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| **Lesson Number: 25.1** | | |
| **Lesson Title: Electromagnetic Induction** | | |
| **Specification Reference** | | **3.7.5.4** |
| **Learning Objectives** | | |
| Applications such as a straight conductor moving in a magnetic field. | | |
| **Opportunities for Assessment** | | |
| Page 412 questions | | |
| **Starter:** | Slide #1 recaps the components of a dynamo or motor | |
| **Main:** | Slide #2 explains the components in more detail and how to increase the output of a dynamo or motor (in reverse)  Demonstrate the bar magnet in a coil of wire with a micro-ammeter here  Slides #3 - #4 explain the differences between a motor and a dynamo  Slide #5 can be used to set homework in researching Michael Faraday – it also highlights the importance of scientific research for research sake; nobody knows what CERN will discover or more importantly what those discoveries will be used for hundreds of years in the future.  Slide #6 introduces Flemming’s Right-hand rule – recap the left-hand rule if necessary | |
| **Plenary:** | Slide #7 is a summary | |

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| **Homework:** | Page 412 questions; Research the life of Michael Faraday | |
| **Differentiation / Extension / S&C** | | |
| Extended discussion on the opinions of research; do goals limit research? | | |
| **Numeracy / Literacy** | | **SMSC / Fundamental British Values** |
| N/A | | Research and funding implications |
| **RESOURCES:** | | |
| Demonstration:   * Bar magnet * Coil of wire * Micro-ammeter   Optional Demo:   * Dynamo / motor on a circuit board with a crank to turn * Bulb and connecting wires | | |
| **Risk Assessment** e.g. CLEAPSS card reference | | |
| None | | |
| **Working Scientifically (HSW)** | | |
| N/A | | |

Pictures courtesy of:

Slides #1 and #3 – Wikipedia

Slide #4 – Patrik Nygen: <https://www.flickr.com/photos/lattefarsan/18189497353>

Slide #5 - [CC BY 4.0 (http://creativecommons.org/licenses/by/4.0)], via Wikimedia Commons; Photograph by John Watkins; <https://commons.wikimedia.org/wiki/File:Michael_Faraday._Photograph_by_John_Watkins._Wellcome_V0026346.jpg>

Slide #6 by Douglas Morrison DougM (en.wiki) [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0/)], via Wikimedia Commons