

Material Tales: The Art and Science of Things

A touring exhibition from
the Design Museum, London and
the Hong Kong Science Museum
in collaboration with **Globe Creative**

the
**DESIGN
MUSEUM**



香港科學館
**HONG KONG
SCIENCE MUSEUM**



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Material Tales - The Art and Science of Things

Introduction - About the Exhibition

Material Tales is the story of Materials. Used in every product on the planet, crucial for every aspect of our lives.

As we face the realities of the Earth's limited resources, designers, scientists and users are seeking clarity around how objects are made, and at what material cost. Where do materials come from, how have we manipulated them for our use, what are the implications of our decisions on the environment, and how can we create 'future' materials that are good for people and the planet.

The Design Museum story – The Art of Materials

Material Tales is a story in 4 chapters. A journey through the origins, transformation, consequences and evolution of materials. A story that looks at materials from a design perspective and how materials - through complex processes - have created products that define modern life. An exploration of the world of materials showcased through 69 iconic objects from the Design Museum Collection, films, images and process materials.

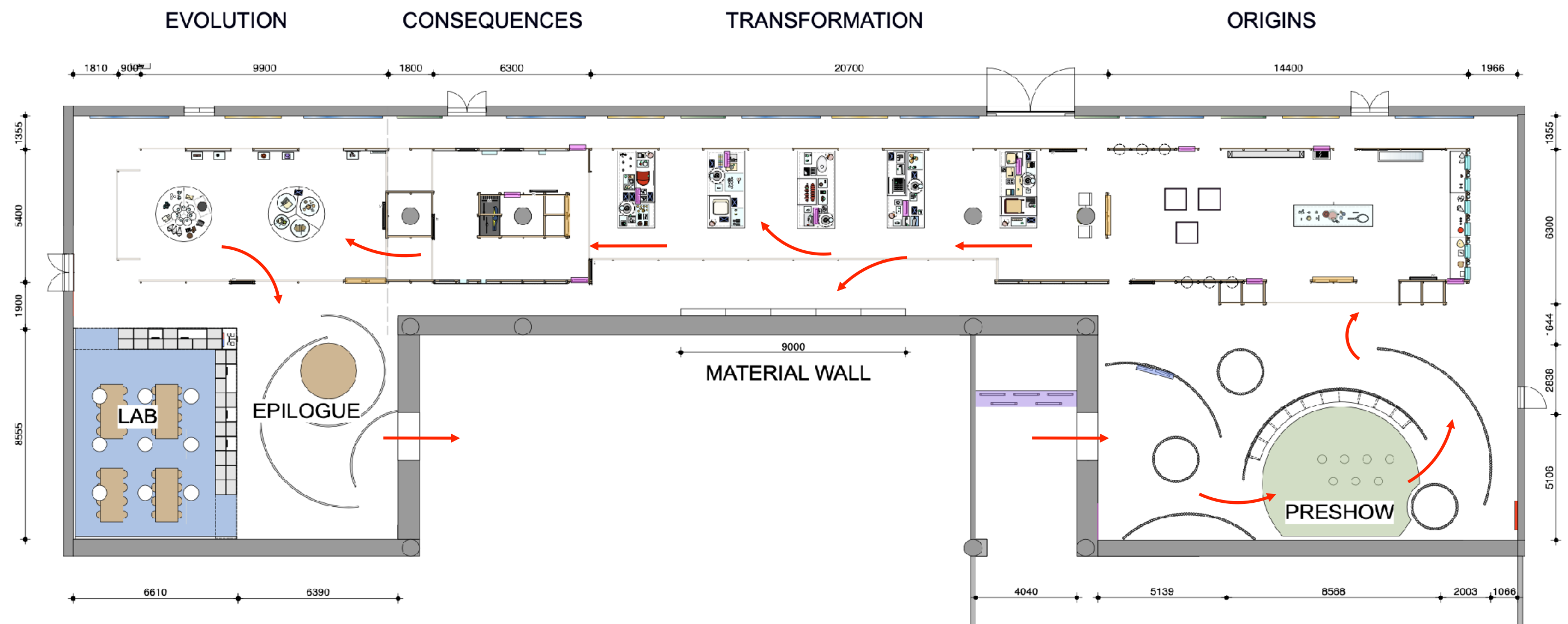
The HK Science Museum story – The Science of Materials

Material Science is **the** most important technology of the decade, propelling innovation forward like never before. We add the physics, chemistry, maths and engineering to the story of materials. From the language of materials and their properties, to the creation of new and replacement materials that will fuel our future planet. Drawing out local stories and materials, and experienced through interactive games, physical interactives, installations and audio exhibits.

Material Tales is about The ART and SCIENCE of Materials

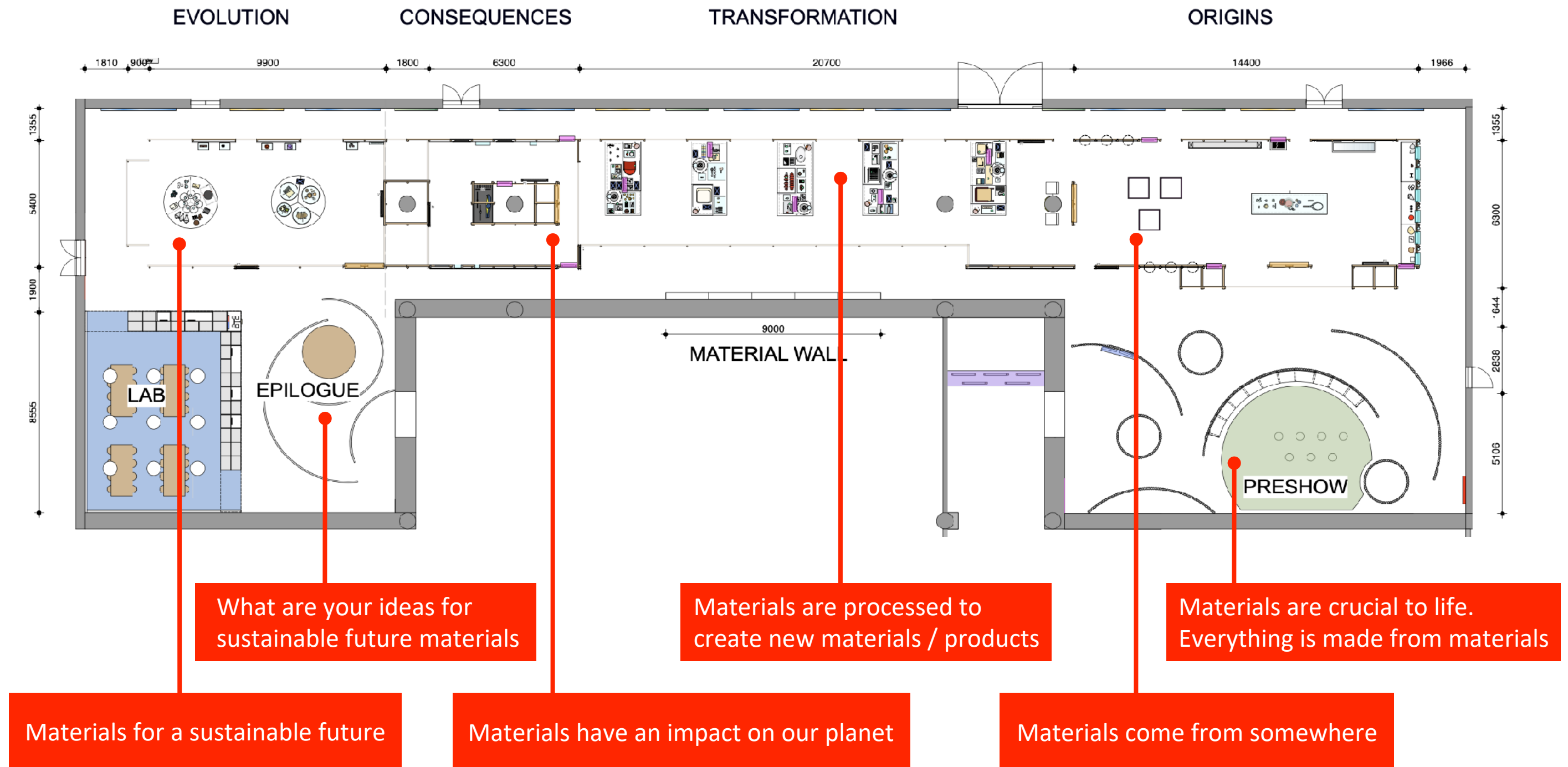
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Visitor Journey



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Key Messages



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Target Audience and Learning

The Exhibition is designed to encourage engagement and learning across a broad audience.

- Young minds: learning through play and interaction
- Students (STEAM): use of critical and out-of-the-box creative thinking skills
- University (Science/Technology/Design): noting the potential and opportunities of Material Science



Key Takeaways

An empowering experience that leaves visitors...

- Better informed about the importance of materials
- With greater respect and care for the material world
- Inspired to learn more about materials and sustainable future use
- With a deeper understanding of the use of materials in design and manufacturing

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Highlights from the Design Museum London Collection



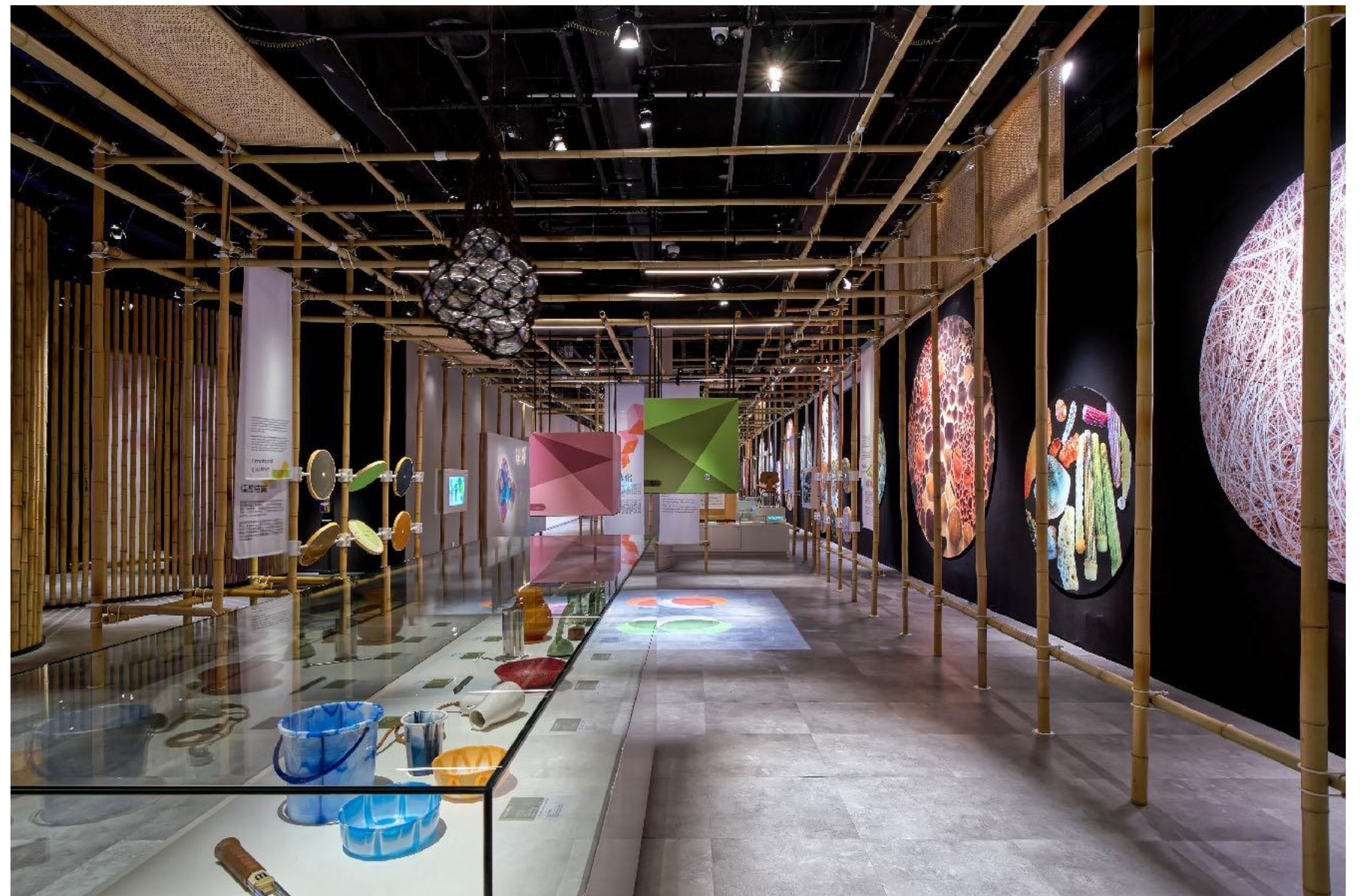
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Sustainable Design

This exhibition is designed to be sustainable and with circularity in mind, and bamboo as the main and connecting material.

We used:

- Low-embodied materials
- Locally sourced materials
- Recycled materials
- Minimal transport
- Local resources



Material Tales - The Art and Science of Things Films

A special character - 'Professor Atom' - has been created to enhance the visitor experience and make learning fun!

Professor Atom is cool and full of life. She LOVES Materials, and makes Material Science come alive for everyone!

Professor Atom is everywhere in the exhibition:

- Pre-Show - she sets the scene by explaining what Material Science is all about
- In Each Chapter - she summarises the key points and reinforces the key learnings



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Hands-on and Computer Interactives



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Material Guessing Corridor

**Guess what material is shown on the blow-ups of macro and microscopic photos.
Turn the label to see if you guessed correctly.**



Material Tales - The Art and Science of Things Impression



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Exhibition Outline

Preshow: Animation that sets the scene and invites visitors to explore the world of materials (6 mins)

The Journey of Materials with objects, interactives and films:

Chapter 1: Origins

Chapter 2: Transformation

Chapter 3: Consequences

Chapter 4: Evolution

Materials wall: A showcase of new materials that are pushing the boundaries in design, technology and science

Epilogue: Future materials; what do you want scientists and designers to create?

Lab: Workshop space to further explore the story of materials.



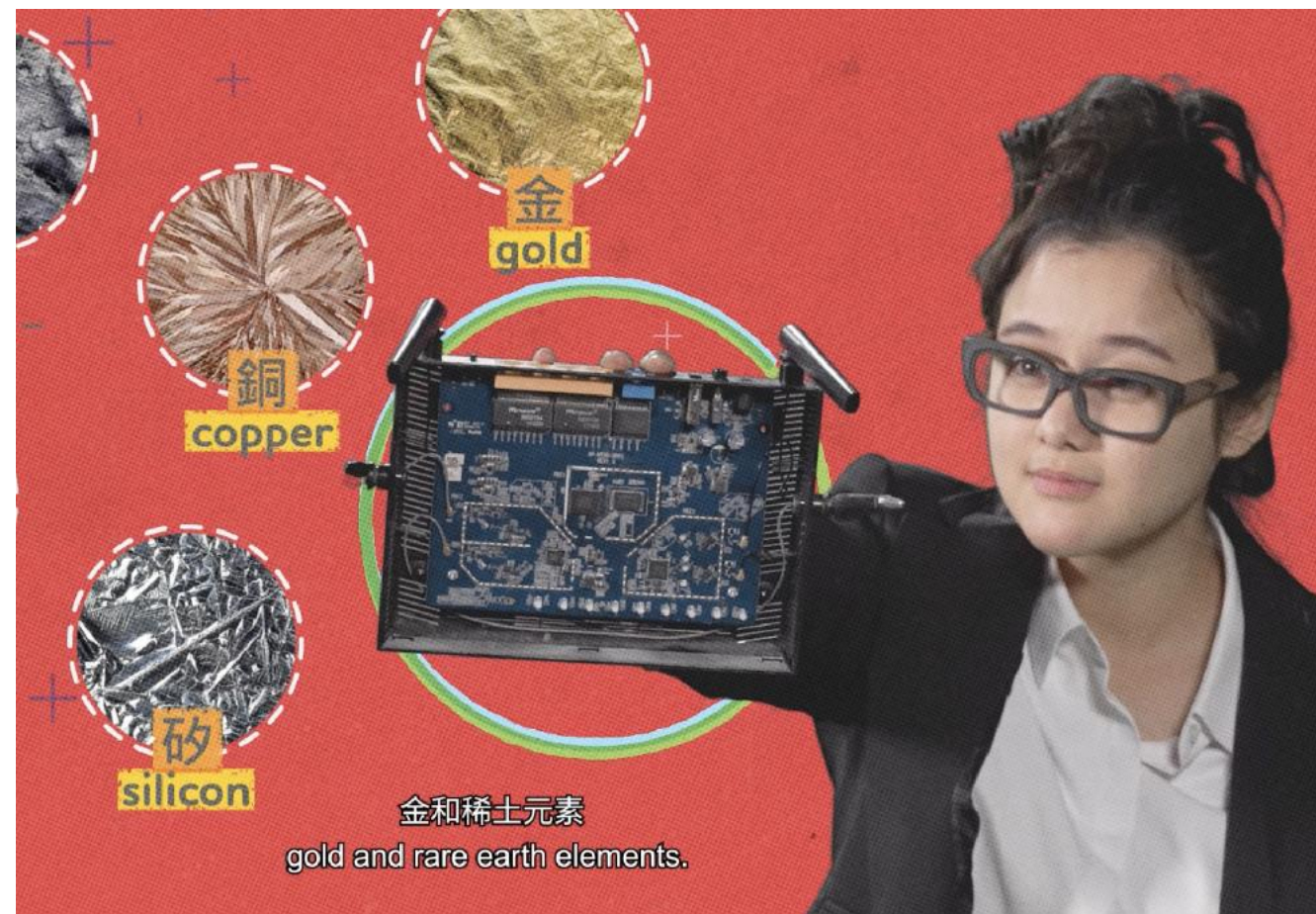
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Exhibition Outline - Preshow

What is Material Science? Why Is It Important To Us?

Material Science may be the most important technology and science of the next decade. Join Professor Atom as she takes you from the dawn of Material Science to the innovations it has brought us today, to the future of Material Science tackling global problems that affect us all.

Welcome to the extraordinary and incredible world of materials!



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Exhibition Outline - Chapter 1 Origins

Where Do Materials Come From? Why Do We Love Them?

This chapter introduces visitors to the origins of materials and how every material – no matter how complex or seemingly synthetic - finds its origins in the earth. We examine materials' physical and emotional qualities and explore what makes us so attached to them.

- From the Design Museum: a series of intriguing objects that demonstrates how we instinctively create objects that we want to live and work with
- From the Science Museum: an introduction to the vocabulary of material science, what makes up materials and a showcase of their characteristics



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Exhibition Outline - Chapter 2 Transformation

How Do We Manipulate Materials?

This chapter looks at how we transform materials through mass manufacture. From wood, metal and ceramics to glass and plastic, we showcase the technology and scale of the materials that are being processed and produced at great speed and specialisation, today.

- From the Design Museum: original objects, large-scale photography and films provide a 'behind-the-scenes' look at how our world is formed, from space craft to drink cans
- From the Science Museum: a deep-dive into how products are made and how the science of nature is contributing to the creation of new superhero materials



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Exhibition Outline - Chapter 3 Consequences

What Have We Done?

This chapter examines the environmental and human impact of current global systems of material extraction and consumption. Films, photography, moving imagery and stories illustrate the disastrous consequences of material extraction on both the environment and on human civilisation. A wake-up call as we continue our unending pursuit of materials to satisfy our way of life.

- From the Design Museum: the story of rubber in the Amazon rainforest
- From the Science Museum: a hard look at the truth behind Rare Earth mining and Ocean pollution. We ask visitors if they are ready to make a change to mitigate the damage already done to our planet



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Exhibition Outline - Chapter 4 Evolution

The Future of Materials

This chapter looks at how designers and scientists are finding more intelligent and sustainable ways of working with finite resources to address urgent environmental and societal issues.

- From the Design Museum: the work of contemporary artists that offer an inspiring and optimistic overview of material design today
- From the Science Museum: new materials from scientists that are delivering function, performance and sustainability



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Exhibition Outline - Materials Wall

Materials Wall for browsing the latest and greatest of innovative materials

An expansive Wall that showcases some 40 sets of innovative materials that have changed or are changing our world. Secured from scientists and designers from around the world, these range from naturals to polymers, ceramics, glass, metals; also carbon based and cement-based materials. Hosts can look at doing their own selection or a combination of existing and newly sourced materials.

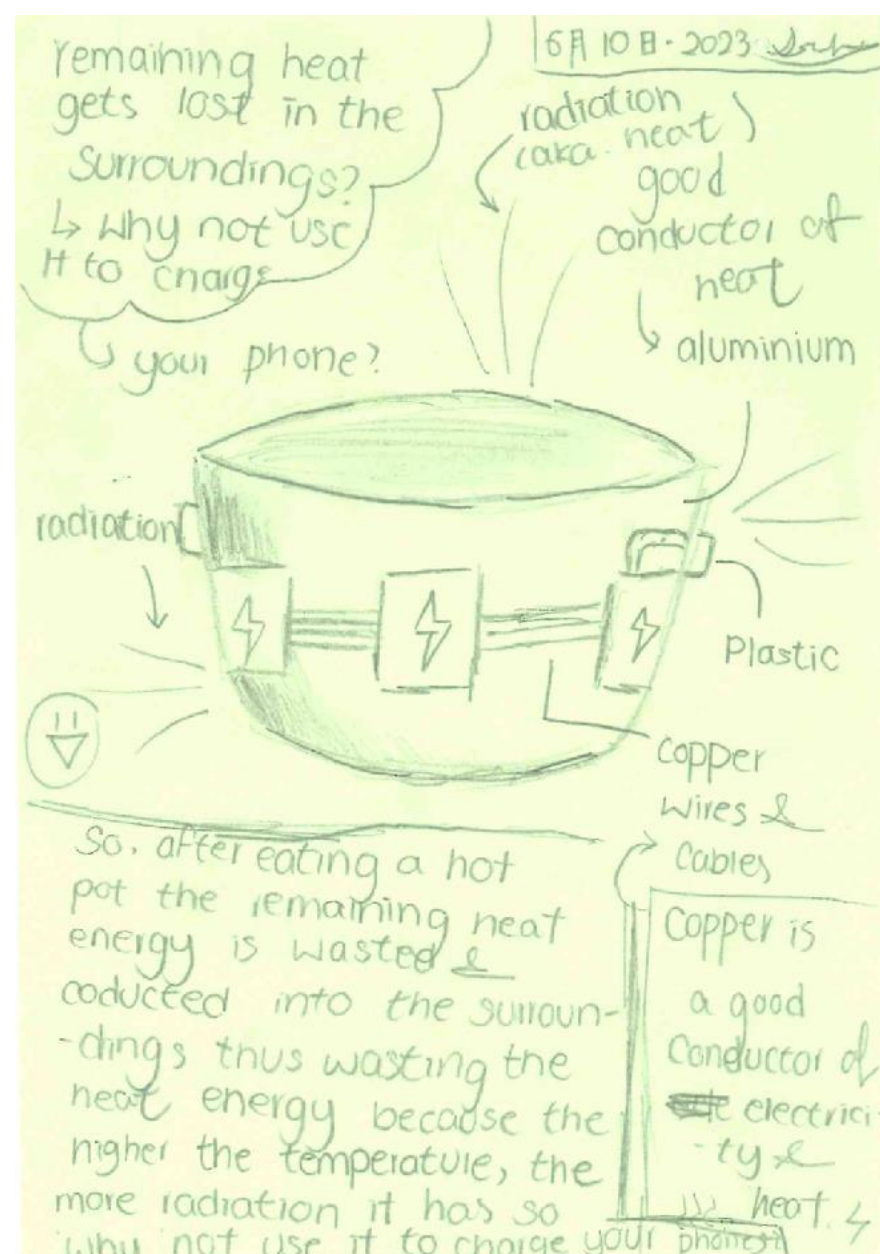


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Exhibition Outline - Epilogue

At the end of the exhibition, we ask visitors what materials they would like scientists and designers to create and why?

Here are some future material requests from Hong Kong visitors...



Material Tales - The Art and Science of Things Exhibition Outline - HKScM Learning Resources

A comprehensive science learning package sits alongside the exhibition. From student lesson plans and teacher guides to workshops and pop-up demonstrations and activities.

Lesson Plan

Learning Outcomes

- ✓ To develop the ability to think scientifically, critically and creatively, and to solve problems individually or collaboratively in science-related contexts

Expected outcome

- ✧ To understand the properties of different materials
- ✧ To develop and practice generic skills (e.g. communication, critical thinking and collaboration skills, creativity), subject-specific skills, as well as positive values and attitudes

Curriculum Links

- General Studies (P1-P6): Science and Technology in Everyday Life
- Science (S1-S3): From Atoms to Materials
- Chemistry (S4-S6): Materials Chemistry

Science Inquiry Idea

Making observations is an essential component of inquiry-based learning. We make observations using our senses (hearing, sight, touch, etc.). For scientists, having good observational skills is crucial!

STEAM idea

An open-ended design project encourages students to brainstorm new ideas. Give hints to the students about what to think about:

- What do you want to achieve?
- Who is the product for?
- What are the limitations?

Then apply science and maths concepts to build prototypes. Remind the students that the process of design is iterative, just like science!

Before the visit

- To understand how materials impact the students' daily life, ask them to bring in a household item.
- The properties of materials are reflected in the way their products look and feel. In groups, allow the students to observe the items using different senses – touch with their hands, smell with their nose and observe with their eyes! Ask the students to describe the items' textures, for example if they are soft or hard. Are they smooth or are they rough in texture?
- Ask the students to identify the materials used to manufacture these household items.

At the Museum

- Ask the students to complete the Activity Sheet to note down the observations they have made during the visit.
- Among the collections from the London Design Museum, there are stunning designer chairs that are made of different materials. Which one is their favourite?

After the visit

- The students can take on the role of product designer and design their dream chair! What materials would they like to use? What shape would it be? Ask the students to draw or make a craft of the chair.
- Ask the students with higher ability to design a chair with a specific function, such as one for newborns, the elderly, outdoor camping, classroom learning, etc. List the materials that would be used in production.
- Designers always build prototypes for their creations before starting actual production. The students can build a chair prototype using art supplies or 3D printer.
- You are welcome to share the work of your class with the Museum!

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天生我材

材料科學與設計

MATERIAL TALES

The Life of Things

Activity Sheet (Primary Level)

Name : _____


Class : _____

My Material Science Notebook

Get ready to explore the exciting world of material science! Like Professor Atom, use your senses to observe and feel the materials, and then record your thoughts and findings.

Origins

Let's start our exploration journey by examining the origins of materials – raw materials and their properties.



Look around and find some raw materials that you think are interesting. Pick your favourite and draw it here.

What is the name of your material? What does it feel like? / What do you think it would feel like?

What do you like about this material?



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Exhibition Specifications

- Venue size 650 - 800 sqm.
- Hire period: 3 - 6 months
- Availability: from January 2024
- Hire fee: on request

Includes:

- Curation and exhibition concept
- Tour management by Globe Creative
- Objects from the Design Museum London collection
- Images, films and interactives
- Exhibition text in English and Chinese
- 2D and 3D design concept
- Bamboo structure and exhibits directly connected to structure
- Part of the materials for display in the Materials Wall
- Lesson plan concepts

Costs payable by the venue:

- Hire fee
- Equal share of transport and crating costs
- Storage of empty crates
- Nail to nail insurance
- All costs relating to exhibition production, including AV hardware
- Installation and dismantle costs, excluding Globe staff
- Travel and accomodation of Globe PM staff
- Marketing

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Contact

To find out more about this exhibition, please contact:

Ms. Ronne Yuen
Curator, HK Science Museum
rypyuen@lcsd.gov.hk
+852 2732 5431

Ms. Karen Chang
Director, Globe Creative
kchang@globecreative.net
+852 2529 9599

Mr. Chris Harris
Head of International Engagement
the Design Museum, London
Chris.Harris@designmuseum.org
+44 (0) 7871 137525

Exhibition website: <https://hk.science.museum/en/web/scm/exhibition/material2023.html>

Video impression: <https://www.youtube.com/watch?v=zwfjY-hwQ0>

