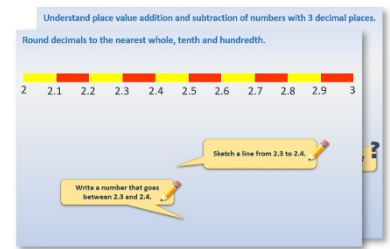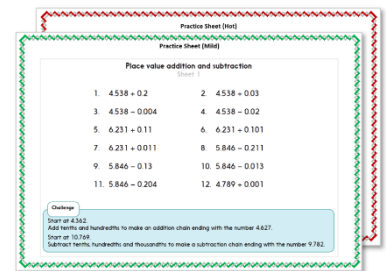# Year 3: Week 6, Day 3
Length

Each day covers one maths topic. It should take you about 1 hour or just a little more.
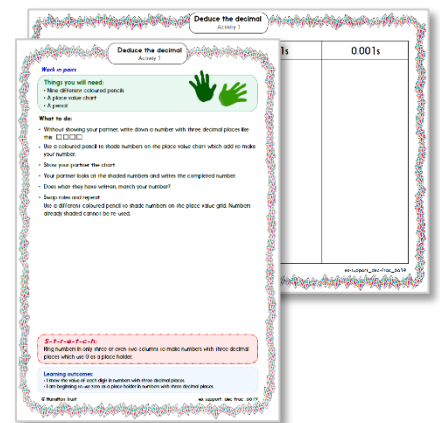
1. Start by reading through the **Learning Reminders**.
   They come from our *PowerPoint* slides.

2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.

3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**

4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**…

Learning Reminders

Measure lengths.

Today we are going to measure our feet! We're going to see if they are the same length.

What units will be best to measure this length?

Why *not* metres?

Learning Reminders

Measure lengths; Know that there are 10mm in a centimetre; Use a ruler to measure lines.

We can also use **millimetres** to be more **accurate.**

There are **10mm in 1cm.**

This ruler is **5cm** long. How many mm is that?

What if it was **10cm** long?

5 centimetres = 50 millimetres

Learning Reminders

Measure and compare lengths; Know that there are 10mm in a centimetre; Use a ruler to measure lines.

If a rubber was **2cm 3mm** long what would that be **in mm?**

If a pencil was **4cm 8mm** long what would that be **in mm?**

2cm 3mm is 23 millimetres

4cm 8mm is 48 millimetres

If someone's foot was **16cm 3mm** what would that be **in mm?**

That's more **accurate** than 16 or 17cm! And much better if we are trying to see if there is a difference between the length of our two feet.

16cm 3mm is 163 millimetres

Practice Sheet Mild
Measures practice

* Measure the length of your two feet and someone else's two feet.
* Record the length of each foot in millimetres.
* Convert this to centimetres and millimetres.
* Was one foot longer than the other?!
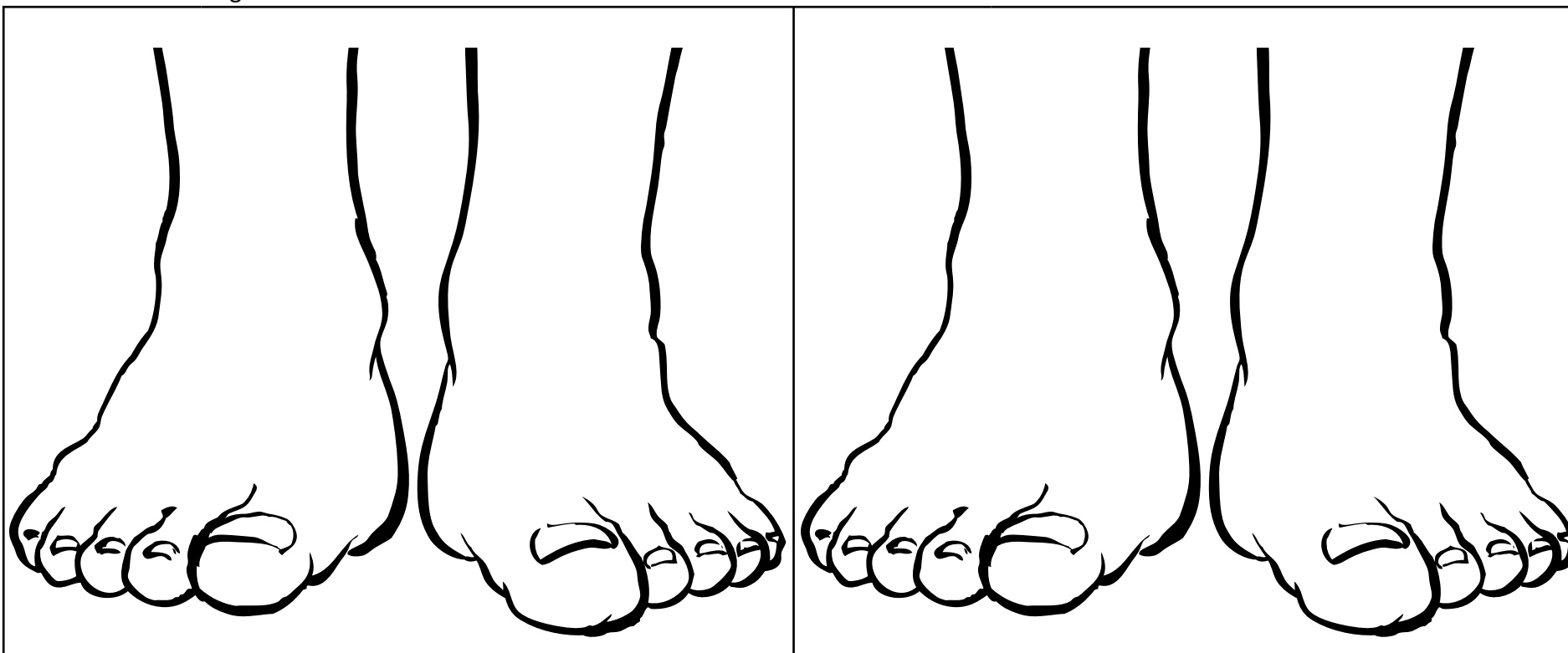
Measurement in mm (e.g. 163mm)	Measurement in cm and mm (e.g. 16cm 3mm)	Measurement in mm	Measurement in cm and mm	Measurement in mm	Measurement in cm and mm	Measurement in mm	Measurement in cm and mm

Practice Sheet Hot
Measures practice

Measure nine of the colouring pencils in your pencil case or on your table and record their lengths in mm.

Pencil colour	Length in mm	Length in cm and mm

Now look at your data and answer the questions below. Start with the bronze questions. See how far you can get through the silver and gold questions.

Bronze

Can you convert the lengths of the pencils from mm into cm and mm?

Can you order the pencils by length from shortest to tallest?

Which pencil is in the middle when the pencils are in length order?

Silver

What is the difference between the longest and shortest pencil?

What is the difference between the blue and red pencil?

What is the difference between the green and yellow pencil?

Gold

How many pairs of pencils can you find with a difference in length that is greater than 6 mm?

How many pairs of pencils can you find with a difference in length that is less than 10 mm?

Challenge

Compare your results with other tables – are there any colours in particular that are always at the shorter end? If there are, can you suggest why this might be?

Explore more Hamilton Trust Learning Materials at https://wrht.org.uk/hamilton

Practice Sheet Answers

Measures practice (Hot)

Bronze

1m 30cm
1m 20cm
1m 25cm
1m 23cm
1m 33cm
1m 39cm
1m 41cm

Amy, Harry, Alice, Khalil, Freya, Jasmine, Ben.

Two children are taller than Freya, Four children are shorter than Freya.

Silver

Freya is 10cm taller than Harry.
Alice is 5cm shorter than Khalil.
The difference between the tallest and shortest child is 21cm.

Gold

Amy and Alice, Amy and Khalil, Amy and Freya, Amy and Jasmine, Amy and Ben, Khalil and Jasmine, Khalil and Ben, Alice and Khalil, Alice and Freya, Alice and Jasmine, Alice and Ben, Harry and Khalil, Harry and Freya, Harry and Jasmine, Harry and Ben, Freya and Jasmine, Freya and Ben.

Alice and Harry, Jasmine and Ben

Harry and Khalil

> **Challenge**
>
> Ben (141cm) and Jasmine (139cm) are the tallest, and Amy (120cm) and Harry (123cm) are the shortest. If they lay head-to-toe on the floor they would make a line 523cm or 5 metres 23cm long across the floor.

Focus of activity: Measuring lengths in centimetres and finding the difference between two lengths by counting up.

Things you will need:
• Tape measure
• A pencil
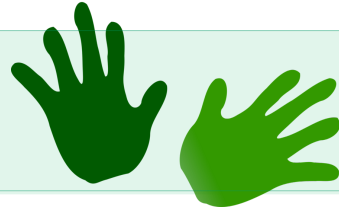
What to do:

* In ancient Egyptian times (and for centuries afterwards), people didn't measure distances using metres and centimetres but used units such as cubits and feet.
A cubit is the distance from the base of the elbow to the tip of the middle finger.
* Use a tape measure to measure the distance from your middle finger-tip to the base of your elbow.
* Record this distance, remembering that we use cm to stand for centimetres.

• Use a tape measure to measure the length of your partner's cubit to the nearest centimetre.

• Make the tape measure the same length as your partner's foot.

• Write down both measurements.

• Work out the difference between lengths.

• Now ask your partner to measure your cubit and foot length. Find the difference between the two. Record both measurements and the difference between them.

• Look around for some objects which might have a height or length between your foot and cubit. Use the tape measure to check. Write down the names of the objects and their heights or lengths.

Abdul
Cubit 28 cm
Foot 19 cm
Difference 9 cm

Katya
Cubit...

S-t-r-e-t-c-h:
Estimate the distance from your wrist to your elbow. Do you think the distance is shorter or longer than a foot? Use the tape measure to measure this distance. Estimate your hand span. Do you think the distance is shorter or longer than a foot? Use a tape measure to measure this distance.
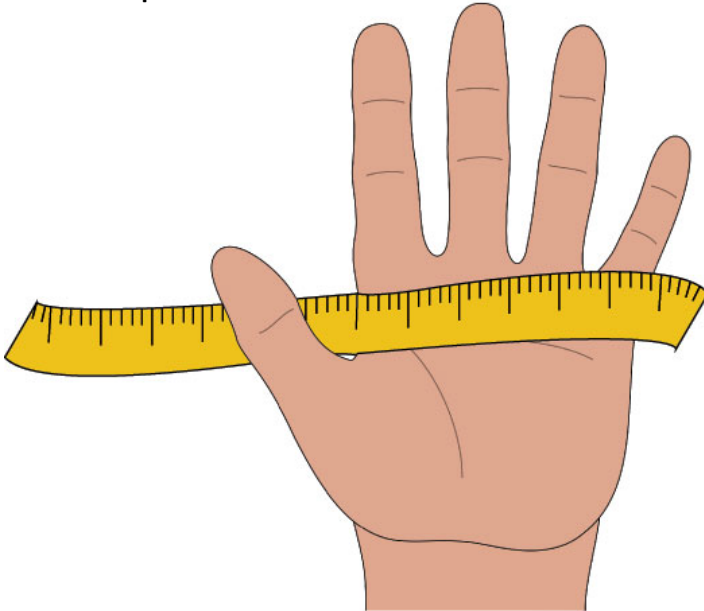
Learning outcomes:
• I can measure lengths in centimetres.
• I can count up to find a difference between two lengths.
• I am beginning to estimate distances in centimetres.

Investigation
Hands and fingers

1. Use a ruler to measure your friend's palm width.

Name	Palm	Finger	Difference
Jed	6	$5\frac{1}{2}$	$\frac{1}{2}$ cm

2. Record the exact number of centimetres to the nearest half centimetre.
3. Repeat this to measure their longest finger and record the measurement.
4. Repeat this with someone else at home, or with another child in your class if you are in touch with them.

Record your data on a block graph, where the vertical axis is the number of children and the horizontal axis is labelled: Same length, $\frac{1}{2}$ cm difference, 1cm difference, $1\frac{1}{2}$ cm difference, 2cm difference.

How many blocks do you colour in each category?