the ocean or depositing as sediment on the ocean floor. Temperature of the ocean determines the amount of carbon that can dissolve. Warmer, more saline water contains less carbon than colder less saline water.

Carbon moves from underground to the air.
Volcanoes and forest fires release CO_2 gas to the air.

Carbon dioxide is a greenhouse gas and traps heat in the atmosphere. Without it and other greenhouse gases, Earth would be a frozen world.

Humans have burned so much fuel that there is about 30% more carbon dioxide in the air today than there was about 160 years ago before the start of the Industrial Revolution. Carbon is being removed from long-term storage more quickly than it naturally would as we mine coal and drill for oil and gas.

Humans are also influencing carbon levels in the atmosphere by clearing land for agriculture and urban development. These actions reduce plants that can absorb and use CO_2.

Carbon moves through our planet over longer time scales as well. For example, over years weathering of rocks on land can add carbon to surface water which eventually runs off to the ocean. Over long time, carbon is removed from seawater when the shells and bones of marine animals and plankton collect on the sea floor. These shells and bones are made of limestone ($CaCO_3$), which contains carbon. When they are deposited on the sea floor, carbon is stored for a very long time in the sediments.

The amount of limestone deposited in the ocean depends somewhat on the amount of warm, tropical, shallow oceans on the planet because this is where prolific limestone-producing organisms such as corals live.

After reading the information on the carbon cycle and filling in the details on the cycle diagram, complete the following questions:

Use the words in the text box for the blanks!

coal	oil	natural gas	burning of fossil fuels	forest fires	volcanoes	CO_2
photosynthesis	respiration	ocean	glucose	greenhouse	fossil fuels	

1. Plants remove CO_2 from the atmosphere in the process of photosynthesis to make glucose and oxygen.
2. Animals use oxygen in the process of respiration to return CO_2 to the atmosphere.
3. The ocean is the main regulator of CO_2 in the atmosphere because CO_2 dissolves easily in it.
4. As leaves decompose, carbon in them may be released as CO_2 into the atmosphere or trapped in the soil to eventually become fossil fuels.

5. Today these deposits are burned as fossil fuels, which include coal, oil, and natural gas.
6. More CO_2 is released in the atmosphere today than in the past because of burning of fossil fuels.
7. Another natural source for CO_2 is forest fires and volcanoes.
8. Too much CO_2 in the atmosphere may be responsible for increasing the greenhouse effect.
9. Name all the places that carbon can be found:

- Ocean, Plants, all living organisms
- atmosphere - Earth's crust.
- dissolved in water.

10. In which carbon sink is carbon stored the longest?
in oil, gas and coal deposits
11. List 3 groups of producers:
- plants Some plankton & cyanobacteria
- algae

12. What role do producers play in the carbon cycle?
Remove CO_2 from atmosphere or water to produce glucose for growth & repair of other life processes.
13. What processes other than photosynthesis and respiration are important in the carbon cycle?
- Sedimentation - decomposition, ocean processes/currents/upwelling, volcanic eruptions, large scale forest fires → wind/temp.
14. Where do herbivores get their carbon from?
Eating producers
15. What are two major ways that humans affect the carbon cycle?
- Burning of fossil fuels
- mining / oil / gas
- driving vehicles affect amt of CO_2 dissolved in water
- Causing forest fires
- Clear cutting.

16. How do these actions contribute to global warming?
↑ water vapour / CO_2 in Atmosphere → ↑ green house effect → global warming.
17. List three ways we could reduce the extra carbon that is getting into the atmosphere.

- use public transit
- reuse items and recycle
- reduce use of items that are made of Wood etc.