

## Relevance of teaching about ethics tracked in selected KS4 specifications

*Note that mentions of ethics in Assessment Objectives and Grade Descriptions (specified in QCA criteria common to all specifications in a subject) are not included in the extracts in this table.*

Board	SpecID	Qualification	Title	Reference	Extract
AQA	3107	GCSE (Short)	Citizenship Studies	Section 13	<p>Spiritual, Moral, Ethical, Social, Cultural and Other Issues</p> <p>The study of Citizenship Studies provides many opportunities to develop candidates' understanding of spiritual, moral, ethical, social and cultural issues. The themes through which the topics within the specification are addressed include equality, fairness, freedom and justice. These themes permeate the study of Citizenship Studies and should be studied in context when addressing all parts of the specification. Candidates should explore contemporary issues and debates including ethical and moral dimensions. The following opportunities exist within the specification to address a range of spiritual, moral, ethical, social and cultural issues: Topic 1(a): School - explaining how schools can promote equal opportunities and reflect the diverse, multicultural nature of society; Topic 1(c): Local Community - recognising how ethnic identity, religion and culture can affect family and community life; Topics 1(c) and 2(c): Pressure Groups, Voluntary Organisations and the Media - explaining with the aid of case studies and/or participation how individuals can bring about social change through pressure groups and voluntary organisations; Topic 3(a): International Relations: explaining the issues relating to one current area of international conflict, co-operation or human rights dispute.</p>
AQA	3181	GCSE	Psychology	Section 10	Descriptions and evaluation of attempts to apply conditioning procedures to human behaviour. The ethical implications of such attempts.
				Section 14	Ethical considerations: Candidates should demonstrate an understanding in experimental and field studies of the need for care to be exercised regarding: the invasion of personal privacy; the necessity to minimise pain and stress to individuals participating in the studies by the minimal use of deliberate deception; the preferred use of informed consent and the debriefing of participants; knowledge of the ethical issues contained in the BPS guidelines.
				Section 16	Moral and Ethical: The specification provides ample opportunities for the study of moral and ethical issues which form important learning outcomes. Consideration of psychological methodology will encourage candidates to discern, consider and discuss moral and ethical values and attitudes. Candidates will be required to reach ethical judgements and to express personal views.

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AQA	3181	GCSE	Psychology		It is expected that all candidates will conform with codes of practice and standards of safety in all aspects of practical work (e.g. the British Psychological Society guidelines on ethical principles for research with human participants).
AQA	3417	GCSE	Human Physiology and Health	Section 12	Candidates should be able to make informed judgements about the economic, social and ethical issues concerning genetic engineering and cloning that they have studied or from information that is presented to them.
				Section 14	Spiritual, Moral, Ethical, Social, Cultural and Other Issues The study of Human Physiology and Health lends itself to consideration of many spiritual, moral, ethical, social and cultural issues. Many of the potential applications of biological understanding raise moral and ethical issues. The following subject areas may be particularly apposite for analysis and discussion of these issues: hygiene : personal and food and water; physical fitness; drug use and abuse, including alcohol, smoking; implications of rapid human population increase; pollutants; reproduction – artificial insemination, in vitro fertilisation and contraception; genetic mutations; genetic engineering.
				Section 17	Coursework Planning: candidates should: d. consider ethical implications and the environmental and safety aspects of the proposed procedures.
AQA	3821	GCSE (Double)	Health and Social Care	Section 8	The value bases of care work: While students are expected to understand the balance that services aim to achieve in terms of involvement or not with clients' lives and their right to independence, detailed ethical considerations are not required.
				Section 12	GCSE in Health and Social Care (Double Award) offers a wide range of opportunities for the exploration of spiritual, moral, ethical, social and cultural issues.
				Appendix E	Signposting: Opportunities for the exploration of Spiritual, Moral, Ethical, Social, Cultural and Citizenship Issues within each unit are indicated in the grid
AQA	4411	GCSE	Biology	Section 10	Societal aspects of scientific evidence: A judgement or decision relating to social-scientific issues may not be based on evidence alone, as other societal factors may be relevant. Candidates should know and understand: The uses of science and technology developments can raise ethical, social, economic and environmental issues.

Board	SpecID	Qualification	Title	Reference	Extract
AQA	4411	GCSE	Biology	Section 11	Candidates should use their skills, knowledge and understanding of how science works: to interpret information about cloning techniques and genetic engineering techniques; to make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including GM crops to make informed judgements about the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments. to make informed judgements about the economic, social and ethical issues concerning embryo screening that they have studied or from information that is presented to them
				Section 15	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.8, 11.1, 11.2, 11.3, 11.4, 11.6, 11.8, 12.3, 12.7 and 13.4 are relevant.
AQA	4421	GCSE	Chemistry	Section 10	Societal aspects of scientific evidence: A judgement or decision relating to social-scientific issues may not be based on evidence alone, as other societal factors may be relevant. Candidates should know and understand: The uses of science and technology developments can raise ethical, social, economic and environmental issues.
				Section 15	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence, rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.8, 11.1, 11.2, 11.3 and 11.4 are relevant.
				Section 17	Societal Aspects of Scientific Evidence: Candidates should be able to explain how the consequences of scientific experiments may impinge upon society. They should understand that the credibility of scientific research may suffer as the result of any bias by the experimenters. They should also be aware of the consequences of scientific research and understand that acceptability is influenced by a range of other factors, such as ethical, social, economic and environmental issues.

Board	SpecID	Qualification	Title	Reference	Extract
AQA	4451	GCSE	Physics	Section 10	Societal aspects of scientific evidence: A judgement or decision relating to social-scientific issues may not be based on evidence alone, as other societal factors may be relevant. Candidates should know and understand: The uses of science and technology developments can raise ethical, social, economic and environmental issues.
				Section 15	Moral and ethical: Through helping candidates see the need to draw conclusions using observation and evidence, rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.7, 11.4, 11.5, 11.6 and 12.10 are relevant.
				Section 17	Societal Aspects of Scientific Evidence: Candidates should be able to explain how the consequences of scientific experiments may impinge upon society. They should understand that the credibility of scientific research may suffer as the result of any bias by the experimenters. They should also be aware of the consequences of scientific research and understand that acceptability is influenced by a range of other factors, such as ethical, social, economic and environmental issues.
AQA	4461	GCSE	Science A	Section 10	Societal aspects of scientific evidence: A judgement or decision relating to social-scientific issues may not be based on evidence alone, as other societal factors may be relevant. Candidates should know and understand: The uses of science and technology developments can raise ethical, social, economic and environmental issues.
				Section 11	Candidates should use their skills, knowledge and understanding of how science works: to interpret information about cloning techniques and genetic engineering techniques; to make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including GM crops.
				Section 15	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.8, 11.1, 11.2, 11.3, 11.4, 11.6, 11.8, 12.1, 12.2, 12.3, 12.4, 13.4, 13.5 and 13.6 are relevant.

Board	SpecID	Qualification	Title	Reference	Extract
AQA	4461	GCSE	Science A	Section 17	Societal Aspects of Scientific Evidence: Candidates should be able to explain how the consequences of scientific experiments may impinge upon society. They should understand that the credibility of scientific research may suffer as the result of any bias by the experimenters. They should also be aware of the consequences of scientific research and understand that acceptability is influenced by a range of other factors, such as ethical, social, economic and environmental issues.
AQA	4462	GCSE	Science B	Section 10	Societal aspects of scientific evidence: A judgement or decision relating to social-scientific issues may not be based on evidence alone, as other societal factors may be relevant. Candidates should know and understand: The uses of science and technology developments can raise ethical, social, economic and environmental issues.
				Section 11	Candidates should use their skills, knowledge and understanding of how science works: to interpret information about cloning techniques and genetic engineering techniques; to make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including GM crops.
				Section 15	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.8, 11.1, 11.2, 11.3, 11.4, 11.6, 11.8, 12.1, 12.2, 12.3, 12.4, 13.4, 13.5 and 13.6 are relevant.
				Section 17	Societal Aspects of Scientific Evidence: Candidates should be able to explain how the consequences of scientific experiments may impinge upon society. They should understand that the credibility of scientific research may suffer as the result of any bias by the experimenters. They should also be aware of the consequences of scientific research and understand that acceptability is influenced by a range of other factors, such as ethical, social, economic and environmental issues.
AQA	4463	GCSE	Additional Science	Section 10	Societal aspects of scientific evidence: A judgement or decision relating to social-scientific issues may not be based on evidence alone, as other societal factors may be relevant. Candidates should know and understand: The uses of science and technology developments can raise ethical, social, economic and environmental issues.

				Section 11	Candidates should use their skills, knowledge and understanding of how science works: to make informed judgements about the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments; to make informed judgements about the economic, social and ethical issues concerning embryo screening that they have studied or from information that is presented to them;
				Section 15	Moral and ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.8, 11.3, 11.7, and 13.10 are relevant.
				Section 17	Societal Aspects of Scientific Evidence: Candidates should be able to explain how the consequences of scientific experiments may impinge upon society. They should understand that the credibility of scientific research may suffer as the result of any bias by the experimenters. They should also be aware of the consequences of scientific research and understand that acceptability is influenced by a range of other factors, such as ethical, social, economic and environmental issues.
AQA	4861	GCSE (Double)	Applied Science	Section 11	You should be able to assess the applications and implications of science when: making informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering and suggest possible long-term evolutionary problems, eg seedless fruits.
				Section 13	You need to investigate the growth and/or development and/or responses of an organism under controlled conditions. (It is important that you show appropriate care and consideration to living organisms during this activity and follow procedures that are ethical.)
				Section 15	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.2, 10.3, 11.2, 11.3, 11.4, 11.5, 12.2, 12.3, 12.4, 13.2, 13.3, 13.4 and 13.5 are relevant.
AQA	4863	GCSE	Additional Applied Science	Section 14	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial

					and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Sections 10.2, 10.3, 11.2, 11.3, 11.4, 12.2, 12.3 and 12.4 are relevant.
AQA	draft	Entry Level	Science	Section 19	Moral and Ethical: Through helping candidates see the need to draw conclusions using observation and evidence rather than preconception or prejudice, and through discussion of the implications of the uses of scientific knowledge, including the recognition that such uses can have both beneficial and harmful effects. Exploration of values and ethics relating to applications of science and technology is possible. Units 1, 2, 3, 5, 6 and 8 are relevant.
Edexcel	2101-2103-2105-2107-2109	GCSE	Science-Additional Science-Biology- Chemistry-Physics	How science works (p5)	Students need to adopt a critical, questioning frame of mind, going 'behind the scenes' to understand the workings of science and how it impacts on society and their lives. It will help students to: make informed judgements about science and technology, including any ethical issues that may arise.
			Science	Environment (p19)	As usual, new food production techniques raise new ethical, social and environmental questions discuss the ethics and principles of organic farming and explain why organic products are more expensive than non-organic produce
				Genes (p23)	Students can also investigate how scientific decisions are made and how the ethical concerns of society can be considered, for example in relation to cloning. There are many ethical considerations associated with advances in genetic modification. describe the social and ethical concerns of cloning mammals, including the possibility of the cloning of human body parts for transplant surgery consider the contemporary scientific theory of 'designer babies' and explain why today's scientists are finding so much opposition to this being publicly accepted.
				Electrical and chemical signals (p27)	The development of a scientific explanation of diabetes through experiments on animals can be demonstrated and its ethical implications discussed. The application of science in controlling fertility and helping infertile couples to conceive can be considered, and the benefits, risks and drawbacks discussed. discuss the social and ethical implications of IVF treatment, including its use in mature clients

			Use, misuse and abuse (p31)	Students can present information and develop arguments on the use of drugs in a range of contexts. They can also collect and interpret data from secondary sources and discuss the social, economic and ethical implications of drug misuse and abuse. There are socio-economic reasons that contribute to ill health and ethical considerations for the development of treatments.
			Now you see it now you don't (p59)	This topic provides the opportunity to demonstrate that there are some questions that cannot yet be answered by science, for example – is the radiation used by mobile phones safe? This can lead to ethical considerations, for example the building and positioning of mobile phone masts.
		Additional Science	Divide and develop (p73)	There is ample opportunity to discuss ethical issues associated with growth and development and genetic modification, as well as giving consideration to the potential of gene therapy. discuss the ethics and health concerns of using growth factors to enhance performance in sport describe the stages in the production of cloned mammals, including Dolly the sheep: the introduction of a diploid nucleus from a mature cell into an egg cell, stimulation of the diploid nucleus to divide; discuss the risks associated with later embryonic development discuss the potential benefits and ethical dilemmas posed by advances in genetic modification
			Energy flow (p77)	Human activities are often unsustainable and there are many associated ethical considerations. discuss the social and ethical considerations of the unequal distribution of food
			Power of the atom (p113)	Applications of nuclear energy raise ethical, social, economic and environmental issues that can be debated during the study of this topic.
		Biology	Biotechnology (p119)	As with all new developments, advances in biotechnology raises new ethical questions which will be considered in this topic. Stem cell research must consider many ethical questions, including the definition of 'life'. You will be expected to be able to recall, explain, describe and use appropriately the following words and phrases: ethics Students will be assessed on their ability to: consider ethical, contemporary and social issues. the ethics of genetic modification particularly its use in developing countries. ethical implications of reproductive research.

				Behaviour in human and other animals (p123)	also explores the ethical issues surrounding the use of animals by humans. humans now debate the ethics of the use of animals in these different ways; some consider that animals have rights comparable or identical to humans, others consider that such beliefs are not tenable
			Chemistry	Chemical detection (p131)	Students will be assessed on their ability to: consider ethical, contemporary and social issues.
			Physics	Medical Physics (p143)	Ethical issues arise when trialling new medical techniques on patients. New medical techniques can raise moral and ethical issues. Students will be assessed on their ability to: consider ethical, contemporary and social issues. social and ethical issues relating to the introduction of new medical techniques.
Edexcel	2321	GCSE (Double)	Health and Social Care	Appendix D (p63)	spiritual, moral, ethical, social and cultural (SMESC) signposting: It should be noted that the signposting serves only to highlight possible assessment opportunities. It is suggestive and therein a marker of an indicative assessment opportunity. It is not a prescriptive order, more a marker of prospective assessment occasions for a given criterion. It is envisaged that subject specialists and teachers will transform the signposting in to real opportunities for assessment. Further, that they will furnish in detail the potential assessment opportunities with context-driven scenarios that are conscious of the studentsí own backgrounds and circumstances in an attempt to realise the assessment opportunity. Dealing with different groups of people and values will cover all Sp, M, E, So, and C. M and E issues (see What you need to learn 3) are introduced, for example, unprotected sex etc. En is also considered explicitly under environmental pollution. M and E issues can be covered (see What you need to learn 3, 4 and 5) under intimate personal and sexual relationships, sexual orientation and life experiences and relationship changes.
Edexcel	2331	GCSE (Double)	Applied ICT	Appendix E (p62)	spiritual, moral, ethical, social and cultural (SMESC) signposting: It should be noted that the signposting serves only to highlight possible assessment opportunities. It is suggestive and therein a marker of an indicative assessment opportunity. It is not a prescriptive order, more a marker of prospective assessment occasions for a given criterion. It is envisaged that subject specialists and teachers will transform the signposting in to real opportunities for assessment. Further, that they will furnish in detail the potential assessment opportunities with context-driven scenarios that are conscious of the studentsí own backgrounds and

					<p>circumstances in an attempt to realise the assessment opportunity. EI and legal consideration must be given to web browsing, manipulating data and access/use of data; this also has an E dimension and possibly M (ie accessing unregulated web-pages). Data must also be recognised/cited – E and M. Why and how organisations use ICT introduces E, So and Cz dimensions. Data protection issues in the use of ICT require EI and legislative consideration, as do the regulations governing practice. E will come in the form of 'correct' usage of that data. Network protocols and network services (including firewalls) introduce an E and M aspect to use of systems. E and So considerations will come in the form of manual versus technological systems. Negative and positive implications of ICT introduce E and M dilemmas (possible job losses) EI/legal consideration, and E and M aspects (ie accessing unregulated web-pages) must be acknowledged when accessing and manipulating data.</p>
Edexcel	2371	GCSE (Double)	Applied Science	Living organisms (p49)	Students may be aware of some of the issues surrounding choice of farming methods and selective breeding. New Scientist and Institute of Biology publications regularly reports stories relating to these areas. Whilst considering the benefits and drawbacks of scientific and technological developments to communities and environments, some of the ethical dilemmas involved should be raised.
				Monitoring living organisms (p57)	You need to investigate the growth and/or development and/or responses of an organism under controlled conditions. (It is important that you show appropriate care and consideration to living organisms during this activity and follow procedures which are ethical.)

				Appendix E (p94)	<p>spiritual, moral, ethical, social and cultural (SMESC) signposting:            It should be noted that the signposting serves only to highlight possible assessment opportunities. It is suggestive and therein a marker of an indicative assessment opportunity. It is not a prescriptive order, more a marker of prospective assessment occasions for a given criterion.            It is envisaged that subject specialists and teachers will transform the signposting in to real opportunities for assessment. Further, that they will furnish in detail the potential assessment opportunities with context-driven scenarios that are conscious of the studentsí own backgrounds and circumstances in an attempt to realise the assessment opportunity.            Working with living organisms and in discussing the use of banned substances must recognise the fact that they will be governed by EI and will introduce E, M and Sp issues in terms of potential obligation from different groups of people. As does working with substances/experiments and radioactivity.            E, M and So will come via the recording accurate results, not copying others, and working collaboratively in experiments and sharing results.            Working with living organisms will be governed by EI and will introduce E, M and Sp.            Recognition of the intensive/organic farming and genetic engineering debate introduces En, So concerns and EI as well as E and M issues.            Immunisation and the killing of some bacteria have So and En implications.            Possible EI dimension re copyright and use of materials.            E will come via the ethical use and recognition/citation of source information.            Monitoring living organisms will be governed by EI and will introduce E, M, Sp and So concerns and how it will impact on these areas.            E will come via the ethical use and recognition/citation of source information.</p>
OCR	1048	GCSE (Short)	Citizenship	Section E	<p><b>8.3 SPIRITUAL, MORAL, ETHICAL, SOCIAL AND CULTURAL ISSUES</b>            A unique opportunity is presented in this course for emphasising the spiritual, moral, ethical, social and cultural aspects of issues studied. These are essential strands in citizenship education. Some examples follow:  <b>Moral and Ethical:</b> The study of the rights and responsibilities of individuals in families will address moral responsibility and the importance of considering the impact upon others in decision-making. Work on the influences on individual identity will encourage candidates to develop their own moral code. They will be expected to consider their own stance in relation to topical examples of other peopleís decisions. Dilemmas posed by local, national and international current events will be discussed and will assist them in deciding what is right and what is wrong. They will be expected, in many parts of the</p>

					course, to express personal views on those of other people, such as politicians, judges and newspaper correspondents, reporters and editors.
OCR	1989	GCSE	Psychology	Section B	Internal assessment :They should use an appropriate and ethical method of enquiry and produce a written report based upon the standard format used throughout psychology.
				Section C	5.1 THEMES AND PROCESSES: As well as the specific subject content outlined in 5.2 and 5.3, candidates are required to consider some general processes and themes that pervade all parts of the course. These processes and themes are: methodology, ethics, applications and cultural diversity. 5.1.2 Ethics: Conducting research that conforms to ethical guidelines is an important consideration in the internally assessed task. It is also an important consideration for candidates when they learn about research studies in psychology. Candidates should be aware of ethical guidelines and be able to apply them. Some ethical guidelines are provided in Appendix B for reference purposes. 5.1.5 Fundamental Questions: The psychological themes and processes generate some fundamental questions appropriate for all parts of the course regarding research studies that the candidates will encounter. A summary of the type of questions that could be asked is given: What are the ethical guidelines? Did the research break any ethical guidelines? How could the study be improved ethically? 7.1 SUPERVISION AND AUTHENTICATION OF INTERNALLY ASSESSED WORK: When supervising internally assessed tasks, teachers are expected to: declare that the tasks were completed within ethical guidelines. 8.3.2 Moral and Ethical Issues: A number of topics within the specification such as moral development, obedience and aggression raise moral and ethical questions concerning human behaviour.
				Appendix B	Ethics in Psychological Research: GUIDELINES FOR STUDENTS AT PRE-DEGREE LEVELS (Extracts from a paper drawn up by the Working Party on Ethical Issues in Psychological Research, Association for the Teaching of Psychology). [Teachers are advised to duplicate these guidelines and distribute them to candidates.]...
				Appendix C	Notes for Candidates writing up an Investigation : Describe any ethical considerations that you had to make and which you acted upon in your investigation. Mention any code of conduct that you used as guidance (for example Guidelines for Students at Pre-degree levels in Appendix B).

OCR	J630	GCSE	Science A (21st Century Science)	Section 3	<p>candidates are introduced to genetic technologies that open up new possibilities for individuals and society. In doing so, they present significant ethical issues for citizens. Candidates explore some of the ideas people use to make ethical decisions. This enables them to engage with issues which regularly appear in the media, such as genetic testing, gene therapy and cloning research.</p> <p>In the contexts of vaccination policy and the study of clinical trials, candidates explore ideas of correlation and cause, and how peer review by the scientific community strengthens the reliability of scientific claims. They also consider particular ethical issues arising in modern medicine, for example, the right of individual choice versus social policy, illustrated through vaccination policy.</p>
				Section 5	<p>Case study: Suitable topics: Personal or social choices (e.g. 'Should my child receive the triple MMR vaccine?'). Ethical and personal issues are likely to figure in such studies, but it is important to evaluate these in relation to what is known about the science which underlies the issue.</p>
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues: The ideas-about-science are a major feature of this specification and they cover the values that underpin scientific activity as well as the values that influence people's thinking when faced with scientific issues. The science explanations chosen for study in this course are particularly those which have a profound influence on how people think about themselves, their immediate environment, the Earth as a whole and the Universe.</p> <p>The ethical implications of selected scientific issues:            B1: Ethical issues arising from implications of modern genetic technologies.            B2: Ethical issues arising from vaccination policy.            C2: Comparison of technical feasibility and values in the context of life cycle analysis for a particular product.</p>

				Appendix F	<p>Ideas About Science:</p> <p>6.5 Some applications of science have ethical implications. As a result, people may disagree about what should be done (or permitted). A candidate who understands this, where an ethical issue is involved, can: say clearly what this issue is; summarise different views that may be held</p> <p>6.6 In discussions of ethical issues, one common argument is that the right decision is one which leads to the best outcome for the majority of people involved. Another is that certain actions are unnatural or wrong, and should not be done in any circumstances. A third is that it is unfair for a person to choose to benefit from something made possible only because others take a risk, whilst avoiding that risk themselves. A candidate who understands this in a particular context, can identify, and develop, arguments based on the ideas that: the right decision is the one which leads to the best outcome for the majority of people involved; certain actions are never justified because they are unnatural or wrong</p>
OCR	J631	GCSE	Additional Science A (21st Century Science)	Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues: A number of the scientific ideas which feature in this specification have a significant cultural influence on how people think about themselves and their environment. The commitment of scientists to publish their findings and subject their ideas to testing by others: Investigation: reviewing the strategy and procedures. The range of factors which have to be considered when weighing the costs and benefits of scientific activity: C6: Evaluating the costs and benefits associated with chemical manufacturing.</p>
OCR	J632	GCSE	Additional Applied Science A (21st Century Science)	Section 3	<p>The module raises issues of ethical and economic value touching on animal welfare and sustainable agriculture. understand that intensive farming methods may raise ethical issues concerning animal welfare;</p>
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues A number of Subject Criteria which feature in this specification have a significant cultural influence on how people think about themselves and their environment. The ethical implications of selected scientific issues.: AP1.3 - Assisted reproduction techniques. AP2.3 - Animal welfare and the five freedoms. AP3.1 - The implications of analytical results for people's freedom under the law and freedom to take part in sport.</p>

OCR	J633	GCSE	Biology A (21st Century Science)	Section 3	<p>Throughout the module, candidates are introduced to genetic technologies that open up new possibilities for individuals and society. In doing so, they present significant ethical issues for citizens. Candidates explore some of the ideas people use to make ethical decisions. This enables them to engage with issues which regularly appear in the media, such as genetic testing, gene therapy and cloning research.</p> <p>In the contexts of vaccination policy and the study of clinical trials, candidates explore ideas of correlation and cause, and how peer review by the scientific community strengthens the reliability of scientific claims. They also consider particular ethical issues arising in modern medicine, for example, the right of individual choice versus social policy, illustrated through vaccination policy. In earlier modules candidates have considered some of the ethical implications for genetic testing. Here they learn more about the science behind this application, and also other new genetic technologies, including genetic modification and large-scale growth of microorganisms to produce, for example, antibiotics, single-cell protein and hormones. They also consider the economic, social and ethical implications for the release of genetically modified organisms.</p> <p>understand that there are economic, social and ethical implications for the release of genetically modified organisms</p>
				Section 5	<p>Case study: Suitable topics: Personal or social choices (e.g. ‘Should my child receive the triple MMR vaccine?’). Ethical and personal issues are likely to figure in such studies, but it is important to evaluate these in relation to what is known about the science which underlies the issue.</p>
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues: A number of the scientific ideas which feature in this specification have a significant cultural influence on how people think about themselves and their environment.</p> <p>The ethical implications of selected scientific issues:            B1: Ethical issues arising from implications of modern genetic technologies.            B2: Ethical issues arising from vaccination policy.</p>

				Appendix F	<p>Ideas About Science:</p> <p>6.5 Some applications of science have ethical implications. As a result, people may disagree about what should be done (or permitted). A candidate who understands this, where an ethical issue is involved, can: say clearly what this issue is; summarise different views that may be held</p> <p>6.6 In discussions of ethical issues, one common argument is that the right decision is one which leads to the best outcome for the majority of people involved. Another is that certain actions are unnatural or wrong, and should not be done in any circumstances. A third is that it is unfair for a person to choose to benefit from something made possible only because others take a risk, whilst avoiding that risk themselves. A candidate who understands this in a particular context, can identify, and develop, arguments based on the ideas that: the right decision is the one which leads to the best outcome for the majority of people involved; certain actions are never justified because they are unnatural or wrong</p>
OCR	J634	GCSE	Chemistry A (21st Century Science)	Section 5	Case study: Suitable topics: Personal or social choices (e.g. 'Should my child receive the triple MMR vaccine?'). Ethical and personal issues are likely to figure in such studies, but it is important to evaluate these in relation to what is known about the science which underlies the issue.
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues: A number of the scientific ideas which feature in this specification have a significant cultural influence on how people think about themselves and their environment.</p> <p>The ethical implications of selected scientific issues: C7: Green chemistry</p>

				Appendix F	<p>Ideas About Science:</p> <p>6.5 Some applications of science have ethical implications. As a result, people may disagree about what should be done (or permitted). A candidate who understands this, where an ethical issue is involved, can: say clearly what this issue is; summarise different views that may be held</p> <p>6.6 In discussions of ethical issues, one common argument is that the right decision is one which leads to the best outcome for the majority of people involved. Another is that certain actions are unnatural or wrong, and should not be done in any circumstances. A third is that it is unfair for a person to choose to benefit from something made possible only because others take a risk, whilst avoiding that risk themselves. A candidate who understands this in a particular context, can identify, and develop, arguments based on the ideas that: the right decision is the one which leads to the best outcome for the majority of people involved; certain actions are never justified because they are unnatural or wrong</p>
OCR	J635	GCSE	Physics A (21st Century Science)	Section 5	Case study: Suitable topics: Personal or social choices (e.g. ‘Should my child receive the triple MMR vaccine?’). Ethical and personal issues are likely to figure in such studies, but it is important to evaluate these in relation to what is known about the science which underlies the issue.
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues: A number of the scientific ideas which feature in this specification have a significant cultural influence on how people think about themselves and their environment.</p> <p>The ethical implications of selected scientific issues: P3: Long and short term economic and environmental costs and benefits related to the use of various energy sources.</p>

				Appendix F	<p>Ideas About Science:</p> <p>6.5 Some applications of science have ethical implications. As a result, people may disagree about what should be done (or permitted). A candidate who understands this, where an ethical issue is involved, can: say clearly what this issue is; summarise different views that may be held</p> <p>6.6 In discussions of ethical issues, one common argument is that the right decision is one which leads to the best outcome for the majority of people involved. Another is that certain actions are unnatural or wrong, and should not be done in any circumstances. A third is that it is unfair for a person to choose to benefit from something made possible only because others take a risk, whilst avoiding that risk themselves.</p> <p>A candidate who understands this in a particular context, can identify, and develop, arguments based on the ideas that: the right decision is the one which leads to the best outcome for the majority of people involved; certain actions are never justified because they are unnatural or wrong</p>
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OCR	J640	GCSE	Science B (Gateway Suite)	Section 3	<p>Research on countries having food emergencies provides the opportunity to discuss ethical issues raised by science and technology.</p> <p>When candidates are ill, either at home or abroad, they expect to be cured by some medicine. This item aims to help them understand the causes, preventative measures and cures of some diseases, while understanding that not all diseases are easily controlled or cured. This item provides the opportunity to analyse, interpret, apply and question scientific information and ideas, including some questions that science cannot currently answer in cancer treatment and drug testing. These topics also allow the discussion of ethical issues raised</p> <p>Recent developments in genetics have contributed to the increasing public interest in science and raised awareness of the issues involved. This item provides the necessary background to understand these issues. This item provides the opportunity to recall scientific information as a base to gaining an understanding of ethical issues.</p> <p>Genetic engineering and genetic modification are relatively recent terms but humans have been genetically modifying animals and plants using selective breeding for thousands of years. Genes can also change without human intervention. This is known as mutation. This item provides the opportunity to show that there are some questions that science cannot address and that technology may raise ethical issues when debating arguments for and against parents knowing a baby's genetic make-up before birth.</p> <p>Cosmetics play an important part in the life of teenagers. This item considers some cosmetic products; perfumes and nail varnish remover. The properties of these products and the need for testing new cosmetic products are considered. This item provides the opportunity to explore how and why decisions about science and technology are made, including ethical issues on the testing of cosmetics on animals.</p> <p>The discussion about exploitation of oil raises ethical issues and allows consideration of some questions that science cannot currently answer.</p>
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues</p> <p>Spiritual, moral, ethical, social and cultural issues are a major feature of this specification. The content of this course includes aspects which have a profound influence on how people think about themselves, their immediate environment, the Earth as a whole and the Universe.</p> <p>The ethical implications of selected scientific issues: B1b, B1h, B2h, C1c, C1d.</p>

OCR	J641	GCSE	Additional Science B (Gateway Suite)	Section 3	<p>Research about human stem cells and cancer provides opportunities to discuss how and why decisions about science are made and the related ethical issues.</p> <p>Debating the arguments for and against GM ingredients provides opportunities to discuss how and why decisions about science are made and the related ethical issues.</p> <p>Discuss the moral and ethical issues involved in genetic modification weighed against the potential benefits. (HT only)</p> <p>Finding out about the techniques used to produce Dolly the first cloned animal provides the opportunity to illustrate the use of ICT in science, ethical issues about contemporary scientific developments and the role of the science community in validating changes in scientific knowledge.</p> <p>Recognise that there are ethical dilemmas concerning human cloning.(both tiers); Discuss the possible implications of using genetically modified animals to supply replacement organs for humans. Discuss the ethical dilemmas concerning human cloning. (HT only)</p> <p>Work on stopping distances provides the opportunity to discuss how and why decisions about science and technology are made, including ethical issues and the social, economic and environmental effects of such decisions.</p> <p>The work on energy transfer provides the opportunity to examine the ethical issues raised by decisions on plant use and the environmental effects of such decisions.</p> <p>Discussing different farming methods provides many opportunities to investigate why decisions about science and technology are made and the ethical issues raised.</p> <p>Explain that intensive farming methods may be efficient but they raise ethical dilemmas. (both tiers)</p>
				Section 7	<p>7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues</p> <p>Spiritual, moral, ethical, social and cultural issues are a major feature of this specification. The content of this course includes aspects which have a profound influence on how people think about themselves, their immediate environment, the Earth as a whole and the Universe.</p> <p>The ethical implications of selected scientific issues. B3c, B3e, B3g, B3h, B4f, C4e</p>

OCR	J643	GCSE	Biology B (Gateway Suite)	Section 3	<p>Research on countries having food emergencies provides the opportunity to discuss ethical issues raised by science and technology.</p> <p>When candidates are ill, either at home or abroad, they expect to be cured by some medicine. This item aims to help them understand the causes, preventative measures and cures of some diseases, while understanding that not all diseases are easily controlled or cured. This item provides the opportunity to analyse, interpret, apply and question scientific information and ideas, including some questions that science cannot currently answer in cancer treatment and drug testing. These topics also allow the discussion of ethical issues raised</p> <p>Recent developments in genetics have contributed to the increasing public interest in science and raised awareness of the issues involved. This item provides the necessary background to understand these issues. This item provides the opportunity to recall scientific information as a base to gaining an understanding of ethical issues.</p> <p>Genetic engineering and genetic modification are relatively recent terms but humans have been genetically modifying animals and plants using selective breeding for thousands of years. Genes can also change without human intervention. This is known as mutation. This item provides the opportunity to show that there are some questions that science cannot address and that technology may raise ethical issues when debating arguments for and against parents knowing a baby's genetic make-up before birth.</p> <p>Research about human stem cells and cancer provides opportunities to discuss how and why decisions about science are made and the related ethical issues.</p> <p>Debating the arguments for and against GM ingredients provides opportunities to discuss how and why decisions about science are made and the related ethical issues.</p> <p>Discuss the moral and ethical issues involved in genetic modification weighed against the potential benefits. (HT only)</p> <p>Finding out about the techniques used to produce Dolly the first cloned animal provides the opportunity to illustrate the use of ICT in science, ethical issues about contemporary scientific developments and the role of the science community in validating changes in scientific knowledge.</p> <p>Recognise that there are ethical dilemmas concerning human cloning (both tiers); Discuss the benefits and risks of using cloning technology. Discuss the possible implications of using genetically modified animals to supply replacement organs for humans. Discuss the ethical dilemmas concerning human cloning. (HT only)</p> <p>The work on energy transfer provides the opportunity to examine the ethical issues raised by decisions on plant use and the environmental effects of such decisions.</p> <p>Discussing different farming methods provides many opportunities to investigate why decisions about science and technology are made and the</p>
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				Section 7	7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues Spiritual, moral, ethical, social and cultural issues are a major feature of this specification. The content of this course includes aspects which have a profound influence on how people think about themselves, their immediate environment, the Earth as a whole and the Universe. The ethical implications of selected scientific issues. B1h, B2h, B3c, B3e, B3g, B3h, B4f, B5f, B5g, B6h
OCR	J644	GCSE	Chemistry B (Gateway Suite)	Section 3	Cosmetics play an important part in the life of teenagers. The properties of these products and the need for testing new cosmetic products are considered. This item provides the opportunity to explore how and why decisions about science and technology are made, including ethical issues on the testing of cosmetics on animals. The discussion about exploitation of oil raises ethical issues
				Section 7	7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues Spiritual, moral, ethical, social and cultural issues are a major feature of this specification The content of this course includes aspects which have a profound influence on how people think about themselves, their immediate environment, the Earth as a whole and the Universe. The ethical implications of selected scientific issues. C1c, C1d, C4e, C6e
OCR	J645	GCSE	Physics B (Gateway Suite)	Section 3	Work on stopping distances provides the opportunity to discuss how and why decisions about science and technology are made, including ethical issues and the social, economic and environmental effects of such decisions.
				Section 7	7.6 Spiritual, Moral, Ethical, Social, Legislative, Economic and Cultural Issues Spiritual, moral, ethical, social and cultural issues are a major feature of this specification. The content of this course includes aspects which have a profound influence on how people think about themselves, their immediate environment, the Earth as a whole and the Universe. The ethical implications of selected scientific issues. P2d