Lesson

Glue some dominos.

* Walking in the door give alternating students either a plain colored page or a tile sheet
* at the stroke of the bell, solve two tiles, glue them
* timer to put up in hall
* TELL TO make name huge
* DO HOMEWORK CHECK BEFORE THEY START GLUING

Lecture

1. Defn of anion, neutral, ionization
2. Ways to draw 3p, 3n, 2e (circle) (bohr)
3. Law of conservation All Three Examples
   1. something in a jar, the mass
   2. video of energy / LoL of energy
   3. charge
4. How hard should we pull.

Start the sheet.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 |  | 3 |  | 5 |  | 3 |
| 2 |  | 0 |  | 1 |  | 2 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0 |  | 1 |  | 2 |  | 2 |
| 5 |  | 3 |  | 0 |  | 5 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| the charge of |  | the atomic # of |  | the number of protons of |  | the atomic number of |
| the mass number of |  | the charge of |  | The charge of |  | the number of NUCLEONS (not neutrons) in |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| the charge of |  | the mass of |  | the number of protons of |  | the atomic number of |
| the mass number of |  | the number of NUCLEONS (not neutrons) in |  | The number of neutrons in |  | The number of protons in |

|  |  |  |
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| How do we show ionization?  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues,&Thurs after school!  After-hours question? Email me at home: [eagenest@madison.k12.wi.us](mailto:eagenest@madison.k12.wi.us) |  | Name\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_ |

1. Define the verb “ ionize”.
2. Choose one of the three choices. “ In neutral atoms…”
   1. # of e > # of p
   2. # of e = # of p
   3. # of e < # of p
3. Choose one of the three choices. For all anions
   1. # of e > # of p
   2. # of e = # of p
   3. # of e < # of p
4. What is true about the number of particles in an atom that has a neutral charge?
5. Back in October we learned that the periodic table tells us the charge of Na in a compound is Na+. Circle the ion that each element below forms when in a compound, according to the periodic table:
   1. Calcium: Ca + Ca2+ Ca3+
   2. Aluminum Al+ Al2+ Al3+
   3. Oxygen: O- O2- O3-

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| In the after box redraw what will look like after **gaining two** electrons.  The charge before \_\_\_\_\_\_\_\_  The charge after \_\_\_\_\_\_\_\_\_\_  It became a (anion / cation ) | Before  A description... |  | After | HighLow Letter symbol for the *after* atom? |
| In the after box redraw what will look like after **losing two** electrons.  The charge before \_\_\_\_\_\_\_\_  The charge after \_\_\_\_\_\_\_\_\_\_  It became a ( anion / cation ) | Before  A description... |  | After | HighLow Letter symbol for the *after* atom? |

1. If an atom is helium how many protons does it have? \_\_\_\_\_\_\_\_\_\_\_
2. If an atom has 10 protons what element is it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. If the atom’s mass number is 18 how many nucleons does it have?
4. For an atom with atomic number =9, charge of zero, and 10 neutrons…
   1. mass number \_\_\_\_\_\_\_
   2. number of protons? \_\_\_\_\_\_
   3. number of electrons \_\_\_\_\_\_
   4. symbol of the element, with highLow numbers \_\_\_\_\_\_
5. **The Law of Conservation of Mass** says that if nothing enters or leaves a system, the total \_\_\_\_\_\_\_\_\_\_\_ in that system must be the same before and after any change.

Based on this Law, mark the following as possible or not:

1. If a reaction of A + B C + D ( possible / impossible )

30g 14g 40g 8g

1. If a reaction of W + X Y + Z ( possible / impossible )

14g 16g 15g 15g

1. For a dissolving reaction: Na2CO3(s) Na+(aq) + CO32-(aq) ( possible / impossible )

1. **The Law of Conservation of Energy** says that if nothing enters or leaves a system, the total \_\_\_\_\_\_\_\_\_\_ in that system must be the same before and after any change.

Use this law to spot any fibs below:

|  |  |
| --- | --- |
| 1. ( possible / impossible ) | 1. ( possible / impossible ) |

1. **The Law of Conservation of** **Charge** is similar to the two laws above. It says that if nothing enters or leaves a system, the total \_\_\_\_\_\_\_\_\_\_\_\_ in that system must be the same before and after any change.
2. The Law of Conservation of Charge can help us spot wrongly written equations for ions.
   1. Ba + 2e- Ba2+ possible / impossible
   2. F F+ + e- possible / impossible
   3. S S2+ + 2e- possible / impossible
   4. I I+ + e- possible / impossible
   5. Ag + e- Ag+ possible / impossible
3. Write a balanced equation for neutral Mg losing two electrons (In the first blank, write Mg. You don’t need to write the high low numbers, just the charge, if any):

\_\_\_\_ \_\_\_\_ + \_\_\_\_

1. Write a balanced equation for neutral chlorine atom gaining one electron:

\_\_\_\_ + \_\_\_\_ \_\_\_\_

1. Write a balanced equation for a neutral boron atom losing three electrons:

\_\_\_\_ \_\_\_\_ + \_\_\_\_

1. Write a balanced equation for O2- anion losing two electrons:

\_\_\_\_ \_\_\_\_ + \_\_\_\_

1. Write a balanced equation for Iron(III) ion gaining three electrons:

\_\_\_\_ + \_\_\_\_ \_\_\_\_

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| In the after box redraw what this atom will look like **after losing one** electron.  The charge before \_\_\_\_\_\_\_\_  The charge after \_\_\_\_\_\_\_\_\_\_  It became a (anion / cation ) | Before |  | After | HighLow Letter symbol for the *after* atom? |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| In the after box redraw what this atom will look like after **gaining one** electron.  The charge before \_\_\_\_\_\_\_\_  The charge after \_\_\_\_\_\_\_\_\_\_ | Before  A description... |  | After | HighLow Letter symbol for the *after* atom? |

1. Choose one of the three choices. For all cations
   1. # of e > # of p
   2. # of e = # of p
   3. # of e < # of p
2. What is true about the number of particles in any cation?
3. What is true about the number of particles in any anion?
4. If an atom has 12 protons and 10 neutrons, how many nucleons does it have? \_\_\_\_\_\_\_\_\_\_\_\_
5. If an atom has 5 protons and 6 neutrons what is the mass of the atom? \_\_\_\_\_\_\_\_
6. If an atom is oxygen how many protons does it have? \_\_\_\_\_\_\_\_
7. If an atom has 4 protons what element is it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. If an atom weighs 12 amu's how many nucleons does it have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. If an atom has 2 protons and it has 5 nucleons, how many neutrons does it have? \_\_\_\_\_\_\_\_\_\_\_\_
10. If an atom has 40 nucleons and has 10 neutrons, how many protons does it have? \_\_\_\_\_\_\_\_\_\_\_\_
11. For an atom with 14 protons and 15 neutrons and 18 electrons
    1. mass number \_\_\_\_\_\_
    2. atomic number \_\_\_\_\_\_
    3. number of electrons \_\_\_\_\_\_
    4. symbol of the element \_\_\_\_\_\_
    5. charge of the atom \_\_\_\_\_\_
    6. symbol of the element, with highLow numbers \_\_\_\_\_\_
12. For a neutral atom with mass number of 47, 25 neutrons, and 22 electrons
    1. atomic number \_\_\_\_\_\_
    2. number of protons \_\_\_\_\_\_
    3. number of electrons \_\_\_\_\_\_
    4. symbol of the element, with highLow numbers \_\_\_\_\_\_
13. For an atom with mass number 55, and has 25 protons and 23 electrons
    1. charge \_\_\_\_\_\_
    2. atomic number \_\_\_\_\_\_
    3. number of neutrons \_\_\_\_\_\_
    4. symbol of the element, with highLow numbers \_\_\_\_\_\_