

BASIC PSYCHOLOGY

Only study guide for

PYC1501

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UNIVERSITY OF SOUTH AFRICA
PRETORIA

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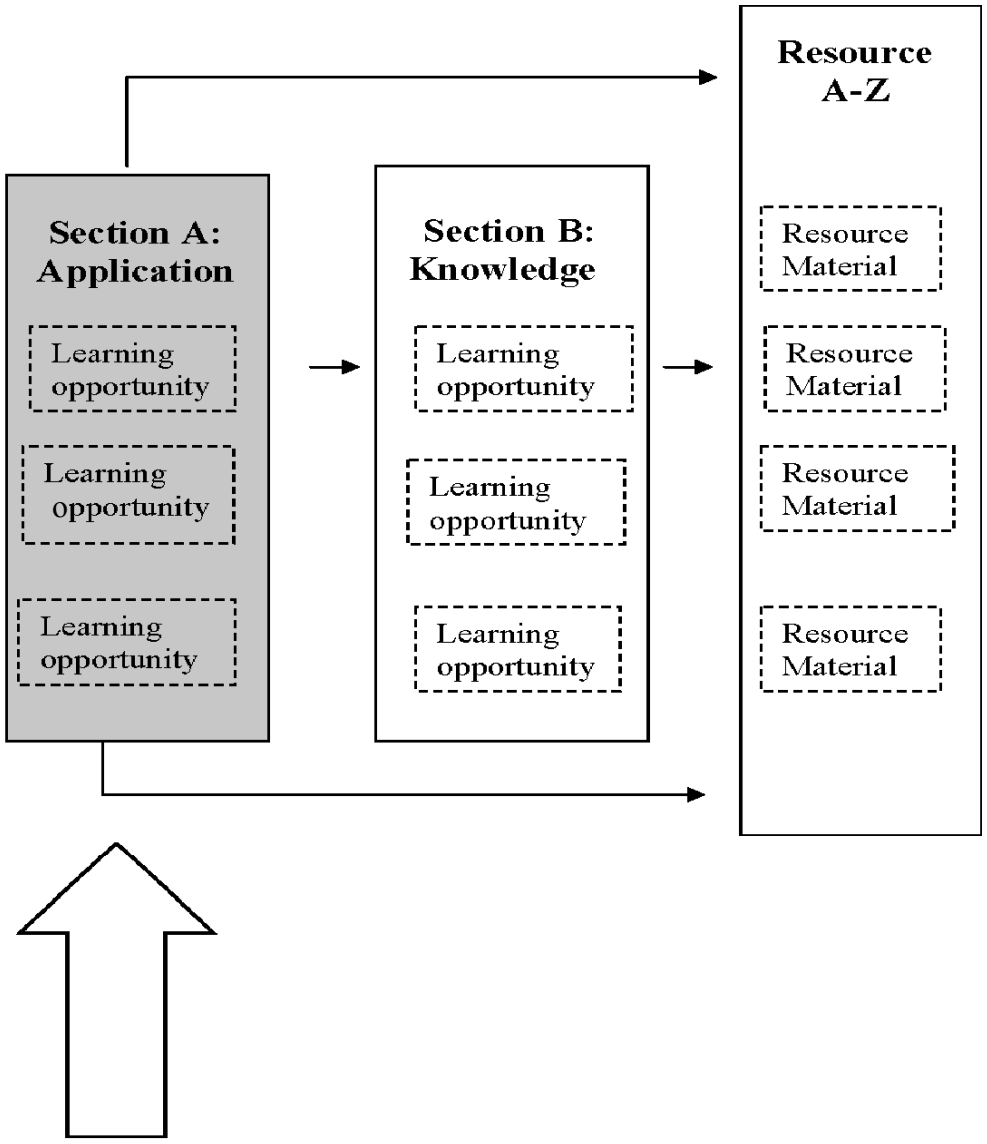
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Section A: Application
Learning opportunity
Learning opportunity
Learning opportunity
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Learning opportunity
Learning opportunity
Learning opportunity
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Resource Material
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Resource Material
You are here

Study Programme

The study programme for this module appears in the table below. The table lists the learning opportunities you have to execute, and also indicates the sequence in which you have to complete these learning opportunities. In addition, the table indicates how much time is required to complete a particular learning opportunity.

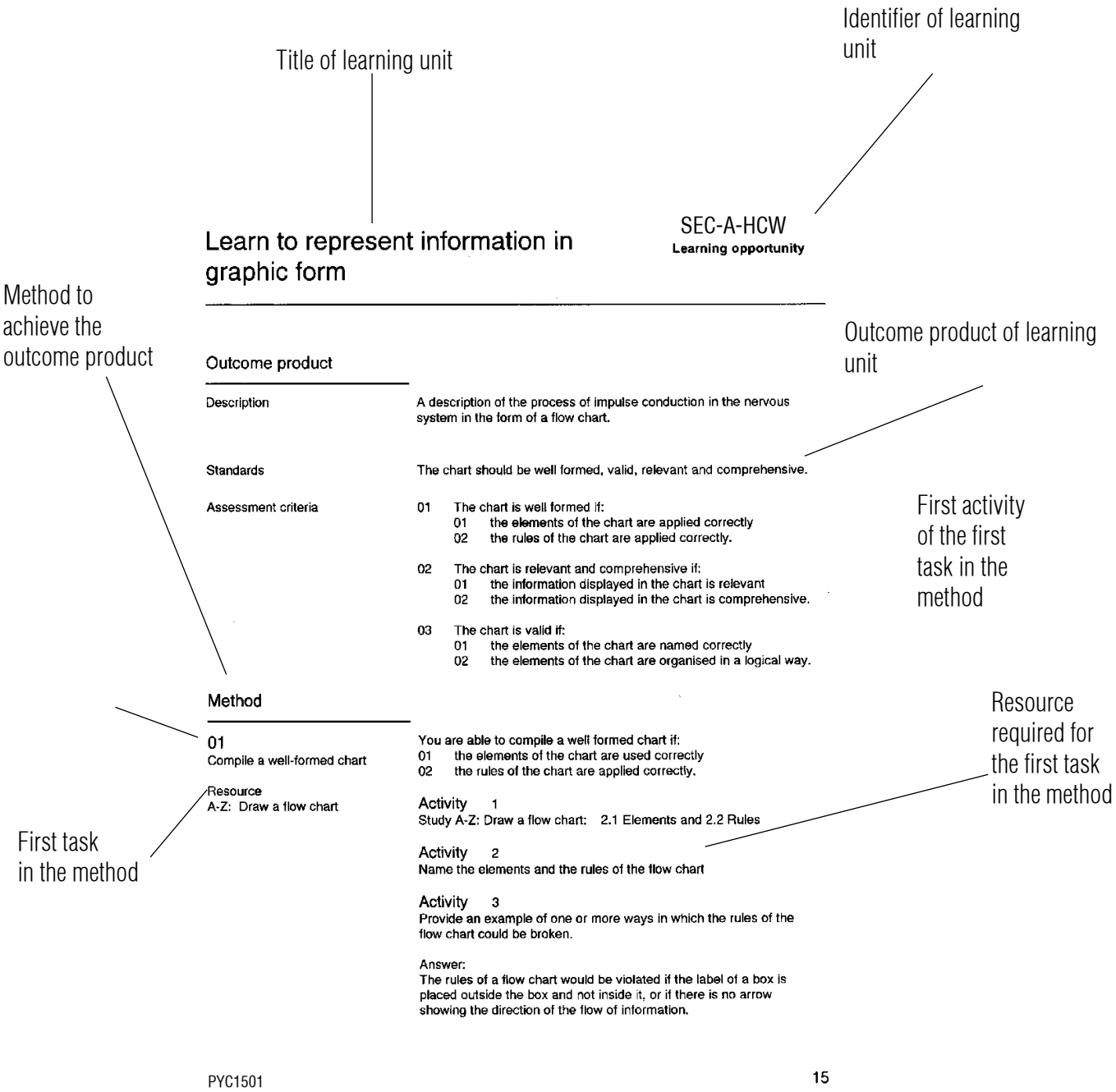
	Learning Opportunity	Task	Time (hours)
1	SEC.A-HCW	Learn how this course works	5
2	SEC.A-RIG	Learn to represent information in graphic form	12
3	SEC.A-CFS	Learn to chart a field of study	12
4	SEC.A-PPR	Learn to prepare a presentation	12
5	SEC.A-DPP	Learn to develop a psychological programme	24
6	SEC.A-POP	Learn to provide an expert opinion	55

Please note:

Do the learning opportunities in the indicated sequence, that is from 1 to 6.

- These learning opportunities are the main tasks you have to complete for this module. They are self-study units designed to help you develop basic skills and apply your knowledge of psychology. They are comprehensive and require a substantial amount of time to complete. The study schedule provided here serves merely as a guideline, because each student works differently, according to his or her individual situation.
- These learning opportunities refer to other learning opportunities (in Study Guide) and to relevant resource material (in the resource text A–Z)). The other learning opportunities are designed to help you explore relevant fields of information to increase your knowledge of psychology.
- Please do not submit these learning opportunities as assignments for evaluation. Assignments and a trial examination paper (self-test) are provided separately. The assignments can be submitted for evaluation. The trial examination paper is for self-evaluation purposes and provides an indication of the kind of questions you can expect in the examination.
- You have to start with Learning Opportunity SEC.A-HCW in this study guide.

The layout of a learning opportunity



SECTION A

SEC.A-HCW

Learning opportunity

Learn how this course works

OUTCOME PRODUCT

Description

Each learning opportunity has one or more outcomes. The reason for studying this learning opportunity is to learn how this course works. In other words, through completing this learning opportunity you should gain knowledge of the design of this module as well as the instructional approach used in this module to teach psychology.

Standards

The outcome of a learning opportunity should adhere to particular standards. The outcome of this learning opportunity is your knowledge about the module's design and instructional approach. Your knowledge about the module's design and instructional approach conforms to the required standards if your knowledge is relevant and sufficient.

Assessment criteria

You have to use assessment criteria to determine whether you have achieved the required outcomes and whether your outcomes conform to the required standards. Your knowledge of the module's design and instructional approach conforms to the required standards if you know enough (that is, if you have sufficient knowledge) about the module's design and instructional approach (that is, if your knowledge is relevant to the topic in question). Your knowledge is relevant and sufficient if:

01 the nature of the components of the module is indicated
02 the nature of learning opportunities is indicated
03 the nature of the learning process that is required in this module is indicated.

METHOD

Tasks

You have to use a method to produce the outcomes required by the learning opportunity. The method consists of one or more tasks. This learning opportunity has three tasks, namely to:

– indicate the nature of the module components
– indicate the nature of a learning opportunity
– indicate the nature of the module learning process.

Task outcomes

The outcomes of the learning opportunity are broken down into more specific task outcomes. The task outcomes are achieved by carrying out appropriate activities.

Task resources

Each task lists the resources required for the task's activities.

01

Indicate the nature of the module components

You are able to indicate the components of the module if you:

01 recognise the various module components
02 recognise the nature of each component
03 recognise the links between components.

Resource

Tutorial Letter 101: Module components

Activity 1

Note the following abbreviations:

SG for study guide
LO for learning opportunity
A–Z for the prescribed resource text

Read Tutorial Letter 101: Module components

Activity 2

Make a list of the various module components.

Write down your own answer before you look at the answer given below.

Answer

1. Administrative component, consisting of:
   TL 101

2. Assessment component, consisting of:
   TL 101, TL 201 and TL 202
3. Instructional component, consisting of:
   Section A of the study guide
   Section B of the study guide
   A–Z (resource text)

Activity 3

Match the tutorial letter number with the proper description. Here are the descriptions:

(a) This tutorial letter informs learners about administrative processes and procedures regarding their studies
(b) This tutorial letter contains learning opportunities
(c) This tutorial letter contains examples of examination questions
(d) This tutorial letter helps learners to develop skills in applying psychological knowledge
(e) This tutorial letter tells learners how to contact the university
(f) This tutorial letter provides feedback on assignment questions
(g) This tutorial letter contains methods for exploring topics in psychology

Here are the tutorial letter numbers:

1. TL 101
2. TL 201
3. Study Guide – Section A
4. Study Guide – Section B

Answer

1.	TL 101:	a, c, e
2.	TL 201 and TL 202	f
3.	SG: Section A;	b, d
4.	SG: Section B;	b, g

Activity 4

In A–Z, how can you find the resource with the title 'Information modelling: expandable tree structures?

Answer

The different sections in A–Z are identified by their unique titles. Locating the resource is not difficult because the titles are arranged in alphabetical order according to the first word in the title. The resource with the title of 'Information modelling: expandable tree structure' can therefore be found by looking for titles beginning with I.

02

Indicate the nature of learning opportunities

You are able to indicate the nature of learning opportunities if you:

01 recognise the various components of a learning opportunity
02 recognise the nature of the components of a learning opportunity.

Resource

Tutorial Letter 101: Module learning opportunity

Activity 1

Read TL101: Module learning opportunity.

Activity 2

List the various components of a learning opportunity.

Activity 3

What is the unique identifier of the learning opportunity that you are currently using? How would you refer to this learning opportunity?

Answer

Unique identifier is: SEC.A-HCW
Full reference is: LO SEC.A-HCW

Activity 4

What is the outcome product of the learning opportunity that you are currently executing?

Answer

Relevant and comprehensive knowledge of the design and instructional approach of the module.

Activity 5

How would you know that your knowledge of the design and instructional approach of the module is comprehensive and relevant?

Answer

1. the nature of the module components is indicated
2. the nature of learning opportunities is indicated
3. the nature of the learning process in the module is indicated.

Activity 6

Describe the method for producing the outcome product of this module.

Answer

The method consists of three tasks, namely

Task 1: Indicate the nature of the module components
Task 2: Indicate the nature of learning opportunities
Task 3: Indicate the nature of the module learning process.

Each task has particular task outcomes, namely the ability to:

Task 1:

1. recognise the various module components
2. recognise the nature of each component
3. recognise the links between components

Task 2:

1. recognise the various components of a learning opportunity
2. recognise the nature of the components of a learning opportunity

Task 3:

1. recognise the basic assumption about learning that the module is based on
2. recognise how the basic assumption about learning is implemented in the module.

Activity 7

What activities are required to complete Task 1?

Answer

Activity 1: Read the required resource about the nature of the module
Activity 2: Provide a list of the module components
Activity 3: Answer a question about the nature of the module components
Activity 4: Answer a question about the links between different module components

03

Indicate the nature of the learning process for the module

You are able to indicate the nature of the learning process for the module if you can:

01 recognise the basic assumption about learning that the module is based on
02 recognise how the basic assumption about learning is implemented in the module

Resource

Tutorial Letter 101:
Module learning method

Activity 1

Read TL 101: Module learning method.

Activity 2

Describe the basic assumption about learning that the module is based on.

Answer

The module is based on the assumption that learning happens in a more efficient and effective way if information is studied for the purpose of practical application.

Activity 3

Explain how the basic assumption about learning is implemented in the module.

Answer

The module introduces the learner to psychology through a series of learning opportunities for applying knowledge and techniques. Learners are required to study resource material that is relevant to the way they are applying the knowledge. Additional learning opportunities are provided to help learners study the required resource material.

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.A-RIG
Learning opportunity

Learn to represent information in graphic form

OUTCOME PRODUCT

Description

A description of the process of impulse conduction in the human nervous system in the form of a flow chart.

Standards

The chart should be well-formed, valid, relevant and comprehensive.

Assessment criteria

01 The chart is well-formed if:
- 01 the elements of the chart are applied correctly
- 02 the rules of the chart are applied correctly.

02 The chart is valid if:
- 01 the elements of the chart are named correctly
- 02 the elements of the chart are organised in a logical way.

03 The chart is relevant and comprehensive if:
- 01 the information displayed in the chart is relevant
- 02 the information displayed in the chart is comprehensive.

METHOD

01

Compile a well-formed chart

You are able to compile a well-formed chart if:

01 the elements of the chart are used correctly
02 the rules of the chart are applied correctly.

Resource

A–Z: Information modelling: Flow charts

Activity 1

Study: Information modelling: Flow charts

Activity 2

Name the elements and the rules of the flow chart

Activity 3

Provide an example of one or more ways in which the rules of the flow chart could be violated.

Answer

The rules of a flow chart would be violated if the label of a box is placed outside the box and not inside it, or if there is no arrow showing the direction of the flow of information.

02

Compile a relevant and comprehensive chart

You are able to compile a relevant and comprehensive chart if:

01 the information included in the chart is relevant
02 the information included in the chart is comprehensive.

Resource

SG SEC.B–01

A–Z: Information modelling: Flow charts

Activity 1

Work through section B–01 of the study guide and when you have completed this learning opportunity continue with activity 2 below.

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 2

Identify the appropriate starting point for the flow chart. Which of the following would be the best starting point?

soma
dendrites
axon terminal

Answer

The best starting point would be the most logical one. Maybe you thought we should start with dendrites, because they receive information signals. However, there are certain events that must occur before the dendrites send on the signals to the cell body. If you think about the process of impulse conduction, the cell body is really the logical starting point because this is where the energy for impulse conduction originates. The axon terminal plays a role later in the process, when the impulse reaches the end of the axon.

Activity 3

What is the next step in the process? Arrange the following components or events in the process of impulse conduction in a logical sequence.

synapse
action potential
axon
neurotransmitter
saltatory conduction
resting membrane potential
postsynaptic potential
presynaptic membrane
stimulus
axon terminals
threshold
postsynaptic membrane

Answer

The correct sequence is: resting membrane potential, stimulus, threshold, action potential, axon, saltatory conduction, axon terminals, presynaptic membrane, synapse, neurotransmitter, post-synaptic membrane, and postsynaptic potential. We have already indicated that the cell body or soma is the starting point. The next point is the resting membrane potential, which indicates that the neuron is in a state of readiness. If the stimulus is strong enough, it exceeds the threshold and changes the resting membrane potential into an action potential. Electrically charged ions move across the axon membrane as the impulse is conducted along the axon, leaping from node to node (saltatory conduction) until it reaches the presynaptic membrane at the axon terminals. In the synapse, neurotransmitters are released and attach to the postsynaptic membrane (the next neuron) where a postsynaptic potential may arise.

Activity 4

The topic that you have to chart is the process of impulse conduction. Taking the sequence you have already described, use a flow chart to make a visual representation of this process, indicating the various component structures and events that make up the process of impulse conduction.

Answer

Each point should be placed in its own box, with lines connecting the boxes and showing arrows where necessary to indicate the direction of the flow of information. For example, you know that an impulse can flow only one way down an axon therefore you will not put an arrow from presynaptic membrane to axon to stimulus, because you know it works the other way round.

Note that despite this apparent logical sequence, things are not as clear cut as one may think. There are still some important aspects of impulse conduction that have not been included in the boxes. What about the refractory period? You may need to draw another line from 'axon terminal' back to 'resting potential', with the words 'refractory period' next to the line, to indicate that there is a refractory period during which the resting potential is re-established and before the neuron can fire again. You also need to indicate that neurotransmitters can inhibit or excite the postsynaptic potential, so your flow chart should make allowance for this. You might also want to put the term 'all-or-nothing' next to the line between 'threshold' and 'action potential'. Fill in all the important aspects so that your flow chart provides an overview of the process of impulse conduction. There is no single standard answer as to what the actual flow chart should look like – no answer can be absolutely wrong or absolutely correct. Different individuals have different views of the situation, and therefore present different pictures.

Activity 5

Consider your flow chart of the process of impulse conduction in terms of the relevance and comprehensiveness of the information that it contains.

Answer

1. Relevance has to do with the nature of the content presented in the chart. If your flow chart does not represent a process that looks like impulse conduction, it is not relevant. If it maps the field of neuroanatomy, for example, it is not relevant for the present purpose.
2. Comprehensiveness has to do with the range of the content presented in the chart. A chart can contain too little or too much information. One has to consider the needs of the user of the chart when one decides on the range of information to be included in the chart. The user requires a certain range of information from the chart. The range of information required by the user determines the standard for determining comprehensiveness. For example, in this case your flow chart would not contain the required range of information if one of the core concepts (such as resting potential) was left out. However, your chart could also be overly comprehensive, if it contains too much detail. For example, if it includes a great deal of detail on the chemical changes that take place during impulse conduction, it does not serve the purpose of getting an overview of the process of impulse conduction, well because it clutters one's understanding with too much information.

03

Compile a valid flow chart

You are able to compile a valid flow chart if:

01 the objects of the chart have been named properly
02 the objects of the chart have been arranged logically.

Resource

SG SEC.B–01

A–Z: Information modelling: Flow charts

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 1

Wait a week after drawing up the flow chart to represent the process of impulse conduction in the nervous system. Consider the validity of your flow chart in terms of the appropriateness of the object labels used in the flow chart and in terms of the logical structure of the chart.

Answer

It is good to wait a week because time gives distance from the immediate involvement with the material, and allows one to be more objective. The question of the validity of the chart should be seen in terms of how well the chart is structured. A chart is well-structured if the elements of the chart and the rules for combining these elements have been used correctly. It does not involve the content of the chart. It deals with the elements and the rules of the chart itself. One can consider ordinary language as an example. We can view words as the elements of language, and grammar as the rules of language. A sentence is well-structured if words are combined in a grammatically correct manner. However, this does not mean that the sentence is valid in the sense that it makes a sensible, logical or true statement. In other words, a sentence can be well-structured but not valid. For example, the sentence 'the sky is green' is properly structured but is not valid. In the same way a chart can be well-structured (the elements combined according to the rules of the chart) but not valid. One has to know about the process of impulse conduction to be able to judge the validity of a chart that aims to represent the process of impulse conduction. For example, if one knows about impulse conduction, it is easy to see that an impulse cannot be conducted along an axon during a refractory period, or that neurotransmitters are released in the synapse and not in the axon.

Check your flow chart for illogical representations, and make sure that the labels are correct (that is, that the correct terminology is used).

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.A-CFS
Learning opportunity

Learn to chart a field of study

OUTCOME PRODUCT

Description

A chart of the field of study in the form of an expandable tree structure.

Standards

The chart should be well-formed, valid, relevant and comprehensive.

Assessment criteria

01 The chart is well-formed if:
- 01 the elements of the chart are applied correctly
- 02 the rules of the chart are applied correctly.

02 The chart is valid if:
- 01 the elements of the chart are named correctly
- 02 the elements of the chart are organised in a logical way.

03 The chart is relevant and comprehensive if:
- 01 the information displayed in the chart is relevant
- 02 the information displayed in the chart is comprehensive.

METHOD

01

Compile a well-formed chart

You are able to compile a well-formed chart if:

01 the elements of the chart are used correctly
02 the rules of the chart are applied correctly.

Resource

A–Z: Information modelling: Expandable tree structures

Activity 1

Study the resource material.

Activity 2

Name the elements and the rules of the expandable tree structure.

Activity 3

Provide an example in which one or more of the rules of the expandable tree structure is/are violated.

Answer

A rule is violated, for example, if you use the node name more than once on the same extension line because this causes confusion.

02

Compile a relevant and comprehensive chart

You are able to compile a relevant and comprehensive chart if:

01 the information included in the chart is relevant
02 the information included in the chart is comprehensive.

Resource

Section B of the study guide LO SEC.B-02

Activity 1

Work through Section B of the study guide LO SEC.B-02 and the resource A–Z.

A–Z: Information modelling: Expandable tree structures

Activity 2

Arrange the following parts of the human nervous system in an inclusive hierarchical order from most inclusive to least inclusive.

- peripheral nervous system
- human nervous system
- autonomic nervous system
- sympathetic nervous system

Answer

An inclusive hierarchical order means that the parts are arranged in such a manner that the first part includes the second part, the second part includes the third part and so on. Your answer should indicate the following inclusive hierarchical order:

1. Human nervous system

2. Peripheral nervous system
3. Autonomic nervous system
4. Sympathetic nervous system.

Activity 3

Describe an inclusive hierarchical order showing where the brain fits into the human nervous system.

Answer

1. Human nervous system
2. Central nervous system
3. Brain

Parts of the brain would be sub-parts or sub-sections of the part called the brain, and so on.

Activity 4

List the main divisions of the human nervous system.

Answer

The main divisions are:

Central nervous system – brain and spinal cord.

Peripheral nervous system – somatic nervous system and autonomic nervous system (sympathetic and parasympathetic divisions).

Although we can arrange the parts of the human nervous system in terms of groups of parts that belong together, it does not necessarily make an inclusive hierarchy. For example, the central and peripheral nervous systems are both part of the human nervous system but the central nervous system does not include the peripheral nervous system as such. This is why we need an expandable tree structure, so that we can represent parallel branches of the tree.

Note that despite this logical structure, things are not as clear cut as they may seem. For example, the autonomic nervous system is not, strictly speaking, part of the central nervous system but it is still controlled by structures in the brain. The point is that all these concepts and processes are not always as clearly defined and separate as one would like to think.

Activity 5

List the main parts of the brain, in terms of its three divisions.

Answer

hindbrain
midbrain
forebrain

Each one of these divisions embraces important structures (sub-parts). The hindbrain includes the cerebellum, medulla and pons; the midbrain includes the tectum (with its superior and inferior colliculi) and the tegmentum; and the forebrain includes the hypothalamus, thalamus, limbic system, basal ganglia and the four lobes of the cortex. Remember that the reticular formation should also be included, indicating that it extends over different divisions of the brain.

Activity 6

The field of study you have to chart is the human nervous system, in terms of its main structures and their functions. Use an expandable tree structure to chart this field in terms of the various divisions of the human nervous system and their main parts.

Answer

There is no single standard answer in this case. Different individuals have different views of the situation and therefore present different pictures. However, there is certain content that you need to include.

(If you are not sure whether you have grouped your information correctly, check the diagram in A–Z: Human nervous system: structure and function).

Activity 7

Consider your chart of the human nervous system in terms of the relevance and comprehensiveness of the information presented in your expandable tree.

Answer

1. Relevance has to do with the nature of the content presented in the chart. If your chart does not map a field that looks like the human nervous system, it is not relevant. If it maps the field of medicine or social psychology, it is not relevant for the present purpose. The present purpose is to chart the field of the human nervous system.
2. Comprehensiveness has to do with the range of the content presented in the chart. A chart can contain too little or too much information. One has to consider the needs of the user of the chart when one decides on the range of information to be included in the chart. The user requires a certain range of information from the chart. The range of information required by the user determines the standard for determining comprehensiveness. For example, in this case your chart would not contain the required range of information if one of the core concepts (e.g. the somatic nervous system) was left out. However, your chart could also be overly comprehensive. If it contains too much detail (for example, if it includes all the nuclei of the thalamus) it does not serve the purpose of getting an overview of the study

field of the human nervous system well because it clutters one's understanding with too much information.

03

Compile a valid chart

You are able to compile a valid chart if:

01 the nodes in the chart have been named properly
02 the nodes in the chart have been arranged logically.

Resource

A–Z: Information modelling: Expandable tree structures
Section B of the study guide LO SEC.B-02

Activity 1

Read Section B of the study guide LO SEC.B-02 and A–Z: Expandable tree structures.

Activity 2

Wait a week after using an expandable tree structure to chart the structure and functions of the human nervous system. Consider the validity of your expandable tree in terms of the appropriateness of the node names used and in terms of the logical structure of these diagrams.

Answer

It is good to wait a week because time gives distance from the immediate involvement with the material, and allows one to be more objective. The question of the validity of the chart should be seen in terms of how well the chart is structured. A chart is well structured if the elements of the chart and the rules for combining these elements have been used correctly. It does not involve the content of the chart. It deals with the elements and the rules of the chart itself. One can consider ordinary language as an example. We can view words as the elements of language, and grammar as the rules of language. A sentence is well structured if words are combined in a grammatically correct manner. However, this does not mean that the sentence is valid in the sense that it makes a sensible, logical or true statement. In other words, a sentence can be well structured but not valid. For example, the sentence 'the sky is green' is properly structured but is not valid. In the same way a chart can be well structured (the elements combined according to the rules of the chart) but not valid. One has to have knowledge of the human nervous system structures and their functions to be able to judge the validity of a chart that aims to give an overview of the human nervous system. For example, if you know about the human nervous system, it is easy to see that the cerebellum is not part of the forebrain.

Check your expandable tree structure for illogical representations, and make sure that the node names are correct (that is, that the correct terminology is used).

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.A-PPR
Learning opportunity

Learn to prepare a presentation

OUTCOME PRODUCT

Description

A prepared presentation.

Standards

The prepared presentation should have an appropriate aim and a proper structure, and should be relevant and comprehensive.

Assessment criteria

Your prepared presentation complies with the set standards if:

01 the aim of the presentation is formulated clearly
02 all the relevant main points are formulated clearly
03 all main points are sufficiently explained in terms of secondary / supporting points
04 the information is prepared for presentation.

METHOD

01

Formulate the aim of the presentation

You are able to formulate the aim of the presentation if you:

01 recognise the nature of the assignment
02 recognise the nature of the target audience.

Resource

A–Z: Presentations

Activity 1

Study: A Presentations.

Activity 2

Suppose you are a psychologist and you are approached by a high school teacher for help. The teacher has a group of Grade 11 learners who are hard at work preparing for their end of year exams. The learners are wondering if there is anything else they can do to help them study more efficiently. They have heard, for example, that hypnosis will help them remember better. The learners want to know more about the effects of sleep, hypnosis and drugs on studying. You have been asked to address the learners on this topic. Formulate an aim for the presentation.

Answer

The presentation aims to provide information about the nature of sleep, hypnosis and drugs and how they affect behaviour (such as studying), to a group of Grade 11 learners.

Comment

The fact that the audience is Grade 11 learners means that the presentation has to be on a level they can understand and identify with. It is important to correct any misperceptions that may arise. There must be no possibility that learners will behave in an irresponsible way based on what they think they understood by your presentation.

02

Formulate the relevant main points

You are able to formulate the relevant main points if you can:

01 delineate the area of interest
02 recognise the main topics in the area of interest.

Resource

LO SEC.B-03

A–Z: Presentations

Activity 1

Explore the study field concerned with the nature of different states of consciousness that includes sleep, hypnosis and drug effects. Learning opportunity SEC.B-03 provides a method for doing this. When you have completed this learning opportunity, continue with activity 2 below.

Activity 2

Delineate the area of interest that you want to cover in the presentation in the light of the aim of the presentation. How important do you think it is to include each of the following topics in the presentation? Rank their importance on a five point scale ranging from:

1. = definitely not important
2. = not important
3. = unsure
4. = important
5. = very important

Here are the topics:

(a) The changing nature of consciousness
(b) The phases of sleep
(c) The functions of sleep
(d) The nature of sleep disorders
(e) The nature of hypnosis
(f) The effects of psychoactive drugs.

Answer

Not everybody will agree on the content of the presentation. If your answer differs from the one provided here it is not necessarily incorrect.

(a) 4
(b) 2
(c) 4
(d) 1
(e) 5
(f) 5

Comment

The ratings above were done from the point of view that the aim of the presentation is to provide information about the nature of sleep, hypnosis and drugs and how they affect studying, to a group of Grade 11 learners. The changing nature of consciousness sounds fairly general but it is important to realise that there is an optimal level of arousal related to effective performance. If the learners want to study effectively, they need to know what that optimal level is. The phases of sleep are not really important here but the functions are – knowing what the functions are will help learners realise why it is important to get plenty of sleep while they are studying and experience some stress. Sleep disorders are not relevant to the presentation but hypnosis and drug effects are very relevant.

Activity 3

Formulate the main points that you wish to include in your presentation.

Answer

You do not have to agree with this answer. If your answer differs from this answer you are not necessarily wrong.

1. The optimal levels of arousal for effective performance
2. The effects of sleep deprivation, hypnosis and certain drugs on cognitive functioning.

03

Explain the main points

You are able to explain the main points if you can:

01 indicate secondary points that describe or support the main points

Resource

LO SEC.B-03

A–Z: Presentations

Activity 1

Read Section B of the study guide LO SEC.B-03 and the A–Z.

Activity 2

Indicate the secondary points that describe or support each of the main points.

Answer

Here are suggested secondary points describing the first main point.

(a) The optimal levels of arousal for effective performance

1. States of consciousness change.
2. Consciousness can be examined in terms of levels of arousal.
3. At very low or very high levels of arousal, performance is poor.
4. Performance is best at moderate levels of arousal.

(b) The effects of sleep deprivation, hypnosis and certain drugs on cognitive functioning

1. Sleep deprivation causes problems with paying attention, concentration, staying alert and doing cognitive tasks.
2. Memory cannot be improved through hypnosis.
3. Many drugs have a negative effect on cognitive performance.

Comment

Some of the points will have to be elaborated on in greater detail, for example the points illustrating main point (b).

04

Prepare the information for presentation

You are able to prepare the information for presentation if you can:

01 prepare slides to support the verbal presentation
02 prepare speaker notes to use with the slides.

Resource

LO SEC.B-03

A–Z: Presentations

Activity 1

Study the resource material.

Activity 2

Prepare the slides to be used to support the verbal presentation.

If you have a computer programme to prepare these slides you can use it. However, if you do not have a computer, simply outline your slides on the sheets of A4 paper.

Answer

Here are examples of the first three slides:

Effects of sleep, hypnosis and drugs on studying

Presentation by:
A.N. Other

OUTLINE OF TALK

a. Varying states of consciousness and arousal
b. The relations between arousal and optimal performance

CHANGING NATURE OF CONSCIOUSNESS

- Consciousness as awareness
- A continuum of arousal
- Examples of low levels of arousal
- Examples of high levels of arousal

Activity 3

Prepare speaker notes to go with the slides.

Answer

Speaker notes are the notes that you may want to use as your presentation text. Not everything you want to say is captured in the text on the slides. The slides list your ideas in an abbreviated form. You will want to talk from the slides but you are obviously going to say more than what is presented in the text on the slides.

End of learning opportunity

NOTE: This is not an assignment and must not be submitted.

SEC.A-DPP
Learning opportunity

Learn to develop a psychological programme

OUTCOME PRODUCT

Description

Knowledge of the development of a psychological programme.

Standards

The knowledge should be relevant and comprehensive.

Assessment criteria

Your knowledge of the development of a psychological programme is relevant and comprehensive if:

01 the nature of a psychological training programme is indicated
02 the nature of the programme target population is indicated
03 the nature of the objectives of a psychological training programme is indicated
04 the relevance and comprehensiveness of the programme content are indicated
05 the relevance and comprehensiveness of the programme resources are indicated
06 the appropriateness of the programme method is indicated
07 the feasibility of the programme implementation plan is indicated.

Note: You do not have to develop or administer an actual program yourself. This learning opportunity provides you with information about the nature of a psychological program (what it looks like and what should be included). For the purposes of your studies for PYC1501, you only have to work through the exercises and apply the relevant content. This is not an assignment and should not be submitted.

METHOD

01

Indicate the nature of a psychological training programme

You are able to indicate the nature of a psychological training programme if you:

01 recognise the nature of programme elements, attributes and attribute values
02 recognise the basic elements of a training programme in a given scenario.

Resource

A–Z:
Psychological programmes

Activity 1

Study the resource material.

Activity 2

Answer the following question:

Which of the following statements is/are true?

1. Training programmes have elements
2. Training programmes have attributes
3. Training programmes have elements and attributes
4. Training programmes have elements, and elements have attributes
5. Training programme attributes have values
6. Training programme element attributes have values.

Answer

All of them are true.

Activity 3

Answer the following question:

A particular training programme costs R 500 000 to develop. Which of the following statements is/are true

1. R 500 000 is a the value of the programme cost attribute
2. R 500 000 is the programme cost attribute
3. Cost is a programme element
4. 1 and 3.

Answer

The correct answer is 1. Cost is not a programme element. It is not a thing contained within the programme. It describes an aspect of the programme, and therefore it is an attribute of the programme. The value of this attribute is the amount of money involved (in this case, R500 000).

Activity 4

Answer the following question.

A course team in the Psychology Department decides to develop a new module in developmental psychology. They send letters to registered psychology students to ask them what they would like to see included in the new module. Which of the following statements is/are true?

1. The registered students acts as participants in the developmental psychology programme
2. The registered students are a resource for the developmental psychology programme
3. The course team determines the needs of the population targeted by the developmental psychology programme
4. The course team implements a new programme in developmental psychology
5. All of the above.

Answer

The best answer is 3. The course team is in the process of developing a new programme in developmental psychology. The programme does not exist as yet. It still has to be designed. The course team cannot implement a programme that does not exist. Sending letters to registered students is a first step in the development of the new programme, namely an attempt to determine the needs of the population that will be targeted by the new programme. The target population for a training programme in developmental psychology is psychology students. The students who receive the letters are potential participants in the future programme. At the moment of receiving the letters they are not yet participants of the developmental psychology programme (the programme does not exist). They are simply acting as a potential target population whose needs need to be assessed so that the new programme can be tailored to meet those needs.

02

Indicate the programme target population in a given scenario

You are able to indicate the nature of the programme target population if you:

01 recognise the programme target population in a given scenario
02 recognise whether the needs of a programme target population are provided in a relevant and comprehensive manner in a given scenario.

Activity 1

Resource

A–Z: Consultation scenario for a study management programme
A–Z: Psychological programmes

Study the resource material.

Note that the psychologist can decide on a number of different ways to intervene psychologically. Psychological interventions are aimed at helping people to improve their psychological well-being. A psychological programme is a well worked out sequence of interventions designed to provide information and advisement to help people change through new insights.

Activity 2

Answer the following question:

Suppose you decide to develop a psychological programme to use as an intervention strategy in the situation sketched in the scenario provided in A-Z: Consultation scenario for study management programme. The target of your programme would be:

1. The university
2. The study package
3. The student, Brian
4. The company where Brian works.

Answer

Option 3 is the best answer. Keep in mind that we are concerned here with a certain kind of intervention, namely a psychological intervention. The company itself would not be targeted by a psychological programme. It could be targeted by a programme for economic or strategic restructuring. Therefore option 4 is not correct. A psychological programme is aimed at people (either individuals or groups) and therefore options 1 and 2 are not correct. The university and the study package may need attention but they are not the recipients of this programme. To qualify as a member of the programme target population one has to be a student who has failed exams.

Activity 3

Consider the scenario provided in A–Z: Consultation scenario for a study management programme. Suppose three psychologists evaluate the situation and state the following about the needs of the target population:

Psychologist A: The student needs to learn to structure his daily activities according to a realistic schedule
Psychologist B: The student needs to learn better study skills
Psychologist C: The student needs psychological information and practical exercises to help him succeed at his studies.

Rank these statements from most correct to least correct.

Answer

The most correct sequence is: C, A, B.

Comment

Statement C is the most correct statement. The student needs psychological information and advice, and practical exercises to rehearse what he has learned in theory. Statement A is correct, but focuses on a particular practical strategy that could help one to study. In other words, Statement A is correct but is not a comprehensive statement of the needs of the target population. Statement C expresses the needs of the target population more comprehensively. Statement B is least correct. It may be so that the student needs to improve his study skills but we do not know if he has a problem in this area. The student need psychological knowledge that will help him succeed with his studies.

03

Indicate the nature of the objectives of a psychological training programme

You are able to indicate the nature of the objectives of a psychological training programme if you:

01 recognise the objectives of a psychological programme
02 recognise whether the objectives of a psychological programme meet the needs of the target population.

Resource

A–Z: Consultation scenario for study management programme
A–Z: Psychological programmes

Activity 1

Study the resource material.

Activity 2

Given the scenario described in the resource material, list the objectives of a psychological programme that could address the needs of the student.

Answer

Your list should contain the following objectives:

1. To increase the student's success with his studies
2. To help the student identify the nature of his problem and take steps to deal with it.

Comment

Note that there are two kinds of objectives. The first kind of objective deals with the introduction of the programme as such. This kind of objective refers to the reason, or reasons, for introducing a psychological programme. The programme realises the first kind of objective by means of the second kind of objective. The second kind of objective concerns the direct outcomes of the programme itself. The first kind of objective is the aim of the programme, and the second kind of objective indicates the smaller outcomes required to achieve the aim.

Activity 3

Consider the scenario described in the resource material . Does the objective of the psychological programme meet the needs of the target population? Justify your answer.

Note:

To answer this question properly one has to answer the following sub-questions, and then combine the answers into a single answer:

1. Who is the target population?
2. What are the needs of the target population?
3. What is the objective of the psychological programme?
4. Does the objective fit the needs?

Answer

The target population of the psychological programme in this case is the student (Brian). The student needs to succeed in his studies. He needs to identify the nature of his problem and work out a way to deal with it. The psychological programme aims to provide psychological information and advisement to help the student develop a problem-solving strategy and deal with the problem through behaviour modification. There seems to be a good fit between the programme objectives and the needs of the target population.

04

Indicate the relevance and comprehensiveness of the programme content

You are able to indicate the relevance and comprehensiveness of the programme content if you:

01 recognise the relevance of programme content in terms of the programme objectives
02 recognise whether the programme content is sufficient to realise the programme objectives.

Resource

A–Z: Psychological programmes
A–Z: Consultation scenario for study management programme
A–Z: Psychological programme for study management
SG: SEC.B-05
SG: SEC.B-07

Activity 1

Study the resource material.

Comment

Now the task becomes more difficult. It becomes clear why one has to be a qualified psychologist to develop a psychological training programme. So far it was not difficult to see that the programme aims to improve the student's success with his studies by providing psychological information and advisement. But the question is: What psychological information should be provided, and how should the information be conveyed so that the individual could benefit from the training? One has to be trained in psychology to understand why individuals act in particular ways. It takes a lot of training in psychology to be able to look beyond behaviour patterns to try to see the psychology that explains the behaviour. One has to understand the psychology behind the behaviour in order to be able to design an intervention strategy that works. Psychological intervention strategies are designed in terms of the psychology behind behaviour, and not in terms of the behaviour itself. A psychological intervention strategy aims to change people at a psychological level. If an individual's psychology changes then his/her behaviour pattern changes.

Activity 2

Compare the information about programme content provided in 'Consultation scenario for study management programme' with the information about programme content provided in 'Psychological Programme for study management'. Which one of these resources indicates a more comprehensive content?

1. 'Consultation scenario for study management programme', because the additional content mentioned in 'Psychological programme for study management' is irrelevant
2. Psychological programme for study management, because 'Consultation scenario for study management programme' fails to cover all the relevant areas

3. Both, because their indications of content are equally comprehensive
4. Neither of these, because it is the relevance of content that counts in the first instance, not its comprehensiveness.

Answer

Alternative answer 2 is correct. But at this stage, option 4 may be the best answer.

Comment

Alternative answer 2 is correct. 'Psychological programme for study management' clearly indicates a more comprehensive content. It includes the content referred to in 'Consultation scenario for study management programme', and has additional information. However, the best answer probably is 4. It is true that we cannot consider the comprehensiveness of content before the relevance of content. Content can only be comprehensive (that is, cover all the necessary material) if the material it covers is relevant. In other words, one has to consider the relevance of the content indicated in these resources. Are all the concepts and ideas indicated in 'Psychological programme for study management' really relevant to the central topic of study management? One would not know unless one is prepared to explore the indicated topics to see how they relate to studying and study management.

Activity 3

Explore the concepts of thinking, reasoning and problem-solving. Section B of the study guide LO SEC.B-05 provides a method for doing this. When you have completed this learning opportunity continue with activity 4 below.

Activity 4

Make a list of the topics related to thinking, reasoning and problem-solving that may be relevant to a problem solving and behaviour modification programme.

Behaviour modification is based on the principles of operant conditioning. Behaviour can be modified or changed by rewarding (or reinforcing) desired behaviour and withholding the reward when undesirable behaviour occurs. For example, if you want your son to do his homework before he plays computer games, reward him (by praising him or spending time with him) each time he does it. When he does not do his homework before playing computer games, you withhold the reward. He will then learn to change his behaviour in order to receive the reward.

Activity 5

How relevant do you think the concepts of thinking, reasoning and problem-solving are for a programme on problem solving and behaviour modification? Refer to the scenario described in the resource material A–Z. Rate the relevance of the concepts on a five point scale, ranging from highly relevant (5) to highly irrelevant (1). Explain why you chose the particular rating.

thinking rating:
reasoning rating:
problem-solving rating:

Reasons

Comment

You initially may not have seen the direct relevance of thinking, but if you look at the relation between thought and language and the role of inner speech in problem-solving, you might change your mind. Reasoning is clearly very relevant. There is evidence that Brian is using fallacies to explain what his problem is. The program would also need to include some training in critical reasoning in order to help Brian. In addition, the nature of basic problem-solving strategies would be highly relevant.

Activity 6

Explore the concepts of learning and memory. Section B of the study guide LO SEC.B-07 provides a method for doing this. When you have completed this learning opportunity continue with activity 7 that follows.

Activity 7

Make a list of the topics related to learning and memory that may be relevant to a problem-solving and behaviour modification programme.

Activity 8

How relevant do you think the concepts of learning and memory are for a problem-solving and behaviour modification programme, with reference to the scenario described in resource material SCI? Rate the relevance of the concepts on a five point scale, ranging from highly relevant (5) to highly irrelevant (1). Explain why you chose the particular rating.

learning rating:
memory rating:

Reasons

Comment

Learning clearly has relevance to the programme. Classical conditioning does not seem particularly relevant but operant conditioning may be useful because Brian could learn to associate some action (for example, going to the library to study) with successful study outcome (the reward). After all, behaviour modification is a form of operant conditioning. Some of Brian's learning will be cognitive learning (in particular, intellectual skills) and therefore its relevance will be high. Memory is important for studying so you probably gave memory a high rating for relevance.

Activity 9

Study: Psychological programme for study management.

Activity 10

Compare the topics you listed, and your ratings of the relevance of particular fields of knowledge with the information provided in the resource material (A–Z: Psychological programme for study management). Revise your listing and ratings of the various topics where necessary.

Activity 11

Evaluate the relevance and the comprehensiveness of the content indicated in the resource material. Do you agree that the indicated programme content is relevant and comprehensive?

05

Indicate the relevance and comprehensiveness of the programme resources

You are able to indicate the relevance and comprehensiveness of the programme resources if you:

01 recognise the relevance of the listed resources
02 recognise the sufficiency of the listed resources.

Resource

A–Z: Psychological programmes

Activity 1

Study the resource material.

A–Z: Psychological programme for study management

Activity 2

Indicate whether the resource list is relevant in your opinion.

Answer

The resource list is relevant if all the items on the list are required for the development and implementation of the programme. Consider each item on the resource list and decide whether it constitutes a necessary resource. In other words, ask yourself: Can the programme be developed and implemented without this item? If the answer is yes, the item is not necessary, and the list is not absolutely relevant. For example, suppose the programme resource list listed the use of an aeroplane without motivating what it would be required for. Then this item would not be necessary, and therefore irrelevant, and the list would not be entirely relevant.

Activity 3

Indicate whether the resource list is comprehensive in your opinion.

Answer

The resource list is comprehensive if no resources have been left out. To determine whether resources have been left out one has to consider the development and the implementation phases of the entire programme. Ask yourself: Can the programme be developed and implemented with the resources on the list, or are there aspects of the programme that one will not be able to develop and implement? If one determines that the programme can be developed and implemented with the resources on the list, the list is comprehensive. For example, suppose the list did not mention software, then the list would not be comprehensive because it would not be possible to develop and implement the electronic version of the reader and workbook without software.

06

Indicate whether the programme method is appropriate

You are able to indicate that the programme method is appropriate if you:

01 recognise the nature of the programme method
02 recognise whether the programme method is appropriate in the light of the nature and the needs of the target population.

Resource

A–Z: Psychological programmes

Activity 1

Study the resource material.

A–Z: Psychological programme for study management

Activity 2

Describe the nature of the programme method as outlined in "Psychological programme for study management."

Answer

The information about the method of implementation is provided under the headings of consultations, reader and workbook.

Activity 3

Indicate whether you think the programme method is appropriate in the light of the nature and the needs of the target population.

Answer

The programme method provides for different ways of doing parts of the programme. Individual consultations are a necessary component and there is no substitution. Many students who are working have access to computers therefore it is a good idea to give them the option of working with paper or electronic versions of the reader and workbook. This means people can choose an option that suits them best in their particular situations.

07

Indicate the feasibility of the programme implementation plan

You are able to indicate the feasibility of the programme implementation plan if you can:

01 recognise the nature of the programme implementation plan
02 recognise the comprehensiveness of the implementation plan.

Resource

A–Z: Psychological programmes

Activity 1

Study the resource material.

A–Z: Psychological programme for study management

Activity 2

Describe the nature of the programme implementation plan as outlined in

A–Z: Psychological programme for study management.

Answer

The information concerning the programme implementation plan is indicated in the last section.

Activity 3

Indicate whether you think the programme implementation plan is feasible.

Answer

The programme implementation plan describes a careful consideration of the time required for each consultation and self-study session, the appropriate spacing of consultations and sessions and the overall time required. Provision is also made for individual differences in work tempo and adjustment of the implementation programme with ongoing evaluation.

End of learning opportunity.

NOTE: This is not an assignment and does not have to be submitted.

SEC.A-POP
Learning opportunity

Learn to provide an expert opinion

OUTCOME PRODUCT

Description

An expert opinion.

Standards

An expert opinion should be relevant and comprehensive and should be provided in the form of an essay.

Assessment criteria

Your expert opinion meets the required standards if:

01 the required field of knowledge is explored
02 the opinion is formulated and is relevant and comprehensive
03 the opinion is presented in essay form.

METHOD

01

Explore the required field of knowledge

Resource

SG: SEC.B-02
SG: SEC.B-04
SG: SEC.B-06
SG: SEC.B-07
SG: SEC.B-08
SG: SEC.B-09

You are able to explore the required field of knowledge if you:

01 demonstrate relevant and comprehensive knowledge about the topics of the field.

Activity 1

Suppose you are a psychologist employed by the Human Sciences Research Council. The local branch of the teachers' association has approached you to express an expert opinion on the reasons for individual differences in human behaviour. Your first step is to explore the required field of knowledge.

Activity 2

Explore the nature of the human nervous system, its structure and functions. A method for doing this is provided in section B of the study guide LO SEC.B-02. Work through this learning opportunity and then proceed to activity 3.

Activity 3

Make a list of the topics related to the structure and functions of the nervous system that may be relevant to individual differences in human behaviour.

Activity 4

Explore the nature of sensation and perception. A method for doing this is provided in section B of the study guide LO SEC.B-04. Work through this learning opportunity and then proceed to activity 5.

Activity 5

Make a list of the topics related to the concepts of sensation and perception that may be relevant to individual differences in human behaviour.

Activity 6

Explore the nature of the concept of intelligence. A method for doing this is provided in section B of the study guide LO SEC.B-06. Work through this learning opportunity and then proceed to activity 7.

Activity 7

Make a list of the topics related to the concept of intelligence that may be relevant to individual differences in human behaviour.

Activity 8

Explore the nature of the concepts of learning and memory. A method for doing this is provided in section B of the study guide LO SEC.B-07. Work through this learning opportunity and then proceed to activity 9.

Activity 9

Make a list of the topics related to the concepts of learning and memory that may be relevant to individual differences in human behaviour.

Activity 10

Explore the nature of the concept of emotion. A method for doing this is provided in section B of the study guide LO SEC.B-08. Work through this learning opportunity and then proceed to activity 11.

Activity 11

Make a list of the topics related to the concept of emotion that may be relevant to individual differences in human behaviour.

Activity 12

Explore the nature of the concept of personality. A method for doing this is provided in section B of the study guide LO SEC.B-09. Work through this learning opportunity and then proceed to activity 13.

Activity 13

Make a list of the topics related to the concept of personality that may be relevant to individual differences in human behaviour.

Activity 14

Select the topics from the required field of knowledge that are relevant to compiling an expert opinion on the reasons for individual differences in human behaviour. How important do you think it is to include each of the following topics in the opinion? Rank their importance on a five-point scale ranging from:

1. = definitely not important
2. = not important
3. = unsure
4. = important
5. = very important

Here are the topics:

(a) structure and functions of the nervous system
(b) sensation and perception
(c) intelligence
(d) learning and memory
(e) emotion
(f) personality.

Answer

Not everybody will agree on the content of the presentation. If your answer differs from the one provided here it is not necessarily incorrect.

(a) 4
(b) 5
(c) 3
(d) 4
(e) 4
(f) 5

Comment

The selection was made on the basis that the expert opinion is limited to matters concerning the nature of individual differences in human behaviour. There are millions of reasons why people are different but we will restrict ourselves to the topics listed here. Although all the topics listed have some relevance, their relevance differs. For example, we know that there is a biological basis for all behaviour but the extent to which people differ in terms of their biology is perhaps not as great as the extent to which they differ in terms of their interpretation of events (seen in processes like perception or personality). You may of course have a different opinion and may want to include some of the other topics for explicit consideration in your opinion. There is nothing wrong with this, you are free to do so.

02

Formulate a relevant and comprehensive opinion

You are able to formulate a relevant and comprehensive opinion if you:

01 indicate the main arguments in the field of interest
02 weigh the arguments and come to a conclusion
03 establish the relevance and comprehensiveness of the opinion.

Resource

A–Z: Individual differences in behaviour

Activity 1

Study the resource material.

Activity 2

Indicate the main arguments in the field of interest.

Answer

For our purpose here, the term 'arguments' refers to different viewpoints regarding the nature of individual differences in human behaviour. There are many factors that contribute to our understanding of the reasons for individual differences in human behaviour. There are at least three contexts from which individual differences can be viewed. The three contexts are (1) the biological context (2) the intrapsychic context and (3) the social context. The three contexts have different effects and outcomes with regard to individual behaviour. These contexts provide different viewpoints of the reasons for individual differences in behaviour. In other words, the 'argument' is whether individual differences are caused by biological factors, or by intrapsychic

factors such as perceptions, cognitions, emotions or personality, or by factors in the social environment.

Activity 3

Consider the different arguments and express a conclusion about the nature of individual differences in human behaviour.

Answer

When we view human behaviour from the biological context, we describe and explain human nature, experiences and behaviour in terms of biological events. For example, you looked at impulse conduction in the nervous system and events that happen at nerve connections (synapse) as the basis of human functioning. Things that go wrong at this level will affect behaviour and bring about differences in behaviour (multiple sclerosis is an example). You also looked at nervous system structure and its functions. If the structure is damaged or does not work properly, differences in behaviour result. People also differ in terms of their responses to sensory stimulation. So there clearly is evidence for a biological basis for behaviour and individual differences in behaviour.

The second viewpoint is the intrapsychic context, that refers to our experiences of the world in terms of our perceptions, cognitions, emotions and personality. Perception is the process of attributing meaning to incoming information. The meanings we give to things are influenced by our experiences, beliefs, thinking processes, etcetera. Cognition refers to the way we know or understand things. Each person's life experiences are unique and therefore perceptions and cognitions (including learning and intelligence) will differ widely, bringing about individual differences. Our emotions and our basic personality type also influence the way we see and interpret events, resulting in individual differences in behaviour. This provides evidence for the role of intrapsychic processes in explaining individual differences in behaviour.

Biological and intrapsychic processes are interdependent and are regarded as the basic psychological processes that make up the individual person. Therefore we cannot say that individual differences are caused only by biological factors or intrapsychic events. We have to look at the two in combination. In addition, there is one other context that has to be considered. It is important to realise that people do not function in a vacuum. We are in constant interaction with other people and the environment, and in this way the social context also contributes to our functioning. These three types of processes (biological, intrapsychic and social) not only influence functioning separately but also in combination. For example, personality is partly inherited (biological) but is also shaped by learning as well as events and experiences in the social environment. Your opinion would therefore be that together the biological, intrapsypchic and social processes explain the nature of individual differences in behaviour.

Activity 4

Establish the relevance and comprehensiveness of an opinion.

Answer

The expressed opinion is obviously relevant in the light of the requested opinion because it deals with the reasons for individual differences in human behaviour. The expressed opinion seems comprehensive because it mentions three contexts that cover a broad spectrum of viewpoints on the nature of individual differences in behaviour.

03

Present the opinion in essay form

Resource
SG: SEC.B-02
SG: SEC.B-04
SG: SEC.B-06
SG: SEC.B-07
SG: SEC.B-08
SG: SEC.B-09

A–Z: Research essays

You are able to present the opinion in essay form if you:

01 formulate the argument in the introduction of the essay
02 argue the relevant points in the body of the essay
03 and summarise the arguments in the conclusion.

Activity 1

Study: Research essays.

Activity 2

Formulate the argument in an introductory paragraph.

Answer

Individual differences in human behaviour can be explained by biological, intrapsychic and social factors.

Activity 3

Present the argument as the main body of the essay.

Answer

1. Provide a description of the nature of individual differences, that is, that everyone has the same components but they function slightly differently and result in unique processes and behaviour
2. Individual differences can be ascribed to at least three factors or contexts of functioning
3. Present each of the three contexts, and indicate how they influence behaviour, separately and in combination.

Activity 4

Present the conclusion.

Answer

From the foregoing discussion it is clear that there is no single explanation for individual differences but that individual differences in human behaviour can be explained by biological, intrapsychic and social factors, separately and in combination.

Activity 5

Indicate the nature of the opinion in the form of an appropriate title.

Answer

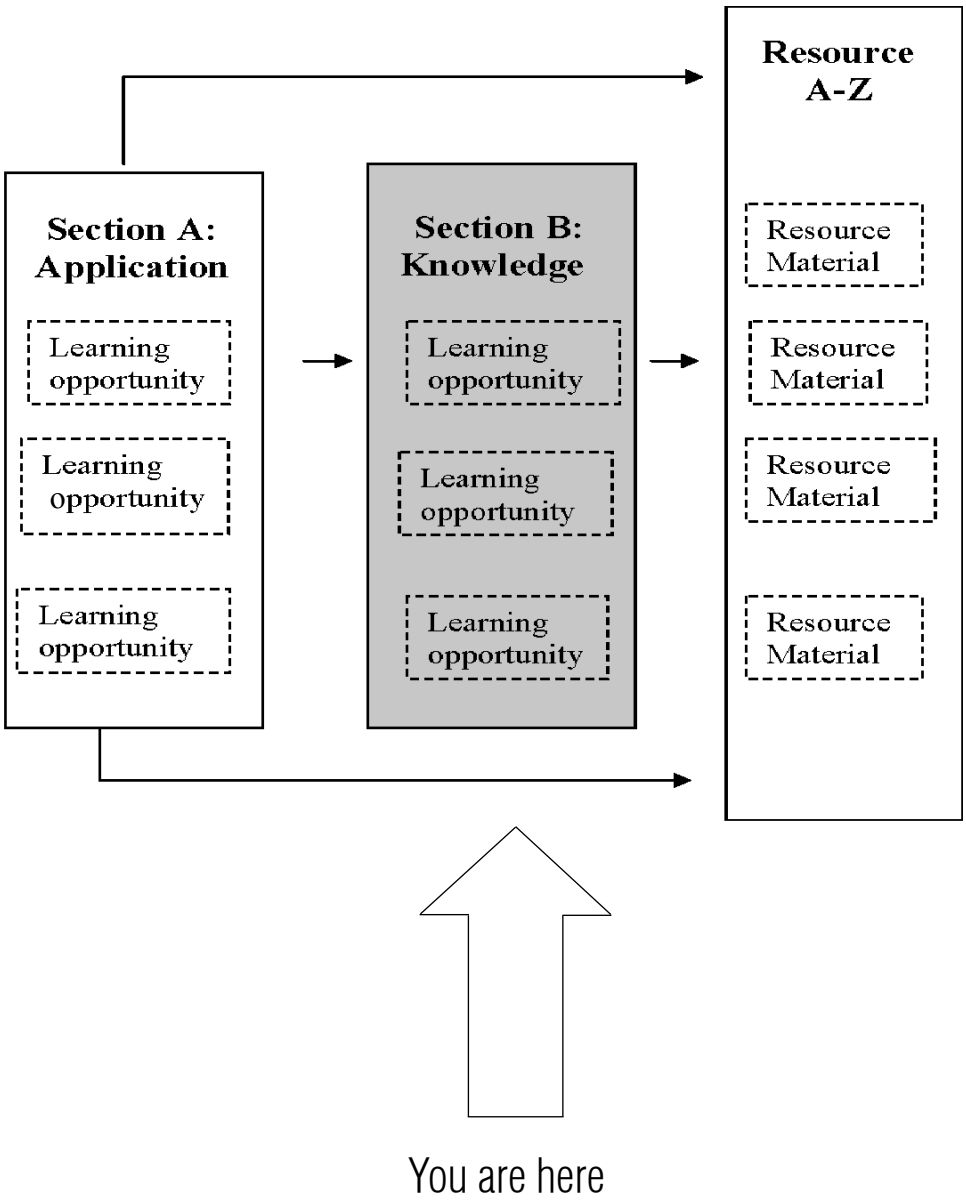
Your title may be different from the following suggestion:

"The contribution of different contexts to individual differences in human behaviour."

End of learning opportunity

NOTE: This is not an assignment and must not be submitted.

SECTION B


Resource
A-Z
Section A:
Application
Learning
opportunity
Learning
opportunity
Learning
opportunity
Section B:
Knowledge
Learning
opportunity
Learning
opportunity
Learning
opportunity
Resource
Material
Resource
Material
Resource
Material
Resource
Material
You are here

SEC.B-01

Learning opportunity

Explore the nature of impulse conduction in the human nervous system

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the nature of impulse conduction in the human nervous system.

Standards

You have sufficient knowledge of the nature of impulse conduction in the human nervous system if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the nature of impulse conduction in the nervous system if you are able to recognise:

01 the functional parts of a neuron
02 nerves and nerve tracts
03 the relation between impulse conduction and behaviour
04 the nature of the resting membrane potential
05 the nature of the action potential
06 the concept of refractory period
07 three principles of impulse conduction
08 the nature of synaptic transmission of impulses
09 some common neurotransmitters and their effects
10 the effects of drugs on synaptic processes.

METHOD

01

The functional parts of a neuron

You are able to recognise the functional parts of a neuron if you:

01 identify six parts of a typical neuron
02 indicate the main function of each part.

Resource

A–Z: Human nervous system: The structure of a neuron

Activity 1

The human brain has an estimated 10 billion neurons. Neurons are extremely small and can best be examined with an electron microscope. No two neurons are exactly alike in size or shape but almost all have four basic parts. Study Human Nervous system: The main parts of the neuron. Remember that a diagrammatic representation is not always the same as the real object in terms of size and shape. This is merely a drawing of a typical neuron, magnified millions of times.

Activity 2

Choose the correct words from the list below to fill in the missing words in the following statements (A–E).

myelin sheath, soma, axon, neuron membrane, dendrites, axon terminals

The basic functional parts of a neuron are

A the branchlike nerve fibres called the . . . and the . . . (cell body) which together receive information signals
B the . . . which conduct signals to another point in the nervous system and
C the . . . which make synaptic contact with other neurons and transmit signals to other neurons.
D The axon is surrounded by a . . . that insulates the axon.
E The selectively permeable . . . plays an important role in generating, transporting and transmitting the nerve impulses.

Answer

A dendrites, soma
B axon
C axon terminals (or terminal knobs)
D myelin sheath
E neuron membrane.

02

Nerves and nerve tracts

You are able to recognise nerves and nerve tracts if you:

01 identify afferent and efferent neurons
02 indicate the difference between nerves and nerve tracts.

Resource

A–Z: Human nervous system: The structure of a neuron

Activity 1

Study the types of neurons carefully and look for the meaning of the following terms: afferent neurons, efferent neurons, nerves and nerve tracts.

Activity 2

Choose the correct word from the list below to fill in the missing word and complete the following statements (A–C).

nerve tracts, motor, sensory, nerves

A The axons of different neurons are bunched or grouped together to form . . . (outside the brain and spinal cord) or . . . (inside the brain or spinal cord).
B Nerves that send information signals from the senses to the brain and spinal cord are called . . . nerves.
C Nerves that send information signals from the brain and spinal cord to the muscles and glands are known as . . . nerves.

Answer

A nerves, nerve tracts
B sensory
C motor

03

The relation between impulse conduction and behaviour

You can recognise the relation between impulse conduction and behaviour if you:

01 indicate how information is changed to nerve impulses and communicated to the brain.

Resource

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 1

Study Human Nervous system. The structure of the neuron: The main parts of the neuron.

Activity 2

Imagine that you are watching a scary movie or TV programme. As the tension mounts, your palms sweat and your heart beats faster. You may begin shovelling popcorn into your mouth, carelessly spilling some on your lap. If someone asks what you are doing, you would probably say, "Nothing – just watching the movie." Without your being aware of it, some highly complex processes are taking place within you.

How is information from the senses communicated throughout our body and brain? Write down your answer.

Answer

From the resource material, you know that information from the environment (stimuli) is changed into nerve impulses that are conducted to the brain and other parts of the body to bring about different forms of behaviour. In this example, the light from the screen (visual stimulus) is sent from the eye to the brain where the stimulus is interpreted and sent to other parts of the body, causing the sweat glands to release perspiration, increasing your heart beat and stimulating muscle movement to lift your hand to your mouth. From this example, you can see how impulse conduction relates to behaviour. If something goes wrong with the process of impulse conduction, clearly behaviour will be affected. This is one of the factors that can contribute to individual differences in people's behaviour.

04

The nature of the resting membrane potential

You can recognise the nature of the resting membrane potential if you:

01 indicate the function of the resting membrane potential
02 indicate what brings about the resting membrane potential.

Resource

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 1

Study: The resting membrane potential and you will find an explanation of how the cell membrane has to be ready (the resting membrane potential) to fire when it receives a message.

Activity 2

What causes the resting membrane potential?

Answer

Your answer should include information that the resting membrane potential is an electrical charge resulting from the uneven distribution of ions inside and outside the cells.

05

The nature of the action potential

You are able to recognise the nature of the action potential if you:

01 indicate what causes an action potential
02 indicate what an action potential does.

Resource

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 1

Study: The action potential. This provides you with the description of how sufficient stimulation of a neuron will bring about an action potential. This does not mean that neurons are completely inactive until they receive some kind of stimulation. Even a sleeping person's nervous system is not altogether inactive. A person's pattern of nerve activity is merely changed by a stimulus

that is received.

Activity 2

What happens during an action potential?

Answer

Your answer should indicate that an electrical charge that exceeds the threshold changes the resting membrane potential into an action potential that conducts the stimulus along the axon.

06

The concept of refractory period

You can recognise the concept of the refractory period if you:

01 indicate what the refractory period is
02 indicate how the refractory period ensures that impulse conduction proceeds in one direction and regulates the relation between stimulus intensity and impulse frequency.

Resource

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 1

Study Human Nervous system. The structure of the neuron: The main parts of the neuron.

Activity 2

Can a neuron send impulses continuously? Explain why, or why not.

Comment

This question may have bothered you a bit. Remember that the refractory period refers to the brief time space when the cell membrane's channels have opened, ions have moved in and there is not enough of a balance of ions across the cell membrane to create a resting membrane potential. The absolute refractory period is followed by the relative refractory period. So therefore the neuron is not ready to fire for a very brief time until the resting membrane potential has been re-established and in this way prevents overstimulation. Impulses can only go in one direction. For these reasons, neurons cannot send impulses continuously.

07

Three principles of impulse conduction

You can recognise the three principles of impulse conduction if you:

01 identify the all-or-nothing law of impulse conduction
02 indicate the relation between stimulus intensity and impulse frequency
03 indicate the nature of salutatory conduction.

Resource

A–Z: Human nervous system: Impulse conduction in the neuron

Activity 1

Study: Characteristics of impulse conduction.

Activity 2

According to the all-or-nothing law . . .

1. an action potential is fired or not fired, depending on whether or not the neuron threshold has been reached
2. a full action potential is fired, but it becomes gradually weaker as it travels to the terminals
3. the amplitude of the action potential depends on the intensity of the stimulus
4. myelinated axons fire action potentials more rapidly than unmyelinated axons.

Answer

The correct answer is provided by option 1. An action potential is described as an all-or nothing event because an action potential does not arise if the stimulus is below the threshold value. When stimulation of the neuron is intense enough to reach the neuron threshold, an action potential arises in the first segment of the axon, It then moves at full strength, without weakening down the entire length of the axon (and therefore option 2 is not correct). This occurs because the amplitude or size of the action potential and the speed at which it is conducted have nothing to do with the intensity of the stimulus that gave rise to the action potential (and therefore option 3 is wrong). Option 4 is correct in itself but does not provide the correct answer because it refers to saltatory conduction and not the all-or-nothing law.

08

The nature of synaptic transmission of impulses

You recognise the nature of synaptic transmission of impulses if you:

01 indicate the structure involved in synaptic transmission
02 indicate the difference between inhibitory and excitatory postsynaptic potentials
03 understand the terms temporal and spatial summation.

Resource

A–Z: Human nervous system: Impulse conduction in the synapse

Activity 1

Study: The synopses and postsynaptic potentials. It may help you to remember that ‘pre’ means before, therefore a presynaptic membrane means the membrane ‘before the synapse’. On the other hand, ‘post’ means after, so the postsynaptic membrane is the membrane after the synapse or in other words, the membrane of the next neuron.

Activity 2

The boutons at the end of the axon terminals contain the . . .

1. synaptic vesicles
2. postsynaptic membrane
3. synaptic cleft
4. none of the above.

Answer

The correct answer is option 1. The boutons contain vesicles that are filled with neurotransmitters. Option 2 is not correct because the membrane of the bouton is the presynaptic membrane. Option 3 is not correct because the synaptic cleft is the tiny gap outside the neuron. Option 4 is incorrect because option 1 is correct.

Activity 3

What do we call the potential that could give rise to an action potential?

1. postsynaptic excitatory potential
2. postsynaptic inhibitory potential
3. resting membrane potential
4. action potential.

Answer

The combination of a neurotransmitter with a receptor in the postsynaptic membrane may excite that neuron or inhibit it, and therefore we talk about excitatory postsynaptic potentials (EPSP) or inhibitory postsynaptic potentials (IPSP). Look at the Figure 1 for a diagrammatic representation of this process. A postsynaptic potential is the potential that arises after the synapse. The rapid build up of EPSPs causes the stimulation to reach the neuron threshold and this allows the neuron to fire an impulse. In other words, an action potential arises in the first segment of the axon. The correct answer is therefore option 1. If the potential brings about an action potential, it is excitatory and not inhibitory, and therefore option 2 is incorrect. Postsynaptic inhibitory potentials do not contribute to the generation of an action potential. Option 3 is not correct because the resting membrane potential refers to the neuron's resting state. The resting membrane potential in itself cannot cause an action potential to arise. The EPSP is not action potential as such, therefore option 4 is not correct.

Activity 4

How do postsynaptic potentials differ from action potentials?

1. Action potentials are all-or-nothing; postsynaptic potentials are graded
2. Action potentials arise when stimulation reaches threshold value; postsynaptic potentials depend on temporal and spatial summation
3. Action potentials are conducted along the entire length of the axon at full strength; postsynaptic potentials are decremental because they can become weaker and even disappear
4. All of the above indicate differences between action potentials and postsynaptic potentials.

Answer

You already know that the transmission of an impulse is an all-or-nothing event (option 1). When it comes to the transmission of postsynaptic potentials (that is, things that happen after the impulse has crossed the synapse), the impulses become weaker as they travel further from the point of stimulation (option 3). This is where spatial and temporal summation play a role (option 2).

09

Some common neurotransmitters and their effects

You can recognise some common neurotransmitters and their effects if you:

01 describe the factors that influence the action of neurotransmitters
02 list the classic neurotransmitters and their effects
03 indicate the disorders linked to neurotransmitter imbalance.

Resource

A–Z: Human nervous system: Impulse conduction in the synapse

Activity 1

Study: The nature of neurotransmitters.

Activity 2

Make a list of the factors that influence the action of neurotransmitters.

Answer

Your answer should include the nature of the neurotransmitters, where they act, the amount of the neurotransmitters (in relation to the enzymes that break them down) and the relative amount of inhibitors and excitators at the synapse.

Activity 3

Make a list of the classic neurotransmitters and their effects.

Match the disorder in the left hand column with the neurotransmitter involved (right hand column).

1. Alzheimer's disease	A. low GABA levels
2. schizophrenia	B. serotonin deficiency
3. Parkinson's disease	C. insufficient acetylcholine
4. seasonal depression	D. too little dopamine
5. pain	E. too much dopamine
	F. too little endorphin

Answer

1 – C, 2 – E, 3 – D, 4 – B, and 5 – F.

Comments

GABA has an inhibitory function. It is important in regulating behaviour like aggression and low levels of GABA can result in anxiety. Note that although synaptic malfunctioning is thought to be involved in many disorders, we cannot say that a particular mental disorder is caused by neurotransmitter levels only.

10

The effect of drugs on synaptic processes

You can recognise the effects of drugs on synaptic processes if you:

distinguish between agonists and antagonists

Resource

A–Z: Human nervous system: Impulse conduction in the synapse

Activity 1

Study: The effects of drugs on synaptic processes.

Activity 2

Which of the following terms is used to indicate drugs that have a similar effect to certain neurotransmitters?

1. antagonists
2. agonists
3. drugs that increase postsynaptic sensitivity to inhibitors
4. 2 & 3.

Answer

The correct answer is provided by option 2. An agonist simulates the action of a particular neurotransmitter and produces the effects of the neurotransmitter that they stimulate. An antagonist blocks the action of a particular neurotransmitter and therefore option 1 is incorrect. Option 3 does not provide the answer either – it refers to a specific example of an antagonist. Option 4 is therefore also not correct because it includes option 3.

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-02

Learning opportunity

Explore the structure and functions of the human nervous system

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the main structure and functions of the human nervous system.

Standards

You have sufficient knowledge of the main structure and functions of the human nervous system if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the main structure and functions of the human nervous system if you are able to recognise:

01 the divisions of the human nervous system
02 the meninges and cerebrospinal fluid
03 the motor and sensory pathways in the spinal cord
04 the hindbrain: three structures and their functions
05 the midbrain: two structures and their functions
06 the forebrain: four structures and their functions
07 the four lobes of the cerebral cortex
08 the divisions and functions of the peripheral nervous system.

METHOD

01

You can recognise the divisions of the human nervous system if you:

The divisions of the human nervous system

01 indicate the central nervous system and its divisions (brain and spinal cord)
02 indicate the peripheral nervous system and its divisions (somatic and autonomic, including the sympathetic and parasympathetic systems).

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Read the resource material to obtain an overview of the human nervous system's major structure and functions.

Activity 2

Choose the correct word (from the two words in brackets) to complete the statements correctly.

A The (somatic/autonomic) division of the peripheral nervous system transmits motor and sensory messages to and from the central nervous system
B Neurons that transmit messages from the sense organs to the central nervous system are called (afferent/efferent) neurons
C The division of the peripheral nervous system that controls essential body functions and plays a role in emotion is called the (somatic/ autonomic) nervous system
D During stress, the (sympathetic/parasympathetic) division of the autonomic nervous system prepares the body for exertion or danger.

Answer

A. – somatic, B. – afferent, C. – autonomic, D. – sympathetic.

Comment

Although all human beings have the same nervous system, this does not mean that it works in exactly the same way for everyone. It is the way the parts work together that is important. (An example of what is meant here is saying that we all have eyes, a nose and a mouth but our faces are all different because the way the parts are put together is different). In some people, the nervous system may respond quicker or be more effective than in other people. This is particularly relevant when one part of the system is damaged. Differences in our physiology contribute to individual differences in behaviour.

02

Structures that protect the brain and spinal cord

You are able to recognise the structures that protect the brain and spinal cord if you:

01 identify the vertebrae, skull, cerebrospinal fluid and meninges.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The brain.

Activity 2

Make notes on the structures that protect the spinal cord and brain.

Comment

Your notes should include firstly, the bony protection (spinal vertebrae and the skull that surrounds the brain), the three membranes (dura, arachnoid and pia mater) and the cerebrospinal fluid. Note that the cerebrospinal fluid does not only surround the brain. It is actually produced by the brain and fills the central spaces in the brain, called the ventricles. The space narrows as it goes downwards and becomes the central canal in the spinal cord. The brain is supported inside and out by the cerebrospinal fluid. In addition, the brain is protected by the skull from events outside, and by the blood-brain barrier from toxic substances inside the body.

03

The motor and sensory pathways in the spinal cord

You can recognise the motor and sensory pathways in the spinal cord if you:

01 indicate the motor and sensory roots of the spinal nerves
02 indicate that the spinal cord serves both reflexive and voluntary behaviour.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The spinal nerves and identify the motor and sensory roots of the spinal nerves. Note that the spinal cord serves both reflexive and voluntary behaviour. A reflex is a rapid automatic response to a stimulus. In addition, every nonreflexive or voluntary movement requires a message from the brain to the spinal cord and from the spinal cord to the muscles. People who have suffered damage to the spinal cord become paralysed from the point of injury downwards although reflexes (such as the knee jerk reflex) will remain.

Activity 2

Identify the correct statement about the functioning of the spinal cord.

1. Each segment of the spinal cord has one pair of nerves, motor nerves on the right hand side and sensory nerves on the left hand side
2. An injury that damages the spinal cord in the neck area can cause the person to be paralysed from the neck down because motor instructions cannot reach the muscles
3. A person whose spinal cord is damaged at the neck will be able to pull his/her hand away if he /she sees a fire nearby because it is a reflex action.
4. 1 and 2.

Answer

Option 2 is the correct answer. The injury would prevent motor instructions from the brain reaching the effectors in the body. Option 1 is incorrect because there is one nerve on each side of the spinal column and each nerve splits into a motor and sensory root (on each side). Option

3 is incorrect because a person with this type of injury would not be able to execute voluntary movements of the limbs. Because option 1 is wrong, option 4 is also wrong.

04

The hindbrain: three structures and their functions

You can recognise the structures of the hindbrain and their functions if you:

01 identify the medulla oblongata, pons and cerebellum and their functions.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The hindbrain.

Activity 2

The top of the spinal cord becomes the brain. At the bottom of the brain is the hindbrain. Read through the discussion of each of the three structures and write down the main function of each.

Activity 3

Match the following structures with their functions:

medulla oblongata
pons
cerebellum

A sleep and wakefulness
B co-ordination of muscle movement
C controls vital bodily functions and contributes to activation of the brain.

Answer

A pons
B cerebellum
C medulla oblongata

Comment

There is an area in the brain that is not really a structure but rather a network of cells and fibres, called the reticular formation, that extends through the hindbrain and part of the midbrain. The reticular formation is responsible for activating the brain. In turn, the cerebral cortex regulates the reticular formation so that the brain does not become overactivated. If it is overactivated, it cannot perform efficiently.

05

The midbrain: two structures and their functions

You can recognise the structures of the midbrain and their functions if you:

01 identify the tectum and tegmentum and their functions.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The midbrain

Activity 2

The midbrain is the middle part of the brain. If you cut the brain in half down the middle, from top to bottom, you will find the structures of the midbrain (see Figure 3). They are deeply buried and very small so they are not easy to identify. Read through the discussion of each of the two structures and write down the main function of each.

Activity 3

Fill in the missing words.

A The tectum contains the reflex centres of the . . . and . . . systems.
B The tegmentum is involved in . . .

Answer

A visual, auditory
B motor movement

06

The forebrain: four structures and their functions

You can recognise the forebrain structures and their functions if you:

01 indicate the hypothalamus, thalamus, limbic system and basal ganglia and their functions.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The forebrain

Activity 2

The forebrain consists of two hemispheres, left and right. Each hemisphere is responsible for sensation and motor control on the opposite side of the body. The four structures that are of interest here are the hypothalamus, the thalamus, the limbic system and the basal ganglia. (The cortical lobes are also part of the forebrain but will be dealt with in the next task.) Write down the main functions of each structure.

Activity 3

The small but very important part of the forebrain that plays a key role in the control of functions like blood pressure and heartbeat is the . . .

1. limbic system
2. thalamus
3. hypothalamus
4. basal ganglia.

Answer

Option 3 is the correct answer because the hypothalamus is concerned with regulating the internal environment. The limbic system is mostly concerned with emotions, the thalamus is the relay station of the brain and the basal ganglia are concerned with motor behaviour, therefore options 1, 2 and 4 are not correct.

07

The four lobes of the cerebral cortex

You can recognise the four lobes of the cerebral cortex if you:

01 identify the frontal, temporal, parietal and occipital lobes
02 identify the main functions of each of the lobes.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The lobes of the brain.

Activity 2

Although the lobes of the cerebral cortex are also classified as part of the forebrain, they are dealt with separately here. The cerebral cortex is particularly prominent in humans. You have probably heard people talk about having a lot of "grey matter", meaning they are very intelligent. The cerebral cortex is grey matter – it contains great many cell bodies. Axons are whiter because of the myelin sheaths. The interior of the forebrain beneath the cerebral cortex contains a huge number of axons, most of which are covered with myelin. Read through this section and make notes on the main functions of each lobe.

Activity 3

Match the lobes and their functions.

A frontal
B temporal
C parietal
D occipital

1. spatial information, integration of sensory-motor information
2. interpretation of visual information and its integration with other modalities
3. voluntary motor movements, expressive speech, maintenance of optimal cortical arousal, complex intellectual processes like abstract thinking and mental flexibility, adapting to changing environments, regulating emotions
4. perception of sound (verbal and non-verbal)

Answer

A – 3, B – 4, C – 1 and D – 2.

Comment

The functions of the temporal, parietal and occipital lobes are fairly well-defined. However, the frontal lobes are less well defined. The frontal lobes are often described as controlling the executive functions of the brain. Think of the executive director of a company – that is the person who responds and adapts to changes in the marketplace or company policy or stakeholder needs, makes decisions and plans and sees that they are carried out correctly. This is in effect what the frontal lobes do. They regulate emotions and behaviour, and control complex intellectual processes like abstract thinking, planning and problem-solving.

It is also important to realise that the lobes do not function in isolation from each other. There are many connecting fibres that link the lobes in order to integrate information and functions.

08

The divisions and functions of the peripheral nervous system

You can recognise the divisions and functions of the peripheral nervous system if you:

01 identify the somatic nervous system and its functions
02 identify the autonomic nervous system with its sympathetic and parasympathetic divisions, and its functions.

Resource

A–Z: Human nervous system: Structure and function

Activity 1

Study: The peripheral nervous system.

Activity 2

The somatic nervous system is comprised of the peripheral nerves that communicate with the skin and muscles. Fill in the missing words:

The somatic nervous system includes

A the . . . nerves, for example the optic nerve
B the sensory components of mixed . . . nerves
C the . . . component of mixed nerves serving the skeletal muscles.

Answer

A sensory
B spinal
C motor.

Activity 3

The nerves that control the heart, stomach and other organs make up the autonomic nervous system. You should know the names of the two divisions of the autonomic nervous system and their functions. Make notes on bodily symptoms that are characteristic of sympathetic stimulation and parasympathetic stimulation. In a well functioning person, these two systems work together to bring about a state of balance or homeostasis.

Which one of the following is a parasympathetic response?

1. information about eyeball movement sent by motor nerves to the brain
2. increased secretion of saliva and tears
3. increased heart rate and blood pressure
4. expansion of the lungs to absorb more oxygen.

Answer:

The correct answer is provided by option 2. Options 3 and 4 are sympathetic system responses and therefore do not provide the right answer. Although parasympathetic stimulation results in accommodation of the optic muscles, option 1 describes a response of the somatic nervous system and is therefore not the correct answer.

End of learning opportunity.

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-03
Learning opportunity

Explore the nature of different states of consciousness

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of different states of consciousness.

Standards

You have sufficient knowledge of the different states of consciousness if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the different states of consciousness if you are able to recognise:

01 the changing nature of consciousness
02 the phases of sleep
03 the functions of sleep
04 four sleep disorders
05 the nature of hypnosis
06 the effect of psychoactive drugs on states of consciousness.

METHOD

01

The nature of consciousness

You can recognise the changing nature of consciousness if you:

01 indicate the relation between consciousness and arousal.

Resource

A–Z: States of consciousness

Activity 1

Study: The nature of consciousness.

Activity 2

Think about your own consciousness and the variations you have experienced during the past week. Now write down two characteristics of consciousness.

Comment

You may have noted things like drowsiness and sleep, high levels of excitement (for example, while watching a soccer match on television) and perhaps the effect of a painkiller or alcohol. I am sure you agree that consciousness is a constantly changing stream of mental activity, therefore the main characteristics are its multi-dimensionality and changeability.

02

The phases of sleep

You can recognise the phases of sleep if you:

01 indicate the four stages of S-sleep
02 indicate the differences in the brain activity and behavioural characteristics between S and D-sleep.

Resource

A–Z: States of consciousness

Activity 1

Study: The nature of sleep (including s-sleep and D-sleep).

Activity 2

It is estimated that each one of us spends 25 years of life asleep. People are not totally unresponsive or unaware during sleep. For example, you are more likely to wake up if you hear your own name spoken rather than someone else's name. And a mother may be able to sleep through the noise of an aeroplane flying low over the house but will wake up at the slightest sound of her child's cry. This indicates that there is some awareness, even while asleep.

Sleep is an innate biological rhythm, so we can never do without it. Because it is a biological rhythm, daily sleep and waking periods create sleep patterns. People who do not get enough sleep suffer symptoms of sleep deprivation, such as problems with paying attention, staying alert and doing cognitive tasks.

What happens when we sleep? The changes that come with sleep can be measured with an electroencephalograph or EEG machine. The brain gives off tiny signals that can be amplified and recorded, and in this way we can identify four sleep stages, based on brain wave patterns and behavioural change. In addition to the sleep stages (or S-sleep), there is a stage called D-sleep during which dreaming occurs. Write down the characteristics of the four stages of S-sleep and the main differences between S and D-sleep.

Activity 3

In comparison with D-sleep, S-sleep is characterised by:

1. more dream activity
2. synchronisation of brain waves
3. beta activity
4. all of the above.

Answer

The correct answer is option 2 because S-sleep is characterised by synchronisation on the EEG. D-sleep is desynchronised sleep. Option 1 refers to D-sleep and is therefore not the right answer. Beta activity is relatively fast activity that is characteristic of wakefulness and therefore option 3 is also wrong. Because options 1 and 3 are wrong, option 4 is also wrong.

03

The functions of sleep

You can recognise the functions of sleep if you:

01 describe the cognitive theory and neurobiological perspective on the functions of sleep.

Resource

A–Z: States of consciousness

Activity 1

Study: Functions of sleep.

Activity 2

Which of the following indicate(s) an important similarity between the cognitive theory and Crick and Mitchison's neurobiological theory on the functions of sleep. Both theories . . .

1. emphasise that REM sleep is the brain's updating mechanism
2. emphasise that no information or control programmes are lost as a result of updating
3. indicate that it could be important to forget dreams because they contain rubbish that the brain needs to get rid of
4. all of the above.

Answer

Option 1 is the correct one. The important similarity is that both theories accept REM sleep as the essential mechanism which makes updating possible, so that the brain can deal effectively with new input. Options 2, 3 and 4 are wrong because the two theories differ widely on some topics, such as the retention or loss of information during updating and dreams as a source of information. Crick and Mitchison's theory is reflected in option 3 and the cognitive theory in option 2, therefore these two options as well as option 4 are not correct.

04

Four sleep disorders

You can recognise four sleep disorders if you:

01 identify insomnia, catalepsy, narcolepsy and sleep apnea.

Resource

A–Z: States of consciousness

Activity 1

Study: Sleep disorders.

Activity 2

Peter is a politician who has a seat in one of the front rows in parliament. He actually finds this embarrassing because he is often overcome by an uncontrollable urge to sleep, even though he is interested in the ongoing debate. Despite his determination to stay awake he falls asleep and wakes refreshed after two to five minutes of sleep. Peter's condition is known as . . .

1. insomnia
2. narcoleptic sleep paralysis
3. narcoleptic sleep attack
4. sleep apnea.

Answer

An uncontrollable urge to sleep is called a narcoleptic sleep attack and therefore option 3 is correct. Option 1 is not correct because insomnia refers to an inability to fall asleep. Sleep paralysis is a form of catalepsy. It occurs just before or after normal sleep and the person is unable to move. Option 2 is therefore wrong. Option 4 is also wrong. During sleep apnea, the person stops breathing for periods of 20 seconds to 2 minutes. As the need for oxygen becomes intense, the person wakes up a little and gulps for air.

05

The nature of hypnosis

You recognise the nature of hypnosis if you:

01 indicate the relation between hypnosis and arousal
02 indicate the effects of hypnosis on behaviour.

Resource

A–Z: States of consciousness

Activity 1

Study: Hypnosis.

Activity 2

Which of the following can definitely be achieved with hypnosis?

1. unusual strength
2. improved memory
3. sleeplike brain waves
4. pain relief

Answer

Option 4 is the correct one. Hypnosis can help to decrease pain, largely through relaxation and suggestions that lessen the associated emotional intensity. Option 2 is incorrect because hypnosis does not improve memory, nor does it give people added strength so option 1 is also incorrect. Hypnosis is not a sleep state and therefore option 3 is also incorrect.

06

The effects of psychoactive drugs

You can recognise the effects of psychoactive drugs if you:

01 identify four groups of psychoactive drugs
02 indicate the general effect of each of these drugs on a person's level of consciousness.

Resource

A–Z: States of consciousness

Activity 1

Study: Effects of psychoactive drugs.

Activity 2

Psychoactive drugs are defined as substances that are capable of altering attention, judgement, memory, time sense, self-control, emotion or perception. Make a list of the four groups of psychoactive drugs (stimulants, depressants, hallucinogens, inhalants) and give an example of each.

Activity 3

Which of the following is a depressant/ are depressants?

1. alcohol
2. cocaine
3. amphetamine
4. all of the above

Answer

The correct answer is option 1. People often think of alcohol as a stimulant because people who drink often become loud and boisterous but it is actually a central nervous system depressant. It depresses the brain's inhibition centres so that people become less inhibited. When they are less inhibited they tend to be more noisy and act in silly ways. Options 2 and 3 do not provide the right answer because cocaine and amphetamine are stimulants. Option 4 is therefore incorrect because it includes options 2 and 3.

End of learning opportunity.

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-04
Learning opportunity

Explore the concepts of sensastion and perception

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the concepts of sensation and perception.

Standards

You have sufficient knowledge of the concepts of sensation and perception if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the concepts of sensation and perception if you are able to recognise:

01 the five sensory systems
02 the nature of the relation between sensation and perception
03 the way sensory information is received
04 the way sensory information is converted to nerve impulses
05 the characteristics of visual information
06 the different types of visual receptors
07 the nature of basic visual processes
08 the nature of colour vision
09 the route of the visual pathway to the brain
10 the phenomenon of the orienting response
11 the laws of perceptual organisation
12 the concept of perceptual constancy
13 the nature of visual illusions
14 the relation between attention and perception
15 the determinants of attention
16 the effects of experience on perception.

METHOD

01

The five sensory systems

You can recognise the five sensory systems if you:

01 identify the visual, auditory, somaesthetic, chemical and proprioceptive systems
02 identify the relevant sensory modality for each system
03 identify the main body organ involved in each system.

Resource

A–Z: Sensation and perception

Activity 1

Study: Sensory systems

Activity 2

The environment around us is constantly changing and the way we become aware of and communicate with our environments (the outside world as well as the internal world of our own bodies) is through receiving and processing sensory information. Each sensory modality (or sense, such as smell or body movement or vision) has its own sensory system involving specific organs of the body.

Identify the sensory systems for the various modalities and the organ of the body involved in each one. Make sure you understand the unfamiliar words. You might want to list the unfamiliar or difficult words in your notebook and write the everyday meaning next to each one. For example, if proprioceptive is an unfamiliar term, write it down with its meaning, movement and orientation in space, next to it.

Activity 3

Chose the correct words from the following list to fill in the missing words (a) to (g) in the table below.

retina (eye), muscles, skin, taste, hearing, vestibular, nose

Table 1: Sensory systems

system	**modality**	**body organ**
proprioceptive	kinaesthetic	(a)
	(b)	inner ear
chemical	(c)	tongue
	smell	(d)
somaesthetic	touch, pressure, temperature, pain	(e)
	vision	(f)
auditory	(g)	inner ear (cochlea)

Answer

(a) muscles, (b) vestibular, (c)taste, (d) nose, (e) skin, (f) retina (eye), (g) hearing.

02

The nature of the relation between sensation and perception

You can recognise the nature of the relation between sensation and perception if you:

01 identify the differences between sensation and perception.

Resource

A–Z: Sensation and perception

Activity 1

Study: Sensory systems.

Activity 2

Write down the difference between the concepts of sensation and perception.

Answer

Your answer should indicate that sensation refers to the process of receiving information from the environment, translating it and transmitting it to the brain, and perception is the process of interpreting that information and forming meaningful images of the world.

Activity 3

Perception is not just an event, it is actually a process. The process takes place very quickly – there is a time lapse of less that a second between stimulation of the receptor cells and the formation of conscious perceptual experience. In this learning opportunity you will examine the process in more detail. It starts at the point where information is received by the sense organs (task 03). If the sensory stimuli are sufficiently strong to cross the threshold, they are converted to nerve impulses (task 04). The sensory messages in the form of nerve impulses then travel to the brain where they are interpreted. Although there are several different sensory systems, in this learning opportunity we shall deal with only one of them in detail, and that is the visual system (tasks 05-09). As the message proceeds from the sense organs to the brain, it becomes more organised and specific (tasks 10–12) and processing becomes semi-automatic, that is, it is accompanied by a slight increase in the level of conscious awareness. The end-product of the process of perception occurs when meaning is given to the sensory information. At this point, there is a high level of awareness. At this level, perception is enhanced through attention (tasks 14 and 15) and influenced by our personal experiences (tasks 16). In this final stage, we are fully aware of forming percepts (the products of the process of perception) and there is conscious control over information processing.

Question

Sarah was born blind. Does this mean that perception is impossible for her? Write down your thoughts on this question.

Answer

If you answered "yes" – that Sarah is not capable of perception, you need to revise this section very carefully. Perception relates to all the sensory systems (sight, hearing, smell, taste and touch). If someone is blind, only one sensory system (visual) is affected. Perception can still take place through the other sensory systems.

03

The way sensory information is received

You can recognise the way sensory information is received if you:

01 identify the nature of a stimulus and a receptor.
02 identify the nature of a differential threshold.

Resource

A–Z: Sensation and perception

Activity 1

Study: Receptors.

Activity 2

The term *stimulus* will be familiar to you because it crops up in everyday life and in many different situations. But have you ever stopped to think what it means? A stimulus is any aspect of the environment or occurrence in the environment (it may be the outside environment or the internal environment of our bodies) that directly influences our responses, behaviour or experiences. The word stimulus comes from the action of stimulating sensory receptor cells in the sense organs. We are aware of the outside world and the internal world of our bodies only because we have a number of sense organs that are able to receive messages by means of the receptor cells. What are *receptors*? The word receptor comes from the word 'receive', therefore a receptor is the thing (in this case, the cells) that receives the stimulus. Let's look at an example. When you eat, the food is the stimulus that stimulates your senses of taste and smell through the receptors in the tongue and nose. In this situation, the food is a stimulus from the outside world. If you eat too much, you feel bloated and the feeling in your stretched stomach becomes a stimulus that tells you to stop eating. In this case, the food in your stomach is a stimulus from your internal environment.

Question

Identify the stimulus and receptor in the following example: It is a cold day and you put on a jersey. When you get inside the library, the air conditioning is on and you begin to feel too hot so you take off your jersey.

Answer

If you understand the concepts of stimulus and receptor, you would have correctly answered that the temperature (cold or hot) acts as a stimulus through the sensory receptors in your skin.

Activity 3

Not every sensory message can be detected by the receptor cells. A stimulus has to be strong enough to excite the cells and that point at which the stimulus is strong enough to be detected is called a threshold. You can do your own experiments to find out about thresholds. For example, find out the weakest touch or smell stimulus you can detect and write it down in your note book. To establish a differential threshold, for example, you need to find a friend to help you, as follows: the friend should hold two pins next to each other and gently touch your arm. You will probably experience the sensation of just one pinprick. Then ask your friend to separate the pins very slightly and touch you again. Do you still feel one pinprick? Separate the pins just a little more until you feel two pinpricks, not one. That is the differential threshold.

04

The way sensory information is converted to nerve impulses

You can recognise the way sensory information is converted to nerve impulses if you:

01 Identify the nature of sensory transduction and adaptation.

Resource

A–Z: Sensation and perception

Activity 1

Study: Transduction and generator potentials.

Activity 2

Energy from stimuli, such as light or smell, cannot travel through nerves directly to the brain. In order that the brain can understand what the stimulus energy means, the receptors have to convert sensory messages into nerve impulses carried by the neurons to the brain in a form that the brain can understand. The translation of one form of energy to another is called *transduction*. The sensory receptor cells are specialised neurons in the sense organs that are excited or stimulated by specific kinds of sensory energy. The sensory receptor cells then convert or transduce sensory energy into nerve energy. This is called a generator potential. The sensory neuron then carries the coded nerve impulse to the relevant sensory area in the brain.

Our sensitivity to stimuli does not stay constant. For example, you might notice a bad smell when you come into a room but the smell seems less intense as time goes by. This is because receptor cells get tired and therefore the sensation becomes weaker when a stimulus is continuously presented or frequently repeated. This is called sensory *adaptation*. For example, the first time you put your hand into a basin of hot water it might feel uncomfortably hot but after putting your hand in a few times in the next minute, it is no longer uncomfortable because the temperature receptors in the skin have adapted to the temperature of the water.

Activity 3

Conversion (transduction) refers to . . .

1. the change in energy from one form to another by the receptors
2. the projection of information from the receptors to the brain

3. the reduction of frequency at which neurons fire when there is continued stimulation
4. the just noticeable difference in sensory reception.

Answer

The correct answer is option 1. Option 2 is not the right one because transduction refers to the process of converting sensory energy to nerve energy that takes place at receptor level. Option 3 describes sensory adaptation and is therefore not the right answer. Option 4 describes the differential threshold and is therefore not the right answer either.

05

The characteristics of visual information

You can recognise the characteristics of visual information if you:

01 identify and explain the terms describing the nature of light.

Resource

A–Z: Sensation: The visual system

Activity 1

Study: Visual information.

Activity 2

In this learning opportunity only one of the sensory systems will be covered in detail, and that is the visual system. Some knowledge of the nature of light is needed in order to understand vision. Make sure you understand the following terms: photons, wavelength, hue, amplitude, brightness, purity and saturation.

Activity 3

The . . . of the light largely determines the colour that we see.

1. intensity
2. amplitude
3. saturation
4. wavelength.

Answer

Option 4 is the correct answer – the length of the light wave determines the colour that is perceived. Saturation is associated only with the purity of the wavelength and therefore option 3 is not the right one. Amplitude is associated with brightness and therefore option 2 is incorrect. The intensity of the light stimulus determines whether the receptor is activated or not and does not directly determine the colour that we see (therefore option 1 is also incorrect).

06

The different types of visual receptors

You can recognise the different types of visual receptors if you:

01 identify the main structures of the eye and their functions
02 explain the terms visual acuity and accommodation.

Resource

A–Z: Sensation: The visual system

Activity 1

Study: Parts of the eye.

Activity 2

To understand the visual system, it is important to know how the eye works. Make sure that you understand the functions of the following structures: cornea, iris, pupil, lens, ciliary muscle, retina, fovea, rods, cones, optic nerve, optic disc and ocular muscles. Make a list of these words and next to each one write a description of its function. Also write down your own definitions of the terms accommodation and visual acuity.

Activity 3

The density and type of visual receptors on the retina varies in different creatures to help them adapt to the demands of their environment. For example, animal species like rats that are active mostly at night have mostly rods (rather than cones). Birds of prey have a greater density of receptors on the top of the retina so that they can see the ground beneath them in detail while they are flying and looking down. In humans, the centre of the retina (the fovea) has the most cones which is an adaptation for highly detailed vision, such as reading letters of the alphabet. Further away from the fovea there are fewer cones and that is why you are colourblind in the periphery (or furthest outside part) of your eye. You can test this with the following experiment: hold several pens or pencils of different colours behind your back. Pick one at random without looking at it. Hold it behind your head and slowly bring it round the side of your head into your field of vision. When you just start to see it, you will probably not be able to tell what colour it is. As you bring it to the centre of your vision, the colour is clearer.

Activity 4

Match the information about parts of the eye (column A) with their functions (column B).

Column A		Column B	
1.	cornea	A.	bends light to focus it on the retina
2.	iris	B.	changes the shape of the lens
3.	pupil	C.	plays a role in daylight and colour vision
4.	lens	D.	regulates the amount of light by reflexively contracting and relaxing
5.	retina	E.	plays a role in night vision

Column A		Column B	
6.	ciliary muscle	F.	causes the blind spot
7.	optic disc	G.	area of retina with greatest visual acuity
8.	fovea	H.	bends light in the direction of the lens
9.	rods	I.	move the eye
10.	cones	J.	sends visual information from the retina to the brain
11.	optic nerve	K.	gets bigger and smaller like the iris
12.	ocular muscle	L.	contains photoreceptors

Answers

1 – H, 2 – D, 3 – K, 4 – A, 5 – L, 6 – B, 7 – F, 8 – G, 9 – E, 10 – C, 11 – J and 12 – I.

07

The nature of basic visual processes

You can recognise the nature of chemical processes if you:

01 describe the changes in photopigments with light stimulation
02 identify the role of photopigments in responding to dark and light conditions.

Resource

A–Z: Sensation: The visual system

Activity 1

Study: Visual receptors.

Activity 2

People with normal vision can see because of processes that take place in their retinas. Visual sensations depend on chemicals called photopigments. When light falls on the rods or cones it breaks down the photopigments and this are the beginning of the process by which nerve impulses are eventually sent along the optic nerves to the brain. After the photopigments are broken down by light, they are re-synthesised again.

Question

When light falls on the cones . . .

1. rhodopsin breaks down into retinene and rod opsin
2. iodopsin breaks down into retinene and cone opsin
3. rhodopsin begins to form again
4. iodopsin begins to form again

Answer

The correct answer is option 2 because the cones contain the photopigment iodopsin. The rods contain rhodopsin and therefore option 1 is not the right answer. The photopigments re-synthesise only when no light falls on the retina, and therefore options 3 and 4 are not correct.

Activity 3

The light receptors (or photoreceptors) are also important for dark and light adaptation. Dark adaptation is the process by which the eyes become more sensitive to light. You can demonstrate dark adaptation for yourself. Try this: on a dark night, with only a little light coming through your windows, turn on a light in your room. Close one eye and cover it tightly with your hand for a few minutes. After a few minutes your covered eye will be adapted to the dark and your open eye will be adapted to the light. Then turn off your light and open both eyes. You will see well with your eye that is adapted to the dark and poorly with the eye that is adapted to the light.

Activity 4

When we leave the bright sunlight and enter a dark theatre, for the first few moments we can hardly see anything. To prevent this from happening, Basetsane shuts her eyes tight for a few moments before she enters the theatre. When she opens her eyes inside the theatre, she can see very well. What has happened and what do we call this phenomenon?

1. the lens becomes flatter; accommodation
2. desensitisation to light; light adaptation
3. recomposition of photopigments; dark adaptation
4. 1 and 3.

Answer

The correct answer is option 3. Closing the eyes shuts out the light and allows the eye to adapt to the dark (and re-synthesise the rhodopsin) so that you can see better in a darkened room. Option 2 refers to the opposite process - when we are in bright light we try to limit the amount of light that enters our eyes so that we can adapt to the bright light. Option 1 is incorrect because it refers to changes made by the lens to keep an object in focus as the distance from the eye changes. Option 4 is obviously not the right one because it includes option 1.

08

Colour vision

You can recognise the nature of colour vision if you:

01 identify the nature of the trichromatic, opponent-process and retinex theories of colour vision.

Resource

A–Z: Sensation: The visual system

Activity 1

Study: Colour vision and colour blindness.

Activity 2

You have already established that different colours of light correspond to different wavelengths of electromagnetic energy. Now we need to examine how the visual system converts these wavelengths into our perception of colour.

Make sure you know the names of the theories and that you can explain them. One way to test yourself is to explain to a friend in simple terms how we see colour. You will then find out very quickly whether you have understood the study material or not.

Activity 3

The trichromatic theory of colour vision . . .

1. is also known as the Hering theory
2. explains colour blindness
3. describes events at the level of the photoreceptors
4. explains how the cortex compares colour information.

Answer

Option 1 is not correct because the Hering developed the opponent-process theory, which also explains colour blindness and therefore option 2 is also incorrect. Option 4 refers to the retinex theory and is therefore not the right one. Option 3 is therefore correct - the trichromatic theory explains colour vision on the basis of three retinal systems (red, green and blue).

09

The nature of the visual pathway to the brain

You can recognise the nature of the visual pathway to the brain if you:

01 identify the route of the visual pathway from the retina to the occipital lobes.

Resource

A–Z: Sensation: The visual system

Activity 1

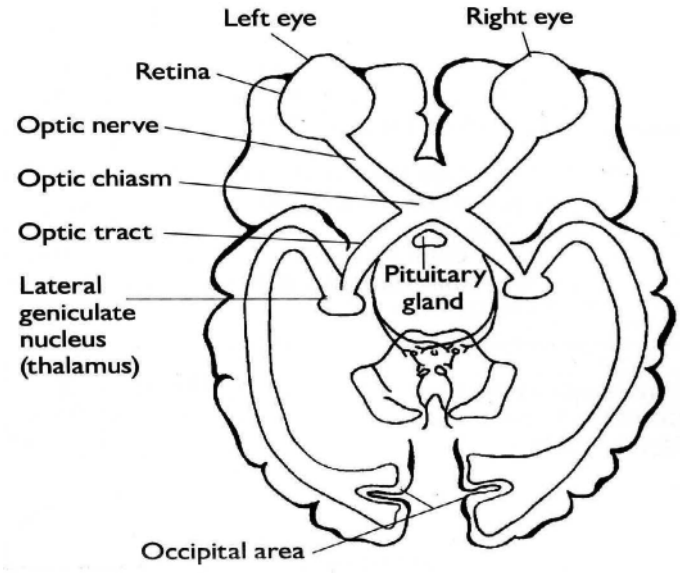
Study: The visual pathway.

Activity 2

Do the following exercise. You will need two different coloured pens or pencils, red and blue (if you don't have red and blue, any colour will do).

There are two optic nerves - one goes from each eye to the brain. Some of the axons in each optic nerve cross approximately at the base of the midbrain to reach the other side of the brain. This crossing point is called the optic chiasm. The remaining axons of the two optic nerves reach the brain on the same side. In order to understand this route, fill in the pathway on the following diagram on the next page.

In order to visualise what this diagram represents, imagine that you have a model of a brain in a skull. You place the model on a table in front of you (with the eyes facing forwards, away from



you) and now you are looking down on to the top of the model. Then imagine you can cut the brain model horizontally, from above the eyes in the front to the back of the brain, and remove the top part. What you are left with is a view from above of a cross section of the brain. This is what is represented in the diagram here. Now do the following.

1. Draw a red dotted line from the outer half of the left eye to the optic chiasm, then go left through the thalamus and end in the occipital area at the back of the brain.
2. Draw a solid (or unbroken) blue line from the inner half of the left eye to the optic chiasm. Continue the line so that it crosses the chiasm, goes through the thalamus and ends in the occipital area. Your lines represent the routes of the optic nerves. From this diagram you can see that the left eye send visual information to both halves of the brain. Nerve fibres from the outer half of the left eye stay in the left hemisphere and those from the inner half of the left eye cross over to the right hemisphere.
3. Now draw a solid red line from the inner half of the right eye to the optic chiasm, across it to the left thalamus and from there to the occipital area in the left hemisphere.
4. Finally draw a dotted blue line from the outer half of the right eye to the optic chaism, keep right and go through the right thalamus to the right occipital area. From this you can see that the right hemisphere receives information from both eyes.

The red lines show the source of messages that reach the left visual cortex, and the blue lines show the route of the messages that reach the right visual cortex.

Check your diagram with Figure 2 to make sure that you have represented the visual pathway correctly.

Activity 3

You may wonder why this kind of information is important. Understanding the visual pathway makes a valuable contribution in neuropsychological rehabilitation, for example. Imagine that a patient has surgery for removal of a tumor and in the process the optic nerve is severed in the area of the right hypothalamus. What would happen to the patient's vision? Looking at your

diagram, you can see that the patient would not be able to interpret information that comes from the inner half of the left eye and the outer half of the right eye (follow the blue lines). Because the route is interrupted by the severed optic nerve in the area of the thalamus, the message therefore does not reach the visual cortex where it is interpreted. In rehabilitation, the patient would then have to be helped to compensate for this visual difficulty.

To make sure that you have understood correctly, fill in the missing words in the sentences that follow.

A The axons that come from the outer half of the left eye . . . at the optic chiasm.
B The axons from the inner half of the right eye, end in the . . . hemisphere.

Answer

A do not cross
B left.

10

The phenomenon of the orienting reaction

You can recognise the phenomenon of the orienting reaction if you:

01 indicate the meanings of the terms orienting reaction, monitoring, habituation and dishabituation.

Resource

A–Z: Sensation and perception

Activity 1

Study: Monitoring – the orienting reaction (OR).

Activity 2

Although we are generally not aware of it, we are constantly monitoring our environment. This means that we are processing information very rapidly and keeping a watchful eye on potentially significant events around us. How does this happen? Incoming sensory information is compared with information in memory and this enables us to decide whether the information needs more attention or not. Remember that this happens very quickly and below the level of awareness (in other words it is an automatic process). The response may be in reaction to events in the outside environment as well as changes inside you.

When sensory information reaches the brain, the body generally has a "What is it?" reaction. This is known as the orienting reaction (OR) and it occurs below the level of awareness. An OR is a form of arousal and prepares us to receive information from a stimulus. Have you ever seen someone do a double take (briefly pass their eyes over something and then immediately turn back to look again)? This is a form of OR and there are certain bodily changes associated with it.

What happens to the OR when the stimulus that first triggered it is presented repeatedly? You will find the answer in this section. For example, when you buy a new CD, the music holds your attention the whole way through when you first listen to it. After you have played it a number of times, you don't really attend to it much. In other words, when the stimulus (the music) is repeated without change, the OR decreases or habituates. If a friend comes to visit and asks

to hear the CD, you listen together and talk about different songs almost as if you were hearing them for the first time again. This means that the OR has become dishabituated (that means no longer habituated) and you attend to the CD again.

Activity 3

You are driving on a tarred road and get so used to the sound of the tyres that you are no longer aware of the sound they make. You then turn off onto a gravel road and suddenly you are very aware that the tyres make a different sound. This heightened awareness can best be explained in terms of

1. dishabituation following habituation
2. monitoring
3. habituation following dishabituation
4. orienting responses.

Answer

This is a tricky question because there are several options that are possibly correct. Let's start with the obviously incorrect one – option 3. When you get used to the sound of the tyres, habituation occurs. When there is a change in sound on the gravel road, you become dishabituated. Therefore option 3 cannot be correct. Options 2 and 4 are correct in a certain sense because the process of monitoring allows you to keep track of things in the environment and the orienting response allows you to be aware of changes. However, option 1 is the best answer because it is more specific and comprehensive.

11

The laws of perceptual organisation

You can recognise the laws of perceptual organisation if you:

01 identify the difference between figure and ground
02 identify contour, closure and grouping.

Resource

A–Z: Sensation and perception

Activity 1

Study: Laws of perceptual organisation.

Activity 2

Up to now we have dealt with the reception of information on a sensory level and automatic responses to that information. Sensations that are transmitted to the brain have little meaning on their own. Because they are in the form of nerve energy, they must be organised and interpreted in the process we call perception. Visual sensations are like the separate parts of a washing machine – they have to be put together in an organised way before they are useful to us. In this section we look at the way sensory information is perceptually organised into something meaningful. Now look at this:

O O O O O O
Q Q Q Q Q Q
O O O O O O
Q Q Q Q Q Q

When you look at this picture, you see rows of O and rows of Q, and not columns of O alternating with Q. Which law of perceptual organisation accounts for this?

1. contour
2. proximity
3. similarity
4. closure.

Answer

This is an example of perceptual grouping, more specifically similarity. The similar shapes are seen as belonging together. Therefore option 3 is correct. Although the grouping is based on shape, it is based on similarity not proximity (distance between them) and that is why option 2 is not correct. The different shapes do not constitute figure and ground therefore contour is not relevant (the boundary between figure and ground) and option 1 is not correct. The shapes are not incomplete and therefore closure (option 4) is not applicable either.

12

The concept of perceptual constancy

You can recognise the concept of perceptual constancy if you:

01 identify the four functional attributes of perceptual constancy.

Resource

A–Z: Sensation and perception

Activity 1

Study: Perceptual constancy.

Activity 2

We know that objects like tables and chairs do not change from moment to moment. However, the size of the image on the retina does change as we move closer or further from an object. The fact that we see objects that we know well as the same size and shape, no matter from what angle or distance we see them, is a characteristic of perception called *perceptual constancy.* Write down the four functional attributes of perceptual constancy and give an example of each, based on your own experience.

Activity 3

You see a soccer ball as round from every angle that you look at it. This can best be explained by the statement that . . .

1. the image that is projected onto the retina keeps a constant size and shape, whatever the distance between you and the ball

2. the constant shape is maintained because there is a compromise between the retinal facts, the angle of the ball and previous experience
3. the projected images on the retina keep a constant shape, whatever your position in relation to the ball
4. previous experience enables you to maintain perceptual constancy.

Answer

Options 1 and 3 are wrong because retinal images do not keep constant size. It is the compromise between the retinal image and previous experience that allows perceptual constancy. Option 2 is therefore the best answer. Previous experience alone (option 4) is not sufficient.

13

The nature of visual illusions

You can recognise the nature of visual illusions if you:

01 provide a definition of visual illusions.

Resource

A–Z: Sensation and perception

Activity 1

Study: Illusions.

Activity 2

Is what we see the same as the visual information that enters our eyes? The existence of visual illusions tells us that this is not so. Write down the illusions you have encountered in your everyday life.

Activity 3

An illusion can best be described as . . .

1. the incorrect perception of something because its component parts are combined wrongly in our minds
2. the incorrect perception of the subjective characteristics of an object
3. the incorrect perception of the objective characteristics of a situation because of the way we subjectively combine the elements in our minds
4. 1 and 3.

Answer

Option 3 provides the best answer, containing all the essential elements: incorrect perception, objective characteristics, and subjective combination of characteristics in our minds. Option 4 is correct in a way, because option 1 is essentially correct although it is not as extensive as option 3 (that includes the notion of objective characteristics). Option 2 is incorrect: we see the objective (not subjective) characteristics of something but the illusion is created because we

combine the characteristics or elements incorrectly in our minds. The combination in our minds is a subjective process.

14

The relation between attention and perception

You can recognise the relation between attention and perception if you:

01 indicate the nature of parallel processing of information.

Resource

A–Z: Sensation and perception

Activity 1

Study: Attention.

Activity 2

We have already discussed how sensory information is received on receptor level (see task 03), how information is processed automatically (see task 04), how the incoming information is compared with related memory information on an unconscious level (the OR, see task 10) and then organised on a low level of awareness (perceptual organisation, see task 11). We now look at the way information is selected and organised at a high level of awareness, through consciously paying attention to the information we receive. The end-products of the process of perception are the things that we perceive (also called percepts) and these are maintained by paying attention. For example, you may be waiting to meet someone at a soccer match. Your eyes constantly pass over the people around you but you are specifically looking for one face in the crowd. In other words, you are paying attention in looking for a specific stimulus. In this way you are selecting and organising information at a high level of awareness. If you were not paying particular attention, you would only be aware of the crowd and not of individual faces.

We know through our own experience that our attention fluctuates, in other words it gets better or worse, depending on what we are doing and how important the task or situation is to us. Being able to pay attention to different things at different times and at different levels of intensity is a very important function. If we were not able to do this, we would be bombarded with so much information from everything that is happening around us, that we would not be able to function at all. Our consciousness would be a chaotic jumble of thoughts, feelings and sensations. Fortunately attention allows us to be selective, making us aware of some stimuli while blocking out others. Problems can however arise, as we have seen in the controversy about using cellular telephones while driving a car. Research has indicated that using a cellular telephone while driving distracts drivers from paying full attention and they may not notice or react to potentially dangerous situations. This may be because the personal nature of the stimulus information (the phone call) is more important to the person than the stimuli from the surrounding environment. We know that we give greater attention to important stimuli than to other information that is subjectively regarded as less important.

Make notes on the three levels of parallel processing, giving examples from your own experience for each one.

Activity 3

The fact that people can actually divide their attention means that the parallel processing of information is possible. Write down the factors that promote parallel processing.

Answer

When you have completed your list, check that it includes the following: greater similarity of tasks, greater degree of training and practice, the more automatic the task and the slower the processing tempo.

15

The determinants of attention

You can recognise the determinants of attention if you:

01 identify the external and internal factors that influence attention.

Resource

A–Z: Sensation and perception

Activity 1

Study: Determinants of attention.

Activity 2

It has already been mentioned that we cannot pay attention to everything around us. However, in everyday life it often happens that we have to attend to several things at the same time. What determines whether we attend to a stimulus or not? Research has indicated that there are certain stimulus characteristics that demand our attention more than others.

Imagine that the Department of Health wants to launch a campaign that promotes healthy living. You are appointed as campaign manager. You have to find ways of focusing the general public's attention on the link between our lifestyle and our mental health. How would you apply what you know about the determinants of attention to make this campaign a success? Write down your ideas.

Activity 3

In addition to external determinants of attention, internal determinants are also important. One of the internal determinants is perceptual set. Another term for set is perceptual expectancy. Past experiences, motives, suggestions or certain contexts can create a perceptual expectancy or set that prepares you to see things in a certain way.

Imagine that you are driving through the Karroo where the towns are far apart and you notice that your fuel tank is nearly empty. You see a sign ahead and to your relief you read FUEL AHEAD on the sign. Actually, the sign says FOOD AHEAD and not FUEL AHEAD. Why did you read 'fuel ahead'?

Your perceptual set (in this instance it refers to the specific context of worrying about your fuel

situation) influences you to see the word as fuel not food. Perceptual set can also influence the way we see other people and we have to guard against the danger of judging people in terms of perceptual expectancy and not for what or who they really are. However, perceptual set is not always negative. For example, expectations can affect responses to pain. A research study found that women who expected childbirth to be painful experienced less intense pain than those who did not consider pain a part of the delivery.

Activity 4

Advertisements are intended to attract and hold people's attention and to motivate people to buy the advertised products. Which one of the following combinations of attention determinants should produce the best results in an advertisement?

1. the determinants of colour and contrast
2. external and internal determinants
3. novelty, unexpectedness and incongruity
4. the determinants that create the effect of set.

Answer

You know from your reading that both internal and internal determinants of attention are important, and therefore option 2 is the correct one. The other options are not correct because options 1 and 3 refer to external determinants only and option 4 refers to internal determinants only.

16

The effects of experience on perception

You can recognise the effects of experience on perception if you:

01 indicate that perception is a subjective process.

Resource

A–Z: Sensation and perception

Activity 1

Study: Intersubjectivity of perception.

Activity 2

Now that you have studied the nature of perception, you need to consider the question of whether what you see is what you perceive. In other words, is perception an objective process? Our perception of objects depends on our prior experience with them. For example, most people can identify different types of cars but people who are car enthusiasts pay more attention to cars and can identify different models of one kind of car. Expertise sharpens our ability to notice details. The more we learn about objects and the more familiar they become, the more details we recognise.

Do the following exercise to find out for yourself whether perception is an objective process. Show your friends a picture (it can be a picture of nature or work of art or anything you like) and ask them what they think of it. You will probably get many different opinions. Think of your

favourite songs or pieces of music and ask yourself why you like them or what they remind you of. You may enjoy hearing a certain type of music when you are in a good mood, or another type when you are sad, or certain songs because they remind you of people you care about. This illustrates that we attach meanings to what we see (or hear or smell or taste etc) and that sensory experiences do not mean the same to everyone. This is one of the reasons for individual differences in behaviour.

Activity 3

It is also important to remember that our perceptions of things, people and events are a reflection of our own needs, expectations, attitudes, values, beliefs and life experiences, including cultural factors. We need to be aware of the ways in which motives and emotions can influence perceptions and that there are many different ways of "seeing" something. You can be a better "eyewitness" to life by enhancing perceptual accuracy in the following ways:

- Break perceptual habits and interrupt habituation by changing routines, doing some activities in different ways or trying to look at friends or family members as if they are people you have just met for the first time.
- Beware of perceptual sets and the danger that your perceptions will be distorted by expectations, labels and stereotypes.
- Try to see people as individuals and events as unique, one-time occurrences.
- Make a habit of engaging in reality testing - ask questions and find other channels of information because perception is not automatically accurate. We are all wrong at times.
- Pay attention consciously to other people and your environment. Being aware enhances your perceptual accuracy.
- Broaden your perspective by trying out new things and interacting with people who have opinions different to your own.
- Remember that perceptions are reconstructions of reality. Learn to regularly question your own perceptions, the assumptions you make and the possibility that they might be influencing your perceptions. There may be other interpretations of the facts.

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-05

Learning opportunity

Explore the concepts of cognition: thinking, reasoning and problem-solving

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the concepts of thinking, reasoning and problem-solving.

Standards

You have sufficient knowledge of the concepts of thinking, reasoning and problem-solving if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the concepts of thinking, reasoning and problem-solving if you are able to recognise:

01 the nature of thought as symbolic representation
02 the nature of images as a system of symbols
03 the nature of concepts as a system of symbols
04 the nature of conceptual hierarchies
05 stereotypes and prototypes
06 the relation between thought and language
07 the structure of reasoning
08 the two types of reasoning
09 the nature of everyday reasoning
10 five types of fallacies
11 the nature of critical reasoning
12 the nature of basic problem solving strategies.

METHOD

01

The nature of thought as symbolic

You can recognise the nature of thought as symbolic representation if you:

01 indicate that thinking is a form of visual or mental representation of things.

Resource

A–Z: Cognition: Thinking

Activity 1

Study: The nature of thought.

Activity 2

Solving problems, being creative and making decisions are all processes that depend on thinking, which is described as the purposeful manipulation of words and images.

Question

Which of the following cases are examples of thought as symbolic representation? Give reasons for your answer.

A Tshidiso is playing chess and plans her next move
B While John is playing cards with friends he sees that Peter has made a mistake that will help John win
C Busi is a beginner athlete and while she is running she is still very much aware of the running style that her trainer has recommended
D The little girl pulls her hand away when she touches the hot plate of the stove.

Answer

A Yes. Tshidiso forms a representation in her mind of how she plans her next move
B Yes. John sees that Peter makes a mistake and forms a representation in his mind about how he should move
C Yes. Although the action of running does not require symbolic representation but while Busi is running she thinks about her running style. She is probably seeing in her mind a representation of what she must do to improve her style, according to her trainer's recommendations
D No. Pulling your hand away from a hot stove is a reflex action and does not depend on symbolic representation.

02

The nature of images as a system of symbols

You can recognise the nature of images as a system of symbols if you:

01 identify images as a symbol system used in thinking.

Resource

A–Z: Cognition: Thinking

Activity 1

We have looked at symbolic representation as a characteristic of thinking. Now we look at different symbol systems used in thinking.

Study: Images.

Activity 2

Which one of the following is not a case of imaging?

1. Malesela needs a pen to make notes in his journal. He picks up the pen on his desk and begins to write
2. Last week Patricia saw something interesting in a book. She tries to remember what the book looks like and remembers that it has a blue cover
3. Vuyo visualises different solutions for a geometry problem
4. Thandi has to drive to unfamiliar place. She only looks at the map once and then visualises in her mind how to get to the place.

Answer

Option 1 is not an example of imaging. There is no indication that Malesela is using any kind of mental representation to pick up the pen. In all the other options, there are clear indications of mental images. In option 2 it is the appearance of a book, in option 3 they are solutions to a geometry problem and in option 4, a mental picture of a map.

03

The nature of concepts as a system of symbols

You can recognise the nature of concepts as a system of symbols if you:

01 identify physical and abstract concepts as symbol systems used in thinking.

Resource

A–Z: Cognition: Thinking

Activity 1

Study: Concepts.

Activity 2

Remember that a concept is not only a physical thing. We also refer to concepts of intangible things, in other words, abstract concepts. For example, thinking is a concept that refers to different thought processes.

Question

Identify the abstract concepts in the following list:

democracy
statue
beauty
view

Answer

Democracy and beauty are clearly abstract concepts. A statue may represent something, but a statue itself is not abstract, it is a tangible thing. View presents a dilemma, because it depends on which way we are using the word. If you say "Look at the lovely view", you are referring to a tangible thing (the surroundings). But if you say "Listen to my point of view", you are referring to an abstract concept (your thoughts about something).

04

The nature of conceptual hierarchies

You can recognise the nature of conceptual hierarchies if you:

01 arrange concepts according to subordinate, intermediate and superordinate levels in a conceptual hierarchy.

Resource

A–Z: Cognition: Thinking

Activity 1

Study: Hierarchical organisation of concepts.

Activity 2

Arrange the words in the list below in two different conceptual hierarchies. (Use the distinction between concepts on the superordinate, intermediate and subordinate levels.)

coffee table
furniture
rose
tree
lamp
table lamp
table
thorn tree
flower
plant

Answer

The two conceptual hierarchies can be compiled on the basis of (1) furniture and (2) plant. These are both concepts on the superordinate level. In the furniture conceptual hierarchy, table and lamp are on the intermediate level and coffee table and table lamp are on the subordinate level. In the plant hierarchy, flower and tree are on the intermediate level and rose and thorn tree are on the subordinate level.

05

Stereotypes and prototypes

You can recognise stereoptypes and prototypes if you:

01 indicate that stereotypes can lead to conceptual errors
02 indicate that prototypes are models of concepts.

Resource

A–Z: Cognition: Thinking

Activity 1

Study: Conceptual errors and prototypes.

Activity 2

The parents committee of girls' school decides that there should be one basic uniform for the school, with small changes to differentiate the junior, middle and senior school and to indicate girls who have attained specific academic, sport and cultural achievements. The basic uniform can best be described as . . .

1. prototype
2. stereotype
3. concept
4. image

Answer

The correct answer to this question is option 1. The basic uniform is the basic model of the concept of uniform, on which all of the other slightly different uniforms are based. Option 3 is correct in the sense that a uniform is a concept but the question asks for the 'best' description. In this instance, prototype is a better (more specific) answer than concept. Option 2 is not correct because we are dealing with a real object and not a symbolic representation (image) of an object.

06

The relation between thought and language.

You can recognise the relation between thought and language if you:

01 identify the role of inner speech in thinking
02 identify the role of language in mediating thought
03 indicate that thinking without language is possible.

Resource

A–Z: Cognition: Thinking

Activity 1

Study: Language.

Activity 2

The relation between thought and language is the subject of continued philosophical debate and cannot be solved here. However, it is important that you recognise that there is a relation between the two concepts of thought and language (do you recognise them as concepts?).

Question

Experiments show that people who use inner speech have more success in solving problems than people who do not use inner speech. This is because . . .

1. language plays a mediating role when we process perceptual impressions and reconstruct a problem situation in words
2. problem solving is made easier by the fact that when we think, the words and concepts are identical
3. human thought cannot take place without language
4. language is a system of symbols.

Answer

The correct answer is provided by option 1. The discussion in A-Z should help to explain why. Note that although option 2 sounds right, words and concepts are not the same thing. Option 3 is also wrong – we know that human thought can in fact take place without language. Option 4 is a correct statement, but it does not provide the correct answer to the question, that is, it does not explain the connection between inner speech and successful problem solving.

07

The structure of reasoning

You can recognise the structure of reasoning if you:

01 identify premises and conclusions.

Resource

A–Z: Cognition: Reasoning

Activity 1

Study: The structure of reasoning.

Activity 2

Each one of us uses reasoning everyday in different ways. Sometimes we reason well and sometimes not so well. In this section you will examine the nature of reasoning and this should help you improve your own ability to reason well. If there are words you do not understand, like propositions, look them up in a dictionary or ask other people what they mean. Make sure that you can identify premises and conclusions.

Activity 3

Which of the following statements involve reasoning, according to the definition in A-Z?

A I provide premises and you draw conclusions.
B It really is cold today, hey!
C It is actually important to respect your neighbour, isn't it?
D You've got no argument!
E The South Africans will beat the Australians on the cricket pitch. They have the best combination of batters and bowlers.

1. A,B, C, D and E
2. E

3. A, D and E
4. A and D

Answer

The answer to the question is option 2 (statement E). It is the only statement that has the structure of an argument, that is, a conclusion and a supporting premise. The conclusion is that the South Africans will beat the Australians and the premise is that the South Africans have the best combination of batters and bowlers. Also note that the premise is relevant to the conclusion, that is, the reason that is given is relevant to the game of cricket. You may wonder why statement A is not correct. Although the terminology (or words) of reasoning are used, the statement contains no reasoning. It is the same as just saying "people walk in the street". The other statements contain only a remark (B), a question (C) and an exclamation (D) but no reasoning.

08

The two types of reasoning

You can recognise two types of reasoning if you:

01 identify deductive and inductive reasoning.

Resource

A–Z: Cognition: Reasoning

Activity 1

Study: Reasoning based on formal rules of logic.

Activity 2

Please note that all you have to do in this section is be able to recognise the two types of reasoning: deductive reasoning and inductive reasoning. Write down a description of each type of reasoning, giving an example of each.

Activity 3

Which of the following is an example/ are examples of deductive reasoning?

1. Because my car's petrol gauge indicates "empty", there is a good chance that the car will not start tomorrow
2. On the basis that the humidity level is high, I deduce that it could rain later today
3. Liquids that contain acid turn litmus paper red. The liquid in the blue bottle does not turn the litmus paper red. Therefore this liquid does not contain acid
4. After making some observations at the scene of the crime, the detective Sherlock Holmes formed a theory about who might have committed the crime.

Answer

The correct answer is provided by option 3. The distinctive characteristic of deductive reasoning is that the truth of the premise guarantees the truth of the conclusion. The structure of the argument in option 3 is as follows:

Premise 1: liquids that contain acid turn litmus paper red
Premise 2: the liquid in the blue bottle does not turn litmus paper red

Conclusion: the liquid in the blue bottle does not contain acid. Option 1 is an example of reasoning but not of deductive reasoning because it states that there is a "chance" that the car may not start. In a deductive argument, if the premise is true it guarantees the conclusion. Options 2 and 4 are also examples of inductive reasoning (your cue comes from the words "could" and "might"). When you want to identify inductive reasoning, you need to look for reasoning where the conclusion results from the premises on the basis of probability.

09

The difference between formal and everyday reasoning

You can recognise the difference between formal and everyday reasoning if you:

01 identify that formal reasoning uses explicit rules that underlie everyday reasoning
02 identify that everyday reasoning usually has personal relevance that may give rise to weaknesses in reasoning
03 identify that there is usually only one correct solution in formal reasoning.

Resource

A–Z: Cognition: Reasoning

Activity 1

Study: Differences between formal and informal reasoning.

Activity 2

Now that we have looked at the formal rules of logic, we are faced with an interesting question: What is the difference (or similarity) between formal reasoning and everyday reasoning? Write down the differences between formal and everyday reasoning in your own words.

Activity 3

Which of the following gives the best summary of the connection between formal and everyday reasoning?

1. Formal reasoning does not occur in everyday reasoning because everyday reasoning does not use premises and conclusions
2. Formal and everyday reasoning place equal emphasis on the logical route to a conclusion
3. Formal and everyday reasoning give equal emphasis to the personal relevance of premises
4. Formal reasoning provides the principles that also form the basis of everyday reasoning.

Answer

The correct answer is option 4 because both formal and everyday reasoning are based on the same principles. Option 1 is wrong because both formal and everyday reasoning use premises and conclusions (the same principles, as stated in option 4). Formal reasoning places greater emphasis on logic (therefore option 2 is wrong) and everyday reasoning places greater emphasis on personal relevance (therefore option 3 is wrong).

10

The five types of fallacies

You can recognise five types of fallacies if you:

01 identify different types of falacies based on irrelevant premises to support a conclusion.

Resource

A–Z: Cognition: Reasoning

Activity 1

Study: Fallacies.

Activity 2

Write down the definition of a fallacy.

Activity 3

Sophie and Tebogo are having the following conversation:

Sophie: "Tebogo, Sipho's suggestion about how to balance our club's finances is unacceptable."

Tebogo: " Why do you say that Sophie? I think Sipho's suggestion makes a lot of sense."

Sophie: "Yes, but don't you know that Sipho has a drinking problem? How can you accept the financial plan of someone who is not sober everyday?"

Which one of the following faulty types of reasoning describes how Sophie is arguing with Tebogo in this conversation?

1. playing on someone's sympathies
2. relying on group characteristics for support of a conclusion
3. false analogy
4. discrediting the person and not the issue.

Answer

The answer is option 4. Let's look at the structure of Sophie's reasoning. Premise 1: Sipho has a financial plan for the club. Premise 2: Sipho has a drinking problem. Conclusion: Sipho's plan is unacceptable. It is clear that Sophie introduces an irrelevant premise into her criticism of Sipho's financial plan. She uses this premise to attack Sipho's character (his drinking problem) and announces that his drinking problem makes his financial plan unacceptable. Actually she is saying "Sipho is unacceptable. Therefore his financial plan is unacceptable." This fallacy involves trying to discredit an issue by discrediting the person who supports that issue. The other options are wrong because Sophie does not use someone's sympathies to obtain anything (option 1), nor is she making an emotional appeal to a particular group (option 2) nor implying that two things are identical (option 3).

11

The nature of critical reasoning

You can recognise the nature of critical reasoning if you:

01 identify critical reasoning skills.

Resource

A–Z: Cognition: Reasoning

Activity 1

Study: Critical reasoning.

Activity 2

This section in A–Z provides ideas on how to improve your critical reasoning skills. Draw a picture to illustrate the various factors that help to improve critical reasoning. You could start by drawing a circle in the middle of the page and writing 'critical reasoning' inside the circle. Now draw smaller circles around the outside and in each one write down one of the things that helps improve critical reasoning. Draw lines to connect the big circles with the smaller circles. You can also draw lines between the smaller circles that are related to each other. You will be surprised to see how interrelated they are.

Activity 3

There are many problems in a certain factory – attendance is poor and workers are unmotivated because they feel they have no say in the way the organisation is managed. What critical reasoning skills would you use to change the culture of the workplace to recognise that input from everyone is important?

Answer

There are many acceptable answers here. Your answer should include the following main points: make sure you have identified the problem correctly, that you keep an open mind to all viewpoints (by avoiding either/or categorisation and over-generalisations, realising the potential limitations posed by language, using open-ended questions and obtaining all relevant information from all points of view), and use informal knowledge and collective thinking in order to obtain a solution that is acceptable to everyone.

12

The nature of basic problem solving strategies

You can recognise the nature of basic problem-solving strategies if you:

01 identify the first step in problem-solving as identifying and defining the problem
02 identify the second step as exploring different strategies
03 identify the third step as exploring possible solutions
04 identify the fourth step as evaluating the solution
05 identify insight
06 identify fixation.

Resource

A–Z: Cognition: Problem-solving

Activity 1

Study: Steps in the process of problem solving.

Activity 2

Write down the four main steps in problem-solving. You should be able to identify them easily from the headings. Although there may be some variation in different situations, the correct sequence of the steps is identifying the problem, considering alternative strategies, chosing a solution, and evaluating it.

Activity 3

For the criminal, house-breaking and theft is a form of problem-solving. The problem is how to get into a house and steal the goods that are the most valuable and have the highest market value. Imagine that a criminal is only interested in stealing video recorders. He decides that when he breaks into the house, he tries to get into the lounge or TV room. What type of approach is he using to solve his problem?

1. heuristic
2. trial and error
3. analogical
4. none of the above.

Answer

The correct answer is option 1. What is the criminal's problem here? He needs to be selective, only looking for video recorders. He therefore needs to find and break into the most obvious rooms where video recorders are usually kept (in the lounge and TV room). According to the definition in A-Z he is following a heuristic approach and therefore option 1 is correct. If he had used a trial and error approach (option 2) he would have tried to break in by using a random (without a plan) approach. If he used an analogical approach (option 3), he would have command the suitability of a solution of a similar problem for dealing with the present problem.

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-06
Learning opportunity

Explore the concepts of intelligence and Creativity

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the concept of intelligence.

Standards

You have sufficient knowledge of the concept of intelligence if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the concept of intelligence if you are able to recognise:

01 the meaning of the concept of intelligence
02 the relation between mental age and intelligence quotient
03 theories of intelligence
04 the determinants of intellectual ability
05 the nature of creative thought.

METHOD

01

The meaning of the concept of intelligence

You can recognise the meaning of the concept of intelligence if you:

01 identify that there are different meanings of the concept of intelligence.

Resource

A–Z: Intelligence

Activity 1

Study: Intelligance: Concept and measurement of

Activity 2

Consider the following:

Who is more intelligent?

1. a young woman who has a BSc in maths and physics
2. a bushman who can survive in the desert
3. a successful farmer who understands weather patterns and animal behaviour
4. a young man who holds down a job and runs a home, supporting and caring for his three younger siblings

Comment

There is no simple answer to this question. Each one of us has his or her own ideas of what it means to be intelligent. Perhaps the ultimate test of intelligent behaviour is being able to cope successfully in your particular situation. The different views of what constitutes intelligent behaviour make it very difficult to measure intelligence. Performance on an intelligence test provides an intelligence quotient (IQ) but the question still remains whether an IQ is equal to one's intelligence. Even psychologists do not agree on how to define intelligence, how to explain exactly how it functions, or how it should be measured.

02

The relation between mental age and IQ

You can recognise the relation between mental age and IQ if you:

01 identify mental age and chronological age as components of IQ
02 calculate IQ on the basis of mental age and chronological age.

Resource

A–Z: Intelligence: Concept and measurement of

Activity 1

Study: Measuring intelligence.

Activity 2

Write down the definitions of the concepts: mental age, chronological age and intelligence quotient.

Comment

Note that mental age is really an indication of a child's intellectual development in relation to his or her own age in years (chronological age). Mental age may vary according to the child's level of ability. For example, a 10 year old child who has a great deal of intellectual ability could have a mental age of 12 or 13 years. A 10 year old who has brain damage may have less ability and therefore have a mental age of 5 or 6 years. If you multiply mental age by 100, you have an intelligence quotient. An average IQ (at any age) is 100. Can you work out why? The average mental age of an 8 year old child (CA = 8) would be 8 (MA = 8). So if MA = 8 and CA = 8 then the IQ would be 100 (8 divided by 8 = 1 and 1 x 100 = 100).

For adults, the IQ is worked out in a different way because mental age does not increase at the same rate after the age of 16 years.

Activity 3

Funeka is 10 years old. She passes all the questions that are answered by 11 year olds, half of the questions for 12 year olds and half of the questions for 13 year olds. What is her mental age?

Answer

You should get the answer of 12 years. If you did not, look at the way the answer was calculated. We add together 11(because although Funeka is 10 she passed all the items for 11 year olds) plus 6 months (because half of the next year is 12 months divided by 2 = 6) plus 6 months (because she passed half of the items for the next year as well) and 11 years + 6 months + 6 months equals 12 years.

Activity 4

What is her IQ?

Answer

The correct answer is 120 (because IQ = MA/CA x 100 and therefore her IQ = 12/10 X 100 = 120).

03

Theories of intelligence

You can recognise the theories of intelligence if you:

01 indicate the main characteristics of Galton, Spearman, Thurstone, Guilford, Gardener and Sternberg's theories.

Resource

A–Z: Intelligence: Theories of

Activity 1

Study: Intelligence: Theories of

Activity 2

Write down the name of each one of the five theories of intelligence. Next to each name, write one or two sentences describing the main points of each theory in your own words. From your notes, you should be able to indicate the main differences between the theories.

Activity 3

Which of the following concepts could best be used to explain the intelligent behaviour that enables the survival of the bushmen in the desert?

1. divergent thinking (Guilford)
2. specific ability (Spearman)
3. spatial ability (Thurstone)
4. contextual intelligence (Sternberg)

Answer

The correct answer is option 4. According to the description of Sternberg's theory in A-Z, contextual intelligence refers to the kind of situation in which the bushmen act intelligently in order to survive in the desert. It is unlikely that the bushmen have had formal intelligence tests therefore it is unlikely that their behaviour can be explained by any form of measured intelligence. Options 2 and 3 are therefore not correct because they refer to measured abilities. In addition, survival in the desert depends on several abilities, not just these specific abilities. The same applies to option 1, and in addition Guilford's idea of divergent thinking applies more to the notion of creativity as it is measured.

04

The determinants of intellectual ability

You can recognise the determinants of intellectual ability if you:

01 indicate the relative contribution of inherited factors and environment to measured intelligence.

Resource

A–Z: Intelligence: Theories of

Activity 1

Study: Heredity versus environment.

Activity 2

Which statement best expresses the compromise view on the relation between heredity and environment in determining intelligence?

1. Environment has a minor influence on intelligence
2. Environmental factors place a "ceiling" on intelligence and heredity determines how close a person comes to that "ceiling"
3. Inherited intelligence creates the potential for possible intelligent reactions to the environment and the environment determines the true extent of intelligent reactions within the scope of that potential
4. Heredity contributes 80% to a person's intelligence and environment contributes 20%.

Answer

The correct answer is option 3 because it reflects the interactive nature of the relation between

heredity and environment. Options 1 and 4 merely restate the views of the supporters of the heredity theory and are not concerned with a compromise. Option 2 sounds like a good compromise but it is incorrect because it is stated the wrong way around -- heredity factors set the "ceiling" or limit and the environment determines how close a person can get to that ceiling or limit.

05

The relation between creativity and intelligence

You can recognise the relation between creativity and intelligence if you:

01 identify the criteria of creativity
02 identify divergent and convergent thinking
03 indicate the controversial nature of the relation between creativity and intelligence.

Resource

A–Z: Intelligence and creativity

Activity 1

Study: Intelligence and creativity.

Activity 2

Do you remember the last time you produced a very creative idea? What stimulated that spark of creativity? What could you do to enhance other people's creativity? Now you can link your thoughts to what you have read in this section.

Activity 3

There are conflicting findings about the relation between the concepts mentioned in one of the options below. Which option are we referring to?

1. creativity and divergent thinking
2. creativity and cognitive complexity
3. creativity and intelligence
4. creativity and flexibility.

End of learning opportunity

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-07

Learning opportunity

Explore the concepts of learning and memory

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the concepts of learning and memory.

Standards

You have sufficient knowledge of the concepts of learning and memory if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the concepts of learning and memory if you are able to recognise:

01 the meaning of the concept of learning
02 three forms of learning
03 the principles of classical conditioning
04 the nature of reinforcement in operant conditioning
05 the application of conditioning in everyday behaviour
06 three types of cognitive learning
07 ways of social learning
08 the concept of memory
09 the nature of short-term memory
10 the nature of long-term memory
11 the nature of forgetting.

METHOD

01

The meaning of the concept of learning

You can recognise the meaning of the concept of learning if you:

01 identify that learning is indicated in behavioural change

Resource

A–Z: Learning: Concept of

Activity 1

What is learning?

Activity 2

It is impossible to see the actual process of learning taking place – we only know that learning is taking place when we see changes in behaviour. Which one of the following statements describing changes in behaviour tells us that learning has taken place?

1. Before the race the athlete moves with a light step but immediately after the race, he drags his feet.
2. At the beginning of puberty, the usually cheerful Masiza begins to be moody.
3. After falling twice on the slippery steps at the shopping centre, the old woman avoids the steps and uses another entrance.
4. After taking medication, Gavin acts differently.

Answer

Each one of these options describes a change in behaviour, but only one is the result of learning. Option 3 is the correct one. Why? Because the old woman has learned through falling that she must avoid those steps and use a different route. Options 1, 2 and 4 describe changes related to other reasons and are therefore incorrect answers. In option 1 the athlete only drags his feet after the race because he is tired, not because he has learned to do so. In option 2, Masiza's changed behaviour is the result of hormonal factors in puberty, not learning. In option 4, Gavin's changed behaviour is the result of drugs, not learning.

02

Three forms of learning

You can recognise three forms of learning if you:

01 indicate the nature of associative learning
02 indicate the nature of cognitive learning
03 indicate the nature of social learning.

Resource

A–Z: Learning: Concept of

Activity 1

Study the resource material.

Activity 2

Classical conditioning refers to the process whereby one stimulus becomes associated with another stimulus and results in a response. For example, in a factory where lunch is provided for workers, a buzzer goes off five minutes before lunch everyday. The workers may learn to associate the buzzer with food and feel hungry whenever they hear the buzzer.

Question

What is the conditioned stimulus in this situation?

Answer

This is an example of classical conditioning – the buzzer is normally a neutral stimulus but it becomes the conditioned stimulus when it is associated with food. Do you think it would be a good idea to use the same buzzer as a fire alarm signal? Probably not, because if the buzzer is associated with food, the workers might not react to it as an alarm.

Activity 3

Operant conditioning is also based on the formation of associations, but this time it refers to the association between certain behaviour (for example, an action or response) and the consequences of that behaviour (for example, a reward). For example, Riaad struggles to get his car going in winter mornings. He discovers that if he lets the engine run for a while before pulling away that the car goes much better.

Question

What is (a) the operant response and (b) the reinforcement in this case?

Answer

Riaad learns to associate letting the engine run for a while (the operant response) with better performance from the car (reinforcement).

Activity 4

What is the main difference between cognitive learning and conditioning?

Answer

Both classical and operant conditionings are forms of learning by association. Cognitive learning implies that thinking and other cognitive processes are involved in learning. However, it is possible that cognitive factors play a role in conditioning (associative learning) also.

Activity 5

Lucas has bought a video recorder. The first time he tried to use it, it did not work. He then decided to study the manual in order to find out how to get it to work properly. Which of the following statements best describes what kind of learning is taking place here?

1. cognitive learning
2. operant conditioning
3. classical conditioning

Answer

The correct answer is option 1. Lucas is using verbal directions (from the manual) regarding how to use the video recorder. In other words, he is grasping the task by analysing it and using a verbal plan to find out what is required. This is an example of cognitive learning. Initially Lucas used an operant response (trial and error approach) and learned from the consequences (lack of success with the machine) but he did not persist with operant conditioning therefore option 2 is not the best response. Option 3 is incorrect because there is no indication that Lucas learned a conditioned response.

Activity 6

How do people learn social concepts?

Answer

Your answer should indicate that people learn social behaviour through operant, observation and cognitive learning.

Comment

There are differences in the extent to which people are able to learn, and in the exposure to situations they can learn from. These factors make a major contribution to individual differences in human behaviour.

03

The principles of classical conditioning

You can recognise the principles of classical conditioning if you:

01 identify conditioning phenomena of reinforcement, extinction and spontaneous recovery, generalisation and discrimination and higher-order conditioning.

Resource

A–Z: Learning: Associative Learning

Activity 1

Study: Classical conditioning.

Activity 2

Sometimes stimuli that seem very similar to the conditioned stimulus also bring about a conditioned response. This phenomenon is known as . . .

1. stimulus generalisation
2. stimulus discrimination
3. higher order conditioning
4. 1 and 3.

Answer

The correct answer is option 1. Because the new stimulus is very similar, we can say it is a generalisation of the old stimulus. In higher-order conditioning, the new stimulus does not have to be similar to the original stimulus, and therefore option 3 is incorrect (and option 4 as well). Option 2 is not correct because stimulus discrimination refers to the fact that a different response can be learned.

04

The nature of reinforcement in operant conditioning

You can recognise the nature of reinforcement in operant conditioning if you:

01 identify different types of reinforcers and reinforcement schedules.

Resource

A–Z: Learning: Associative Learning

Activity 1

Study: Operant conditioning.

Activity 2

When the alarm goes off in the morning you reach over to press the button that stops the irritating ringing noise. The silence that follows serves as . . .

1. positive reinforcement
2. punishment
3. negative reinforcement
4. none of the above

Answer

Option 1 is not correct because a positive reinforcer is a pleasant stimulus that increases the probability of a response. The correct answer is option 3. Negative reinforcement means that you stop (or avoid) an unpleasant stimulus by doing something. The negative reinforcer is the sound of the alarm, and hearing the alarm increased the probability of your response (pressing the button) so that you stop the alarm (the unpleasant reinforcer). You may be confused about the terms negative reinforcement and punishment. Punishment is the application of an unpleasant stimulus. For example, punishment would be getting into trouble at work because you overslept! Option 2 is therefore not correct.

05

The application of conditioning to everyday behaviour

You can recognise the application of conditioning to everyday behaviour if you:

01 identify how everyday behaviours can be learned through conditioning.

Resource

A–Z: Learning: Associative Learning

Activity 1

Study the resource material.

Activity 2

A young man would not drive across bridges as a result of a phobia that had started when he was a child. Whenever he and his father were out driving and they came to a particular wooden bridge, his father used to stop and make a fuss about how dangerous it was to cross the bridge. This had always made him feel very anxious. The father actually meant it as a joke. Which of the following describes what happened to this young man?

1. The harmless little bridge became the conditioned stimulus for an intense fear response
2. A stimulus generalisation to all bridges occurred
3. Both of the above
4. Neither of the above.

Answer

Remember that classical conditioning is not limited to Pavlov's dog! In fact, many of our fears and anxieties and even pleasurable responses are the result of classical conditioning. This question is an example. As a result of his father's light-hearted but thoughtless joke, he began to associate the bridge (an originally neutral stimulus) with danger. Every time he crossed the bridge he experienced fear (conditioned response) and stimulus generalisation occurred with the result that he became anxious about crossing any bridge. Option 3 is therefore the right answer (because both options 1 and 2 are correct) and option 4 is incorrect.

Activity 3

How could one go about reducing this problem?

Comment

Behaviour modification (through operant conditioning) would probably be the answer.

06

Three types of cognitive learning

You can recognise three types of cognitive learning if you:

01 identify cognitive mapping, perceptual motor skills and intellectual skills as forms of cognitive learning

Resource

A–Z: Learning: Cognitive Learning

Activity 1

Study: The resource material.

Activity 2

Write down the definitions of the three examples of cognitive learning described in your resource material. Now identify the following statements as examples of cognitive mapping, perceptual-motor skills and intellectual skills.

1. Jane concentrates hard on learning to develop the correct swing of the golf club
2. While revising her work for the examination, Xoliswa makes a mental representation of the processes involved in impulse conduction
3. In order to improve her English, Sophia decides to learn a new word every day
4. Although Petrus cannot read street names, he has learned the way to his friend's house because he has a picture of the route in his head
5. Mulalo has never been to school but has learned about the environment from talking to her elders
6. Vusi is learning to write and trace the letters with his fingers first.

Answer

Cognitive mapping – 2 and 4; perceptual-motor skills – 1 and 6; intellectual skills – 3 and 5

07

Ways of social learning

You can recognise ways of social learning if you:

01 indicate how people learn social concepts by describing operant social learning, social observation learning and cognitive learning.

Resource

A–Z: Learning: Social Learning

Activity 1

Study the resource material.

Activity 2

Social stimuli can successfully influence certain behaviours positively and other behaviours negatively, depending on . . .

1. our social needs
2. our motivation to change
3. who reinforces the behaviour and how it is done
4. all of the above.

Answer

Option 4 is the correct answer.

Activity 3

Write down the main differences between operant social learning and social observational learning.

Answer

The main points here are that behaviour learned through operant learning is always rewarded. Cognitive activity plays a major role in social observational learning.

Activity 4

It is possible for us to learn social concepts and behaviour because, although our behaviour is controlled externally through patterns of reinforcement, we are also capable of controlling our behaviour internally through our own thinking and concepts and insight that we have already acquired. This statement is an explanation of . . .

1. operant social learning
2. observation learning
3. cognitive learning.

Answer

Option 3 is the correct answer. The concept of cognitive learning is based on the assumption that our behaviour is not only influenced by external factors but also by internal controls. A cognitive component is clearly described in this statement, therefore option 1 does not apply. You may have considered option 2 because of the cognitive component, but it is not the right one because there is no reference to learning through observation.

08

Memory

You can recognise the concept of memory if you:

01 identify the component processes of memory.

Resource

A–Z: Memory

Activity 1

Study the resource material.

Activity 2

Our ability to remember depends on three separate but interdependent processes. Which one of the following is NOT one of these processes?

1. coding
2. storage
3. recognition
4. retrieval.

Answer

Option 3 has the answer. The ability to remember depends on coding information (option 1), storing it (option 2) and retrieving the stored information (option 4).

09

The nature of short-term memory

You can recognise the nature of short-term memory (STM) if you:

01 identify the key characteristics of short term-memory.

Resource

A–Z: Memory

Activity 1

Study: Short-term memory.

Activity 2

Write down the key characteristics of short term-memory (STM).

Comment

Your answer should have included the notions that STM is of limited capacity and duration (although duration can be increased by rehearsal) and that working memory is a form of STM.

10

The nature of long-term memory

You can recognise the nature of long term-memory (LTM) if you:

01 identify the characteristics of long term-memory.

Resource

A–Z: Memory

Activity 1

Study: Long-term memory.

Activity 2

Long-term memory (LTM) differs from short-term memory because LTM . . .

1. storage is limited and information needs rehearsal to be remembered
2. storage capacity and duration are relatively unlimited
3. is the store of all our experiences
4. 2 and 3.

Answer

By now you should recognise that option 1 describes STM and is therefore not the right answer.

Option 2 correctly describes the main characteristics that differentiate LTM from STM. We do not store every single experience in the LTM and therefore option 3 is not the right answer. Option 4 is not the right answer either because it includes option 3.

End of learning opportunity.

NOTE: This is not an assignemtn and does not have to be submitted.

SEC.B-08
Learning opportunity

Explore the concept of emotion

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the concept of emotion.

Standards

You have sufficient knowledge of the concept of emotion if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the concept of emotion if you are able to recognise:

01 the meaning of the concept of emotion
02 the physiological, cognitive and behavioural dimensions of emotions
03 theories of emotion
04 four characteristics of emotions
05 factors influencing the interpretation of emotions
06 the concept of emotional intelligence
07 the relation between stress and health/illness.

METHOD

01

The meaning of the concept of emotion

You can recognise the meaning of the concept of emotion if you:

01 identify the main characteristics of emotions.

Resource
A–Z: Emotion: Concept of

Activity 1

Study: Definition of the concept of emotion.

Activity 2

If it is possible for a scientist to replace your close friend's brain with a computer, how would you know that something is different? One of the first signs would probably be the absence of emotion. Emotion is a state characterised by physiological arousal and changes in facial expressions, gestures, body position and subjective feelings. It is a conscious experience that relates to a specific stimulus situation and is linked to a clear cognitive content. The word emotion is derived from a Latin word meaning "to move". How do emotions move us? Firstly, there are bodily signs of arousal during emotions. For example, we may say that we were "moved" by a good speech given by a political leader on youth day. The speech gave rise to emotions that may move us to action (and hence the relation between emotion and motivation). Emotions are also linked to basic adaptive behaviours, such as fighting, seeking comfort or helping others. These behaviours help us to survive and adjust to changing situations.

Note that emotions are a form of feelings, and therefore share the same main characteristics: physiological arousal, perceptual-cognitive content and observable behaviour. In particular, the term emotion is used when the feeling that someone experiences has a specific cognitive content (that is, it is associated with a meaningful stimulus situation).

Question

Which of the following examples cannot be classified as an emotion?

1. fear of a snake
2. a dislike of lies
3. vague restlessness
4. joy about exam results.

Answer

The correct answer is option 3. Vague restlessness is a form of observable behaviour that could indicate some physiological arousal, but there is no indication of any stimulus (that leads to the formation of a perception) or cognitive content. Each of the other three options refer to experiences that reflect cognitive content. For example, in option 1 the emotion is fear (a conscious experience), that has developed from thoughts or experiences with snakes (the stimulus). You know that meaning is given to the things we see through the process of perception and cognitive interpretation. In option 2, the emotion is dislike. The person may have developed dislike of lies because of (the cognitive interpretation of) previous experience. In option 4, joy associated with exam results reflects the person's feelings and thoughts about what the exam results mean to him/her (a cognitive process).

02

The physiological and cognitive dimensions of emotions

You can recognise the physiological and cognitive dimensions of emotions if you:

01 indicate that physiological arousal and cognitive content interact to differentiate the emotion.

Resource
A–Z: Emotion: Concept of

Activity 1

Study: Components of emotion.

Activity 2

Which of the following statements is the best description of the nature of emotions?

A If you are angry, you experience high physiological arousal and find yourself in an intense emotional condition.
B Physiological arousal in itself does not determine the nature and intensity of your emotional condition.

Comment

Both statements are correct. However, statement A could give the impression that the nature and intensity of the emotional condition is determined by high levels of physiological arousal. That interpretation would not be correct. Statement B expands on statement A by stating that there is not a direct relationship between the level of arousal and the intensity of the emotion (that is, physiological arousal in itself does not determine emotional intensity). For example, someone who was depressed would be functioning on a very low level of arousal yet experience very intense emotion. Therefore statement B is probably the better description of an emotion than statement A.

The experience of emotion has both a physiological and a cognitive component. We now know that people differ in their physiology as well as their cognitive processes. Therefore emotional experiences contribute to individual differences in human behaviour.

03

Two theories of emotions

You can recognise two theories of emotions if you:

01 identify the main points of the two-factor theory and the cognitive appraisal theory of emotions.

Resource
A–Z: Emotion: Theories of

Activity 1

Study the resource material.

Activity 2

The earliest theory of emotion, the James-Lange theory held that emotional feelings follow bodily arousal. An example of this theory would be as follows: we run away from an angry dog and feel fear when we become aware of our bodily reactions (pounding heart, hard breathing, etc.). The Canon-Bard theory followed, suggesting that emotions and bodily arousal occur at the same time. Since we now know that there is more to an emotion than just physiological arousal, these theories are of historical interest only.

Question

Which one of the following statement refers to the two-factor theory of emotion?

1. the perception of physiological arousal is not a necessary element in differentiating an emotion
2. an emotion is differentiated on the basis of the meaning that is given to it
3. the differentiation of an emotion involves the interpretation of physiological arousal
4. cognitive control of the quality and intensity of feelings is possible.

Answer

The correct answer is option 3. According to the two-factor theory, an emotion is differentiated by interpreting physiological arousal in terms of a particular cognitive context. Option 1 states the opposite, therefore it is not the correct answer. Option 2 is also not the correct answer because it states that emotion is differentiated on the basis of meaning (that involves a cognitive process) and not on arousal. It therefore refers to the cognitive appraisal theory. Option 4 refers to an aspect of the cognitive appraisal theory and is therefore also not the correct answer.

04

Four characteristics of emotions

You can recognise the four characteristics of emotions if you:

01 identify four criteria for the classification of emotions.

Resource

A–Z: Emotion: Classification of

Activity 1

Study the resource material.

Activity 2

Match the statements (1 to 4) with the relevant characteristic of emotions (A to D):

1. an emotion can be indicated by physiological changes and outward behaviour
2. surprise and sadness give rise to disappointment
3. there is not one level of anger – you can be a little angry or very angry
4. you can feel good or bad about being sad.

A emotions can be primary or mixed
B emotions can have a positive or negative quality
C there are internal and external expressions of emotions
D emotions vary in intensity

Answer

1 – C, 2 – A, 3 – D and 4 – B.

05

Factors influencing the interpretation of emotion

You can recognise the factors influencing the interpretation of emotion if you:

01 indicate that culture, gender and context influence the expression of emotion.

Resource

A–Z: Emotion: Interpretation of

Activity 1

Study the resource material.

Activity 2

Puleng has a serious expression and a deep frown on her forehead. The teacher is shocked to see that she is so upset. Then the teacher sees that Puleng is busy with a complicated maths calculation. What does this example illustrate?

1. that it is important to know the context when we interpret the external expressions of emotion
2. that the external expression of an emotion provides enough information to interpret someone's emotional expression
3. that emotions vary in intensity
4. all of the above.

Answer

The teacher initially interpreted Puleng's facial expression as meaning that Puleng was distressed or upset. Then the teacher noticed what Puleng was busy with and changed her opinion. She then decided that Puleng's facial expression was an indication of the fact that she was concentrating hard or perhaps struggling to work out the right answer. What does this mean? Option 1 provides the best answer -we need to know the context before we can interpret the external expressions of emotion accurately. The external expression alone does not give us all the information we need and therefore is not always a reliable indicator of the emotion. Therefore option 2 is not correct. The statement in option 3 that emotions vary in intensity is correct in itself but does not provide an explanation of the situation described in the question. Option 4 is not the right answer because it includes two wrong answers, options 2 and 3.

06

The concept of emotional intelligence

You can recognise the concept of emotional intelligence if you:

01 identify the main characteristics of emotional intelligence.

Resource

A–Z: Emotional intelligence: Concept of

Activity 1

Study the resource material.

Activity 2

Indicate whether the following statements are true or false: People who are high in emotional intelligence . . .

1. have high IQs
2. are more empathic
3. are better able to manage their emotions
4. are highly creative
5. have high intrapersonal but not interpersonal intelligence
6. are aware of and sensitive to others.

Answer

1. false; a person with high emotional intelligence may have a high IQ but this is not necessarily so
2. true; this is one of the core characteristics of emotional intelligence
3. true; managing emotions is one type of self control, which is a characteristic of emotional intelligence
4. false; people with emotional intelligence can imagine how someone else feels but do not have to be creative in the traditional sense
5. false; people with high emotional intelligence know themselves well and understand what motivates their behaviour (intrapersonal intelligence) but also understand the needs of others and can predict their behaviour (interpersonal intelligence)
6. true; this is an example of interpersonal intelligence.

07

The relation between emotional tension and health/illness

You can recognise the relation between emotional tension and health/illness if you:

01 indicate the nature of physical tension
02 identify the processes regulating physical tension
03 identify the nature of emotional tension
04 indicate the nature of the general adaptation syndrome
05 indicate the relation between stress and performance
06 indicate the relation between prolonged stress and disease
07 identify the concept of response specificity.

Resource

A–Z: Stress: The psychophysiology of

Activity 1

Study the resource material.

Activity 2

Explain the homeostatic regulation of physical tension.

Answer

Your explanation should include the following:

(a) Physical tension is regulated by the autonomic nervous system

(b) Physical tension depends on the balance (homeostasis) between the two subsystems of the autonomic nervous system, namely the sympathic and the parasympathic systems
(c) Sympathic stimulation causes increased tension and parasympathic stimulation causes decreased tension
(d) Individuals differ in their physical tension levels. For some individuals, the point of balance between sympathic and parasympathic stimulation is in the middle (midway between these two subsystems). For some individuals, the physical tension level (the point of balance) is much closer to the parasympathic side, and for others it is much closer to the sympathic side.

Activity 3

Provide a definition for the term emotional tension level.

Answer

Your definition should indicate that emotional tension is the result of physical tension and cognitive interpretation of a situation as threatening.

Activity 4

Study Stress: The process of stress.

Activity 5

Complete the following sentence: The general adaptation syndrome is the way the human body . . .

Answer

. . . reacts to stressful situations.

Activity 6

Complete the following statement: The general adaptation syndrome consists of . . . phases.

Answer

three

Activity 7

Complete the following sentence: The human body reacts to stressful situations by going through stages of . . .

Answer

alarm, resistance and exhaustion.

Activity 8

Study Stress: The effects of stress.

Activity 9

Describe the relation between arousal and performance.

Answer

Your description should include some indication that performance is poor at low levels of arousal because you are not sufficiently stimulated to perform effectively. Performance is also poor at very high levels of arousal because you are overstimulated (and probably anxious). Performance is best (optimal) at a moderate level of arousal when you are alert and can concentrate well.

Activity 10

Which of the following statements about the relation between stress and task performance is/are correct?

1. Task performance is more effective at a low level of psycho-physiological arousal
2. Task complexity and novelty are important factors in determining the relation between arousal and performance
3. According to the Yerkes-Dodson law, the higher the arousal the better the performance
4. None of the above.

Answer

The correct answer is provided by option 2. The relation between the level of arousal and task performance is a function of task complexity and novelty. Option 1 is incorrect because at a low level of arousal you are too understimulated to perform well. Option 3 is incorrect because the Yerkes-Dodson law explains that performance decreases at very high levels of arousal. Because option 2 is correct, option 4 is necessarily wrong.

Activity 11

Write down the definitions of chronic stress and response specificity.

Answer

Chronic stress refers to repeated stress over a period of time. Response specificity refers to a person's tendency to respond to stress with a specific physiological reaction. For example, some

people get stomach upsets when they are stressed while others get headaches or high blood pressure.

Activity 12

Which of the following statements about the relation between stress and illness/health is not true?

1. Two basic components of a psychosomatic illness are the build-up of emotional tension over a prolonged period and the appearance of bodily symptoms.
2. It is estimated that about half of all patients who consult doctors about bodily symptoms have one or other form of emotional disturbance.
3. The way our bodies react to chronic or acute stress reveals a pattern of response specificity.
4. Chronic stress is the cause of physical illness such as heart disease, stomach ulcers and asthma.

Answer

When you looked at the options you may have thought that none of the statements was wrong. Options 1, 2 and 3 are all correct statements about the relation between stress and illness. The correct answer (that is, the statement is not true) is therefore option 4. Why? Because of the word "cause". Psychosomatic illness develops in the presence of stress and is associated with stress but this does not mean that it is caused by stress. Because of the findings about response specificity, we know that people have certain physical symptoms (or inherent physical weaknesses) before they develop psychosomatic diseases. Therefore stress alone is not necessarily the cause but it can contribute to the development of the disease.

End of learning opportunity.

NOTE: This is not an assignment and does not have to be submitted.

SEC.B-09
Learning opportunity

Explore the concept of personality

OUTCOME PRODUCT

Description

The aim of this learning opportunity is to gain knowledge of the concept of personality.

Standards

You have sufficient knowledge of the concept of personality if you meet the assessment criteria listed below.

Assessment criteria

You have knowledge of the concept of personality if you are able to recognise:

01 the meaning of the concept of personality
02 the trait theory of personality
03 the psychodynamic approach
04 the behaviourist approach
05 the humanistic approach
06 the biopsychological explanation of personality
07 the African perspective
08 four theoretical viewpoints of psychological disorders
09 the relation between personality and health/illness.

METHOD

01

The meaning of the concept of personality

You can recognise the meaning of the concept of personality if you:

01 identify important descriptors such as personality type,temperament and character.

Activity 1

Study: Concepts.

Activity 2

"Boetie is a great guy. He's not handsome but he has a great personality". What does this mean? We all frequently use the term personality but most people find it very difficult to define. Some people refer to personality as "charm" or "style" but this use of the word is different to the meaning of personality that psychologists use.

Question

Match the statements (A to G) with the key concepts of personality (1 to 7) below.

A the hereditary aspects of a person's emotional nature
B a person's evaluation of him/herself
C the presence or absence of desirable personality qualities
D a system that classifies people as either introverts or extroverts is an example of this approach to personality
E stable qualities that a person shows in most situations
F a person's perception of his/her own personality
G unique and relative stable behaviour patterns

1. type
2. personality
3. self-concept
4. trait
5. temperament
6. character
7. self-esteem

Answer

A – 5, B – 7, C – 6, D – 1, E – 4, F – 3, G – 2.

If you got some of the answers wrong, carefully work through the resource material again. You might have had some confusion with statements E and G. Remember that personality refers to behaviour patterns (the key word is behaviour) and traits refer to qualities (the key word is qualities) that are inferred from behaviour. Another one that may have been difficult for you is the difference between statements B and F. What are the key words here? In F the key word is perception. A person's perception of or feelings about him or herself refers to the self concept, whereas the evaluation (key word) of the self in B refers to self-esteem.

02

The trait theory of personality

You can recognise the trait theory of personality if you:

01 identify the main points of Allport's trait theory
02 identify the main points of Cattell's theory
03 identify the main points of the five-factor model of personality.

Resource

A–Z: Personality theories

Activity 1

Study: Trait theories.

Activity 2

According to Allport, very few people have . . . traits.

1. central
2. cardinal
3. surface
4. source

Answer

The correct answer is option 2. A cardinal trait is so basic that all of a person's activities can be traced to that trait. It is therefore an overwhelming influence in their lives. A central trait is a core quality of personality and we all have some of those, therefore option 1 is not the correct answer. Options 3 and 4 are incorrect because they refer to Cattell's theory and the question relates specifically to Allport's theory.

Activity 3

Which one of the following is not one of the Big Five personality factors?

1. submissiveness
2. agreeableness
3. extroversion
4. neuroticism.

Answer

Option 1 is the correct answer. Submissiveness is not one of the Big Five or the basic dimensions of personality, which are extroversion (option 3), agreeableness (option 2), conscientiousness, neuroticism (option 4) and openness to experience.

03

The psychoanalytic approach

You can recognise the psychoanalytic approach if you:

01 indicate the role of the unconscious in influencing behaviour
02 indicate the nature of the three psychic systems
03 identify the role of the pleasure principle and the reality principle in behaviour.

Resource

A–Z: Personality theories

Activity 1

Study: The Psychoanalytic approach.

Activity 2

Thomas is a first-year psychology student at Unisa. Because he lives far away from any of Unisa's centres and has a full time job, he is not able to attend tutor groups or work in a study group. However, he is determined to study every night of the week and to relax over weekends. Every night he sits down with his books but before long he feels restless and gets up to go and visit his friends. How would psychoanalysts explain Thomas's behaviour?

1. a victory for the id in the power struggle between the id, ego and superego, according to the pleasure and reality principles
2. a triumph for the superego in the power struggle between the id, ego and superego, according to the pleasure and reality principles
3. Thomas's characteristic tendency to function according to the reality principle
4. 1 and 3.

Answer

Option 1 provides the correct answer. It seems that Thomas cannot put aside his immediate needs and desires for his long term goals (to study and pass). When he should be studying, he visits his friends. This shows that he does not function according to the reality principle (and therefore option 3 is wrong). According to the reality principle, a person temporarily postpones the search for immediate pleasure and relief of tension in order to experience greater pleasure and less tension at a later stage. It therefore appears that the id (which is not characterised by discipline, self-control, morality and the fear of some forms of behaviour) is in a position of power in the struggle between id, ego and superego. Since the superego is not in charge, option 2 is also wrong.

04

The behaviourist approach

You can recognise the behaviourist approach if you:

01 indicate the contribution of social learning to personality
02 identify factors that shape personality in terms of the behaviourist approach.

Resource

A–Z: Personality theories

Activity 1

Study: The behaviouristic approach.

Activity 2

Write down the basic principles of behaviourism.

Answer

Your answer should include something like the fact that behaviourists are not interested in un-

conscious processes but see behaviour in terms of the relation between environmental stimuli and observable responses. The behaviourist approach to personality explains personality in terms of social learning.

Activity 3

Choose the appropriate word from the following list to fill in the missing words in the statements below: imitation; situational; expectancies; social; and habits.

A Learning theorists believe that personality traits really are . . . acquired through prior learning
B Learning theorists also emphasise . . . determinants of behaviour
C To explain behaviour, social learning theorists include mental elements such as . . . (meaning the anticipation that a response will lead to reinforcement)
D In addition to basic rewards and punishments, a child's personality is also shaped by . . . reinforcement
E Social learning theories of development emphasize the impact of identification and . . .

Answer

A – habits, B – situational, C – expectancies, D – social, E – imitation.

05

The humanistic approach

You can recognise the humanist approach if you:

01 indicate the importance of subjective experience and free will as basic principles of the humanistic approach.

Resource

A–Z: Personality theories

Activity 1

Study: The humanistic approach.

Activity 2

Write a brief definition of the humanistic trend in psychology.

Answer

Your definition should include the following main ideas: the basic tenet of humanism is that people are free to make choices to realise their own potential. The humanist view of behaviour emphasises people's subjective experience (their own perceptions of reality) rather than prior learning. The great strength of the humanists is the attention they have given to positive dimensions of personality. Humanist thought has encouraged many people to seek greater self-awareness and personal growth.

Activity 3

Which of the following statements is/are true? Humanists emphasise

1. a positive view of human potential
2. the effects of subjective learning
3. the effects of unconscious choice
4. all of the above.

Answer

Look carefully at the wording of the options when you make your choice. You will recognise some of the words as terminology that is associated with humanism but the statements are not all correct. The correct answer is option 1; the humanists see people as creative beings that are capable of free choice and seek ways to encourage people to develop their potential. For humanists, subjective perceptions are important, not prior learning, and therefore option 2 is not correct. From the humanist perspective, choices are conscious, not unconscious (like in the psychoanalytic approach) and therefore option 3 is also wrong. Because options 2 and 3 are wrong, option 4 does not provide the correct answer.

06

The biological approach

You can recognise the biological approach if you:

01 indicate how biological factors contribute to personality.

Resource

A–Z: Personality theories

Activity 1

Study: The biological approach.

Activity 2

How do studies of identical twins who were separated at birth and brought together again later in life, provide evidence supporting the role of heredity in personality development?

Answer

Your answer should reflect the idea that researchers have found amazing similarities in the personalities of identical twins even though they were reared apart in different environments.

Comment

Having looked at the various theories of personality, you may be wondering which theory is "right". Although each one has added to our understanding, none can be fully proved or disproved. We need all of them to explain personality. In many instances, a blanced picture emerges only when each one is considered. Because so many factors play a role, this results in individual differences in people's behaviour.

07

The African perspective

You can recognise the African perspective of the self if you :

01 indicate the worldview held by traditional African cultures
02 indicate the differences between individualist and collectivist views of the self

Resource

A–Z: Personality theories

Activity 1

Study: African perspective

Your resource material lists the main differences between the collectivist view held by traditional African cultures, and the western view of the self. However, it is important to note that these two views are not mutually exclusive. For example, if you tend to adhere to an individualist view, it does not mean that you do not care about other people. Many people, both African and westernised individuals, hold the views that behaviour is shaped by both individualist and collectivist perspectives.

Activity 2

Identify the correct statement regarding the African perspective of the self.

1. Values such as interdependence and self-sufficiency are highly regarded
2. The traditional African view is that the group is more important than the self
3. African people do not have an individualistic view of the self
4. All of the above.

Answer

At first glance, it may appear that all of the statements are correct, but option 4 is not the correct choice. Option 1 is partly correct because interdependence is one of the values of the collectivist view, but self-sufficiency is not. Option 3 may describe the view for some people of African origin but not necessarily all of them, therefore option 3 is not correct. Option 2 provides the correct answer, by qualifying that the traditional African view is collectivist (and not that all African's hold a collectivist view of the self).

08

Theoretical viewpoints on psychological disorders

You can recognise different theoretical viewpoints on psychological disorders if you:

01 identify the three main criteria for psychological disorders
02 identify the psychoanalytic, humanist, biopsychological, cognitive, behaviourist and community viewpoints on psychological disorders.

Resource

A–Z: Psychological disorders

Activity 1

Study the resource material.

Comment

From ancient times, people have tried to explain the unusual or distressing behaviour patterns that we now call psychological disorders. Current viewpoints attribute psychological disorders to biological, mental or environmental factors. No single viewpoint provides an adequate explanation of disordered behaviour. A model has emerged that holds the view that people differ in the biological predisposition to develop psychological disorders. It is assumed that psychological disorders are the result of the interaction of a biological, inherited predisposition and exposure to stressful life experiences. For example, a person with a very unstable personality might develop a personality disorder in the face a low levels of psychological stress. On the other hand, a person with a stable and extraverted personality might be able to withstand even high levels of stress and not develop a personality disorder.

We have already looked at different theoretical viewpoints on personality. There are other viewpoints, in particular those that include social and cultural explanations of psychological disorders. However, these fall outside the scope of this module.

Activity 2

Match each statement (A to F) describing the causes of psychological disorders with the relevant theoretical viewpoint (1 to 6).

A Brain disorders involve chemical imbalances or damage to brain structures
B Unconscious conflicts about impulses such as sex and aggression, that originate in childhood
C Reinforcement of inappropriate behaviours and punishment for or extinction of appropriate behaviours
D Irrational or maladaptive thinking about the self, life events and the world in general
E Incongruence between the actual self and public self as a consequence of trying to live up to the demands of others
F Social, political and cultural contexts impact on mental health.

1. psychoanalytic
2. humanist
3. biological
4. cognitive
5. behaviourist
6. community.

Answer

A – 3, B – 1, C – 5, D – 4, E – 2 and F – 6.

09

The relation between personality and health

You can recognise the relation between personality and health if you:

01 indicate the association between stress and personality type

02 identify the Type A personality
03 identify the hardy personality.

Resource

A–Z: Personality and health

Activity 1

Study the resource material.

Activity 2

Stress is one of the major factors that contributes to psychosomatic disease. Another factor to consider is personality type. There is a great deal of evidence of a general disease-prone personality. We look at one type here, the so-called cardiac personality, which refers to the person at high risk for heart disease.

Question

The hardy personality is characterised by

1. Type B traits
2. stress resistance
3. a passive worldview
4. all of the above.

Answer

The correct answer is option 2. People who have a hardy personality seem to be unusually resistant to stress, because of their particular approach to life (personal commitment, a feeling of being in control of their lives and a tendency to see life events as challenges rather than problems). Option 1 is not correct. Hardy personalities can have traits typical of Type A personalities but again it is their approach to life or worldview that differs. Option 3 is also not correct. Although hardy personalities are not hostile, they are also not passive. They see themselves as able to influence the course of events around them and see life events as challenges, rather than passively seeing themselves as victims of circumstance. Option 4 is obviously not correct because options 1 and 3 are wrong.

Activity 3

Do you think you are basically a Type A personality? Do you have traits of the hardy personality? Not everyone becomes ill from excessive stress. Write down some ideas about what you can do to develop hardy personality traits.

End of learning opportunity.

NOTE: This is not an assignment and does not have to be submitted