Unit 1 Review Answers

(1) Atoms, Molecules, Chemical Reactions, Ions, Acids and Bases, Energy, Electrons, Matter

(2) Matter is anything that has mass and takes up space. Three examples: water, air, clouds.

(3) Heat, Sound, Light

(4) Hectogram because it's to the left of decigram.

(5) 10^6 times; decimal moves right

Table 1	Conversion Factor	Std. Notation	Scientific Notation
0.0034g	10^3	3.4 mg	3.4×10^0 mg
12 dL	10^{-2}	0.12 DaL	1.2×10^{-1} DaL
1km	10^5	100000 cm	1.0×10^5 cm
2.34cm	10^{-4}	0.000234 hm	2.34×10^{-4} hm
1,000 dg	10^{-4}	0.1 kg	1.0×10^{-1} kg

(6) a) 1 b) 2 c) 3 d) 1 e) 2 f) 3
g) 5 h) 3 i) 6

(7) a) 15 b) 0.02

(8) 2.5 g/mL

(9) 5.9 mL

(10) 47 g

(11) Box A, more compact

(12) gas → solid
ex: frost on ground

(13) solid → gas
ex: dry ice changing to a gas

(14) A physical change changes form but the substance does NOT change. In a chemical change, a new substance is created.

Table 2

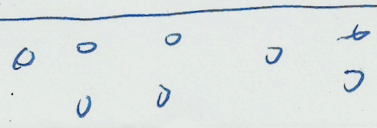
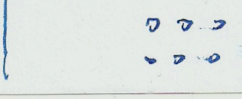
GAS	LIQUID	SOLID
VERY FAST, RAPID	FLOWING MOVEMENT	ONLY VIBRATING
NOT CLOSE AT ALL	SOMEWHAT CLOSE	VERY CLOSE; TIGHTLY PACKED
NO	NO	YES
NO	YES	YES
		

Table 3	Physical Change	Chemical Change
Bubbles Form	When heat or pressure is applied or removed	When bubbles form without a change in heat or pressure
Colors Change	Expected Color Change Blue + Red = Purple	Unexpected Color Change Clear + Clear = PINK
Change in size	Breaking something or tearing something	X
Change in state of matter	Boiling water (liquid → gas) Freezing water (liquid → solid)	Baking cookies or cake Formation of PRECIPITATE

(15) Vaporization

(16) 0.0098°C (temp); 0.00603 atm (pressure)

(17) Anything BELOW 218 atm