

Water - a most peculiar substance

Describe it



DESCRIBE THE PHASES OF WATER

SOLID

LIQUID

GAS



sublimation
evaporation

precipitation
condensation

Water is the universal solvent

Periodic Table
of the Elements

1	IA	1	H	IIA	2	He	0																													
2	3	Li	4	Be	5	B	6	C	7	N	8	O	9	F	10	Ne																				
3	11	Na	12	Mg	13	Al	14	Si	15	P	16	S	17	Cl	18	Ar																				
4	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
5	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
6	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
7	87	Fr	88	Ra	89	+Ac	104	Rf	105	Ha	106	106	107	107	108	108	109	109	110	110	111	111	112	112												

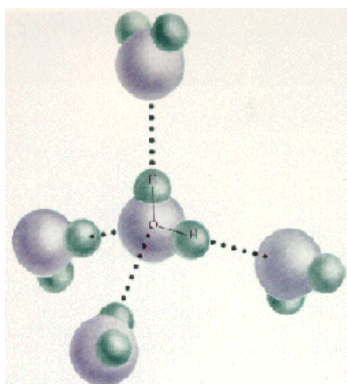
Naming conventions of new elements

* Lanthanide Series

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu

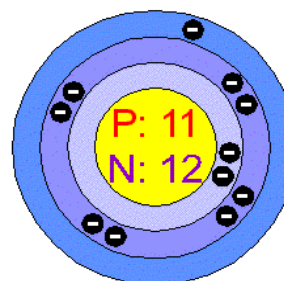
+ Actinide Series

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

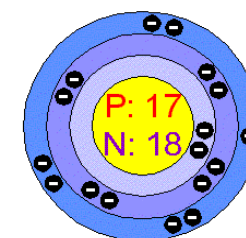


hydrogen bond

Sodium



Chlorine



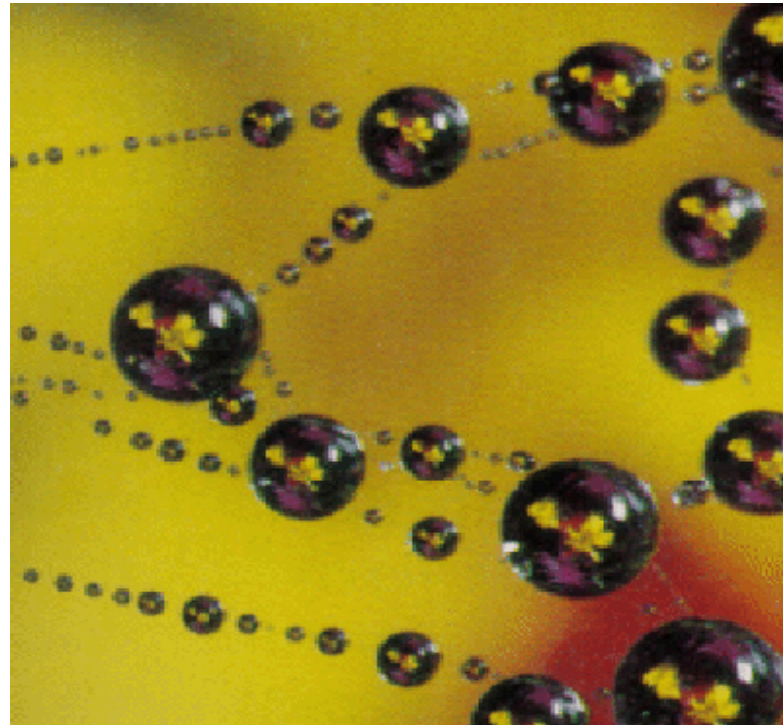
ionic bond

How much of our water supply is fresh water?

- 1. 1/3***
- 2. 3%***
- 3. 10%***

How much is ice?

- 1. 2/3***
- 2. 1/2***
- 3. 1/3***



What dissolves in water? Does life depend on it?

***carbon dioxide
oxygen***

1. Water has a high latent heat of vaporization

Water evaporates slowly from lakes where many life forms are dependent on it

2. Water is a liquid over a wide temperature range

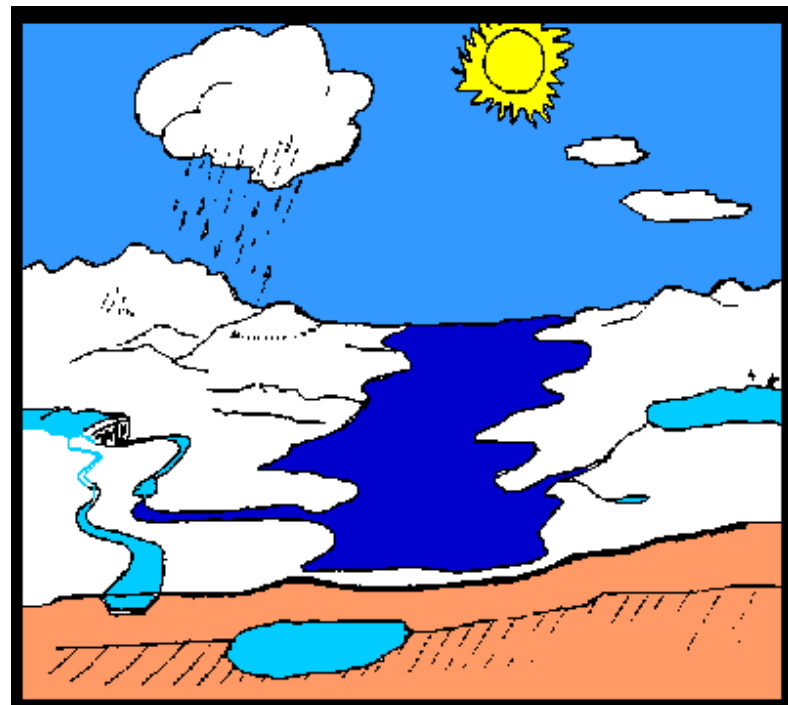
Where does most life live?

3. Water is less dense in its solid state than liquid state

Life lives under ice

4. Water has a very high specific heat

(absorb or lose heat before temperature change)

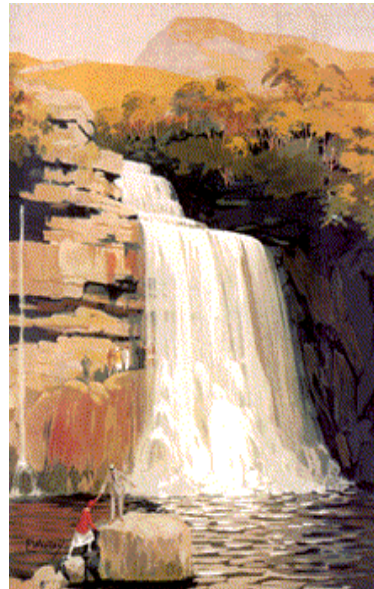


4. *Water exhibits viscosity*

Resistance between layers

deeper areas swift current, shallower less

Formation of eddies

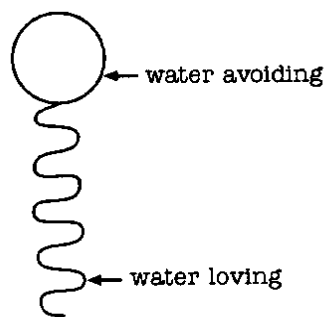
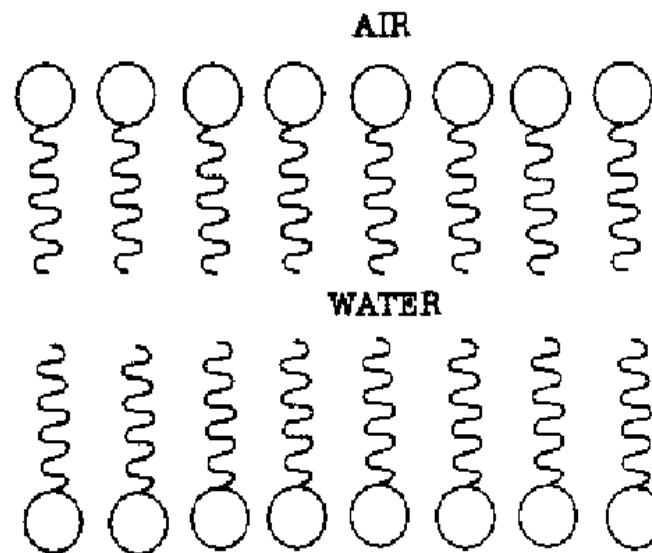
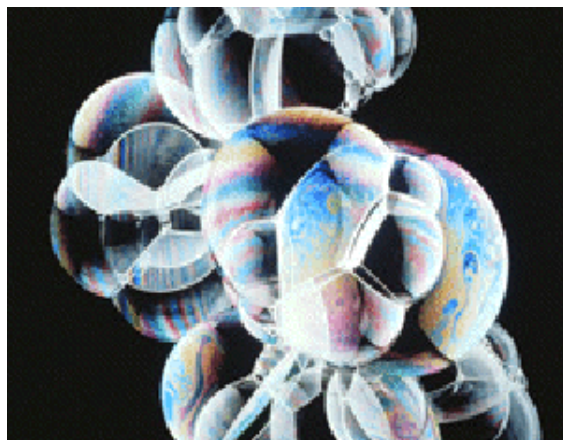


5. Water exhibits surface tension

"Skin" helps organisms to live on the top

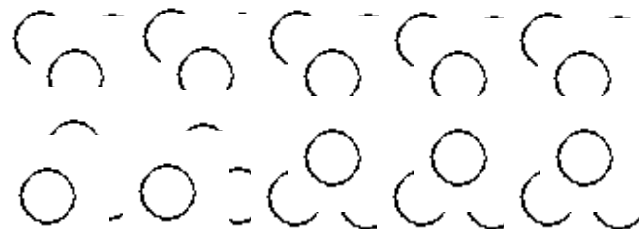




SOAP FILM



Soap or Detergent Molecule

H₂O



RED		VERY STRONGLY ACID pH 2.0
ORANGE		STRONGLY ACID pH 4.0
YELLOW		WEAKLY ACID pH 6.0
GREEN		WEAKLY ALKALINE pH 8.0
BLUE		STRONGLY ALKALINE pH 10.0