



# EDST8203

## Teaching Mathematics, Science and Technology in the Primary School 1

Session 1, Infrequent attendance, North Ryde 2020

*Macquarie School of Education*

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#### **Disclaimer**

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## General Information

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Credit points

10

Prerequisites

Corequisites

EDST8200

Co-badged status

### Unit description

This unit is the first of a three unit sequence that develops Teacher Education Students' pedagogical content knowledge (PCK) and understanding of the aims, content and pedagogy of the NSW Mathematics K-6 and Science and Technology K-6 syllabi. Within the context of the Australian Curriculum-Mathematics; Science; and Digital and Design Technologies the unit focuses on the scope and depth of teaching and learning content and pedagogies. Teacher Education Students develop their numeracy and scientific literacy through the processes of Designing and Producing, Working Mathematically and Working Scientifically using relevant contexts including sustainability. A research-based approach supports Teacher Education Students understanding of primary students' conceptual and developmental stages of learning and learning progressions and builds the ability to interpret research findings both in science and science education.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

- ULO1:** Critically analyse and evaluate the current research foundations of the mathematical, scientific, design and computational thinking of students.
- ULO2:** Articulate and critique pedagogical principles for developing students' mathematical, scientific and computational thinking skills with reference to educational research and practice.
- ULO3:** Interpret and evaluate key concepts/ principles/ approaches/ developmental progressions in NSW syllabuses for mathematics, science and technology.
- ULO4:** Critically reflect upon the efficacy of learning resources and research-informed approaches to develop mathematical, scientific and technological skills and concepts.
- ULO5:** Develop strategies to plan research-informed classroom learning experiences that respond to the diversity of student learners.
- ULO6:** Engage in reflexive practice in relation to teaching Mathematics, and Science and Technology in the Primary School.

## Assessment Tasks

### Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the

Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](#) for revised unit information.

[Find out more about the Coronavirus \(COVID-19\) and potential impacts on staff and students](#)

## General Assessment Information

### Assessment Presentation and Submission Guidelines

Please follow these guidelines when you submit each assignment:

- Allow a left and right-hand margin of at least 2cm in all assignments.
- Please type all assignments using 12-point font and 1.5 spacing.
- All assessments must be submitted through Turnitin in .doc or .pdf format
- It is the responsibility of the student to ensure that all assessments are successfully submitted through Turnitin.
- Faculty assignment cover sheets are NOT required.

### Draft Submissions & Turnitin Originality Reports

- Students may use Turnitin's Originality Report as a learning tool to improve their academic writing if this option is made available in the unit.
- Students are strongly encouraged to upload a draft copy of each assessment to Turnitin at least one week prior to the due date to obtain an Originality Report.
- The Originality Report provides students with a similarity index that may indicate if plagiarism has occurred. Students will be able to make amendments to their drafts prior to their final submission on the due date.
- Generally, one Originality Report is generated every 24 hours up to the due date.

### Please note:

- Students should regularly save a copy of all assignments before submission,
- Students are responsible for checking that their submission has been successful and has been submitted by the due date and time.

### Assignment extensions and late penalties

- In general, there should be no need for extensions except through illness or

misadventure that would be categorised as serious and unavoidable disruption according to the University definition of same, see: <https://students.mq.edu.au/study/my-study-program/special-consideration>

- Applications for extensions must be made via AskMQ according to the Special Consideration policy. Extensions can only be granted if they meet the Special Considerations policy and are submitted via <https://ask.mq.edu.au/>. This will ensure consistency in the consideration of such requests is maintained.
- Late submissions without extension will receive a penalty of 5% reduction of the total possible mark for each day late (including weekends and public holidays). You are reminded that submitting even 1 day late could be the difference between passing and failing a unit. Late penalties are applied by unit convenors or their delegates after tasks are assessed.
- No assessable work will be accepted after the return/release of marked work on the same topic. If a student is still permitted to submit on the basis of unavoidable disruption, an alternative topic may be set.
- Students should keep an electronic file of all assessments. Claims regarding "lost" assessments cannot be made if the file cannot be produced. It is also advisable to keep an electronic file of all drafts and the final submission on a USB untouched/unopened after submission. This can be used to demonstrate easily that the assessment has not been amended after the submission date.

### **Requesting a re-assessment of an assignment**

If you have **evidence** that your task has been incorrectly assessed against the grade descriptors you can request a re-mark. To request a re-mark you need to contact the unit convenor within **7 days** of the date of return of the assignment and provide **a detailed assessment of your script against the task criteria**. Evidence from your assignment must be provided to support your judgements.

Note: Failed assessments cannot be re-marked as they are all double-marked as a part of the moderation process.

Please note: The outcome of a re-mark may be a **higher/lower or unchanged grade**. Grades are *standards referenced* and effort is NOT a criterion.

### **University policy on grading**

## Criteria for awarding grades for assessment tasks

Assignments will be awarded grades ranging from HD to F according to guidelines set out in the University's Grading Policy. The following descriptive criteria are included for your information.

### Descriptive Criteria for awarding grades in the unit

In order to meet the unit outcomes and successfully pass this unit, students must make a genuine attempt at all assessment tasks. Where this requirement is not met you will be awarded an FA grade with a maximum mark of 45.

Students will be awarded grades ranging from HD to F according to guidelines set out in the assessment policy: <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/assessment-in-effect-from-session-2-2016>

In order to ensure clear distinctions between grades, final marks of 49, 64, 74 and 84 will not be used. The following generic grade descriptors provide university-wide standards for awarding final grades.

Grade	Descriptor
<b>HD</b> (High Distinction)	Provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.
<b>D</b> (Distinction)	Provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.
<b>Cr</b> (Credit)	Provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent justification; communication of ideas fluently and clearly in terms of the conventions of the discipline.
<b>P</b> (Pass)	Provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes
<b>F</b> (Fail)	Does not provide evidence of attainment of learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.

*Note: If you fail a unit with a professional experience component the fail grade will be on your transcript irrespective of the timing of the placement.*

### **Withdrawing from this PG Unit**

If you are considering withdrawing from this unit, please seek academic advice via <https://ask.mq.edu.au> before doing so as this unit may be a co-requisite or prerequisite for units in the following sessions and may impact on your progression through the degree.

### **Results**

Results shown in iLearn, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](https://ask.mq.edu.au).

## **Delivery and Resources**

### **Coronavirus (COVID-19) Update**

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

### **Required textbooks**

Reys, R., Lindquist, M., Lambdin, D., Smith, N., Rogers, A., Cooke, A., Bennett, S., Ewing, B., & West, J. 2019. *Helping children learn mathematics* (3rd Edition). Wiley.

Skamp, K., & Preston, C. 2017. *Teaching primary science constructively* (6th ed.). Cengage.

This unit has a full web presence through *iLearn*.

Students will need regular access to a computer and the internet to complete this unit.

Weekly access to iLearn is compulsory for all students. Important assessment information will be posted there, as will other relevant unit notices and materials, including a reading template and guide to lecture note taking to assist your studies.

Various activities and materials for discussion and critical reflection are included and external students especially are encouraged to use this web component. Electronic links and suggested references will be included in the Resources section. Please check the iLearn unit regularly.

### Lectures

Weekly lectures are pre-recorded and available on the web through ECHO360. You must listen to all lectures. PowerPoint slides are available in iLearn in advance of the weekly lecture and/or are available in the Active Learning Tool.

### Support resources

Macquarie University has a range of services for students. If you are struggling with any aspect of academic life or career trajectory and skills, we have great supports within the university. Please refer to the comprehensive list of support services [here](#).

### Access and technical assistance

Information for students about access to the online component of this unit is available at [ilearn.mq.edu.au/login/MQ/](http://ilearn.mq.edu.au/login/MQ/). You will need to enter your student username and password.

Please do **NOT** contact the Unit Convenor regarding *iLearn* technical help.

No extensions will be given for any technical issues. Allow enough time for your submissions.

Assistance is available from IT Helpdesk ph: 1800 67 4357, or log a request at [help.mq.edu.au](http://help.mq.edu.au). OneHelp is the online IT support service for both students and staff.

### This unit requires students to use several ICT and software skills:

- **Internet access:** The *iLearn* site contains materials for this unit; it is also required for the online submission of all Assessment Tasks, and for the use of Turnitin submission for ALL tasks.
- **Word processing, visual representations, and document formatting:** You are required to use an appropriate form of software to present your assignments.
- **Uploading** of assessment tasks to **iLearn**.

### Structure

The unit comprises two weekly lectures and a two-hour tutorial. In the tutorial students will discuss issues and questions arising from the lectures and prescribed readings. They are expected to base their arguments/discussions on evidence from published research and other relevant material. Students are required to participate in small group activities and whole class discussion, to read the weekly material in advance, and to complete brief tasks either as individuals or in pairs. The weekly program for the course with the accompanying readings/preparation is available on the following pages or on the unit iLearn site.

### Attendance Requirements

In the Master of Teaching attendance at tutorials (internal enrolment) and on-campus days (external enrolment) for this professional qualification is compulsory (80% attendance required).

## Unit Schedule

### Coronavirus (COVID-19) Update

The unit schedule/topics and any references to on-campus delivery below may no longer be



relevant due to COVID-19. Please consult [iLearn](#) for latest details, and check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

The unit schedule is available in iLearn.

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Department Procedures

In addition, the following policies and procedures of the Macquarie School of Education are

applicable in this unit.

### **Attendance**

All Internal tutorials begin in Week 1 of Session.

Activities completed during weekly tutorials (internal) or on campus days (external) are essential for building the core knowledge and/or skills required to demonstrate the learning outcomes of this unit [and to meet the AITSL Graduate Teacher Standards and/or ACECQA requirements].

In the Master of Teaching attendance at tutorials (internal enrolment) and on-campus days (external enrolment) for this professional qualification is compulsory (80% attendance required).

Students are required to attend the tutorial in which they are enrolled. Any changes to tutorial enrolments must be completed officially through e-student. Please do not contact the unit convenor requesting a change.

### **Unit Expectations**

- Students are expected to read weekly readings before completing tasks and attending tutorials
- Students are expected to listen/attend weekly lectures before completing tasks and attending tutorials
- Students are required to make a genuine attempt at all assessment tasks to pass the unit.

Note: It is not the responsibility of unit staff to contact students who have failed to submit assignments. If you have any missing items of assessment, it is your responsibility to make contact with the unit convenor.

### **Workload**

In a 10 credit-point unit you should expect to commit nine (9) hours of your time per week to your studies.

### **Electronic Communication**

It is the student's responsibility to check all electronic communication on a regular weekly basis. Communication may occur via:

- Official *MQ Student Email* Address [Note: Please do not email staff from any email account other than your uni email account.]
- The *Dialogue* function on iLearn
- Other iLearn communication functions

## External Students

1. The on-campus sessions on 14 March and 4 April, 2020 are essential to student engagement and learning, and attendance on all days is expected. Failure to attend, or to have an approved Special Consideration, may result in a Fail grade for the unit. Please see attendance requirements in this unit guide.
2. Prior to the on-campus sessions, you should have read the prescribed readings and listened to the lectures. Summarise the main points, and make a note of the key terms and definitions. Prepare any discussion questions of your own that you wish to share.
3. Please make effective use of the online component of the unit and access iLearn regularly. Keep up to date with listening to the lectures on a weekly basis.

## On campus sessions

The on campus sessions for this year are on:

**Day1 (9:00-5:00)** 14 March

**Day2 (9:00-5:00)** 4 April

Further specific details and any updates about times and locations will be posted on iLearn as an Announcement during the first half of the semester.

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.