## Issues Investigation

### Possible Topics

<table>
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<tr>
<th>Topic</th>
<th>Application</th>
<th>Example</th>
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<tr>
<td>Absolute Zero</td>
<td>Magnetic resonance imaging</td>
<td>The effect of a ball's surface texture on its flight</td>
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<tr>
<td>Australian Synchrotron</td>
<td>Mass spectrometer</td>
<td>The physics of flight</td>
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<tr>
<td>Black body radiation</td>
<td>Measuring and minimising radiation dose</td>
<td>The physics of fluid flow</td>
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<td>CAT scans</td>
<td>Nuclear accidents</td>
<td>The physics of vibrating strings or musical instruments</td>
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<td>Common applications of the photoelectric effect</td>
<td>Nuclear fusion as a future source of power</td>
<td>The production and transmission of radio or TV signals</td>
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<td>Comparison of compact fluorescent lights with incandescent lights</td>
<td>Orbiting telescopes (Hubble)</td>
<td>The use of diffraction gratings in spectroscopy</td>
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<td>Comparison of FM and AM radio signals</td>
<td>Plutonium in nuclear weapons</td>
<td>The use of emission spectra in astrophysics</td>
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<td>Credit card holography security</td>
<td>Problems caused by interference of sound</td>
<td>The use of lasers in atmospheric physics and meteorology</td>
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<td>Defibrillators</td>
<td>Production and uses of technetium 99m</td>
<td>The use of lasers in communication</td>
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<td>Digital recordings on CD and DVD</td>
<td>Radars</td>
<td>The use of lasers in communication</td>
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<td>Earth's magnetic Field to navigate or Protection from solar wind</td>
<td>Radioactive dating</td>
<td>The use of lasers in medicine</td>
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<td>Electromagnets in Electricity Production</td>
<td>Radio-isotopes used in medicine</td>
<td>The use of radioisotopes in industry</td>
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<td>Electromagnets in industry</td>
<td>Resonance</td>
<td>The Van Allen Belts</td>
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<td>Electromagnets in Medicine (MRI)</td>
<td>Scanning electron microscope</td>
<td>Thermoluminescence dating</td>
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<td>Electrostatic loudspeakers</td>
<td>Some uses of X-rays in industry</td>
<td>Thin-film interference</td>
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<td>Entropy and its effects</td>
<td>Space flight</td>
<td>Thorium as a nuclear fuel</td>
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<td>Fast breeder nuclear reactors</td>
<td>Space junk</td>
<td>TV transmission to the foothills / black spots</td>
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<td>Fluorescence and phosphorescence</td>
<td>Space station</td>
<td>Tweeters, woofers and subwoofers</td>
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<td>GPS</td>
<td>Speed cameras</td>
<td>Uranium-lead dating</td>
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<td>Holograms</td>
<td>Square kilometre array</td>
<td>Use of magnets in cathode ray tube televisions</td>
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<td>Imaging techniques</td>
<td>Subatomic particles (other than those in the course)</td>
<td>Use of sonar</td>
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<td>Industrial uses of corona discharges</td>
<td>Super K neutrino detector</td>
<td>Uses of Compton scattering</td>
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<td>Inertial navigation systems</td>
<td>Tanning salons</td>
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<td>Large hadron collider</td>
<td>Terahertz radiation</td>
<td>Van Allen radiation belts</td>
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<td>Linear accelerators</td>
<td>The Earths changing magnetic field</td>
<td>X-ray crystallography</td>
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