**Topic 2.1 Design and Research Development: Activity**



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| **Case Study: London’s Buses** |
| Thirty years ago, London had its own unique design of bus. Called the Routemaster, it had been the result of ten years of research and development in the 1940s and 1950s. By the 1980s and 1990s, it was clear that the Routemaster had to be replaced. Its engine was too polluting. The cost of production was too high. It needed a conductor on board to collect fares as well as a driver, making each bus costly to operate. It also had no disabled access and parents with young children and push chairs found them difficult to get on and off. Yet, many Londoners loved the friendly, welcoming design of the bus with its rounded edges. They also liked being able to hop on and off the bus between stops using the open platform at the back.  The Routemaster was replaced by buses which were in use all over Europe. Cheap to buy, they have never caught the imagination of Londoners. In the 2008 election for the Mayor of London, buses became an electoral issue. The winner of the election, Boris Johnson, disliked ‘bendy buses’ – two single-decker buses put together – and promised the return of a new 21st century Routemaster.  Boris Johnson created a competition for the design of a new Routemaster. The competition was jointly won by Capoco Design and a combined entry by Aston Martin and architects Foster and Partners in 2008. The winning designs included 21st century technology such as a zero emissions engine, solar panels built into a glass roof, lightweight structure and warm lighting. They returned to the past by imitating the curved design of the old Routemaster and using wood for the flooring.  The next stage is to get bus manufacturers to develop a final design and to get a prototype bus on the road. Transport for London, responsible for London’s buses, hopes to award a contract to build the bus by the end of 2009 with the first vehicles on the streets by 2011.  If the cost of production were competitive enough, the distinctive new Routemaster would then be well placed to win contracts from bus operators outside of London. Could the new Routemaster become a world-beating design in use all over the globe? |

**Questions:**

1. State TWO elements of the design mix. (**2**)
2. Explain ONE advantage and ONE disadvantages of the design of the old Routemaster compared to more modern buses. Use the elements of the design mix to help you structure your answer. (**6**)
3. Define the term ‘Scientific Research’. (**1**)
4. Explain why scientific research is likely to be important in the design of the new Routemaster. (**3**)
5. The new developers of the Routemaster are hoping that the changes it makes will differentiate the bus. They are hoping that this will enable them to sell the bus to buyers outside London. In your opinion, will the changes make it easier for the developers to do this? Justify your answer. (**8**)