What was it like learning maths when you were at school?

This resource allows students to explore what their parents remember about their experience of learning maths at school, and how maths is relevant to them in their lives now. The unit is inspired by a chapter written by Tracey Smith and Anne Brown from the book *Innovations in numeracy teaching in the middle years* which was published by the Australian Curriculum Studies Association in 2005.

Background

In the chapter ‘Becoming numerate: enhancing the significance of learning mathematics’, Smith and Brown describe a set of activities that they implemented over a year with a group of students aged 11–13. The program was designed to make learning more meaningful and important to the students, and to allow them to make real connections between home and school learning environments.

The program described by Tracey Smith and Anne Brown was informed by the NSW model of pedagogy outlined in the ‘Quality Teaching in NSW public schools’ documents. The students’ work focused on the processes of collecting, organising and interpreting of data (NSW Mathematics K–6). The authors note that the term pedagogy recognises that how one teaches is inseparable from what one teaches, and what and how one assesses and from how one learns. (NSW DET, 2003)

Their work focuses particularly on the dimension of *significance*, to frame and describe a set of strategies that make explicit and productive connections between home and school learning environments. (Smith and Brown, 2005)

In their assessment of the program, Smith and Brown conclude that the activities helped students see that mathematical understanding goes beyond the classroom and has the potential to help them function effectively in their future lives. (Smith and Brown, 2005)
Learning outcomes

Students will

- Establish connections between home and school learning environments
- Develop a survey to collect data on parents’ attitudes towards maths
- Gather data by interviewing parents and recording their responses
- Organise and interpret the results of the survey through the use of graphs
- Reflect on the relevance of maths in their life beyond schooling

References


Order a copy of Innovations in numeracy teaching in the middle years online at ACSA.
Getting started

In small groups, encourage students to brainstorm ideas about how they think their own experiences at school compare with those of their parents. What has changed? What might still be the same? Why?

When groups report their ideas to the class, encourage students to think particularly about changes in technology and how this may have influenced learning in schools. In what ways should technological change influence what students need to learn about?

Extend the discussion by asking students to focus on maths and whether they think that there may be changes in what students need to learn now — or in the ways which students should learn maths.

Students at work

• Using the questionnaire provided as Worksheet 1, each student should interview a parent/caregiver about the experiences that they had when learning maths at school. The questions will generate a mix of qualitative and quantitative responses. (Alternatively, your class may develop its own questionnaire. If you do this, ensure you have questions that will generate both qualitative and quantitative responses.)

• When students have collected the data, share their results in a class discussion. In Anne Brown’s class, some of the students were surprised that their parents had stories very similar to their own. This discussion may also provide a chance for some students to ‘... realise that while some of the things they were currently learning might seem irrelevant, they may well become useful in the future’ (Smith and Brown, 2005).

• Collate the responses to the quantitative questions (1, 5, 7 and 8) in a frequency distribution table on a whiteboard. Students can then copy these to the table at the top of Worksheet 2. Then ask students to graph the collated responses (to questions 1, 5, 7 and 8) using Worksheet 2. Students should write a paragraph describing and analysing their results. Encourage students to use comparative language such as ‘more than’, ‘less than’ and ‘the same as’.

OR

Discuss the nature of the results and how they can best be collated and represented. How can we collate the information as a class? What is a suitable graph for representing the yes/no responses (e.g. sector/bar/column)? How can the qualitative responses be collated and represented? Students should be encouraged to share their findings as a class and determine themes/categories that can be graphed. How many categories are needed to capture all the responses? Students can discuss the viability of using the category ‘other’ as a strategy. In addition, computer programs such as Excel can be used to enter and graph information.
Concluding activity

To encourage students to reflect on this activity, ask them to write a fictitious diary entry for a time in the future. Using the date of 10 years from today, they should note the different activities they did during the day (at work, travelling and at home) where they used skills that they had learned in maths. In this diary entry students may also ‘reflect’ on how technology has changed in 10 years, and whether this should change the things that students are taught in maths at school.
Worksheet 1: Questionnaire

Student’s name ___________________________________________________________________________________

The person I interviewed was _________________________________________________________________________________________

1. Did you like learning maths when you were at school? Yes ■■ No ■■

2. What was the best part about learning maths?
_____________________________________________________________________________________________
_____________________________________________________________________________________________

3. What was the worst part about learning maths?
_____________________________________________________________________________________________
_____________________________________________________________________________________________

4. What methods were used to teach the times tables when you were at school? Do you think they were effective?
_____________________________________________________________________________________________
_____________________________________________________________________________________________

5. Do you still remember your tables today? Yes ■■ No ■■

6. Do you think that kids these days should learn maths the same way you did or can you think of a better way to do it? If you can, tell me your ideas.
_____________________________________________________________________________________________
_____________________________________________________________________________________________

7. How recently have you used something you learned in maths? In the last ...
   day ■■ week ■■ month ■■ year ■■ never ■■

8. During the last week, have you used any of these skills? (You can tick more than one box.)
   measurement ■■ geometry ■■ multiplication/division ■■
   fractions/percentages ■■ patterns ■■ addition/subtraction ■■

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WHAT WAS IT LIKE LEARNING MATHS WHEN YOU WERE AT SCHOOL?
Worksheet 2: Graphing results

Student name: ____________________________________________________________

Use the following table to record the number of results for questions 1, 5, 7 and 8.

<table>
<thead>
<tr>
<th>Q1</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Q7</td>
<td>day</td>
<td>week</td>
</tr>
<tr>
<td>Q8</td>
<td>measurement</td>
<td>geometry</td>
</tr>
</tbody>
</table>

**Question 1**
Create a horizontal bar graph, label the axes and record all of the responses to question 1: Did you like learning maths when you were at school?

![Bar graph for question 1]

**Question 5**
Create a horizontal bar graph, label the axes and record all of the responses to question 5: Do you still remember your tables today?

![Bar graph for question 5]
Worksheet 2: Graphing results

**Question 7**
Create a vertical bar graph, label the axes and record all of the responses to question 7:
How recently have you used something you learned in maths? In the last ...

<table>
<thead>
<tr>
<th></th>
<th>day</th>
<th>week</th>
<th>month</th>
<th>year</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

**Question 8**
Create a horizontal bar graph, label the axes and record all of the responses to question 8:
During the last week, have you used any of these areas of maths?

- measurement
- geometry
- multiplication/division
- fractions/percentages
- patterns
- addition/subtraction

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
</table>