

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

IHC Key Concepts (KC)			National Curriculum in England	
KC Number	KC Short Title	KC Statement	Key Stage 3 Section	Key Stage 3 Statement
1.01	Treatments can harm	Treatments may be harmful	Working Scientifically Scientific Attitudes	Evaluate risks
1.02	Anecdotes are unreliable evidence	Personal experiences or anecdotes are an unreliable basis for assessing the effects of most treatments.	Overview	Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.
1.02	Anecdotes are unreliable evidence	Personal experiences or anecdotes are an unreliable basis for assessing the effects of most treatments.	Working Scientifically Scientific Attitudes	Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

1.02	Anecdotes are unreliable evidence	Personal experiences or anecdotes are an unreliable basis for assessing the effects of most treatments.	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
1.03	Association is not the same as causation	An 'outcome' may be associated with a treatment, but not caused by the treatment.	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
1.03	Association is not the same as causation	An 'outcome' may be associated with a treatment, but not caused by the treatment.	Working Scientifically Experimental Skills & Investigations	Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.
1.03	Association is not the same as causation	An 'outcome' may be associated with a treatment, but not caused by the treatment.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
1.04	Common practice is not always evidence-based	Widely used treatments or treatments that have been used for a long time are not necessarily beneficial or safe	Overview	Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

1.04	Common practice is not always evidence-based	Widely used treatments or treatments that have been used for a long time are not necessarily beneficial or safe	Overview	Teachers should feel free to choose examples that serve a variety of purposes, from showing how scientific ideas have developed historically to reflecting modern developments in science.
1.04	Common practice is not always evidence-based	Widely used treatments or treatments that have been used for a long time are not necessarily beneficial or safe	Working Scientifically Scientific Attitudes	Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review
1.04	Common practice is not always evidence-based	Widely used treatments or treatments that have been used for a long time are not necessarily beneficial or safe	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
1.05	Newer is not necessarily better	New, brand-named, or more expensive treatments may not be better than available alternatives	Overview	Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.
1.05	Newer is not necessarily better	New, brand-named, or more expensive treatments may not be better than available alternatives	Working Scientifically Scientific Attitudes	Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

1.06	Expert opinion is not always right	Opinions of experts or authorities do not alone provide a reliable basis for deciding on the benefits and harms of treatments	Overview	Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.
1.06	Expert opinion is not always right	Opinions of experts or authorities do not alone provide a reliable basis for deciding on the benefits and harms of treatments	Working Scientifically Scientific Attitudes	Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
1.06	Expert opinion is not always right	Opinions of experts or authorities do not alone provide a reliable basis for deciding on the benefits and harms of treatments	Working Scientifically Scientific Attitudes	Evaluate risks
1.06	Expert opinion is not always right	Opinions of experts or authorities do not alone provide a reliable basis for deciding on the benefits and harms of treatments	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
1.07	Beware of conflicting interests	Conflicting interests may result in misleading claims about the effects of treatments.	Overview	Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

1.07	Beware of conflicting interests	Conflicting interests may result in misleading claims about the effects of treatments.	Working Scientifically Scientific Attitudes	Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
1.07	Beware of conflicting interests	Conflicting interests may result in misleading claims about the effects of treatments.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
1.08	More is not necessarily better	Increasing the amount of a treatment does not necessarily increase the benefits of a treatment and may cause harm.	Overview	Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.
1.08	More is not necessarily better	Increasing the amount of a treatment does not necessarily increase the benefits of a treatment and may cause harm.	Overview	Teachers should feel free to choose examples that serve a variety of purposes, from showing how scientific ideas have developed historically to reflecting modern developments in science.
1.08	More is not necessarily better	Increasing the amount of a treatment does not necessarily increase the benefits of a treatment and may cause harm.	Working Scientifically Scientific Attitudes	Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

1.08	More is not necessarily better	Increasing the amount of a treatment does not necessarily increase the benefits of a treatment and may cause harm.	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
1.09	Earlier is not necessarily better	Earlier detection of disease is not necessarily better.		
1.10	Hope may lead to unrealistic expectations	Hope or fear can lead to unrealistic expectations about the effects of treatments.		
1.11	Explanations about how treatments work can be wrong	Beliefs about how treatments work are not reliable predictors of the actual effects of treatments	Working Scientifically Scientific Attitudes	Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review
1.11	Explanations about how treatments work can be wrong	Beliefs about how treatments work are not reliable predictors of the actual effects of treatments.	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

1.11	Explanations about how treatments work can be wrong	Beliefs about how treatments work are not reliable predictors of the actual effects of treatments.	Working Scientifically Analysis & evaluation	Present reasoned explanations, including explaining data in relation to predictions and hypotheses.
1.12	Dramatic treatment effects are rare	Large, dramatic effects of treatments are rare.	Working Scientifically Experimental Skills & Investigations	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
1.12	Dramatic treatment effects are rare	Large, dramatic effects of treatments are rare.		
2.01	Evaluating the effects of treatments requires appropriate comparisons	Evaluating the effects of treatments requires appropriate comparisons.	Working Scientifically Experimental Skills & Investigations	Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables.
2.01	Evaluating the effects of treatments requires appropriate comparisons	Evaluating the effects of treatments requires appropriate comparisons.	Working Scientifically Experimental Skills & Investigations	Apply sampling techniques.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

2.01	Evaluating the effects of treatments requires appropriate comparisons	Evaluating the effects of treatments requires appropriate comparisons.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.02	Comparison groups should be similar	Apart from the treatments being compared, the comparison groups need to be similar (i.e. 'like needs to be compared with like').	Working Scientifically Experimental Skills & Investigations	Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables.
2.02	Comparison groups should be similar	Apart from the treatments being compared, the comparison groups need to be similar (i.e. 'like needs to be compared with like').	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.03	Peoples' outcomes should be analysed in their original groups	People's outcomes should be counted in the group to which they were allocated.	Working Scientifically Analysis & evaluation	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
2.03	Peoples' outcomes should be analysed in their original groups	People's outcomes should be counted in the group to which they were allocated.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

2.04	Comparison groups should be treated equally	People in the groups being compared need to be cared for similarly (apart from the treatments being compared)	Working Scientifically Experimental Skills & Investigations	Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables.
2.04	Comparison groups should be treated equally	People in the groups being compared need to be cared for similarly (apart from the treatments being compared)	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.05	People should not know which treatment they get	If possible, people should not know which of the treatments being compared they are receiving.	Working Scientifically Experimental Skills & Investigations	Apply sampling techniques.
2.05	People should not know which treatment they get	If possible, people should not know which of the treatments being compared they are receiving.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.06	Peoples' outcomes should be assessed similarly	Outcomes should be measured in the same way (fairly) in the treatment groups being compared.	Working Scientifically Analysis & evaluation	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

2.06	Peoples' outcomes should be assessed similarly	Outcomes should be measured in the same way (fairly) in the treatment groups being compared.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.07	All should be followed up	It is important to measure outcomes in everyone who was included in the treatment groups	Working Scientifically Analysis & evaluation	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
2.07	All should be followed up	It is important to measure outcomes in everyone who was included in the treatment groups	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.08	Consider all of the relevant fair comparisons	The results of single comparisons of treatments can be misleading	Working Scientifically Scientific Attitudes	Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
2.08	Consider all of the relevant fair comparisons	The results of single comparisons of treatments can be misleading	Working Scientifically Scientific Attitudes	Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

2.08	Consider all of the relevant fair comparisons	The results of single comparisons of treatments can be misleading	Working Scientifically Analysis & evaluation	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
2.08	Consider all of the relevant fair comparisons	The results of single comparisons of treatments can be misleading	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.09	Reviews of fair comparisons should be systematic	Reviews of treatment comparisons that do not use systematic methods can be misleading	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.10	All fair comparisons and outcomes should be reported	Unpublished results of fair comparisons may result in biased estimates of treatment effects	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.10	All fair comparisons and outcomes should be reported	Unpublished results of fair comparisons may result in biased estimates of treatment effects	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

2.11	Subgroup analyses may be misleading	Results for a selected group of people within a systematic review of fair comparisons of treatments can be misleading.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.12	Relative measures of effects can be misleading	Relative effects of treatments alone can be misleading	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.13	Average measures of effects can be misleading	Average differences between treatments can be misleading	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
2.14	Fair comparisons with few people or outcome events can be misleading	Small studies in which few outcome events occur are usually not informative and the results may be misleading	Working Scientifically Scientific Attitudes	Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
2.14	Fair comparisons with few people or outcome events can be misleading	Small studies in which few outcome events occur are usually not informative and the results may be misleading	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

2.15	Confidence intervals should be reported	The use of p-values to indicate the probability of something having occurred by chance may be misleading; confidence intervals are more informative		
2.16	Don't confuse "statistical significance" with "importance"	Saying that a difference is statistically significant or that it is not statistically significant can be misleading		
2.17	Don't confuse "no evidence" with "no effect"	A lack of evidence is not the same as evidence of "no difference"	Working Scientifically Scientific Attitudes	Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review
2.17	Don't confuse "no evidence" with "no effect"	A lack of evidence is not the same as evidence of "no difference"	Working Scientifically Analysis & evaluation	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
3.01	Do the outcomes measured matter to you?	A systematic review of fair comparisons of treatments should measure outcomes that are important		

Mapping the Informed Health Choices (IHC) Key Concepts to the Department of Education National Science Curriculum in England.

3.02	Are you very different from the people studied?	A systematic review of fair comparisons of treatments in animals or highly selected groups of people may not be relevant	Working Scientifically Analysis & evaluation	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
3.03	Are the treatments practical in your setting?	The treatments evaluated in fair comparisons may not be relevant or applicable		
3.04	How certain is the evidence?	Well-done systematic reviews often reveal a lack of relevant evidence, but they provide the best basis for making judgements about the certainty of the evidence.	Working Scientifically Scientific Attitudes	Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
3.04	How certain is the evidence?	Well-done systematic reviews often reveal a lack of relevant evidence, but they provide the best basis for making judgements about the certainty of the evidence.	Working Scientifically Analysis & evaluation	Evaluate data, showing awareness of potential sources of random and systematic error.
3.05	Do the advantages outweigh the disadvantages?	Decisions about treatments should not be based on considering only their benefits		