



Planet Check: GCSE worksheet

Name: _____ Class: _____ Date: _____ Score: _____ / 28

Circle the best answer for each question.

1. Which gas makes up most of Earth's atmosphere today? [AQA Chem 4.9.1]
A. Oxygen
B. Nitrogen
C. Carbon dioxide
D. Argon
2. Which of these is NOT a greenhouse gas? [AQA Chem 4.9.2]
A. Water vapour
B. Methane
C. Nitrogen
D. Carbon dioxide
3. How do greenhouse gases keep the Earth warm? [AQA Chem 4.9.2]
A. They reflect sunlight back into space
B. They absorb long-wavelength infrared radiation given off by the Earth
C. They make the Sun's radiation stronger
D. They block all ultraviolet light
4. Which human activity adds the most methane to the atmosphere? [AQA Chem 4.9.2]
A. Burning wood in stoves
B. Cattle farming and landfill sites
C. Wind turbines
D. Planting trees
5. What is a carbon footprint? [AQA Chem 4.9.2]
A. The amount of coal a country burns in a year
B. The total carbon dioxide and other greenhouse gases emitted over the full life cycle of a product, service or event
C. The area of forest needed to absorb a city's pollution
D. The carbon dioxide breathed out by one person in a day
6. Which is a reason it can be hard to cut carbon footprints? [AQA Chem 4.9.2]
A. Carbon dioxide can't be measured
B. Some people and countries don't want to pay the cost, or don't agree to act together
C. There are no low-carbon alternatives at all
D. Greenhouse gases only come from volcanoes
7. Incomplete combustion of a fuel produces a toxic, colourless, odourless gas. What is it? [AQA Chem 4.9.3]
A. Carbon dioxide
B. Carbon monoxide
C. Sulfur dioxide
D. Nitrogen
8. Sulfur dioxide and oxides of nitrogen from burning fuels cause... [AQA Chem 4.9.3]
A. Acid rain and breathing problems
B. Global dimming only
C. The ozone hole
D. Hard water

9. Which is a likely effect of global warming? [AQA Biology 4.7.3.5]
- A. Sea levels falling
 - B. More frequent extreme weather and rising sea levels
 - C. Fewer species changing where they live
 - D. Colder winters everywhere
10. Potable (drinking) water is... [AQA Chem 4.10.1.1]
- A. Pure water with nothing dissolved in it
 - B. Water that is safe to drink, with low levels of dissolved salts and microbes
 - C. Rainwater straight from the sky
 - D. Seawater with the salt removed
11. In the UK, fresh water is made safe to drink by... [AQA Chem 4.10.1.1]
- A. Boiling it at the reservoir
 - B. Filtering it, then sterilising it with chlorine, ozone or ultraviolet light
 - C. Adding salt
 - D. Freezing it
12. Why is desalination only used where fresh water is scarce? [AQA Chem 4.10.1.1]
- A. It makes the water taste of salt
 - B. Distillation and reverse osmosis need large amounts of energy
 - C. It can only be done in winter
 - D. It removes oxygen from the water
13. At a sewage works, what happens to the sludge? [AQA Chem 4.10.1.2]
- A. It's poured into rivers
 - B. It's broken down by anaerobic digestion, which can produce biogas
 - C. It's sent back to homes
 - D. It's frozen and stored
14. In phytomining, how is a metal such as copper obtained? [AQA Chem 4.10.1.3]
- A. Bacteria dissolve it out of the rock
 - B. Plants absorb metal compounds, they're burned, and the metal is extracted from the ash
 - C. It's dug up as pure metal
 - D. It's collected from rainwater
15. What does bioleaching use? [AQA Chem 4.10.1.3]
- A. Bacteria that produce leachate solutions containing metal compounds
 - B. Heat from a blast furnace
 - C. Magnets
 - D. Wind power
16. Which list gives the stages of a life cycle assessment (LCA)? [AQA Chem 4.10.2.1]
- A. Design, advertise, sell, profit
 - B. Extracting raw materials, manufacturing and packaging, use, and disposal at the end of its life
 - C. Mining, burning, burying
 - D. Planting, growing, harvesting
17. Why can an LCA be misleading? [AQA Chem 4.10.2.1]
- A. LCAs never use numbers
 - B. Some impacts are hard to measure, so a selective LCA can be used to back up a claim
 - C. They are only done by governments
 - D. They ignore manufacturing
18. Why is recycling metals such as aluminium worthwhile? [AQA Chem 4.10.2.2]
- A. It uses much less energy than extracting the metal from its ore
 - B. Recycled metal is always stronger
 - C. It makes mining unnecessary everywhere
 - D. It turns the metal into a different element

19. Which process removes carbon dioxide from the atmosphere? [AQA Biology 4.7.2.2]
- A. Respiration
 - B. Combustion
 - C. Photosynthesis
 - D. Decay
20. Cutting down large areas of forest leads to... [AQA Biology 4.7.3.4]
- A. More carbon dioxide absorbed
 - B. Less carbon dioxide absorbed, more released if the wood is burned, and less biodiversity
 - C. More rainfall everywhere
 - D. No change at all
21. Why does destroying peat bogs add to climate change? [AQA Biology 4.7.3.3]
- A. Peat absorbs oxygen
 - B. Peat stores carbon, which is released as carbon dioxide when it's drained, dug or burned
 - C. Peat bogs make methane only when frozen
 - D. Peat reflects sunlight
22. Fertiliser washes into a lake. Algae grow fast and cover the surface. What happens next? [Biology / Geography]
- A. Fish thrive on the extra food
 - B. Plants below die without light, bacteria decomposing them use up the oxygen, and fish die
 - C. The water becomes cleaner
 - D. The lake freezes
23. Which of these helps protect biodiversity? [AQA Biology 4.7.3.6]
- A. Removing all hedgerows
 - B. Planting hedgerows and field margins on farms
 - C. Building over every brownfield site
 - D. Using more pesticides
24. Lough Neagh has suffered huge blooms of blue-green algae (cyanobacteria). What is a main cause? [Real world NI]
- A. Too little rain
 - B. Excess nutrients, especially phosphorus, from farms, septic tanks and waste water, plus warmer water
 - C. Too many fish
 - D. Wind turbines
25. Under the Climate Change Act (Northern Ireland) 2022, when must NI reach net zero? [Real world NI]
- A. 2030
 - B. 2040
 - C. 2050
 - D. 2100
26. NI's climate law sets a target of 80% of electricity from renewables by 2030. Which source supplies most of NI's renewable electricity? [Real world NI]
- A. Nuclear
 - B. Wind
 - C. Coal
 - D. Tidal
27. Which precious metal is found on the circuit boards of old phones and laptops? [Real world NI]
- A. Gold
 - B. Lead
 - C. Sodium
 - D. Calcium
28. In NI, hedges must not be cut between 1 March and 31 August (except for road safety). Why? [Real world NI]
- A. Hedges grow too slowly in summer
 - B. It's the main bird nesting season
 - C. Cutting is too noisy in summer
 - D. Leaves are too wet

Answers

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1. **B:** About four-fifths (roughly 78%) of dry air is nitrogen and about one-fifth is oxygen. Carbon dioxide is a tiny fraction, around 0.04%.
2. **C:** Water vapour, carbon dioxide and methane absorb infrared radiation and keep the Earth warm. Nitrogen doesn't.
3. **B:** Short-wavelength radiation from the Sun passes through the atmosphere and warms the Earth. The Earth gives off longer-wavelength infrared radiation, and greenhouse gases absorb some of it, which warms the atmosphere.
4. **B:** Cattle release methane as they digest food, and rotting waste in landfill releases methane too. In Northern Ireland, agriculture is the biggest source of methane.
5. **B:** A carbon footprint counts the greenhouse gases from every stage: making it, moving it, using it and throwing it away.
6. **B:** The specification names economic reasons, lack of public information, and the difficulty of getting countries to agree as barriers to cutting emissions.
7. **B:** Carbon monoxide forms when there isn't enough oxygen for complete combustion. It stops blood carrying oxygen. That's why boilers need servicing and CO alarms.
8. **A:** Sulfur dioxide and oxides of nitrogen dissolve in rain to make it acidic, and they irritate the lungs.
9. **B:** Warming melts ice and expands seawater, so sea levels rise. It also brings more extreme weather and changes where species can live.
10. **B:** Potable water isn't chemically pure. It contains small, safe amounts of dissolved substances. 'Pure' in chemistry means a single substance.
11. **B:** Filter beds remove solids, and sterilising kills microbes. NI Water treats water this way before it reaches your tap.
12. **B:** Removing salt from seawater by distillation or reverse osmosis uses a lot of energy, so it's expensive and has a high carbon footprint.
13. **B:** Screening removes grit and large objects, and sedimentation separates sludge from effluent. Sludge is digested anaerobically, which makes biogas; the effluent is treated with aerobic bacteria.
14. **B:** Phytomining uses plants to collect metal from low-grade ores or contaminated land. Burning the plants gives ash rich in metal compounds.
15. **A:** Bioleaching uses bacteria to dissolve metals out of low-grade ores. Like phytomining, it reduces the need to dig up and process large amounts of rock.
16. **B:** An LCA looks at the environmental impact at every stage, including transport and the energy and water used.
17. **B:** Giving values to pollution effects involves judgement. Leaving stages out can make a product look greener than it is. This is a form of 'greenwashing'.
18. **A:** Recycling saves energy, saves limited raw materials, and reduces mining and waste in landfill.
19. **C:** Plants and algae take in carbon dioxide during photosynthesis. Respiration, combustion and decay all release it back.
20. **B:** Fewer trees means less photosynthesis. Burning or rotting wood releases carbon dioxide, and habitats are lost.
21. **B:** Peat builds up over thousands of years and locks away carbon. Using peat-free compost helps protect it. NI has large areas of bog.
22. **B:** This chain is called eutrophication. Too many nutrients (nitrates and phosphates) lead to algal blooms and low oxygen.
23. **B:** Hedgerows and field margins give food and shelter to insects, birds and mammals and link habitats together.
24. **B:** Lough Neagh is the largest freshwater lake in the UK and Ireland. Nutrients from its catchment, plus warmer summers, feed the blooms, which can be toxic to animals and people.
25. **C:** NI must cut its net emissions by 48% by 2030 and 77% by 2040, and reach net zero by 2050.
26. **B:** Onshore wind is NI's largest renewable source. In the year to September 2025, about 44% of NI's electricity came from renewables.
27. **A:** Circuit boards contain gold, silver and palladium. That's why old electricals should go to proper recycling, never in the bin.

28. **B:** Most birds nest in hedgerows in spring and summer, so cutting is restricted to protect them.