Strategic Ambitions 2012-22



Contents

1	About the Science Museum	
	Mission Our history	2
	Our collections Science Museum Group Our audience	4 4 5
	The next decade: Priorities and approach Science: Themes for the decade Science: Our approach	6
	Delivering the vision Masterplan and exhibitions, digital strategy, acquisitions and debate Partnerships and collaboration Research and innovation	9
Y	Resources and monitoring	11
5	Covernance	12
5	In summary	12





Foreword

For over a century the Science Museum has engaged people in a dialogue about the history, present and future of human ingenuity in the fields of science, technology and medicine. It has presented astonishing scientific advances over many decades. Now, in an exceptionally complex world where technology drives so much of our economic and social structure, our aspiration to make sense of the science that shapes our lives' is more compelling than ever.

The Museum has a formidable reach. It is the lead partner in a group of key science and technology museums in York, Bradford, Manchester and Shildon which receive more than 5 million visits each year, of which over 500,000 are in organised school groups. This museum group – the most significant of its kind in the world – is so much stronger than the sum of its parts, because excellence in museum practice and education is shared. Those who support us know that our best work has truly national reach.

Dr Douglas Gurr

Chairman

The Museum is a restless and innovative place and this document sets out bold aspirations for the next decade. We also say something about the degree to which our Ambitions are informed by a sense of the Museum's fascinating history, its outstanding collections and an acute understanding of our audiences and how to communicate science. There are numerous challenges ahead, many of them financial and economic, but no great museum ever thrived by being overly prudent. As an organisation we will be extrovert, entrepreneurial and efficient, and dedicated to nurturing the best scholarship and learning.

Dynamic programming and a compelling narrative about science will be central to our impact.

We became Chairman and Director respectively back in 2010 and since then have consulted a huge array of scientists, technologists, policy-makers, educationalists, historians, cultural leaders, teachers, philanthropists and regular museum visitors. There is tremendous goodwill towards the Science Museum, but this affection comes with an expectation that the Museum will realise its full potential.

lan Blatchford Director

About the Science Museum

Mission

To make sense of the science which shapes our lives, help create a scientifically literate society and inspire the next generation.

Our Ambition is to be the leading international museum championing the understanding, enjoyment and prestige of science in modern society.

Our history

The Science Museum is one of the most important cultural institutions in the world, with outstanding collections and programmes that impact on millions.

Its origins lie in the internationalism and optimism of the Great Exhibition of 1851. The profits of this landmark event enabled the foundation of the South Kensington Museum in 1857, as Britain's first museum of the industrial and decorative arts. It housed an eclectic scientific and engineering collection, including iconic objects saved from destruction such as Stephenson's *Rocket*.

This collection grew in scale and significance and was given its own director in 1893, although still within the control of the South Kensington Museum. Leading scientists (especially Norman Lockyer, founder of *Nature*) campaigned eagerly for a separate museum, concerned that the importance of the collection, and of science itself, was obscured. Finally, in 1909 the South Kensington Museum became the Victoria and Albert Museum, and its scientific and engineering collections were moved into their new home, the Science Museum.

A grand building scheme for the Museum was set aside at the outbreak of the First World War, and the first major building – the main entrance known to our visitors –

was completed in 1928. More importantly, the Museum soon established a reputation for innovation. In 1931 it opened a *Children's Gallery* that aimed to stimulate curiosity in science and technology, using the 'interactives' of the time. Nowadays it is inconceivable that any museum would neglect the engagement of young people, but then the Science Museum was a key pioneer in new thinking. It was also adventurous in tackling the challenges of its day, such as smoke pollution and the arrival of strange new technologies such as television and nuclear power.

The Museum expanded its collections and buildings again in 1951 as part of the celebrations for the Festival of Britain, and continued this throughout the following decade. Philosophy changed too: from a dry technical education informed by historical exposition, to a more broadly based presentation of science in its historical and social context, a trend given added momentum by the arrival of the Wellcome collection of the history of medicine in 1976. The Museum continued to push boundaries, presenting exhibitions on science and Islam and science in India, many decades before this was common international practice.

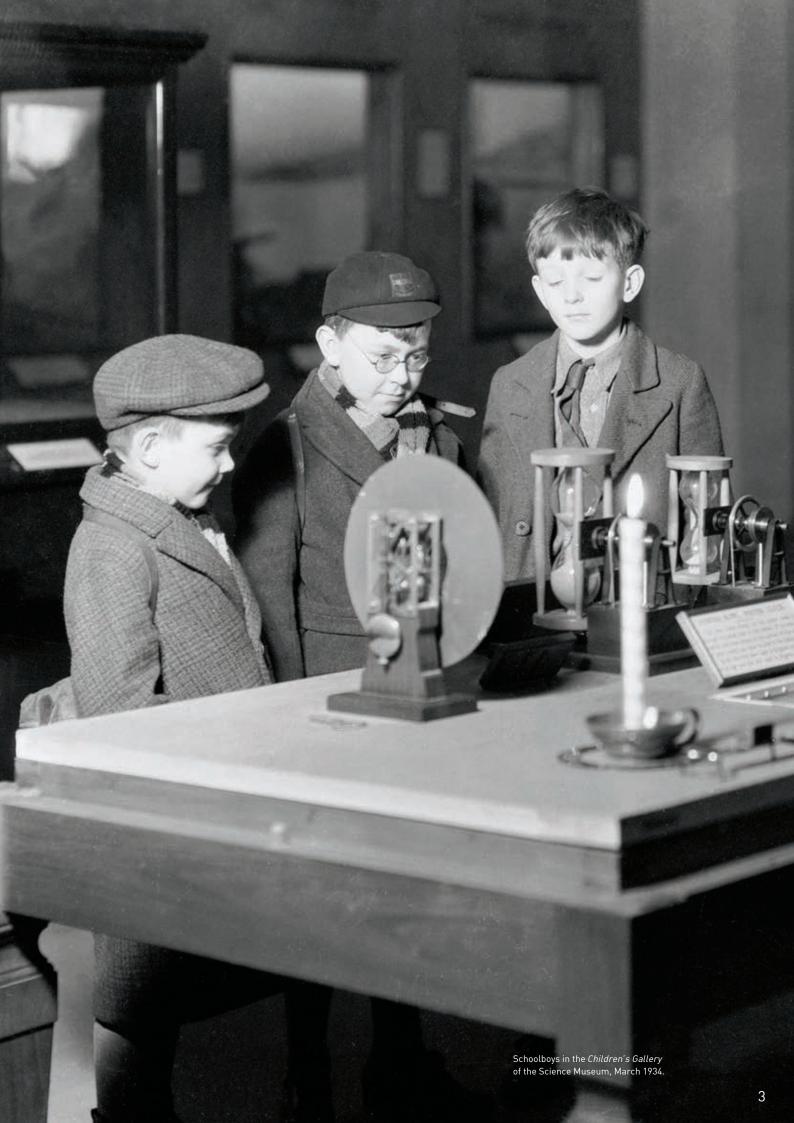
Launchpad was opened in 1986, as an experiment in presenting science to children, building on the Museum's earlier



Child in the *Children's Gallery*, Science Museum, 1963.

tradition. It continues to be hugely popular. In 2000 the Wellcome Wing opened, giving the Museum dramatic new spaces in which to explore contemporary developments in the biomedical sciences, genetics, new technologies and, more recently, climate science. One of the most popular features of the Wellcome Wing is *Antenna*. This frequently updated gallery provides the latest science news on the floor of the Museum, with breaking news on significant developments and scientific insights.

The past decade has been one of further innovation. In 2010 we opened new galleries on genetics (*Who am I?*) and climate science (*Atmosphere*), and in 2011 the remarkable story of Britain's contribution to the Industrial Revolution, where our historical collections are exceptionally strong, was celebrated with the launch of *James Watt and Our World*.



2 About the Science Museum

Our collections

The Museum believes that its outstanding collections are as much about shaping the future as commemorating the past. This is because the collections are not an anonymous assemblage of things. Every object encapsulates the brilliance and passion of individual scientists, engineers, biomedical pioneers and entrepreneurs. Our visitors find them an inspiration for addressing the challenges that lie ahead.

The Museum holds foremost collections in the fields of science, technology, engineering and medicine; and these collections are part of the wider holdings of the Science Museum Group, which comprise 7.3 million items. This Science Museum alone holds around 220,000 three-dimensional objects and over 500,000 items in the Library & Archives. However, mere numbers cannot do justice to the richness and diversity of our holdings.

Our collections include scientific demonstration instruments from the leading makers and scientists of the 18th and 19th centuries, examples of contemporary instrumentation and laboratory science, non-Western astronomy and early mathematics. The Industrial Revolution and postindustrial eras are represented by examples of the work of central figures such as James Watt, Henry Maudslay, Richard Arkwright, and Marc and Isambard Brunel.

The development of mechanical, electrical and electronic communications technologies from the mid 19th century to the present is also fully represented. The Museum holds the Merrion Monotype Collection of hot-metal typesetting and the only surviving Fleet Street rotary newspaper press.

The development of computing is charted from the Babbage machine, via electromechanical equipment, to early business and home computers and contemporary technologies. Space technologies from the 1960s onward are well represented and we hold the collection of the Farnborough Museum of the Royal Aircraft Establishment.

Additionally, we have significant holdings of prints, drawings, paintings, printed ephemera, technical drawings, maps, photographs, postal items, sculpture and contemporary art. The Library & Archives collections comprise important collections of rare books and documents, which span the full history and development of science and technology. We also have the considerable advantage of holding the Wellcome medical collection, quite unmatched in its international importance.



Detailed view of the Pilot Automatic Computing Engine (ACE) on display in the *Codebreaker: Alan Turing's Life and Legacy* exhibition.



Calculations and geometric exercises from the Science Museum Library book *James Burrow's Arithmetick MDCCXXXVIII*.



Transport collections at the Wroughton store.

Science Museum Group

The Science Museum is the lead partner in the Science Museum Group, the world's most significant museum group devoted to science. It comprises the National Railway Museum in York (created in 1975), the National Media Museum in Bradford (1983), Locomotion in Shildon (2004) and the Museum of Science & Industry, Manchester (which joined the group in 2012). Together these museums recorded 5.2 million visits in 2011/12, and over 16 million unique website visits too. The common bond between all the component parts is the story of human ingenuity in the fields of science, technology, medicine, transport, media and the formation of the modern city.

Each museum has its own strategic plan, but each also learns from the others in terms of best practice in collections curation and research, audience engagement and learning, programming and debate, operational efficiency, and international and national impact and advocacy.

The Group is responsible for one of the largest museum collections in the world. Its holdings of three- and two-dimensional objects (including a peerless collection of engineering drawings, historical manuscripts and books, and one of the world's greatest photography collections)

comprise at least 7.3 million items. This rich resource presents challenges in terms of providing adequate storage and reasonable access (as only a fragment can be on public display) to scholars, students, special interest groups and the wider public.

Over the next decade the Group will continue to enhance the quality of object storage (especially environmental conditions) and maximise accessibility through digitisation, lending and partnerships with other cultural organisations.



The Science Museum enjoys a large and loyal audience, achieving over 2.95 million visitors in 2011/12, and 11.5 million unique website visits. We receive 400,000 visits in booked education groups, we are the most visited museum in the country by school groups, and two-thirds of all visitors come in groups with children, either as families or in educational groups. Around one-third of our visitors are independent adults (16+) and most of these are under 35. We also reach tens of thousands through our outreach work.

In tandem with this overarching strategy document, we have developed a detailed audience plan. It concentrates on diversity and impact rather than volume. We do not believe that our voice depends on increasing the volume of visitors to South Kensington much beyond 3 million.

We already reach so many of the families, schoolchildren and teachers interested in science that whilst we will cherish our existing audience, new initiatives will focus more on diversity, increasing visits by independent adults and serving the scientific community better. In consultations that preceded publication of this document, we found that the scientific community was very enthusiastic about our Ambitions to expand the adult audience. It is seen as crucial to raising the scientific literacy of society.

We will still strengthen the service we provide to elements of existing core audiences, especially children under 8 and teenagers.

The economic and gender diversity of our audience is already strong. Over the next decade there will be an even stronger focus on two key themes. The first concerns the ethnic diversity of our general audience, which is less than that of our school groups. We need to understand why and take appropriate action to remove any barriers. Inclusivity and cross-generational appeal are crucial principles in our planning. For example,

innovative improvements to accessibility might be stimulated by the needs of one audience profile, such as visitors with disabilities, but the benefits are felt by all. Second, the Museum will be more energetic in promoting the profile of women in science.

The Museum takes audience research seriously. All key gallery developments and temporary exhibitions are audience tested to ensure the science content will be meaningful and accessible. We also assess the impact of our projects, checking the degree to which scientific information has been communicated effectively. In addition to content-specific research we also survey our visitors regularly on the general visit experience, including service and facilities.

A crucial audience will be politicians, business leaders and policy-makers.
A fundamental tenet underpinning our work will be the concept of the Museum as a vital centre for discussion and debate.

The next decade: Priorities and approach



A Museum visitor performs simulated surgery at the Antenna Live event Can You Cut It as a Surgeon?



Projections of satellite images on the Planet Science globe.



Dr Andrew Spence from the Royal Veterinary
College explains the workings of a robot to a young
Museum visitor.

Science: Themes for the decade

Our visitors share a strong instinctive understanding about what the 'science' in our name means. For them, the Museum showcases physics, biology, chemistry, engineering, mathematics and computing as methods for securing a deeper, systematic understanding of our world. They expect us to explain the scientific process, the fertile relationships between traditional science categories and, above all, the impact and challenges for the way we live as individuals and society.

The most fascinating expectation is that the Museum signifies both current knowledge and achievement (including individuals who secured this) and all that yet remains to be discovered and comprehended. In understanding human capacity the Museum is a story of the past, present and future because each illuminates the others.

The children, schools, families and adults who pass through our doors vest considerable trust in us and so making choices about displays, programming and debate themes for the next decade is a serious task. It has been the subject of much considered discussion. We have

focused on areas where the choices faced by society are urgent, where the technology is evolving rapidly, where the concepts and applications are fundamental, and we have also responded to the high-interest areas of our visitors.

These themes will inform every aspect of our thinking, including acquisitions, programming, curatorial expertise, galleries and education. Whilst the best international work will always inform our work, pioneering research and innovations from British scientists will be highlighted wherever possible.

Over the coming decade, the four core strands of our work will be:

- Climate science and sustainability, including the challenges of population growth, food and water security and energy sources. We will articulate both the science and potential solutions.
- The history and future of medicine. We present the issues arising from dramatic advances in biomedical sciences, including neuroscience,

- synthetic biology, genetics and personalised medicine. We will address changing demographics, and how to lead better lives through medicine, technology and design.
- Informatics (and the science of data), including a keen engagement with mathematics and celebrating the history, impact and future of communication, micro-electronic and computing technologies, bioinformatics and the human genome.
- Understanding the universe, with enthralling stories around quantum and particle physics, general relativity and cosmology; and we will respond to pressing demand from our audience for a dramatic expansion in the scale of our displays on space technology.

In all cases we want to show the applications of science, charting the translation of scientific research into the objects and technologies that have shaped the modern world, and how research might provide solutions to the many contemporary challenges highlighted in our core themes.

Science: Our approach

We do not teach or lecture our audiences about science. We know that this would be counterproductive because our audiences do not see formal science education as our role. Instead we need to inform and inspire. Millions of people visit us precisely because we are not a classroom. They want to learn, but in surprising and imaginative ways.

Visitors are eager for a rounded view of science, as a story of opportunity, inventiveness and personalities, not as an academic subject. We show the process and challenges of discovery, and help people visualise the work of historical or practising scientists. Teachers and families tell us the Museum can spark fresh interest with new stories and perspectives, making the links between theory and practical application; and history and iconic collections matter profoundly for what they reveal about national identity and creative thinking.

sake of it, seeking instead to offer a clear and neutral, factually centred account. Uniquely British achievements will always be celebrated, but these will be presented in a generous international perspective.

The Museum does not promote careers in science and engineering explicitly, although we know that many have been inspired by us to choose these. We will also take care to give a full picture of scientific employment, so that the roles of technicians and apprentices feature as well as eminent researchers.

Our boldest concern is increasing science literacy throughout society. This will engender a deeper understanding of the contribution science makes to our lives and afford it the prestige it deserves.



Delivering the vision





The new Science Museum home page, available on multimedia devices.

Masterplan and exhibitions, digital strategy, acquisitions and debate

The Science Museum is both a building and, in the digital age, an idea. Within our walls we communicate through collections displays, acquisitions, interactive exhibits, arts projects, special exhibitions, programming and debates. Our online presence is vital too, both reflecting physical content and activities, but also providing new dimensions and reach. Over the next ten years our priorities will be:

Delivery of a Masterplan which will guide the creation of dramatic new galleries, learning zones, new public spaces and visitor facilities, all founded in the best design, technology and access philosophies.

New displays will offer fresh insights into mathematics, medicine, engineering, space and cosmology, physics and chemistry. World-class collections representing the Enlightenment and the Industrial Age, as well as the remarkable Library holdings, will have prominence too.

We will also expand successful practical science galleries, such as *Launchpad* and *The Garden*.

- Presenting world-class special exhibitions, rooted in ambitious research and innovative narrative technique.
- Pushing boundaries in the use of personal digital devices so that visitors can explore the collections to the depth they wish through self-guided interaction and create a unique museum encounter.

In the next decade these devices will become as important as traditional museum displays. They offer the potential for a deeper and quirkier understanding of the many aspects of collections, and experiences that escape the confines of the object label.

 Expanding the digital museum through development of online educational games, co-curation of the collections, discussion about science and personalisation.

The Museum will digitise its collections with renewed zest. The vast engineering and photography collections must be seen, as should other unique collections (such as the medical collections). Our mindset will be 'open source' on all these projects.

- An active campaign of acquisitions (and collections rationalisation), because dynamic collections are the lifeblood of a great museum and our policy has been too lacklustre in recent years.
 - We will maintain active dialogue with the key academic and commercial research centres to make sure that important collections are secured.
- Greater rotation of our displays so that the richness of the collections can be enjoyed, understood and researched.
- Sustaining our prize collaborations with scientists and inventors and exploration of new ways of showcasing their work on the floor of the Museum.
- Building on current expertise to create a compelling series of debates and seminars with policy-makers, scientists, historians and educationalists and create an online archive of key events.



David Willetts, Universities and Science Minister, visiting the Science Museum for the opening of the Department for Business, Innovation and Skills exhibition Make it in Great Britain



Rolf Heuer, Director General of CERN, giving the keynote address at the 2012 Science Museum Annual Dinner.



The 2012 Science Museum Annual Dinner

Partnerships and collaboration

Contemporary science is a strikingly collaborative and international exercise, and far removed from the popular image of the lonely genius striving against the odds in an isolated laboratory. In similar vein, whilst the Science Museum has remarkable collections and resources, it will only make its full impact on the world by forging strong partnerships.

The Museum has a proud history of working with the most interesting and engaging scientists, both established figures and emerging talent. However, our track record in other fields has been patchy and we have had a tendency to work in isolation from other key players. Therefore, over the next few years we will prioritise joint working where there are clear benefits to our audience, and to the political and cultural impact of science. Priorities will include:

- Making common cause with the powerful cast of learned, philanthropic and governmental organisations passionate about inspiring young people and the wider public. These include the Wellcome Trust, Royal Society, National Science Learning Centres, Teach First, Royal Academy of Engineering, Institution of Engineering and Technology, Institute of Physics, Royal Society of Chemistry, Society of Biology and government (especially the Department for Business, Innovation and Skills). This list can only be illustrative because the range of potential partners is formidable.
- Partnering with dynamic broadcasters, including the BBC and a range of emerging digital and other commercial players, to spread the word.
- Creating joint fellowships with the leading scientific universities, so that postdoctoral students can carry out fundamental research and also share that knowledge through engaging programmes at the Science Museum.

The Museum has exceptional links with Cambridge, Oxford, Imperial College, UCL and other leading universities, and we will exploit these relationships further.

We will also explore linkages with existing major programmes such as the Royal Society University Research Fellowships.

- Devising ground-breaking exhibitions and research with the outstanding educational and cultural institutions in South Kensington such as Imperial College, the Royal College of Music, the Royal College of Art, the Victoria and Albert Museum and the Natural History Museum.
- Devising a national strategy for engaging with the range of science and technology museums and science centres in Britain.
- Promoting an international strategy for joint academic and educational research, programme development and career development with existing major science museums in the world, and engagement with the emerging centres of excellence in countries such as Brazil ,Turkey, the Gulf states, South Africa, India and China.

Delivering the vision



A conservator works on an 18th-century alchemical scroll for the exhibition *Signs*, *Symbols*, *Secrets:*An Illustrated Guide to Alchemy.



A conservator works on the Pilot ACE computer for the Codebreaker: Alan Turing's Life and Legacy exhibition.



Figure wheel and drawing by Charles Babbage, 19th century.

Research and innovation

The Museum has accumulated a wealth of expertise and experience over the decades, and needs to be at the forefront of scholarship and innovation. This embraces the latest insights into the history of science, technology and medicine; greater understanding of the impact of educational programmes; and fresh thinking on making world-class research understood by wider society. At the heart of all this must be confidence that the Museum is identifying the issues and agendas that really matter.

Whilst we do not undertake our own scientific research, we do aspire to be the leading international science museum, and so our development priorities are:

For the history of science we will sustain investment in curatorial and academic excellence and collaborative research, at doctoral and other levels, becoming the most stimulating national and international centre for the history of science and technology. Our partners will be the leading universities and academics who are exceptionally strong in these fields, but we will also develop research with centres of excellence such as the Deutsches Museum (Munich), Smithsonian (Washington), Musée des Arts et Métiers (Paris) and the National Museum of Scotland. Secondments and exchanges will also be part of this.

- Joint commissioning with universities and the leading private and commercial funders of science outreach work, accompanied by rigorous audience impact research.
- A new partnership with the Government Office for Science, identifying issues where the Museum can be the public arena.
- Imaginative exhibition and debate collaborations with the member bodies of Research Councils UK, especially those funding leading research in biotechnology, engineering, physical sciences, medicine, the natural environment, and major science and technology facilities.

We will also work with universities and other research bodies pioneering new ways of engaging the public. Partners will include Sciencewise and the National Co-ordinating Centre for Public Engagement.

- Recruiting and developing the talented curators, science communicators and learning advocates of tomorrow.
- Consistent innovation in digital content and delivery, working with other museums and the leading technology pioneers.
- Energetic publication, using all key media, of our collections and audience research and the creation of the Museum's own publication margue.

* Resources and monitoring

Resources

Money

Our work will continue to be founded on core funding we receive from the Department for Culture, Media and Sport. But in tougher economic times we must secure the finances to deliver the full extent of our Ambitions through philanthropy, commercial partnerships and the imaginative deployment of resources. The Science Museum Foundation will take the lead in building our relationships with private donors and legators. The Museum has an excellent track record of securing corporate supporters and will need to sustain existing alliances and build new ones. Finally, we need to use our budgets efficiently and, in particular, build on the strong joint procurement deals we have secured with some of our key institutional neighbours, such as the Natural History Museum and the Victoria and Albert Museum, to find new collaborations.



The sustainable hemp climate-controlled storage unit at Wroughton.

Carbon

We seek to be at the heart of public engagement with climate change. It is therefore critical that we contain or reduce our own carbon footprint as we seek to achieve the Ambitions outlined in this document. To this end, we are committed to a range of initiatives over the next decade. We will improve buildings and infrastructure from an energy use and conservation perspective, generate sustainable energy from our sites, develop sustainable low-energy-use storage for our collections, and deliver galleries and exhibitions with as low a carbon footprint as possible.

We will also make significant progress in this area through the Carbon Reduction Masterplan for the South Kensington estate, supported by the 1851 Commission. This focuses on a number of areas in order to become carbon neutral by 2050. By joining forces with other organisations we can implement larger, more effective infrastructure measures. High-impact measures such as the installation of aquifer thermal energy storage should cut wastage, optimise efficiency and reduce the carbon intensity of our heating and cooling.

Monitoring

The Board of Trustees and senior team will review performance against our Ambitions each year. It is recognised that not all our Ambitions can be concretely evidenced, particularly those which seek to impact on wider society. We therefore use a variety of measures which act as indicators of our progress towards the achievement of these Ambitions, including:

- Quantitative key performance indicators and targets set against identified objectives and their associated outcomes.
- Analysis of monthly exit survey results, focusing on the profile of our visitors and their experience.
- In-depth evaluation of specific cultural products, by our specialist audience research and advocacy team, to identify the extent to which the product has met its objectives.
- Benchmarking of our findings against external organisations recognised as leaders in their field.

In monitoring progress we not only seek to establish progress against our Ambitions but to analyse and understand the data we gather in order to continually learn and improve.

A new edition of this document will be published in 2014.

5 Covernance

The Science Museum Group was established under the National Heritage Act 1983 with its own Board of Trustees. It has the status of a non-departmental public body, operating within the public sector but at arm's length from its sponsor department, the Department for Culture, Media and Sport (DCMS). The Group is also an exempt charity under the Second Schedule of the Charities Act 1993, with DCMS acting as its principal regulator for charity law purposes.

The Trustees, who may number between 12 and 20, are appointed by and responsible to the Prime Minister through DCMS. The Director of the Group, as Chief Executive Officer, is responsible to the Board of Trustees and, as Accounting Officer, is accountable to DCMS for the use of public money. Within the framework of their statutory duties as stated under the National Heritage Act 1983, the role

of the Trustees is to care for and preserve the collections and maintain their accessibility; and to agree policy, review performance and endorse appointments to key management positions.

The Science Museum also benefits from the expertise of its Advisory Board, which comprises leading scientists, historians and educators.



Our audience

We will deliver high-impact and inclusive programmes for increasingly diverse audiences

By:

- Increasing the numbers of adult and black and minority ethnic visitors
- Promoting the profile of women in science
- Serving the science community better
- Cherishing our core audiences of school groups and families

Science: Themes for the decade

We will focus on the urgent choices faced by society and the fundamental science and technology that underpin them

By working on four core themes:

- Climate science and sustainability
- Medicine
- Informatics
- Understanding the universe

Science: Our approach

We will inspire and inform audiences, and increase science literacy

Rv.

- Providing surprising and imaginative learning opportunities
- Showing the process and challenges of discovery, and helping people visualise the work of historical or practising scientists

- Seeking to explain the scientific fundamentals, technological innovations and social contexts of our collections
- Offering clear and neutral, factually centred accounts
- Celebrating British achievements in a generous international perspective

Masterplan and exhibitions, digital strategy, acquisitions and debate We will realise our ambitious plans for the physical Museum, our collections and expanded online presence

Ву:

- Delivering a Masterplan that will guide new galleries, learning zones, new public spaces and visitor facilities
- Presenting world-class special exhibitions
- Stepping up digitisation of collections and online engagement
- Reinvigorating our acquisitions programme
- Creating a compelling series of debates and seminars and sustaining our reputation for programming quality

Partnerships and collaboration

We will collaborate with others, both nationally and internationally, for the benefit of our audiences and to promote the political and cultural impact of science

By working with:

- Organisations passionate about inspiring young people and the wider public
- Dynamic broadcasters
- Leading scientific universities
- Institutions in South Kensington

Research and innovation

We will focus on the issues and agendas that really matter and remain at the forefront of scholarship and innovation

By:

- Sustaining investment in excellence and collaborative research on the history of science
- Jointly commissioning science outreach work and rigorous audience impact research
- Pioneering new ways of engaging the public
- Forming new partnerships with science and research public bodies
- Recruiting and developing talented personnel
- Working with leading technology pioneers for innovative digital content and delivery
- Publishing energetically, using all key media



