Observing and Describing Polarisation Effects (PAG 6.3)

These practical activities allow you to observe and accurately record the effects of the polarisation of electromagnetic waves. If you are unsure how best to record and present your observation ask for guidance.

1. Single sheet of polaroid.

Observe and record your observations when rotating the polaroid whilst looking at of:

a) blue sky (if possible) b) non-metallic surfaces c) scattered light in water tank

2. Two sheets of polaroid.

Observe and record what happens when each sheet is rotated relative to the other.

3. Three sheets of polaroid.

Observe and record what happens when the central sheet is rotated.

4. Polarisation of microwaves.

a) Observe and record what happens as the source and receiver are each rotated.

b) Observe and record what happens as the wire grid is rotated between the source and receiver.

**Useful Vocabulary:** polaroid, polarisation, light, transmitted, absorbed, perpendicular, oriented, transparent, opaque, scattered, aligned, rotated, light source, partial, total, though, reflected, angle.

Fancy a challenge? Explain your observations for the three-sheet experiment.

In this PAG you are being assessed on the following criteria.

|  |  |  |
| --- | --- | --- |
| **1.2.1** | **1.2.2** | **CPAC** |
| (a) apply investigative approaches and methods to practical work  (b) safely and correctly use a range of practical equipment and materials  (c) follow written instructions  (d) make and record observations/measurements  (e) keep appropriate records of experimental activities  (f) present information and data in a scientific way  (i) correctly cite sources of information | (a) use of appropriate analogue apparatus to record a range of measurements and to interpolate between scale markings  (c) use of methods to increase accuracy of measurements  (i) generating and measuring waves using a microwave source  (j) use of a light source to investigate characteristics of light | (1) Follows written procedures  a) Correctly follows instructions to carry out experimental techniques or procedures.  (3) Safely uses a range of practical equipment and materials  a) Identifies hazards and assesses risks associated with these hazards, making safety adjustments as necessary  b) Uses appropriate safety equipment and approaches to minimise risks with minimal prompting.  (4) Makes and records observations  a) Makes accurate observations relevant to the experimental or investigative procedure.  b) Obtains accurate, precise and sufficient data for experimental and investigative procedures and records this methodically using appropriate units and conventions |

Checklist

|  |  |
| --- | --- |
| Is your work presentable and stapled together **without** the instruction sheet? |  |
| Is there clear title to your piece of work? |  |
| Is your work dated? |  |
| If you made observations are they recorded fully, clearly and concisely? |  |
| Do any tables have grid lines? |  |
| Do any table have full headings and units? |  |
| Is it really clear how you processed any raw data? |  |
| Is there a really clear statement of the final result / conclusion. |  |
| Have you clearly referenced any sources you used? |  |