

Lesson five: Hong Kong data challenge

Teacher answer sheet

Data challenge 1 – Temperature range

One day in July 2015, Hong Kong reached its highest temperature on record of 37°C. That night, the minimum temperature was 28°C. What was the difference between the hottest part of the day and the coolest? **9°C**.

Data challenge 2 – Rainfall intensity

One day in May 2015, 2000 mm of rain fell every hour for ten hours.

- A. How much rain fell in those ten hours? **20,000mm**
- B. How many centimetres would that be? **2000cm**
- C. How many metres? **20m**

Data challenge 3 - Irresponsible sailors that litter the sea

It is estimated that one out of every ten ships discharges (throws away into the sea) 20 plastic bottles every time it comes into Hong Kong waters. There are 2000 ships coming and going from Hong Kong harbour every week.

- A. How many ships are estimated to discharge plastic bottles into Hong Kong waters? **200**
- B. How many plastic bottles do these ships discharge in a week? **4000**
- C. How many in a year? **208,000**

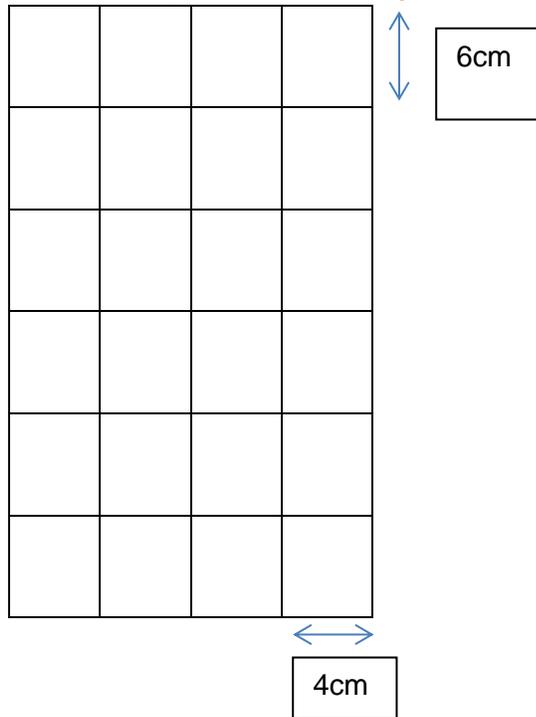
Data challenge 4 - Sustainable fishing

The Hong Kong government wants to make sure that small fish escape fishing nets. This is to increase the number of fish in the seas around Hong Kong. They can do this by making sure that the holes in the net let the small fish through but capture the larger ones. The government has decided that the size of the small fish they would like to escape is 10cm long, 5 cm high and 5cm wide.

- A. Look at the picture (not to scale) showing a fishing net with the sizes of the holes. What is the area of each of the holes in the net? **24cm²**
- B. Would this net allow the small fish through? If not, how would you need to change the size of the holes to let the small fish escape? **No, it would need to be 1cm² larger**
- C. If, in a few years' time, the number of fish in Hong Kong waters hasn't increased, and the government decide to allow even bigger fish to escape. If they increase the size of escaping fish to 20cm long, 7.5 cm high and 7.5 cm wide, what difference will this make

to the fishing nets? Each hole would need to be 56.25cm^2 or larger to let these fish escape.

- D. Which data that you have been given has not been needed in your calculations to solve the problem? The length of the fish



Data challenge 5- The waste mountain grows and grows

There are 2.5 million households in Hong Kong. Each household produces 10 kg of waste per week. There are also 0.5 million offices which produce 20 kg per week.

- A. Write 2.5 million as a number. $2,500,000$
- B. How much waste will be produced in one week in total? $25,000,000\text{kg} + 5,000,000 = 30,00,000\text{kg}$.