

EDUCATOR LED VISIT POWERHOUSE, ULTIMO

SCIENCE, MATERIAL WORLD AND PHYSICAL WORLD Stage 3

In this program school groups examine artefacts such as the Russian Spacesuit worn by Cosmonaut Gennadi Manakov and the F1 Rocket Engine on loan from the Smithsonian's National Air and Space Museum, USA. Using active inquiry techniques, learners will identify the materials and characteristics, discussing their properties and the impact of their use.

EXHIBITION	OBJECT	THINKING ROUTINE
Space	Space suits	<p>Think, Pair, Share</p> <ul style="list-style-type: none"> • What are materials? What materials do you know? • In pairs, take turns to talk, listen carefully and ask questions about how different materials can be used for these different types of space suit. • Think about other areas, on Earth, where specialised materials are needed for extreme environments. (educator to move from group to group to listen and assist). • Ask them to explain their partners thinking and comments.
	Soyuz Re-entry module	<p>See, Wonder, Connect x2</p> <ol style="list-style-type: none"> 1. Look closely: What do you notice? Make many observations. 2. What questions do you have? What do you wonder about? 3. How could this connect to subjects you study in school? 4. How could this connect to your personal interests or hobbies?

SYLLABUS LINKS SCIENCE Stage 3

OUTCOME/S		
Stage 3 Material World	ST3-7MW-T	Explains how the properties of materials determine their use for a range of purposes.
Stage 3 Physical World	ST3-9PW-ST	Investigates the effects of increasing or decreasing the strength of a specific contact or non-contact force.

CONTENT	
Stage 3: Material World	<ul style="list-style-type: none"> • Investigate characteristics and properties of a range of materials and evaluate the impact of their use • Identify and evaluate the functional and structural properties of materials.
Stage 3: Physical World	<ul style="list-style-type: none"> • Explore and describe some common contact or non-contact forces, for example: <i>applied force</i> (eg pushing, kicking), friction and <i>air resistance</i>, tension and elastic force, <i>gravity</i>, magnetism, buoyancy. • Explore the effects of changing the strength of a single contact or non-contact force, for example: how increasing or decreasing the strength of the force of air resistance by changing the shape of an object results in increases or decreases in speed.

INQUIRY AND FOCUS QUESTIONS	
Material World	<ul style="list-style-type: none"> • Why are the characteristics of materials important when designing and producing? • How can we make a force stronger or weaker?

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SCIENCE Stage 3

EDUCATOR LED EXPERIENCE

Sample Itinerary for a 10am booking

9.45am	Arrive at Powerhouse, main entrance, Harris St, Ultimo. Learners can use this time for a toilet break or to have a snack.
9.55am	Museum Visitor Service Officer (VSO) meets group and checks booking details.
10.00am	VSO leads group into the Museum to cloak school bags, toilet stop if needed, welcome and Acknowledgement of Country.
10.10am	Educator/s – groups of 15 learners + teacher/supervisor Expert museum educators engage small groups of learners (15:1) at two selected artefacts or galleries. Discussions and activities are aligned with the Material World and Physical World content.
10.55am	Whole group reunited, wrap up, farewell to Educators. Free exploration of galleries with teachers/supervisors until 11.50am.
11.50am	Reclaim cloaked bags, toilet stop if needed.
12 noon	Depart Museum.