Teacher support for Task D (Mathematics)

* To complete the task, students should refer to the additional source supplementary to the pre-release material 'Tuna fish farming', and may use any other clearly-referenced sources.

Before the open task students may complete the following calculations:

- the circumference of the cylinderical pens
- the volume of the cylinderical pens
- the volume required for one bluefin tuna
- the number of bluefin tuna in the larger cylindrical pen
- the time taken for a bluefin tuna to swim around the circumference or across the diameter of the cylinderical pens
- the approximate weight of bluefin tuna feed required for the average tuna weight
- the approximate weight of pellet feed required for the average tuna weight
- the weight of bluefin tuna consumed by Japan
- the weight of bluefin tuna consumed globally
- the amount in sales (USD) per kilogram
- the percentage profit.

The open task could include the following calculations and activities:

- the number of cylinderical pens, small and large, that can fit in the space for the 80,000 bluefin tuna
- a scaled drawing of an aerial view of the chosen farm layout
- the amount of feed required for the juvenille bluefin tuna and the increase in feed per year
- the number of years until the bluefin tuna will be ready to sell
- the amount in sales (USD) for the 80,000 bluefin tuna
- the amount of profit (USD) for the 80,000 bluefin tuna
- approximations and accuracy of calculations by referring to the constraints, considering if the calculations make sense