Becky Falls

Teacher's Pack
Key Stage 3

GEOGRAPHY

Geography Key Stage 3
Fieldwork Worksheet

Rivers:

1. Is the water fresh or salty? (test its resistance or specific gravity)

2. Do you know where the water is coming from?

3. Which direction is the water flowing (uphill or downhill)?

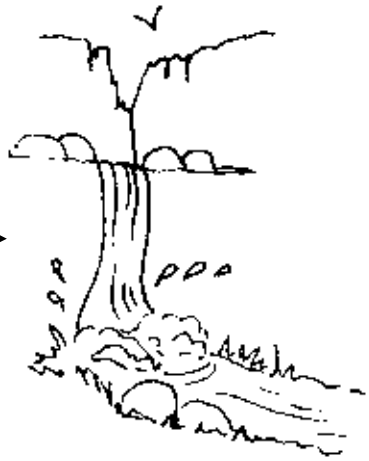
4. How wide is the channel? Take 3 measurements, find an AVERAGE. | | | | =

5. Is the river clear or cloudy – is it carrying a 'load' of *sediment*?

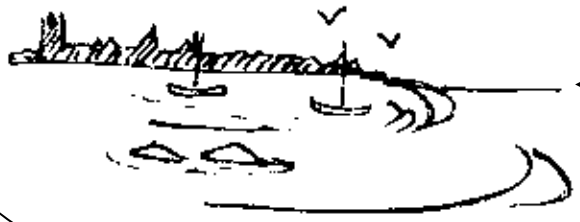
6. Which part of the river are we looking at? (See below)

Head – water comes out of the earth from a spring or a bog.

Upper – water flows rapidly down a steep slope in a steep-sided valley, there are rapids and waterfalls. River is small – often called a stream or brook. The river bed is made up of large grains of gravel or stones.



Middle – water flows more slowly and often meanders, sediment on the bed is finer, other streams have joined to make a river.



Lower – water flows very slow, land is flat, river takes up a wide flood plain and meets the sea.

Find a slow-flowing part of the river:

1. What is the *river bed* made of? Sand Gravel, Stones, Boulders.

2. What are the *banks* made of?

3. Have they been eroded? What signs of erosion can you see?

4. Draw a diagram of the river showing the banks and bed (*river profile*) in the box at the bottom of this sheet.

5. Take measurements of 10 randomly chosen stones from the river bed and find the MEAN.

										Mean =

Find a fast-flowing part of the river:

6. What is the *river bed* made of? Sand, Gravel, Stones, Boulders

7. What are the banks made of?

8. Have they been eroded? What signs of erosion can you see?

9. Draw a diagram of the river showing the banks and bed (*river profile*) in the box at the bottom of this sheet.

10. Take measurements of 10 randomly chosen stones from the river bed and find the MEAN.

										Mean =

11. Is the river bed sediment larger or smaller than in the slow-flowing part?

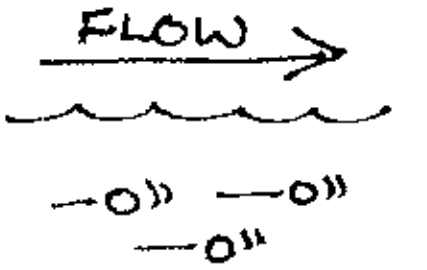
12. Why do you think that is?

River profile—slow-flowing	**River profile**—fast-flowing

13. How do the two river profiles differ?

How much sediment can the river carry?

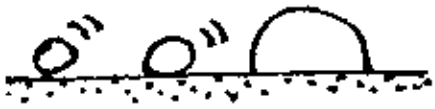
Power of the river to carry sediment



Using coloured pebbles of different size class: 2mm, 5mm, 10mm, 25mm, throw around 5 of the largest size into the river at a given point and see if they move.

Measure the distance they move.

Repeat with the other size classes, gradually working towards the smallest size.



Retrieve the pebbles for future use (use a net). Try the same exercise in different flows e.g. inside and outside of a bend, fast flowing/slow flowing stretches of river.

Record your results here:

	Fast	Slow	Inside bend	Outside bend
Which size was carried along in the water body?				
Which size rolled along the bottom?				
Which size landed on the bottom and stayed there?				

Record the maximum distance the pebbles travelled from the point you dropped them in.

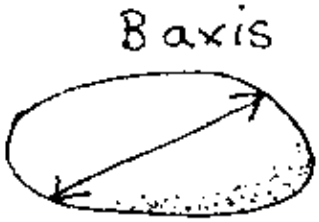
	Fast	Slow	Inside bend	Outside bend
25mm				
10mm				
5mm				
2mm				

Describe the differences in the size of particles carried in each part of the river:

Why you think there is a difference?

What load has the river carried?

Choose an area of the river where you can gain access to the sediments on the bed. Take a random sample of the pebbles on the bottom of the river. Measure the 'B' axis and take a mean from 5-10 pebbles. Compare this to another part of the river. Take measurements on a bend by comparing sediment size on the inside of the bend and the outside.



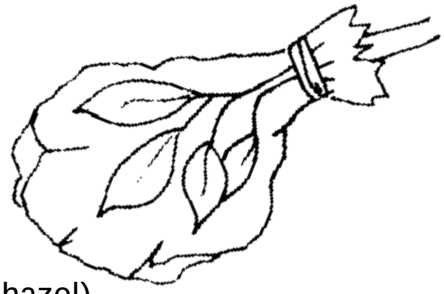
Is there a variation in pebble size across the width of the river?

Is there more variation in pebble size across the width of a river on a bend?

Is there a difference between the pebble size in fast and slow stretches of the river?

What part of the sediment was missed by this method?

Water Cycle:



Transpiration experiment:

Take a clear plastic bag and weigh it. Put it over a tree branch and seal around the neck – leave for 1 hour. (Choose a tree that is in the sun and has large leaves e.g. oak, beech or hazel).

1. What is inside the bag?

2. Where did it come from?

3. Weigh the bag and measure the leaf surface area (use graph paper) to find out how much water was lost per leaf in 1 hour? =

Total Leaf area	=	cm^2
Weight of bag before	=	gm
Weight of bag after 1 hour	=	gm
Difference in weight of bag before/after =		gm

Total Leaf Area ÷ Weight of water =

(1 gm of water = 1 cm^3 of water)

4. How does what you have seen link to the *water cycle*?

Activity 1 - carrying capacity:

1. Size of sponge	Weight of sponge	Time taken to discharge water

2. Can you make the sponge hold more water?

3. Why do think that is?

Activity 2 - River Formation:

1. Where is the main area of erosion?

2. Where is the main area of deposition?

3. Did your 'river' sort out the sediments into different sizes?

Which end of the river had the largest sediments?

Which end of the river had the smallest sediments?

Map Activity:

For this activity you will need OS Maps 1:25,000 Explorer: OL28 Dartmoor and 110 Torquay and Dawlish

1. Can you find Britain on the globe?

2. Can you find Devon on the map of Britain?

3. Can you find Dartmoor on the map of Devon?

4. Can you find Becky Falls on the OS 1:25,000 map?

5. How high is Becky Falls above sea level? (look at the contours) **metres**

Map Activity continued:

Upstream:

Look at the Becka Brook on the map and follow its path upstream to its source:

1. Where does the stream start?

2. Do other streams join it? How many?

3. Are there any towns, villages or hamlets along the stream? Write down their names.

4. Are they small or large?

Downstream:

Look at the river on the map and follow its path downstream to the sea:

1. How did you know you were following the river downstream and not upstream?

2. Where does the river end up? Name the main river and the nearest town to the mouth of the river.

3. Can you see any *meanders*?

4. Can you see the *flood plain* in the lower river?

5. Can you see the *estuary* where the river joins the sea?

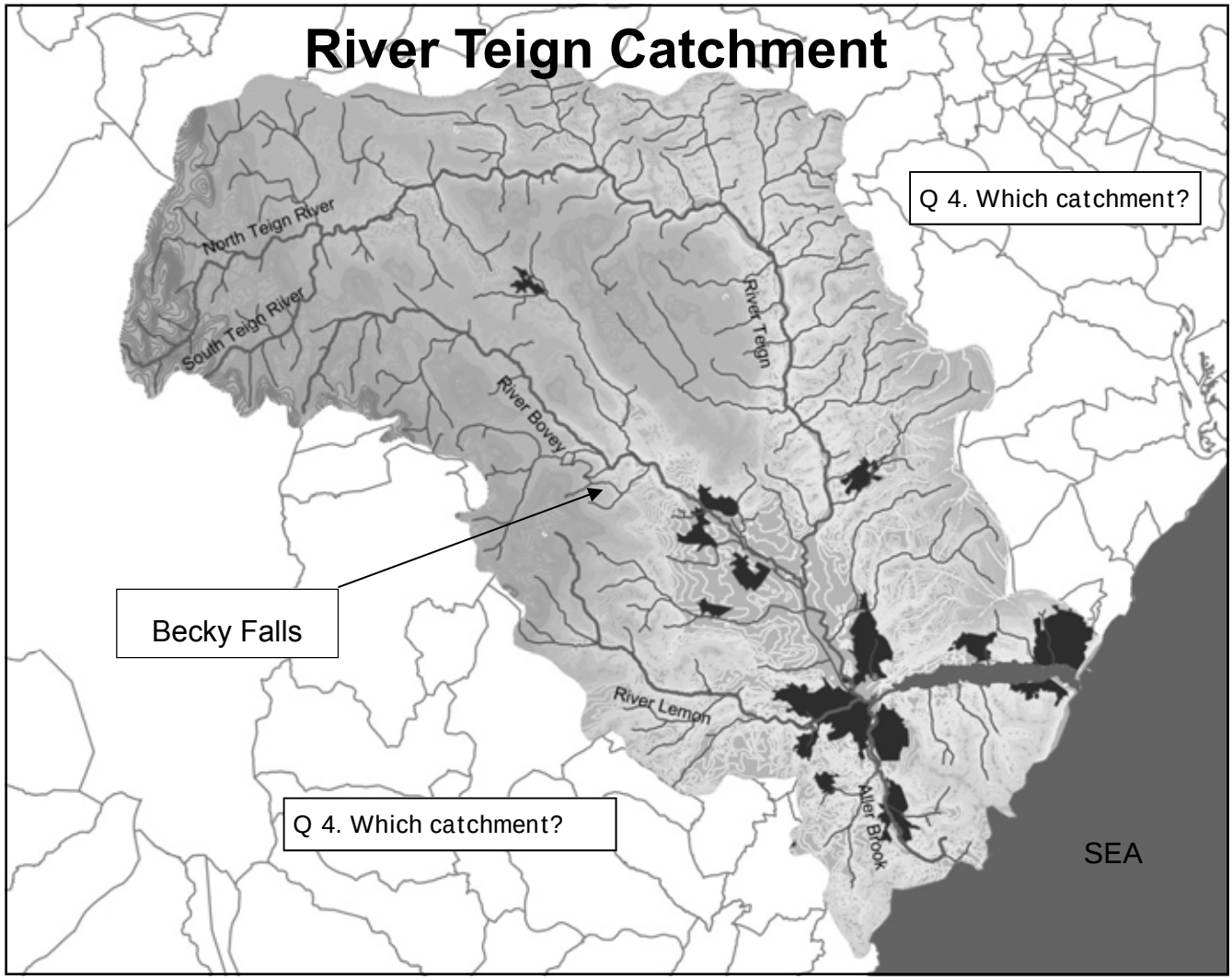
6. Are there any towns, villages or hamlets along the stream? Write down their names.

7. Are they small or large?

8. Are they different to the ones upstream? In what way?

Map Activity continued:

River Catchment



This is a diagram of the River Teign Catchment area. It shows all the rivers that flow into the River Teign.

1. Name the rivers that feed into the Teign.

Using the OS 1:25,000 map find the edges of the catchment.

2. Do all the rivers for this catchment start on high ground?

3. Are there other rivers flowing from the other side of the hills into another catchment?

4. Which catchments are adjacent to the Teign Catchment?
(Follow the rivers downstream until they reach the largest river which has an estuary).

Map Activity continued:

River Catchment - Land-use:

Many rivers are dealt with on a catchment-wide basis. Let's look at the River Teign and its catchment:

Using the OS 1:25,000 map think about land-use, human activities and how they might affect the river including sources of pollution, extraction of water, changes to the river itself.

1. Can you identify the main land-use in the upper areas of the catchment?

2. How might this affect the rivers?

3. Can you find any signs of industry in the middle area of the catchment?

4. How might these affect the rivers?

5. Can you find signs of industry in the lower area of the catchment near the sea?

6. How might these affect the river?

7. Can you think of anything that will use the whole catchment?

8. How do you think the activities you have outlined above might affect this?