Foundation Year Programme

Entrance Tests

THINKING SKILLS SPECIFICATION

Contents

Introduction

The Thinking Skills test is an assessment of two kinds of thinking:

Problem Solving - reasoning using numerical and spatial skills

Many of the problems encountered in academic and professional work are novel. No ready 'off the peg solution' is available. The task is to find or create a solution.

Critical Thinking - reasoning using everyday written language.

The skill of Critical Thinking is basic to any academic study and often involves considering an argument put forward to promote or defend a particular point of view. Historians use argument when reasoning about records of events in the past and scientists use argument when reasoning about the evidence from their experiments. Whatever the subject of study it is necessary to understand the arguments presented by others and to be able to assess whether the arguments establish their claims.

These are both skills which are considered to be important in Higher Education.

Introduction to the assessment

Both Problem Solving and Critical Thinking are assessed by multiple-choice questions. In each case a stimulus is presented, followed by the stem (question) and five options. One of the options is the correct answer (key) and the remaining four options (distracters) are wrong.

In the case of the Critical Thinking questions the stimulus is a passage of text. In Problem Solving the stimulus may include a diagram, a table of information (a railway timetable for example), or a graph. The options may also be graphs or diagrams.

Problem Solving

The questions in this section of the assessment are of three kinds, each assessing a key aspect of insight into unfamiliar problems. The three kinds are Relevant Selection, Finding Procedures, and Identifying Similarity. Although most questions fall into one category some questions fit into one or more of the categories.

The following examples show the three kinds of questions you will find in this section:

Example 1: Relevant Selection

Very often a real world problem will be overloaded with information, much of which is unimportant. The first step in solving the problem is to decide which bits of the information available are important. It may be that the question has presented you with information which is not important, perhaps redundant, and possibly distracting. This kind of question demands Relevant Selection, in which the task is to select only that information which is necessary and helpful in finding a solution.

The table below shows the price of various ladders. I need a ladder at least 8m long to reach the gutters of my house. I want to store it in my garage which is only 4.2m long.

What is the lowest price I must pay to satisfy these conditions?

Length closed (m)	Length extended (m)	Lightweight (DIY use)	Heavyweight (Trade use)
Triple section ladders:			
2·6	6·0	£82	£100
3·0	7·5	£104	£120
3·5	9·0	£133	£150
4·0	10·0	--	£169
Double section ladders:			
3·0	5·3	£52	£64
3·5	6·2	£67	£82
4·0	7·2	£78	£95
4·5	8·3	£98	£115
5·0	9·0	--	£140
5·5	10·0	--	£155

A   £78

B   £98

C   £133

D   £150

E   £169

The answer is **C**. We need to find a ladder which extends to 8 metres but has a closed length of no more than 4·2 metres. There are no double section ladders which fit the requirements. Two triple section ladders are possible, one extending to 9m and the other to 10m. With heavyweight and lightweight options taken into account there are three possibilities. We require the cheapest and this costs £133·00. A lightweight ladder with a closed length of 3·5m and an extended length of 9m.

    A   £78 -   lightweight - too short when extended
    B   £98 -   lightweight - too long when closed
    D   £150 - heavyweight - more expensive than **C**
    E   £169 - heavyweight - more expensive than **C**

                                          Standard ATS sample material

Example 2: Finding Procedures

Sometimes you will find that even if you have selected all the relevant information, no solution presents itself. You then have to find a method or procedure which you can use to generate a solution. Typically you will have three or four numbers which have to be operated on. This aspect of Problem Solving is called Finding Procedures.

Mr Jones has to renew the white lines on a 1 km stretch of road. Each edge of the road is marked with a solid line and there is a "dashed" line in the centre. Drivers are warned of approaching bends by two curved arrows. Mr Jones will have to paint four curved arrows. The manufacturers have printed the following guidance on each 5 litre drum of paint.

Solid lines - 5 metres per litre.

Dashed lines - 20 metres per litre

Curved arrows - 3 litres each

How many drums of paint will Mr Jones require?

A   53

B   92

C   93

D   103

E   462

The answer is **C**. The solid lines require 200 litres for each side of the road (1000 ÷ 5 = 200). The dashed lines require 50 litres (1000 ÷ 20 = 50). The arrows require 3 x 4 = 12 litres. The total amount of paint is 200 + 200 + 50 + 12 = 462 litres. Each drum contains 5 litres of paint; so 93 drums will be needed (462 ÷ 5 = 92.4). 92 drums will not be enough so 93 will be needed. The final drum will be only partially used.

A   It has been assumed that there is a solid line on only one side of the road.
B   The calculations are correct but it has been assumed incorrectly that 92 drums would be sufficient.
D   It has been assumed that there are two dashed lines rather than one.
E   The total amount in litres has been calculated but not the number of drums required.

Example 3: Identifying Similarity

In each of these questions you will be presented with a situation and asked to choose another situation which has a similar structure:

I wish to tile an area of wall 120cm wide by 100cm high. Tiles are 20cm square. I will, therefore, need 6 x 5 = 30 tiles.

Which of the following uses the same method of calculation as that above?

A   A staircase is 3m high. Each step rises 0·25m. Therefore, there are 12 steps.

B   A room is 4·2m by 2·0m. Carpet costs £10·00 per square metre. Therefore, it will cost £84·00 to carpet the room.

C   A box containing sugar cubes is 10cm x 10cm x 5cm. A sugar cube is 1cm on each side. Therefore, the box contains 500 cubes.

D   Using square tables 1·5m on each side, I need to make up a conference table 6m x 3m. Therefore I will need 8 tables.

E   I work 40 hours a week and earn £5·00 an hour. Therefore, in 4 weeks I will earn £800·00.

The answer is **D**. The procedure of multiplying 6 x 5 is based on 6 tiles fitting along one edge and 5 tiles along another. In option **D**, 4 of the small tables will fit along the 6 m side and 2 along the 3m side. The computation will therefore be 4 x 2.

Option **A** divides 3 by 0·25.

Option **B** multiplies 4·2 by 2·0 by 10.

Option **C** multiplies 10 by 10 by 5.

Option **E** multiplies 5 by 40.

Although in **D** there is a multiplication this is the only case in which the numbers to be multiplied must first be obtained as they are in the tiling example.

The mathematical knowledge and skill needed

Number concepts

- simple fractions
- place value (for example, knowing that the "5" in "7654" indicates "50")
- ideas about percentages (for example, the idea that 1% could be thought of as "1 in every 100", and that if 20% of a group of adults are men, 80% must be women).

Numerical operations

- the four rules of number (addition, subtraction, multiplication, division)
- percentage operations (for example, if something was sold at £10, and is now advertised at "20% off", how much would the customer pay?)
- calculations in everyday contexts (complex calculations with fractions and decimals are not required).

Quantities

- time and the calendar
- money
- measures as shown below.

length	**weight**	**area**	**volume (capacity)**
kilometre (km) metre (m) centimetre (cm) millimetre (mm)	kilogram (kg) gram (g)	square centimetre square metre	cubic centimetre litre (l) gallons

Knowledge of the following relationships is also required:

1 km = 1000 m   1 m = 100 cm   1 cm =   10 mm   1 kg = 1000 g

Also required is knowledge of the terms for measurements which are used informally in daily life (e.g. feet, miles), but numerical relationships for these measures (e.g. 12 inches = 1 foot) are not required.

Space and spatial reasoning

- area (including the calculation of the area of a rectangle)
- perimeter (including calculation)
- volume (including the calculation of the volume of a box)
- reflections (in mirrors) and rotations of simple shapes
- two-dimensional (2D) representations of three-dimensional (3D) shapes (for example being able to interpret a "bird's eye view" of a house).

Generalisation

- recognition that some operations are generalisable, for example that converting 24 to 3 and 40 to 5 both involve division by 8 (formal algebra is not required).

Tables and graphs

- extracting information from graphs
- extracting information from tables.

Critical Thinking

Critical Thinking can best be made clear by the following definition:

> In an argument **reasons** are put forward as grounds for a **conclusion**. The argument is a good argument provided its conclusion follows from the reasons, that is to say, if you accept the reasons, you must accept the conclusion.
>
> **For the purposes of the Critical Thinking assessment the reasons given should be accepted as being true.**

Here is an example of a simple argument:

> Jill promised she would attend the meeting or send a substitute. We know she can't attend the meeting. So we are expecting a substitute.

The structure of this argument is as follows:

Reasons: Jill promised she would attend the meeting or send a substitute.
                   We know she can't attend the meeting.

Conclusion: So we are expecting a substitute.

In this case the conclusion appears at the end of the argument, and is introduced by the word "so". Sometimes a conclusion may be introduced by words such as "therefore", "thus", "it follows that". However, sometimes a conclusion may not contain any such word. It is also important to note that a conclusion may appear at the beginning of, or in the middle of an argument, rather than at the end. For example, the above argument could have been written in this way:

> We know Jill cannot attend the meeting. We are expecting a substitute. She promised she would attend the meeting or send a substitute.

or in this way:

> We are expecting a substitute for Jill. We know she cannot attend the meeting, and she promised she would attend or send a substitute.

In both these cases "We are expecting a substitute (for Jill)" is the conclusion, because it is the statement which **follows from**, or **is supported by**, the rest of the passage.

Some arguments may omit a crucial stage in the reasoning - an **assumption** which must be made in order for the conclusion to follow. Here is an example:

> She doesn't stand much of a chance. The polar bear is right behind her.

In this argument it is not explicitly stated that polar bears are dangerous, but the conclusion that "she doesn't stand much of a chance" depends upon the belief that polar bears are dangerous. This belief is taken for granted, or assumed.

In summary, the features of arguments are:

> **reason(s)**
> **conclusion(s)** (which may or may not be introduced by words such as "so", "therefore")
> **assumption(s)** i.e. crucial parts of the argument which have not been stated.

Arguments can be much more complex in structure than the examples given so far and they can be lengthy. But whatever their length and complexity, there are certain skills involved in understanding and evaluating arguments. These include: drawing and summarising conclusions, identifying assumptions and reasoning errors, and assessing the impact of additional evidence.

The following examples show the seven kinds of questions you will find in the Thinking Skills Assessment.

Example 1: Summarising the Main Conclusion

Vegetarian food can be healthier than a traditional diet. Research has shown that vegetarians are less likely to suffer from heart disease and obesity than meat eaters. Concern has been expressed that vegetarians do not get enough protein in their diet but it has been demonstrated that, by selecting foods carefully, vegetarians are able to amply meet their needs in this respect.

Which of the following best expresses the main conclusion of the above argument?

A A vegetarian diet can be better for health than a traditional diet.

B Adequate protein is available from a vegetarian diet.

C A traditional diet is very high in protein.

D A balanced diet is more important for health than any particular food.

E Vegetarians are unlikely to suffer from heart disease and obesity.

In this type of question you have to judge which one of the statements **A** to **E** best expresses the main conclusion of the argument. So the first important step is to read the passage carefully and pick out the sentence which is the conclusion. Remember that the conclusion can appear anywhere within an argument, - not necessarily at the end. Remember also that what you are looking for is the statement which **follows from**, or **is supported by** the rest of the passage.

It may be helpful to ask yourself "What is the main message which this passage is trying to get me to accept?" When you think you have answered this question, underline the sentence which expresses this main message, then look to see if the rest of the passage gives you reasons for believing this. Sometimes a passage may have an intermediate conclusion which is just one of the steps in the reasoning towards the main conclusion. Be careful to check this. If the sentence you have underlined gives reason to believe some other statement in the passage, then it will not be the **main** conclusion. Do not worry about whether the reasons are true. Just ask yourself "If these reasons were true, would they give me good reason to accept the sentence I have underlined?"

What does this argument seem to be trying to get us to accept? It seems to be trying to persuade us that vegetarian food can be healthier than a traditional diet, so we should underline the first sentence. Then we need to see whether the rest of the passage gives us reason to believe this. Two reasons are given:-

1. Vegetarians are less likely to suffer from heart disease and obesity than meat eaters.
2. A vegetarian diet can contain sufficient protein.

We may not know whether these reasons are true, but if they were true, they would indicate that vegetarian food is healthier in one respect than a traditional diet which includes meat, and that a vegetarian diet does not necessarily have the disadvantage to health (providing insufficient protein) which we may have thought. So it seems clear that the first sentence of the passage is being offered as a conclusion.

A is the statement which best expresses this conclusion.

B is not the main conclusion, but it is one of the reasons for the main conclusion - labelled above as reason (2).

C is not the main conclusion, because it is not even stated in the passage. It is taken for granted that a traditional diet provides **enough** protein, but even this is not explicitly stated.

D is not the main conclusion, because it is not stated in the passage. No attempt is made to define a balanced diet. The passage simply makes a comparison between a traditional diet and a vegetarian diet.

E is not the main conclusion, but it is close in meaning to one of the reasons for the main conclusion - labelled above as reason (1).

Example 2: Drawing a Conclusion

Private airline companies say that they are now determined to operate a transport system that is as safe as it can be, while still remaining viable. But a private sector business can only be viable if it makes money for its owners. If for all flights and at all airports there were thorough foolproof screening for firearms and for explosives planted by terrorists, then the system would be safer; but really effective screening would preclude all possibility of profit.

Which one of the following conclusions is best supported by the passage above?

A   A private airline which is not profitable will be safer than one that is.

B   To stay in business, a private airline company has to sacrifice some safety.

C   Private airlines, in the past, were not sufficiently concerned with safety.

D   Even if airlines could afford the cost, effective screening against terrorist attacks would be impossible.

E   Those who run private airline companies are more interested in profit than in the safety of their passengers.

When you are asked which conclusion follows, you need to consider each of the statements **A** to **E**, and to think about whether the information in the passage gives you good reasons to accept the statement.

The answer to this question is **B**, because the passage makes it clear that if private airlines used screening procedures which guaranteed complete safety from terrorism, they would not make a profit and that if they did not make a profit, they would not remain viable. It follows that if they are to remain in business, they must sacrifice some safety.

A does not follow from the passage, because **A** is making a general claim about the link between profitability and safety. Some airlines may be unprofitable because they are inefficient, rather than because they are spending a great amount on safety measures.

C does not follow from the passage, because the passage does not discuss the way in which private airlines have worked in the past.

D does not follow from the passage, because the passage says that effective screening would mean that no profits were made. This suggests that effective screening would be possible, but costly, rather than that it would be impossible.

E does not follow from the passage, because it is consistent with the passage that those who run private airline companies are interested first and foremost in passenger safety. The passage simply suggests that they would not be able to run a service at all if, despite their concern for safety, they did not aim for profit at the expense of some safety.

Example 3: Identifying an Assumption

People who write books revealing the inner workings of the secret service have usually been dismissed from the service or have retired with a sense of grievance against it. The result is that only the seedy side of the secret service is exposed. This is partly because those who would paint a more favourable picture are unwilling to flout the legal restrictions placed on all who have been employed in the secret service, and partly because the records of the organisations are not available to outsiders.

Which of the following is an underlying assumption of the argument above?

A The records of the secret service are readily available to its former employees.

B The work of the secret service is undervalued as a result of publication of distorted accounts of its working.

C The seedy side of the secret service is of minor significance compared with the important work it carries out.

D Legal restrictions against revealing the inner workings of the secret service do not apply to those who have been dismissed.

E Those who have a grievance against the secret service are either unable or unwilling to give a balanced account of its workings.

An assumption is something which is not stated in the argument, but which is taken for granted in order to draw the conclusion. So you need first to sort out what is the conclusion of the argument. Ask yourself what is the main point which the argument tries to get you to accept. Then look for the reasoning it gives to support this conclusion, and think about any important point which is not actually stated in the reasoning.

The answer to this question is **E**. The conclusion is that only the seedy side of the secret service is exposed. The reasons given for this are that:

(i)   the records of the secret service are not generally available;
(ii)   there are legal restrictions on employees of the secret service which forbid them from writing about it;
(iii)   the only employees or ex-employees who would ignore this restriction are those with a sense of grievance against the secret service.

From these reasons, it would not follow that only the seedy side of the secret service was exposed if those with a grievance were able and willing to give a balanced account. So it must be assumed that either they are not able or they are not willing to do so.

A is not assumed. The passage says that the records are not available to outsiders. But ex-employees may or may not have access to records. We do not need to assume that they do have access in order to conclude that when they write about the secret service, they reveal only its seedy side.

B is not assumed, because it goes further than the passage. It considers the **effects** of publications about the secret service. But what we are looking for as an assumption is something which helps to support the conclusion of the passage.

C is not assumed, because the passage says nothing about the importance of the work carried out by the secret service. It does suggest that there *is* another side to the secret service, besides the "seedy side", but no assumptions can be made about which is more important.

D is not assumed, because the passage says that the legal restrictions apply to "all who have been employed", and this must include those who have been dismissed.

Example 4: Assessing the Impact of Additional Evidence

Polar bears in captivity frequently engage in obsessive patterns of behaviour, pacing back and forth on the same spot, swinging their heads from side to side, and other signs of stress. They do this even when their living areas are quite spacious. What this shows is that conditions of captivity are not a satisfactory substitute for the natural environment of the polar bear species.

Which of the following, if true, would most weaken the above argument?

A   Polar bears are especially ill-suited to a life in captivity.

B   Many polar bears in the wild engage in obsessive patterns of behaviour.

C   Polar bears in captivity are much better fed than those living in the wild.

D   Polar bears in the wild cover many miles a day when they are hunting for food.

E   Polar bears which have been reared in captivity are incapable of surviving in the wild.

Here you are asked to consider what would weaken the argument, so you need first to be clear about what the argument is trying to establish. Work out what the conclusion is, then consider what effect each of the possible answers would have on the conclusion.

The answer is **B**. The conclusion of the argument is that the obsessive behaviour of polar bears in zoos shows that conditions of captivity are not a satisfactory substitute for the polar bear's natural environment. But if **B** is true, that is, if polar bears in the wild behave in the same way as those in captivity, then the behaviour of those in captivity cannot be taken as good evidence that the conditions of captivity are unsatisfactory.

A does not weaken the argument. If polar bears are ill-suited to a life in captivity, it follows that captivity is not a satisfactory substitute for their natural environment. So **A** strengthens the argument.

C does not weaken the argument, even though it suggests that polar bears might be better off in one respect in captivity (i.e., better fed). Captivity might nevertheless lead to stress which is not suffered by polar bears in the wild.

D does not weaken the argument, because even if polar bears cover many miles per days in the wild, pacing around in captivity may not be a satisfactory substitute for this freedom to roam.

E does not weaken the argument, because the conclusion is about the best environment for the polar bear species. Information about the best environment for those polar bears which have been reared in captivity cannot weaken this general conclusion about the species as a whole.

Example 5: Detecting Reasoning Errors

Some people attempt to smuggle a pet into Britain because of the quarantine regulations which are aimed at preventing rabies from entering the country. If there were no such regulations, there would be no reason to smuggle pets. Since the most likely source of a rabies outbreak in Britain is a smuggled pet, if the quarantine regulations were abolished, the danger of a rabies outbreak would be reduced.

Which of the following is the best statement of the flaw in the argument above?

A   Rabies is not likely to enter Britain in a wild animal.

B   The quarantine regulations cannot prevent owners from smuggling their pets.

C   If there were no quarantine regulations, pets with rabies could enter Britain easily.

D   If people did not want to travel with their pets, there would be no need for quarantine regulations.

E   If pets were inoculated against rabies, there would be no need for quarantine regulations.

You are asked to identify the flaw in the argument, which means that you must explain why the conclusion does not follow from the reasons which are given. So you need to be clear about what the conclusion is, and what reasons are meant to support it. Ask yourself what is the main point which the argument is trying to establish, and how it tries to establish it.

The answer is **C**. The argument draws the conclusion that if quarantine regulations were abolished, there would be less likelihood of an outbreak of rabies. The reasoning offered in support of this is that:

(i) smuggled pets are the most likely source of an outbreak of rabies; and
(ii) if there were no quarantine regulations, no-one would be tempted to smuggle pets into Britain.

But the conclusion does not follow, because if there were no quarantine regulations, smuggled pets would no longer be the most likely cause of a rabies outbreak. Instead, the most likely cause would be pets which could be brought in without breaking any law. **C** is the statement which best explains this.

A does not describe the flaw, because it simply states something with which the argument would agree.

B does not describe the flaw, because it states something which the argument depends on - the idea that quarantine regulations cannot prevent outbreaks of rabies.

D does not describe the flaw, because it concerns the reason why quarantine regulations are thought to be necessary, rather than the consequences of getting rid of these regulations.

E does not describe the flaw, because it does not mention what would happen if quarantine regulations were abolished. Instead, it suggests a way to make them unnecessary, whilst still being able to prevent an outbreak of rabies.

Example 6: Matching Arguments

> I cannot get any answer when I dial my mother's number.   Either she is not answering her phone or she has decided to stay away on holiday for an extra week. She must still be away. She would never let the phone ring without answering it.
>
> Which of the following most closely parallels the reasoning used in the above argument?
>
> **A**   If I want to remain fit and healthy I have to watch my diet and take exercise. I want to stay fit so I eat carefully and go running regularly.
>
> **B**   If Denise had carried on going to the gym and eating sensibly, she would never have got so run down. She did get run down, so she must either have given up her diet or stopped going to the gym.
>
> **C**   Joe is looking a lot fitter. Either he has cut down on his eating or he has been out running every day. I know for a fact that Joe couldn't keep to a diet, so it must be exercise that's done it.
>
> **D**   Anyone who swims over twenty lengths a day has to be pretty fit. Sheena swims thirty lengths a day. Therefore Sheena must be quite fit.
>
> **E**   Sticking to a diet is hard at first but after about two weeks most people get used to it. I have been dieting for nearly two weeks so I should be getting used to it soon.

This type of question asks you about similarity between arguments, but not the sort of similarity where two arguments are about the same topic. The similarity you are looking for is in the **structure** or the **pattern** of the argument. As a first step to finding the structure, look at the passage to see if there are repeated statements which you could represent with a letter (e.g. X or Y). It is slightly difficult to do that in this argument, because the repeated statements are worded in a slightly different form each time. But we can see that there are two important ideas which are mentioned twice:-

  My mother is (must be) away

  My mother is not answering the phone (is letting the phone ring without answering it)

If we replace these statements with X and Y, we can see the following structure.

  Either X is true or Y is true

  Y cannot be true

  So X must be true

  X = my mother is away

  Y = my mother is letting the phone ring without answering it

We now have to look for the argument which has this same structure.

C is the answer. In this case X = Joe is exercising, Y = Joe is dieting

and the structure is the same:

  Either X (Joe is exercising) or Y (Joe is dieting)

  Y (Joe is dieting) cannot be true

  So X (Joe is exercising) must be true

A has a different structure:

  If I want X, I have to do Y.

  I want X.

  So I do Y.

  X = remain fit (and healthy)

  Y = watch my diet and take exercise

B has a different structure:

 If X and Y had happened, Z would not have happened. Z
 did happen.
 So either X didn't happen or Y didn't happen
 X = Denise going to gym
 Y = Denise eating sensibly
 Z = Denise getting run down.

D has a different structure:

 All people who do X are Y
 Sheena does X
 Therefore Sheena is Y
 X = swim over 20 lengths a day
 Y = fit

E has a different structure:

 Most people who do X, succeed in Y I
 have done X
 So I should succeed in Y
 X = stick to a diet for 2 weeks
 Y = getting used to the diet

  Standard ATS sample material

Example 7: Applying Principles

Smokers who suffer from heart disease which is caused by their smoking should not be allowed to get free health treatment. That is because this is an example of self-inflicted illness. Those whose actions have caused illness or injury to themselves should make a financial contribution to their treatment.

Which one of the following best illustrates the principle underlying the argument above?

A	Children should get free dental treatment, even if they eat sweets which cause dental decay.
B	Heart disease sufferers who can afford to pay for health treatment should not receive free treatment.
C	Smokers who cannot afford to pay for health care should be allowed free treatment when they are ill.
D	People who are injured in car accidents should receive free treatment regardless of whether they were wearing a seat belt.
E	Motor cyclists whose head injuries are caused by not wearing a crash helmet should make a financial contribution to their treatment.

When you are asked which statement illustrates the principle underlying the passage, you must first identify this principle. A principle is a general recommendation, which, in the passage, will be applied to just one particular case, but which could also be applied to other cases. For example, someone might use the principle "Killing is wrong" in order to argue for pacifism, i.e. for refusing to go to war. If we are to accept the principle that killing is wrong, then it also follows that capital punishment is wrong, and even that killing in self-defence is wrong. In order to answer this type of question, you first need to understand the argument, so look for the conclusion, and for the reasons, in the usual way. This should enable you to see what principle the argument relies on in order to draw its conclusion. You then need to consider each possible answer to see which one follows from the principle.

The conclusion of this argument is that smokers who get heart disease as a result of smoking should not get free health treatment. The reason given for this is that their illness is self-inflicted. This reasoning relies on the general principle that **if your actions have caused your illness or injury, you should make a financial contribution to your treatment.**

The correct answer is **E**, which applies the principle to motor cyclists whose failure to wear a crash helmet has caused their head injuries.

A is not an application of the principle, because it suggests that even if a child's actions (eating sweets) have caused a health problem (dental decay), the child should nevertheless have free treatment.

B is not an application of the principle, because it makes a recommendation based on people's ability to pay for treatment, rather than on whether their actions have caused their illness.

C is not an application of the principle, because, like **B**, it makes its recommendation solely on the ability to pay.

D is not an application of the principle because it recommends free treatment regardless of whether people's actions have contributed to their injuries.

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