

# Task 1 – enquiry case study

## topical or extreme weather event

- **Review** the climate enquiry as a scheme of work/sequence of learning

<http://www.collaborativelearning.org/11coordinator.pdf>

- **Refer** to GA Assessment and progression framework for geography

<http://www.collaborativelearning.org/18assessment.pdf>

- **In your groups** – select a segment & think through responses to the set of ‘deep dive’ questions on the next slide.
- You will be **feeding back** on those aspects in bold so spend more time on them...

# Deep Dive type questions...(viz.Ofsted)

- How well is a series of lessons sequenced within the intended curriculum **and how well do they provide purposeful opportunities for pupils' progression** through it?
- What is the **purpose** of a lesson or task, **how does it fit into a sequence of lessons over time**, and **what do pupils already know and understand**.
- How are teachers supported to both develop their subject knowledge alongside pedagogical knowledge and to teach the component knowledge leading to NC outcomes?
- How are teachers supported to ask specific questions related to the school curriculum content? ... e.g. **'give me an example of something that is taught in Y2 that is built on in Y4 and Y6'**
- **How have you built on learning in Y3? ... in Y5?**

# Task resources

## Resources

- Likely focused 'deep dive' questions posed by inspectors (previous slide no 41)
- Assessment and progression framework for geography document

<http://www.collaborativelearning.org/18assessment.pdf>

- Topical event enquiry/sequence of work

<http://www.collaborativelearning.org/20enquiry.pdf>

# Book/pupils' work scrutiny - indicators

**Table 3: Book scrutiny indicators selected for the pilot**

<b>Building on previous learning</b>	<b>Depth and breadth of coverage</b>	<b>Pupils' progress</b>	<b>Practice</b>
Pupils' knowledge is consistently, coherently and logically sequenced so that it can develop incrementally over time. There is a progression from the simpler and/or more concrete concepts to the more complex and/or abstract ones. Pupils' work shows that they have developed their knowledge and skills over time.	The content of the tasks and pupils' work show that pupils learn a suitably broad range of topics within a subject. Tasks also allow pupils to deepen their knowledge of the subject by requiring thought on their part, understanding of subject-specific concepts and making connections to prior knowledge.	Pupils make strong progress from their starting points. They acquire knowledge and understanding appropriate to their starting points.	Pupils are regularly given opportunities to revisit and practice what they know to deepen and solidify their understanding in a discipline. They can recall information effectively, which shows that learning is durable. Any misconceptions are addressed and there is evidence to show that pupils have overcome these in future work.



## Using the iceberg story as an example - think of it as the smallest of a series of Russian dolls building a scheme of work

1. What is currently happening in the South Atlantic?

V

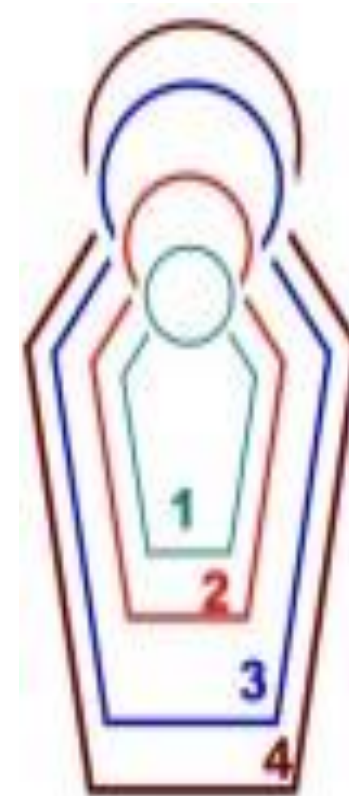
2. What does this tell us about climate and the weather?

V

3. Is there such a thing as climate change?  
– if so why?

V

4. What does climate change mean for us?



# Investigating a topical event or issue .....

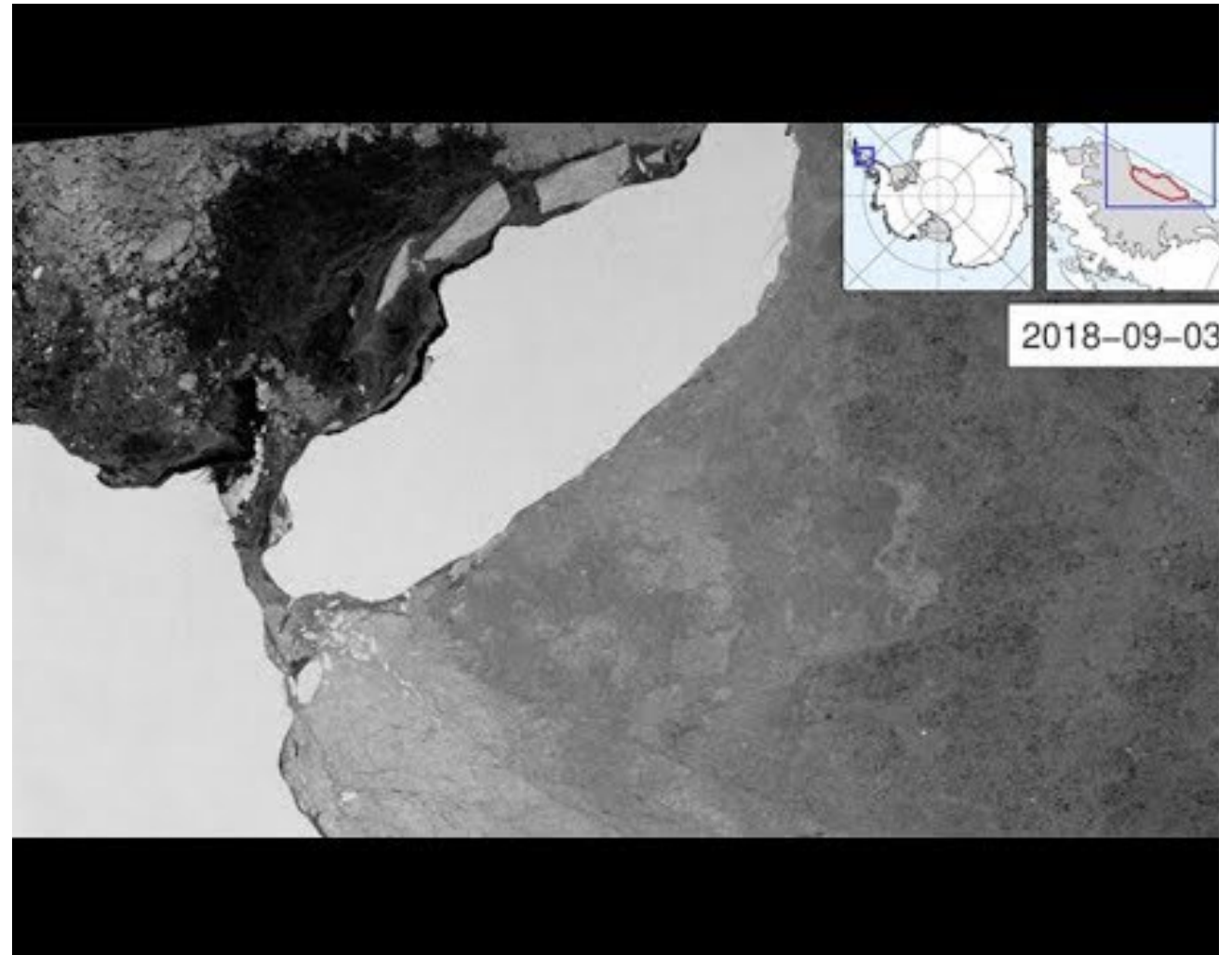
What was in the news last week?

**Biggest iceberg ever about to collide with an island in the South Atlantic;**

Storm Aiden; Hurricane Zeta; Tropical Storm Laura & now Hurricane Iota!

A massive Antarctic iceberg the size of a small country is heading for the island of South Georgia with concerns it could disrupt the British territory's economy and its wildlife. The giant floating ice island (A-68A) is now about 500km away from the South Georgia in Antarctica.

A68a - which has the look of a hand with a pointing finger - has been riding this "iceberg alley" since breaking free from Antarctica in mid-2017. It's now just a few hundred km to the southwest of South Georgia.



The Antarctic ice giant A68a is a similar size to [the South Atlantic island of South Georgia](#), and there's a strong possibility the berg could now ground and anchor itself offshore of the wildlife haven.

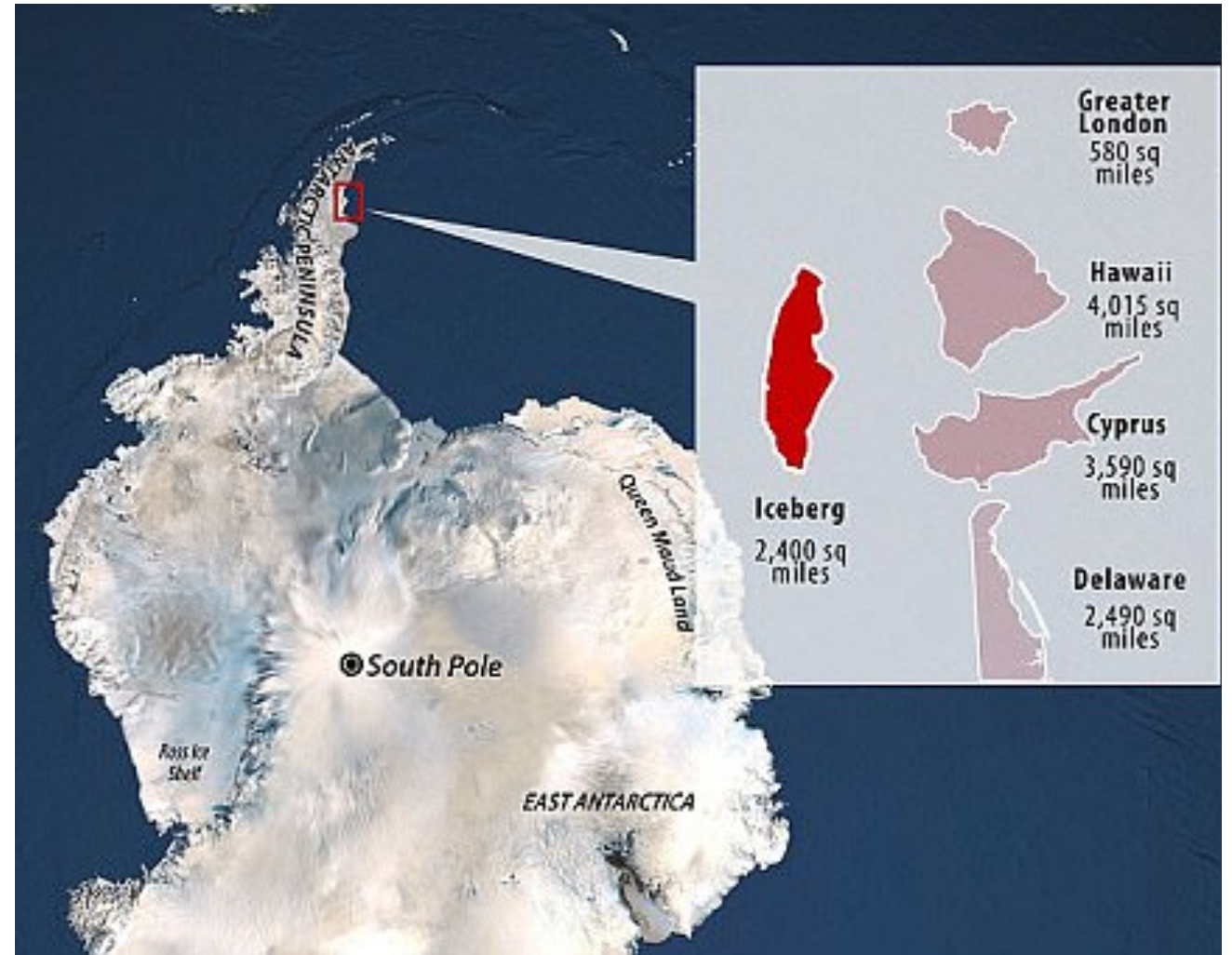
If that happens, it poses a grave threat to local penguins and seals.

The animals' normal foraging routes could be blocked, preventing them from feeding their young properly.

And it goes without saying that all creatures living on the seafloor would be crushed where A68a touched down - a disturbance that would take a very long time to reverse.

"Ecosystems can and will bounce back of course, but there's a danger here that if this iceberg gets stuck, it could be there for 10 years," said Prof Geraint Tarling from the [British Antarctic Survey \(BAS\)](#).

"And that would make a very big difference, not just to the ecosystem of South Georgia but [its economy](#) as well," he told BBC news.



# What is happening here? (slides 7 & 8)

## Possible enquiry questions

- Where is this happening? (Where is South Georgia etc?)
- What can we see in the photograph?
- What name (number) has it been given?
- What do we know?
- What is the weather like?
- What is at risk in this area of the world?

➤ *What is happening in the South Atlantic ocean/southern hemisphere?*

Points to note: **Gg aspects/dimensions**, **locations**, **concepts & potential Gg vocab** etc.

*In the news last week: Hurricane Zeta; Storm Aiden; giant iceberg in the South Atlantic; UK floods – each would allow ways in to issues of climate change*

- **Observational skills; map/atlas skills**
- **Contextual world & locational knowledge**
- **Antarctica, South Georgia, Atlantic Ocean**
- **Ocean, ice, hemisphere, south, iceberg, island, ecosystem,**



**& what can you see here?**



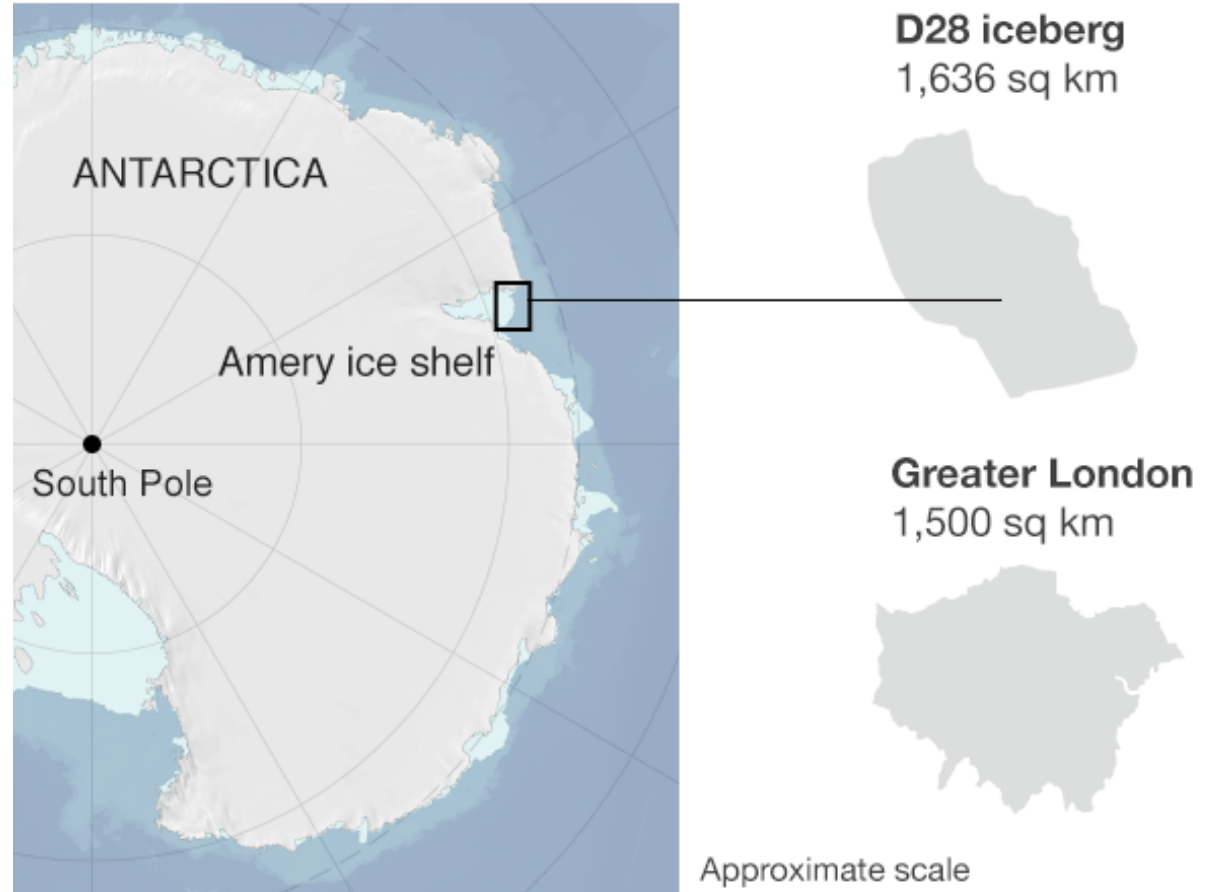
## How big is the D28 iceberg? How does it compare with A68?

Two very big icebergs are currently afloat in the South Atlantic (along with other smaller ones)

D28 is dwarfed by the mighty A68 berg (slide 7), which broke away from the Larsen C Ice Shelf in 2017.

It currently covers an area more than three times as big.

### How big is the D28 iceberg?



# The Amery Ice Shelf in Antarctica has also produced its biggest iceberg (D28) in more than 50 years.

- **Almost a quarter of the West Antarctic Ice Sheet can now be considered unstable, according to a new assessment of 25 years of satellite data.**
- By unstable, scientists mean more ice is being lost from the region than is being replenished through snowfall.
- Some of the biggest glaciers have thinned by over 120m in places.
- Losses from the two largest ice streams - Pine Island and Thwaites - have risen fivefold over the period of the spacecraft observations.
- And the changes have seen a marked acceleration in just the past decade.
- The driver is thought to be warm ocean water which is attacking the edges of the continent where its drainage glaciers enter the sea.
- The **calved** block covers 1,636 sq km in area - a little smaller than Scotland's Isle of Skye - and is called D28.
- The scale of the berg means it will have to be monitored and tracked because it could in future pose a hazard to shipping.
- Not since the early 1960s has Amery calved a bigger iceberg. That was a whopping 9,000 sq km in area.
- Amery is the third largest ice shelf in Antarctica, and is a key drainage channel for the east of the continent.



# World Wall Map

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Map Not To Scale

# So - what is happening in the South Atlantic?

(slide 10)

## Possible enquiry questions

- What is this second iceberg called?
- Where is the South Atlantic?
- Where is Antarctica? What does it often get called?
- What is the climate like here?
- What is happening to the ice at the South Pole and why?
- *What is meant by climate change? >>>>*

Points to note: **Gg aspects/dimensions**, **locations**, **concepts & vocab** etc.

- Rising sea temperatures; fracturing sea ice; effects on wildlife; risks to human settlements
- Contextual **world & locational** knowledge
- Understanding
- Enquiry - **observational skills; mapskills**
- Antarctica, South Pole, South Georgia, Atlantic Ocean
- Ocean, hemisphere, south, ice shelf, ice sheet, iceberg, glacier, island, ecosystem
- Fracture, 'calve' an iceberg; hazard, global warming, climate change

# What is climate change?

## Possible enquiry questions

- What are the factors that affect the climate? Why is it in the news so much?
- How much agreement is there?
- Why do some people disagree?
- What is the difference between climate and weather?

Points to note: **Gg aspects/dimensions**, **locations**, **concepts & vocab** etc.

- **Contextual knowledge;**
- **Factors:** Latitude; ocean currents; wind, elevation, relief; nearness to water
- Climate, weather,
- Cause& effect
- Debate; consent, dissent; comparisons;

# Why is climate change happening?

## Possible enquiry questions

- What are the causes – natural and human?
- What are the effects?
- How does carbon (and other pollutants) get into the atmosphere?
- Why now?

Points to note: **Gg aspects/dimensions**, **locations**, **concepts & vocab** etc.

Contextual knowledge:

### **Physical (natural) geographical processes**

- Changing weather patterns; rising temperatures; changes in the sun's energy; planetary movements; release of carbon from melting permafrost.

### **Human agency:**

- Industrial development; fossil fuels; increase in greenhouse gases; animal husbandry, deforestation; Population pressures & pollution

**Impact** on wildlife & ecosystems; food production and supply; danger to supply of safe, drinking water; damage to

### **Cause & effect; impact**

Vocab. Carbon, atmosphere, pollution



# Examples of extreme weather events









NATIONAL  
GEOGRAPHIC  
MAGAZINE

© Photograph by Mike Hollingshead





# What do we mean by 'extreme weather'?

## Possible enquiry questions

- Where and how often do extreme weather events occur?
- How does it link to the climate? What is the difference between the two?
- What factors affect the climate?

Points to note: **Gg aspects/dimensions, locations, concepts & vocab** etc.

- Opportunity to explore concept of climate 'change'

NB CL activities e.g Hurricane Irma; Extreme weather; Rain forest et al)

<http://www.collaborativelearning.org>

## Choice of global and locational contexts

### Extreme weather

- Storms, hurricanes, cyclones, high temperatures, drought, heavy rains, floods, extremes of heat and cold,
- Climate vs weather – long and short term

### Cause & effect

**6 factors:** latitude, ocean currents & varying temperatures, wind, elevation, relief, proximity to water)

# Some effects of extreme weather















# How is climate change related to natural disasters?

## Possible enquiry questions

- What is the evidence for climate change and natural disasters to share common features or be linked?
- How do scientists interpret what is happening?

Points to note: Gg aspects/dimensions, locations, concepts & vocab etc.

- Greater frequency of serious environmental problems
- e.g. pandemics and infectious diseases; fires; land (and river) management and floods; agricultural practices; volcanic and tectonic activity; acidification of the sea e.g bleached coral reefs, coastal erosion
- NB hottest and wettest years in the UK have been in the very recent past

# What's to do?







# CLIMATE RISKS: 1.5°C VS 2°C GLOBAL WARMING

## EXTREME WEATHER

100% increase in flood risk. vs 170% increase in flood risk.

## SPECIES

6% of insects, 8% of plants and 4% of vertebrates will be affected. vs 18% of insects, 16% of plants and 8% of vertebrates will be affected.

## WATER AVAILABILITY

350 million urban residents exposed to severe drought by 2100. vs 410 million urban residents exposed to severe drought by 2100.

## ARCTIC SEA ICE

Ice-free summers in the Arctic at least once every 100 years. vs Ice-free summers in the Arctic at least once every 10 years.

## PEOPLE

9% of the world's population (700 million people) will be exposed to extreme heat waves at least once every 20 years. vs 28% of the world's population (2 billion people) will be exposed to extreme heat waves at least once every 20 years.

## SEA-LEVEL RISE

46 million people impacted by sea-level rise of 48cm by 2100. vs 49 million people impacted by sea-level rise of 56cm by 2100.

## OCEANS

Lower risks to marine biodiversity, ecosystems and their ecological functions and services at 1.5°C compared to 2°C.

## CORAL BLEACHING

70% of world's coral reefs are lost by 2100. vs Virtually all coral reefs are lost by 2100.

## COSTS

Lower economic growth at 2°C than at 1.5°C for many countries, particularly low-income countries.

## FOOD

Every half degree warming will consistently lead to lower yields and lower nutritional content in tropical regions.



# What is needed?

## Possible enquiry questions

- What solutions do scientists and others suggest?
- How urgent is the crisis?
- How do governments need to work?
- How should businesses, farmers and others behave?

Points to note: **Gg aspects/dimensions, locations, concepts & vocab** etc.

- Biodiversity damage in UK amongst the worst in developed world
- Exacerbating pollution
- Changes to energy, lower emissions; supply chains, agriculture & food supplies;
- Tree planting; renewable energy; biofuel crops; green transport; clean air zones
- NB Bug burgers Primary geography (GA) article

# Who's doing what?





# The Eden Project in Cornwall



# Who is taking action?

Points to note: Gg aspects/dimensions, locations, concepts & vocab etc.

## Possible enquiry questions

- Governments, politicians & political parties; activists (Greta Thurnberg, Caroline Lucas & Green Party); Pressure groups; NGOs; (some) manufacturers, industries and businesses; private individuals;
- Initiatives – e.g. Eden Project
- Forest schools (UK)
- IPCC

# What can I/we do?

## Possible enquiry questions

Points to note: Gg aspects/dimensions, locations, concepts & vocab etc.

- Opportunity for active citizenship activities in and/or across the school e.g .....