Zig Zag Education

Geography **A Level | OCR | H481**

Topic Tests

for A Level OCR Geography:

Earth's Life Support Systems

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POD 7304

Contents

Teacher's Introduction

These ZigZag Education Topic Tests for Geography are written to be used for continue
of the given topic. Each resource covers the full content of the specification for the m
number of tests. The final test in each resource is synoptic, and spans a range of cont
ideal as an end-of-topic recap and revision exercise. The tests are provided in a non-v

Each test should take one lesson length to complete, with an optional extension secti
more-able students, or as a follow-up homework task for the whole class. The numbe
into account the weight of the topic within the spec, allowing one test to be used eve
course of study when using the full resource range.

This resource has five tests on ***Topic 1.2: Earth's Life Support Systems*** for the **A Level**
(H481). Every key aspect of this topic within the specification is covered in this resou

The tests are not designed to mirror the exam paper in the extension sections the long
the exam format in terms of command word and marks allocated.

Suggested answers for each test are included. For 'closed' questions, where only one
answer has been provided. For 'open' and extended questions, indicative content is g

When to Use This Resource
This resource can be used at the end of teaching a subtopic, or at the end of the whol
Students can also reuse these tests towards the end of the course as part of a progra

How to Use This Resource
The tests can be completed individually in class, or set as homework tasks to enable y
students' strengths and weaknesses in certain areas. Each test covers a range of que
wide range of stimulus material. The tests can be marked by a teacher or by students

The Benefits to the Student
Students can be confident they have been tested on every key aspect of the specifica
will know which areas they are strong in, and which require further work, and can set
learning. The answer sections also provide students with an indication of what a goo

Differentiation
In order to support lower-ability students while pushing the more-able, each test has
- The first section has approximately 40 marks and has been written to test knowl
specification.
  - These questions are for all students and the difficulty or complexity genera
the test.
- The second section has approximately 10 further marks of extension questions t
higher-ability students.
  - These questions more closely follow the exam style, with command word us
the longer exam questions.
  - In some cases the extension section is longer (up to 20 marks) to provide a
where the exam requires it. The initial tests may then be slightly shorter to

Test 2 – The Importance of Water and Car
Contrasting Locations – Tropical Rainfor

Part 1: The importance of water and carbon and systems

1. Assess the importance of water to life on Earth.

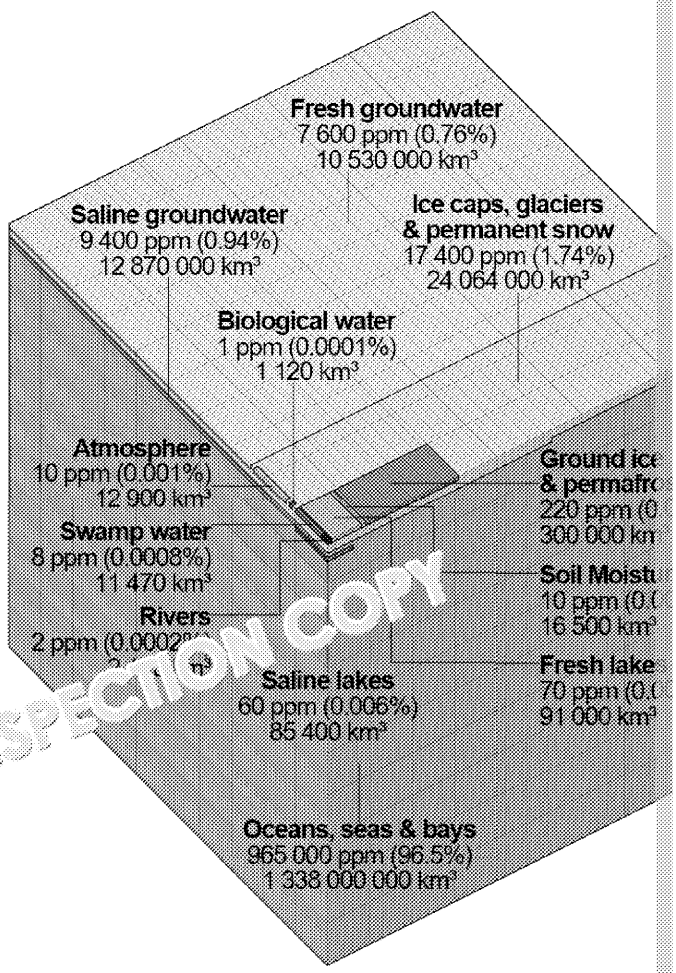
2. Assess the importance of carbon to life on Earth.

3. Distinguish between the following types of system:
   - Open
   - Closed

4. Outline what is me... ...sitive and negative feedback cycles.

5. Give an ...ple of either a natural positive or negative feedback cycle, and ... the example shows a positive or negative cycle.

6. Using the diagram below, comment on the distribution of water that is usab... to humans.



7. Match up the following three words to their definitions.

1	**Precipitation**
2	**Ablation**
3	**Evapotranspiration**

A	The combined loss of wa through plants – uptake fro through the sto
B	Snow melt – e.g. at the st during t
C	Flows of water within the w (liquid: rain, solid: conden

Part 2: Tropical rainforests

8. a. Describe and explain th… a named rainforest that you have s…

   b. Fo… …ed rainforest, explain how the physical characteristics…

9. Discuss how humans can alter the carbon cycle within a tropical rainforest.

10. Assess how farming techniques can be improved within a tropical rainforest … the effects on natural cycles.

Part 3: Tundra

11. Outline how the tundra climate affects the water and carbon cycles.
    (Two marks will be awarded for water and two for carbon).

12. a. For a named example within the Arctic, discuss the human impacts of f… the water and carbon cycles in the region.

    b. Suggest how the impacts that you have outlined above can be reduced.

Extension Question

13. Examine the local and global importance of the tropical r…inforest and tundr… roles in the carbon and water cycles.

Preview of Questions Ends Here

Answers
Test 1 – Carbon and Water Cycl

Part 1: Carbon cycle and processes

1. a. *3 marks*
The diagram show that up to 800 billion metric tons of carbon is stored wi component (1 mark). The most carbon is stored in the deceased plant mat stored as peat
(1 mark).

b. *4 marks*
Allow any four points (1 mark)
Enters via photosynthesis (1 mark), as plants [illegible]spheric CO_2 into thei release some of this through respiratio[illegible]. Animals consume plant absorb is lost through respirati[illegible]ck). The plants also add carbon to of leaf litter (1 mark), [illegible] the soil is waterlogged (1 mark). Some o is broken down by [illegible]posers (1 mark), and released as CO_2 through res

2. *2 mark*
Stores ([illegible]alled sinks) are where carbon is retained for a long period of time dissolved in ocean water, etc.) (1 mark).
Fluxes are the movement of carbon between stores (1 mark) e.g. the dissolution fuels).

3. *2 marks*
Allow one mark each:
- Fossil fuels / hydrocarbons / kerogens
- Carbonate rocks
- Metamorphism of carbonate rocks (e.g. destructive plate margins)

4. a. *1 mark*
Dissolved carbon dioxide forms carbonic acid.

b. *1 mark*
Carbonation (accept solution).

5. *3 marks*
Fuel A (coal) (1 mark).
Coal is a long-term store of carbon, which was removed from the atmosphere m B – wood – only sequestered carbon recently – burning wood, therefore, only re back into the atmosphere.

6. *1 mark*
Decomposers (accept detritivores, fungi, bacteria, etc.).

7. a. *1 mark*
Respiration.

b. *1 mark*
The process is the [illegible] to photosynthesis (also accept answers such a

c. *2*
Th[illegible]more photosynthesis than respiration (1 mark). This is because s (1 mark) (therefore not respired).

Part 2: Water cycle and processes

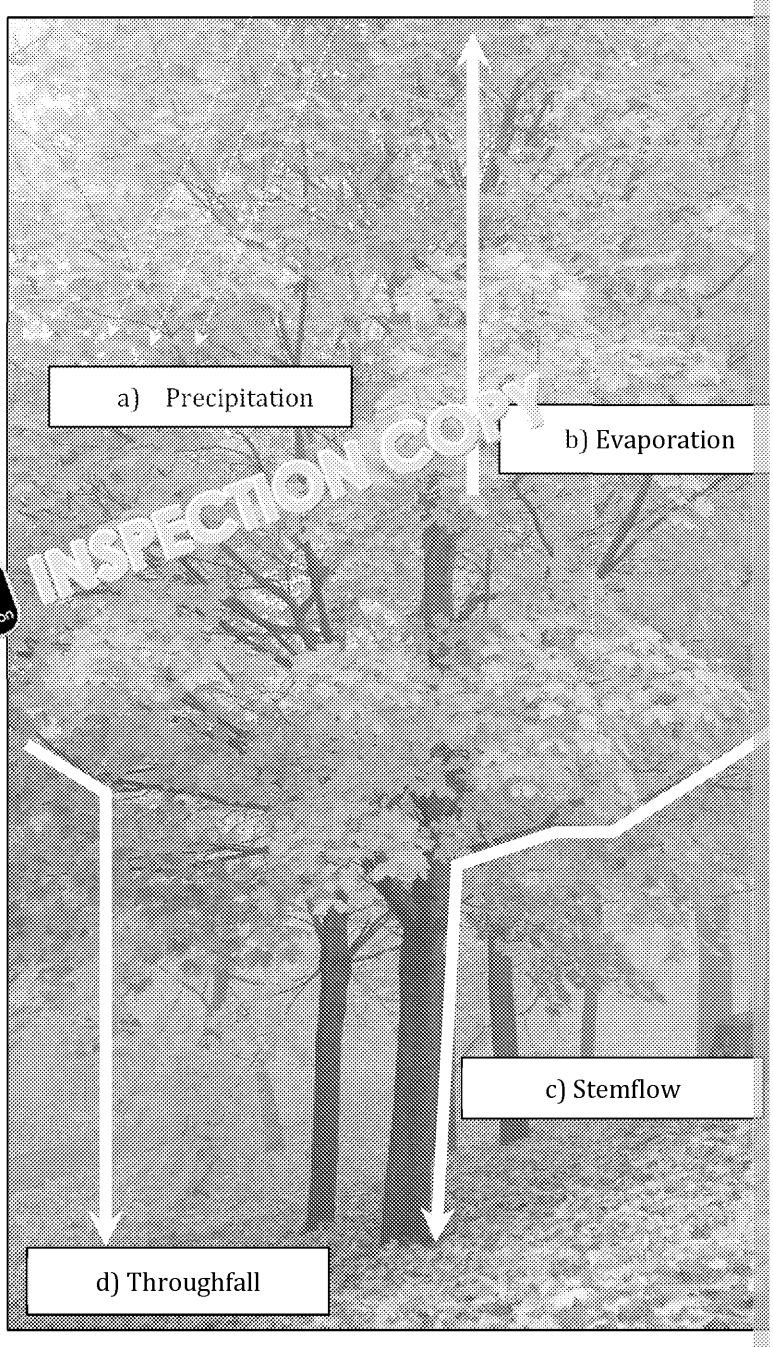
8. 2 *marks*
Allow one mark per two correct answers.

Stores	
• Rivers, or lakes, or other surface stores such as ponds or reservoirs • Soil water • Groundwater • Oceans • Interception • Surface flow	• Precipitation (in • (Evapo)transpir and also source • Infiltration • Percolation • Throughflow • Overland flow • Groundwater flo Throughflow • Stemflow • River/channel fl • Any form of run • Ablation • Plant uptake

9. *2 marks*
Allow one mark for each two correct words.
Precipitation = Evapotranspiration + Streamflow ± Storage

10. *6 marks*
Allow reference to any six valid points, or three explained points, such as:
- Evaporation / evapotranspiration / soil moisture as a source of water vapou
- Rising of warm, moist air, condensation at height and the role of condensatio
- Frontal weather systems.
- Depressions.
- Lapse rates.

Also allow discussion of the alteration of rainfall patterns due to climate change deforestation.



11. *2 marks*

    Allow one mark for each two correct answers.

12. *2 marks*
    One mark each:
    Infiltration excess – Heavy rainfall (rate) that the soil cannot absorb water qu
    falls.
    Saturated – Pore [illegible] already filled (antecedent conditions), meaning tha
    soil.

13. *2 marks*
    One mark each:
    Infiltration – Downwards movement of water from the surface **into the soil**.
    Percolation – Downwards movement of water **through the soil and into the l**

14. *1 mark*
    Melting of accumulated snow.

15. *1 mark*
    Sublimation.

Extension Questions

16. *4 marks*
Allow any four points:
Earth as a whole is essentially a closed system (1 mark) – energy reaches us fro
space once again (1 mark). There are almost no gains or losses of material (exc
example) (1 mark).

There are several different subsystems within the Earth (1 mark) – the lithosph
cryosphere and atmosphere (allow a half mark for each).
These four systems are open systems because they input and output both energ
these four systems are linked together (1 mark), which can be classed as 'casca

17. *3 marks*
Either: (award three marks)
Some marine creatures protect themselves usi rb ate shells (1 mark). Th
the ocean when the organism dies (1 ma O ine, the shells build up into

Or: (award three marks)
Phytoplankton ph se at the ocean's surface (1 mark), using dissolved
biomas ar e phytoplankton form the basis of food chains (1 mark). L
to the b f the ocean, where the carbo is stored (1 mark).

18. *3 marks*
Surface water absorbs atmospheric carbon dioxide (1 mark). The water moves
and sinks (1 mark), moving back towards the equator at depth (1 mark). The d
for a significant period, removing the CO_2 from the atmosphere (1 mark). Whe
carbon is released back into the atmosphere (1 mark).

Preview of Answers Ends Here