

Recall

A Homogenous mixtures is called a solution.

Add to your notes

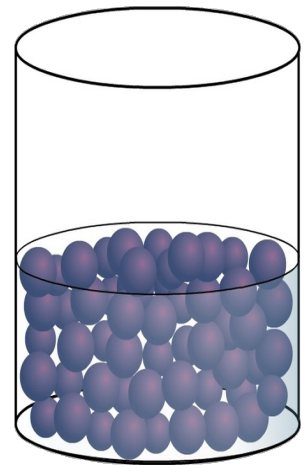
- Solutions have properties that blend together. This depends on how much of one material and how much of the other material are in the mixture.

ex) Salt in water will mix so that the salt will disappear and cannot be seen (As long as you have lots of water) Ice tea, Kool-aid...

Explaining Mixtures and Pure Substances

SEPT 26

The Theory that scientist use to explain the properties of various mixtures and substances we use the [Particle Theory of Matter](#)



1) All matter is made up of extremely tiny particles with spaces between them

-Each pure substance has it's own type of pure particle, different from the particles of other pure substances. [Pure Substance vs Mixture MOO Moo Math - YouTube](#)

2) Particles are always moving (More energy = faster moving)

3) Particles are attracted to each other (some more than others)

Pure Substances: is a material made up of only one kind of extremely small particle. Different from all other pure substance

Examples of pure substance are:

water, gold, copper, silver, and sugar.
Elements or compounds

A drop of water from a glass will look identical to another drop of water from the same glass.

Fun Note

There are 1.67 sextillion water molecules in a water drop. Now, the number of atoms in a droplet of water

1 670 000 000 000 000 000 000 000

P. 115 Find Out Activity

on your test

Differences Between Pure Substance & Mixtures

Are **NOT** easy to observe. Scientist took hundreds of thousands of years of investigating to figure out if pure substance existed

- **Must investigate the properties of material to find out that they are always the same. If they are the exact same in all parts of the material, no matter what part of the world the material comes from, then you say you have a pure substance.**



This ring is gold and if you turned it over, you would expect to see the same properties on the reverse- the same colour, texture, and shininess.



Found naturally on earth

www.LiveScience.com

Periodic Table of the Elements

Group	1	2											13	14	15	16	17	18
	1A	2A											3A	4A	5A	6A	7A	8A
1	1 H Hydrogen 1.0078																	2 He Helium 4.0026
2	3 Li Lithium 6.938	4 Be Beryllium 9.0122											5 B Boron 10.806	6 C Carbon 12.009	7 N Nitrogen 14.006	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.180
3	11 Na Sodium 22.990	12 Mg Magnesium 24.305	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13 Al Aluminum 26.982	14 Si Silicon 28.084	15 P Phosphorus 30.974	16 S Sulfur 32.059	17 Cl Chlorine 35.446	18 Ar Argon 39.948
4	19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.867	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.63	33 As Arsenic 74.922	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.798
5	37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.96	43 Tc Technetium 98.9062	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.91	46 Pd Palladium 106.42	47 Ag Silver 107.87	48 Cd Cadmium 112.41	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29
6	55 Cs Cesium 132.91	56 Ba Barium 137.33		72 Hf Hafnium 178.49	73 Ta Tantalum 180.95	74 W Tungsten 183.84	75 Re Rhenium 186.21	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08	79 Au Gold 196.97	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
7	87 Fr Francium (223)	88 Ra Radium (226)		104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (269)	109 Mt Meitnerium (268)	110 Ds Darmstadtium (268)	111 Rg Roentgenium (268)	112 Cn Copernicium (268)	113 Uut Ununtrium (268)	114 Fl Flerovium (268)	115 Uup Ununpentium (268)	116 Lv Livermorium (268)	117 Uus Ununseptium (268)	118 Uuo Ununoctium (268)
			Lanthanides	57 La Lanthanum 138.91	58 Ce Cerium 140.12	59 Pr Praseodymium 140.91	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.96	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.97
			Actinides	89 Ac Actinium (227)	90 Th Thorium 232.04	91 Pa Protactinium 231.04	92 U Uranium 238.03	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

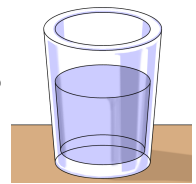
SOURCES: National Institute of Standards and Technology, International Union of Pure and Applied Chemistry

KARL TATE / © LiveScience.com

109-14 - 307-1



What Makes Materials Dissolve?



We can form solutions by mixing one or more materials together (like sugar and water). This is dissolving.

Not all mixtures form solutions.

What other things get dissolved?

The Attraction of Particles when Dissolving can be explained by the Particle Theory

Particles stay together because

i) they are attracted to each other. Sometimes particles can become attracted to other particles (like sugar and water).

ii) Particles are always moving.

<https://phet.colorado.edu/en/simulation/legacy/soluble-salts>



Molecules of water and salt combining - advanced



[Why'd the Ocean Stop Getting Saltier? - YouTube](#)



[Why is the Dead Sea so salty? - YouTube](#)



[The Dead Sea Is DYING - YouTube](#)

