

School Code	D
Practitioner Code	D20
Curriculum Area(s)	Numeracy and Mathematics, Technologies, Health and Wellbeing
Level	First
Stage(s)	P3
Specific subject (if applicable)	

**Experiences and Outcomes:**

*I can **estimate how long** or heavy an object is, or what amount it holds, using everyday things as a guide, **then measure** or weigh **it using appropriate instruments and units.**  
**MNU 1-11a***

*During practical activities and **design challenges**, **I can estimate and measure using appropriate instruments and units.**  
**TCH 1-13a***

***I recognise that each individual has a unique blend of abilities** and needs. I contribute to making my school community one, which values individuals equally and is a welcoming place for all.  
**HWB 1-10a***

**Note: the underlined sections are the parts focused on in the lessons.**

**Learning Intentions:**

Estimate the length of an object.  
Use appropriate instruments to measure length.  
Use appropriate units to measure length.

Measure using appropriate instruments and units to complete a design challenge.

Recognise that everybody has different abilities.

**Success Criteria:**

I can;

Use my knowledge of length to make a sensible estimate of how long an object is.  
Use metre sticks / trundle wheels / tape measure etc. to measure how long an object is.  
Use metres and centimetres to measure how long an object is.

Select metre sticks / trundle wheels / tape measure etc. to complete a design challenge, creating a house.

Use metre sticks / trundle wheels / tape measure etc. to complete a design challenge, creating a house.

Recognise my own abilities and can use these to help my group.

Recognise the abilities of others and how they can help my group.

Briefly outline the context and range of quality learning experiences that have been provided making reference to the chosen design principles.

Pupils have a prior knowledge of measure and have investigated metres and centimetres in previous weeks during numeracy lessons. They have completed tasks based upon estimating length and have used rulers and metre sticks to measure objects around the classroom and wider school environment.

This sequence of lessons will allow pupils to transfer these skills into a design challenge, with the aim of recognising where their numeracy and mathematics skills (specifically measure) may be used in the wider world.

### **Lesson 1**

Revision of measure using metres and centimetres. Pupils will investigate the lengths of objects by estimating and measuring in centimetres. They will be encouraged to discuss their estimations with a partner before measuring each object. These will be recorded on a 'measure task sheet'.

### **Lesson 2**

Revision of measure using metres and centimetres. Pupils will investigate the lengths of objects by estimating and measuring in metres. They will be encouraged to discuss their estimations with a partner before measuring each object. These will be recorded on a 'measure task sheet'.

### **Lesson 3 (built into lesson 4)**

Strengths and abilities

### **Lesson 4 (All Day) – Create a house the 3 little pigs' cousin**

Periods one and two

Provide pupils with design challenge linked to Fairyland. In mixed ability groups, pupils will design their houses on A4 paper. The children will view the resources and then decide what would be best for their design. The focus will be placed upon illustrating their design and including appropriate measurements.

Pupils will select their own role based upon their own skills and abilities.

- Resource Manager
- Time Keeper
- Illustrator
- General Manager
- Quality Inspector

Periods three and four

Groups will build their house linked to given specifications and their plans. A selection of resources will be available for groups to use.

Periods five and six

Groups will measure their houses against the design criteria. This will provide an opportunity to compare their estimates to accurate measurements. Time will be allocated for groups to present their creations to their peers.

## Practitioner Moderation Template

## Learner Evidence

Record the range of assessment evidence that was gathered to meet the success criteria (Say, Write, Make, and Do) considering breadth, challenge and application.

### Say

Group discussions when allocating roles. (Lesson 4)

### Write

Completion of numeracy task sheets (Lessons 1 &2)

### Make

Creating houses (Lesson 4)

### Do

Pupils generating their own success criteria. (Lesson 4)

Did the learner successfully attain the outcomes? YES

Briefly outline the oral/written feedback given to the pupil on progress and next steps, referring to the learning intention and success criteria.

Oral feedback was given during all activities. We discussed the instruments that could be used for measuring various objects within the classroom and the learner was able to correctly identify the correct measuring tool for the size of the object. I would ask questions to check this for other items and the learner was also able to identify the correct measuring tool for this too. During the practical design challenge the learner was able to verbalise that his groups model wasn't meeting the size specified in the letter. His team then worked together to make sure their model was the correct height. Discussions during this activity highlighted the learner understood how to measure correctly – starting at 0.

### Pupil Voice:

What have you learned? How did you learn? What skills have you developed?

I learned how to measure using metre sticks, rulers and trundle wheels. I know when I measure I start at zero. I listened to my teacher to learn and I practiced measuring things in my class. My measuring skills got better and I had to use my problem solving skills to find a new way to use boxes when we were building the pig's house.

## *Learner Evidence*

Lesson 1: I can use my knowledge of length to make a sensible estimate of how long an object is.

I can use a ruler to measure how long an object is.

In this lesson children were estimating and measuring various objects within the classroom and recording their findings on a task sheet. The children were to estimate the length/size of all objects first and discuss this with a partner. They were then to go back and measure them to see how close their estimations were to the actual measurement. Emphasis was placed upon selecting the correct tool for measuring each object and recording the information using the correct unit of measure.



Unit 6 - WorkSheet 1

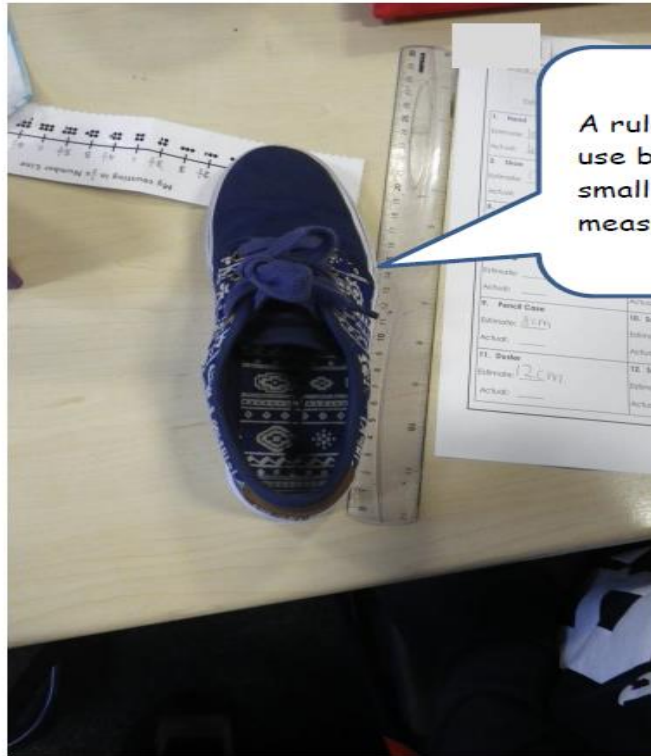
**Measuring Length**

Estimate and Measure the length of each object.

<b>1. Hand</b> Estimate: <u>10cm</u> Actual: <u>4cm</u>	<b>2. Book</b> Estimate: <u>19cm</u> Actual: <u>8cm</u>
<b>3. Shoe</b> Estimate: <u>17cm</u> Actual: <u>21cm</u>	<b>4. Pencil Pot</b> Estimate: <u>10cm</u> Actual: <u>8cm</u>
<b>5. Pencil</b> Estimate: <u>25cm</u> Actual: <u>17cm</u>	<b>6. Paint Tray</b> Estimate: <u>1</u> Actual: <u><math>\frac{2}{2}</math></u>
<b>7. Mug</b>	<b>8. Crayon</b> Estimate: <u>9cm</u>

The learner coped well during this activity and could explain the strategies he used during this. He imagined the size of a centimetre and used this to estimate small things such as his whiteboard duster. The learner has managed to record his measurements using the correct unit of measure.





A ruler is the best thing to use because my shoe is quite small. I know I start measuring from 0cm.



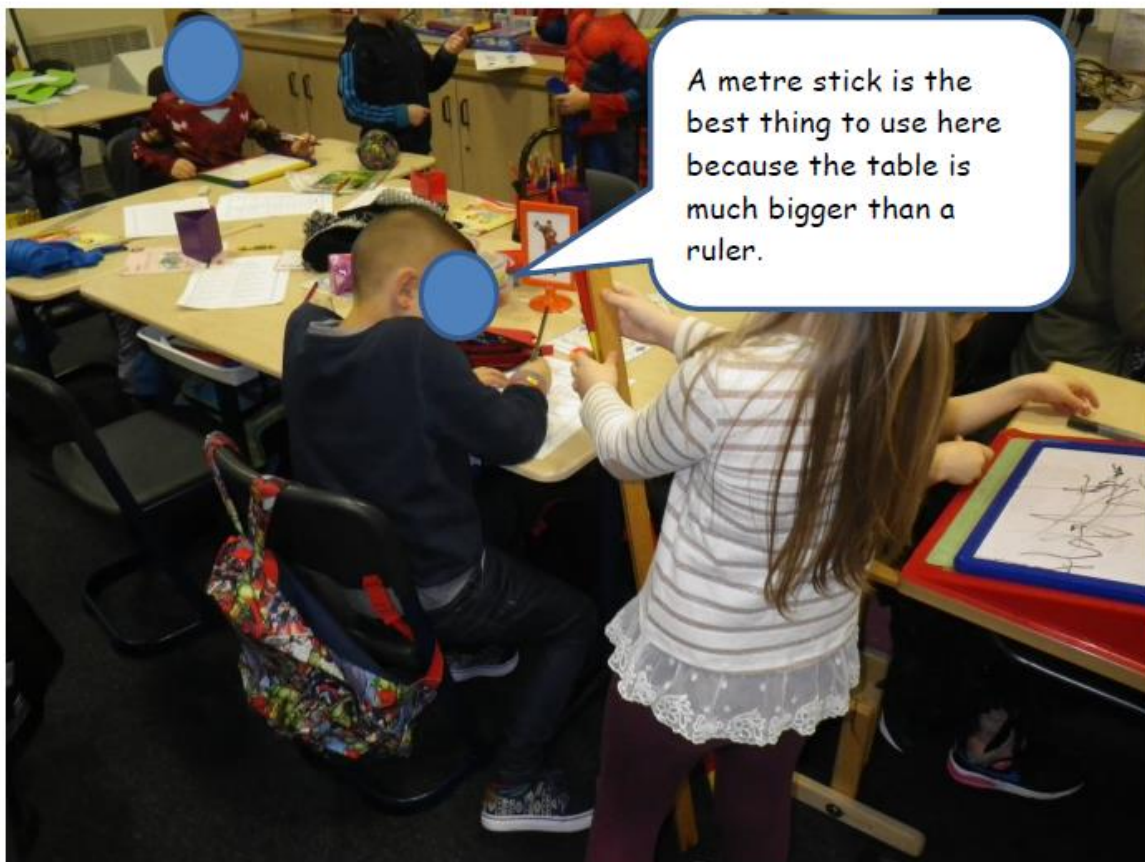
We worked together to estimate and measure.

The learner has managed to make sensible estimations during this activity. His next steps for learning would be to improve his accuracy when estimating.

Lesson 2: I can use my knowledge of length to make a sensible estimate of how long an object is.

I can select the correct tool to measure how long an object is.

In this lesson children were estimating and measuring various objects within the classroom and wider school environment. This time the lengths were longer, including things like the length of the classroom. Children had to estimate with their partner and then discuss what they thought the best tool to measure the length would be. They then measured the length to find the true length of the object. Their findings were recorded on a task sheet. Emphasis was placed upon selecting the correct tool and recording the information using the correct unit of measure.



## Practitioner Moderation Template

## Learner Evidence

During this lesson, the learner worked well and used various strategies to estimate a metre. He was taking long strides across the classroom to estimate the length. The learner also tried to visualise a metre by thinking his desk was roughly a metre and thinking about how many desks would fit across the classroom.

Unit 6 - Worksheet 2

**Measuring with Metres**

Estimate and Measure each object.

1. Height of desk Estimate: <u>60cm</u> Actual: <u>60cm</u>	2. Height of door Estimate: <u>190cm</u> Actual: <u>2cm</u>
3. Length of the classroom Estimate: <u>9cm</u> Actual: <u>9cm</u>	4. Width of the classroom Estimate: <u>3cm</u> Actual: <u>5cm</u>
5. Length of the corridor Estimate: _____ Actual: _____	6. Width of the corridor Estimate: <u>2cm</u> Actual: <u>2cm</u>
7. Length of the school hall Estimate: _____ Actual: _____	8. Width of the school hall Estimate: <u>3cm</u> Actual: _____

The learner has managed to estimate the sizes of various objects within the classroom but hasn't managed to use the correct unit of measure. This is something that was highlighted with the learner and provided his next steps for learning.



Lesson 3: I can recognise my own abilities and can use these to help my group.

I can recognise the abilities of others and how they can help my group.

This lesson was built into the start of Lesson 4. The children discussed things that they were good at and things they found difficult. This highlighted that everyone finds different things easy/hard. The children then looked at the different roles available for the design challenge. The roles were: Resource Manager, Time Keeper, Illustrator, General Manager and Quality Inspector. The children were shown a PowerPoint that had each role and the different skills that role requires to allow them chose what role suits their skillset better.

What Role will you have in your group?

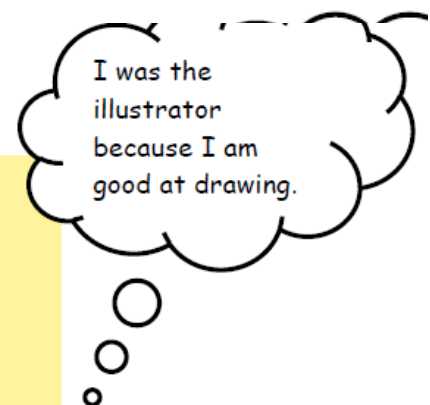
Think very carefully about your own skills and abilities and the others in your group.

Are you a good time keeper?

Do you estimate well?

Can you complete mental calculations accurately?

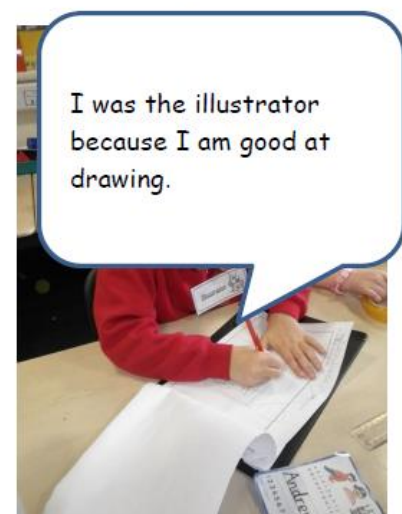
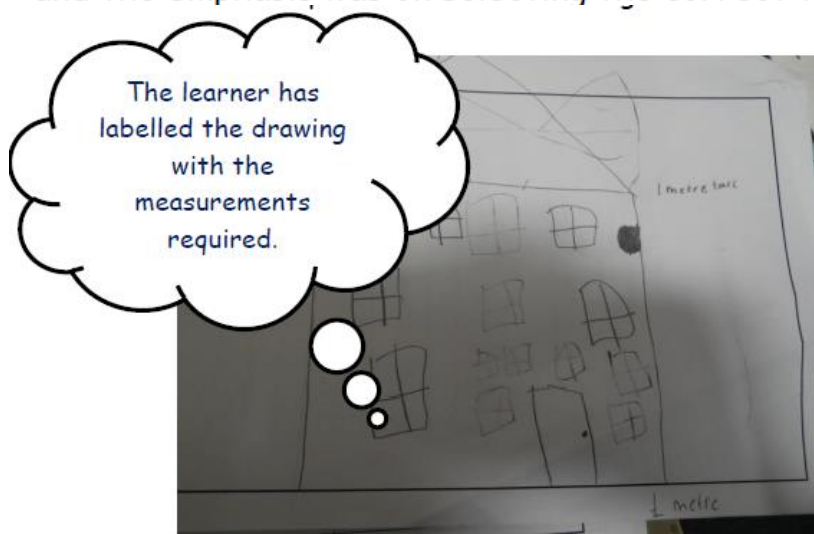
What other skills may be needed for this task?



Lesson 4: I can use my knowledge of length to make a sensible estimate of how long an object is to complete a design challenge.

I can select the correct tool to measure how long an object is to complete a design challenge.

In this lesson children were provided with a letter from the dragon (the letter was linked to Fairyland topic - The Three Little Pigs) which contained a design challenge. The letter asked the children to design a house for the Three Little Pig's cousin who was coming to visit and had nowhere to stay. The children had 4 periods to complete the design challenge. The dimensions for the house were 1m, 50cm and  $\frac{1}{2}$ m and the children could decide what dimension they wanted for each part of the house. This lesson provided children the opportunity to work on the technology outcome and on the maths outcome. During the design challenge children worked in mixed ability groups and allocated each other a role from the previous/beginning of the lesson. Children viewed the resources available before designing their house and made a list of what they required. Pupils drew their design on A4 paper, with the focus being on labelling the drawing with the correct measurements. The children estimated and measured throughout the design challenge and the emphasis was on selecting the correct tool for measuring.



## The letter from the dragon:

Dear Primary 3b,

Today's letter is a personal one... just for your class. You see I need some extra special assistance. The Three Little Pigs' cousin is coming to visit and has nowhere to stay.

Could you build a new house for him?

I have noticed that you have been learning an awful lot about measure recently so I am sure you will make a good job of it. I am ~~sooooo~~ confident that I would like you to estimate the sizes; you can always measure them more accurately when you're finished!

Here are the dimensions that the Three Little Pigs' mother gave me;

- Height;  $\frac{1}{2}$ -metre.
- Width; 1 metre.
- Depth, 50 centimetres.

Or was that...?

- Width;  $\frac{1}{2}$ -metre.
- Depth; 1 metre.
- Height, 50 centimetres.

Or...?

- Depth;  $\frac{1}{2}$ -metre.
- Height; 1 metre.
- Width, 50 centimetres.

I am really not sure and I don't think they would mind too much. Why don't you decide using those measurements!

Remember,  $\frac{1}{2}$ -metre, 1 metre and 50 centimetres!

I do look forward to seeing the houses; I have told the Three Little Pigs' mother that you will not let her down!

Love from,

The Friendly Dragon

P.S.

If you are working in teams, make sure you all consider your own skills and abilities. Give each other a role to complete!





We used a metre stick to measure a metre. Our house still isn't big enough yet.

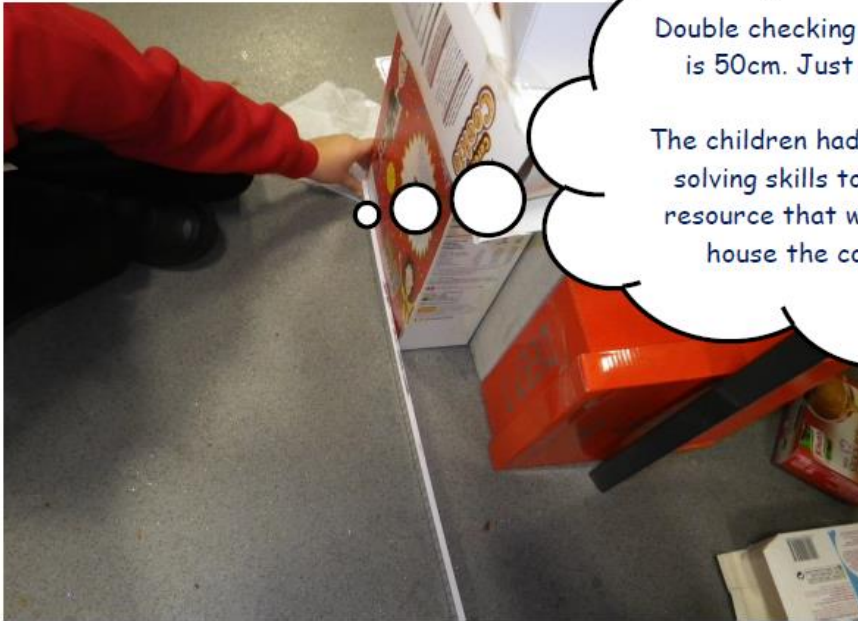
The children had to analyse and evaluate the effectiveness of the resources.



Here the children are working as a team to make sure their design is the correct size.

Practitioner Moderation Template

Learner Evidence



Double checking that the width is 50cm. Just about there!

The children had to use problem solving skills to find another resource that would make the house the correct size.



Adding the finishing touches to the design before measuring for the last time.

## Practitioner Moderation Template

## Learner Evidence

When the designs were finished children worked in their teams to measure their design to see how close they were to the dimensions specified in the dragon's letter. The children then completed an evaluation worksheet to assess how well their design met the criteria and how well they worked with their team.

Name \_\_\_\_\_ Date 27/05

Design Challenge Evaluation

1. How close was your design to the sizes specified in the challenge?

2. Do you think you picked the best resources for the challenge?

3. How well do you think you worked as part of a team?

...your design met the brief of the

3. How well do you think you worked as part of a team?

4. Overall, how well do you think your design met the brief of the challenge?  
It did because we met the success criteria.

5. Would you change anything if you had to do the challenge again?  
Yes because it was a bit too wide.

The learner self-assessed how well he worked as part of a team and how well his team's model met the criteria of the design challenge. The learner listened well to all members in his team and carried out his role as illustrator well. They felt the group achieved the success criteria as shown above. The learner also said that if he was doing the challenge again he would change the design of his model as he felt it was a bit too wide.

The learner has been successful and has achieved the outcomes set out for this series of lessons and his next steps for learning would be to make sure he uses the correct unit of measure for metres and centimetres, increase his accuracy when measuring and looking at basic conversions between metres and centimetres.



The group with their finished model!