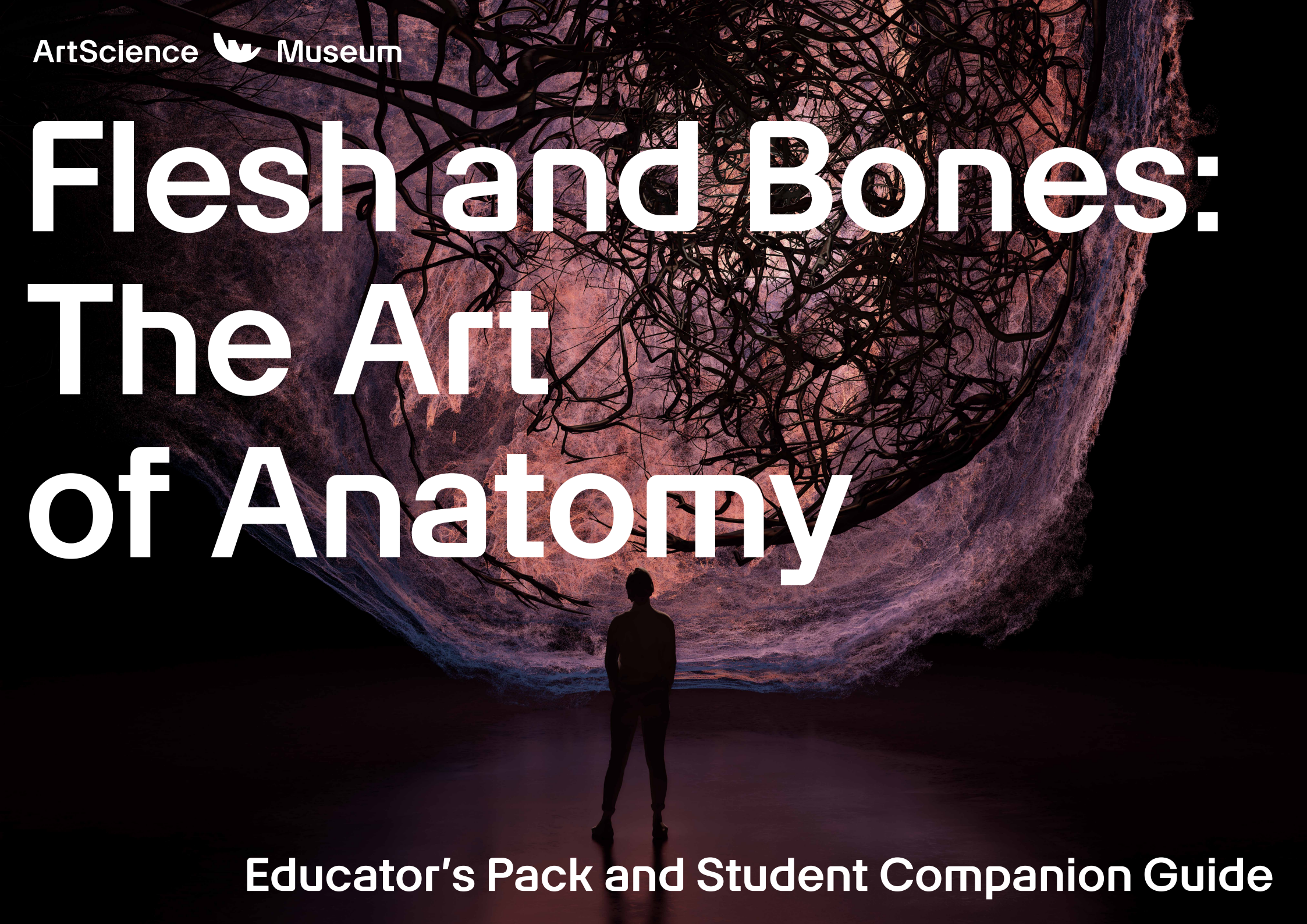
ArtScience Museum

Flesh and Bones: The Art of Anatomy



Educator's Pack and Student Companion Guide

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Section A

For Educators: Using this Resource

This section covers what educators might need when planning for the visit.

About the exhibition

Flesh and Bones: The Art of Anatomy features works from a project that originated at the Getty Research Institute in Los Angeles. It traces how artistic traditions, scientific discoveries and cultural beliefs from East to West have shaped our understanding of the human body.

Expanded and reimagined by ArtScience Museum, in conversation with the Getty, the exhibition brings together historical works, alongside contemporary artworks, immersive installations and Asian perspectives shaped by traditions such as Traditional Chinese Medicine (TCM). Highlights include life-sized illustrations, woodcut prints, rare books, anatomical atlases and medical manuscripts.

The exhibition includes contributions from the Lee Kong Chian School of Medicine (Nanyang Technological University, Singapore) and the Singapore College of Traditional Chinese Medicine, one of South-East Asia's oldest and most established institutions. Moving across cultures and time, it spans cosmological views of the body, dissection, drawing, TCM and early anatomical models, and considers how we visualise inner worlds, honour the body after death and challenge ideas of beauty.

Flesh and Bones: The Art of Anatomy invites reflection on anatomy not only as a scientific pursuit, but as a lens on identity, selfhood and mortality.

How this resource supports teaching and learning

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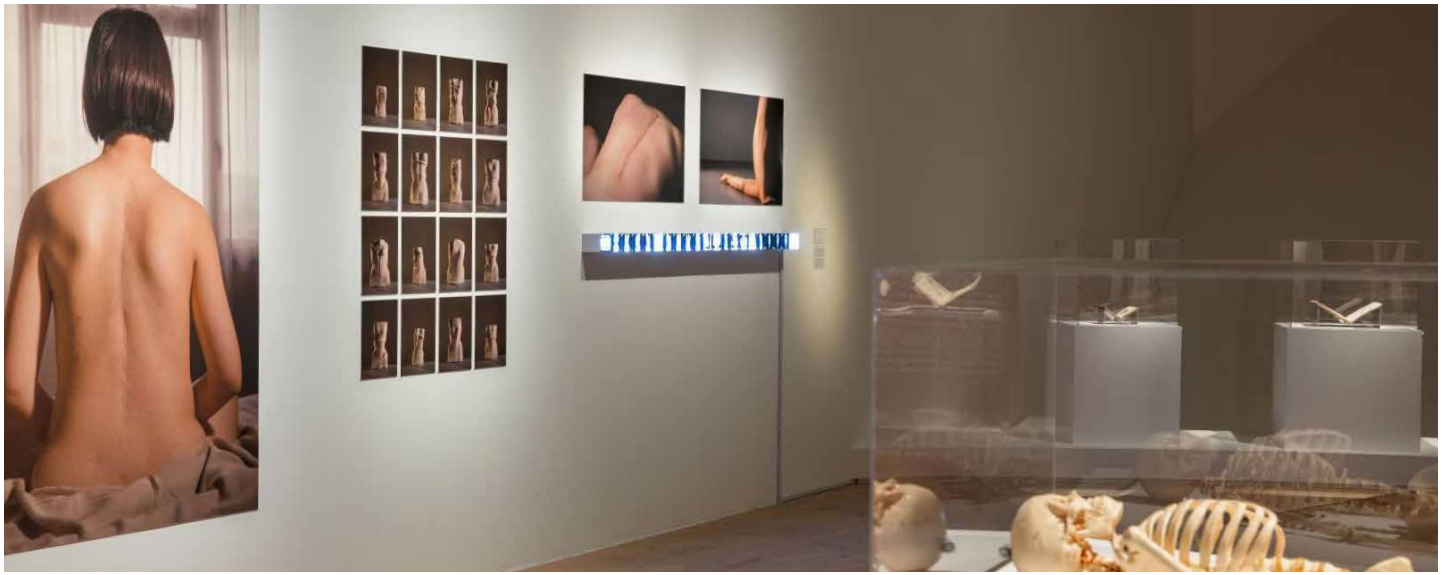
This Educator's Pack and Student Companion Guide for *Flesh and Bones: The Art of Anatomy* supports classroom learning and inquiry beyond school. It helps educators use the exhibition in developmentally appropriate ways, aligned with the Ministry of Education (MOE) curriculum. Prompts in the Student Companion Guide are differentiated for Primary and Tertiary students so you can choose age-appropriate questions and levels of challenge.

Rather than following the exhibition chapter by chapter, this resource is organised around key ideas and guiding questions, supporting inquiry-based learning in the museum through observation, discussion and making connections.

The focus is on helping students understand:

- How do different societies understand the human body?
- How do diagrams, technology, and art help us learn about the body?
- What shapes our understanding of anatomy?
- How we imagine our bodies, shapes how we see ourselves



Learning in Museum Spaces for Students

Museum learning differs from classroom learning: students move through space, respond to objects and images, and learn through conversation and shared discovery.

This guide is designed to support learning by:

- Encouraging close observation
- Prompting questions
- Supporting discussion and idea-sharing
- Valuing curiosity and inquiry-led learning

This approach aligns with MOE's emphasis on:

- Active learning
- Inquiry and sense-making
- Thinking skills developed through observation and discussion

Flesh and Bones: The Art of Anatomy at ArtScience Museum offers a rich, cross-disciplinary learning experience that brings together art, science and anatomy.

Learning in Museum Spaces for Students

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Through the exhibition, students develop:

1. Observation and Inquiry Skills

Through detailed anatomical artworks, students practise slow looking and careful observation, learning that there are multiple ways to know and represent the body.

2. Critical Thinking and Interpretation

By understanding how knowledge of the body is created, represented and changed over time, students learn to think critically about sources of knowledge.

3. Awareness of Themselves in Relation to the World

Through encountering anatomical works, students reconsider how they care for and understand their own bodies.

4. Connections Between Science and Art

The exhibition shows how art has long been used as a scientific tool to study and communicate knowledge of the body, long before photography or digital imaging.

5. Understanding of Intangible Cultural Heritage in Singapore

Traditional Chinese Medicine (TCM) shows students that practices such as herbal medicine, acupuncture, and food therapy illustrate how culture shapes daily life decisions.

6. Values and Responsibility

The exhibition invites students to reflect on the body as both a biological system and a lived, personal experience, supporting values education.

Exhibition Learning Outcomes for Students

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This exhibition supports learning across multiple subject areas, particularly Science, with strong links to Art, History, Social Studies and Character and Citizenship Education.

1. Science

- Observe major human body systems (skeletal, muscular, circulatory) and how their structures support function
- Use careful observation to interpret anatomical forms, visual models, and understand spatial relationships in the body
- Explore how organ systems work together to carry out essential life processes
- Compare historical and modern representations, recognise responsible scientific practice and understand that scientific knowledge is not fixed

2. Art Education

- Observing form, texture, proportion, structure, and detail
- Responding through drawing and design
- Examining visual representation of the human form
- Understanding art within its historical, cultural, and social contexts

3. History

- How medical understanding has evolved over time
- How historical context shaped scientific knowledge
- Whose bodies were studied and represented in the past and whose were excluded? What does this tell us about the society at that time?

4. Social Studies

- Identify different knowledge systems about health and the body by exploring Traditional Chinese Medicine (TCM) in Singapore
- Recognise that understandings of the human body are shaped by multiple cultural and scientific lenses
- Understand why cultural diversity and inclusivity matter in Singapore's healthcare landscape

5. Character and Citizenship Education

- Curiosity, inquiry and openness to learning
- Engage respectfully and empathetically in discussions about bodies, health, and science
- Critical thinking and interpretation
- Connecting ideas across disciplines and perspectives

Flexible use for different classes

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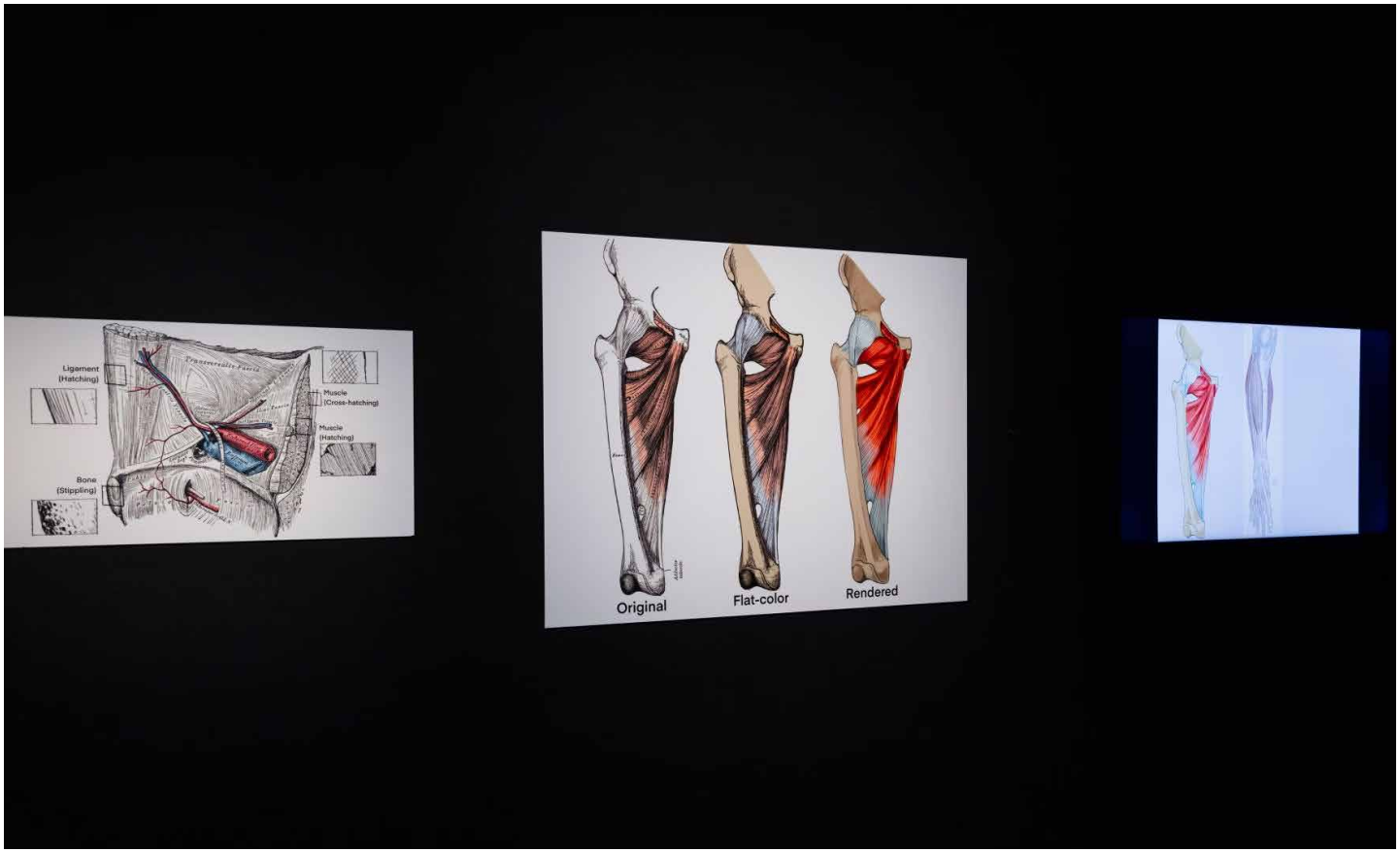
This resource is designed to be flexible.

Educators may:

- Focus on selected sections
- Adapt prompts to student readiness
- Use the visit to introduce or consolidate learning

Educators may also choose to scaffold the visit according to learners' needs, adjusting the depth of analysis and discussion.

There is no single right way to use this guide. Focus on meaningful engagement, discussion, and enjoyment.



Before the Visit

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This section offers practical ideas to help you guide students in reflecting and extending their learning beyond the exhibition. Use them as flexible starting points, guided by your professional judgement.

Pre-visit Learning

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Preparing students before the visit helps them enter the exhibition with curiosity and attention, rather than looking for 'right' answers.

1. Zoom into body details

Invite students to examine their bodies with curiosity. You may encourage them to use a magnifying glass to look at lines on a palm or veins on a wrist, locate a pulse, or trace the outline of a bone (knuckles or collarbone). This prepares them to observe exhibition details with both a scientist's and an artist's eye.

2. Discuss how magnification changes perception

Facilitate a discussion on how the same body can look different depending on how we view it. For example, guide students to compare how a hand looks in a photograph, an X-ray, a drawing, or in real life. Emphasise that looking closely from different perspectives is important in both science and art.

3. Generate "I wonder..." questions about our bodies

Guide students to pose curiosity-driven questions about the body (e.g., 'I wonder why bones are hard, but organs are soft?'). You may revisit these questions during and after the visit to reinforce inquiry-led learning.

4. Talk about respect and comfort

Explain sensitively and in age-appropriate terms that parts of the exhibition include real images or models of the human body, including preserved organs or donated materials used for learning. Emphasise that these works support understanding how bodies work and honour donors' generosity. Encourage students to share their responses and ask questions, while reminding them that it is okay to look away or skip sections if they feel uncomfortable. Reinforce that both science and art may explore topics that require care and empathy.

Gallery Facilitation Tips

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In a museum setting, prioritise depth of engagement over coverage.

1. Encourage slow looking

Focus on fewer works instead of rushing. Give students time to notice details, patterns and textures.

2. Begin with silent observation

Encourage students to observe quietly for a moment before discussing. This helps everyone—including quieter learners—form their own observations.

3. Use open-ended prompts

Prompts like ‘What do you notice?’, ‘What does this remind you of?’ and ‘Why might this matter?’ invite discussion and multiple perspectives, rather than one correct answer.

Section B

Student Companion Guide

This section is written for students as a thinking companion that supports their learning experience of the exhibition. It offers a set of lenses to help them observe more thoughtfully and question more deeply.

Educators may choose to read sections aloud, adapt prompts, or allow students to explore independently. Students are encouraged to use these prompts to prepare before their visit, guide their experience inside the exhibition, and extend their thinking afterwards.

Part 1—Looking Beneath the Surface
Ways of Seeing Bodies

Have you ever wondered how humans first tried to understand what the inside of the body looked like?

Early cultures saw the human body as part of a larger system. They connected the body and its organs to the cosmos, to nature, and to unseen forces.

Although Renaissance Europe is often seen as the birthplace of anatomy studies, medical traditions in China, India, and the Islamic world had already developed detailed theories about the body centuries earlier.

This exhibition invites you to explore how humans imagine the body through religion, science, technology, and culture.

For Primary students
Pause and think

- What do you think is inside our bodies?
- Where do you think your ideas about the body come from? From school, books, cartoons, or drawings?

For Tertiary students
Pause and consider

- How have education, visual representations, and cultures shaped the way you understand the body?
- How might people in different societies or cultures see the body differently?

Educator Note

- *Begin with feelings and curiosity rather than facts. This helps students approach the exhibition with openness, attention, and readiness to explore..*

Part 1—Looking Beneath the Surface
Drawn to Anatomy

Before cameras and X-rays, people relied on paper, charcoal and paint to study the body. During the Renaissance, art and science met in studios and dissection halls: artists sketched skeletons and muscles, while doctors relied on artists to illustrate discoveries in anatomy books.

Learning to draw the human form was a way to study the body. Today, artists still explore anatomy, often to express personal experience, cultural identity or social issues rather than to search for a "perfect" body.

This theme shows how observation and drawing have helped people understand the body, blending artistic skill with scientific curiosity.

For Primary students

Pause and think

- Before we had cameras or scanners, how do you think people learned how bones or organs look like?
- Have you ever tried drawing your own hand? What new details did you notice when you looked at it closely?

For Tertiary students

Pause and consider

- Why was it important for Renaissance artists to study real skeletons and cadavers? How did this practice benefit early science as well as art?
- Compare an early anatomical sketch to a modern medical image. What can a hand-drawn illustration show about the body that a photograph or X-ray might not (and vice versa)?

Part 1—Looking Beneath the Surface
More Than Skin Deep

For a long time, learning about the body meant cutting beneath the skin. Skin was treated as a layer to peel back so bones and muscles could be studied. But the outside matters too: our skin, scars and body shapes also tell stories.

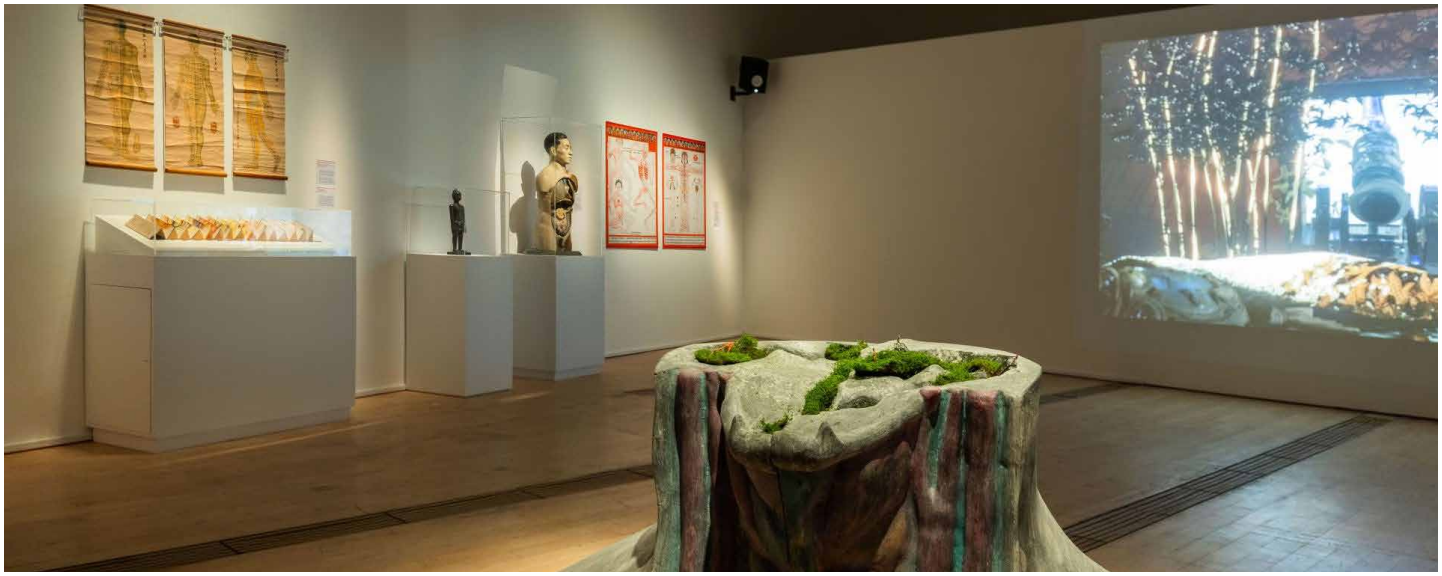
Artists such as Woong Soak Teng and Yanyun Chen explore new ways of thinking about the body. Their works show that surface and structure both matter: a scar can hold memories of injury or healing, and a curved spine can reveal bodily difference. Using materials ranging from photography to welded steel sheets, they question the systems and judgements that shape how bodies are seen.

Their works reveal the body as something shaped by life experiences, not just by anatomical knowledge.

Try this

Find a scar on your body and look closely at its shape, texture and colour. What memories or stories does it bring to mind?

Look at the skin on your hands or legs. What small patterns or marks can you find that make you unique (for example, birth marks, freckles, or scars)?



Part 2—Seeing the Unseen
Revealing Hidden Processes

Inside your body right now, blood is flowing and air is moving in and out of your lungs. Your heartbeat and breath form a rhythm that keeps you alive. We rarely notice this constant motion, but the exhibition makes it visible.

Diagrams, technology and art make the body's hidden parts easier to see and understand. Before medical imaging such as X-rays, CT scans and MRIs, anatomical prints and diagrams were the main way people imagined the body's interior—shaping medical knowledge and self-understanding. In this period, artists were often anatomists, using both drawing and dissecting as ways to study and understand the body.

The human body is not just a collection of parts; it is a vibrant system of blood, breath and energy. Seeing these living networks helps us appreciate the balance and motion that keep us alive.

For Primary students
Pause and think

- How do pictures, diagrams, or models help us to learn about our body?

For Tertiary students
Pause and consider

- How do medical diagrams and technologies shape what we pay attention to—and what we ignore? What becomes "visible" or "invisible" through these tools?

Part 2—Seeing the Unseen
Understanding The Body Through Qi

This gallery presents a non-western way of imagining what flows within the human body. In Traditional Chinese Medicine (TCM), health is linked to the flow of *qi* (vital energy) through pathways called meridians. When *qi* flows smoothly, the body stays well; when it is blocked, illness can occur.

Rather than relying on dissection, TCM physicians mapped the body through observation of energy flow and how the body responds. Instead of diagrams of veins and arteries, you may see medical scrolls marked with lines and points that guide practices such as acupuncture, showing where to press or place needles to support the flow of qi.

These ideas draw on texts such as the *Huangdi Neijing* (the Inner Canon of the Yellow Emperor), which has shaped medical thinking in East Asia for over two thousand years. The body is seen as a connected system, where health depends on maintaining a balance between internal energies and bodily functions, as well as the body's relationship with its environment.

Practices such as herbal medicine, acupuncture, moxibustion and food therapy highlight how culture shapes everyday approaches to health and wellbeing. In Singapore's multicultural context, recognising diverse medical traditions supports greater cultural awareness and inclusivity in healthcare.

For Primary students
Pause and think

- Western medicine talks about blood flowing in our body. Traditional Chinese Medicine talks about vital energy (qi) flowing inside us. What is similar about these ideas? How are they different in explaining how we stay healthy?

For Tertiary students
Pause and consider

- How do culture and heritage shape social and personal understandings of the human body?

Educator Note

- *Emphasise observation as a shared skill between art and science. Encourage thoughtful, respectful discussion.*

Part 3—The “Ideal” Human Body Perfectly Imperfect

Historically, anatomical illustrations tend to show youthful, proportionate male bodies. For centuries, Western art and science searched for an “ideal” body, using measurements, symmetry and proportions to define beauty and health. As knowledge of bones and muscles developed, anatomy became central to how artists and scientists imagined the “perfect” human form, especially through classical sculpture, which idealised the body.

These ideas shaped art training in Europe. Students studied anatomy not only to understand how muscles and bones formed the body’s outer surface, but also to define what was seen as a “normal” or “ideal” body. However, real bodies are far more diverse. Across cultures, genders and historical periods, different shapes, features and abilities have been valued; there is no single template for how a body should look.

The exhibition challenges these ideals of perfection. Contemporary artists may blend bodies with machines or highlight traits historically excluded from classical art such as older bodies, disabled bodies and those marked by lived experience. By reimagining the “normal” body, these works invite reflection: Who decides what is considered normal or beautiful?

Ultimately, the human body adapts to different experiences, and each person’s body is unique. There is no single ideal; bodies change and vary as part of being human, and every body tells its own story.

For Primary students
Pause and think

- Have you ever imagined a “perfect” hero or doll? What do they look like? Does anyone you know in real life actually look like that?

For Tertiary students
Pause and consider

- For centuries, the “ideal” body in Western art was based on specific measurements and proportions. Who decided what was considered “ideal”, and who was left out as a result?

Educator Note

- *This section supports learning about diversity and inclusion. Encourage students to think critically and empathetically about representation in science and art.*

Part 4—Caring for Every Body
Seeing the Body in a New Light

When we take time to notice our bodies, we begin to understand them better.

Flesh and Bones: The Art of Anatomy reminds us that:

- People in different cultures can see the body differently
- Careful observation, through both science and art, helps us appreciate the human body's complexity
- Scientific knowledge develops over time and can change as we learn more

Final Reflection

Complete the sentences below:

- One new thing I learnt about the human body is _____.
- One thing I can do to care for my body is _____.

After the Visit

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Post-visit activities support you in guiding students to consolidate their learning and apply ideas beyond the museum.

- **Design from the Inside Out**

  Guide students to design an object or artwork inspired by a body feature observed in the exhibition, such as the structure of a skeleton or the branching of blood vessels. This helps students understand the relationship between structure and function in the body, and apply this concept in a creative context.

- **Be a Young Anatomy Reporter**

  Invite students to choose one story or idea from the exhibition and present it as a poster, comic, or short report. For example, they might explore how Traditional Chinese Medicine in Singapore understands the body. This helps develop students' research and communication skills.

- **Caring for Our Bodies and Every Body**

  Facilitate a class discussion where students brainstorm ways to care for and respect their bodies, such as building healthy habits and speaking kindly about different body shapes and abilities. This helps students link anatomy to empathy and everyday life.

Closing Note for Educators

A visit to F*lesh and Bones: The Art of Anatomy* invites educators and students to slow down, notice, wonder and see the human body anew.

By encountering the body through unfamiliar perspectives—from centuries-old drawings to contemporary reimaginings—students see how a shift in viewpoint can deepen understanding. What seems ordinary becomes intricate when viewed through another lens, reminding us that careful observation underpins both artistic inquiry and scientific discovery.

The exhibition also shows that knowledge of the body is evolving. Researchers and physicians, including those in Singapore, continue to make discoveries and develop new ways to explore the human body. From medical imaging that lets us see inside ourselves to programmes that honour body donors as "silent mentors", *Flesh and Bones* reminds us that science is a living, evolving practice.

For some students, this may be their first time experiencing science as visual, creative and personal. For others, it may help them see the body not as textbook diagrams in a book but as something shaped by culture and human stories. Overall, the exhibition seeks to foster empathy—for the people and cultures behind anatomical knowledge, for donors and for our own bodies. It highlights the human side of anatomy and encourages connection and respect.

As students return to daily life, we hope they keep looking closely and curiously—especially at their own bodies. Small observations can spark big questions, and questions open pathways to deeper understanding. Paying attention is the first step in caring: for our health, for human diversity and for the intertwined contributions of art and science.

This guide serves as a starting point , as educators you know your students best feel free to adapt or revisit ideas to suit your students. Extend learning beyond the exhibition through drawing, experiments, discussions, research projects or reflection.

We are grateful for the time and thought you took to nurture your students' curiosity and understanding. We hope that this experience inspires both you and your students to keep exploring the rich connections between art, science, and the human experience.

We look forward to welcoming you back for future explorations at ArtScience Museum.