

Foreword



Melbourne is the knowledge and education capital of Australia.

Education is vital to the growth and development of our city as a centre for knowledge in the Asia Pacific region.

An estimated 60,000 school students visit Melbourne each year. A guided visit to the city is a journey into the possibilities the future holds for our young people. It enables students to shape their interests and help form future directions within their own community.

The City of Melbourne encourages students to regard the city as an exciting, vibrant place in which to learn, live and work.

Investigating Melbourne is an educational resource for Secondary School teachers and is pitched at the Year Nine curriculum level. It includes exercises exploring aspects of our city for delivery by experienced education officers and practising teachers. The selected activities cover a breadth of city landscapes - from Docklands to the Fitzroy Gardens - all easily accessible by public transport.

This year's edition is a compilation of science and maths-based learning activities. Maths and science are important core subjects in a school's curriculum, yet relevant exercises on Melbourne, which is a global leader in fields such as medical science and biotechnology, are relatively scarce.

Investigating Melbourne is designed to cater for the growing number of schools that undertake city-based studies in week-long residential visits or day excursions. This year's kit is a follow up to previous *Investigating Melbourne* editions covering the geography and history of Melbourne.

Investigating Melbourne is the result of a partnership between Melbourne City Council and a range of institutions and professional associations, notably the Mathematical Association of Victoria and Museum Victoria. It is provided free to every Victorian secondary school.

I trust your students will enjoy this educational journey to the City of Melbourne.

A handwritten signature in black ink that reads "John So". The signature is written in a cursive, flowing style.

John So
Lord Mayor
City of Melbourne

Investigating Melbourne

Maths and science learning activities

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TEACHER'S GUIDE

Individual teachers and a number of educational organisations have produced maths / science student tasks. The maths and science edition of the City of Melbourne's resource, *Investigating Melbourne*, has brought together these ideas to provide teachers with a complete package of materials. These modules build on the environment module already available to teachers in Victoria.

The Mathematical Association of Victoria and Museum Victoria are key partners in this project, promoting student maths and science learning through their generous contributions to this kit.

Investigating Melbourne is intended to have longevity and broad application and therefore minimal reference to the Curriculum Standards Framework II is intentional. Maths trails through Melbourne Central were reviewed by their Property Managers Lend Lease to reflect changes after the redevelopment. Some variation to orientation and final appearance is possible despite the able assistance of Lend Lease.

Each contribution reflects the varied educational approaches of the contributing authors and institutions. While the general target is Year Nine, these materials can cater for a broad range of abilities in the middle years. Many contributions have been modified to cover inquiry-based learning, designed to nurture student centred learning and engagement. Answers are not always provided where open discussion is encouraged. The types of questions vary, providing scope for multiple intelligences. Students with a preference for visual expression or interpersonal group work can be challenged along with logical sequential learners. The kit is a smorgasbord of learning possibilities to be adapted to the needs of any classroom. Most sections are extracts, for use in developing investigations in the city. Each section also outlines where to obtain further materials and points to what is available from other authors and educational providers.

Acknowledgements:

The dedication of Carol Patterson and Alexandra Abela, full time teachers who offered their time and curriculum expertise, is noted.

Joan O'Grady from Cook's Cottage and Rob Ellis from the City of Melbourne Parks Division provided educational materials highlighting learning opportunities and develop in the students an appreciation of our parks.

Carmel Ganino from Rialto Observation Desk and the Education Officers from Telstra Dome readily provided their student materials for publication.

Camilla Van Megen and Basil Walby from the Royal Society kindly added an array of scientific ideas to inspire students on the Science by the Mile walk.

Thank you to Justin Francis of Museum Victoria, whose enthusiasm and persistence has made Science by the Mile a reality in print.

Finally, an acknowledgement of Jill Vincent's tremendous generosity in contributing a part of her *Shrine to University* maths trail publication, reflecting her capacity and passion for maths education. This kit is only a hint of Jill's entire publication, *Shrine to University: a geometry journey along St.Kilda Road and Swanston Street*, available from the Mathematical Association of Victoria.

The Mathematical Association of Victoria's support of this resource made the concept possible.

Community Services

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City of Melbourne

