

A FOOL AND HIS MONEY ARE SOON PARTED

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“The risk of falling behind with regular bills, even the possibility of personal bankruptcy, is substantially higher when financial literacy is low.”
(Commonwealth Bank Foundation, 2010, p. 10)

Background

Many Australian mathematics teachers will be surprised to read articles with headlines like “School’s back — and it’s all about to change” (Sydney Morning Herald, 24 January 2011) with the claim that the introduction of the Australian Curriculum would “introduce financial literacy to schools’ offerings”. Teachers can point to a range of topics in existing mathematics curriculums around the country that build students’ capacity to deal with financial matters. They are right: financial mathematics has always been included in balanced mathematics programs.

There is persistent evidence, however, of poor levels of financial literacy in a number of sectors of the Australian community. Young people, in particular, tend to fare badly in studies of financial literacy levels. A recent study commissioned by the Commonwealth Bank Foundation found that 16–25 year-olds constitute 42% of the bottom quartile, and only 4 % of the top quartile in terms of their financial literacy (Commonwealth Bank Foundation, 2010). Yet it is this age group whose financial literacy skills can potentially be influenced through school education. It is not surprising that schooling is seen as an essential contributor to financial literacy levels, and that, given this evidence, more needs to be done. The advent of the Australian Curriculum creates an opportunity to meet the important challenge of lifting young people’s financial literacy levels and mathematics can play a key role.

“love teaching this stuff as it is so useful and even maths teachers fall into financial difficulties”

(teacher comment from AAMT Consumer and Financial Literacy Survey, 2010).

For a number of years, the Organisation for Economic Co-operation and Development (OECD) has been a leading advocate for the importance of financial literacy, recommending that financial education should start at school and as early as possible. In 2012, the major domain for the Programme for International Student Assessment (PISA) testing regime will be mathematics, and for the first time there will be equal time allocated to financial literacy as well as mathematical literacy. Australia is one of the 19 countries participating in this international financial literacy assessment;

other countries include France, New Zealand and the United States. One of the goals of the PISA 2012 financial literacy assessment is that “[c]omparing levels of financial literacy across countries will make it possible to see which countries perform best and begin to identify effective national strategies and good practices” (International Gateway for Financial Education, 2011).

The AAMT position

The Australian Association of Mathematics Teachers Inc. (AAMT) made an important contribution to thinking about financial literacy in schools with the publication of its *Position Paper on Consumer and Financial Literacy in Schools* (AAMT, 2009). This paper has been acknowledged by the Australian Securities and Investment Commission (ASIC)¹ personnel (among others) as presenting a sensible and sustainable view of the area from the mathematics perspective.

Financial literacy is a relatively new term that has a much broader scope than financial mathematics. It is the “ability to make informed judgements and to take effective decisions regarding the use and management of money” (ASIC, 2011, p. 12).

Clearly, some mathematical skills and understandings underpin those informed judgements and effective decisions in financial contexts. The AAMT Position Paper acknowledges this: “The AAMT believes that teachers of mathematics should assist their students’ development of consumer and financial literacy through purposeful attention to a range of knowledge, skills, and ways of thinking and doing that are part of the mathematics curriculum” (AAMT, 2009, p. 4). However, as the paper also highlights, consumer and financial literacy is more than knowledge of financial matters and the skills to work with this knowledge. It also requires the confidence and capacity to successfully apply the necessary knowledge and skills in a range of contexts and for a range of purposes. To develop these capabilities within students, financial literacy “should be built through integrating knowledge and skills from a wide range of learning areas, with an appropriate emphasis on developing students’ confidence and capacity” (AAMT, 2009, p. 2).

Outline of the AAMT project

In its role as the Australian Government’s lead agency in the area, ASIC sought to influence the contents of the Australian Curriculum as it was being developed during 2010. Part of the strategy was to engage professional associations in the relevant areas to provide expert advice on the draft curriculum, and make suggestions for improvement. It was recognised that the implementation of the Australian Curriculum would generate a focus on classroom resources and the professional learning available to support that implementation. ASIC was keen to map resources and identify professional learning needs in relation to consumer and financial literacy as it plays out in the new curriculum.

Along with associations for the teaching of English and Science, AAMT entered into a contract with ASIC to undertake the project. A working group, drawn from nominees from the State and Territory associations, was

1. ASIC is the lead Australian Government agency with responsibility for consumer and financial literacy.

established; their individual and collective contributions to this work have been invaluable.

Highlights of the findings/work

Consumer and financial literacy in the Australian Curriculum: Mathematics — then

The first drafts of the *Australian Curriculum: Mathematics* were released early in the first half of 2010—the K–10 document (ACARA, 2010a) in February, with the senior years one following in May² (ACARA, 2010b). Some of the key findings about the representation of consumer and financial literacy in the draft K–10 curriculum include:

- the ‘architecture’ of the draft did not allow for a coherent development from K–10;
 - there were no Content Descriptions directly related to consumer and financial literacy in Years K, 4, 5, 6, 7 and 8;
 - the Content Descriptions in Years 1–3 were located in the Measurement and Geometry strand (subheading “Money”) while those in Years 9 and 10 were in the Number and Algebra strand (subheading “Financial maths”).
- the representation of consumer and financial literacy in the document was inconsistent and often inadequate;
 - for the years without a Content Description directly related to consumer and financial literacy, the Elaborations did not consistently highlight pathways to the content that promoted the development of consumer and financial literacy;
 - there was no explicit mention of consumer and financial literacy related learning in the Achievement Standards for Years K–8;
- General Capabilities relevant to consumer and financial literacy were not developed clearly or extensively enough in the draft;
 - there was little explicit attention to the connection of Thinking skills to the content and contexts—especially the ‘critical orientation’ that is a vital part of consumer and financial literacy;
 - there was a lack of connection of the use of ICT as important contributors to the development of consumer and financial literacy (other than in Years 9 and 10 where it was relatively well emphasised).

Based on these findings, the AAMT team made a range of recommendations to ASIC to inform its representations to ACARA about redrafting the document. Central to these was that consumer and financial literacy needed to be consistently represented, and developed as part of the Number and algebra strand.

Consumer and financial literacy in the Australian Curriculum: Mathematics — now

Version 1 of the Foundation–10 *Australian Curriculum: Mathematics* (ACARA, 2010c) was published in December 2010. A thread of ‘Money and financial mathematics’ is present for Years 1–10 in the document, with a content description for each year level. This is clearly an important and

2. Given that ACARA has not progressed in its work on the senior years curriculum since the release of that draft, this article focuses only on the Foundation–10 work.

welcome shift from the first draft. It is noteworthy, however, that there is only ever one content description at the year level—some of the other threads have two, three or more descriptions. This singular reference to Money and financial mathematics at each year level could lead to a relatively narrow interpretation of the place of consumer and financial literacy in the mathematics curriculum. The Content description and associated Elaborations for Year 8 is indicated in Table 1 (ACARA, 2010c).

Table 1. Year 8 Money and financial mathematics.

Content description	Elaborations
Solve problems involving profit and loss, with and without digital technologies	<ol style="list-style-type: none"> expressing profit and loss as a percentage of cost or selling price, comparing the difference investigating the methods used in retail stores to express discounts

Whilst it is essential for the mathematics curriculum to play a key role in developing the mathematical knowledge and skills that underpin consumer and financial literacy, it is also important for students to encounter financial contexts in aspects of mathematics other than those particularly identified in the Money and financial mathematics thread.

For example, students in Year 8 might do some costings for materials, based on measurements (Geometry and measurement); evaluate the financial benefits of insurance given estimates of the chances of events occurring (Statistics and probability); compare different approaches to currency exchange rates and fees for exchanging money (Number and algebra). These sorts of activities reflect the value of financial contexts for using and developing the mathematics being learnt. They are not restricted to the content of the Money and financial mathematics thread of the curriculum. It is only through engaging with these sorts of activities that the teaching of mathematics can maximise its contribution to the development of students' consumer and financial literacy, as indicated in the AAMT Position Paper.

The broader aims of the Australian Curriculum: Mathematics

Consumer and financial literacy therefore plays a dual role in relation to school mathematics. On the one hand it is essential that mathematics teaching and learning in schools provides students with the knowledge and skills that underpin their consumer and financial literacy; on the other hand, contexts that have consumer and financial elements provide fertile ground for learning and doing mathematics and should be used when appropriate.

The other powerful value of these sorts of contexts are that they are rich in the 'non-content' areas of the Proficiencies³ and the General Capabilities that are central to mathematics as represented in the *Australian Curriculum: Mathematics*. The Proficiencies "describe how content is explored or developed, that is, the thinking and doing of mathematics" (ACARA, 2010c) and the General Capabilities are defined as the "skills, behaviours and attributes that students need to succeed in life and work in the twenty-first century."

3. The four Proficiencies are Understanding, Fluency, Problem Solving, and Reasoning.

4. There are two other General Capabilities: 'literacy' that would be developed by writing a report on their mathematical investigation; and 'intercultural understanding' that may be more challenging in mathematics, although the currency conversion example could be applicable.

Each of the examples given above from the Year 8 curriculum could be presented to students and worked on by them as problems to be solved, advice to be given or decisions to be made and justified; they would undoubtedly be really involved in the thinking and doing of mathematics.

Similarly, these contexts could well also engage students in developing their: numeracy (“willingness and ability to apply mathematics to their lives” (ACARA, 2010c)); competence in information and communication technology; critical and creative thinking; appreciation of ethical behaviour; and personal and social competence. These are some of the General Capabilities that are embedded throughout all subjects in the Australian Curriculum.⁴

“I’ve always thought that finance/economics for primary kids would be a good content area”

(teacher comment from AAMT Consumer and Financial Literacy Survey, 2010)

Conclusion

The *Australian Curriculum: Mathematics* provides a platform to contribute significantly to the improvement of consumer and financial literacy levels among our young people through the teaching and learning of mathematics. It will do this in two ways. Firstly, and most critically, it will ensure that key aspects of financial mathematics are taught. Secondly, by using financial contexts, it will enable effective learning of other mathematics in the curriculum. Mathematics embedded in the richness of financial contexts also helps build students’ ability to “think and do” mathematically and strengthen their abilities in the broader General Capabilities.

Having the *Australian Curriculum: Mathematics* in place is only part of the story, however: realising its potential in terms of students’ consumer and financial literacy development requires purposeful action in the classroom. This relies on teachers of mathematics having access to teaching and learning resources they can use with confidence, and access to professional learning that enables them to better understand the ‘what’ and the ‘how’ of teaching for and through consumer and financial literacy in mathematics.

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