

Revision outline

Physical geography: Water Cycle

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| Specification content | Possible exam/revision questions | Self assessment |
| Systems in physical geography: Systems concepts and their applications to the water and carbon cycles.Inputs-outputs, energy, stores/components, flows/transfers, positive/negative feedback, dynamic equilibrium. | Outline an example of positive feedback in the water cycle. [3 marks] *AS Level 2018*Explain the concept of dynamic equilibrium in relation to the water cycle. [4 marks] *A Level SAM* |  |
| Global distribution and size of major stores of water – lithosphere, hydrosphere, cryosphere and atmosphere. | Using Figure 1 and Figure 2, analyse the nature of these global stores of fresh water. [6 marks] *AS Level SAM 2*Using the data from Table 1.1, describe the distribution of the Earth’s water (4 marks) *Hodder Workbook* |  |
| Processes driving change in the magnitude of these stores over time and space, including flows and transfers: evaporation, condensation, cloud formation, causes of precipitation and cryospheric processes at hill slope, drainage basin and global scales with reference to varying timescales involved. | Explain the role of cryospheric change in the water cycle. [4 marks] *2018 A Level*‘The size of major stores of water change over time more because of human activity than natural variation.’ To what extent do you agree with this statement? [20 marks] *AS 2018*What are the major processes responsible for change in the magnitude of global water cycle stores over time and space? *Oxford*Figure 1.7 shows the predicted change in global rainfall intensity by the end of the twenty-first century. Using Figure 1.7, analyse this predicted change. (6 marks) *Hodder Workbook*  |  |
| Drainage basins as open systems – inputs and outputs, to include precipitation, evapotranspiration and runoff; stores and flows, to include interception, surface, soil water, groundwater and channel storage; stemflow, infiltration overland flow, and channel flow. Concept of water balance. | Describe the different ways that water can enter a river channel. (5 marks) *Hodder Workbook* Using Figure 1, analyse the water balance data for the city of Potsdam. [6 marks] *A Level SAM 2*Study a completed version of Figure 1.3. With the aid of Fig 1.3, describe the drainage basin hydrological cycle and the processes that operate in it. (6 marks) *Hodder Workbook*  |  |
| Runoff variation and the flood hydrograph. | Using Figure 2 and your own knowledge, assess the natural and human induced causes of the 2005 flood in Carlisle. [6 marks] *A Level SAM*Complete Figure 1 by adding the data shown in Figure 2 below, and then analyse the impact of the rainfall upon the discharge. [6 marks] *AS SAM*Complete Table 1.3 by describing how changes in the named physical factors might change the shape of a storm hydrograph. Give a brief explanation. (10 marks) *Hodder Workbook* Complete Table 1.4 by describing how changes in the human factors shown might change the shape of a storm hydrograph. Give a brief explanation, (8 marks) *Hodder Workbook* Assess how the following factors cause variation in runoff: type and intensity of precipitation, climate, soil water, rock type, human activities (such as reservoirs, land use change and urbanization) *Oxford*Evaluate the importance of the human and natural factors affecting river discharge over time. [20 marks] *AS SAM 2* |  |
| Changes in the water cycle over time to include natural variation including storm events, seasonalChanges and human impact including farming practices, land use change and water abstraction. | ‘The size of major stores of water change over time more because of human activity than natural variation.’ To what extent do you agree with this statement? [20 marks] *AS 2018*Using **Figure 2** and your own knowledge, assess the natural and human induced causes of the 2005 flood in Carlisle. [6 marks] *A Level SAM*Outline potential impacts of farming practices upon the water cycle. [3 marks] *AS SAM*Evaluate the view that human activity is having a greater impact than natural factors on the water cycle. [9 marks] *AS SAM* |  |
| Case study of a river catchment(s) at a local scale to illustrate and analyse the key themes above, engage with field data and consider the impact of precipitation upon drainage basin stores and transfers and implications for sustainable water supply and/or flooding. | With reference to a river catchment that you have studied, assess the potential impact of human activity upon the drainage basin. [20 marks]*2017 AS Level*With reference to a river catchment you have studied, assess the extent to which runoff depends on natural variation in the water cycle rather than human activity. (20 marks) *Hodder Workbook* As part of your course you have studied a drainage basin at a local level. Describe the impact of precipitation upon the water stores and transfers in that drainage basin and explain the implications for either a sustainable water supply and/or flooding. (20 marks) *Hodder Workbook*Assess the potential causes and impacts of changes to the water balance within a tropical rainforest that you have studied. [20 marks] *2018 A Level* |  |