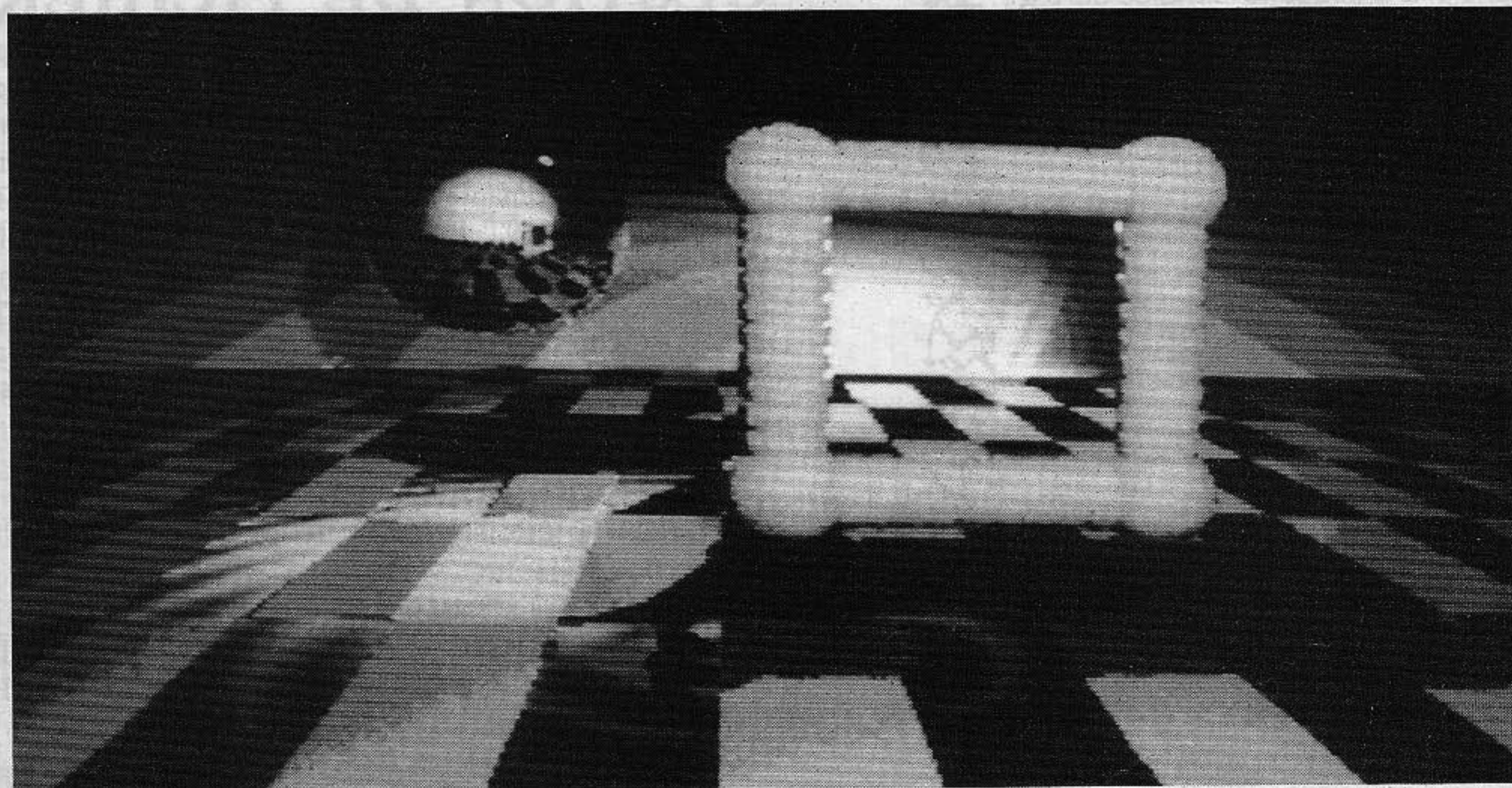


EDUCATIF

MOLECULE

Les alcanes ne vous disent sans doute pas grand-chose. En revanche butane et propane vous connaissez certainement. Molécule se propose de vous aider à visualiser certaines molécules organiques et donc à mieux situer les différents atomes dans l'espace.



UTILISATION DU PROGRAMME

• Un menu principal vous offre 4 options plus la fin.

Vous pouvez sélectionner les options grâce à un petit triangle qui se déplace avec les flèches du curseur. Vous validez votre choix avec la barre d'espace.

- Renseignements sur atomes

Cette option affiche la table périodique des éléments conçue par Mendeleïev. Toujours grâce au triangle, vous aurez accès à tous les éléments ainsi qu'à une fiche contenant les renseignements suivants : Nom, nombre d'électrons, configuration, masse molaire, nombre de couches et répartition par couche.

Il est possible d'imprimer ces fiches.

Molécules

Dans cette partie vous allez visualiser une molécule organique comprenant jusqu'à 10 atomes de carbone. Le type de molécules comprend les familles suivantes : alcanes, alcools, alcènes, alcynes, acides, aldéhydes et amines. A chaque modification des données précédentes, l'ordinateur vous donne le nom de la molécule et la formule éclatée.

Si vous le désirez, vous pouvez obtenir une visualisation "en 3D" de la molécule obtenue.

Questionnaire

C'est la partie contenant des questions allant du niveau élémentaire à supérieur.

Informations

Cette option affiche une page d'aide concernant l'ensemble du programme.

Jean-Yves OUFRAANI

```

10 '##### >LA
#####
20 '##### >LB
#####
30 '##### molecules par Jean-Yves OUFRAANI >LC
#####
40 '##### >LD
#####
50 '##### le 21/9/87 >LE
#####
60 '##### >LF
#####
70 '##### >LG
#####
80 ' >LH
90 ' >LJ
100 DIM a(200),b(200),s$(105),n$(105),elec(20),orb$(20) >VY
,nom$(105),pm(105),type(20),co(181),si(181):DEFINT i,j,
k:SYMBOL AFTER 144:DEG
110 MODE 2:INK 0,0:BORDER 0:INK 1,13 >CZ
120 LOCATE 35,13:PRINT"Un instant" >GM
130 RESTORE 1220:FOR i=1 TO 103:READ s$(i):NEXT >PA
140 RESTORE 1240:FOR i=1 TO 103:READ nom$(i),pm(i):NEXT >ZY
150 RESTORE 1380:FOR i=1 TO 18:READ orb$(i):NEXT >BF
160 RESTORE 2940:FOR i=1 TO 7:READ type$(i),termi$(i):N >EL
EXT 1:FOR i=1 TO 10:READ radic$(i):NEXT i
170 RESTORE 180:FOR i=1 TO 6:READ ac$(i):NEXT >MF
180 DATA formique,acetique,propionique,butyrique,valeri >CQ
que,caproique
190 RESTORE 200:FOR i=&9000 TO &9025:READ bid$:POKE i,V >VG
AL("&" + bid$):NEXT
200 DATA 21,3,1,E5,CD,75,BB,CD,60,BB,CD,2B,BD,CD,9,BB,E >UF
1,DB,24,3E,51,BC,20,EB,26,1,2C,3E,1A,BD,20,E3,3E,D,CD,2
B,BD,C9
210 FOR i=0 TO 180 STEP 5:co(i)=COS(i):si(i)=SIN(i):NEX >BK
T
220 SYMBOL 255,0,60,126,126,126,60,0 >FX
230 SYMBOL 154,0,0,0,255 >RH
240 SYMBOL 159,24,24,24,255,24,24,24,24 >EX
250 SYMBOL 157,24,24,24,248,24,24,24,24 >EY
260 SYMBOL 151,24,24,24,31,24,24,24,24 >DW
270 SYMBOL 150,0,0,0,15,24,24,24,24 >AC
280 SYMBOL 158,0,0,0,255,24,24,24,24 >BB
290 SYMBOL 156,0,0,0,240,24,24,24,24 >BU
300 SYMBOL 153,24,24,24,248 >UE
310 SYMBOL 147,24,24,24,31 >TA
320 SYMBOL 254,224,160,32,192,240 >ZE
330 SYMBOL 253,96,128,224,144,96 >YX
340 SYMBOL 252,70,201,73,73,230 >XU
350 SYMBOL 251,72,200,74,74,226 >XC
360 SYMBOL 250,0,60,126,126,126,60,0 >FX
370 SYMBOL 145,0,0,126,0,0,126 >WY
380 SYMBOL 146,126,0,0,126,0,0,126 >AV
390 CLS >UG
400 LOCATE 30,2:PRINT"Molécules Organiques":LOCATE 32, >KK
4:PRINT"MENU PRINCIPAL":LOCATE 31,5:PRINT"

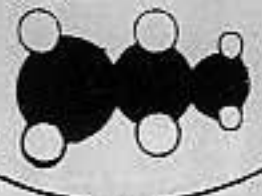
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410 LOCATE 5,10:PRINT"Renseignements atomes..";CHR$(255) >KD
420 LOCATE 45,10:PRINT"Molecules.....";CHR$(255) >EF
)
430 LOCATE 5,14:PRINT"Questionnaire.....";CHR$(255) >FA
440 LOCATE 45,14:PRINT"Informations.....";CHR$(255) >GK
)
450 LOCATE 28,20:PRINT"fin.....";CHR$(255) >CE
55)
460 z=5:a(1)=27:b(1)=10:a(2)=27:b(2)=14:a(3)=67:b(3)=10 >HD
:a(4)=67:b(4)=14:a(5)=52:b(5)=20::GOSUB 500
470 ON w GOSUB 760,1650,2810,4670,490 >CH
480 GOTO 390 >AA
490 CALL 0 >HB
500 ' >RF
510 ' >RG
520 '----- sp dplc pointeur ----- >RH
-----
530 ' >RJ
540 ' >RK
550 w=1:IF f11=0 THEN a=a(1):b=b(1):ELSE f11=0 >NG
560 aa=a:bb=b >NF
570 LOCATE aa,bb:PRINT CHR$(250) >AP
580 IF f13=1 THEN GOTO 610 >TQ
590 v%=&C000+&50*(b-1)+(a-1) >UV
600 POKE &A6CC,PEEK(v%):POKE &A6CD,PEEK(v%+&800):POKE & >VW
A6CE,PEEK(v%+&1000):POKE &A6CF,PEEK(v%+&1800):POKE &A6D
0,PEEK(v%+&2000):POKE &A6D1,PEEK(v%+&2800):POKE &A6D2,P
EEK(v%+&3000):POKE &A6D3,PEEK(v%+&3800):POKE &A6D4,PEEK
(v%+&4000):GOTO 640
610 v%=&C000+&50*(b-1)+2*(a-1) >VT
620 POKE &A6CC,PEEK(v%)+PEEK(v%+1)/16:POKE &A6CD,PEEK(v >AU
%+&800)+PEEK(v%+&801)/16:POKE &A6CE,PEEK(v%+&1000)+PEEK
(v%+&1001)/16:POKE &A6CF,PEEK(v%+&1800)+PEEK(v%+&1801)/
16
630 POKE &A6D0,PEEK(v%+&2000)+PEEK(v%+&2001)/16:POKE &A >DH
6D1,PEEK(v%+&2800)+PEEK(v%+&2801)/16:POKE &A6D2,PEEK(v%
+&3000)+PEEK(v%+&3001)/16:POKE &A6D3,PEEK(v%+&3800)+PEE
K(v%+&3801)/16
640 IF INKEY(47)=0 OR INKEY(9)=0 THEN FOR i=1 TO z:IF a >EV
=a(i) AND b=b(i) THEN w=i:LOCATE a,b:PRINT CHR$(247):SO
UND 1,800,5:RETURN:ELSE NEXT
650 LOCATE a,b:PRINT CHR$(247) >YD
660 aa=a:bb=b >NG
670 ' LOCATE 60,1:PRINT a,b >TD
680 a=a-(INKEY(1)=0)+(INKEY(8)=0) >BK
690 b=b+(INKEY(0)=0)-(INKEY(2)=0) >BF
700 IF a>79 OR a<1 THEN a=aa >UG
710 IF b>25 OR b<1 THEN b=bb >UD
720 IF f13=1 AND b>5 THEN b=5 >VN
730 IF f13=1 AND a>39 THEN a=39 >XF
740 IF b<>bb THEN FOR i=1 TO 60:NEXT >CB
750 GOTO 570 >AA
760 ' >TD
770 ' >TE
780 '----- renseignements ----- >TF
-----
790 ' >TG
800 ' >RJ
810 CLS:FOR i=1 TO 20:elec(i)=0:NEXT >EG
820 LOCATE 17,2:PRINT"TABLEAU PERIODIQUE DES ELEMENTS": >LU
LOCATE 17,5:PRINT"Quitter ";CHR$(255)
830 FOR i=1 TO 21:LOCATE 4,i:PRINT CHR$(149):LOCATE 8,i >CR
:PRINT CHR$(149):NEXT
840 FOR i=3 TO 21:LOCATE 12,i:PRINT CHR$(149):NEXT:FOR >VQ
i=9 TO 21:LOCATE 16,i:PRINT CHR$(149):NEXT:FOR j=0 TO 7
:FOR i=9 TO 18:LOCATE 20+j*4,i:PRINT CHR$(149):NEXT:NEX
T:FOR j=0 TO 4:FOR i=3 TO 18:LOCATE 52+j*4,i:PRINT CHR$
(149):NEXT:NEXT
850 FOR i=1 TO 17:LOCATE 72,i:PRINT CHR$(149):LOCATE 7 >FA
6,i:PRINT CHR$(149):NEXT
860 LOCATE 5,3:PRINT STRING$(3,154);CHR$(159);STRING$(3 >NM
,154);CHR$(156):LOCATE 52,3:PRINT CHR$(150);STRING$(19,
154);CHR$(159);STRING$(3,154);CHR$(157)
870 LOCATE 5,6:PRINT STRING$(3,154);CHR$(159);STRING$(3 >NX
,154);CHR$(157):LOCATE 52,6:PRINT CHR$(151);STRING$(19,
154);CHR$(159);STRING$(3,154);CHR$(157)
880 LOCATE 5,9:PRINT STRING$(71,154);CHR$(157):LOCATE 5 >EM
,12:PRINT STRING$(71,154);CHR$(157):LOCATE 5,15:PRINT S
TRING$(71,154);CHR$(157):LOCATE 5,18:PRINT STRING$(71,1
54);CHR$(153)
890 LOCATE 4,21:PRINT CHR$(147);STRING$(11,154);CHR$(15 >CJ
3)
900 FOR j=0 TO 56 STEP 4:FOR i=20 TO 25:LOCATE 20+j,i:P >FA
RINT CHR$(149):NEXT:NEXT
910 LOCATE 20,20:PRINT CHR$(150);STRING$(55,154);CHR$(1 >XR
56):LOCATE 20,23:PRINT CHR$(151);STRING$(55,154);CHR$(1
57):FOR i=1 TO 7:LOCATE 1,(i*3)-2:PRINT i:NEXT:LOCATE 1
7,22:PRINT 6:LOCATE 17,25:PRINT 7
920 RESTORE 1150 >LZ
930 FOR i=1 TO 103:READ a(i),b(i):NEXT >ER
940 RESTORE 1220 >LZ
950 FOR i=1 TO 103:LOCATE a(i),b(i):PRINT CHR$(255);CHR >GG
$(8);CHR$(8);CHR$(8);CHR$(11);s$(i):NEXT
960 z=104:a(104)=25:b(104)=5:GOSUB 500:IF w=104 THEN RE >DE
TURN
970 CLS >VA
980 LOCATE 40,3:PRINT s$(w) >VL
990 LOCATE 1,5:PRINT"Nom : ";nom$(w) >VC

1000 PRINT:PRINT: PRINT"Nombre d'electrons : " >FL
;w
1010 PRINT:PRINT"Configuration : " >PR
1020 IF (w=24)+(w=29)+(w>40 AND w<48)+(w=64)+(w=78)+(w= >XB
79)=-1 THEN GOSUB 4970:ELSE GOSUB 1320
1030 IF w=2 OR w=10 OR w=18 OR w=36 OR w=54 OR w=86 TH >MY
EN LOCATE 25,10:PRINT"Gaz rare"
1040 LOCATE 1,13:FOR i=1 TO n-1:PRINT orb$(i);STR$(elec >WL
(i));" ";IF LEFT$(orb$(i+1),1)<>LEFT$(orb$(i),1) THEN
PRINT"/";
1050 NEXT >KH
1060 PRINT:PRINT:PRINT"Masse molaire : ";pm(w);" >QJ
g/mol"
1070 PRINT:PRINT"Nombre de couches : ";LEFT$(orb$(n- >KT
1),1):couche=VAL(LEFT$(orb$(n-1),1))
1080 GOSUB 1530 >XA
1090 LOCATE 1,21:PRINT"Repartition des electrons " >FC

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1100 PRINT " par couche : >TF
";
1110 LOCATE 1,1:PRINT"Quitter ";CHR$(255):LOCATE 1,2:P >QV
RINT"Imprimer ";CHR$(255):z=2:a(1)=10:b(1)=1:a(2)=10:b(
2)=2:GOSUB 500
1120 IF w=2 THEN bid$="z":WHILE bid$("<")="":bid$=INKEY$:WE >RM
ND:CALL &9000
1130 GOTO 760 >FD
1140 END >YE
1150 DATA 7,2,75,2,7,5,11,5,55,5,59,5,63,5,67,5,71,5,75 >YQ
,5
1160 DATA 7,8,11,8,55,8,59,8,63,8,67,8,71,8,75,8 >NA
1170 DATA 7,11,11,11,15,11,19,11,23,11,27,11,31,11,35,1 >JZ
1,39,11,43,11,47,11,51,11,55,11,59,11,63,11,67,11,71,11
,75,11
1180 DATA 7,14,11,14,15,14,19,14,23,14,27,14,31,14,35,1 >KA
4,39,14,43,14,47,14,51,14,55,14,59,14,63,14,67,14,71,14
,75,14
1190 DATA 7,17,11,17,15,17,23,22,27,22,31,22,35,22,39,2 >AW
2,43,22,47,22,51,22,55,22,59,22,63,22,67,22,71,22,75,22
,19,17,23,17,27,17,31,17,35,17,39,17,43,17,47,17,51,17,
55,17,59,17,63,17,67,17,71,17,75,17
1200 DATA 7,20,11,20,15,20 >RP
1210 DATA 23,25,27,25,31,25,35,25,39,25,43,25,47,25,51, >XP
25,55,25,59,25,63,25,67,25,71,25,75,25
1220 DATA H,He,Li,Be,B,C,N,O,F,Ne,Na,Mg,Al,Si,P,S,Cl,Ar >KL
,K,Ca,Sc,Ti,V,Cr,Mn,Fe,Co,Ni,Cu,Zn,Ga,Ge,As,Se,Br,Kr,Rb
,Sr,Y,Zr,Nb,Mo,Tc,Ru,Rh,Pd,Ag,Cd,In,Sn,Sb,Te,I,Xe,Cs,Ba
,La,Ce,Pr,Nd,Pm,Sm,Eu,Gd,Tb,Dy,Ho,Er,Tm,Yb,Lu
1230 DATA Hf,Ta,W,Re,Os,Ir,Pt,Au,Hg,Tl,Pb,Bi,Po,At,Rn,F >DA
r,Ra,Ac,Th,Pa,U,Np,Pu,Am,Cm,Bk,Cf,Es,Fm,Md,No,Lw
1240 DATA Hydrogene,1.0080,Helium,4.003,Lithium,6.939, >HE
Beryllium,9.012,Bore,10.81,Carbone,12.011,Azote,14.007,
Oxygene,15.9994,Fluor,19.00,Neon,20.183,Sodium,22.9898,
Magnesium,24.312,Aluminium,26.98,Silicium,28.09,Phospho
re,30.974,Soufre,32.064
1250 DATA Chlore,35.453,Argon,39.948,Potassium,39.102,C >HC
alcium,40.08,Scandium,44.96,Titane,47.90, Vanadium,50.94
,Chrome,52.00,Manganese,54.94,Fer,55.85,Cobalt,58.93,Ni
ckel,58.71,Cuivre,63.54,Zinc,65.37,Gallium,69.72,German
ium,72.59,Arsenic,74.92
1260 DATA Selenium,78.96,Brome,79.909,Krypton,83.80,Rub >QL
idium,85.47,Strontium,87.62,Ytterbium,173.04,Zirconium,
91.22,Niobium,92.91,Molybdene,95.94,Technetium,99,Ruthe
nium,101.1,Rodhium,102.91,Palladium,106.4,Argent,107.87
0,Cadmium,112.40
1270 DATA Indium,114.82 >RZ
1280 DATA Etain,118.69,Antimoine,121.75,Tellure,127.60, >HB
Iode,126.90,Xenon,131.30,Cesium,132.91,Baryum,137.34,La
nthane,138.91,Cerium,140.12,Praseodyme,140.91,Neodyme,1
44.24,Promethium,147,Samarium,150.35,Europium,151.96,Ga
dolinium,157.25,Terbium,158.92
1290 DATA Dysprosium,162.50,Holmium,164.93,Erbium,167.2 >DL
6,Thulium,168.93,Ytterbium,173.04,Lutetium,174.97,Hafni
um,178.49,Tantale,180.95,Tungstene,183.85,Rhenium,186.2
3,Osmium,190.2,Iridium,192.2,Platine,195.09,Or,196.97,M
ercure,200.59
1300 DATA Thallium,204.37,Plomb,207.19,Bismuth,208.98,P >XM
olonium,210.00,Astate,210.00,Radon,222.00,Francium,223,

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Radium,226.00,Actinium,227.00,Thorium,232.04,Protactini
um,231.00,Uranium,238.03,Neptunium,237.00,Plutonium,242
.00,Americium,243.00,Curium,247.00
1310 DATA Berkelium,249.00,Californium,251.00,Einsteini >JN
um,254.00,Fermium,253.00,Mendelevium,256.00,Nobelium,25
3.00,Lawrencium,257.00
1320 ' >XJ
1330 ' >XK
1340 '----- reparitions des atomes >YA
-----
1350 ' >YB
1360 ' >YC
1370 RESTORE 1380:FOR i=1 TO 18:READ orb$(i):NEXT >TB
1380 DATA 1s,2s,2p,3s,3p,4s,3d,4p,5s,4d,5p,6s,4f,5d,6p, >KY
7s,5f,6d
1390 n=1:acc=0 >TK
1400 WHILE acc<=w >MV
1410 IF RIGHT$(orb$(n),1)="s" THEN elec(n)=2 >LW
1420 IF RIGHT$(orb$(n),1)="p" THEN elec(n)=6 >LY
1430 IF RIGHT$(orb$(n),1)="d" THEN elec(n)=10 >MY
1440 IF RIGHT$(orb$(n),1)="f" THEN elec(n)=14 >MF
1450 acc=acc+elec(n) >PD
1460 n=n+1 >LC
1470 WEND >JG
1480 acc=acc-elec(n-1):elec(n-1)=w-acc >GU
1490 FOR i=1 TO n-1:FOR j=1 TO n-1:IF VAL(LEFT$(orb$(i >JH
),1))>VAL(LEFT$(orb$(j),1)) THEN bid$=orb$(i):orb$(i)=o
rb$(j):orb$(j)=bid$:bid=elec(i):elec(i)=elec(j):elec(j)
=bid
1500 NEXT:NEXT >HE
1510 IF elec(n-1)=0 THEN n=n-1 >XG
1520 RETURN >FB
1530 ' >YB
1540 ' >YC
1550 '----- dessin atome ----- >YD
-----
1560 ' >YE
1570 ' >YF
1580 j=1 >WB
1590 FOR i=1 TO couche >QL
1600 tot=0 >QF
1610 IF VAL(LEFT$(orb$(j),1))=i THEN tot=tot+elec(j):j= >RL
j+1:GOTO 1610
1620 LOCATE 40,17+i:PRINT CHR$(106+i);" : ";;PRINT tot >ZG
1630 NEXT i >VF
1640 RETURN >FE
1650 ' >YE
1660 ' >YF
1670 '----- questionnaire ----- >YG
-----
1680 ' >YH
1690 ' >YJ
1700 CLS:RANDOMIZE TIME >UX
1710 LOCATE 33,2:PRINT"QUESTIONNAIRE" >HZ
1720 LOCATE 15,5:PRINT"Elementaire ";CHR$(255);" >JM
Moyen ";CHR$(255);" Superieur ";CHR$(255)
1730 z=3:a(1)=28:b(1)=5:a(2)=44:b(2)=5:a(3)=64:b(3)=5 >VH
1740 GOSUB 500 >PG

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1750 LOCATE 1,8:PRINT CHR$(18):PRINT CHR$(18):PRINT CHR >KL
$(18):PRINT CHR$(18):PRINT CHR$(18 ):PRINT CHR$(18):f14
=0
1760 a$="":b$="":ww=1-(INT(RND*3)*(w=1))-(INT(RND*7)*(w >EE
=2))-((INT(RND*8)+3)*(w=3)):ON ww GOSUB 1890,1970,2040,
2110,2180,2260,2420,2490,2560,2630,2700
1770 WHILE INKEY$<>"":bid$=INKEY$:WEND >HB
1780 LOCATE 50,14:PRINT CHR$(18):LOCATE 35,14:INPUT "re >GN
ponse : ",rep$:rep$=UPPER$(rep$)
1790 LOCATE 30,16:IF vrai$=rep$ THEN PRINT CHR$(24);"Re >RF
ponse exacte";CHR$(24);CHR$(18):loc=16:FOR i=1 TO 200:S
OUND 1,RND*i,0.5:NEXT:GOSUB 4930:pt=pt+1:que=que+1:IF q
ue=5 THEN GOSUB 1830:RETURN:ELSE 1750
1800 IF f14=1 AND ww=9 THEN vrai$=MID$(vrai$,1,1)+LOWER >YA
$(MID$(vrai$,2,1))
1810 IF f14=1 THEN LOCATE 1,16:PRINT"La reponse etait " >ZX
:vrai$:GOSUB 4950:loc=16:GOSUB 4930:que=que+1:IF que=5
THEN GOSUB 1830:RETURN:ELSE 1750
1820 PRINT "Reponse fausse essayer encore":SOUND 1,1000 >NZ
,20:SOUND 1,0,10:SOUND 1,1000,20:f14=1:loc=16:GOSUB 493
0:GOTO 1780
1830 ' >YE
1840 que=0:CLS:LOCATE 10,13:PRINT"votre note (niveau "; >FC
:IF w=1 THEN PRINT"elementaire"; ELSE IF w=2 THEN PRINT
"moyen"; ELSE IF w=3 THEN PRINT"superieur";
1850 PRINT ") : "pt;" / 5":RESTORE 1860:FOR i=1 TO 8:R >KD
EAD ton,dur:SOUND 17,ton,dur*10:SOUND 1,0,2:SOUND 10,to
n/2,dur*10:NEXT
1860 DATA 319,2,319,1,319,1,301,2,319,4,0,2,253,2,239,3 >WM

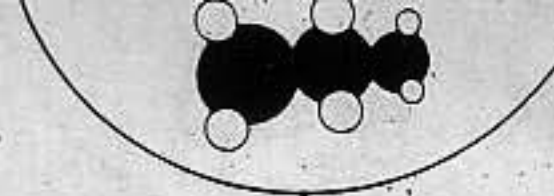
1870 pt=0:GOSUB 4950:RETURN >XF
1880 END >ZF
1890 ' >ZA
1900 '##### >YC
#####
1910 ' >YD
1920 ca=INT(RND*10)+1:ty=1 >VP
1930 LOCATE 1,10:PRINT"Nom de l'alcane contenant";ca;" >FH

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carbone";:IF ca>1 THEN PRINT"s";
1940 PRINT " ?";CHR$(18) >RT
1950 vrai$=UPPER$(radic$(ca)+termi$(1)) >HE
1960 RETURN >FK
1970 ' >YK
1980 '##### >ZA
#####
1990 ' >ZB
2000 ca=INT(RND*10)+1:ty=1 >VD
2010 LOCATE 1,10:PRINT"Nombre de carbones contenus dans >MY
l'alcane : ";radic$(ca)+termi$(1);" ?";CHR$(18)
2020 vrai$=STR$(ca):vrai$=MID$(vrai$,2,2) >KL
2030 RETURN >EJ
2040 ' >XJ
2050 ' ##### >XK
#####
2060 ' >YA
2070 ca=INT(RND*10)+1:ty=1 >VL
2080 LOCATE 1,10:PRINT"Nombre d'hydrogenes contenus dan >QW
s l'alcane : ";radic$(ca)+termi$(1);" ?";CHR$(18)
2090 vrai$=STR$(ca*2+2):vrai$=MID$(vrai$,2,2) >PZ
2100 RETURN >EG
2110 ' >XG
2120 '##### >XH
#####
2130 ' >XJ
2140 ca=INT(RND*9)+2:ty=INT(RND*7)+1 >FQ
2150 LOCATE 1,10:PRINT"nom du compose de formule : "; >BR
GOSUB 3360 :PRINT " ?";CHR$(18);
2160 vrai$=UPPER$(radic$(ca)+termi$(ty)):IF ty=5 THEN v >BQ
rai$="ACIDE "+vrai$
2170 RETURN >FD
2180 ' >YD
2190 '##### >YE
#####
2200 ' >XG
2210 ty=INT(RND*6)+2:ca=0 >UQ
2220 a$="":ON ty GOSUB 10,3540,3570,3600,3630,3660,3690 >WG

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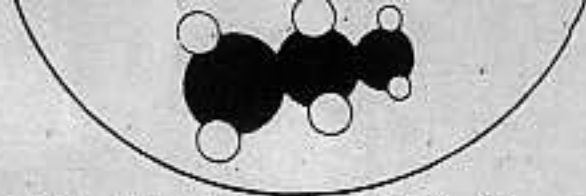
2230 LOCATE 1,10:PRINT"famille du compose contenant : " >GK
::GOSUB 3730:PRINT" ?";CHR$(18);
2240 vrai$=UPPER$(type$(ty)) >YG
2250 RETURN >+C
2260 ' >YC
2270 '##### >YD
#####
2280 ' >YE
2290 ty=INT(RND*6)+2:ca=INT(RND*9)+2 >FY
2300 a$="":b$="":o=0:c=0:nn=0:h=0:ON ty GOSUB 3390,3410 >EG
,3420,3440,3460,3480,3500
2310 LOCATE 1,10:PRINT"formule ";;IF ca=2 OR ca=6 OR ca >RC
=7 OR ca=8 THEN PRINT"de l'":;ELSE PRINT"du ";
2320 IF ty=5 THEN LOCATE 8,10:PRINT" de l'acide ";radic >CC
$(ca);"anoique";;ELSE LOCATE 14,10:PRINT radic$(ca);ter
mi$(ty)
2330 FOR i=1 TO LEN(a$) STEP 2:h=h-(MID$(a$,i,2)="48"): >KT
c=c-(MID$(a$,i,2)="43"):o=o-(UPPER$(MID$(a$,i,2))="4F")
:nn=nn-(UPPER$(MID$(a$,i,2))="4E"):NEXT
2340 FOR i=1 TO LEN(b$) STEP 2:h=h-(MID$(b$,i,2)="48"): >KZ
c=c-(MID$(b$,i,2)="43"):o=o-(UPPER$(MID$(b$,i,2))="4F")
:nn=nn-(UPPER$(MID$(b$,i,2))="4E"):NEXT
2350 vrai$="C"+STR$(c)+"H"+STR$(h):IF nn<>0 THEN vrai$= >YF
vrai$+"N"+STR$(nn)
2360 IF o<>0 THEN vrai$=vrai$+"O"+STR$(o) >JR
2370 FOR i=1 TO LEN(vrai$) >UN
2380 IF MID$(vrai$,i,1)=" " THEN vrai$=MID$(vrai$,1,i-1 >RB
)+MID$(vrai$,i+1,LEN(vrai$)-i)
2390 IF MID$(vrai$,i,1)="1" AND ((58>VAL(MID$(vrai$,i+1 >LC
,1)) AND VAL(MID$(vrai$,i+1,1))>48) OR MID$(vrai$,i+1,1
)="") THEN vrai$=MID$(vrai$,1,i-1)+MID$(vrai$,i+1,LEN(
vrai$)-i)
2400 NEXT >KH
2410 RETURN >FA
2420 ' >YA
2430 '##### >YB
#####
2440 ' >YC
2450 ca=INT(RND*6)+1 >PL
2460 LOCATE 1,10:PRINT"Autre nom de l'acide ";radic$(ca >QF
);"anoique ?";CHR$(18)
2470 vrai$="ACIDE "+UPPER$(ac$(ca)) >DN
2480 RETURN >FH
2490 ' >YH
2500 '##### >XK
#####
2510 ' >YA
2520 rn=INT(RND*103)+1 >QE
2530 LOCATE 1,10:PRINT"Nom de l'element : ";s$(rn);" ? >RF
";CHR$(18)
2540 vrai$=UPPER$(nom$(rn)) >XD
2550 RETURN >FF
2560 ' >YF
2570 '##### >YG
#####
2580 ' >YH
2590 rn=INT(RND*103)+1 >RD
2600 LOCATE 1,10:PRINT"symbol de l'element : ";nom$(rn) >AV
";" ?";CHR$(18)

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```

2610 vrai$=UPPER$(s$(rn)) >UF
2620 RETURN >FD
2630 ' >YD
2640 '##### >YE
#####
2650 ' >YF
2660 rn=INT(RND*103)+1 >RB
2670 LOCATE 1,10:PRINT"Nom de l'element de numero atomi >WG
que : ";rn;" ?";CHR$(18)
2680 vrai$=UPPER$(nom$(rn)) >XJ
2690 RETURN >GA
2700 ' >YB
2710 '##### >YC
#####
2720 ' >YD
2730 rn=INT(RND*23)+1 >QH
2740 LOCATE 1,10:PRINT"Configuration electronique de l' >QT
element : ";nom$(rn);" ?";CHR$(18)
2750 bid=w:w=rn:GOSUB 1320:w=bid >BN
2760 vrai$="":FOR i=1 TO n-1:vrai$=vrai$+orb$(i)+MID$(S >VE
TR$(elec(i)),2,2):IF LEFT$(orb$(i+1),1)<>LEFT$(orb$(i),
1) THEN vrai$=vrai$+ "/" :ELSE vrai$=vrai$+" "
2770 NEXT >LH
2780 IF RIGHT$(vrai$,1)="/" THEN vrai$=MID$(vrai$,1,LEN >MB
(vrai$)-1)
2790 vrai$=UPPER$(vrai$):IF RIGHT$(vrai$,1)="/" THEN vr >TZ
ai$=MID$(vrai$,1,LEN(vrai$)-1)
2800 RETURN >FD
2810 ' >YD
2820 ' >YE
2830 '----- Molecules ----- >YF
-----
2840 ' >YG
2850 ' >YH
2860 ty=1:ca=1:nr=0 >PD
2870 CLS >AG
2880 LOCATE 30,2:PRINT"Molecules Organiques" >XT
2890 PRINT:PRINT:PRINT:PRINT "Nombre D'atomes de carbon >AX
e ";;-";CHR$(255);" ";CHR$(255);" +"
2900 PRINT:PRINT:PRINT "Type de la molecule >PJ
";-";CHR$(255);" ";CHR$(255);" +"
2910 LOCATE 1,16: PRINT"Nom de la molecule >KA
: "
2920 PRINT:PRINT:PRINT "Formule >KQ
: ";
2930 LOCATE 1,1:PRINT"Quitter ";CHR$(255):LOCATE 1,2: >VF
PRINT"Dessiner ";CHR$(255);
2940 DATA alcanes,ane,alcools,anol,alcenes,ene,alcynes, >HE
yne,acides,anoique,aldehydes,anal,amines,ylamine
2950 DATA meth,eth,prop,but,pent,hex,hept,oct,non,dec >CH
2960 LOCATE 59,6:PRINT ca:LOCATE 59,9:PRINT type$(ty) >ZM
2970 z=6:RESTORE 2980:FOR i=1 TO 6:READ a(i),b(i):NEXT >ZU
i
2980 DATA 11,1,11,2,39,6,41,6,39,9,41,9 >DJ
2990 IF (ty=3 OR ty=4) AND ca=1 THEN f12=1:LOCATE 40,16 >TX
:PRINT"-";CHR$(18):LOCATE 40,19:PRINT"-";CHR$(18):LOCAT
E 40,20:PRINT CHR$(18):LOCATE 32,12:PRINT CHR$(24);" n
'existe pas ";CHR$(24);;ELSE f12=0:LOCATE 1,12:PRINT C
HR$(18):GOSUB 3130

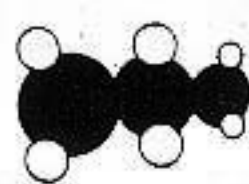
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3000 LOCATE 1,21:PRINT CHR$(18):PRINT CHR$(18):PRINT CH >QH
R$(18):PRINT CHR$(18):PRINT CHR$(18):IF f12<>1 THEN LOC
ATE 30,23:GOSUB 3360
3010 GOSUB 500 >NJ
3020 ON w GOTO 3030,3040,3050,3070,3090,3110 >KG
3030 f12=0:RETURN >MX
3040 IF f12=1 THEN f12=0:GOTO 2810:ELSE GOSUB 3750:GOTO >DZ
2870
3050 ca=ca-1:IF ca<1 THEN ca=1 >XD
3060 LOCATE 59,6:PRINT ca:f11=1:GOTO 2990 >JX
3070 ca=ca+1:IF ca>10 THEN ca=10 >YT
3080 LOCATE 59,6:PRINT ca:f11=1:GOTO 2990 >JZ
3090 ty=ty-1:IF ty<1 THEN ty=1 >YC
3100 LOCATE 59,9:PRINT type$(ty);CHR$(18):f11=1:GOTO 29 >DZ
90
3110 ty=ty+1:IF ty>7 THEN ty=7 >YH
3120 LOCATE 59,9:PRINT type$(ty);CHR$(18):f11=1:GOTO 29 >DB
90
3130 ' >XK
3140 ' >YA
3150 '----- noms molecules ----- >YB
-----
3160 ' >YC
3170 ' >YD
3180 nom$=radic$(ca)+termi$(ty) >AC
3190 LOCATE 40,16:PRINT nom$;CHR$(18) >EN
3200 IF ty=5 THEN LOCATE 40,16:PRINT "acide ";nom$;CHR$ >FA
(18)
3210 IF ty=2 THEN LOCATE 49,16:PRINT "ou alcool ";radic >ZY
$(ca)+"ylique"
3220 ' formule >XK
3230 LOCATE 40,19:PRINT"C";CHR$(10);:IF ca<>1 THEN PRIN >ZU
T ca:ELSE PRINT " ";
3240 ON ty GOSUB 3260,3270,3280,3300,3320,3330,3350 >RK
3250 RETURN >FD
3260 LOCATE 45,19:PRINT"H";CHR$(10);ca*2+2;CHR$(11);CHR >RP
$(18):RETURN
3270 LOCATE 45,19:PRINT"H";CHR$(10);ca*2+1:LOCATE 50,19 >MM
:PRINT"OH";CHR$(18):RETURN
3280 LOCATE 45,19:PRINT"H";CHR$(10);ca*2; >JG
3290 PRINT CHR$(11);CHR$(18):RETURN >DB
3300 LOCATE 45,19:PRINT"H";CHR$(10);ca*2-2; >LC
3310 PRINT CHR$(11);CHR$(18):RETURN >DU
3320 LOCATE 45,19:PRINT"H";CHR$(10);ca*2-1:LOCATE 50,19 >RB
:PRINT" OOH ";CHR$(18):RETURN
3330 LOCATE 45,19:PRINT"H";CHR$(10);:IF ca*2-1<>1 THEN >FN
PRINT ca*2-1;CHR$(18):ELSE PRINT CHR$(18)
3340 LOCATE 50,19:PRINT"OH";CHR$(18):RETURN >NP
3350 LOCATE 45,19:PRINT"H";CHR$(10);ca*2+1:LOCATE 50,19 >GB
:PRINT"MH";CHR$(18);CHR$(10);"2":RETURN
3360 ' >YE
3370 a$="":b$="" >TF
3380 ON ty GOSUB 3390,3410,3420,3440,3460,3480,3500:GOS >RJ
UB 3730:RETURN
3390 GOSUB 3530:b$=b$+"48":IF ca<5 THEN a$=a$+b$:b$="" >VA
3400 RETURN >FA
3410 GOSUB 3530:GOSUB 3550:RETURN >BD
3420 IF ca=2 THEN a$="482d":GOSUB 3580:RETURN >NA
3430 ca=ca-2:GOSUB 3530:GOSUB 3580:ca=ca+2:RETURN >VC
3440 IF ca=2 THEN a$="482d":GOSUB 3610:RETURN >NW
3450 ca=ca-2:GOSUB 3530:GOSUB 3610:ca=ca+2:RETURN >UG
3460 IF ca=1 THEN a$="482d":GOSUB 3640:RETURN >NA
3470 ca=ca-1:GOSUB 3530:GOSUB 3640:ca=ca+1:RETURN >VB
3480 IF ca=1 THEN a$="482d":GOSUB 3660:RETURN >NE
3490 ca=ca-1:GOSUB 3530:GOSUB 3660:ca=ca+1:RETURN >VF
3500 IF ca=1 THEN a$="482d":GOSUB 3530:GOSUB 3700:RETUR >AH
N
3510 GOSUB 3530:GOSUB 3700:RETURN >BB
3520 ' >YC
3530 a$="482d430b087c0b08480a0a0a087c080a480b0b2d":FOR >ZB
i=2 TO MIN(ca,5):a$=a$+"430b087c0b08480a0a0a087c0a08480
b0b2d":NEXT:FOR l=6 TO ca:b$=b$+"430b087c0b08480a0a0a08
7c0a08480b0b2d":NEXT:RETURN
3540 ' >YE
3550 b$=b$+"4f48":IF ca<5 THEN a$=a$+b$:b$="" >KV
3560 RETURN >FH
3570 ' >YH
3580 b$=b$+"430b087c0b08480a0a91430b087c0b08480a0a2d48" >LB
:IF ca<5 THEN a$=a$+b$:b$=""
3590 RETURN >GA
3600 ' >YB
3610 b$=b$+"4392432d48":IF ca<5 THEN a$=a$+b$:b$="" >RX
3620 RETURN >FE
3630 ' >YE
3640 b$=b$+"430a087c0a084f480b0b08914f":IF ca<5 THEN a$ >NG
=a$+b$:b$=""
3650 RETURN >FH
3660 ' >YH
3670 b$=b$+"430a087c0a08480b0b914f":IF ca<5 THEN a$=a$+ >HB
b$:b$=""
3680 RETURN >GA
3690 ' >ZA
3700 b$=b$+"4e0a087c0a08480b0b2d48":IF ca<5 THEN a$=a$+ >HX
b$:b$=""
3710 RETURN >FE
3720 ' >YE
3730 FOR i=1 TO LEN(a$) STEP 2:PRINT CHR$(VAL("&"MID$( >UE
a$,i,2)));:NEXT:FOR i=1 TO LEN(b$) STEP 2:PRINT CHR$(VA
L("&"MID$(b$,i,2)));:NEXT:RETURN
3740 RETURN >FH
3750 ' >YH
3760 ' >YJ
3770 '----- dessin molecule ----- >YK
-----
3780 ' >ZA
3790 ' >ZB
3800 MODE 1:INK 3,26:INK 2,3:LOCATE 1,1:PRINT"Quitter " >CW
;CHR$(255):LOCATE 1,2:PRINT"Legende ";CHR$(255);:LOCATE
20,2:IF ty=5 THEN PRINT"acide ";
3810 PRINT nom$ >FF
3820 ON ty GOSUB 3860,3890,3930,3970,4010,4050,4090 >TL
3830 z=2:a(1)=9:a(2)=9:b(1)=1:b(2)=2:f13=1:GOSUB 500 >VQ
3840 IF w=2 THEN GOSUB 4850:f11=1:GOTO 3830 >KD
3850 MODE 2:f13=0:RETURN >UR
3860 '----- alcanes ----- >YK
-----
3870 IF ca=1 THEN X=320:Y=200:GOSUB 4400:RETURN >QK

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3880 GOSUB 4130:RETURN >RB
3890 ' ----- alcohols ----- >ZC
-----
3900 IF ca=1 THEN X=320:Y=200:GOSUB 4320:r=20:ORIGIN 35 >CW
0,200:PE=2:ORIGIN x+20,y:GOSUB 4280:ORIGIN x+25,y:r=10:
pe=3:GOSUB 4300::RETURN
3910 IF (1 AND ca)=1 THEN x=125+30*(ca-2):y=200:GOSUB 4 >CW
560:GOSUB 4130:ELSE GOSUB 4130:GOSUB 4580
3920 RETURN >FH
3930 ' ----- alcenes ----- >YH
-----
3940 IF ca=2 THEN x=320:y=200:GOSUB 4600:X=300:Y=185:GO >VW
SUB 4520:RETURN
3950 ca=ca-1:GOSUB 4130:y=220:x=130+30*(ca-2):GOSUB 460 >KE
0:ca=ca+1
3960 RETURN >GB
3970 ' ----- alcynes ----- >ZB
-----
3980 IF ca=2 THEN x=300:y=200:GOSUB 4520:X=320:Y=200:GO >VQ
SUB 4630:RETURN
3990 ca=ca-1:IF (1 AND ca)=0 THEN GOSUB 4130:y=200:x=13 >FQ
0+30*(ca-2):GOSUB 4630:ELSE y=200:x=130+30*(ca-2):GOSUB
4630:GOSUB 4130
4000 ca=ca+1:RETURN >PP
4010 'acides >XH
4020 IF ca=1 THEN X=299:Y=200:GOSUB 4520:X=320:Y=200:GO >VU
SUB 4460:RETURN
4030 IF (1 AND ca)=1 THEN x=125+30*(ca-2):y=200:GOSUB 4 >CK
460:GOSUB 4130:ELSE GOSUB 4130:GOSUB 4460
4040 RETURN >FB
4050 ' ----- aldehydes ----- >YB
-----
4060 IF ca=1 THEN X=299:Y=200:GOSUB 4520:X=320:Y=200:GO >VX
SUB 4540:RETURN
4070 IF (1 AND ca)=1 THEN x=125+30*(ca-2):y=200:GOSUB 4 >CM
540:GOSUB 4130:ELSE GOSUB 4130:GOSUB 4540
4080 RETURN >FF
4090 ' ----- amines ----- >YF
-----
4100 IF ca=1 THEN X=320:Y=200:GOSUB 4320:x=x+30:GOSUB 4 >NT
660:RETURN
4110 ca=ca+1:IF (1 AND ca)=1 THEN x=125+30*(ca-2):y=200 >QK
:GOSUB 4640:GOSUB 4130:ELSE GOSUB 4130:GOSUB 4660
4120 ca=ca-1:RETURN >PV
4130 ' >YA
4140 ' >YB
4150 '----- dessin chaine carbonnee (compa >YC
ct) -----
4160 ' >YD
4170 ' >YE
4180 x=100:y=200:GOSUB 4320 >VA
4190 IF (1 AND ca)=1 THEN GOTO 4240 >ZV
4200 FOR i=1 TO ca-2 STEP 2:x=125+30*i:y=200:GOSUB 4360 >EF
:NEXT

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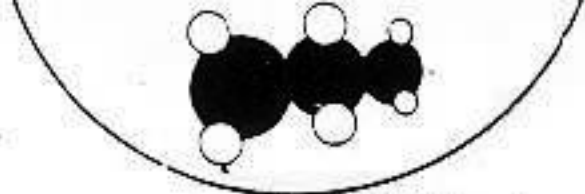
4210 FOR i=0 TO ca-4 STEP 2:x=125+30*i:y=200:GOSUB 4340 >EF
:NEXT
4220 x=125+30*i:y=200:IF ty=1 THEN GOSUB 4420 >LR
4230 GOTO 4270 >MK
4240 x=65+30*ca:y=200:IF ty=1 THEN GOSUB 4380 >MF
4250 FOR i=1 TO ca-4 STEP 2:x=125+30*i:y=200:GOSUB 4360 >EN
:NEXT
4260 FOR i=0 TO ca-2 STEP 2:x=125+30*i:y=200:GOSUB 4340 >EJ
:NEXT
4270 RETURN >FG
4280 ' dessin general reflets : pe,r >YG
4290 FOR j=0 TO 180 STEP -(5*(r=20)+10*(r=10)):PLOT -(S >QJ
l(j))*r,CO(j)*r:DRAW SI(j)*r,CO(j)*r,pe:PLOT -(SI(j))*r
+1,CO(j)*r,0:PLOT -(SI(j))*r+RND*6,CO(j)*r,0:PLOT SI(j)
*r+3,CO(j)*r,0:NEXT j:RETURN
4300 ' dessin general sans reflets >XK
4310 FOR j=0 TO 180 STEP -(5*(r=20)+10*(r=10)):PLOT -(S >FJ
l(j))*r,CO(j)*r:DRAW SI(j)*r,CO(j)*r,pe:PLOT -(SI(j))*r
+1,CO(j)*r,0:NEXT j:RETURN
4320 ' dessin molecule 3 hydr.gauche >YB
4330 r=10:pe=3:ORIGIN x-15,y:GOSUB 4300:ORIGIN x-15,y+1 >FD
5:GOSUB 4300:ORIGIN x-10,y-20:GOSUB 4300:r=20:ORIGIN x,
y:pe=1:GOSUB 4280:RETURN
4340 ' dessin molecule 2 hydr.au fond >YD
4350 R=20:ORIGIN x,y:pe=1:GOSUB 4280:r=10:pe=3:ORIGIN x >CT
,y+(RND*5)+15:GOSUB 4280:ORIGIN x,y-(RND*5)-15:GOSUB 42
80:RETURN
4360 ' dessin molecule 2 hydr.devant >YF
4370 r=10:pe=3:ORIGIN x,y+(RND*5)+15:GOSUB 4280:ORIGIN >BC
x,y-(RND*5)-15:GOSUB 4280:r=20:ORIGIN x,y:pe=1:GOSUB 42
80:RETURN
4380 ' dessin molecule 3 hydr.droite l >YH
4390 r=10:pe=3:ORIGIN x+15,y+17:GOSUB 4300:ORIGIN x+10, >JL
y-20:GOSUB 4300:ORIGIN x+17,y-3:GOSUB 4300:r=20:ORIGIN
x,y:pe=1:GOSUB 4280:RETURN
4400 r=10:pe=3:ORIGIN x+15,y+15:GOSUB 4300:ORIGIN x+10, >KF
y-20:GOSUB 4300:ORIGIN x-20,y:GOSUB 4300:r=20:ORIGIN x,
y:pe=1:GOSUB 4280:pe=3:r=10:ORIGIN x-3,y+4:GOSUB 4300:R
ETURN
4410 ' dessin molecule 3 hydr.droite ll >YB
4420 r=10:pe=3:ORIGIN x+15,y+17:GOSUB 4300:ORIGIN x+10, >DL
y-20:GOSUB 4300:r=20:ORIGIN x,y:pe=1:GOSUB 4280:r=10:pe
=3:ORIGIN x+5,y-3:GOSUB 4300:RETURN
4430 ' DESSIN ATOME N >YD
4440 FOR j=0 TO 180 STEP 5:FOR K=-(SI(j))*r TO (SI(j))* >MH
r STEP 2:PLOT K,CO(j)*r,C:IF C=0 THEN C=1 ELSE C=0
4450 NEXT:NEXT:RETURN >TW
4460 ' >YG
4470 '----- terminaisons ----- >YH
-----
4480 ' >YJ
4490 ' >YK
4500 'acide >YB
4510 R=20:pe=2:ORIGIN x+10,y+10:GOSUB 4280:ORIGIN x,y:p >JC
e=1:GOSUB 4280:PE=2:ORIGIN x+13,y-15:GOSUB 4280:ORIGIN
x+20,y-20:r=10:pe=3:GOSUB 4300:RETURN
4520 ' DESSIN ATOME H >YD
4530 ORIGIN x,y:r=10:pe=3:GOSUB 4300:RETURN >NF
4540 'aldehydes >YF

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4550 R=20:pe=2:ORIGIN x+10,y+10:GOSUB 4280:ORIGIN x,y:p >VT
e=1:GOSUB 4280:ORIGIN x+13,y-15::r=10:pe=3:GOSUB 4300:RETURN
4560 'alcools l >YH
4570 r=10:pe=3:ORIGIN x,y+15:GOSUB 4300:ORIGIN x,y-15:G >JU
OSUB 4300::r=20:ORIGIN x,y:pe=1:GOSUB 4280:PE=2:ORIGIN
x+20,y:GOSUB 4280:ORIGIN x+25,y:r=10:pe=3:GOSUB 4300:RE
TURN
4580 'alcools ll >YK
4590 r=10:pe=3:ORIGIN x+40,y:GOSUB 4300:r=20:PE=2:ORIGI >GE
N x+20,y:GOSUB 4280:ORIGIN x,y:pe=1:GOSUB 4280:r=10:pe=
3:ORIGIN x,y+15:GOSUB 4300:ORIGIN x,y-15:GOSUB 4300:RET
URN
4600 'alcenes >YC
4610 r=10:pe=3:ORIGIN x-20,y+15:GOSUB 4300:ORIGIN x,y:r >QK
=20:pe=1:GOSUB 4280:ORIGIN x+25,y:GOSUB 4280:ORIGIN x+4
0,y-15:r=10:pe=3:GOSUB 4300:ORIGIN x+40,y+15:GOSUB 4300
:RETURN
4620 'alcynes >YE
4630 ORIGIN x,y:r=20:pe=1:GOSUB 4280:ORIGIN x+25,y:GOSU >YH
B 4280:ORIGIN x+45,y:r=10:pe=3:GOSUB 4300:RETURN
4640 'amines >YG
4650 r=10:pe=3:ORIGIN x+14,y-15:r=10:pe=3:GOSUB 4300:OR >FG
IGIN x+14,y+15:GOSUB 4300:r=20:pe=1:ORIGIN x+4,y:GOSUB
4430:RETURN
4660 r=20:pe=1:ORIGIN x+4,y:GOSUB 4430:r=10:pe=3:ORIGIN >FA
x+14,y-15:r=10:pe=3:GOSUB 4300:ORIGIN x+14,y+15:GOSUB
4300:RETURN
4670 ' >YK
4680 '##### >ZA
#####
4690 ' >ZB
4700 CLS:LOCATE 34,2:PRINT"Informations":LOCATE 54,1:PR >UK
INT CHR$(164);" Jean-Yves OUFRAHI 1987"
4710 LOCATE 1,4:PRINT " Ce programme est destine a l'ap >BH
prentissage des notions de la chimie organique "
4720 PRINT:PRINT" et a servir d'aide memoire a l'etude >VQ
de l'atomistique."
4730 PRINT:PRINT" : vous pouvez acceder aux caracterist >VJ
iques de tous les atomes grace au tableau"
4740 PRINT:PRINT"de Mendeleev en selectionnant 'renseign >VU
ements atomes'."
4750 PRINT:PRINT"La configuration electronique de l'ato >GJ
me vous est fournie,les anomalies "
4760 PRINT:PRINT"de remplissage vous sont signalees." >PK
4770 PRINT:PRINT" Vous déplacerez la fleche '";CHR$(247 >JA
)"' grace au pave numerique"
4780 PRINT:PRINT" et validerez une option en pressant ' >CH
espace § ou ' copy §"
4790 PRINT "sur les points ' ";CHR$(255);" '." >UZ
4800 PRINT:PRINT" Pour le questionnaire le niveau eleme >DU
ntaire concerne les classes de 3e"
4810 PRINT : PRINT" le n >CY
iveau moyen,les classes de seconde"
4820 PRINT : PRINT" le ni >QC
veau superieur,les classes de premiere et terminale"
4830 LOCATE 1,1:PRINT"Quitter ";CHR$(255):z=1:a(1)=11 >ZK
:b(1)=1:GOSUB 500
4840 RETURN >FK
4850 ' >YK

```



```

4860 '##### >ZA )="3d":elec(n)=10:elec(n+1)=1:n=n+2:w=29
#####
4870 ' >ZB )="5s":elec(n)=4:elec(n+1)=1:n=n+2:w=41
4880 LOCATE 2,20:PRINT"Carbone":r=20:ORIGIN 80,24:pe=1: >RT 5030 IF w=41 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >FE
GOSUB 4280 )="5s":elec(n)=5:elec(n+1)=1:n=n+2:w=42
4890 LOCATE 10,20:PRINT"Hydrogene":r=10:pe=3:ORIGIN 240 >XF 5040 IF w=42 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GA
,24:GOSUB 4300 )="5s":elec(n)=6:elec(n+1)=1:n=n+2:w=43
4900 LOCATE 22,20:PRINT"Oxygene":r=20:PE=2:ORIGIN 400,2 >UX 5050 IF w=43 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GE
4:GOSUB 4280 )="5s":elec(n)=7:elec(n+1)=1:n=n+2:w=44
4910 LOCATE 32,20:PRINT"Azote":r=20:pe=1:ORIGIN 560,24 >QL 5060 IF w=44 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GJ
:GOSUB 4430 )="5s":elec(n)=8:elec(n+1)=1:n=n+2:w=45
4920 RETURN >FJ 5070 IF w=45 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GN
4930 ' >YJ )="5s":elec(n)=10:elec(n+1)=1:n=n+2:w=47
4940 FOR zzzzz=1 TO 900:NEXT:LOCATE 1,loc:PRINT CHR$(18 >NA 5080 IF w=46 THEN w=36:GOSUB 1320:orb$(n)="4d":elec(n)= >RY
):RETURN 10:n=n+1:w=46
4950 ' >ZA 5090 IF w=47 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >HJ
4960 LOCATE 33,25:PRINT" Une Touche $";:CALL &BB06:PRI >MX )="5s":elec(n)=10:elec(n+1)=1:n=n+2:w=47
NT STRING$(14,8);STRING$(14,32);:RETURN 5100 IF w=64 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >BD
4970 ' >ZC )="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
4980 '##### >ZD )="6s":elec(n)=10:elec(n+1)=7:elec(n+2)=2:elec(n+3
##### )="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
4990 ' >ZE $(n+5)="6s":elec(n)=10:elec(n+1)=14:elec(n+2)=2:elec(n+
5000 LOCATE 15,25:PRINT "Element possedant des anomali >UC 3)=6:elec(n+4)=9:elec(n+5)=1:n=n+6:w=78
es de remplissage" 5110 IF w=78 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >EU
)="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
5010 IF w=24 THEN w=18:GOSUB 1320:orb$(n+1)="4s":orb$(n >FD )="6s":elec(n)=10:elec(n+1)=14:elec(n+2)=2:elec(n+
)="3d":elec(n)=5:elec(n+1)=1:n=n+2:w=24 3)=6:elec(n+4)=10:elec(n+5)=1:n=n+6:w=79
5020 IF w=29 THEN w=18:GOSUB 1320:orb$(n+1)="4s":orb$(n >HZ 5120 IF w=79 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GW
)="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
)="3d":elec(n)=5:elec(n+1)=1:n=n+2:w=24 )="6s":elec(n)=10:elec(n+1)=14:elec(n+2)=2:elec(n+
5030 IF w=41 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >FE 3)=6:elec(n+4)=10:elec(n+5)=1:n=n+6:w=79
)="5s":elec(n)=4:elec(n+1)=1:n=n+2:w=41 5130 RETURN >EG
5040 IF w=42 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GA
)="5s":elec(n)=5:elec(n+1)=1:n=n+2:w=42
5050 IF w=43 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GE
)="5s":elec(n)=6:elec(n+1)=1:n=n+2:w=43
5060 IF w=44 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GJ
)="5s":elec(n)=7:elec(n+1)=1:n=n+2:w=44
5070 IF w=45 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GN
)="5s":elec(n)=8:elec(n+1)=1:n=n+2:w=45
5080 IF w=46 THEN w=36:GOSUB 1320:orb$(n)="4d":elec(n)= >RY
10:n=n+1:w=46
5090 IF w=47 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >HJ
)="5s":elec(n)=10:elec(n+1)=1:n=n+2:w=47
5100 IF w=64 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >BD
)="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
$(n+5)="6s":elec(n)=10:elec(n+1)=7:elec(n+2)=2:elec(n+3
)=6:elec(n+4)=1:elec(n+5)=2:n=n+6:w=64
5110 IF w=78 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >EU
)="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
$(n+5)="6s":elec(n)=10:elec(n+1)=14:elec(n+2)=2:elec(n+
3)=6:elec(n+4)=9:elec(n+5)=1:n=n+6:w=78
5120 IF w=79 THEN w=36:GOSUB 1320:orb$(n)="4d":orb$(n+1) >GW
)="4f":orb$(n+2)="5s":orb$(n+3)="5p":orb$(n+4)="5d":orb
$(n+5)="6s":elec(n)=10:elec(n+1)=14:elec(n+2)=2:elec(n+
3)=6:elec(n+4)=10:elec(n+5)=1:n=n+6:w=79
5130 RETURN >EG

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