

Teaching Mathematics Using Excel

Mary Rose Bonello & Silvana Camilleri

Introduction

'Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning.'

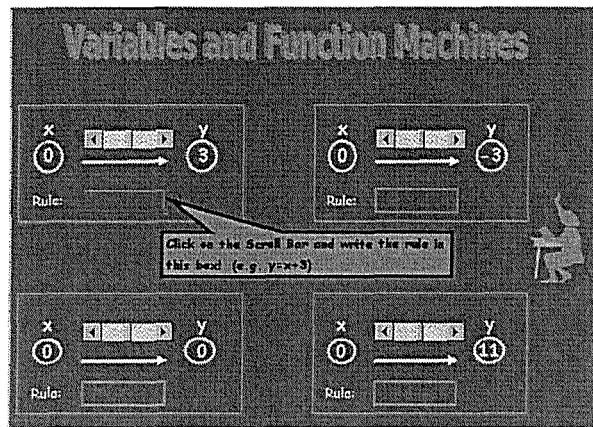
(Principles and Standards for School Mathematics—NCTM April 2000)

Aims of using Excel

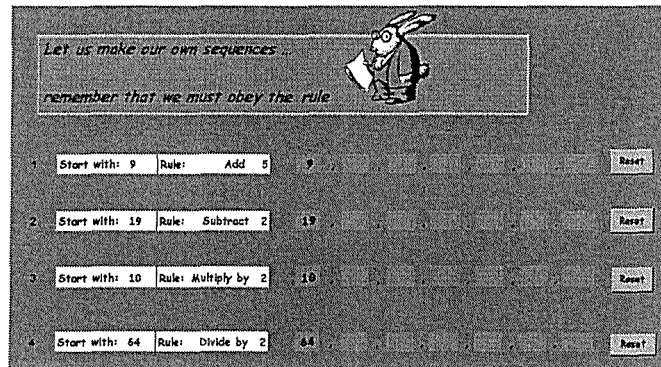
- Observing patterns and creating sequences
 - Sequences
- Seeing connections
 - Comparing equations
- Investigating collected data
 - Exerting graphs from statistical data

Observing Patterns & Creating Sequences

- Excel gives students the opportunity to explore sequences and patterns from a variety of situations
- Observing patterns
 - Variables and Function Machines Program

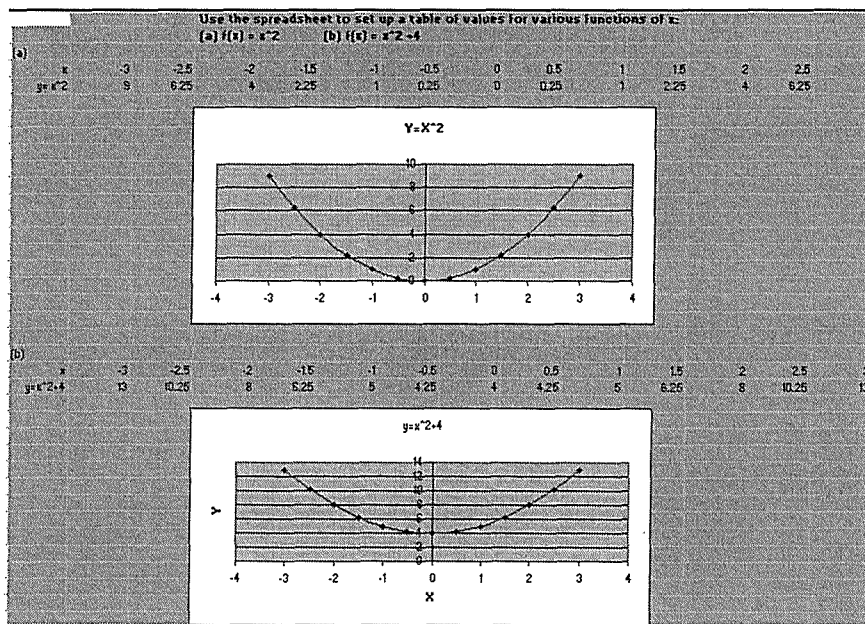


- Creating sequences
 - Sequences Program



Seeing Connections

- Spreadsheets could be used to help students explore equations and their graphical representations
- See connections between different equations
- Comparing graphs program



Investigating Collected Data

- Spreadsheets could be used
 - to display and analyse the collected data
 - to simulate randomly occurring events
- Simulating dice program

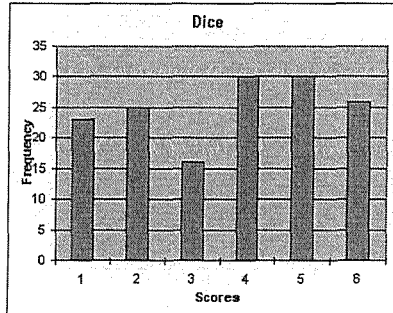
Simulating the probability of scoring a number with a six-sided dice.

Scores:

5 3 2 2 5 4 6 1 1 2
 5 5 4 1 4 2 4 6 1 3
 2 2 1 6 5 6 2 4 4 3
 3 2 2 5 6 1 6 6 2 3
 4 5 2 2 5 3 4 4 2 5
 2 5 5 3 6 6 4 2 5 1
 3 5 2 6 1 1 3 6 3 4
 6 6 1 6 4 6 6 1 3 2
 6 4 5 4 1 6 6 5 5 4
 5 1 3 1 1 4 2 5 5 5
 5 5 6 3 1 4 4 4 4 6
 1 4 5 2 2 4 2 4 4 2
 5 6 5 5 6 1 2 5 4 3
 2 3 6 5 1 4 3 4 6 1
 2 4 6 4 1 5 1 1 4 5

Score	1	2	3	4	5	6
Frequency	23	25	16	30	30	26

Throws	150
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mean	3.6467
mode	5
median	4
range	5

P(1)	0.1533
P(2)	0.1667
P(3)	0.1067
P(4)	0.2
P(5)	0.2
P(6)	0.1733

Press F9 to get a new set of throws.

Conclusion

- We have briefly shown how Excel can be a powerful tool during the mathematics lesson. Still this program cannot be used as an aid for all mathematics topics.
- Apart from Excel, one can find other software packages which can be used in the mathematics class, such as:
 - Derive
 - Cabri Geometry
 - MSW Logo