[](http://www.google.com.au/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&docid=Q-jachXC6K5l9M&tbnid=dEZcnnM6t4ztbM:&ved=0CAUQjRw&url=http://all-free-download.com/free-vector/vector-clip-art/tree_outline_clip_art_11785.html&ei=gkD1U_q5CIzp8AXO4oLQAQ&bvm=bv.73231344,d.dGc&psig=AFQjCNFOn96papxJpTkYcyqtzYCWu8mjvQ&ust=1408668120729314)Chemical and Investigating Science Year 7

Mid Topic Test

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Total: 69 marks

Part A: Multiple-Choice (10 marks)

1. Which of the following are **all** correct?

**A** Chemistry – Science of materials, Geology – Science of rocks, Psychology- Science of forces.

**B** Ecology – Science of the environment, Astronomy – Science of the universe, Chemistry – Science of materials.

**C** Biology – Science of living things, Ecology – Science of plants and animals, Geology – Science of rocks.

**D** Physics – Science of forces, Astronomy – Science of asteroids, Ecology – Science of the environment.

2. Which of the following lists contains only measuring equipment?

**A** a beaker, a graduated cylinder, a conical flask and an electronic scale.

**B** a measuring cylinder, a test-tube, a conical flask and a spatula.

**C** a beaker, a graduated cylinder, a test-tube and a filter funnel.

**D** a measuring cylinder, a evaporating basin, a beaker and a conical flask.

3.Which of the following is **not** a safety rule in a Science laboratory?

**A** do not run or push.

**B** always wear safety glasses when using chemicals.

**C** do not eat, taste, drink or sniff anything unless told to by a teacher.

**D** if you break something immediately get rid of it.

4. Which of the following is **not** a mixture?

**A** air.

**B** seawater.

**C** paint.

**D** all of them are mixtures.

5. A solvent is:

**A** a substance that does not dissolve.

**B** the substance that dissolves.

**C** the substance that dissolves the other one.

**D** when a substance dissolves in another, forming a clear mixture.

6. Which of the following are **all** ways to separate an insoluble substance from a liquid?

**A** decantation, filtration, sieving and gravity separation.

**B** distillation , decantation, filtration and gravity separation.

**C** gravity separation, evaporation, filtration and chromatography.

**D** evaporation, distillation, filtration and decantation.

7. Which one of the following is soluble in water?

**A** sand.

**B** salt.

**C** oil.

**D** iron filings.

8. Which of the following is an inference?

**A** everyone is packing up.

**B** it must be nearly home time.

**C** the bell will go soon.

**D** the time is 3.01pm.

9. Which of the abbreviations for the units are all correct?

**A** gram – g, litre – L, kilogram – kg, millimetre – mm, minutes – min.

**B** gram – gm, litre – L, kilogram – kg, millimetre – mm, minutes – min.

**C** gram – g, litre – l, kilogram – kg, millimetre – ml, minutes – min.

**D** gram – g, litre – L, kilogram – kgm, millimetre – mm, minutes – mins.

10. Which graph would you use for a set of continuous data, such as time and temperature?

**A** column or bar.

**B** pie.

**C** line.

**D** none of the above.

**Part 2: Short Answer**

1. **Match** the following terms with their correct meaning. Note: not all words will be used.

Bunsen burner, inference, observation, prediction, meniscus, independent variable, dependent variable, aim, method, results, soluble, insoluble, solution, dissolve, saturated, concentrated, dilute, filter, measuring cylinder, beaker, solvent, solute, decantation, filtration

a) Can be dissolved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SOLUBLE

b) The thing you measure in an experiment \_\_\_\_\_\_\_ DEPENDENT VARIABLE

c) What you are trying to do in an experiment \_\_\_\_\_\_ AIM

d) The separation of an insoluble substance by pouring it off \_\_ DECANTATION

e) A glass tube used to measure liquids accurately \_\_\_\_ MEASURING CYLINDER

f) The curved surface of liquids \_\_\_\_ MENISCUS

g) The substance being dissolved \_\_\_\_\_ SOLUTE

h) A logical explanation for what you see \_\_\_\_\_\_ INFERENCE

i) Tells how to do an experiment \_\_\_\_\_\_\_\_ METHOD

j) A lot of solute in the solvent \_\_\_\_\_\_\_\_ CONCENTRATED

(10 marks)

2. **Draw** and **label** a scientific diagram of a Bunsen being used to heat water in a beaker:

2 dimensional – 1 mark

Neat and in pencil – 1 mark

Bunsen on bench mat – 1 mark (half if no bench mat)

Tripod and gauze mat – ½ mark each

Beaker with water in – ½ mark each

Must be labelled to get full marks

(5 marks)

3. a) **Describe** what happens to the particles when sugar is put in water and stirred:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_ the particle appear to disappear, sugar solid broke up into tiny particles too small to see,

particles spread into water, can’t be seen but can be tasted. **Any two points or similar.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

b) **Describe** what the solution looks like after a short time:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

it is clear and colourless (2 marks), looks like water (1 mark) your discretion of any other

answers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

4. a) **List** your five senses \_\_ sight, hearing, taste, smell, touch (or alternatives for same) (1)

1. **List** three observations you could make about a burning candle \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_ any 3 sensible observations – your judgement (1)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **List** 4 rules you should follow in a Science laboratory \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_ any 4 sensible rules – your judgement (2)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(4 marks)

5. **Justify** the following statement: *When salt dissolves in water it is still in the solution, it has not gone away***.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

this is true, particles have just dissolved (got so small we cant see them) (1) we know it is still

there because we can taste it (1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

6. **Explain** the meaning of *dilute solution*: \_\_\_ a dilute solution has not much solute dissolved in

the solvent. Full marks if they use solute and solvent correctly, any other correct explanation

1 mark \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

7. **Classify** the following as solute, solvent or solution:

1. Water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solvent
2. Salt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solute
3. Coke \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solution
4. Sugar \_\_\_\_\_\_\_\_\_\_ solute

(4 marks)

8. **Identify** the method of separation that could be used for the following situations:

1. You want some fine clean sand without any sticks or stones from the soil in your garden \_\_\_\_\_\_\_\_\_\_\_\_\_\_ sieving
2. You drop some iron nails into some sand in your backyard \_\_\_ magnetic (1) sieving (1/2)
3. You want to see if the soil in a river has gold in it \_\_\_ gravity separation
4. Some sand has got into your bucket of water \_\_\_ decantation or filtering
5. The lettuce for your salad has water all through it \_ centrifuging

(5 marks)

9. The following table show the solubility of different substances in g/100mL water at 100oC.

|  |  |
| --- | --- |
| **Solute** | **g/mL in 100mL water at 100oC** |
| Salt | 39 |
| Sugar | 487 |
| Copper sulphate | 77 |
| Alum | 165 |
| Potassium dichromate | 81 |

a) Graph the results above as a column graph. (5 marks)

1 – title, 2 – labelled axis with units, 1 – plotted correctly, 1 – correct scale.

b) Whichsolute is most soluble? \_\_\_\_\_\_\_\_\_\_ sugar

(1 mark)

c) Which solute is least soluble? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_salt

(1 mark)

d) **Compare** the solubility of alum and potassium dichromate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

at 100oC alum is approximately twice as soluble as potassium dichromate. Or similar.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

e) **Estimate** what the solubility of sugar would be at 50oC\_ 242 -245 (1) close (1/2)

(1 mark)

f) **Explain** why the above estimate may not necessarily be accurate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

solubility may not go up in an even pattern. Any other reasonable answer (1 mark)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 mark)

10. **Define** the following:

1. Mixture \_\_\_\_\_\_\_\_\_ a substance made from two or more pure substances that have

been stirred together and can be separated.

ii) Independent variable \_\_ the variable in an experiment that is changed.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

iii) Insoluble \_\_\_\_\_\_\_\_\_ able to be dissolved.

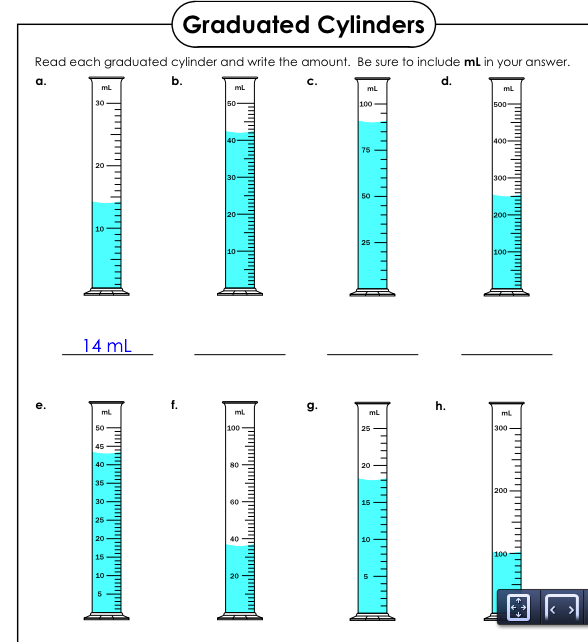
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

iv) Experiment \_\_\_\_\_\_\_\_\_ a scientific test.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(4 marks)

12. **State** the amount in each graduated cylinder (the first one is done for you)



250mL

42 mL

90mL

(7 marks)

100mL

18mL

36mL

43mL