

Sandford International School

School Closure Work



Year Group: **11**

Subject: **Chemistry**

Teacher: **Dr Anup Sharma**

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Please note: Examination classes must also complete their own revision as would be normally expected.

Week 1		
Tasks	Resources and Links	Assessments
<ul style="list-style-type: none">• Questions/worksheet on Fuel.• You are supposed to go through your textbook and solve the following questions.<ol style="list-style-type: none">1. What is a natural polymer?2. What is a carbohydrate?3. Which type of polymerisation gives starch?4. What do the blocks	<p>Other than your textbook you can watch videos on the related topics to understand better.</p> <p>https://www.youtube.com/watch?v=-d14DmSBuAQ</p> <p>https://www.youtube.com/watch?v=nz1ucl6gClg</p>	<p>The answers should be sent to Dr Anup by Monday 30th March 2020 for marking.</p>

represent, above?

5. i Draw a diagram showing the structure of the monomer for starch.

(Use a block.)

ii Name this monomer.

6. Starch is also called a polysaccharide. Why?

7. Starch can be broken down by hydrolysis.

i Describe two ways in which the hydrolysis is carried out.

(One occurs in your body.)

ii One takes place at a far lower temperature than the other.

What makes this possible?

8. Nylon and Terylene are both synthetic polymers. At sea, nylon is used for ropes and fishing nets. A lot of Terylene is used for plastic drinks bottles.

These plastics do not decay, if left in the soil.

a Explain this term:

i synthetic

ii polymer

b State two properties that make nylon suitable for ropes and fishing nets.

c Give two advantages of using Terylene instead of glass, for drinks bottles.

d i What name is given to a plastic which does not decay in the soil?

ii Give two examples of

problems it can cause.		
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Week 2

Tasks	Resources and Links	Assessments
<ol style="list-style-type: none"> Many synthetic polymers contain the amide linkage. Draw the structure of the amide linkage. Which important natural polymers also contain the amide linkage? The substances in b will undergo hydrolysis in the laboratory, in the presence of acid. <ol style="list-style-type: none"> What does hydrolysis mean? What are the products of the hydrolysis? How can the products be separated? 	<p>Other than your textbook you can watch videos on the related topics to understand better.</p> <p>Hydrolysis of polymer https://www.youtube.com/watch?v=WVGyC6Q6zzw</p>	<p>The answers should be sent to Dr Anup by Monday 6th April 2020 for marking.</p>

Week 3

Tasks	Resources and Links	Assessments
<ol style="list-style-type: none"> How is hydrogen gas prepared in the lab? How do we identify hydrogen gas? Write the 	<p>Other than your textbook you can watch videos on the related topics to understand better.</p> <p>Laboratory Preparation Of Hydrogen https://www.youtube.com/watch?v=fq7gFwx_5ZQ</p>	<p>The answers should be sent to Dr Anup by Monday 13th April 2020 for marking.</p>

<p>chemical equation for the reaction to identify hydrogen gas.</p> <ol style="list-style-type: none"> How is hydrogen gas useful in the determination of reactivity of metals? Explain two properties and two uses of hydrogen gas. This is about the manufacture of ammonia. Which two gases react to give ammonia? Why are the two gases scrubbed? Why is the mixture passed over iron? What happens to the unreacted nitrogen and hydrogen? In manufacturing ammonia, is the chosen pressure high, low, or moderate? Explain why? Explain why high temperatures are not used in the manufacture of ammonia. The reaction is <i>reversible</i>, and reaches <i>equilibrium</i>. Explain very clearly what the two terms in italics mean. <ol style="list-style-type: none"> What effect does a catalyst have on an equilibrium reaction? Which catalyst is used in the Haber process? What effect does this 	<p>Properties of Hydrogen https://www.youtube.com/watch?v=U-MNKK20Z_g What Is The Haber Process? https://www.youtube.com/watch?v=NWhZ77Qm5y4</p>	
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catalyst have on the % yield of ammonia?		
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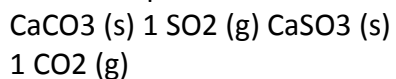
Week 4		
Tasks	Resources and Links	Assessments
<p>1. An NPK fertiliser contains the three main elements that plants need, for healthy growth.</p> <p>a Name the three elements.</p> <p>b Describe how each element helps plants.</p> <p>c Which of the three elements are provided by the following fertilisers?</p> <p>i ammonium phosphate</p> <p>ii potassium nitrate</p> <p>iii ammonium sulfate</p> <p>d Write a formula for each fertiliser in c.</p> <p>2. Sulfuric acid is made by the Contact process.</p> <p>The first stage is to make sulfur trioxide, like this:</p> $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{SO}_3(\text{g})$ <p>The energy change in the reaction is -97 kJ/mol.</p> <p>a Name the catalyst used in this reaction.</p> <p>b Is the reaction exothermic, or endothermic?</p> <p>c What are the reaction</p>	<p>Other than your textbook you can watch videos on the related topics to understand better.</p> <p>Manufacturing Sulphuric Acid</p> <p>https://www.youtube.com/watch?v=xjLUJ-7m5v8</p>	<p>The answers should be sent to Dr Anup April 17th 2020</p>

conditions for making sulfur trioxide?

d Will the yield of sulfur trioxide increase, decrease, or stay the same, if the temperature is raised? Explain your answer.

e Describe how sulfur trioxide is changed into concentrated sulfuric acid.

3. Powdered limestone is used to treat the waste gases from power stations that burn coal and petroleum. The equation for the reaction that takes place is:



a i Name the gas that is removed by this reaction.

ii Why is it important to remove this gas?

b Why are large lumps of limestone not used?

c The process is called flue gas desulfurisation. Explain clearly what this means.

d The calcium sulfite is usually turned into gypsum, which has the formula $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$.

i What is the full chemical name for gypsum?

ii Which type of chemical reaction occurs when CaSO_3 is converted into CaSO_4 ?

iii Give two uses for gypsum.
e Name two chemicals that
could be used to make
calcium sulfate
by precipitation.