D. Maths

This option explores the common themes and messages displayed in the first 10,000 My2050 worlds which have been submitted and involves the students creating graphs using data from these worlds.

Note: You will need to use the *3D(i): 10,000 My2050 Worlds Data Analysis* sheet in the annex and will need 2 sheets of graph paper per student or team.

- Give out the My2050 data sheets and the graph paper. Students should work in groups.
- Explain to the students that the numbers on the sheet represent the average height of each lever in 10,000 My2050 worlds. For example the number next to Bio fuel production is 1.64, this means that on the average level of this lever across the 10,000 My2050 worlds was 1.64.
- Ask the students to take a look at the data and predict any patterns they might find when constructing their graphs.
- Ask the students to create two graphs; one using the demand lever averages the other using the supply lever averages.
- Once the graphs have been drawn, encourage the students to compare the two graphs and discuss the conclusions they draw i.e. the My2050 worlds were more demand orientated than supply.
- Get the students to think about why people have concentrated on demand rather than supply and ask them to look at the differences and similarities between the 10,000 submitted worlds and their own world.

Variation: Ask students to work on their own and then once they have drawn the graphs go round the class and ask each person to say a conclusion they drew or something they noticed about the graphs.

Differentiation: Students can go on to calculate the median and mean for the two sets of data (supply and demand). These can then be plotted on the graphs and compared. Key Stage 4 students can calculate the upper and lower quartiles, inter-quartile range and standard deviation of the data. How reliable is the sample size? Some members of the public submitted more than one world. How does this affect the reliability of the data?

D. Maths

This option asks the students to become the council of a town who has decided to convert to renewable energy sources. It makes them aware of compromises which are going to have to be made in the future. In the task, students are required to use their mathematical skills to calculate the quantity needed of each energy option (e.g. wind turbines, solar panels) to meet the town's daily energy needs.

Note: You will need to use *3D(ii:) My2050 town stimulus* sheet and the *3D(ii:) My2050 town energy supply* sheet.

- Give out the *3D(ii): My 2050 town stimulus* sheet. This activity is best performed in groups but pupils can work on their own if you prefer.
- Explain to the students that they need to use the sheet to explore different ways of providing the town's energy needs using completely renewable energy options.
- The town requires 87,500 kWh of energy per day and three fifths of the energy should come from renewable sources .
- Students should aim to create a balanced supply and not rely too heavily on one energy source.
- Once students have decided on the combination of energy supply they are going to use, they should fill in the *3D(ii):My2050 town energy supply* sheet.
- Students should then join with another group (or pair up) and discuss their ideas.
- Then ask the students questions such as what would happen to their town if it was a sunless, windless day? How would they overcome this?

Variation: Students can go on to research the costs involved in renewable energy and give an estimate for how much their town will need to spend.

Differentiation: To make this more suitable for higher ability students, ask students to imagine that the council's budget has been cut but they remain committed to renewable energy. With this new budget, how would the energy choices they make be affected? Students will have to change their original choices.