

Architecture Adventure

Pre-visit resource for Secondary School Educators

Introduction

The *Architecture Adventure* workshop presents to Secondary students a clear and engaging overview of the importance of architecture, the role it plays in the local and global environment, and how ArtScience Museum represents an iconic building with noteworthy aesthetic and features. All students will receive an Activity Book which explores these areas in detail. The themes in the Activity Book can be explored further back at school.

Aims and Objectives

AIMS

- To gain a greater understanding and appreciation of the main components of architecture
- To understand the impact of ArtScience Museum as a key example of Singaporean architecture

OBJECTIVES

- Identify, understand and create key architectural features
- Critically analyse the architecture of ArtScience Museum
- Describe and appreciate major buildings, and make links between architecture and its influences
- Working in teams, to apply newly acquired knowledge to design and construct an innovative building in Singapore.



Workshop content

Fun icebreaker game with an introduction to iconic architecture from around the world. After the warm-up activity, the Docents hand students their activity books and start the tour.

ACTIVITY BOOK COMPONENTS

- Introduction - ArtScience Museum (Observational sketching; crossword puzzle)
- Green Features ('Name the green features' activity)
- The Art of Architecture (with speed-sketching activity)
- Supporting the Structure (Construction solutions activity)
- Design Brief (with building activity) and evaluation

The students fill in the different the activities within their book as they progress around ArtScience Museum on their tour.

SUMMARISED TOUR CONTENT

- Standing outside ArtScience Museum (weather permitting), the Docent provides a brief introduction about the building and to architect Moshe Safdie's involvement as the designer of the building.
- Students have a close-up look at the Oculus, a dish-like roof that collects rainwater and drains it through a hole in the centre of the building, creating a waterfall that feeds into a pond at the basement level.
- Students have the opportunity to view in the original Moshe Safdie's initial sketches of ArtScience Museum.

The group will then head back to the Education Space (B1) where they discuss how the architects and engineers found solutions to support the irregular structure of ArtScience Museum. Examples of these are given through digitally-animated demonstrations.

DESIGN AND CONSTRUCTION ACTIVITY

Using the versatile construction resource 'Bionic Blox', students work in teams of four or five to plan, design and construct a new and iconic HDB housing estate. A representative from each team will explain to the rest of the group the concept of the building at the end of the activity.



Curriculum links

ART

The Architecture Adventure workshop complements the three behavioural domains of *Perceiving*, *Communicating*, and *Appreciating* in the following ways:

Perceiving - Aims:

- Cultivate in students greater understanding of and sensitivity towards architecture and so develop a citizenry that is more able to enjoy, appreciate and foster a lifelong interest in the Visual Arts
- Develop visual literacy through the critical analysis and appraisal of architecture
- Increase proficiency in the use of visual arts vocabulary
- Foster self-confidence and a sense of achievement through critical appraisal of architecture
- Nurture a lifelong interest in the visual arts

Perceiving - Learning Outcomes:

- Analyse and define visual expressions in light of social and cultural contexts
- Make connections between visual expressions of differing genres, traditions and contexts
- Make inferences from architecture

Communicating - Aims:

- Processes involved include evaluating information, synthesising ideas and expressing personal interpretations. Through the analysis of architecture and the practise of informed aesthetic judgement, students learn to communicate creatively and effectively

Communicating - Learning Outcomes:

- Generate, conceptualise and articulate independent interpretations of architecture
- Critically appraise architecture, including ideas and concepts
- Communicate with precise working vocabulary the processes of building, and critical responses to architecture

Appreciating - Aims:

- Students value the visual arts as a powerful means of expression, they recognise the connections between the visual arts and their lives, and appreciate its significance in the wider context of culture and society
- Students develop aesthetic and cultural awareness from which personal and cultural identities could be examined and built upon. Through this, students will continue their interest and participation in the visual arts beyond school

Appreciating - Learning outcomes:

- Value imaginative and innovative ideas in visual arts
- Achieve a sense of confidence through informed critique of the visual arts
- Value local artworks as part of a country's history and cultural heritage
- Develop an inquiring attitude and lifelong interest in the visual arts



SCIENCE

The aims of the secondary school science syllabus are to enable students to acquire understanding and knowledge to be confident citizens in the technological world of the future. The “Architecture Adventure” tour and workshop stimulates inquisitiveness and develops an appreciation of innovation in the field of design, engineering and technology. The exploration of the challenges overcome in construction explores key issues of weight load, how forces affect structures, how the shape of a building affects how strong it is, and principles of reinforcement. The use of environmentally friendly construction materials reinforces the syllabus content on interest and care of the environment.

The workshop content fosters knowledge and understanding in ways that facilitates students to:

- Become confident citizens in a technological world, and be able to take or develop an informed interest in matters of scientific import
- Recognise the usefulness, and limitations, of scientific method and to appreciate its applicability in other disciplines and in everyday life

Content relevant to Physics includes the following:

- Gravity and balance.
- Types of forces: tension, lateral and seismic forces of earthquakes.

GEOGRAPHY

The geography syllabus aims to provide a holistic understanding of physical-human relationships. The “Architecture Adventure” tour and workshop content explores the relationship of man and his environment and how architecture impacts on this in a very real way. The syllabus aims to develop knowledge as well as inculcate positive values and attitudes in students. The discussion of the impact of ArtScience Museum as a forerunner in both the arts and science, “reflecting the forward-looking spirit of Singapore,” reinforces this. The syllabus content on managing the changing environment is developed in the discussion on environmental conservation and the innovative use of environmentally friendly materials, for which ArtScience Museum received Singapore’s Green Mark award.

DESIGN & TECHNOLOGY

The Design and Technology syllabus aims to develop an awareness of design and an appreciation of function, aesthetics and technology in design. In “Architecture Adventure”, students are taken through the process of design, from the initial idea right through to the development of the concept, to challenges met, and evaluation of the finished design. The syllabus content, “Design in Society” is addressed in the exploration of the cultural influences expressed in the design and how the design responds to the essence of the place.

The examination of the reinforcement issues addressed in the construction of the building links in with the syllabus content on reinforcing structures. Discussion on the environmentally friendly credentials of the building, which won it the Singapore’s Green Mark award, clearly reinforces the syllabus content on sustainability and use of eco-friendly materials. The examination of the use of cutting-edge technology develops an appreciation of how technology is applied to enhance design.

NATIONAL EDUCATION

By taking students out of the confines of the classroom, they link the theoretical with the experiential - injecting life and meaning to the learning experience so it becomes real and concrete. Thus, through participating in *Architecture Adventure*, students will get to understand the role ArtScience Museum plays in being part of the large Marina Bay Sands integrated resort, its environmentally friendly features and iconic design, located strategically on the bay in Singapore.



ArtScienceMuseum
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To find out more about our educational provisions, email us at: museum.education@marinabaysands.com
To make a school group booking, email us at: museumgroupbooking@marinabaysands.com