ANATOMY AND PHYSIOLOGY CONCEPTS

ISCED UNIT CODE: 0511 551 05A

TVET CDACC UNIT CODE: APB/CU/AB/CC/04/6/MA

Relationship to Occupational Standards

This unit addresses the Unit of Competency: **Perform anatomy and physiology studies**

Duration: 130 Hours

Unit Description

This unit outlines the competencies required to perform anatomy and physiology studies. It covers the ability to analyse communication, support and locomotion, and reproduction in plants and animals. It also includes applying concepts of nutrition, transport, excretion, and gaseous exchange in both plants and animals.

Summary of Learning Outcomes

By the end of this unit, the learner should be able to:

S/No	Learning Outcomes	Duration (Hours)
1.	Analyze communication in plants and animals	30
2.	Apply nutrition in plants and animals	15
3.	Apply transport in plants and animals	15
4.	Analyze support and locomotion in animals	20
5.	Analyze reproduction in plants and animal	20
6.	Apply excretion in plants and animals	15
7.	Apply gaseous exchange concept in plants and animals	15
	TOTAL	**130**

Learning Outcomes, Content and suggested methods of assessment

Learning Outcome	Content	Suggested methods of assessment
1. Analyze communication in plants and animals	1.1 Nervous System 1.1.1 Structure of the Nervous System 1.1.1.1 Central Nervous System (CNS) 1.1.1.2 Peripheral Nervous System (PNS) 1.1.2 Transmission of Nervous Impulse 1.1.3 Nervous System Diseases and Disorders 1.2 Sensory Organs 1.2.1 Structure and Functions of Sensory Organs 1.3 Endocrine System 1.3.1 Overview of the Endocrine System 1.3.2 Major Endocrine Glands 1.3.2.1 Pituitary Gland 1.3.2.2 Hypothalamus 1.3.2.3 Adrenal Gland 1.3.2.4 Pineal Gland 1.3.2.5 Thyroid Gland 1.3.2.6 Parathyroid Gland 1.3.2.7 Pancreas 1.3.2.8 Thymus 1.4 Plant Responses and Growth 1.4.1 Plant Growth Curves 1.4.2 Primary and Secondary Growth 1.4.3 Tropic and Tactic Growth Responses	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report • Written tests •
2. Apply nutrition in plants and animal's concepts	2.1 Plant Nutrition 2.1.1 Structure and Functions of the Leaf 2.1.2 Photosynthesis 2.1.2.1 Light and Dark Stages 2.1.2.2 Calvin Cycle 2.2 Animal Nutrition 2.2.1 The Digestive System and Enzymes 2.2.2 Process of Digestion and Absorption 2.2.3 Dissection 2.2.4 Nutritional Deficiency Diseases 2.2.4.1 Marasmus 2.2.4.2 Kwashiorkor 2.2.4.3 Scurvy	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report • Written tests

	2.2.4.4 Beri-Beri Disease	
3. Apply transport in plants and animals	3.1 Mammalian Circulatory Systems 3.1.1 Types of Circulatory Systems 3.1.1.1 Open Circulatory System 3.1.1.2 Closed Circulatory System 3.1.2 The Cardiovascular System 3.1.2.1 Blood and Its Components 3.1.2.2 Blood Vessels 3.1.2.3 The Heart 3.1.3 Overview of the Lymphatic System 3.2 Plant Transport Systems 3.2.1 Plant Structure and Functions 3.2.1.1 Internal Structures of the Root and Shoot 3.2.2 Water and Mineral Uptake in Plants 3.2.2.1 Forces Involved 3.2.2.2 Transpiration 3.2.2.3 Translocation	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report • Written tests
4. Analyze support and locomotion in animals	4.1 Types of Skeletons 4.1.1 Bone Formation 4.1.2 Bones of Axial Skeleton 4.1.3 Bones of Endoskeleton 4.2 Joints 4.3 Cartilages and Tendons 4.4 Types of Muscles 4.5 Mechanism of Muscle Action 4.6 Skeletal Diseases and Disorders 4.7 Muscular Diseases and Disorders	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report • Written tests
5. Analyze reproduction in animals and plants	5.1 Reproductive System in Mammals 5.1.1 Testes 5.1.2 Ovaries 5.2 Gametogenesis 5.3 Menstrual Cycle 5.4 Pregnancy 5.5 Birth Control Methods 5.2 Reproductive System in Plants 5.2.1 Flower Structure and Functions 5.2.2 Pollination 5.2.3 Fertilization	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report Written tests

	5.2.4 Seeds and Fruits 5.3 Asexual Reproduction 5.4 Vegetative Propagation 5.3 Reproductive System Diseases and Disorders	
6. Apply excretion in plants and animals concepts	6.1 Excretory Products and Systems 6.1.1 Plants Excretory Products 6.2 Excretory System in Mammals 6.2.1 Kidney Structure and Functions 6.2.2 Process of Urine Formation 6.2.3 Osmoregulation and Homeostasis 6.2.4 Roles of Renin, Vasopressin (Antidiuretic Hormone), and Aldosterone Hormones 6.3 Animal Excretory Products 6.4 Excretory System Diseases and Disorders	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report • Written tests
7. Apply gaseous exchange concept in plants and animals	7.1 Respiratory Surfaces and Gaseous Exchange 7.1.1 Types and Characteristics of Respiratory Surfaces 7.2 Gaseous Exchange in Mammals 7.3 Mechanisms of Breathing in Mammals 7.4 Gaseous Exchange in Fish 7.5 Gaseous Exchange in Plants 7.5.1 Opening and Closing of Stomata 7.6 Respiratory System Diseases and Disorders	• Practical assessment • Portfolio of evidence • Oral assessment • Third party report • Written tests

Suggested Methods of instruction

- Practical
- Projects
- Group discussions
- Demonstration
- Field trips/site visits
- Direct instruction

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	Learning Materials			
	Power point presentations	For trainer's use	1	1:25
	Relevant videos	For trainees and trainer's use	Varies	Varies
B	Learning Facilities & infrastructure			
	Lecture/theory room	For Trainers and Trainee' s use	1	1:25
	Well-equipped laboratory facility	For trainer and Trainee's use	1	1:25
	Computers	For trainee's use	5	1:5
	Whiteboard	For trainer's use	1	1:25