

## The Climate Quiz

In this 3-part challenge, mathematical problems are given to reveal the issues and consequences of climate change. We're challenging students across Scotland to see how you can use maths to better the world. Whether it's by calculating the water flow in the world's rivers or comparing the biggest CO<sub>2</sub> emitters, we want to see what you've got! The solution to these problems can empower you to make green choices in your own life and sort fact from misinformation, so give it a go and you could win one of our prizes!

### Contents:

#### Round 1

10 multiple-choice questions.

[You can find it here](#)

#### Round 2

10 multiple-choice questions.

[You can find it here](#)

#### Round 3

One open answer question.

After completing the multiple choice rounds you will be contacted with information about how to partake in the final round.

### FAQ's

These questions are designed for students currently studying maths in S3-S5 however we welcome applications from students of all ages. The activity is hosted on a webpage and can easily be accessed on any wifi-connected device. Questions will appear on the screen and your answer choices will be seen below or directly following. All you have to do is click the answer you think is correct and your next question will show up.

You are asked to start with round 1, followed by round 2. After completing these rounds, you will be sent a certificate with your overall score. You won't be eligible for the final round until you complete the first two. Remember to submit your email address at the end of the two multiple-choice rounds to ensure that you receive your certificate and qualify for the final round.

**How do I enter the final round?**

You are eligible to participate in the final round upon completion of the two multiple choice rounds. The final round is an open submission, and you receive all information regarding this task via email after completing the first two rounds.

**When do I need to submit my contribution?**

Submissions for the final round will stay open until October 30th 2020 via email to [mathsweekscotland@actuaries.org.uk](mailto:mathsweekscotland@actuaries.org.uk)

**If you are doing this in the classroom without access to a computer or mobile device:**

You can find a printable PDF version of the questions on the Climate Quiz Info page on Maths Week Scotland.

**Please note that only online submissions will generate a certificate and qualify you to enter the final round for a prize draw.**

**Prizes:**

Final submissions to round 3 will be judged by representatives from the IFoA and 3 winners will be announced by the end of November. Winners will be contacted via email.

**1st place: £200**

**2nd place: £100**

**3rd place: £50**

**Teacher's notes:**

If students are completing this in the classroom without a device, the model solutions for round one and two of the quiz is on the Maths Week Scotland website.

**Links to the Curriculum**

This quiz helps develop student understanding of topics in climate change, relevant to subjects such as geography, physics, and biology, from a mathematical viewpoint. The quiz aims to cover a lot of maths expected at the National 4 standard, and provides students an opportunity to see how the maths they are learning is applicable to problems concerning the climate.

## **Climate Change**

Topics discussed include:

- The effects of meat production on natural resources (applicable to the biology curriculum)
- Greenhouse gas emission (applicable to the chemistry curriculum)
- Clean energy production (applicable to the physics curriculum)
- The loss of polar caps and related sea level rises (applicable to the geography curriculum)
- Natural disasters caused by climate change (applicable to the geography curriculum)
- Efficient energy use (applicable to the physics curriculum)
- Effects of climate change on rivers and other geographical features (applicable to the geography curriculum)
- Global average temperature and methods of predicting this in the future (applicable to the geography curriculum)

## **Mathematics**

Questions reinforce knowledge of:

- Averages
- Ratios & percentages
- Circle geometry
- Finding areas and volumes
- Rounding & providing answers to suitable degrees of accuracy
- Unit conversion
- Formulating and solving linear equations
- The relationship between speed, distance, and time
- Reading from tables
- Graph drawing
- Lines of best fit
- Linear extrapolation (and the dangers of carelessly using it)

These questions also help students to develop skills in independent research, arguing a point using data, retrieving relevant information from questions, critical thinking and creatively applying their mathematical knowledge.

**Content by the IFoA Scottish Board  
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For more information about actuaries and climate change, see the work of the [IFoA's Sustainability Board](#).