Atkins, P.J. (2013) Rivers, *Geography Review* 27, 1, 27

Whichever way you look at it, rivers are core to 'A' level geography. In the various specifications they appear as fluvial environments; river environments; fluvial management; rivers, floods and management; and river processes and pressures. So popular and important is this theme that it also appears in various guises in university geography degree courses.
http://www.dur.ac.uk/geography/undergraduate/programmes/teaching_and_course_information/geography_bsc/
http://www.dur.ac.uk/geography/research/groups_and_clusters/in_detail/?mode=centre&id=291

Floods

In Britain the period from the early 1960s and to the late 1990s was relatively flood free, especially when compared to the late 19th and early 20th centuries. As a result, many new houses were built on flood plains without a proper understanding of the risk. Now it seems we are entering a flood-rich period once again and, as a result, the government estimates that 2.1 million properties and 5 million people are at risk. A government review of the 2007 floods in England said that flooding should now be given the same spending priority as terrorism.
http://www.dur.ac.uk/geography/news/allgeognews/?itemno=6479
http://www.ukflood.co.uk/
http://www.environment-agency.gov.uk/research/library/publications/33887.aspx
http://earthobservatory.nasa.gov/Features/Floods/

Geographers can join with local people in understanding floods in high-risk places. An interesting case study of this is the Ryedale Flood Research Group which comprised residents of Pickering, a town in Yorkshire, and researchers from Durham and Oxford Universities. This followed a controversial decision by the Environment Agency to shelve a scheme for flood defences, their argument being that the cost of almost £7 million would only have protected fifty homes. The Ryedale Group reconsidered the scheme and came up instead with a 'bund model' which involves a number of small dams upstream in order to hold water back and so reduce the likelihood of flooding.
http://knowledge-controversies.ouce.ox.ac.uk/Ryedale2/ryedalefloodgroup/
http://knowledge-controversies.ouce.ox.ac.uk/video/KnowledgeControversies_480x270.mp4

Fluvial geomorphology

There is plenty of material on the internet about river landforms and the processes of erosion and deposition. A good starting point is Ted Endreny's module at the State University of New York College of Environmental Science and Forestry, or you can look at the Environment Agency's document introducing the topic. There are also dozens of powerpoints about specific elements but you have to be careful not to get bogged down in detail that is too advanced for the 16-18 syllabus.
http://www.fgmorph.com/
http://evidence.environment-agency.gov.uk/FCERM/Libraries/Fluvial_Documents/Fluvial_Design_Guide_-_Chapter_3.sflb.ashx
http://www.dnrc.mt.gov/wrd/water_op/floodplain/streambank_course/

http://geospatial.gsu.edu/geoslabs/files/geog1113/FluvialGeogmorph.pdf

Drainage basins

Michael Pidwirny's online geomorphology textbook is useful for all aspects of rivers. He covers drainage basins, for instance, and you can click highlighted words in the text and be directed to a glossary of technical terms. This is a reader-friendly approach to science that is much appreciated by those seeking to understand every aspect of the topic. For another glossary, see the EarthOnlineMedia site.
http://www.physicalgeography.net/fundamentals/10aa.html
http://earthonlinemedia.com/ebooks/tpe_3e/fluvial_systems/terms_concepts.html

Hydrology

A good way of grasping the basics of the water in rivers is by looking at the Virtual River from Geology Labs Online. This site takes you through some basic concepts and asks you questions as you go along. This is a good way of learning.
http://www.sciencecourseware.org/VirtualRiver/

As ever, the United States Geological Survey educational website is good for all aspects of physical geography and the impacts of physical processes on society. Their work on water has to be admired and the range of materials offered is astonishing. Have a good like at the following link because it is likely to have something for you even though most of the case studies are from North America.
http://water.usgs.gov/education.html

Channel characteristics

Rivers are complex, particularly when you realise that the various channel features relate to each other. Fortunately there are a number of websites that help you to do this. The scope is endless and research can be at any level from A2 up to and beyond PhD! An interesting feature of recent work is the range of methods, including remote sensing. It seems that wading up to one's waist in cold water is no longer enough.
http://coolgeography.co.uk/A-level/AQA/Year%2012/Rivers,%20Floods/Channel%20characteristics/Channel%20Characteristics.htm
http://www.eoearth.org/article/Physical_properties_of_rivers
http://www.shorelandmanagement.org/depth/rivers/01.html
http://wwwbrr.cr.usgs.gov/projects/GEOMORPH_Lab/project-lidar.html
http://spie.org/x91480.xml

And finally

As regular readers of this column will know, I like webcams. They are particularly useful for river studies because discharge varies and it is interesting to see low and high spate from the comfort of your laptop. In 2012, for instance, there were several rivers, such as the Tyne, which had their lowest and highest recorded levels within a just few months. Have a look at the following link and if you watch for long enough you will see me walk across the Framwelgate Bridge into the centre of Durham.
http://www.farsondigitalwatercams.com/live-webcams/north/Wear/Durham-City/

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