KS 3 Scheme of work (Year 8): Physical Processes

Geographical skills

- Giving sequenced explanations
- Annotating sketches to explain
- Atlas map use
- Describing using labelled sketches
- Relating sketches and diagrams
- Measuring distances using a scale
- Calculating approximate areas
- Interpreting physical relief maps in the atlas
- Photo interpretation
- Drawing and interpreting a flood hydrograph
- Interpreting sketch maps
- Group decision making

PLTS

Independent enquirers*
Team workers
Effective participants
Self managers
Reflective learners
Creative thinkers

* When pupils are asked to do secondary research, this must be done in a structured

GCSE key words

It is important to introduce some words used at GCSE. The words in this topic are :. Weathering, erosion, transportation, deposition and all words associated with river processes and landforms; flood hydrograph, flood management, impacts, economic, environmental and social.

From September 2014, each pupil is to have a key words booklet stuck in the back of their exercise book; they also have a small exercise book, which can be kept in their classroom. The teacher is to make frequent use of the key words booklet – glossary, spellings, tests and so on. The starting point for pupils' learning of the topics is to be with the key words.

Learning outcomes: Key questions and skills	**Suggested teaching activities (Methodology)**	**Useful resources**	**Possible homework**	**AfL / literacy**
What is weathering and how does it change buildings and the landscape? Timescales for these changes? What factors affect weathering types and rates? Skills: sequencing to explain drawing and annotating sketches **Likely to be 2 lessons**	**Starter:** see Boardworks weathering pictures; discuss. See p. 64 geog. 1 and picture on p. 66 – discuss landscape changes and timescales. Talk through weathering on p. 4 Connections; discuss how the landscape pictures will change. Pupils sort the statements on the weathering sequencing sheets into freeze-thaw and biological; use numbers to sequence them. Written answers to questions about types of weathering in different environments and rates of weathering. Self-assess. Pupils complete annotated sketch of biological weathering (SEE DIFFERENTIATED TASKS FOR HIGHER AND LOWER). **There is also sheet 1.2 – what causes weathering?** **Homework** **Plenary** – sorting activity on the board?	Boardworks weathering pictures Connections textbook Geog. 1 textbook Scissors and glue Weathering sequencing sheets Differentiated biological weathering sketch task sheets **Possible use of sheet 1.2 (Key Geography electronic resources)** Homework weathering worksheet	Weathering worksheet (boxes to sequence the stages of biological, freeze-thaw, chemical and onion skin weathering; on the opposite side it's Key Geography electronic sheet 1.1 – labelling a home with weathering).	Teacher assessment of annotated sketch against agreed objectives. Guided self-assessment of homework sheet in a future lesson.
What is erosion? How does it change the landscape? What factors affect erosion?	Talk through Connections picture p. 6, to explain erosion. Complete erosion sketches and match descriptions (written on the board). Self-assess. Discuss factors which would affect the speed of erosion e.g. rock type, strength of waves etc. Additional questions about factors affecting the rates of erosion. Self-assess. **Alternative is to do sheet 1.4.** Introduce the terms transportation and deposition using p. 7.	Connections textbook Erosion sketches Erosion, transportation and deposition sketches Possible use of sheet 1.4 (Key Geography electronic resource) **Future lesson – weathering test (short, one side)**	Learning work so far for a short test.	Teacher guided self-assessment of the descriptions and answers to the questions.

	Complete definitions on erosion, transportation and deposition sketches. **Plenary** – a quiz to test understanding of the key words learnt so far			
	WEATHERING INVESTIGATION			
What's meant by a drainage basin? What are the main features of drainage basin? Some of the word's famous rivers. Skills: atlas use	**Starter** – show image of a tree with no leaves (could use p. 30 Foundations on a visualiser) – what does it remind us of? See p. 30 Foundations to introduce the drainage basin. Make the pop-up drainage basin; add key terms and their definitions by using the activity on p. 30 Foundations. HIGHER – start to consider how and why the river channel changes downstream. Pupils verbally summarise the journey of the river from the source to the mouth, using key words; peer-assess. **Homework**	Doddle – drainage basin terminology interactive Templates for pop-up drainage basin Foundations p. 30 Copies of Foundations p. 31	Use an atlas at home to name the rivers on copies of p. 31 Foundations (activities 1 and 2)	Peer-assesment of verbal river summaries. Teacher guided self-assessment of the river's journey from the source to the mouth, focusing on the correct use of key words. Subsequent lesson – teacher guided self assessment of the cross word.
What are the differences between a river and channel? What are the characteristics of a river and its valley at the source? How is a v-shaped valley formed? Skills: drawing	**Starter** – display an image showing a drainage basin diagram; pupils labels. Use images to explain and review the differences between the channel and valley. Using prompts, pupils predict the characteristics of the channel and valley at the source. Discuss. Watch clipbank clips of rivers near the source – observations? Read p. 8 – 9 Connections. Sketch the image on p. 8 Connections; label using a selection of labels from the smartboard (include incorrect labels e.g. wide channel, flat valley, tiny	Connections Clipbank clips – rivers near the source Small copies of diagram E. p 9 Connections		Teacher guided self-assessment of labels on the stetch

labelled sketches to describe characteristics	load particles); HIGHER to differentiate between channel and valley with colour coding. HIGHER – using copies of diagram E p. 9 Connections, pupils annotate to explain the formation of the v-shaped valley. LOWER - use their labelled sketches to describe the appearance of the valley and channel near the source.			
How does a river erode, transport and deposit its load? What is the connection between erosion and transportation? Under what conditions would erosion and transportation be greatest?	**Starter** – show images of a river, showing different types of load (e.g. muddy water, large rocks etc) – what do they contain? Where do they come from? Use p. 76-77 this is geog. 1 and activities for pupils to learn about the means of transportation, erosion and deposition. HIGHER – consider how transportation and erosion are connected; what conditions make more erosion and transportation occur? Leave plenty of time for the river process crossword. **Plenary** – possible picture quiz to show different landforms and guess whether it is erosion or deposition and why? *Encourage pupils to make use of the terms learnt today in subsequent lessons.*	River process crossword Sheet 1.6 – how does the river shape the land?	Sheet 1.6 – how does the river shape the land?	Teacher led self-assessment of homework sheet 1.6
What are the characteristics of waterfalls? How do they change? What is vertical erosion? Skills: relating sketches and diagrams	**Starter** - reveal image and guess the feature (waterfall). Use the following resources to describe and explain the formation of waterfalls: Connections p. 10-11, Boardworks ppt (upper course), whiteboards and Clipbank High Force clip. Encourage pupils to predict the next stages and to consider timescales for changes. Pupils complete Niagara Falls sketch labels (sheet	Connections Boardworks ppt – upper course landforms Whiteboards Clipbank Sheet 1.2 Lower ability sheet 1.11 Possible use of sheet 1.2 –		

	1.2). Sheet 1.11 / activities from textbook. HIGHER ABILITY – introduce the concept of vertical erosion and how it dominates near the river's source; link to v-shaped valleys too. LOWER ABILITY – sheet 1.7.	this is from the electronic Key Geography resources There is also a fantastic clip of an African waterfall in Clickview – Human Planet, Rivers		
What are the characteristics of meanders? How does a meander form? (What is a flood plain? How does an ox-bow lake form?) Skills: labelling a cross section	**Starter:** odd one out activity; focus on the difference between erosion and deposition. Use the following resources for pupils to describe the characteristics of a meander and begin to understand their formation: Connections p. 12-13; review the concept of a cross section. Clipbank clips – various Sheet 1.8 to label a cross section; sketch the river* p. 13 Connections (just the river), then label where erosion and deposition would be occurring. HIGHER consider and discuss these – study photo E p. 13 Connections – where were the meanders? What has happened to them? Read about ox-bow lakes p. 79 this is geog. 1 What is the shape of the land either side of the river? Why? LOWER – activities 2 and 3 p. 13 Connections. Assess answers to labelling activity and higher discussion points. HIGHER – sheet 1.3 (floodplain); add ox-bow lakes to their sketch* and annotate their formation.	Connections Various meander clicpbank clips Sheet 1.8 Sheet 1.3 for higher	Research the location of the Upper Tees and find images from the upper section.	Teacher led self-assessment of sheet 1.8. Teacher assessment of the positioning of erosion and deposition on sketches, in addition to the other work.
Skills: measuring distances using a scale; calculating approximate areas; relating maps and	Review and skills activities; river enquiry: Use p. 74-75 geog. 1 textbooks for **excellent** skills activities. See resources listed opposite. Locate River Tees in the atlas; discuss relief and	**Key Geography electronic resources:** Sheet 1.6 – features along the course of the river Sheet 1.7 – odd one out	Time spent on leaflet	Teacher led self-assessment of skills activities from p. 74-75 geog. 1 books Self-assessment and

photographs; interpreting physical relief maps in the atlas; labelling landform sketches and giving explanations.	the direction of river's flow. Introduce the river enquiry (see New Connections p. 20 and enquiry checklists sheet) – pupils produce a leaflet about the features of the Upper Teesdale. LOWER ABILITY can use a template.	Sheet 1.8a – sorting activity River enquiry checklist sheet Atlases Geog. 1 texbooks Cotton / string for measuring distance Pairs cards Connections (must be the 'new' version) – p. 20 onwards River Tees template for lower ability Atlases		teacher assessment of river enquiry, using the enquiry checklist sheet
What is a flood? What causes flooding? Skills: photograph interpretation; relating maps and photos	**Starter**: show image of a flood (e.g. 84 this is geography 1) – what has happened? Why? What problems might the people face? Why is some ground not covered in water? What do you notice about the age of the buildings which have not yet been touched by the water? Discuss. Predict where the river actually is. Check answers by studying photo C p. 88). p. 80 geog. 1 books to discuss the causes of floods. Differentiated consolidation activities. Relate the OS map from p. 89 this is geog. 1 textbooks with the photo p. 92-93. HIGHER can have a go at activity 2 p. 93.	This is geog. 1 textbooks Geog. 1 textbooks		Teacher led self-assessment of written activities

What causes a river to flood? Skills: drawing and interpreting a flood hydrograph	**Starter:** show a sketch / photo of an area which is not likely to flood (e.g. left hand sketch of E on p. 90 this is geog. 1 textbooks); give 3 reasons why it will not flood. Review answers using the right hand sketch. See information and activities p. 94-95 this is geog. 1 textbooks to introduce flood hydrographs (there is also an animation on Boardworks / Doddle). HIGHER – predict continuation of the river level and suggest a time and date when the river may no longer be in flood ('all clear'). Drawing a flood hydrograph sheet; complete the hydrograph; label with rising limb etc. HIGHER – sheet 8B to deepen understanding of what the flood hydrograph means in real-life. LOWER – give pupils labels to annotate their graph with e.g. 'the river level is rising slowly'.	Boardworks / Doddle – search for flood hydrographs This is geog. 1 textbooks Drawing a flood hydrograph (sheet ?????) Sheet 8B – flood hydrographs		Teacher led self-assessment of hydrographs and other activities.
What are the impacts of flooding – long term and short term, social, economic and environmental?	**Starter:** true / false to review hydrographs and the causes of flooding. See photo on p. 99 this is geog.1 textbooks – what is this telling us? See photo B p. 87 – discuss. Read the diary p. 86. Plenty of opportunity for discussion e.g. regarding timescales, feelings of the people involved and long term impacts. Activity to introduce the economic, social and environmental impacts e.g. impacts on the board and pupils try to group them. Discuss. **Homework** – essay (templates for HIGHER and LOWER).	This is geog. 1 textbooks Impacts of flooding essay templates – higher and lower		Teacher assessment of essay (objectives are on the templates). <u>Writing an essay, with the use of paragraphs.</u>
How can floods be managed in the short term?	**Starter** – review activity. Discuss activity 1 p. 87 this is geog 1 textbooks to introduce the concept of short term flood	This is geog. 1 textbooks		Guided peer-assessment of items in the kit; there

	management and what people can have in their homes to help them in a flood. Design a flood kit, describing and explaining the items in a kit; HIGHER – can add an advice card.			must be explanations, linking to the impacts of flooding.
How can floods be managed in the long term? Skills: interpreting a sketch map; decision-making	Possible use of p. 88-89 geog. 1 texbooks for various flood management strategies. There is also a group decision making exercise (mixed ability), focusing on working out the causes of flooding in Carlisle and deciding upon its management. Groups present to other groups in the class; peer-assessment.	Geog. 1 textbooks Decision making material – Carlisle sketch maps, A3 sheets and flood management cards		Teacher guided peer-assessment of group decision making exercise.