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| Stories |
|  Acid rain |
|  MOT emissions test |
|  You can’t change me |
|  Oil refining |
|  Crude oil |

1. Why is rain always slightly acidic?
2. The gases that cause acid rain are given off when we burn ------ fuels.
3. Why do statues in industrial areas often look like their faces have melted?
4. What do you need if your car is more than three years old?
5. Modern cars emit less of the nasty gases that cause smog and ---- rain.
6. One of the main reasons is the --------- converter.
7. A catalyst takes part in chemical reactions but is --------- at the end of them.
8. What does a catalyst do to the speed of a chemical reaction?
9. Catalysts are used in the manufacture of most what?
10. What’s another name for crude oil?
11. Catalysts help turn crude oil into what?
12. Name two of the fuels that crude oil is processed to produce.
13. Crude oil and its products are what kind of chemical?
14. What is the name of the simplest of these?
15. When methane burns it combines with oxygen to produce carbon dioxide and what?
16. When any hydrocarbon burns you get carbon dioxide, water and lots of what?

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| Stories |
|  Crude oil (part 2)  |
|  The cat  |
|  The cat (part 2) |
|  The cat (part 3) |
|  What the cat does |

1. What is a hydrocarbon?
2. Crude oil is a mix of what?
3. What does a refinery like Grangemouth do to the crude oil?
4. Which fuel do we get from the hydrocarbons with the smallest molecules?
5. Which fuel do we get from those that have 5 to 12 carbon atoms in their molecules?
6. Name three other products that we get by refining crude oil.
7. Where is the cat in a car?
8. What is its full name?
9. What does it do?
10. What does it use that gives it its name?
11. What is a catalyst?
12. What kind of metal does the cat use as a catalyst?
13. What does the cat look like?
14. What is it made of?
15. What does the design have to make sure happens to all the exhaust gases from the engine?
16. When a hydrocarbon burns completely you only get what?
17. But what can the exhaust contain if the engine is old or needing serviced?
18. What does the cat do to those?
19. Why do you sometimes get carbon monoxide instead of carbon dioxide in the exhaust?

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| Stories |
|  What the cat does (part 3) |
|  Cats inside you  |
|  I’m not drinking that |
|  Clear water |
|  Flushed away |

1. What is the third problem a catalytic converter tackles?
2. How do these get into the exhaust?
3. What can they cause if they’re not removed from the exhaust?
4. What does the cat do to them?
5. The cat removes three main pollutants from the exhaust gases; name two of them.
6. What is the honeycomb structure of the cat coated with?
7. What happens to this during the chemical reactions?
8. We’ve talked about catalysts in industry and in cars; where else do you find them?
9. What do these catalysts do?
10. What is the special name given to them?
11. Our bodies make tens of thousands of what?
12. What do lipases do in the body?
13. What does lactase do?
14. Why can’t a majority of adults in the world digest milk?
15. How many bacteria does a glass of clean tap water contain?
16. Why is this normally nothing to worry about?
17. What does Ameet find out about the bacteria in water?
18. If everyone in the UK had a wee when they showered how much clean water would it save in a year?
19. What did Paul hear that studying geology was like?
20. What kind of problems did he want to solve?
21. What do scientists want to do, according to Ameet?
22. What do engineers want to do?
23. What does Ameet work on?
24. Why is a child dying somewhere in the world every 8 seconds?

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| Stories |
|  Hill-walking degree |
|  Being an engineer |
|  Clear water |
|  Testing water |
|  Who are they? |

1. What is a sewerage system? (Hint: click on the words to get the meaning.)
2. What do water companies spend lots of time and money looking at?
3. What do they do, beside testing, to make the water clean?
4. What does *filtering* mean?
5. What is Ameet aiming to do with his research?
6. What does Ameet extract to find out which bacteria are in the water?
7. One molecule of DNA is made of many smaller molecules, but there are only how many types of these?
8. Methods of finding the sequence of molecules in a piece of DNA are much ------ today.
9. What do the sequences tell Ameet about the bacteria in the water?
10. What does a filter do in a water treatment plant? (Hint: click on the word to get the meaning.)

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| Stories |
|  Water forecast |
|  Speeding up the slow carbon cycle  |
|  Where does carbon dioxide come from? |
|  Alien scientist |

1. If Ameet knows which bacteria are going into the pipes and which are coming out he can build what?
2. What will that give him the ability to do?
3. How many water treatment plants are there in the UK?
4. In the UK, the total length of underground pipes that carry fresh water is greater than what?
5. Plants and animals are normally part of which cycle?
6. What happened at certain places in the past?
7. What did heat and pressure turn them into?
8. What would normally have happened to the carbon in these rocks?
9. What changed 200 years ago?
10. What is the huge increase in carbon dioxide into the atmosphere causing?
11. What is a more common name for combustion?
12. Carbon in our food combines with oxygen from the air to make what?
13. Why do the alien scientists believe an atmosphere with oxygen is too dangerous for life?
14. A few alien scientists think burning can be ---------- inside living things.
15. Maybe life on other planets uses different -------- reactions.

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| Stories |
|  Rusty |
|  Why not water? |
|  Water cycle |
|  Slow carbon cycle |

1. What is rust?
2. This forms when iron combines with what?
3. The chemical reaction that turns iron to rust is slow but hard to ----.
4. Rust is flaky and full of holes – what does that allow to happen?
5. Why isn’t water used in machines instead of oil?
6. What happens to steel when there’s water around?
7. What have the scientists found a way to do?
8. At the moment what is the problem with their method?
9. So what are they trying to do?
10. What is a cycle in science?
11. What gas dissolved in raindrops and makes them slightly acid?
12. So what take place between the rain and the rocks it falls upon?
13. What does this release?
14. Where does the carbon end up next?
15. How does it get from there into rocks?