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| **HA Resource Hub Submission Form** |
| **Resource Title: Development with the greatest impact on British people** | **Age Range: KS3** |
| **Author name and email contact:**Helen Snelsonenquiries@history.org.uk | **Resource Details: (e.g. how many documents does it consist of? In which order?)** **6 A4 pages** |
| **Necessary prior learning to complete this:**Could be done as a stand alone, but it’s going to be better the more knowledge of British history students have.  | **What does it lead to next?** Helps develop understanding of historical significance and consequence if the learning if these concepts are revisited soon afterwards.  |
| **Explanation: How should this resource be used?** Taking the Q ‘Which development has had the greatest impact on the British people?’ this activity pitches a sample of key developments against each other. There is an intro text and students can go online to find more. This usually then underpins a class debate on the question. However, it could easily be adapted so that pupils produce a paper-based balloon debate to explain their opinions. Here’s Richard Kennett doing a short explanation of this: https://www.youtube.com/watch?v=GNdIkaO0Ro8&t=64s |

**The development that has had the greatest impact on the British people is…**

**… the development of the printing press**

*Adapted from: http://www.historyguide.org/intellect/press.html*

The extension of literacy among laypeople and the greater reliance of governments and businesses upon written records created a demand for a less-costly method of reproducing the written word. By the middle of the 15th century several print masters were on the verge of perfecting the techniques of printing with movable metal type. The first man to demonstrate the practicability of movable type was Johannes Gutenberg (c.1398-1468), the son of a noble family of Mainz, Germany. Individual letters, easily movable, were put together to form words; words separated by blank spaces formed lines of type; and lines of type were brought together to make up a page. Since letters could be arranged into any format, an infinite variety of texts could be printed by reusing and resetting the type.

In spite of Gutenberg's efforts to keep his technique a secret, the printing press spread rapidly. Before 1500 some 2500 European cities had acquired presses. The immediate effect of the printing press was to multiply the output and cut the costs of books. It thus made information available to a much larger segment of the population who were, of course, eager for information of any variety. Libraries could now store greater quantities of information at much lower cost. Printing also facilitated the dissemination and preservation of knowledge in standardized form -- this was most important in the advance of science, technology and scholarship. The printing press certainly initiated an "information revolution" on par with the Internet today. Printing could and did spread new ideas quickly and with greater impact. Printing stimulated the literacy of lay people and eventually came to have a deep and lasting impact on their private lives. Although most of the earliest books dealt with religious subjects, students, businessmen, and upper and middle class people bought books on all subjects. Printers responded with moralizing, medical, practical and travel manuals. Printing provided a superior basis for scholarship and prevented the further corruption of texts through hand copying. By giving all scholars the same text to work from, it made progress in critical scholarship and science faster and more reliable.

**You should be able to work out some ideas to get you started from this extract. Search under: ‘the impact of the printing press’ and ‘the importance of the printing press’ for more ideas.**

**The development that has had the greatest impact on the British people is…**

**… the development of the germ theory**

*Adapted from: http://www.suite101.com/content/the-impact-and-development-of-the-germ-theory-of-disease-a240738*

Many infectious diseases are caused by bacteria or viruses, microorganisms invisible to the naked eye. Countless patients used to die from infection after even minor surgery. However, doctors slowly began to accept that the ideas of the French scientist Louis Pasteur were correct. He said that disease was not caused by bad air, but by germs. Dr. Lister was a Quaker physician who was born in Yorkshire, England. An early believer in germ theory, Dr. Lister studied the work of Louis Pasteur. Lister began to clean wounds and spray his operating area with antiseptic, first using coal-tar-derived carbolic acid and later switching to its pure component of phenol. He also washed his hands and instruments with phenol prior to operating, and sprayed it into surgical incisions. Other surgeons utterly scorned these techniques until they noticed how many of Lister’s patients survived both his procedures and their recuperation periods as compared to their own patients’ appallingly low survival statistics. Slowly but surely, all physicians came to accept the germ theory and to use antiseptics to prevent or reverse certain types of infections. Later antiseptics were much safer than the extremely toxic phenol, and sterilization procedures were refined considerably. The germ theory led to the discovery of organisms that caused cholera, tuberculosis, and countless other killers; it helped scientists develop effective treatments for them as well. Varied disinfectants were developed for different strains of microorganisms. As a consequence, public health and wellbeing improved immeasurably.

**You should be able to work out some ideas to get you started from this extract. Search under: ‘the impact of the germ theory’ and ‘the significance of the germ theory’ for more ideas.**

**The development that has had the greatest impact on the British people is…**

**… the declaration of the rights of man and of the citizen**

*Adapted from: http://en.wikipedia.org/wiki/Declaration\_of\_the\_Rights\_of\_Man\_and\_of\_the\_Citizen*

The *Declaration of the Rights of Man and of the Citizen* ([French](http://en.wikipedia.org/wiki/French_language): *Déclaration des droits de l'Homme et du Citoyen*) was written in 1789 during the [French Revolution](http://en.wikipedia.org/wiki/French_Revolution). It defines individual rights as universal; belonging to everyone, valid at all times and in every place. It laid the foundation for the modern idea that if you are human you have rights. The declaration is in the spirit of what has come to be called [natural law](http://en.wikipedia.org/wiki/Natural_law), which does not base itself on religious [doctrine](http://en.wikipedia.org/wiki/Doctrine) or [authority](http://en.wikipedia.org/wiki/Authority). The declaration defines a single set of individual and collective rights for all men. For example, "Men are born and remain free and equal in rights. Social distinctions may be founded only upon the general good." They have certain [natural rights](http://en.wikipedia.org/wiki/Natural_rights) to [property](http://en.wikipedia.org/wiki/Property), to [liberty](http://en.wikipedia.org/wiki/Liberty) and to life. According to this theory the role of government is to recognize and secure these rights. Furthermore government should be carried on by elected representatives. In 1789 the rights contained in the declaration were only awarded to men. Furthermore, the declaration was a statement of vision rather than reality. The declaration has influenced and inspired rights-based [liberal democracy](http://en.wikipedia.org/wiki/Liberal_democracy) throughout the world. It allows for freedom of speech, freedom to worship and associate as one wishes etc. The United Nations Declaration of Human Rights is ‘descended’ from the 1789 Declaration.

**You should be able to work out some ideas to get you started from this extract. Search under: ‘significance of the declaration of the rights of man’ for more ideas.**

**The development that has had the greatest impact on the British people is…**

**… the discovery of DNA**

*Adapted from: http://www.rosalindfranklin.edu/dnn/portals/lifeindiscovery/dna/index.html and http://en.wikipedia.org/wiki/Human\_Genome\_Project*

Due to its simplistic sequence, DNA was at first deemed unqualified to be the code for all living things. However, in 1944, Oswald Avery and his colleagues, working in the New York Rockefeller Research Institute, classified DNA as the 'transforming principle' and determined that DNA is the carrier of genes.

Identifying DNA as the code of life was a remarkable discovery. However, uncovering the structure of DNA would prove to be the key to understanding the role it plays in the formation of life. While working at King's College in London in 1952, crystallographer Rosalind Franklin produced X-ray diffraction images of DNA that revealed its helical shape. One of Franklin's photos, 'Photo 51' as it was famously named, led to the discovery of the double helix by James Watson and Francis Crick in 1953. Photo 51 proved to be a driving force behind one of the greatest discoveries in the history of science.

Since the 1950s, the science of genetics has advanced at an impressive speed, always building upon those critical first steps of discovery made by Franklin, Avery, Morgan, Mendel and so many others. In 1985, a meeting was held at the University of California at Santa Cruz to discuss the possibility of sequencing the human genome. Proposals were introduced for a global Human Genome Project and 10 years later, full-scale decoding began with a target completion date of 2005. However, in the year 2000, a full five years ahead of schedule, the first draft of the human genome was completed.

The work on interpretation of genome data is still in its initial stages. It is anticipated that detailed knowledge of the human genome will provide new avenues for advances in [medicine](http://en.wikipedia.org/wiki/Medicine) and [biotechnology](http://en.wikipedia.org/wiki/Biotechnology). Clear practical results of the project emerged even before the work was finished. For example, a number of companies, such as [Myriad Genetics](http://en.wikipedia.org/wiki/Myriad_Genetics) started offering easy ways to administer genetic tests that can show predisposition to a variety of illnesses, including [breast cancer](http://en.wikipedia.org/wiki/Breast_cancer), [disorders of hemostasis](http://en.wikipedia.org/wiki/Blood_clotting), [cystic fibrosis](http://en.wikipedia.org/wiki/Cystic_fibrosis), [liver](http://en.wikipedia.org/wiki/Liver) diseases and many others. Also, the [etiologies](http://en.wikipedia.org/wiki/Etiology) for [cancers](http://en.wikipedia.org/wiki/Cancer), [Alzheimer's disease](http://en.wikipedia.org/wiki/Alzheimer%27s_disease) and other areas of clinical interest are considered likely to benefit from genome information and possibly may lead in the long term to significant advances in their management.

**You should be able to work out some ideas to get you started from this extract. Search under: ‘significance of DNA’ and ‘significance of the human genome project’ for more ideas.**

**The development that has had the greatest impact on the British people is…**

**… the work of Albert Einstein**

*Adapted from: http://www.phys.vt.edu/~jhs/faq/einstein.html*

Albert Einstein, best known as the creator of the special and general theories of relativity and for his bold hypothesis concerning the particle nature of light. He is perhaps the most well-known scientist of the 20th century. Do modern physicists consider Einstein to be a genius? Was his work really as important as people say? Do his theories still impact the work of physicists today? Physicists probably rarely use the work "genius" in describing a colleague, but many have used that word when describing Einstein. His work was VERY IMPORTANT to physics, and his theories (mostly confirmed by experiment) are vital to modern physics.  What was his most important contribution in physics? His most important contributions: a) The theory of special relativity. It changed our conception of space and time. Without it we could not construct the particle accelerators that are used nowadays to probe the small-scale world of sub-atomic particles. All other theories must be consistent with the basic concepts of special relativity (basically, that physics must be the same for any observers who only differ by their uniform --- straight line, constant speed --- motion with respect to each other). If the equations that a physicist invents to explain some part of the world predicts results that depend upon the motion of the observer (experimenter) than the new equations (the new theory) must be wrong. b) His introduction of the idea that light comes in particles called photons was one of the foundation pieces upon our quantum mechanical view of the world was built (e.g., the explanations of the workings of the atom and smaller scale structures). He received the Nobel prize for this work. c) His theory of general relativity. The modern theory of gravity; it is a relativistically correct theory (Newton's is not), and has been mostly verified to be correct, however, it has not been thoroughly tested since complete tests would require the manipulation (or direct observation) of objects containing huge masses. This is the theory that predicts the existence of black holes --- objects that are used in many explanations of bizarre phenomena observed in the universe (e.g., quasars).

**You should be able to work out some ideas to get you started from this extract. Search under: ‘why was Einstein important’ and ‘the impact of Einstein’s work’ for more ideas.**

**The development that has had the greatest impact on the British people is…**

**… the theory of evolution**

*Adapted from: http://www.independent.co.uk/news/science/the-big-question-how-important-was-charles-darwin-and-what-is-his-legacy-today-1216258.html*

**Why were Darwin's ideas so important?**

It's a mark of how extraordinary a step Darwin took on humanity's behalf that a principle that seems so straightforward and uncontroversial today – that random mutations would make some species better suited to their environments than others, and that those species would be more likely to breed – could have caused such extraordinary upheaval as recently as 1859. Still, that's what happened.

The general idea of evolution preceded Darwin, and he shied away from making the explicit and incendiary claim that even humans were evolved from other creatures. But his explanation of natural selection as a mechanism that made evolution plausibly able to explain the origin of species without reference to a creator up-ended the contemporary orthodoxy. It set a new course that no subsequent scientific work could ignore. And according to the eminent late evolutionary biologist Ernst Mayr, "Eliminating God from science made room for strictly scientific explanations of all natural phenomena; it gave rise to positivism; it produced a powerful intellectual and spiritual revolution, the effects of which have lasted to this day."

The importance of Darwin’s ideas in science is inescapable: the whole field of evolutionary biology is founded on his work. More generally, his influence can be felt in how the Christian orthodoxy that underpinned most science has fallen away, and even in our understanding of human interactions, summed up by the phrase "social Darwinism".

Even the church recently recanted its initial opposition to The Origin of Species, issuing a public apology in September. It read: "Charles Darwin: 200 years from your birth, the Church of England owes you an apology for misunderstanding you and, by getting our first reaction wrong, encouraging others to misunderstand you still." Still, many people remain sceptical. The continued influence of creationism and intelligent design in the US is well-documented, and here, a 2006 poll said that only 48 per cent of the general public accepted the theory of evolution.

**You should be able to work out some ideas to get you started from this extract. Search under: ‘why was Darwin important’ and ‘the impact of Darwin’s work’ for more ideas.**