

WEEK:22

Week Beginning: 17-8-20

Subject: SCIENCE

Year: 8

Lesson Objective:

- Go over homework questions
- Energy and transferring energy

Keywords/ Concepts

- Energy store, energy transfer

Class Worksheets

- Questions below
- Notes

Homework

- Questions below

Additional Notes

- Attach all the classroom worksheets and homework worksheets to this lesson plan and email together.
- Assume the students don't have revision guides and workbooks. Attach all the pages you want them to have.

The Carbon Cycle

Q1 Carbon dioxide is a gas in the Earth's atmosphere.

a) What is the name of the process that removes carbon dioxide from the air?

..... photosynthesis

b) i) Circle all the organisms that use this process to take carbon dioxide out of the air.



ii) Name three things that these organisms use the carbon in the carbon dioxide to make.

1.
2.
3.

Q2 All plants and animals respire.

a) In what form is carbon released into the air during respiration?

.....

b) What role do decomposers like bacteria and fungi have in the carbon cycle?

.....
.....
.....

c) Fossil fuels contain carbon.

i) Where does this carbon come from?

.....
.....

ii) How do humans release the carbon in fossil fuels back into the air?

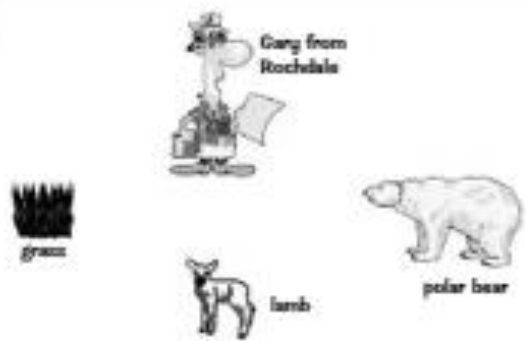
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The Carbon Cycle

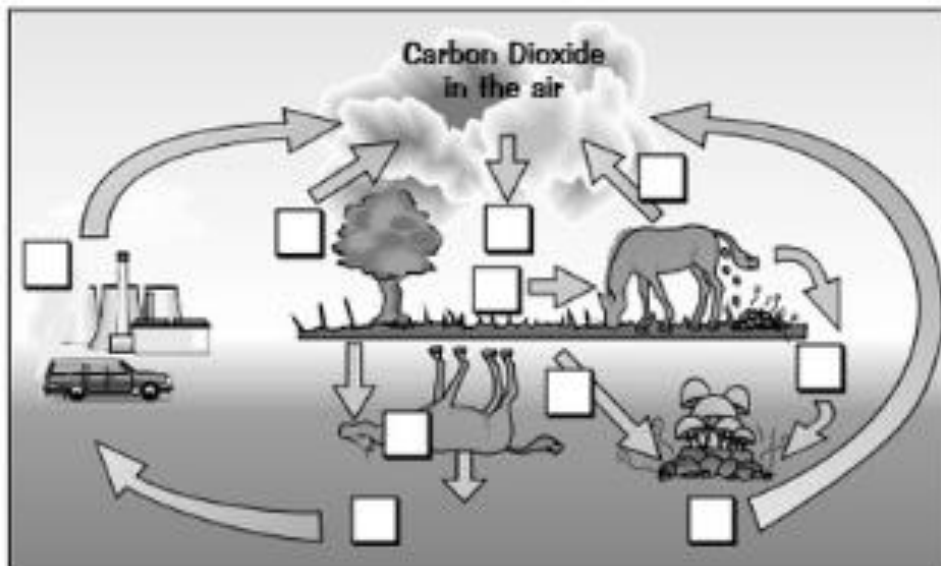
Q3 The picture to the right shows part of a food chain.

- Draw arrows to show how carbon moves through the food chain shown.
- What do Gary, the lamb and the polar bear use carbon to make?

.....



Q4 Complete the diagram of the carbon cycle using the labels below. Write the letter of the correct label in each box on the diagram.



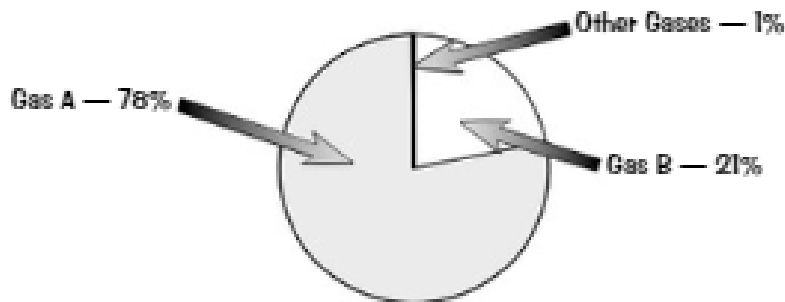
Label	Letter
Combustion by humans	A
Respiration by plants	B
Photosynthesis by plants	C
Animal respiration	D
Feeding	E
Plant and animal remains	F
Plant remains	G
Animal remains and excretion	H
Carbon compounds in fossil fuels	I
Decomposers release carbon dioxide into the air	J

Section 7 — The Earth and The Atmosphere

The Atmosphere and Climate

Q1

A scientist collected a sample of the Earth's atmosphere and took it back to his lab to study. The pie chart below shows what he found.



a) What are gases A and B?

Gas A —

Gas B —

b) One of the other gases labelled in the pie chart is carbon dioxide.

i) Roughly what percentage of the atmosphere is carbon dioxide?

.....

ii) Name one other gas that makes up the Earth's atmosphere.

.....

Q2

Many parts of the Amazon rainforest are being deforested to make room for farming.

a) What is deforestation?

.....

b) What effect does deforestation have on the amount of carbon dioxide in the atmosphere? Explain your answer.

.....

.....

.....

.....

.....

Section 7 — The Earth and The Atmosphere

The Atmosphere and Climate

Q3 When humans burn fossil fuels, carbon dioxide is released into the atmosphere.

a) Write down two examples of when humans burn fossil fuels.

1.

2.

b) Carbon dioxide is known as a greenhouse gas.

i) Explain how greenhouse gases like carbon dioxide keep the Earth warm.

.....

.....

.....

ii) What's happening to the level of carbon dioxide in the atmosphere? Circle the correct answer.

It's increasing

It's decreasing

It's staying the same

Q4 The Earth's climate is changing due to global warming.

a) What is global warming?

.....

.....

b) Why is global warming happening?

.....

.....

c) Name two effects that global warming could have, and explain why each would be bad.

Effect:

Explanation:

.....

Effect:

Explanation:

.....

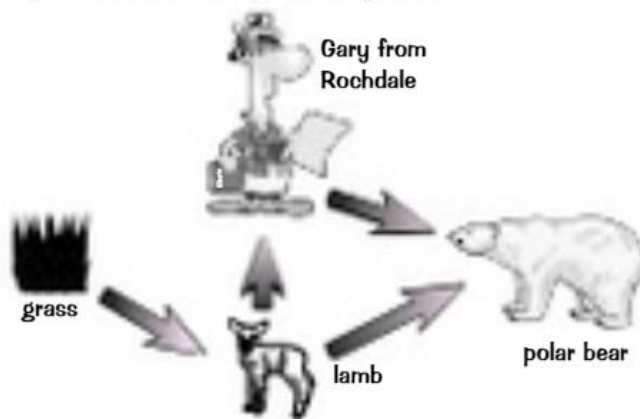
Section 7 — The Earth and The Atmosphere

Answers from last week's homework

Pages 141-142 — The Carbon Cycle

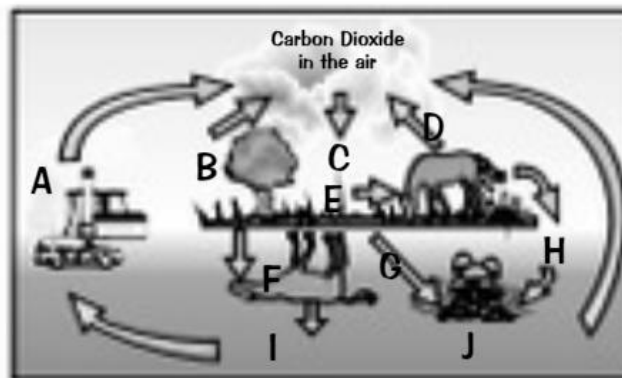
- Q1 a) photosynthesis
b) i) Green plants and algae should be circled.
ii) 1. carbohydrates 2. fats 3. proteins
- Q2 a) carbon dioxide
b) E.g. they feed on dead plants, animals and animal waste. When the decomposers respire, carbon from the plants and animals is returned to the air in carbon dioxide.
c) i) Dead plant and animal remains that get buried and eventually form fossil fuels.
ii) By combustion / by burning them.

Q3 a)



b) Fats and proteins.

Q4



Pages 143-144 — The Atmosphere and Climate

- Q1 a) Gas A — Nitrogen
Gas B — Oxygen
b) i) 0.04%
ii) E.g. water vapour
- Q2 a) Cutting down trees.
b) E.g. it makes it increase because trees remove carbon dioxide from the atmosphere by photosynthesis. When there are fewer trees, less carbon dioxide is removed, so overall the level of carbon dioxide increases.

- Q3 a) E.g. driving a car, making electricity.
b) i) E.g. energy from the Sun is trapped in the Earth's atmosphere by greenhouse gases. This stops the energy being lost into space and helps to keep the Earth warm.
ii) It's increasing.
- Q4 a) Global warming is the name for the increase in the Earth's temperature.
b) The level of carbon dioxide/greenhouse gases in the Earth's atmosphere is increasing.
c) E.g.
Effect: Melting of the polar ice caps.
Explanation: Sea levels could rise and coastal areas could flood.
Effect: Rainfall patterns could change.
Explanation: It might be harder for farmers to grow crops.

Energy Transfer

Q1 Tick one box next to the energy store that is most appropriate for each of the following examples.

a) A banana.

chemical

kinetic

elastic

magnetic

b) Two magnets attracting each other.

elastic

electrostatic

magnetic

chemical

c) Two electrically charged objects attracting each other.

magnetic

gravitational potential

elastic

electrostatic

d) A marble rolling along a flat floor.

elastic

kinetic

gravitational potential

chemical

Q2 How do our bodies use food to get energy?

.....
.....

Q3 Work out which energy stores are increasing and decreasing for each of the following energy transfers. The first one is done for you.

a) A cyclist freewheeling up a hill.

GRAVITATIONAL POTENTIAL energy store is increasing. **KINETIC** energy store is decreasing.

b) A lit match.

.....

c) Releasing a stretched spring.

.....

d) A postman lifting a box from the ground to a high shelf.

.....

e) An egg rolling down a hill.

.....

Section 8 — Energy and Matter

Homework

More Energy Transfer

Q1 Circle the equation below that correctly links energy transferred, force and distance moved.

$$\text{Energy Transferred} = \text{Force} \times \text{Distance}$$

$$\text{Energy Transferred} = \text{Force} \div \text{Distance}$$

$$\text{Energy Transferred} = \text{Distance} \div \text{Force}$$

Q2 A battery is used to power an electric heater.

a) Complete the following paragraph by picking the correct words from those given in the box below.

electrically thermal complete chemical gravitational potential by light

When the battery and heater are connected in a electrical circuit, energy is transferred from the energy store of the battery to the energy store of the heater.

The energy is transferred

b) The electric heater transfers energy from its thermal energy store to the thermal energy store of the surroundings. How is energy transferred between these two energy stores?

.....

Q3 A knight pushes a boulder for 15 m using a force of 200 N.

a) How much **energy** did the knight transfer?

.....
.....



b) The knight pushes the boulder over the top of a cliff. Name the energy store that energy is transferred **from** as it falls.

.....

Q4 Complete the following sentence about a car by picking the correct missing word from the boxes below.

If a car has a **bigger force**, but transfers the **same** amount of **energy**, the distance travelled by the car will be

the same

larger

smaller



Section 8 — Energy and Matter