

## Choice of topic

The topic must allow an approach that relates specifically to biology. Where a topic can be approached from different viewpoints, the treatment of the material must be clearly biological. For example, an EE in an interdisciplinary area such as biochemistry will, if registered under the subject of biology, be judged solely on its biological content.

Essays that deal with human diseases can often be dealt with from a number of perspectives, such as biological, medical, social or economic. Such essays should focus on biological aspects of the disease rather than on medical diagnosis and treatment.

Similarly, essays that deal with sports physiology and physical fitness must have a clear biological emphasis. They must explore the issues from a biological viewpoint and provide biological explanations for the results.

## Inappropriate topics

Some topics may be inadmissible because their means of investigation are unethical. For example, investigations that:

- are based on experiments likely to inflict pain on, or cause stress to, living organisms
- are likely to have a harmful effect on health, eg culturing micro-organisms at or near body temperature (37°C)
- involve access to, or publication of, confidential medical information.

In all cases where human subjects are used as the basis for an investigation, clear evidence of informed consent must be provided in accordance with the IB guidelines.



Some topics may be unsuitable because of safety issues. Adequate safety apparatus and qualified supervision is required for experiments involving dangerous substances such as:

- toxic or dangerous chemicals
- carcinogenic substances
- radioactive materials.

Other topics may be unsuitable because the outcome is already well known and documented in standard textbooks.

## Examples of topics

These examples are just for guidance. Students must ensure their choice of topic is focused (left-hand column) rather than broad (right-hand column).

 Focused topics	 Broad topics
The effect of detergent toxicity on soil bacteria	Detergents in the environment
A study of malnourished children in Indonesia and the extent of their recovery after a period of supervised improved nutrition	Malnutrition in children
A study of the effect of differing pH levels on the growth of <i>Phaseolus vulgaris</i>	The effect of acidity on plant growth
The competitive and evolutionary nature of the symbiotic relationship in <i>Paramecium bursaria</i>	Symbiosis
The effect of banana peel on seed germination	Factors that affect the germination of seeds
Gel electrophoresis: The construction of an apparatus and the separation of proteins in heat-treated cow's milk	Uses of the gel electrophoresis technique