

# GCSE Chemistry

## Worksheet: Global climate change

|                       |                          |                              |                                   |
|-----------------------|--------------------------|------------------------------|-----------------------------------|
| TIME<br><b>30 min</b> | TOTAL<br><b>28 marks</b> | CALCULATOR<br><b>Allowed</b> | DIFFICULTY<br><b>Easy, Medium</b> |
|-----------------------|--------------------------|------------------------------|-----------------------------------|

**Topics:** Global climate change

|             |              |             |
|-------------|--------------|-------------|
| <b>NAME</b> | <b>CLASS</b> | <b>DATE</b> |
|-------------|--------------|-------------|

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Answer all questions in the spaces provided.
- In all calculations, show clearly how you work out your answer.
- The marks for questions are shown in brackets.

0 1

0 1 . 1

Which of these is a potential effect of global climate change on farming?

Tick (✓) **one** box.

Increased crop yields everywhere

☐

Changes to which crops can be grown in a region

☐

No effect on farming at all

☐

It only affects farming in cold countries

☐

[1 mark]

0 1 . 2

Give **one** potential effect of climate change on wildlife.

.....

.....

[1 mark]

0 2

0 2 . 1

Which **two** are potential effects of global climate change?

Tick (✓) **two** boxes.

Acid rain

☐

Changes to the distribution of wildlife species

☐

Global dimming

☐

More frequent and severe storms

☐

[2 marks]

0 2 . 2

Give **one** problem caused by sea level rise.

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[1 mark]

0 2 . 3

Complete the sentence.

Tick (✓) **one** box.

An increase in the average global ..... is a major cause of climate change.

air pressure

☐

rainfall

☐

temperature

☐

wind speed

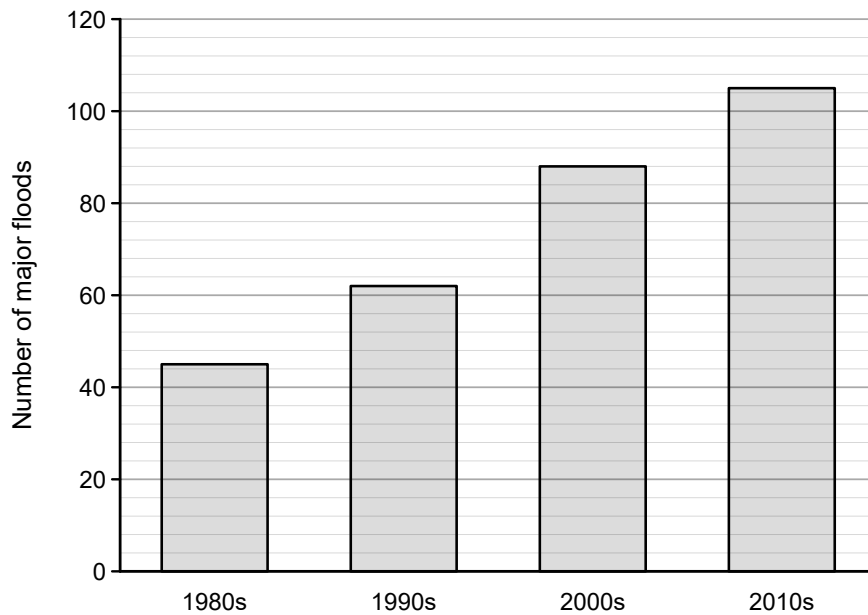
☐

[1 mark]

0 3

Figure 1 shows the number of major flooding events recorded worldwide per decade.

**Figure 1**



0 3 . 1

Describe the trend shown in Figure 1.

[1 mark]

0 3 . 2

Explain why this data alone does **not** prove that climate change is causing more frequent flooding.

[2 marks]

0 4

Many scientists believe that the increase in the average temperature of the Earth's atmosphere will cause global climate change.

0 4 . 1

Describe **four** potential effects of global climate change.

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[4 marks]

0 4 . 2

Explain how an increase in global temperature causes the sea level to rise.

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[2 marks]

0 5

0 5 . 1

Explain why reducing greenhouse gas emissions now could still allow some further climate change to occur before temperatures stabilise.

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[2 marks]

0 6

Table 1 shows the rise in mean global sea level since 1993.

**Table 1**

| Year                                    | 1995 | 2000 | 2005 | 2010 | 2015 | 2020 |
|-----------------------------------------|------|------|------|------|------|------|
| Rise in mean sea level since 1993 in mm | 6    | 21   | 38   | 55   | 74   | 96   |

0 6 . 1

Calculate the mean rate of sea level rise between 2000 and 2020.  
Give your answer in mm per year.

.....

.....

.....

.....

Rate = ..... mm per year

**[2 marks]**

0 6 . 2

Use your answer to predict the rise in sea level between 2020 and 2050.  
Assume that the rate of rise stays the same.

.....

.....

.....

Rise = ..... mm

**[1 mark]**

0 6 . 3

Use Table 1 to explain why this prediction is likely to be too low.

.....

.....

**[1 mark]**

0 6 . 4

Give **two** ways that sea level rise could affect people living in coastal areas.

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[2 marks]

0 7

Rising global temperatures are causing sea levels to rise.

0 7 . 1

Suggest **one** reason why rising global temperatures cause sea levels to rise.

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[1 mark]

0 7 . 2

Suggest **two** effects of rising sea levels on people who live near the coast.

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[2 marks]

0 8

0 8 . 1

Explain why global climate change could lead to an increase in the number of people migrating from some regions.

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[2 marks]

## **END OF QUESTIONS**

Original practice questions written to match the specification. Not produced by, affiliated with or endorsed by AQA.

# Mark scheme

## GCSE Chemistry · Worksheet: Global climate change · 28 marks

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### Question 1 (2 marks)

01.1 [1 mark]

**Correct:** Changes to which crops can be grown in a region

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01.2 [1 mark]

- changes to the distribution / habitats of species (some species may migrate, decline in number, or become extinct) (1)
- 

### Question 2 (4 marks)

02.1 [2 marks]

**Correct:** Changes to the distribution of wildlife species; More frequent and severe storms

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02.2 [1 mark]

- flooding (of low-lying land) / increased coastal erosion (1)
- 

02.3 [1 mark]

**Correct:** temperature

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### Question 3 (3 marks)

03.1 [1 mark]

- the number of major floods recorded has increased in each successive decade (1)
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03.2 [2 marks]

- other factors could contribute to the increase, e.g. better monitoring and reporting of floods, population growth in flood-prone areas, or changes in land use (1)
  - a correlation between time and flood frequency does not, on its own, establish that climate change is the cause (1)
-

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## Question 4 (6 marks)

### 04.1 [4 marks]

- sea level rise, which may cause flooding / coastal erosion (1)
- more frequent and severe storms (1)
- changes in the amount, timing and distribution of rainfall (1)
- temperature and water stress for humans and wildlife (1)
- changes in the food producing capacity of some regions (1)
- changes to the distribution of wildlife species (1)

Any 4 of the points above.

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### 04.2 [2 marks]

- ice (sheets / glaciers) on land melts, adding water to the oceans (1)
- sea water expands as it gets warmer (1)

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## Question 5 (2 marks)

### 05.1 [2 marks]

- greenhouse gases already released remain in the atmosphere for a long time (especially carbon dioxide), continuing to cause warming even after emissions are reduced (1)
  - the climate system takes time to respond fully to a change in greenhouse gas concentration (e.g. oceans take a long time to warm), so there is a delay before the full effect is seen (1)
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## Question 6 (6 marks)

### 06.1 [2 marks]

**Answer:** 3.75 mm per year

- $(96 - 21) \div 20$  (1)
- 3.75 (mm per year) (1)

**Notes:** Allow 3.8.

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### 06.2 [1 mark]

**Answer:** 112.5 mm (about 113 mm)

- $3.75 \times 30 = 112.5$  (mm) (1)

**Notes:** Allow ECF from the rate. Allow 112, 113 or 114.

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### 06.3 [1 mark]

- the rate of rise is increasing (e.g. 3.0 mm per year from 1995 to 2000 but 4.4 mm per year from 2015 to 2020) (1)
- 

### 06.4 [2 marks]

- flooding of homes / land (1)
- coastal erosion (1)
- salt water reaching farmland / fresh water supplies (1)
- people may have to move (1)

Any 2 of the points above.

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## Question 7 (3 marks)

### 07.1 [1 mark]

- ice on land (glaciers / ice sheets) melts, and the water flows into the oceans (allow: sea water expands as it warms) (1)
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### 07.2 [2 marks]

- flooding of homes, towns or farmland (1)
- coastal erosion / loss of land (1)
- salt water contaminating farmland or fresh water supplies (1)
- people may be forced to move elsewhere (1)

Any 2 of the points above.

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## Question 8 (2 marks)

### 08.1 [2 marks]

- some regions may experience more extreme events (e.g. flooding or drought) or a reduced ability to grow food or access water (1)
  - this can make living conditions difficult, so people may be forced to move elsewhere to find safer conditions or food and water security (1)
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