**Recall: Indicators**:

**Name: Date:**

* There are common acids and bases that form colorless solutions; water-like solutions that can be very dangerous. 
* Recall:
* pH indicators: chemicals that change color depending on the pH of the solution they are placed in

**Using Litmus Paper**:

* in neutral solutions, blue litmus stays blue and red litmus stays red
	+ ie. Litmus does change at pH 7
* BAR:
* BRB:

**Indicators**:

* Universal Indicator
	+ contains a number of indicators that turn different colors depending on the pH of the solution
* Digital pH meters or pH computer probe measure an electrical property of the solution and uses this to determine the pH

**Other pH Indicators**:

* Litmus paper is effective in telling us whether something is neutral, basic (7<pH<14), or acidic (1<pH<7).
* BUT:
* Ex. Phenolphthalein is colourless in acidic or slightly basic solutions but turns pink in moderately to highly basic solutions

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| **Acid-Base Indicators** |
| **Acid-base indicator** | **pH Range in Which Colour Change Occurs** | **Colour Change as pH Increases** |
| Methyl orange | 3.2-4.4 | Red to yellow |
| Methyl red | 4.8-6.0 | Red to yellow |
| Bromothymol Blue | 6.0-7.6 | Yellow to blue |
| Litmus | 7.0 | Red to blue |
| Phenolphthalein  | 8.2-10.0 | Colourless to pink |
| Indigo carmine | 11.2-13.0 | Blue to yellow |

