London under water

Lesson Plan

Lesson1: River basin flooding, climate change and London (approx 40mins)

Learning outcomes	Students: • learn about the physical and human processes that have put 500,000 people and £80 billion property in London at increased risk of natural flooding; • understand how climate change and land-use changes are modifying London's hydrological cycle, increasing the likelihood of a major hydro-meteorological flood disaster; • weigh up the evidence that flooding in London and the UK is on the rise.
NB Guidance notes for each section of the lesson can be found in the fact sheet	
Starter (6-8 mins)	Students need to understand the 4 main types of river basin flooding *Four types of river basin flooding:* • **River flooding** – when the river has burst its banks. • **Coastal flooding** – this can happen when a high tide coincides with a storm surge. • **Pluvial (surface water) flooding** - when heavy rainfall collects in hollows and depressions, local floods can occur. • **Groundwater flooding** - caused by groundwater escaping from the ground when the water table rises to or above surface level. Using the "60 second guide to fluvial flooding" online fact-sheets – challenge the students to write down all they can in just 60 seconds while each type of flooding is displayed. Spend a couple of minutes afterwards summing up what has been learned.
Main activity (25mins)	*Using the **Lesson 1 PowerPoint**; **video clip of Alex Nickson** and the **Practice Exam Question document*** *1)Decreasing urban permeability and the hydrological cycle – investigating the local human causes of increasing flood risk in London* The main activity (with online support) focuses on one key reason why fluvial and pluvial flooding are on the rise in the Thames basin: because too many people are paving over their gardens. *2)Extreme rainfall events and storm surges – investigating how global climate change is increasing London's flood risk* Attention now turns to climate change – what are experts saying about changing rainfall patterns in London and the UK? How will this effect fluvial and pluvial flooding? And will increased North Sea storm surges bring an even greater threat of flooding to the Thames estuary?
Plenary (8-10mins)	**Is Britain getting wetter?** Review the evidence of recent UK flood events to discuss whether the UK is experiencing more extreme weather events leading to flooding. Is this evidence of a riskier word? Are extreme flood events on the rise in the UK? The lesson ends with a reminder round-up to students of: • Boscastle fluvial flooding of 2004 • Nation-wide pluvial floods of 2007 • North Sea storm surge 2007

Resources	***This lesson is fully supported with the following resources:*** • **Online "60 second guide to fluvial flooding"** • **PowerPoint illustrating the reasons behind London's rising flood risks** • **Practice Exam Question document, containing practice exam questions and answering tips** • **Video clip of Alex Nickson (London Strategy Manager for Climate Change Adaptation and Water)** **Extra reading:** ***Crazy Paving, Geography in the News article*** ***Storm Surge, Geography in the News article***