**Data Test Practice - Trends in the Periodic Table**

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| --- | --- | --- | --- |
| Atomic number | Element symbol | First ionization energy  (kJ/mol) | Atomic radius  (pm) |
| 1 | H | 1312 | 32 |
| 2 | He | 2372 | 31 |
| 3 | Li | 520 | 123 |
| 4 | Be | 899 | 90 |
| 5 | B | 801 | 82 |
| 6 | C | 1086 | 77 |
| 7 | N | 1402 | 75 |
| 8 | O | 1314 | 73 |
| 9 | F | 1681 | 72 |
| 10 | Ne | 2081 | 71 |
| 11 | Na | 496 | 154 |
| 12 | Mg | 738 | 136 |
| 13 | Al | 578 | 118 |
| 14 | Si | 786 | 111 |
| 15 | P | 1012 | 106 |
| 16 | S | 1000 | 102 |
| 17 | Cl | 1251 | 99 |
| 18 | Ar | 1521 | 98 |
| 19 | K | 419 | 203 |
| 20 | Ca | 590 | 174 |

1. Identify the elements with the largest and smallest:
   1. Atomic radius
   2. 1st Ionisation energy
   3. 2nd Ionisation energy (bit tricky!)
2. Examine the table of ionization energy (IE) and atomic radius.
   1. Which elements are found at the main peaks on your graph? What do these elements have in common?
   2. Which elements are found at the main valleys on your graph? What do these elements have in common?

1. Examine table of ionization energy (IE) and atomic radius.
   1. Which elements are found at the peaks on your graph? What do these elements have in common?
   2. Which elements are found at the valleys on your graph? What do these elements have in common?

1. Identify a trend between atomic radii and ionization energy. Provide evidence from the table to support your identification.

1. As shell number increases the atomic radius is supposed to increase. Identify and explain evidence in the table which would support this idea.

1. As an electron shell becomes filled with more electrons, the atomic radius is supposed to decrease. Identify and explain evidence in the table which would support this idea.

1. Which element in the table would have the largest electronegativity? What evidence is tyhere in the table which would support your answer.