**Student activity**

**Investigation**

First try to read the rest of the online resources and follow each activity on this sheet to help you carry out an investigation of increased coastal flood risk in Wales and to formulate questions which you can follow up after the next edition of Geography In The News.

**Student activity**

1. **Introduction**
	* In this section you will explain what it is that you are investigating.
	* You will **choose questions for enquiry** that you want to answer.
	* You will explain important background information.
	* Outline a **plan** of what you intend to do and what data you will collect or use. You do not need to visit the coastline but you could ask questions in a questionnaire about what people remember about the storms or if they have visited a location. You can also use GIS (Geographical Information Systems) to gather information; a good GIS is Google maps especially with the ‘zoomable’ satellite views, aerial photographs and in some places even street views of locations.
2. **Results**
	1. Use maps from the articles
	2. Use photographs from GIS
	3. Tabulate (put in tables) data.
	4. Convert the data into easier forms to interpret:
		* Use graphs
		* Simplify data into things like rounded numbers or a representative mean.
3. **Analysis**
* Show how your results answer your questions for enquiry:
	+ Annotate graphs, photographs, maps and diagrams
	+ Construct paragraphs.
1. **Conclusions**
* For each of your enquiry questions what have you found out? What is the answer?
1. **Methodology**
* Often the Methodology follows the Introduction as you explain what you plan to do. In this investigation we are going to place the Methodology before the Evaluation so that we can better develop our evaluative skills for the future.
* You will explain how you gathered your data and justify your choices.
* You will explain how you represented your data and justify your choices.
1. **Evaluation**
	1. Evaluate your **process** (how you carried out your investigations (methods)) – what was successful? What went wrong? What could you do differently next time?
	2. Evaluate your **sources** – (your information and data) which are reliable and why? Which might be biased and why?
	3. Evaluate your **outcomes** – (your conclusions) what is reliable and why? Which may be wrong or inaccurate and why?
	4. Formulate more questions for a future enquiry based on your findings; this is especially important to find out if your predictions may be correct after the election.

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1. Use the Section heading **Introduction** before answering the following questions in the form of a paragraph (not separately):
	1. What is coastal flooding?
	2. What is erosion?
	3. What happened in December 2013?
	4. What happened in January 2014?
2. Use a subheading of ‘**Questions for Enquiry**’ before completing these activities:
	1. Try to write 2 or 3 of your own questions for enquiry based on **secondary** (collected by someone else) data such as these examples:
		1. What happened to properties in the December 2013 storm?
		2. What happened to properties in the January 2014 storm?
		3. Is there a pattern between the storms and damage to sea defences?
	2. Try to write 1 or 2 of your own questions for enquiry based on **primary** (collected by you) or secondary data from a source other than Geography In The News such as GIS or a database search (Google maps is a GIS and Google itself is a database):
3. Use the Section heading **Results** before answering the following activities:

Use suitable graphs, maps and photographs to help you to answer your Questions for Enquiry. This table has been extracted for you as a start, but you should try to find other information yourself:

|  |
| --- |
| **Properties Flooded** |
| Cardigan | 21 |
| Aberystwyth | 12 |
| Barmouth | 15 |
| Fishguard | 13 |

1. Tabulate and then graph data that you collect either in a questionnaire or maybe by visiting a place with your family. You can also do this for data that you find in your research.
2. Use the Section heading **Analysis** before answering the following activities:
	1. Annotate directly on and around your graphs, maps and photographs to show any information or pattern that helps to answer your Questions for Enquiry.
3. For each of the graphs you have drawn or for each map that you have used write a paragraph that helps you explain what they show you, include:
	1. Which map or graph are you writing about? What is its title? Can you give a page number?
	2. Actual numbers; what is the highest? What is the lowest? What is the range (difference between highest and lowest)? What is representative of the average (either calculate a mean or approximate a rough value)?
	3. What does this show you?
	4. Why is it important?
4. Use the Section heading **Conclusions** before answering the following activities:
	1. For each of your enquiry questions write a paragraph (do not answer these question individually but use them to help build up a paragraph) to show what have you found out?
		1. What is the answer?
		2. Where is your evidence (which maps or graphs)?
		3. Do you have any actual numbers to back up your conclusion?
5. Use the Section heading **Methodology** before answering the following activities:

Often the Methodology follows the Introduction as you explain what you plan to do. In this investigation we are going to place the Methodology before the Evaluation so that we can better develop our evaluative skills for the future.

Answer questions in the form of a paragraph; use the question answers to choose what to include in your paragraphs.

* 1. Explain how you gathered your primary data and justify your choices:
		1. How did you collect information?
		2. What was good about this?
		3. What was bad about this?
	2. Explain what sources of secondary data that you chose and justify your choices:
		1. What was good about the source?
		2. What was bad or weak about the source?
		3. Do you think the source was biased or was it reliable and fair?
	3. Describe the methods that you chose to represent and simplify your data such as different types of graphs; justify your choices:
		1. What was good about your choice?
		2. What was bad or weak about your choice?
		3. Is there a better way for you to do this next time?
1. Use the Section heading **Evaluation** before answering the following questions in the form of a paragraph (not separately); use the question answers to choose what to include in your paragraphs.
2. Evaluate your **process** (how you carried out your investigations (methods)):
	1. What was successful?
	2. What went wrong?
	3. What could you do differently next time?
3. Evaluate your **sources** – (your information and data):
	1. Which are reliable and why?
	2. Which might be biased and why?
4. Evaluate your **outcomes** – (your conclusions):
	1. What is reliable and why?
	2. Which may be wrong or inaccurate and why?
5. Put a subheading **Important Issues** and try the following exercise to write a series of paragraphs to focus on what might have happened if the storm events that hit Wales in the Winter of 2013/14 had hit the same sections of coastline both times.
6. Subheading for paragraph **– Has Wales had a wakeup call?**
	1. Make a rough note of key pieces of information as you do the following Discuss and Decide activities with a friend or small group:

**Question -** Discuss and Decide

What do you think it means when we read that the 415 km of man-made sea defences in Wales protect over £8 billion in assets?

**Help**

A billion is one thousand million; an asset is something with a value.

**Question -** Discuss and Decide

Why do you think we might be considered to have been lucky following the January storms?

**Help**

Think about the scale of the damage to existing sea defences and what might have happened if the February event had been a ‘direct hit’ at high tide.

* 1. Now use this information to answer the question:

**Has Wales had a wake-up call?**

1. Put a subheading **Further Questions for Enquiry.**
	1. Discuss ideas with a friend that you find important that you have not investigated.
	2. Use some of these ideas to write some new questions that you could investigate in the future.