

<p>Which car uses the most Diesel in Litres per 100km?</p> <p>a) Nissan Navara STX 4WD  <b>b) <u>Toyota Hilux Workmate 2WD</u></b>  c) Mazda BT-50 4WD  d) Isuzu D-Max XT 4WD</p>	<p>Which country was the world's largest exporter of coal in 2021?</p> <p>a) <b><u>Australia</u></b>  b) China  c) America  d) Saudi Arabia</p>
<p>How much of Australia's electricity came from burning coal in 2021?</p> <p>a) 30%  b) 60%  <b>c) <u>75%</u></b>  d) 90%</p>	<p>Which state burns the most natural GAS in Australia?</p> <p>a) <b><u>Victoria</u></b>  b) NSW  c) Qld  d) WA</p>
<p>In 2021, which Australian state burned the most COAL?</p> <p>a) Victoria  <b>b) <u>NSW</u></b>  c) Qld  d) WA</p>	<p>In 2021, burning coal comprised what percentage of CO<sub>2</sub> emissions in Aust.?</p> <p>a) 20%  <b>b) <u>40%</u></b>  c) 60%  d) 80%</p>
<p>In 2021, which Australian sector had the highest GHG Emissions?</p> <p>a) Agriculture  b) Transport  c) Manufacturing and construction  <b>d) <u>Electricity and Heat</u></b></p>	<p>Which type of fossil fuel comprises 70-90% of natural gas?</p> <p>a) Coal  b) Ethane  <b>c) <u>Methane</u></b>  d) Propane</p>
<p>In 2019, which country bought most of Australia's coal?</p> <p>a) China  <b>b) <u>Japan</u></b>  c) India  d) Korea</p>	<p>In 2020, what % of <i>national revenue</i> did Australia's coal exports generate?</p> <p>a) <b><u>1%</u></b>  b) 10%  c) 30%  d) 60%</p>



<p>If the atmosphere is 21% O<sub>2</sub> and 78% N<sub>2</sub> what percentage is CO<sub>2</sub>?</p> <p>a) <b><u>0.04%</u></b>  b) 0.4%  c) 1%  d) 10%</p>	<p>What year did atmospheric CO<sub>2</sub> levels exceed 400 parts per million?</p> <p>a) 1970  b) 2000  c) <b><u>2014</u></b>  d) 2021</p>
<p>How much more CO<sub>2</sub> has been added to the atmosphere since the start of the industrial revolution?</p> <p>a) 5%  b) 15%  c) 20%  d) <b><u>&lt;30%</u></b></p>	<p>How many degrees has the atmosphere warmed since the start of the industrial revolution?</p> <p>a) 0.5  b) <b><u>1</u></b>  c) 1.5  d) 2</p>
<p>Which gas has the greatest heat trapping ability and the highest global warming potential... Methane or CO<sub>2</sub>?</p> <p>Answer: METHANE (20x more)</p>	<p>In the year 2000, the concentration of atmospheric CO<sub>2</sub> was 370ppm. What is it now?</p> <p>a) 230ppm  b) 390ppm  c) 400ppm  d) <b><u>&gt;413ppm</u></b></p>
<p>How much more METHANE has been added to the atmosphere since the start of the industrial revolution?</p> <p>a) 20%  b) 30%  c) 40%  d) <b><u>50%</u></b></p>	<p>How much methane gas can a single cow produce per year?</p> <p>a) 20kg  b) 40kg  c) 60kg  d) <b><u>99kg</u></b></p>
<p>True or False?  Methane is produced by the break down or decay of organic matter.</p> <p><b>Answer: True</b></p>	<p>The atmosphere has warmed 1 degree Celsius since the industrial revolution started. How much is from burning coal?</p> <p>a) 0.1 degree Celsius  b) 0.2 degrees Celsius  c) <b><u>0.3 degrees Celsius</u></b>  d) 0.9 degrees Celsius</p>



<p>Carbon constitutes approximately how much of the (dry) mass of a tree? E.g. How much of the tree is Carbon?</p> <p>a) 30% <b>b) <u>50%</u></b> c) 75% d) 90%</p>	<p>If one tree absorbs 1 kilogram of CO<sub>2</sub> per year, how many kilograms of CO<sub>2</sub> can 100 trees absorb per year?</p> <p>a) 1kg b) 10kg <b>c) <u>100kg</u></b> d) 1000kg</p>
<p>How many billion tonnes of CO<sub>2</sub> are released to the atmosphere every year from deforestation?</p> <p>a) <b><u>1.5 billion tonnes</u></b> b) 10 billion tonnes c) 100 billion tonnes d) 1000 billion tonnes</p>	<p>True or False? Forests store up to 100 times more carbon than agriculture fields of the same area.</p> <p><b>Answer: True</b></p>
<p>How many acres of forests and woodlands are lost to deforestation globally every year?</p> <p>a) 30,000 acres b) 300,000 acres c) 3,000,000 acres <b>d) <u>30,000,000 acres</u></b></p>	<p>Tropical deforestation contributes to what percentage of global GHG (greenhouse gas) emissions?</p> <p>a) 2% b) 5% c) 10% <b>d) <u>20%</u></b></p>
<p>How much of the Amazon rainforest has been lost in the last 50 years?</p> <p>a) 5% b) 7% <b>c) <u>17%</u></b> d) 30%</p>	<p>At the current rate of deforestation, how much of the Amazon will be left in 2050?</p> <p><b>a) <u>60%</u></b> b) <u>70%</u> c) 80% d) 90%</p>
<p>True or False? If a tree is cut down for timber, the carbon remains stored in the wood, so it can be used in construction of for making furniture or paper. It is only when wood or paper is burned or rots that the carbon is released.</p> <p><b>Answer: True.</b></p>	<p>True or False? Chocolate and biscuits are major contributors to deforestation.</p> <p><b>Answer: True (cocoa plants).</b></p>

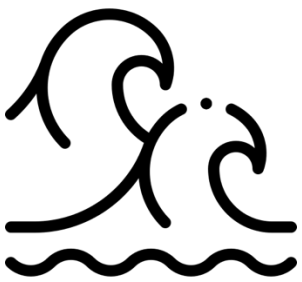
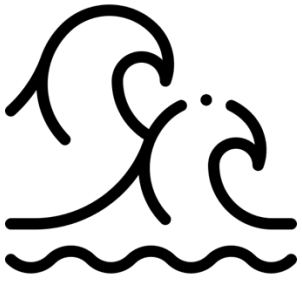
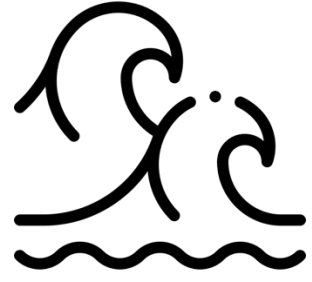
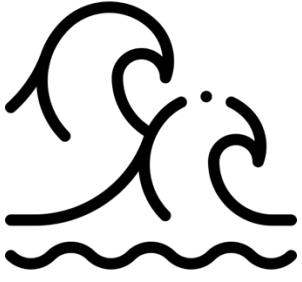
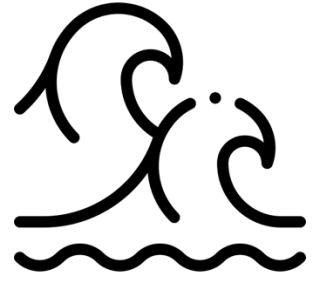
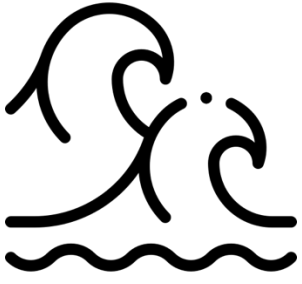


<p>The Earth's soil contains how many gigatonnes of carbon?</p> <p>a) 2 b) 25 c) 250 d) <b><u>2500</u></b></p>	<p>True or False? Areas of low rainfall have more carbon stored in the soil than areas of high rainfall.</p> <p><b>Answer: False.</b></p>
<p>True or False? Worldwide, more carbon is stored in the soil than in all aboveground plants, animals, and the atmosphere combined.</p> <p><b>Answer: True.</b></p>	<p>Terrestrial ecosystems on Earth contain approximately 3170 gigatons of carbon. Of this amount, how much is in soil?</p> <p>a) 20% b) 40% c) 60% d) <b><u>80% (2500GT)</u></b></p>
<p>True or False? The amount of carbon found in living plants and animals is comparatively small relative to that found in soil.</p> <p><b>Answer: True.</b></p>	<p>What is the only other ecosystem on Earth that has more carbon stored than soil?</p> <p>a) All terrestrial ecosystems b) <b><u>The Ocean</u></b> c) The North and South Pole d) The Amazon rainforest</p>
<p>What are two processes that directly remove organic carbon from soil?</p> <p>a) <b><u>Compaction and erosion</u></b> b) Photosynthesis and respiration c) Transpiration and evaporation d) Condensation and precipitation</p>	<p>What can you add to soil to increase its carbon content?</p> <p>a) Compost b) Manure c) Mulch d) <b><u>All the above</u></b></p>
<p>Soil carbon can occur as organic or inorganic carbon. What is an example of <i>inorganic</i> carbon in soil?</p> <p>a) Bacteria b) Fungi c) <b><u>Calcium Carbonate</u></b> d) Humus</p>	<p>Soil carbon can occur as organic or inorganic carbon. What is an example of <i>organic</i> carbon in soil?</p> <p>a) <b><u>Microorganisms</u></b> b) Calcium Carbonate c) Calcite d) Aragonite</p>

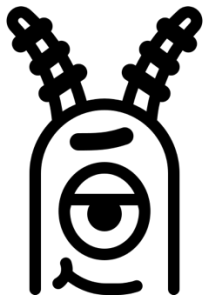
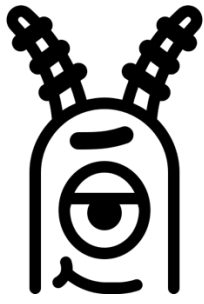
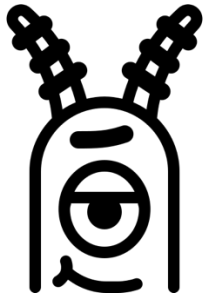
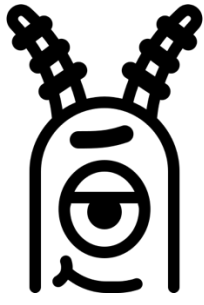




<p>True or False? Warm water holds more carbon dioxide than cold water.</p> <p><b>Answer: False</b></p>	<p>Carbon dioxide dissolves in water. It reacts with seawater, creating which type of acid?</p> <p>a) Sulphuric acid b) <b><u>carbonic acid</u></b> c) hydrochloric acid d) carboxylic acid</p>
<p>Surface waters exchange gasses with the atmosphere. How?</p> <p>a) Respiration b) Photosynthesis c) <b><u>Diffusion</u></b> d) Decomposition</p>	<p>Roughly, how much CO<sub>2</sub> does the ocean absorb from the atmosphere every year?</p> <p>a) <b><u>A quarter of atmospheric CO<sub>2</sub></u></b> b) A third of atmospheric CO<sub>2</sub> c) Half of atmospheric CO<sub>2</sub> d) Two thirds of atmospheric CO<sub>2</sub></p>
<p>True or False? Carbon dioxide dissolves 200 times more easily than oxygen.</p> <p><b>Answer: True</b></p>	<p>True or False? As sea surface temperatures rise, more CO<sub>2</sub> will leak out of the ocean (like a glass of ginger beer going flat on a warm day).</p> <p><b>Answer: True.</b></p>
<p>In the past 200 years alone, ocean water has become 30% more acidic. 200 years ago, the pH was 8.2. Today the pH is _____?</p> <p>a) 8.3 b) <b><u>8.1</u></b> c) 6.9 d) 2.7</p>	<p>If oceans stopped absorbing CO<sub>2</sub> from carbon emissions, life on land would average _____ degrees Celsius?</p> <p>a) 40 b) <b><u>50</u></b> c) 60 d) 70</p>
<p>True or False? ~40% of human-produced CO<sub>2</sub> has been absorbed from the atmosphere into the surface waters of the Southern Ocean, making it one of the most important carbon sinks on our planet.</p> <p><b>Answer: True.</b></p>	<p>How much carbon does the Southern Ocean absorb from the atmosphere every year?</p> <p>a) 1 million tonnes b) 10 million tonnes c) 200 million tonnes d) <b><u>550 million tonnes</u></b></p>



<p>What marine biota is responsible for most of the ocean's carbon sequestration?</p> <p>a) <b><u>phytoplankton</u></b>  b) Whales  c) Sharks  d) Krill</p>	<p>Coccolithophores are phytoplankton that make their shells out of calcium carbonate. Why are scientists worried their shells will become less dense and more fragile in the future?</p> <p>a) ocean acidification  b) increase in atmospheric CO<sub>2</sub>  c) drop in pH  d) <b><u>All the above</u></b></p>
<p>What process do marine biota use to convert CO<sub>2</sub> and sunlight into sugar?</p> <p>a) Respiration  b) <b><u>Photosynthesis</u></b>  c) Diffusion  d) Decomposition</p>	<p>True or False?</p> <p>Zooplankton carry out photosynthesis</p> <p><b>Answer: False (they are animals)</b></p>
<p>What process <i>adds</i> CO<sub>2</sub> to the water column?</p> <p>a) Photosynthesis  b) Decomposition  c) Respiration  d) <b><u>Decomposition and Respiration</u></b></p>	<p>During bloom events, diatoms use up lots of CO<sub>2</sub> during photosynthesis, converting it to body parts.  What are diatoms?</p> <p>a) Seaweed  b) Seagrass  c) Mangroves  d) <b><u>Phytoplankton</u></b></p>
<p>True or False?</p> <p>Fish exhale carbon dioxide.</p> <p><b>Answer: True.</b></p>	<p>Seagrass meadows remove large amounts of CO<sub>2</sub> via photosynthesis. The world's biggest seagrass meadow is 180km<sup>2</sup>. Where is it found?</p> <p>a) <b><u>Shark Bay, Western Australia</u></b>  b) Florida, USA  c) Hervey Bay, Qld Australia  d) Gladstone, Qld Australia</p>
<p>Which season are phytoplankton most likely to bloom?</p> <p>a) Autumn  b) Winter  c) <b><u>Spring</u></b>  d) Summer</p>	<p>True or False?</p> <p>Phytoplankton function as a carbon <i>sink</i> in the carbon cycle.</p> <p><b>Answer: True.</b></p>



<p>True or False? When cold water from the deep ocean heats up, it releases CO<sub>2</sub> while rising to the surface.</p> <p><b>Answer: True.</b></p>	<p>True or False? The deep ocean, even beneath the equator, averages 5 degrees Celsius. This means it holds <i>more</i> CO<sub>2</sub> than most surface water.</p> <p><b>Answer: True.</b></p>
<p>What % of anthropogenic carbon emissions from the past 200 years is now stored in the deep ocean?</p> <p>a) 10% b) 20% <b>c) <u>38%</u></b> d) 5%</p>	<p>On average, how long will a carbon atom remain stored in the deep ocean?</p> <p>a) 100 years <b>b) <u>500 years</u></b> c) 1000 years d) 2000 years</p>
<p>How do carbon atoms reach the deep ocean?</p> <p>a) They sink as <i>marine snow</i> b) They sink in a cold downwelling c) They are released from an animal respiring or defecating <b>d) <u>All the above</u></b></p>	<p>True or False? A carbon atom may travel across an entire ocean basin in a deep-water current.</p> <p><b>Answer: True.</b></p>
<p>When the sediment on the seafloor, 1000s of metres deep, contains calcium carbonate, what animal was likely to have made that calcium carbonate?</p> <p><b>a) <u>Phytoplankton</u></b> b) Sea cucumbers c) Deep sea fishes d) Extinct megalodon sharks</p>	<p>True or False? Fishing is most productive in locations where deep-water currents resurface bringing cold, nutrient-rich water back to the surface.</p> <p><b>Answer: True.</b></p>
<p>Thermohaline circulation is a global conveyor belt of deep and shallow-water currents that travel very slowly. What is their average speed?</p> <p><b>a) <u>~1cm/sec</u></b> b) ~10cm/sec c) ~30cm/sec d) ~100m/sec</p>	<p>True or False? The amount of CO<sub>2</sub> in a deep-water current <i>decreases</i> over time, as it traverses across the ocean floor.</p> <p><b>Answer: False.</b> (it <i>increases</i> due to respiration)</p>

