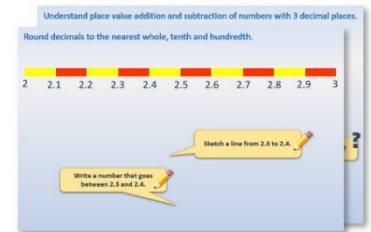


Week 10, Day 5

Exploring ratios (2)

Each day covers one maths topic. It should take you about 1 hour or just a little more.

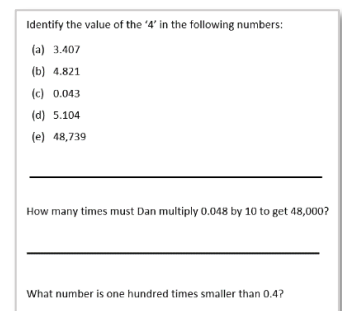
1. Start by reading through the **Learning Reminders**.



2. Think you've got it? Have a go at the **Investigative Practical Activity**.



3. Have I mastered the topic? A few questions to **Check your understanding**.
Fold the page to hide the answers!



Learning Reminders

Exploring ratios.

Bend your middle finger and measure the longest bone, the middle bone and the shortest bone.

Use a calculator to divide the length of the longest bone by the middle bone, and the middle bone by the shortest bone.



What do you notice about your answers?



Your answers might be around 1.6, the Golden Section. If not, why do you think that might be?



Learning Reminders

Exploring ratios.



Leonardo da Vinci and other artists found pairs of measurements on the human face and body with the ratio of the Golden section, and used these proportions to draw what they considered to be beautifully proportioned people in their paintings.

The Golden section doesn't just appear in humans but in other creatures too, the width and height of a dolphin's fin for example.



Investigation

Golden measurements

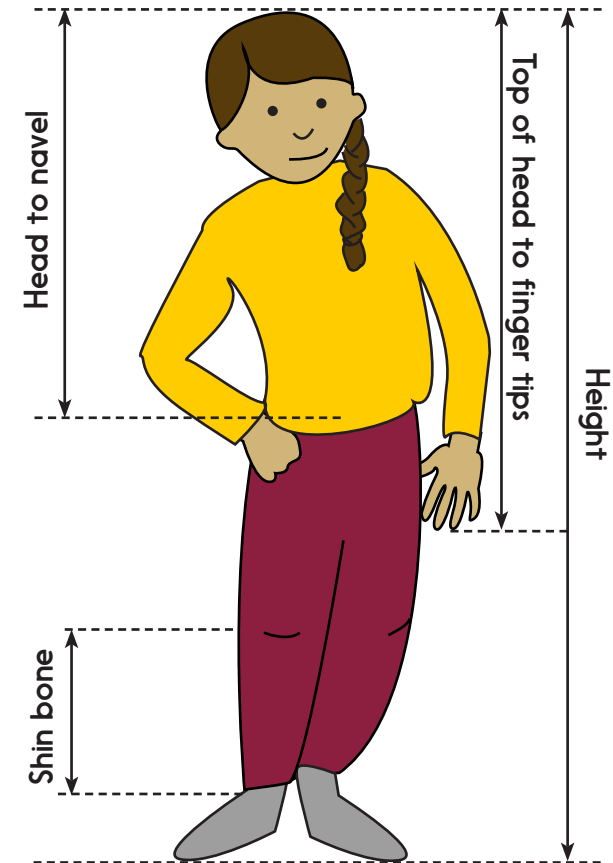
Work with a partner to find:

- your height;
- the distance from the top of your head to your finger tips with your arms by your side;
- the distance from the top of your head to your navel;
- width of your shoulders;
- length of your forearm;
- length of your shin bone;
- elbow to wrist;
- length of hand (wrist to finger tip);
- distance from the top of your head to your chin.

Divide one measurement by another and see how many you can find with the Golden section, approximately 1.6.

Do you expect everyone's proportions to be exactly the same?

What do you think would happen if you took an average of the measurements of hundreds of people?



Check your understanding

Questions

The height of an adult can be estimated by measuring their head length then multiplying that length by 8.

Flo's dad has a head length of 22.5cm. What is his approximate height?

Flo's mum is 1.64m tall. What is her approximate head length?

Which of these pairs of measurements are in the ratio 3 to 1?

- a) 42cm and 16cm
 - b) 1.2m and 30cm
 - c) 2.4m and 80cm
 - d) 36cm and 9mm
-

Draw a leaf with length to width ratio of 4 to 3.

Fold here to hide answers

Check your understanding

Answers

The height of an adult can be estimated by measuring their head length then multiplying that length by 8.

Flo's dad has a head length of 22.5cm. What is his approximate height? **1.8m or 180cm (22.5cm x 8).**

Flo's mum is 1.64m tall. What is her approximate head length?

20.5cm (164cm ÷ 8). A mental strategy is appropriate for both.

Which of these pairs of measurements are in the ratio 3 to 1?

- a) 42cm and 14cm
 - b) 1.2m and 30cm
 - c) 2.4m and 80cm
 - d) 36cm and 12mm
- a) and c)**
-

Draw a leaf with length to width ratio of 4 to 3.

Accept any leaf where the length is $1\frac{1}{3}$ times the width, e.g. 4cm by 3cm, 8cm by 6cm, 12cm by 9cm.