

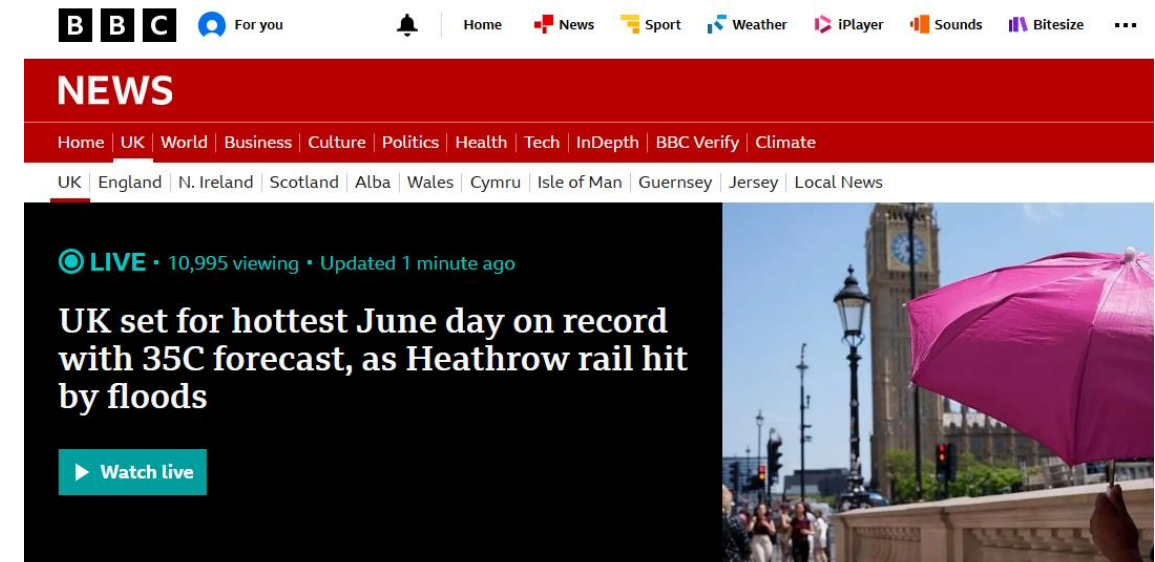
Geographical Enquiry: How should we tackle climate change?

The Challenge:

Our world is warming at unprecedented rates. This is causing extreme weather such as storms, heatwaves and drought.

Your task is to decide how best we can tackle this current climate change.

Will you decide that we should make changes now to prevent climate change getting worse? Or should people adapt their lives to the changes which are happening?



The screenshot shows the BBC News website interface. At the top, there are navigation links for Home, News, Sport, Weather, iPlayer, Sounds, and Bitesize. Below this is a red banner with the word 'NEWS' in white. Underneath the banner, there are links for Home, UK, World, Business, Culture, Politics, Health, Tech, InDepth, BBC Verify, and Climate. A secondary row of links includes UK, England, N. Ireland, Scotland, Alba, Wales, Cymru, Isle of Man, Guernsey, Jersey, and Local News. The main content area features a live news story with a 'LIVE' indicator, 10,995 viewers, and an update from 1 minute ago. The headline reads 'UK set for hottest June day on record with 35C forecast, as Heathrow rail hit by floods'. A 'Watch live' button is visible below the headline. To the right of the text is a photograph of a person holding a pink umbrella in front of a clock tower.

Summary

- The UK is likely to experience its hottest June day on record on Tuesday, with temperatures forecast to rise above 35C (95F) - the current June temperature record is 35.6C, set in 1976
- But Heathrow's rail services have been **disrupted by overnight flooding** following stormy weather
- Heat will build through the middle of the week, potentially reaching 40C - less than one



Why are we worried about Climate Change?

Watch these 2 clips to understand why climate change is such a concern.

<https://www.bbc.co.uk/news/videos/cn0729nj184o>

<https://www.youtube.com/watch?v=f7EQRsQ-YrU>

Geographical Enquiry: How should we tackle climate change?

You are now going to learn about our 2 options:

1. Mitigate climate change (take actions to prevent is worsening)
2. Adapt to climate change

You will then make a decision about what you think should be done.

Option 1: Mitigate Climate Change

Mitigate means to prevent something. In the case of climate change, mitigation refers to changing our lifestyles to reduce the amount of greenhouse gases released into the atmosphere.

We would need to do this by:

- burning less fossil fuel;
- increasing renewable energy;
- reducing deforestation and increase afforestation (tree-planting)
- Consume less and re-use more

Watch this clip to find out more:

<https://www.bbc.co.uk/videos/cd19k7zl47po>

Task:

You are now going to consider different methods of mitigation (prevention of climate change). As you look through each of the following slides, **list each method and give them a score /5** for how easy it would be to set up.

Consider:

TIME - How long it will take to put in place?

COST- Will it be expensive?

IMPACTS – Will there be negative impacts on people and the environment?

RENEWABLE ENERGY



What is meant by the term 'renewable'?

Can you name any other renewable sources of energy?

Even if some of their emissions are captured, coal and gas power stations still produce around 19x more emissions over their lifetime than solar and wind farms.
(Carbon Brief, 2017)

How do renewable energy sources *indirectly* emit greenhouse gases?

Credit: adege (pixabay.com)

List each method.
Give them a score /5

Consider:
TIME - How long it will take to put in place?
COST- Will it be expensive?
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SUSTAINABLE TRANSPORT



Examples of sustainable transport include walking, electrified mass-transit, car sharing. Can you think of any others?

List each method.
Give them a score /5

Consider:
TIME - How long it will take to put in place?
COST- Will it be expensive?
IMPACTS – Will there be negative impacts on people and the environment?

In 2016, transportation (road, rail, air and marine) accounted for over 24% of global CO2 emissions.
(IEA, 2018)

Credit: Diliff (https://en.wikipedia.org/wiki/Sustainable_transport)



ENERGY CONSERVATION

List each method.
Give them a score /5

SMART Ways to Cut Down Your ELECTRICITY USAGE

As UK's appetite for Smart homes grows, so does its responsibility towards being as energy efficient as possible.

- 1. Smart Energy Meters**
Only **21%** of UK households owned a smart energy meter in 2017.
- 2. Smart Thermostats**
Help keep your room temperature as low as possible for as long as possible.
- 3. Smart Power Strips**
Plug all related electronics into a common power bar which you can turn off all at once when you are not using them.
- 4. Plug Sockets**
Turn connected appliances off remotely right from the convenience of your fingertips.



Consider:
TIME - How long it will take to put in place?
COST - Will it be expensive?
IMPACTS - Will there be negative impacts on people and the environment?



GREEN ROOFS



Green roofs have many benefits from helping to keep a building cool to reducing rainwater run-off. Can you think of any more?

Here's a thermal image of a green roof vs a concrete roof. What do you think?



Meldarinejad & Esmaili (2015)

Green roof at the British Horse Society, Credit: Sky Garden Ltd via "[Green Roof](#)" (Wikipedia)

List each method.
Give them a score /5

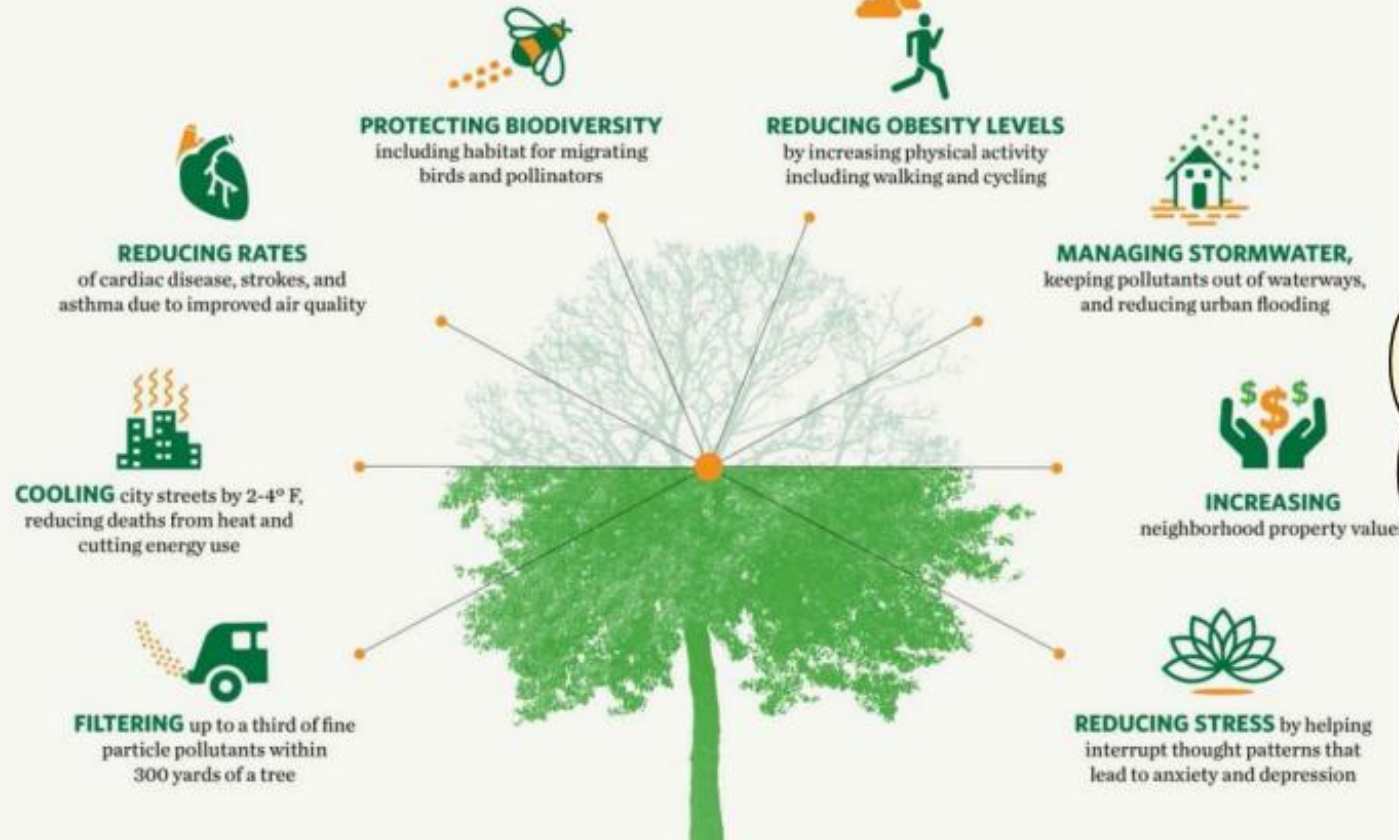
Consider:
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TREE PLANTING & CARE

Benefits of Urban Trees

Research has linked the presence of urban trees to...



Many experts caution against large 'plantations', which usually consist of a small number of fast-growing species. Why do you think this might be?

List each method.
Give them a score /5

Consider:
TIME - How long it will take to put in place?
COST- Will it be expensive?
IMPACTS – Will there be negative impacts on people and the environment?

Now let's consider ADAPTATION...

Option 2: Adapt to Climate Change

We are already having to adapt to climate change – that is what you are doing today by working from home. Some adaptations can be made quickly whilst other adaptations take a longer time to plan and build.

Adaptations include:

- Coastal and flood defences from storms
- People moving from islands due to sea-level rise
- Changes to crops due to drought and diseases
- Increased migration as some areas are inhabitable

Watch this clip to learn

more: <https://www.bbc.co.uk/bitesize/topics/zqvb7v4/watch/zb98p9q>

Task:

You are now going to consider different methods of **adaptation**. As you look through each of the following slides, **list each method and give them a score /5** for how easy it would be to set up.

Consider:

TIME - How long it will take to put in place?

COST- Will it be expensive?

IMPACTS – Will there be negative impacts on people and the environment?

FLOOD MANAGEMENT & DEFENCE



List each method.
Give them a score /5

Consider:
TIME - How long it will take to put in place?
COST - Will it be expensive?
IMPACTS – Will there be negative impacts on people and the environment?



What causes flooding from the coast? How does climate change fit into it?

How many times of coastal management strategies can you name?

What causes flooding from rivers? How does climate change it into it?

How many times of flood management strategies can you name?

Source: Wikimedia Commons image of London's Thames Barrier



LOCAL FOOD PRODUCTION

Would you be willing to eat seasonally with foods only grown in the UK?



What about meat?
If it was local,
would it still be an
acceptable choice?

List each
method.
Give them a
score /5

Consider:
TIME - How
long it will take
to put in place?
COST- Will it
be expensive?
IMPACTS –
Will there be
negative
impacts on
people and the
environment?



DROUGHT-RESISTANT PRODUCE

What do we mean by 'drought'?

Are there some parts of the world that will be more reliant on drought-resistant produce than others?



- HERBS**
 - Basil - Mrs. Burns' Lemon
 - Borage
 - Catnip
 - Chamomile, German
 - Chives
 - Hyssop
 - Lavender
 - Lemon Balm
 - Mullein
 - Oregano
 - Rosemary
 - Sage - once it's established
 - Sweet Marjoram
 - Thyme
- MELON**
 - Iroquois
 - Navajo Yellow
- MUSTARD** - uses less water than many other cultivated vegetables
 - Southern Giant Curled
- OKRA** - needs warm climate
 - Gold Coast
 - Hill Country Heirloom Red
 - Jing Orange
- PEPPER**
 - Jupiter Red Ball
 - Orlando
- CHARD** - almost all varieties listed in desert or dry climate catalogs
 - CORN**
 - Anasazi Sweet
 - Daymon Morgan's Kentucky
 - Butcher
 - Hopi Blue Flour
 - Hopi Pink
 - Painted Mountain Flour
 - Pinky Popcorn
 - Silver Queen Hybrid Sweet
 - Tennessee Red Cob
 - COWPEAS** - need warm nights
 - Pink-Eye Purple-Hull
 - CUCUMBER**
 - Armenian
 - Lemon
 - EGGPLANT**
 - Listada de Gandia
 - GRAINS**
 - AMARANTH**
 - Mayo
 - Red Stripe Leaf
 - Tampala
 - BARLEY**
 - Ethiopian Hulless
 - Jet
 - Milan
 - QUINOA - all varieties
 - TOMATO**
 - Cara Rich
 - Pearson
 - Pineapple
 - Stone
 - Yellow Pear
 - WATERMELON**
 - Black Diamond
 - LIMA BEANS**
 - Alabama Black-Eyed Butter
 - Alfalfa Sieve
 - Black Bush
 - BUTTER BEANS**
 - Jackbean Wonder Bush
 - GARBANZO BEANS**
 - Ceci
 - WHITE HULL Runner Beans**
 - WATERMELON**
 - Black Diamond
 - SQUASH**
 - Cocozelle Zucchini
 - Costata Romanesco
 - Cushaw Green-Striped
 - Dark Star Zucchini
 - Iran
 - Jumbo Pink Banana
 - Lebanese Light Green
 - SUNFLOWER**
 - Skyscraper - edible seed



List each method. Give them a score /5

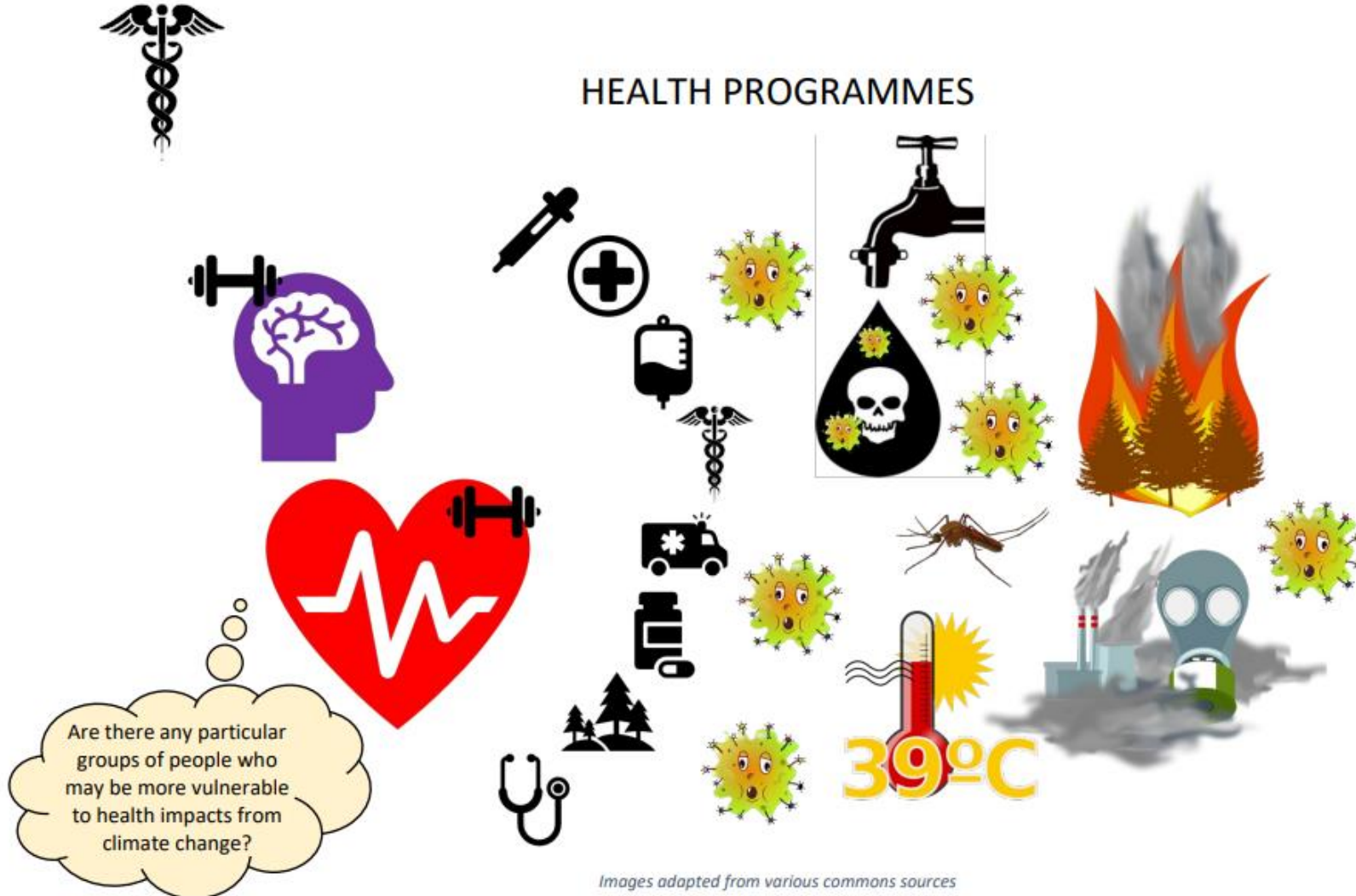
Consider: **TIME** - How long it will take to put in place? **COST**- Will it be expensive? **IMPACTS** – Will there be negative impacts on people and the environment?

How many of these have you tried?

Image: Wikimedia Commons. List of drought resistant crops and varieties from University of California Agriculture and Natural Resources

**List each
method.
Give them a
score /5**

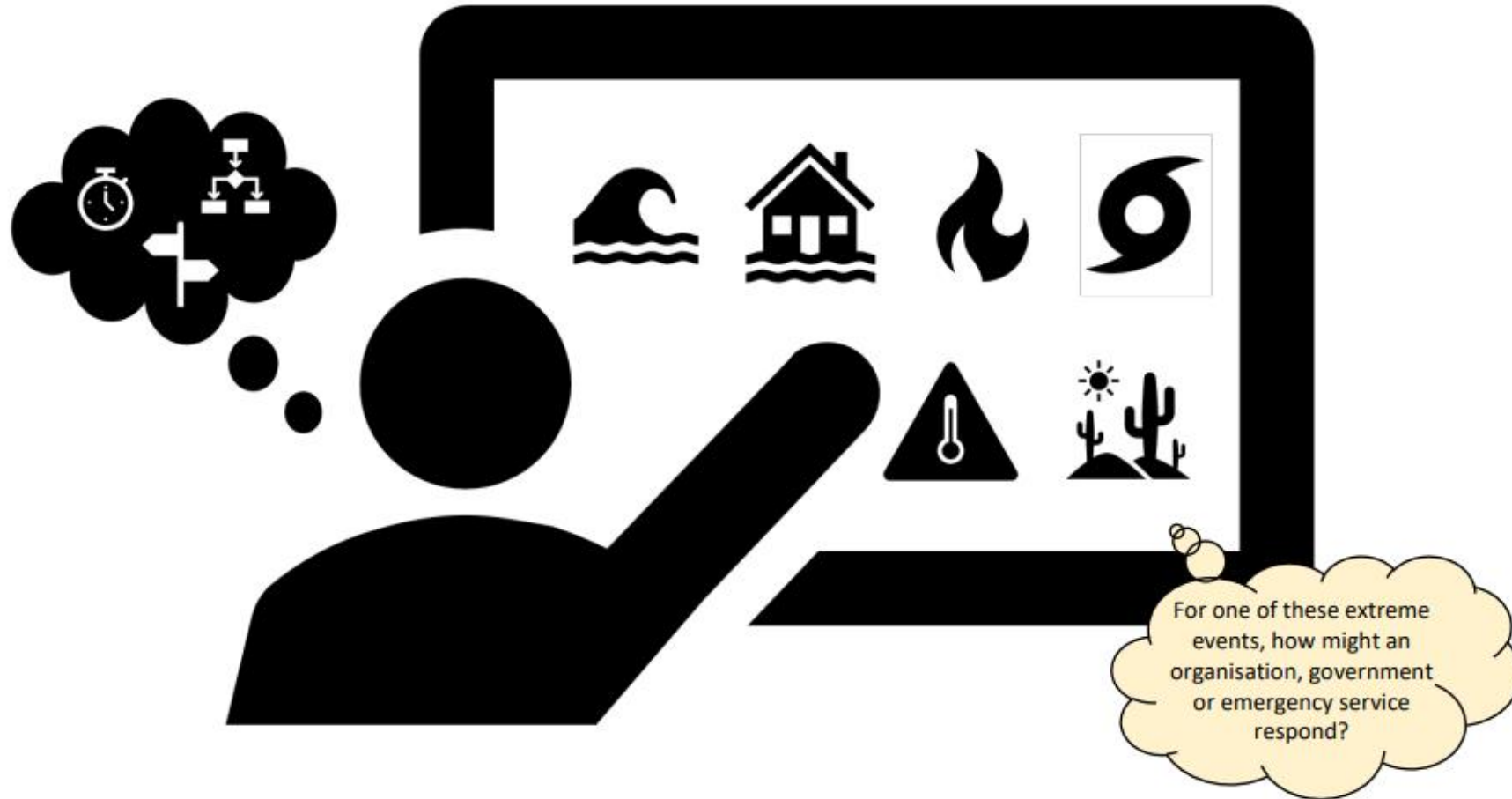
HEALTH PROGRAMMES



Consider:
TIME - How long it will take to put in place?
COST - Will it be expensive?
IMPACTS - Will there be negative impacts on people and the environment?



EMERGENCY PLANNING



List each method.
Give them a score /5

Consider:
TIME - How long it will take to put in place?
COST - Will it be expensive?
IMPACTS – Will there be negative impacts on people and the environment?

Governments, scientists and geographers have agreed that, if we take enough action immediately, we can still mitigate climate change and prevent it becoming more severe.

Experts also believe this would be a cheaper option.

However, it would mean all countries, companies and individuals taking action NOW.



**DECISION
TIME**

Task: You are to write a brief report stating your opinion and answering these questions:

1. What is a better option: to mitigate or to adapt to climate change?
2. What is your best argument for your opinion in Q1?
3. Many people say climate change is the greatest challenge humans have ever faced. Why is climate change so difficult to manage?

Share your work with us...

Please bring your completed work to your next geography lesson to show your geography teacher.

Your teacher will then share the best examples with Mrs Smyth.

We look forward to reading your viewpoints. :)