

## Numbers and Matter Quiz

Name: \_\_\_\_\_

/25

**Knowledge.** Answer the following questions on foolscap.

- /3 1. Complete the following conversions.

Quantity	Conversion
a) 1300.5 cv	kv
b) 75.1 mm	m
c) 0.0405 daha	$\mu$ ha

- /1 2.a) Identify 1 way structural and conceptual descriptions of matter are similar.  
/2 b) Identify 1 way structural and conceptual descriptions of matter are different.  
/2 c) Explain how a inferential definition of matter can lead to empirical definitions of matter.  
/1 d) Provide an operational description of matter.
- /2 3. Explain why using chemical properties to identify an unknown substance is likely not a good idea.
- /5 4. Identify the following substance as an element, compound, solution or mixture.  
a) clear orange juice (no pulp)      b) peanut butter and jam sandwich      c) helium  
d)  $\text{Ca}(\text{OH})_2$       e) solid sodium chloride
- /2 5.a) Explain why pure substances must be homogenous.  
/2 b) At the microscopic level, would a solution still be homogenous? Explain.
- /2 6. Explain why the following statement is wrong: "Only quantitative physical properties can be measured."
- /2 7. Explain how an intensive property can also be qualitative.
- /1 8. Give an example of an extensive (opposite of intensive) quantitative physical property.

/3

**Communication.** Answer the following questions on foolscap.

- /3 9. Complete the following conversions.

Standard Notation	Scientific Notation
a) 120047	
b)	$5.58 \times 10^{-3}$
c) 6.8	

## Numbers and Matter Quiz

Name: \_\_\_\_\_

/25

**Knowledge.** Answer the following questions on foolscap.

/3 1. Complete the following conversions.

Quantity	Conversion
a) 1300.5 cv	0.013005 kv
b) 75.1 mm	0.0751 m
c) 0.0405 daha	405000 $\mu$ ha

/1 2.a) Identify 1 way structural and conceptual descriptions of matter are similar.

- they both are static descriptions
- they both imply something about how matter is made
- both require observations at some point
- both deal rely on properties

/2 b) Identify 1 way structural and conceptual descriptions of matter are different.

- structural descriptions are empirical; whereas, conceptual descriptions are inferential
- structural descriptions deal with properties; whereas, conceptual descriptions deal with design
- structural descriptions are measured; whereas, conceptual descriptions are thought out

/2 c) Explain how a inferential definition of matter can lead to empirical definitions of matter.

- once we have a theory to explain why matter does what it does, we may test it to see what limitations or special conditions exist

/1 d) Provide an operational description of matter.

- the water is boiling

/2 3. Explain why using chemical properties to identify an unknown substance is likely not a good idea.

- there are too many tests to so the likelihood of narrowing it down is small
- you don't know if the first test you try is dangerous or not
- it is not the simplest approach and so it would take longer to conduct (not cost or time effective)
- not reversible so you could use up your sample before you identify the substance

/5 4. Identify the following substance as an element, compound, solution or mixture.

- a) clear orange juice (no pulp)      b) peanut butter and jam sandwich      c) helium  
d)  $\text{Ca}(\text{OH})_2$       e) solid sodium chloride

- a) solution    b) mixture    c) element    d) compound    e) compound

/2 5.a) Explain why pure substances must be homogenous.

- to be pure means there is only one type of particle which means the only way to mix the particles will be uniformly

- /2 b) At the microscopic level, would a solution still be homogenous? Explain.
- no
  - at the microscopic level, there would be regions with different particles (non-uniform arrangement)
- /2 6. Explain why the following statement is wrong: “Only quantitative physical properties can be measured.”
- all properties can be measured; some with your senses and some with devices, but these are both types of measurement
- /2 7. Explain how an intensive property can also be qualitative.
- it is a descriptive property that does not change with amount, such as taste or colour (in contrast, size would be extensive)
- /1 8. Give an example of an extensive (opposite of intensive) quantitative physical property.
- mass, volume, size

/3

**Communication.** Answer the following questions on foolscap.

- /3 9. Complete the following conversions.

Standard Notation	Scientific Notation
a) 120047	1.20 x 10 <sup>5</sup>
b) 0.00558	5.58 x 10 <sup>-3</sup>
c) 6.8	6.8 or 6.8 x 10 <sup>0</sup>