Name: _____ Group: _____ Date: _____

THE ORGANIZATION OF MATTER

Pure substances

STUDENT BOOK	Ch. 1, pp. 9, 21–26

1. Complete the sentences below using the terms listed. Two terms apply more than once.

Particle	Compounds	Oxygen	Compound
Elements	One hundred	Carbon	Elements
Periodic	Mixtures	Chemical	Pure substances
Atom	Element	Pure	Properties
			Compound

a) Unlike _____, which are composed of many substances, _____ are formed of a single substance and therefore one type of _____. _____ substances can be _____ or _____.

b) An _____ is composed of a one type of _____, while a _____ contains at least two different _____ that are chemically bonded. _____ separation techniques are used to separate the different elements of a _____, but an element cannot be separated into other substances.

c) The _____table contains more than _____ chemical elements from which all substances are formed. Elements are grouped together according to their _____. Living beings are composed mostly of four elements: _____, hydrogen, _____and nitrogen.

2. Indicate if the pure substances listed below are elements or compounds.

	Element	Compound
a) Sugar	☐	☐
b) Carbon powder (graphite)	☐	☐
c) Silver	☐	☐
d) Water	☐	☐
e) Gold	☐	☐
f) Nitrogen gas	☐	☐
g) C_3H_8 (propane gas)	☐	☐
h) Ozone (O_3)	☐	☐

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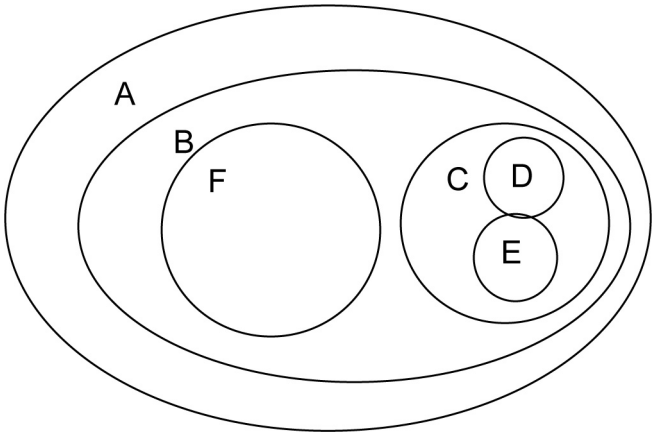
ORGANIZATION OF MATTER (*continued*)

STUDENT BOOK	Ch. 1, pp. 9-13,19-20

Homogeneous and heterogeneous mixtures, separation of mixtures

1. The diagram below illustrates the relationship among terms linked to the organization of matter in the following box. Identify the term that corresponds to each figure in the diagram.

Mixtures	Homogeneous mixtures	Matter
Heterogeneous mixtures	Solutions	Colloids



A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

2. True or false?

a) In a heterogeneous mixture, substances are distributed evenly. _____

b) A colloid is a type of homogeneous mixture. _____

c) A homogeneous mixture is made up of a single substance and a heterogeneous mixture is made up of several substances. _____

d) Substances in a homogeneous mixture can be distinguished with the naked eye. _____

e) A solution is a heterogeneous mixture. _____

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Homogeneous and heterogeneous mixtures, separation of mixtures (*continued*)

3. The following substances are homogeneous mixtures. In the space provided, indicate if each mixture is a solution (S) or a colloid (C).

a) Mayonnaise _____

b) Filtered apple juice _____

c) Milk _____

d) Chlorinated water (from a swimming pool) _____

e) Steel _____

f) Petroleum _____

g) Blood _____

4. Match each mixture to a physical separation method used to purify it or to separate its components.

Mixture	Physical separation method
a) Plant pigments	1. Centrifugation
b) Raw apple juice (with pulp)	2. Vaporization
c) Vinegar and olive oil	3. Distillation
d) Blood (constituents)	4. Chromatography
e) Water and lavender oil	5. Decantation
f) Seawater (water and salt)	6. Filtration

5. Indicate with a check mark each separation technique below that requires a source of heat.

a) Centrifugation ☐

b) Vaporization ☐

c) Distillation ☐

d) Chromatography ☐

e) Decantation ☐

f) Filtration ☐