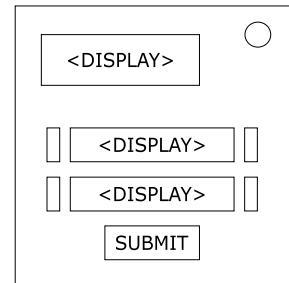


## On the Subject of State of Aggregation

I hope there is good chemistry between you and the bomb defuser..

- Align the current combination of chemical group and temperature to the given element.
- The color of the displayed element defines in which state this element currently is (solid, liquid, gas).
- Identify the element and use the periodic table below to determine which chemical group to select.
- Search for the element with its color in the table below and determine which temperature to select.



If the element shows a blue color, it is in a liquid state. If the color is white, the element is in a solid state. Otherwise the element is a gas.

$$1 \text{ Celsius } (^{\circ}\text{C}) = 1 + 273 \text{ Kelvin } (\text{K}) = 1 * (9/5) + 32 \text{ Fahrenheit } (^{\circ}\text{F})$$

All chemical Elements with their melting and boiling point:

Atomic Number	Element	Melting Point ( $^{\circ}\text{C}$ )	Boiling Point ( $^{\circ}\text{C}$ )
1	H	-259.1	-252.9
2	He	-272.2	-268.9
3	Li	180.5	1330
4	Be	1287	2469
5	B	2076	3927
6	C	3642	-
7	N	-209.9	-195.8
8	O	-218.4	-182.9
9	F	-219.6	-188.1
10	Ne	-248.7	-246.1
11	Na	97.8	882.9
12	Mg	650	1091
13	Al	660.5	2470
14	Si	1414	3265
15	P	44	280

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
16	S	115.2	444.7
17	Cl	-101	-34.6
18	Ar	-189.4	-185.9
19	K	63.7	759
20	Ca	842	1484
21	Sc	1541	2836
22	Ti	1668	3287
23	V	1910	3407
24	Cr	1907	2671
25	Mn	1246	2061
26	Fe	1538	2862
27	Co	1495	2927
28	Ni	1455	2730
29	Cu	1085	2562
30	Zn	419.6	907
31	Ga	29.8	2400
32	Ge	937.4	2833
33	As	615	-
34	Se	211	685
35	Br	-7.3	58.8
36	Kr	-157.4	-153.4
37	Rb	39	688
38	Sr	777	1377
39	Y	1526	2930
40	Zr	1855	4377
41	Nb	2477	4744
42	Mo	2623	4639
43	Tc	2157	4265

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
44	Ru	2334	4150
45	Rh	1964	3695
46	Pd	1555	2963
47	Ag	961.9	2162
48	Cd	321	767
49	In	156.2	2072
50	Sn	232	2602
51	Sb	630.7	1635
52	Te	449.6	988
53	I	113.5	184.4
54	Xe	-111.9	-108.1
55	Cs	28.4	671
56	Ba	727	1845
57	La	920	3464
58	Ce	795	3443
59	Pr	935	3130
60	Nd	1024	3074
61	Pm	1042	3000
62	Sm	1072	1900
63	Eu	826	1529
64	Gd	1312	3273
65	Tb	1356	3123
66	Dy	1407	2562
67	Ho	1461	2720
68	Er	1529	2868
69	Tm	1545	2223
70	Yb	824	1196
71	Lu	1652	3402

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
72	Hf	2233	4603
73	Ta	3017	5458
74	W	3422	5930
75	Re	3186	5630
76	Os	3033	5012
77	Ir	2446	4130
78	Pt	1768	3825
79	Au	1064.4	2970
80	Hg	-38.9	356.6
81	Tl	303.6	1473
82	Pb	327.5	1749
83	Bi	271.4	1564
84	Po	254	962
85	At	302	337
86	Rn	-71	-61.8
87	Fr	27	677
88	Ra	700	1737
89	Ac	1050	3200
90	Th	1750	4788
91	Pa	1568	4027
92	U	1132.4	4131
93	Np	639	4174
94	Pu	639	3228
95	Am	1176	2607
96	Cm	1340	3110
97	Bk	986	-
98	Cf	900	-
99	Es	860	-

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
100	Fm	-	-
101	Md	-	-
102	No	-	-
103	Lr	-	-
104	Rf	-	-
105	Db	-	-
106	Sg	-	-
107	Bh	-	-
108	Hs	-	-
109	Mt	-	-
110	Ds	-	-
111	Rg	-	-
112	Cn	-	-
113	Nh	-	-
114	Fl	-	-
115	Mc	-	-
116	Lv	-	-
117	Ts	-	-
118	Og	-	-

1 H																	2 He	
3 Li	4 Be																10 Ne	
11 Na	12 Mg																18 Ar	
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe	
55 Cs	56 Ba	57 La	*	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	89 Ac	*	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
*	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu				
*	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr				

If the element is in two groups of the periodic table, use the one which is in the lowest position in the following table:

Color	Chemical group
RED	Alkali Metal
BLUE	Alkaline Earth Metal
ORANGE	Transition Metal
PURPLE	Lanthanide
GREEN	Actinide
GREY	Metal
BROWN	Semimetal
YELLOW	Nonmetal
CYAN	Noble Gas
WHITE	Unknown