

C8 Analysis and Resources FACT SHEET

Purity and formulations	
1. What is a pure substance?	Single element or compound that is not mixed with another substance
2. How can we tell if a substance is pure?	Look at its boiling point, and compare to the value of the known pure substance
3. What is a formulation?	<ul style="list-style-type: none">• A mixture• Designed for a use
4. How are formulations made?	<ul style="list-style-type: none">• Chemicals are mixed in specific ratios, for a specific formulation
5. List some formulations	Fuels, cleaning agents, paints, medicines, alloys, fertilisers, foods
Chromatography – make sure you revise the RPA for this too!!!!	
6. What is chromatography used for?	Separating mixtures
7. How do you calculate an Rf value?	Distance substance moved ÷ distance solvent moved
8. How could you tell from chromatography that a substance is pure?	There will be only 1 spot
Gas tests	
9. How do you test for hydrogen? What happens if hydrogen is present?	<ul style="list-style-type: none">• Use a burning splint• Pop sound with hydrogen
10. How do you test for oxygen? What happens if oxygen is present?	<ul style="list-style-type: none">• Use a glowing splint• Relights with oxygen
11. How do you test for carbon dioxide? What happens if carbon dioxide is there?	<ul style="list-style-type: none">• Use limewater• Goes cloudy with carbon dioxide
12. How do you test for chlorine? What happens if chlorine is there?	<ul style="list-style-type: none">• Use damp litmus paper• Turns white with chlorine
Potable water – MAKE SURE YOU REVISE THE RPA ON THIS TOO!!	
13. What is potable water?	Water that is safe to drink
14. Why is potable water not pure?	It has dissolved substances in it (so it is not just water)
15. What is fresh water?	Water with very low salt levels, e.g. rain water, water in rivers
16. How is potable water made from fresh water?	<ul style="list-style-type: none">• Filter it (to remove bits like stones and twigs)• Sterilise it (kill microbes)

17. List 3 sterilising agents for water	<ul style="list-style-type: none"> • Chlorine • Ozone • UV light
18. What does desalination mean?	Removing salt
19. Which type of water do we need to desalinate?	Sea water
20. Name 2 methods to desalinate salt water	<ul style="list-style-type: none"> • Distillation (heat it up) • Reverse osmosis (uses membranes)
21. What is the problem with desalinating water?	Uses lots of energy, so it is very expensive
Waste water treatment	
22. What is the first stage in treating sewage?	Screening and grit removal (take out bits)
23. What are the 2 products of the sedimentation stage?	<ul style="list-style-type: none"> • Sludge • Effluent
24. What happens to the sludge?	<ul style="list-style-type: none"> • Digested by bacteria • In anaerobic conditions (no oxygen)
25. What happens to the effluent?	<ul style="list-style-type: none"> • Digested by bacteria • In aerobic condition
LCA and recycling	
26. What does LCA stand for?	Life cycle assessment
27. Why are LCA done?	To assess the environmental impact of a product (to see how environmentally friendly it is)
28. List the stages that need to be considered in a LCA	<ul style="list-style-type: none"> • Materials • Making the product • Packaging the product • Using the product • Disposing of the product • Transporting the product
29. What is the problem with selective LCAs?	Could be biased, e.g. for advertising
Reducing the use of resources	
30. How can we reduce the use of resources and reduce waste?	<ul style="list-style-type: none"> • Use less material, e.g. packaging • Reuse products • Recycle
31. How are glass bottles recycled?	Glass is crushed, melted and reused
32. How are metals recycled?	Melting and using them to make new objects

HIGHER TIER	
1. Name 2 methods to extract copper from low grade ores	<ul style="list-style-type: none"> • Phytomining • Bioleaching
2. Describe how phytomining is done	<ul style="list-style-type: none"> • Plants are grown on land containing copper • They absorb the copper and store it • Plants are burnt • The ash contains the copper
3. Describe how bioleaching is done	<ul style="list-style-type: none"> • A solution containing bacteria is mixed with the low grade ore • Bacteria convert the copper into a solution (leachate) • Copper is extracted from the solution (see*)
4. Describe advantages of phytomining and bioleaching	More environmentally friendly (don't need to dig up and move large quantities of rock and don't need to dispose of lots of waste materials)
5. Name 2 methods to extract pure metal from solutions containing metal compounds*	<ul style="list-style-type: none"> • Electrolysis • Displacement reactions
6. Outline how electrolysis extracts pure metal from solutions of metal compounds	<p>THIS IS COVERED IN DETAIL IN C2 ELECTROLYSIS (FROM YEAR 10)</p> <p>Metal ions have a positive charge</p> <ul style="list-style-type: none"> • They go to the negative electrode • Because opposite charges attract • Collect pure metal from the negative electrode
7. Outline how displacement can be used to extract pure metal from solutions of metal compounds	<p>THIS IS COVERED IN MORE DETAIL IN C4 REACTIONS (FROM YEAR 10)</p> <ul style="list-style-type: none"> • Put a metal which is more reactive into the solution • The metal in the solution will be displaced from the solution • And usually cover the metal you put in