



Mathematics

Pre-course tasks and

Subject Knowledge Audit

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Introduction**

Mathematics can be a daunting subject for many, but it needn’t be. At Leeds Trinity University we are passionate about mathematics education and making it accessible to all. We want to enable you, as future teachers, to develop a genuine excitement for the subject – to take this into school and inspire the children that you work with. With hard work, dedication and a positive mindset, this is achievable for everyone. We hope that the tasks in this document begin to ignite a lifelong enthusiasm for teaching mathematics.

The following tasks are designed to support your mathematics subject knowledge and to prepare you for the mathematics element of your course. Work through them carefully and enjoy!

# 

# **1. Reflections**

**Activity 1**

Think back to when you were at school (primary and secondary). Reflect on your own experiences of learning mathematics and record them here.

Consider:

* Did you enjoy the subject?
* How did you feel in mathematics lessons?
* Were there particular aspects that you liked or disliked?
* What do you remember a typical lesson being like?

# **2. Maths Mastery**

Since 2015 a new approach to teaching mathematics has been introduced in many primary schools: Maths Mastery. Throughout your course and beyond you will be going into schools which have adapted this approach – and it is this approach we will be focussing on during your study.

**Activity 2**

Follow this link and read *Mastery approaches to mathematics and the new National Curriculum (October 2014).* [*https://www.ncetm.org.uk/teaching-for-mastery/mastery-explained/*](https://www.ncetm.org.uk/teaching-for-mastery/mastery-explained/)

Make a list of what you think the key points of Maths Mastery are (continue on an additional sheet if necessary):

**Activity 3**

Now consider how the above is similar or different to your own experiences of learning mathematics at school (both primary and secondary):

**Activity 4 (optional)**

Boaler, J. (2015) *The Elephant in the Classroom*. London: Souvenir Press.

Read chapter 1 of the above book and consider how this links to the article you have read on Maths Mastery.

# **3. Subject Knowledge Audit**

**Activity 5**

This activity will help you assess your own subject knowledge. Download the 2019 Year 6 SATs papers (there are 3): <https://www.gov.uk/government/publications/key-stage-2-tests-2019-mathematics-test-materials>

Paper 1 – Arithmetic

Paper 2 – Reasoning

Paper 3 - Reasoning

Have a go at these SATs papers – be honest with yourself and do not worry if there are questions that you cannot do. Once you have completed the papers, use the online mark scheme to mark them.

Record your scores here:

|  |  |
| --- | --- |
| **Paper** | **Score** |
| Paper 1: Arithmetic |  |
| Paper 2: Reasoning |  |
| Paper 3: Reasoning |  |

**Activity 6**

Now identify areas where you need to improve your subject knowledge by completing the table below for the questions that you got incorrect (the highlighted row is completed as an example):

|  |  |
| --- | --- |
| **Question number** | **Area of mathematics** |
| Paper 1, Q 25 | Fractions |
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**Activity 7**

Have a look at the National Curriculum for mathematics (Key Stages 1 and 2). Familiarise yourself with the structure and layout of the document:

<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335158/PRIMARY_national_curriculum_-_Mathematics_220714.pdf>

Go back to the questions you got incorrect on the SATs papers and identify which Learning Objective relates to these questions. Complete the table below (the highlighted row is an example):

|  |  |  |
| --- | --- | --- |
| **Question number** | **Year Group** | **National Curriculum Objective** |
| Paper 1, Q 25 | 5 | Add and subtract fractions where the denominators are multiples of the same number. |
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**Activity 8**

Spend some time doing some self-directed subject knowledge study. Go back to the questions you have got incorrect and consider how you can improve your subject knowledge so that you can re-do the questions and correct them. The following are useful sources of information:

* <https://whiterosemaths.com/homelearning/> (includes video guides for many areas of the curriculum including long multiplication and division – click on the relevant year group)
* <https://www.bbc.co.uk/bitesize/learn> (including guides for short and long multiplication and division)
* CPG Key Stage 2 mathematics revision guides and question books (you can buy these cheaply online)

Record in the table below the area of mathematics that you identified as having difficulties with and what you have done to improve your knowledge (the highlighted row is an example).

|  |  |
| --- | --- |
| **Area of Mathematics** | **Action** |
| Long division | Watched three video guides on the White Rose website  Read the guide on the BBC website  Completed 20 practice long division questions |
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# **4. Course Reading**

You will receive a comprehensive reading list once you start the course. All recommended texts are available in the University library and many are also available in digital form online.

**If you wish to purchase any texts then the following three are recommended (but optional):**

* Boaler, J. (2015) *The Elephant in the Classroom*. London: Souvenir Press.

This books enables you to view mathematics from a different perspective to the stereotype. It discusses the beauty and creativity in mathematics….and why it is that often children and young people are “turned off” mathematics – and how this can be avoided.

* Haylock, D. and Manning, R. (2019) *Mathematics Explained for Primary Teachers.* 6th Edition. London: Sage.

This book provides comprehensive coverage of all mathematics topic areas along with information on how to teach them. This book is recommended if you have areas you need to develop with your subject knowledge.

* Newell, R. (2019) *Mastery Mathematics for Primary Teachers.* London: Sage

This book provides the background theory for the Maths Mastery approach along with teaching strategies and case study examples from schools.