

# CRITICAL REFLECTIONS – FROM CRITICAL CITIZENS

... WITH MATHEMATICS AND CLIMATE CHANGE

## Mathematical knowing

- (I) Whether a particular algorithm is used correctly
- (II) Whether a particular algorithm is the right one to use.

## Technological knowing

- (iii) Evaluations of the reliability of mathematical results
- (iv) Assessments of the need for using formal mathematical methods.

## Reflective knowing

- (v) Reflect on the role of mathematics in our understanding of a context, and how it impacts the issue
- (vi) Meta-reflections on approach

| Critical reflections on mathematical aspects                                | Critical reflections on the relevance and reliability of mathematics | Critical reflections on climate change as a consequence of applying mathematics | Critical reflections on the role of mathematics                           |
|---|--|---|---|
| On the correctness of a calculation, algorithm or mathematical presentation | On the relevance and reliability of<br><br>A mathematical approach   | On understanding something about climate change                                 | On the role of mathematics in constructing climate change as a phenomenon |
| On understanding a mathematical presentation or an algorithm.               | The data or other input  | On understanding consequences of climate change                                 | On the role of uncertainty in climate change                              |
| On whether measurements are correct   | The presentation   | On understanding something about responses to climate change                    | On dishonest or improper use of mathematics in argumentation              |