

CLIMATE CHANGE

Survey Questions

Students are worried about climate change and how it will impact on the environment and their lives.

Fill in the survey and then evaluate the response in your class to the survey.

1) Have you heard of climate change?

2) What do you think climate change is?

3) What impact do you think climate change will have on your life?

4) Tick the following that you have heard of. Using the weblinks, choose one to research the meaning and impact:

Global Warming ☐ Greenhouse gases ☐ Floods/Droughts ☐

Carbon emissions ☐ Hole in the Ozone ☐ Melting icecaps ☐

5) What are the biggest environmental issues that you worry about? Why

Carry out your own research into climate change using some of the following websites:

Climate change survey of students:

<https://www.sciencedaily.com/releases/2013/10/131003105700.htm>

Information and news articles about climate change:

<http://www.bbc.co.uk/news/science-environment-34320399>

<http://www.bbc.co.uk/news/science-environment-39710313>

http://news.bbc.co.uk/1/hi/english/static/in_depth/sci_tech/2000/climate_change/

<http://www.ukcip.org.uk/>

View Earth from space:

<http://www.fourmilab.ch/earthview/satellite.html>

<http://satellite.ehabich.info/naturalearth.htm>

Weather around the world:

<http://www.worldweather.org/en/city.html?cityId=32>

Flooding in the U.K.

http://maps.environment-agency.gov.uk/wiyby/wiybyController?value=London%2C+City+of+London&submit.x=16&submit.y=9&submit=Search%09&lang=_e&ep=map&topic=floodmap&layerGroups=default&scale=9&textonly=off

Extension:

Collate the answers and create a survey report based on the class answers.

CAUSES AND EFFECTS OF CLIMATE CHANGE

Causes of Climate Change	Effects of Climate Change

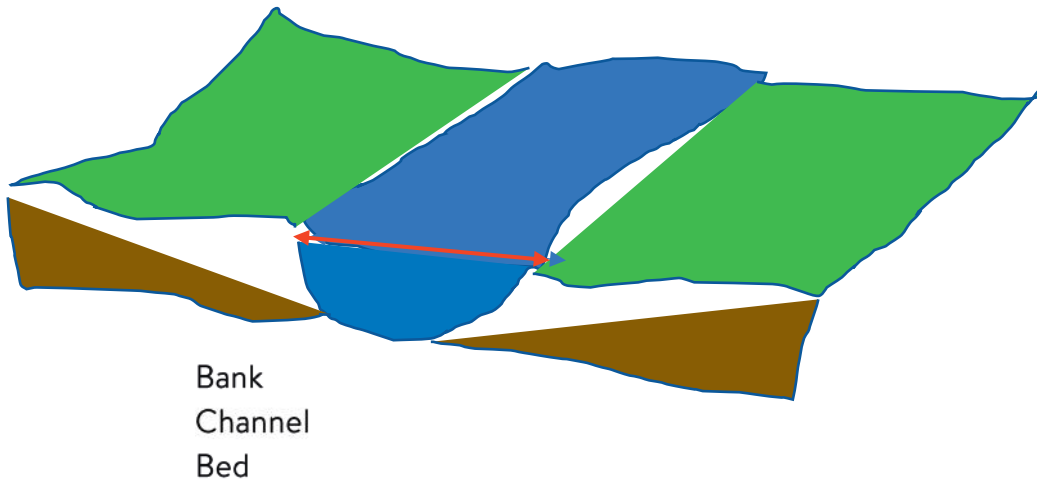
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Solutions to Climate Change:

Flood Defences

The River Thames uses different flood defences. Flood defence is any method used to prevent or slow down river flooding.

Label the river:



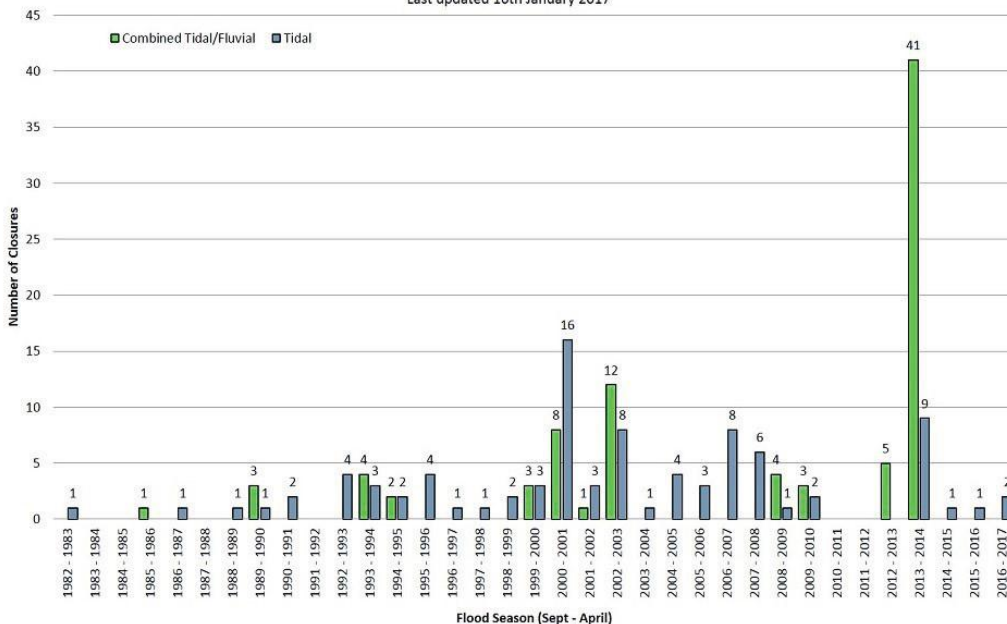
There are two different types of river defences: hard defences and soft defences.

Hard Defences involve using man made devices to prevent flooding. For example the Thames Barrier, river walls and banks.

Soft Defences involve using natural devices to prevent flooding. For example planting trees along the river.

Thames Barrier Flood Defence Closures by Flood Season

Last updated 16th January 2017



The Thames Barrier has been closed 176 times since it became operational in 1982 (correct as of April 2016). Of these closures, 89 were to protect against tidal flooding and 87 were to protect against combined tidal/fluvial flooding.

What is tidal flooding?

What is Fluvial flooding

Which year did the Thames Barrier close the most for tidal flooding

Which year(s) did the Thames Barrier close least for tidal flooding

What was the difference between Tidal Flooding and Fluvial Flooding in 2013/2014?

Examine the rainfall table. Analyse rainfall patterns and events and compare to the closure of the Thames Barrier:

- a. Is there a link between rainfall and the closure of the Thames Barrier?
Evidence?

- b. Does the link to the closure of the Thames Barrier apply only to Fluvial flooding? Evidence?

- c. Which year had the most precipitation

Examine the precipitation **figures on page 11** and create a line graph for the rainfall in RED

[illegible]

When you have created the graph, answer the questions below.

1. When was the wettest year?

2. When was the driest year?

3. What was the difference between the least and most precipitation in the years listed?

4. What do you think is effected by increased rainfall on:

- a. Farmers?
- b. Tourist and Tourism?
- c. Businesses?
- d. Teenagers
- e. City dwellers?

Monthly Southeast England precipitation (mm). Daily automated values used after 1996.

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1983	62.5	33.3	43.1	96.2	98.5	33.3	42.7	23.8	58.9	49.0	46.5	72.1	659.9
1984	112.4	38.4	69.7	5.1	81.5	31.0	25.7	35.8	84.3	89.0	102.0	75.7	750.7
1985	58.2	32.4	48.3	38.4	58.2	89.3	52.3	89.5	17.8	25.8	51.9	103.7	665.8
1986	110.1	16.0	62.3	67.9	62.0	22.0	45.0	103.8	33.9	82.5	101.4	89.6	796.6
1987	18.7	36.5	68.7	57.1	46.2	85.2	68.8	48.8	39.4	198.7	73.0	27.7	769.0
1988	143.8	39.6	75.1	35.4	49.2	33.1	85.5	43.8	45.8	68.0	24.9	17.6	661.8
1989	33.2	58.8	64.4	78.6	14.3	35.7	29.1	35.7	22.9	67.3	37.9	143.8	621.6
1990	98.7	122.3	8.9	41.5	7.7	56.8	15.1	33.6	38.6	79.1	41.4	60.1	603.9
1991	86.7	39.6	51.4	57.1	14.1	102.0	85.2	13.7	56.5	40.2	67.1	20.1	633.8
1992	24.9	27.7	46.3	73.8	57.5	38.6	80.1	98.6	84.1	85.1	132.8	56.4	806.0
1993	90.1	7.1	29.2	84.7	56.6	57.7	60.8	34.2	127.4	112.5	56.8	133.9	851.1
1994	115.6	62.5	52.9	66.2	88.3	29.7	24.9	65.7	90.1	100.0	58.1	99.6	853.6
1995	143.1	92.4	54.1	19.5	29.7	15.9	37.1	3.4	127.8	30.3	63.2	95.3	711.8
1996	57.8	69.3	35.3	31.2	43.2	20.3	38.5	65.2	23.9	50.9	122.6	24.6	582.8
1997	15.3	82.9	13.9	11.3	50.3	100.6	36.5	78.1	13.8	69.7	90.3	75.6	638.3
1998	83.7	9.1	56.5	102.1	22.6	88.6	33.2	20.8	112.9	128.1	65.8	78.4	801.7
1999	96.2	27.5	33.4	58.0	41.2	76.2	29.5	108.9	102.6	64.3	42.7	109.5	789.8
2000	22.1	80.3	20.1	144.6	109.3	20.6	47.6	47.3	86.1	185.9	146.6	110.1	1020.6
2001	93.1	92.9	122.4	75.7	32.2	25.8	51.5	83.4	70.1	133.0	43.0	25.2	848.2
2002	69.4	79.1	44.6	42.9	78.4	58.1	69.5	43.2	37.5	88.4	175.4	137.3	923.8
2003	80.1	27.6	25.6	35.6	45.3	49.5	46.4	16.2	11.0	52.8	142.6	74.3	607.0
2004	86.3	29.7	40.5	81.8	48.7	31.1	52.0	101.8	26.7	121.0	33.4	55.9	708.9
2005	34.4	21.0	48.8	46.5	28.2	35.7	57.3	49.9	48.5	91.5	50.0	64.9	572.3
2006	24.2	52.5	52.5	42.9	97.3	19.8	29.6	72.0	62.0	100.2	85.7	89.0	727.6
2007	71.9	104.5	52.7	2.3	113.5	94.3	108.2	51.0	33.7	44.4	77.8	58.4	812.9
2008	99.1	22.9	89.9	63.5	100.6	38.2	69.1	72.4	64.7	62.2	97.1	39.2	819.0
2009	88.6	70.3	38.7	37.2	35.3	35.2	78.0	33.1	28.2	60.7	177.3	107.6	790.3
2010	63.5	101.5	52.0	20.2	36.6	38.6	26.8	105.8	50.4	75.6	65.4	29.3	665.7
2011	102.4	53.8	15.8	4.3	25.9	83.8	49.9	74.7	36.4	33.8	39.2	91.7	611.7
2012	49.7	19.9	27.9	130.0	41.6	131.2	101.9	42.5	54.4	122.6	90.2	138.9	950.8
2013	63.6	38.5	68.6	41.1	52.9	22.5	31.8	50.6	56.2	141.1	71.5	138.6	777.0
2014	181.9	130.3	38.7	63.0	83.5	38.3	53.0	109.9	13.8	108.5	135.3	55.8	1012.0
2015	93.1	56.0	26.8	22.1	62.3	27.8	68.5	104.1	63.4	54.0	75.2	70.2	723.5
2016	114.1	49.1	79.7	55.6	61.3	114.4	21.6	31.0	46.4	28.7	94.9	17.4	714.3

http://www.metoffice.gov.uk/hadobs/hadukp/data/monthly/HadSEEP_monthly_gc.txt

Wigley & Jones (J.Climatol.,1987), Gregory et al. (Int.J.Clim.,1991). Jones & Conway (Int.J.Climatol.,1997), Alexander & Jones (ASL,2001).

Worksheet – Thames Watermen

In 1514 Henry VIII granted a license to watermen to carry passengers on the River Thames.
A waterman is a river worker who transfers passengers across and along the river.

This is their coat of arms:



Can you translate their motto at the top of the coat of arms?

What does it tell you about what they do?

The Meaning of Colours

- Silver / White – Truth, sincerity, peace, purity.
- Gold – Wisdom, generosity, faith.
- Black – Wisdom, grief, caution.
- Green – Joy, hope, loyalty.
- Blue – Truth, strength and faith.
- Red – Strength, warrior, martyr.
- Purple – Royalty, justice, majesty.
- Orange – Ambition.

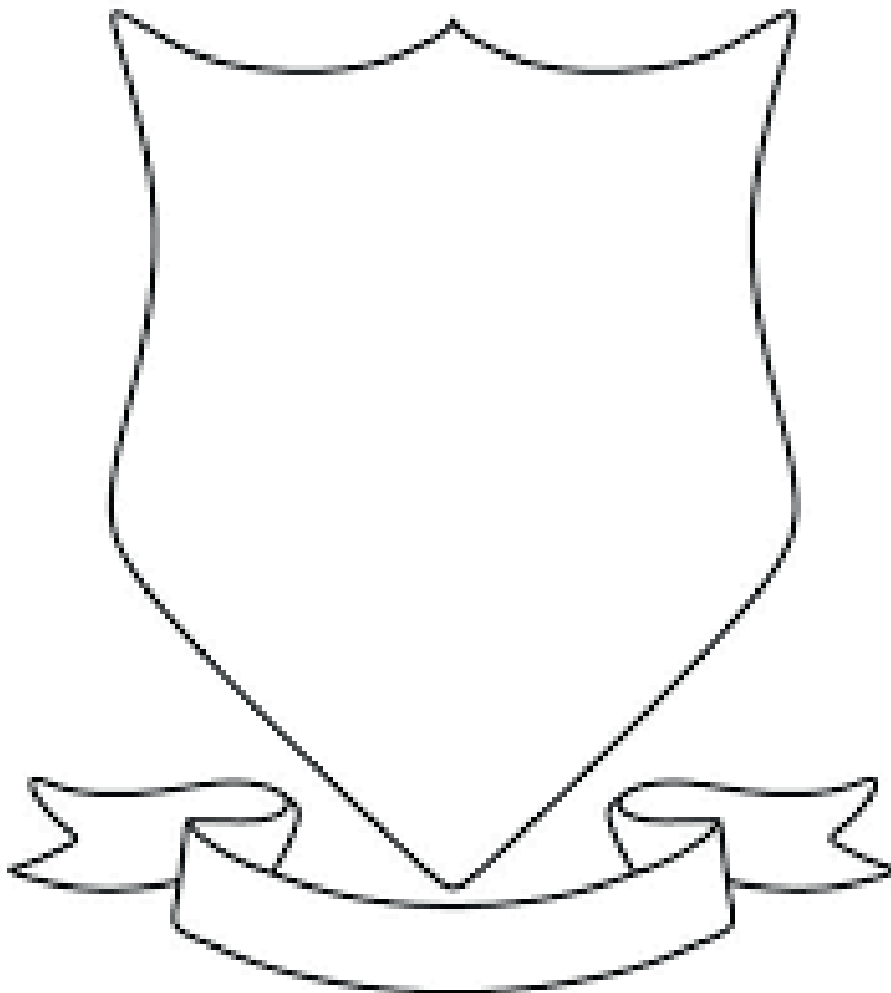
Design your own coat of arms.

Research your nationality and show it in your coat of arms.

Research your country of origin and show it in your coat of arms.

Research your family connections and show them in your coat of arms.

Use the colours to show information about you.



KS3 – PRE VISIT – LESSON 3 – THRILLING STORIES

STORY STARTERS

The prisoner was chained to the boat, face-to-face with the Waterman as he stroked the oars going backwards. The Tower of London loomed in the distance.

A disgusting stink of sewage rose from the river, as people emptied their toilet bowls into the slow-moving water. A rat appeared, sniffing and scratching in the dirt.

The sound of laughter and music playing rang across the river as people ice-skated over the frozen River Thames. A slight crack appeared as a man bounded towards London Bridge.

A tall ship moored along the Thames filled with spices and fruits from far-away places swayed gently on the waves. A small boy rose his head from behind the crates, his eyes wide with excitement – his first time in a city.

The ripples that the Watermen were so used to had stilled. A horse neighed in the distance.

In the darkness, the periscope of a submarine appeared, breaking the surface of the river. It turned left and right, and then sank back down into the murky depths.

A young boy was fishing in the calm waters of the River Thames. His mother was tending to the crops on the bank whilst his father was tying up the wooden boat, full of delicious treats he had bought downstream at the market. A bright light appeared in the sky, metallic and not from this world.

Either side of the river, the tall buildings snaked along its course. Suddenly, all their lights went out.

A very large fin splashed in the water of the River Thames. This type of fish had never been seen in this part of the world before. It was more commonly found in the warm waters of the Caribbean.

The two teams were ready to start the race. The oars were in place, the boat prepared, the rowers tense. The starter's gun was poised, ready to be fired. Bang!

Choose one of these story starters, or make up your own.

LESSON 3 – FUN FACTS ABOUT THE RIVER THAMES

Facts:

1. There are over 80 islands in the River Thames.
2. There are 60,000 bees that live on the roof of the National Theatre, on the banks of the River Thames.
3. The River Thames is home to 115 species of fish including sea horses and a northern bottle nosed whale which was seen near Chelsea.
4. Twice a day the River Thames is flooded with sea water.
5. The River Thames is 3 meters deeper than it was 300 years ago.
6. The first River Thames tunnel is 366 metres long and was dug by hand for people to walk underneath the river. On its first day, 50,000 walked through the tunnel for 1 penny.
7. The River Thames used to be a big sewer and in 1858, there was the “Big Stink”.
8. Women built the Waterloo bridge during World War 2. It is known as *The Ladies Bridge* by Thames Watermen.
9. The Lions along the water’s edge act as a flood warning and if water touches their mouths, then there will be a flood. A rhyme helps Rivermen to remember to keep watch on the lions - “When the lions drink, London will sink.”
10. A drop of rain that joins the Thames at its source in the Cotswolds will go through the bodies of 8 people as drinking water before it reaches the sea.

Choose one or two facts and build a story around them:

What facts have you chosen?

Why

Choose:

Genre

Characters Types

Use the writing frame to help you plan your story

CITY CRUISES – KS3 – PRE-VISIT – 5 C's THRILLING STORY PLANNING

First C – Complex Characterisation – Introduces the characters and give them fatal flaws or redeeming features.

Second C - Confrontation – Introduce the action or tension, including the atmosphere as something is about to happen which will lead to confrontation between your character.

Third C – Conundrums – Detailed description including the feelings of your main character. The problem seems to have no solution. Make sure the River Thames is featured in the conundrum in our narrative.

Fourth C - Coronary – Include a “heart stopping” scare or moment in your story.

Fifth C – Community – Bring all the elements of your narrative together. You could include a cliff-hanger or a twist to your ending to get people talking about it.