

Measuring length and handling data Entry Level 2

Progress charts, activities and worksheets covering

MSS1/E2.5, HD1/E2.1-E2.5

MSS1/E2.5 read, estimate, measure and compare length using common standard and non-standard units (e.g. metre, centimetre, paces)

HD1/E2.1 extract information from lists, tables, simple diagrams and block graphs

HD1/E2.2 make numerical comparisons from block graphs

HD1/E2.3 sort and classify objects using two criteria

HD1/E2.4 collect simple numerical information

HD1/E2.5 represent information so that it makes sense to others (e.g. in lists, tables and diagrams)

Notes

- To ensure accurate measurements for the frog jumping board and bar chart grids set 'page scaling' to 'none' from the PDF print options box.
- This pack was first designed for a group of young adults with a range of learning difficulties. Please use professional judgement as to which activities are suitable for your learners.

Name					
Task		Page	Assessment	Reference	Student can do this: C = Confidently E = With encouragement H = Needs help.
READING, ESTIMATING, MEASURING and COMPARING LENGTHS RECORDING and INTERPRETING DATA					
A1 A2	Discuss, and choose non-standard measuring units for activities and items (e.g. football pitch, desk, room, carpet, walk back home). Measure the room and objects within it using paces, hands, arms, feet. Record and compare results using table format. Discuss difficulties and problems.	3-4	Written task	MSS1E2.5 HD1 E2.4 HD1 E2.5	
B1 B2	Make own metre stick and measure length of one metre. Compare to arm span, leg length or anything else that works for the learner.	5-6	Practical	MSS1E2.5	
C1 C2	Approximate lengths – fill in tables to show length greater than and less than one metre.	7-8	Practical	MSS1E2.5 HD1 E2.3 HD1 E2.4 HD1 E2.5	
D1	Measure lengths of at least three students; record results in metres and cms, and cms.	9	Practical and written task	MSS1E2.5 HD1 E2.1 HD1 E2.4 HD1 E2.5	
D2 D3	Complete bar chart to show results. Draw conclusions from bar chart.	10 p11	Written task	HD1 E2.1 HD1 E2.2	
E1 E2 E3	Make up Origami frogs using instructions (can be cross-referenced to RT literacy curricula). Learners to race against each other and teacher to jump their frog as far as possible. Measure landing spots in cms and mms.	p12-13 p14 p15	Written task, practical	MSS1E2.5 HD1 E2.3 HD1 E2.4 HD1 E2.5	
F	Make up paper aeroplanes using instructions. Compete against tutor and other learners. Throw down corridor. Measure number of metres and centimetres of flight. Record all answers. Rewrite as cms.	p16	Practical Written task	MSS1E2.5 HD1 E2.3 HD1 E2.4 HD1 E2.5	
G1 G2	Measure lines drawn on paper, and give measurement answers in centimetres and millimetres.	p17 p18	Practical Written task	MSS1 E2.5	
H	Complete maths investigation tasks by measuring lengths around specified body parts and recording results.	p19	Practical Written task	MSS1E2.5 HD1 E2.4 HD1 E2.5	
Additional Tasks					
Use ILT resource for learners to guess at divisions on a ruler. http://www.teachingmeasures.co.uk/length/dragdist/ruler15cm.html					
Measure furnishings, and give measurements in metres and centimetres.					
Find home on Multimap. Work out distance in miles from college to tourist spots.					
Discuss and choose appropriate units of measurement for a range of items.					

A – Measuring with non-standard units (1)

MSS1/E2.5, HD1/E2.4, HD1/E2.5.

How big is your hand? How long are your feet?

You might know what size your shoes are, but do you know your glove size?

Before standard lengths and sizes were used, people used to measure using hands, feet, and paces. Imagine you lived in those days.

Fill in the table below.

Tick the body part you think would be best to measure everyday things.

Then estimate their size in your chosen units.

Item to be measured	Body	Paces	Feet	Hands	Finger width
Table					
Carpet length and width					
Football pitch					
Door					
Window					
Pen					
Cupboard					
Desk					
Calculator length and width					
Trouser leg length					
Walk from your home to college					

A – Measuring with non-standard units (2)

MSS1/E2.5, HD1/E2.4, HD1/E2.5.

Fill in the table below.

Now you can compare your results with those of other students.

Item measured	Unit of measurement	Student 1	Student 2	Student 3
<i>Pencil</i>	<i>Fingers</i>	6	8	7

Are there any problems with this way of measuring things?

Discuss this with your teacher and other learners.

Think of at least two problems. Write them here.

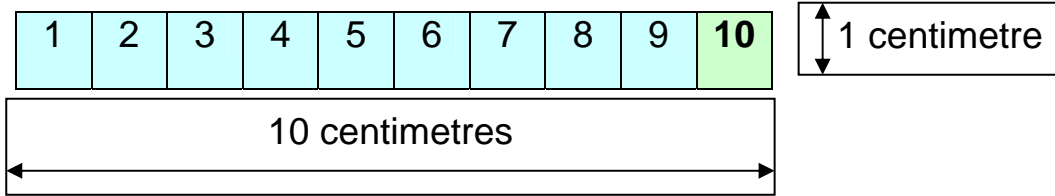
1. _____

2. _____

B – Measuring with standard units (1)

MSS1/E2.5

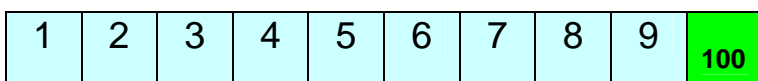
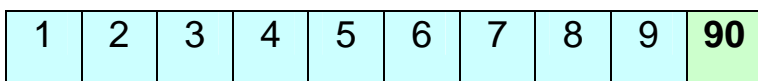
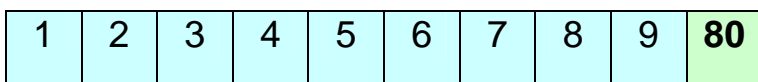
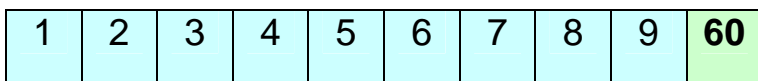
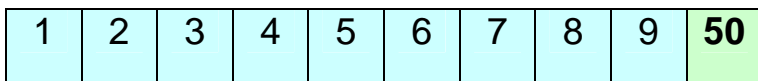
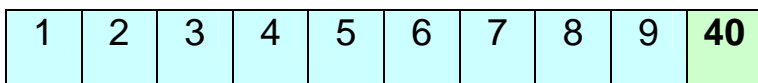
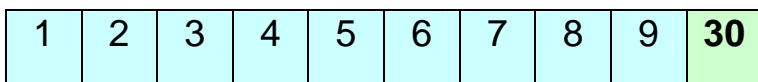
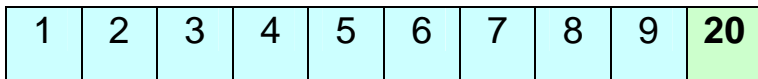
Each of the lines below are 10 centimetres wide, and one centimetre thick.



Cut out each of the number lines and ask your teacher to laminate them.

Then stick them all together or line them up on your desk top.

This will give you a metre stick.



B – Measuring with standard units (2)

MSS1/ E2.5

1 metre is 100 centimetres.

So $\frac{1}{2}$ a metre is 50cm,

and $\frac{1}{4}$ of a metre is 25cm.

Write in the missing amounts to make a metre.

Use your new metre stick to help.

1. $28\text{cm} + \dots\dots \text{cm} = 100\text{cm}$, so $28\text{cm} + \dots\dots \text{cm} = 1 \text{ metre}$.

2. $40\text{cm} + \dots\dots \text{cm} = 100\text{cm}$, so $40\text{cm} + \dots\dots \text{cm} = 1 \text{ metre}$.

3. $30\text{cm} + \dots\dots \text{cm} = 100\text{cm}$, so $30 \text{ cm} + \dots\dots \text{cm} = 1 \text{ metre}$.

4. $50\text{cm} + \dots\dots \text{cm} = 100\text{cm}$, so $50 \text{ cm} + \dots\dots \text{cm} = 1 \text{ metre}$.

5. $60\text{cm} + \dots\dots \text{cm} = 100\text{cm} = 1 \text{ metre}$.

6. $\dots\dots \text{cm} + 75 \text{ cm} = 100\text{cm} = 1 \text{ metre}$.

7. $10 \text{ cm} + \dots\dots \text{cm} = 100\text{cm} = 1 \text{ metre}$.

8. $80\text{cm} + \dots\dots \text{cm} = 100\text{cm} = 1 \text{ metre}$.

C – Estimating with standard units (metres) (1)

MSS1/ E2.5, HD1/ E2.3, HD1/ E2.4, HD1E/E2.5.

Using your new metre stick, find at least three items in the classroom that you can use to fill in this table.

Item	Under 1 metre	About 1 metre	Over 1 metre
<i>Chair height</i>	<i>N</i>	<i>Y</i>	<i>N</i>

Can you use your own body to estimate a metre?

Find something that is roughly one metre long. This could be your leg measurement, or the length from one hand to the other with your arms outstretched.

.....

This information can help you to estimate lengths.

C – Estimating with standard units (centimetres) (2)

MSS1/E2.5, HD1/E2.4, HD1/E2.5.

What about 10 centimetres and 1 centimetre?

Use you metre stick to remind yourself about 1cm and 10cm.

Can you find three things in the room that are roughly these lengths?

10 cm

1.
2.
3.

1 cm

4.
5.
6.

D – Measuring height in metres and centimetres (1)

MSS1/E2.5, HD1/E2.4, HD1/E2.5.

How tall are you?

Ask another learner measure you.

You can record your height in many different ways.

My height: I am metre and centimetres tall.

I am m and cm tall.

I am• metres tall.

I am• m tall.

I amcentimetres tall.

I amcm tall.

Now compare your height to that of other learners and the teacher.

Who is the tallest? Who is the shortest?

Person measured	Height in metres (m) and centimetres (cm)	Height in metres (m)	Height in centimetres (cm)

D – Measuring height in centimetres (2)

HD1/E2.5

Now record your results using a block graph. Use this ready made table if you wish. Measure one millimetre on the graph for each extra centimetre.

210					
200					
190					
180					
170					
160					
150					
140					
130					
120					
110					
100					
90					
80					
70					
60					
50					
40					
30					
20					
10					
0	Student 1	Student 2	Student 3	Student 4	Student 5

D – Measuring height in centimetres (3)

HD1/E2.1

Use your bar chart to answer to these questions.

1. Who is the shortest person?
2. How tall is he or she in cm?
3. Who is the tallest person?
4. How tall is he or she in cm?
5. What is the medium height?
6. How many people are taller than 165cm?
7. Complete these sentences.

Student ___ is taller than student ___.

Student ___ is shorter than student ___.

8. Now write some more sentences about the bar chart.



E – Measuring in centimetres and millimetres (1)

MSS1/E2.5

Origami jumping frog activity

Follow the instructions at <http://www.enchantedlearning.com/crafts/origami/frog/>

When you have made your frog practise making it jump.

Now race your frog with against other students' frogs.

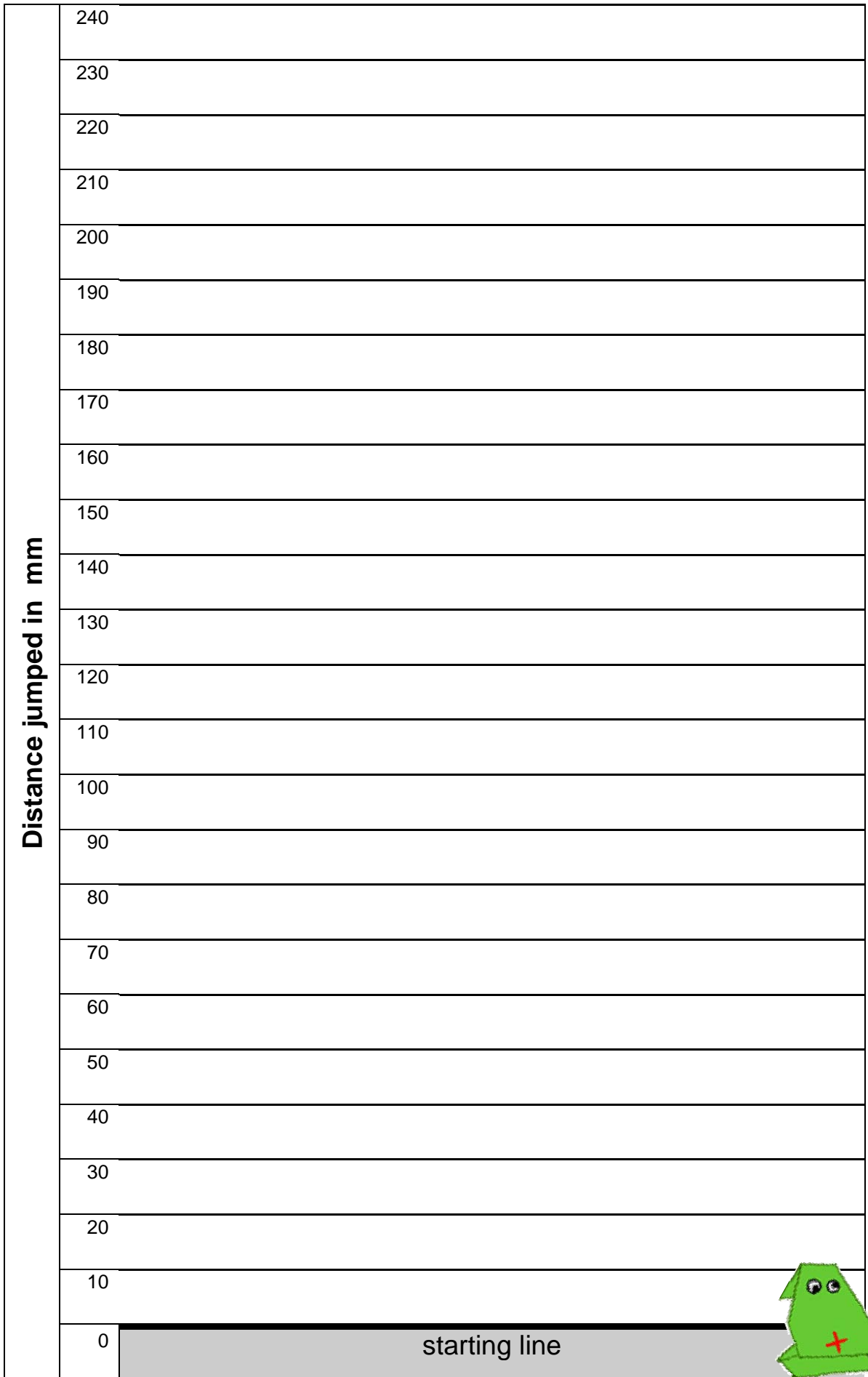
Use the 'frog jumping board' on the next page (best laminated, or sellotaped to table top).

Measure how far your frog has jumped.

The winner is the learner with the frog that has jumped the furthest **overall** (the measurement you get when you add all five of their jumps up).

If your frogs are good jumpers you may need to make your own jumping board from a larger sheet of paper!

Frog jumping board



E – Measuring in centimetres and millimetres (2)

MSS1/E2.5, HD1/E2.4, HD1/E2.5

Frog jumping competition results

Record your results in this table

	Jump number:	cm	mm
<i>Example</i>	1	17	170
<i>Name: Jen</i>	2	23.5	235
	3	20	200
	4	14	140
	5	19	190
Total distance jumped (use a calculator)		93.5	935
<hr/>			
Frog 1 Name:	1		
	2		
	3		
	4		
	5		
Total distance jumped (use a calculator)			
<hr/>			
Frog 2 Name:	1		
	2		
	3		
	4		
	5		
Total distance jumped (use a calculator)			
<hr/>			
Frog 3 Name:	1		
	2		
	3		
	4		
	5		
Total distance jumped (use a calculator)			
<hr/>			
Frog 4 Name:	1		
	2		
	3		
	4		
	5		
Total distance jumped (use a calculator)			

The winning frog is _____.

E – Measuring in centimetres and millimetres (3)

HD1/E2.1

Use the competition results table to answer these questions.

1. Which frog made the longest individual jump?
2. How far did it jump?
3. Which frog made the shortest individual jump?
4. How far was this?
5. Which frog jumped the longest total distance?
6. Which frog jumped the shortest total distance?
7. What was the total distance jumped by all the frogs?

F – Measuring distance in metres and centimetres (1)

MSS1/E2.5, HD1/E2.4, HD1/E2.5

You have **fifteen minutes** to make the best paper plane (glider) you can.

1. Take turns to throw your planes down the corridor, and measure the distance covered.
2. Write up your results in the chart below.
3. Circle the longest flight for each glider

Paper glider competition results

Record all results in this table.

	Glide number:	Measurement in m and cm	Measurement in cm
<i>Example</i>	1	7m 20cm	720cm
<i>Name: Jen</i>	2	3m 10cm	310cm
	3	5 m 15 cm	515cm
Glider 1 Name:	1		
	2		
	3		
	4		
	5		
Glider 2 Name:	1		
	2		
	3		
	4		
	5		
Glider 3 Name:	1		
	2		
	3		
	4		
	5		
Glider 4 Name:	1		
	2		
	3		
	4		
	5		

The winning glider is _____.

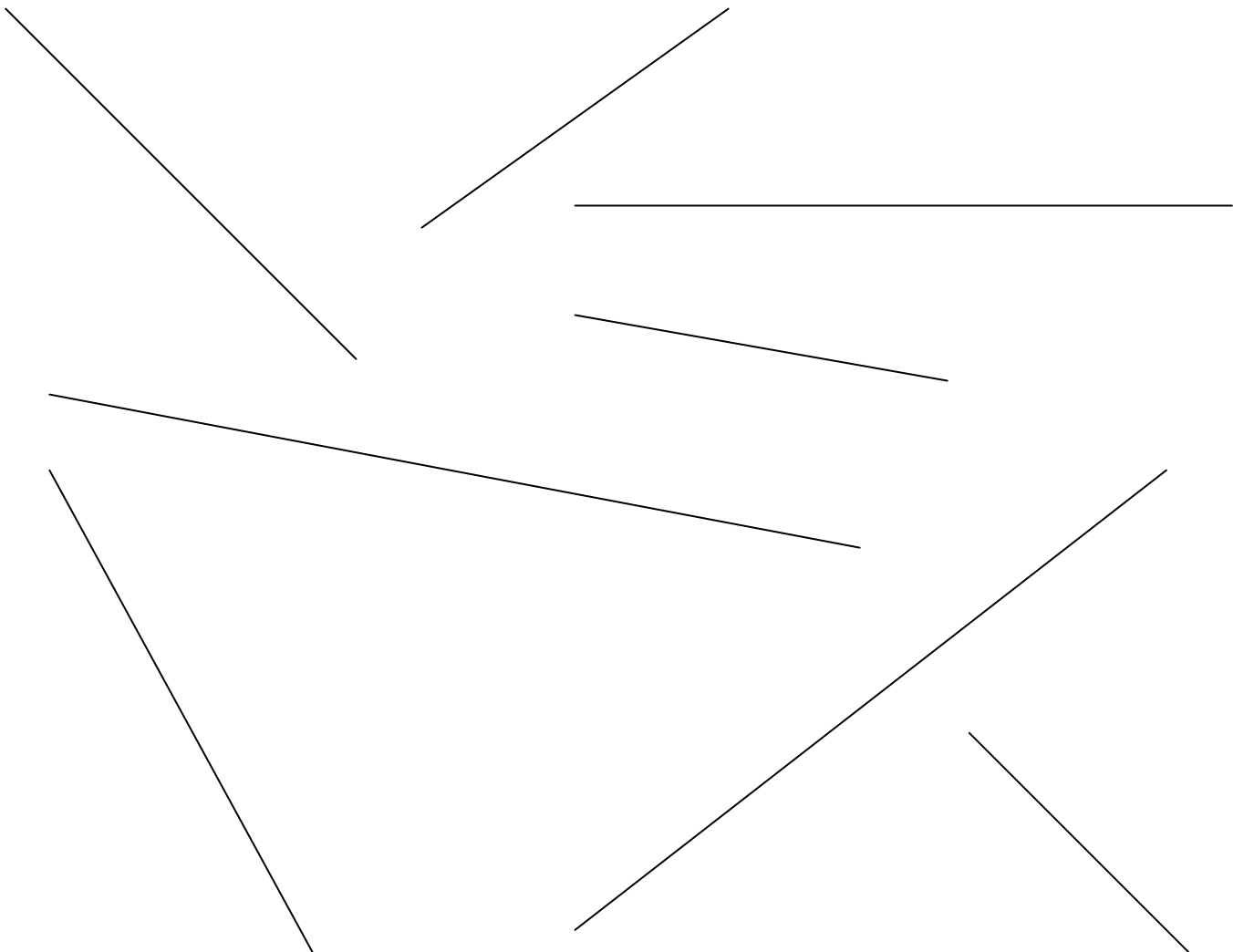
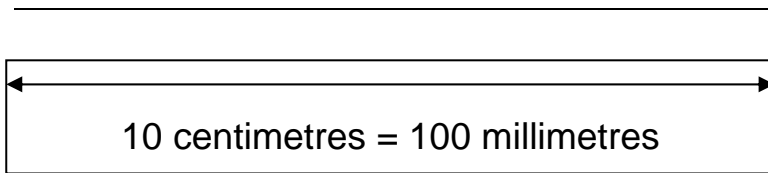
G – Drawing lines in centimetres and millimetres (1)

MSS1/E2.5

Measure the lines below with a ruler.

Give their measurements in cm (centimetres) and mm (millimetres):

Eg:



G – Drawing lines in centimetres and millimetres (2)

MSS1/E2.5

Now, use a ruler and A3 paper to measure out and draw lines with the following measurements.

1. 13 cm
2. 2 cm
3. 4 $\frac{1}{2}$ cm
4. 7 cm
5. 10cm
6. 15 cm
7. 18 cm
8. 30 cm
9. 25 cm
10. 1 cm

11. 110 mm
12. 230 mm
13. 350 mm
14. 20 mm
15. 50 mm
16. 70 mm
17. 180 mm
18. 10 mm
19. 40 mm
20. 200 mm

H – Measure investigation

MSS1/E2.5 HD1/E2.4 HD1/E2.5

For each question below, measure each length and record it.

Then use your answer to say whether each statement is true or false.

1. The length of your arms outstretched from finger-tip to finger-tip (1) is the same as from head to your feet (2). True, or false?
2. The length of your arms outstretched (1) is the same as from your feet to your hips (2). True, or false?
3. The length around one of your ankles (1) is equal to two of your wrists (2). True, or false?
4. The length (circumference) around your skull (1) is the same as the measurement from one shoulder to the other (2). True, or false?
5. You can fit two of your feet (1) to every length between your elbow and your wrist (2). True, or false?
6. The distance between your shoulder blades (1) is always bigger than the distance between your knees and your ankles (2). True, or false?

Question number	Measurement 1:	Measurement 2:	True or false?
1			
2			
3			
4			
5			
6			