

## Do we eat too much? Check it out using Mathematics.

### Aim

Does portion size matter?



### Hypotheses

Plate sizes have increased over time.  
Plate size varies according to purpose.  
Plate size determines portion size.

### Equipment

- ✎ A range of plates: dinner, soup/cereal, desert
- ✎ (optional but useful) plates from previous eras (op shops could have some)
- ✎ (optional but interesting) plates in restaurants
- ✎ A measuring tape
- ✎ Paper to record results

### Procedure

- ✎ Gather a number of plates, especially those from earlier times.
- ✎ Consider the best way to record the information and prepare the appropriate format.
- ✎ Measure the radius and work out the surface area  
 $A = \pi r^2$  where  $\pi = 3.141592\dots$  and  $r$  is the radius of the plate. You may want to work out the surface area allowing for the food not going to the very edge of the plate.
- ✎ Work out the volume of food if the plate is filled to various depths.

### Safety and Risks

- ✎ Are there any safety risks?
- ✎ Should you wear protective clothing/glasses?

### Results

- ✎ Record the surface areas and volumes of the plates.

### Discussion

- ✎ How did you ensure the measuring was accurate?
- ✎ How could this improve?
- ✎ What did you observe?
- ✎ Compare with Australian Healthy Guidelines

### Conclusion

Write the answers to the following questions as complete sentences.

- ✎ Have you tested or proved what you had as your aim?
- ✎ How reliable and valid was your experiment?

<http://www.eatforhealth.gov.au/guidelines/australian-guide-healthy-eatir>

A game for people 5-13 to check whether or not they are eating an appropriate balance of foods.

<http://www.eatforhealth.gov.au/nutrition-calculators/food-balance>



