S1 Science
Acids and Metals Homeworks

Name ……

Class ……

PROGRESS LOG – Acids and Metals

Homework	Due Date	What did I do well?	What do I need to improve upon?	Have I corrected my mistakes?	Parent signature
1. pH and indicators					
2. Acids and Metals					
3. Gas tests and Fertilisers					

End of Unit Assessment percentage:

Where are my 'learning gaps'?

How will I 'fill' them?

Homework 1

1. What is the pH scale used to show?

_____

2. Which substances have a pH of less than 7?

_____

3. What is the definition of an indicator?

_____

4. Leo tested 4 substances' pH, the results are shown below.

Substance	**pH**
Water	7
Lemon Juice	3
Sprite	4
Vinegar	2

Calculate the average pH of the substances.

_____

5. Name 2 indicators that can be used to measure pH.

_____

6. a) Carla tested a substance in class using an indicator. She concluded that the substance must be a strong acid.

   What colour must the indicator have turned to show this?

   _____

   b) Suggest a pH for the substance she tested.

   _____

7. Give examples of two neutral substances.

   _____

8. Kumar tested 48 substances' pH. He found that 36 were acids and 12 were alkalis.

   Write this as a ratio of acids : alkalis in it's simplest form.

   _____

Homework 2

1. Write the word equation for a neutralisation reaction.

_____

2. Give an example of an everyday neutralisation reaction.

_____

3. Harry decided to add some alkali to his beaker that contained acid and universal indicator. What colour change would he observe in the beaker?

_____

4. What substance is produced when a metal is added to an acid but not when an alkali is added to an acid?

_____

5. What happens to the pH of an acid as it is neutralised?

_____

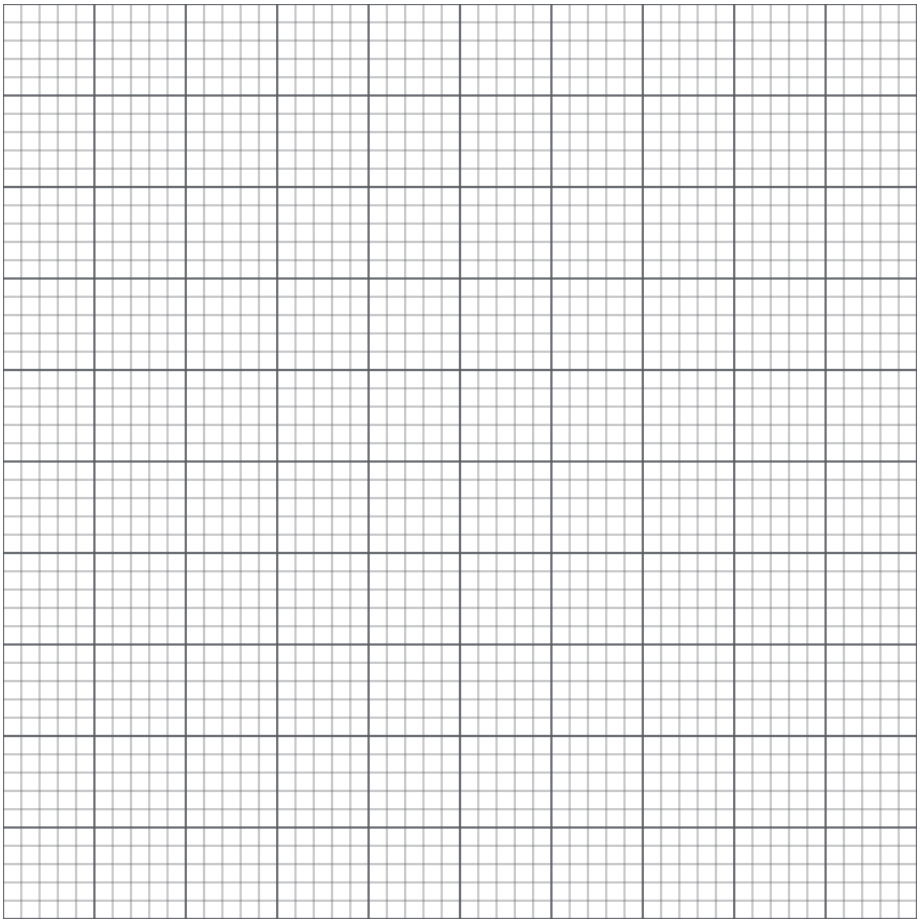
6. Amelia mixed a strong acid with a weak alkali. Do you think she will be able to neutralise the acid? Explain why.

_____

_____

7. A student measures the volume of gas released when 5 different metals are added to acid. The results are shown below.
   Using this information construct a bar graph of the pupil's results.

Metal	Volume of Gas (cm^3)
Copper	0
Beryllium	5
Magnesium	21
Calcium	37
Potassium	53



Homework 3

1. When a metal, calcium reacts with sulfuric acid. A salt called calcium chloride and hydrogen gas is produced.
   Write a word equation for this reaction.

   _____

2. How can we test for hydrogen gas?

   _____

3. Anastasia was carrying out tests on an unknown gas. She found that nothing happened when she put a glowing splint into it. However, when it was mixed with lime water the limewater turned cloudy. What gas can she conclude was there?

   _____

4. Name the salts formed in the following reactions;

   a. Magnesium + Sulfuric Acid

      _____

   b. Iron + Hydrochloric Acid

      _____

   c. Zinc + Nitric Acid

      _____

   d. Lithium + Hydrochloric Acid

      _____

5. Fertilisers are chemicals which are used increase crop yield to keep up with the growing population.
   Do fertilisers need to be soluble or insoluble and why?

   _____

   _____

6. Three fertilisers have different N:P:K values.
   Complete the table with the following information, including appropriate headings.

   A farmer is trying to grow his crops in a field he tries several different fertilisers and looks at the labels for each. The fertiliser Tomorite has an N:P:K value of 4:3:8. This is similar to the N:P:K value of the Miracle Gro All Purpose fertiliser which is 7:3:5. However, he found that the best fertiliser for his plants was Chempak Soluble Tomato Feed which has an N:P:K of 11:9:30.
