

BIOLOGY FORM 3 TERM 1
CLASSIFICATION 2
Review of binominal nomenclature

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Classify common organisms into their main taxonomic units
 - * Write scientific names of organisms correctly
 - * List the kingdoms of organisms
 - * Reviewing the work done in classification 1
 - * Classifying and naming common organisms like maize, beans, domestic dog and jack
 - * Local environment
 - * Potted plant
 - * Use of preserved specimen of plants and animals
 - Comprehensive secondary Biology students Bk. 3 page 1-2
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 1-3
 - KLB teachers book 3 pages 1-3
 - Principles of biology vol. 2 pages 1-4 2
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CLASSIFICATION 2
Kingdom monera

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Kingdom monera
 - * Discussion on the general characteristics of Kingdom monera
 - * Local environment on a typical bacteria cell and different types of bacteria
 - Comprehensive secondary Biology students Bk. 3 page
 - Teachers bk. 3 pages
 - KLB secondary Biology Students book 3 Page 3-4
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 5-6 3
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CLASSIFICATION 2
Kingdom Protocista

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Kingdom protocista
- * Discussion on the general characteristics of Kingdom protocista
- * Listing down the members of kingdom protocista
- * Local environment
- * Wall charts on protocista

- Comprehensive secondary Biology students Bk. 3 page 3-6
- Teachers bk. 3 pages 1-8
- KLB secondary Biology Students book 3 Page 3-4
- KLB teachers book 3 pages 12-27
- Principles of biology vol. 2 pages 6-8 4-5

CLASSIFICATION 2

Kingdom protoctista

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Kingdom protoctista
 - * Observe, draw and name parts of spirogyra, amoeba, paramecium and euglena
 - * Observing, drawing and naming parts of spirogyra, amoeba, paramecium and euglena
 - * Local environment
 - * Hand lenses
 - * Microscope
 - * Protozoa infusion (cultured)
 - Comprehensive secondary Biology students Bk. 3 page 3-6
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 4-5
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 6-8 2 1
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CLASSIFICATION 2

Kingdom fungi

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Kingdom fungi
 - * List down all the members of kingdom fungi
 - * Describing the general characteristics of Kingdom fungi
 - * Naming and drawing organisms in this kingdom
 - * Local environment
 - * Wall charts on fungi
 - * Specimen of fungi
 - * Hand lenses
 - * Microscope
 - Comprehensive secondary Biology students Bk. 3 page 6-8
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 6
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 11-14 2
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CLASSIFICATION 2

Kingdom fungi

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Draw and name parts of bread mold (mucor), yeast and mushrooms
 - * Observing, drawing and labeling structures of yeast, bread mold and mushroom
 - * Hand lenses
 - * Charts on yeast, mushrooms and bread mold
 - * Live specimens e.g. mushrooms
 - Comprehensive secondary Biology students Bk. 3 page 6-8
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 6
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 11-14 3
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CLASSIFICATION 2
Kingdom plantae

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the main characteristics of kingdom plantae
 - * Describe the main characteristics of bryophyta
 - * Discussion on the main characteristics of kingdom plantae
 - * Describing and stating the main characteristics of bryophyta
 - * Local environment
 - * Wall charts
 - * Live specimens of moss
 - Comprehensive secondary Biology students Bk. 3 page 8-9
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 7
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 15 4-5
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CLASSIFICATION 2
Kingdom plantae

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify examples of hyophyta
- * Observe draw and name parts of liverworts and moss plants
- * Observing drawing and labeling structures of moss and liverworts
- * Asking and answering questions
- * Local environment
- * hand lenses
- * Wall charts on bryophytes
- * Live specimens of moss plants
- Comprehensive secondary Biology students Bk. 3 page 8-9
- Teachers bk. 3 pages 1-8
- KLB secondary Biology Students book 3 Page 7

- KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 15 3 1
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CLASSIFICATION 2
Kingdom plantae

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify examples of pleridophyta
 - * Observe draw and name parts of fern plant
 - * Discussing main characteristics of division pleridophyes
 - * Stating and describing characteristics of pteridophytes
 - * Live specimen of fern
 - * Local environment
 - * Hand lenses
 - Comprehensive secondary Biology students Bk. 3 page 9-10
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 8-9
 - KLB teachers book 3 pages
 - Principles of biology vol. 2 pages 16 2
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CLASSIFICATION 2
Kingdom plantae

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify examples of division spermatophyte
- * Identify major sub-division of spermatophyte
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- * Discussing main characteristics pleridophyes
- * Stating main characteristics of pleridophytes and their sub-division of the same I.e ginkgoales, cycadales and coniferles
- * Live specimen spermatophytes
- * Wall charts on common spermatophytes
- Comprehensive secondary Biology students Bk. 3 page 10-11
- Teachers bk. 3 pages 1-8
- KLB secondary Biology Students book 3 Page 9-10
- KLB teachers book 3 pages 12-27

-Principles of biology vol. 2 pages 17 3

CLASSIFICATION 2

Kingdom plantae -spermatophyta

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * List main characteristics of angiospermae
 - * Differentiate between angiospermae and gymnospermae
 - * Discussing the characteristics of angiospermae and gymnospermae
 - * Differentiating between angiospermae and gymnospermae
 - * Live specimen of corn leaves
 - * Wall charts on angiospermae and gymnospermae
 - Comprehensive secondary Biology students Bk. 3 page 10-11
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 9-10
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 17 4-5
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CLASSIFICATION 2

Kingdom plantae angiospermaphyta

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * State the characteristics of angiospermaphyta
 - * Identify and state major characteristics of classes of angiospermaphyta eg dicotyledonae and monocotyledonae
 - * Differentiating between class monocotyledonae and dicotyledonae
 - * Observing drawing and labeling parts of monocotyledonous plants
 - * Live specimen of both monocotyledonous and dicotyledonous plants
 - * B;ade
 - * Staining material
 - * Handlenses
 - * microscope
 - Comprehensive secondary Biology students Bk. 3 page 11-12
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 10-11
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 18-20 4 1
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CLASSIFICATION 2

Kingdom Animalia

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of kingdom animalia
 - * Discussion on the main characteristics of phylum anthropoda
 - * stating and describing general characteristics of kingdom animalia
 - * Preserved specimen of kingdom Animalia
 - * Wall charts showing different animals
 - Comprehensive secondary Biology students Bk. 3 page 12
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 12-13
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 20-24 2
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CLASSIFICATION 2

Phylum arthropoda

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe the general characteristics of Phylum arthropoda
 - * List down the classes of the Phylum arthropoda
 - * stating and describing the general characteristics of Phylum arthropoda
 - * discussing the characteristics of arthropods
 - * Preserved specimen of arthropods
 - * Wall charts showing different arthropods
 - * Local environment
 - * hand lenses
 - Comprehensive secondary Biology students Bk. 3 page 14
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 12-13
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 25-26 3
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CLASSIFICATION 2

Class crustacean

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Class crutacea
- * Describing the general characteristics of Class crutacea
- * Observing, drawing and labeling various types of crutacea
- * Preserved specimen of crutacea
- * Wall charts showing diagrams of crutacea
- * Local environment
- * hand lenses
- Comprehensive secondary Biology students Bk. 3 page 14
- Teachers bk. 3 pages 1-8
- KLB secondary Biology Students book 3 Page 13-14
- KLB teachers book 3 pages 12-27
- Principles of biology vol. 2 pages 29 4-5

CLASSIFICATION 2

Class arachnida and insecta

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe the general characteristics of Class insect
 - * describe the general characteristics of Class arachnida
 - * List down the members of class arachnida and insecta
 - * Discussion on classes arachnida and insect
 - * stating and describing the characteristics of classes arachnida and insect
 - * observing, drawing and labeling parts of various types of arachnida and insecta
 - * preserved specimen of class arachnida and insecta
 - * wall charts showing diagrams of common members of class arachnida and insecta
 - * local environment
 - * hand lenses
 - Comprehensive secondary Biology students Bk. 3 page
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 14-16
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 25,30 5.1 EVALUATION Continuous assessment test By the end of the lesson, the learner should be able to
 - Answer all questions on the subtopics covered previously
 - Learner answers questions
 - Teacher supervises learners as they write down their examination
 - Question papers
 - Marking scheme
 - Comprehensive secondary Biology students Bk. 3 page
 - Teachers bk. 3 pages
 - KLB secondary Biology Students book 3 Page 30
 - KLB teachers book 3 pages 1-8
 - Principles of biology vol. 2 pages 2
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CLASSIFICATION 2

Classes chilopoda and diplopoda

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Classes chilopoda and diplopoda
- * List down the members of class chilopoda and diplopoda
- * Describing the general characteristics of Classes chilopoda and diplopoda
- * Observing, drawing and labeling of diplopods and chilopods
- * Differentiating between chilopoda and diplopoda classes
- * Preserved specimen of chilopods and diplopods
- * Wall charts showing diagrams of centipedes and millipedes
- * Local environment

- Comprehensive secondary Biology students Bk. 3 page 15
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 14
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 31 3
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CLASSIFICATION 2
Phylum chordata

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Phylum chordata
- * Describing the general characteristics of Classes Phylum chordate
- * listing down the members of Phylum chordata
- * Preserved specimen of Phylum chordata
- * local environment

- Comprehensive secondary Biology students Bk. 3 page 16-17
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 16-17
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 32 4-5
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CLASSIFICATION 2
Classes Pisces and amphibia

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe the general characteristics of Pisces and amphibia
- * describing the general characteristics of Classes Pisces and amphibian
- * observing, drawing and labeling different types of fish
- * differentiating between bony and cartilaginous fish
- * Wall charts of fish
- * Live specimen amphibia
- * Local environment

- Comprehensive secondary Biology students Bk. 3 page 17-19
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page
 - KLB teachers book 3 pages
 - Principles of biology vol. 2 pages 32-33 6 1
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CLASSIFICATION 2

Classes amphibian and reptilia

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe the general characteristics of reptilia
 - * Describing the general characteristics of reptilia
 - * Observing, drawing and labeling different types of amphibia and reptilia
 - * Photographs/diagrams of amphibia and reptilia
 - * Preserved specimen reptilia
 - * Comprehensive secondary Biology students Bk. 3 page 18-19
 - * Teachers bk. 3 pages 1-8
 - * KLB secondary Biology Students book 3 Page 18-19
 - * KLB teachers book 3 pages 12-27
 - * Principles of biology vol. 2 pages 33-34 2
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CLASSIFICATION 2

Class aves

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe the general characteristics of Class aves
 - * Describing and stating the general characteristics of Class aves
 - * Observing, drawing and labeling different parts of aves
 - * Photographs/diagrams of birds
 - Comprehensive secondary Biology students Bk. 3 page 19-20
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 19-20
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 34-35 3
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CLASSIFICATION 2

Class Mammalia

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the general characteristics of Class Mammalia
- * Identify different types of members of Class Mammalia
- * Describing and stating the general characteristics of Class Mammalia
- * Asking and answering questions
- * Photographs/diagrams of different mammals
- Comprehensive secondary Biology students Bk. 3 page 20-21
- Teachers bk. 3 pages 1-8
- KLB secondary Biology Students book 3 Page 21
- KLB teachers book 3 pages 12-27
- Principles of biology vol. 2 pages 35-36 4-5

CLASSIFICATION 2
Dichotomous key

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Construct a simple dichotomous to identify given organisms
 - * Constructing a simple dichotomous key using common organisms
 - * Common plant and animal species
 - Comprehensive secondary Biology students Bk. 3 page 21-22
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 22-26
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 37-41 7 1
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CLASSIFICATION 2
Dichotomous key

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Use an already constructed dichotomous key to identify given organisms
 - * Using a dichotomous key to identify arthropods
 - * Chart showing a constructed dichotomous key
 - Comprehensive secondary Biology students Bk. 3 page 21-22
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 27-28
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 37-41 2
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CLASSIFICATION 2
Dichotomous key

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Use an already constructed dichotomous key to identify given organisms
- * Using a dichotomous key to identify plants
- * Chart showing a constructed dichotomous key
- Comprehensive secondary Biology students Bk. 3 page 21-22
- Teachers bk. 3 pages 1-8

- KLB secondary Biology Students book 3 Page 29
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 37-41 3
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CLASSIFICATION 2

Dichotomous key

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Use an already constructed dichotomous key to identify given organisms
 - * Using a dichotomous key to identify phylum chordata
 - * Chart showing a constructed dichotomous key
 - Comprehensive secondary Biology students Bk. 3 page 21-22
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 1
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EVALUATION & REVISION OF THE TOPICS

Continuous assessment test

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * answer all questions on the topic covered
 - * draw and label organisms correctly
 - * Learner answers questions
 - * Teacher supervises learners as they write down their examination
 - * Question papers
 - * Marking scheme
 - Comprehensive secondary Biology students Bk. 3 page 25-26
 - Teachers bk. 3 pages 1-8
 - KLB secondary Biology Students book 3 Page 30
 - KLB teachers book 3 pages 12-27
 - Principles of biology vol. 2 pages 42-47 8 1
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ECOLOGY

Introduction to ecology

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define the term ecology and identify terms used in ecology
 - * Defining the terms used in ecology
 - * Wall chart showing terms used in ecology and their definitions and their Local environment
 - Comprehensive secondary Biology students Bk. 3 page 27-28
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 33-34
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 48 2
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ECOLOGY

Introduction to ecology

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define the term ecology and identify terms used in ecology
 - * Defining the terms used in ecology
 - * Wall chart showing terms used in ecology and their definitions and their Local environment
 - Comprehensive secondary Biology students Bk. 3 page 27-28
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 33-34
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 48 3
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ECOLOGY

Factors affecting the distribution of organisms in an ecosystem Light

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the types of ecosystems
 - * State and explain how light determines distribution of organisms in an ecosystem
 - * Discussing how light determines distribution of organisms in an ecosystem
 - * Instruments for measuring light or their diagrams
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 29
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 34
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 50 4-5
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ECOLOGY

Factors affecting the distribution of organisms in an ecosystem temperature

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify and describe how temperature determines distribution of organisms in an ecosystem
 - * Discussing on the role of temperature in the distribution of organisms in an ecosystem
 - * Drawing and labeling parts of a thermometer
 - * Instruments for measuring temperature or their diagrams
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 34
 - KLB teachers book 3 pages 28-56
 - =Principles of biology vol. 2 pages 50 9 1
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ECOLOGY

Factors affecting the distribution of organisms in an ecosystem Rainfall and humidity

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify and describe how Rainfall and humidity determines distribution of organisms in an ecosystem
 - * Discussing on the role of Rainfall and humidity in the distribution of organisms in an ecosystem
 - * Stating and describing how Rainfall and humidity determines distribution of organisms
 - * Drawing of instruments e.g. rain gauge
 - * Instruments for measuring Rainfall and humidity or their diagrams/photographs
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 31
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 34-35
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 51 2
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ECOLOGY

Factors affecting the distribution of organisms in an ecosystem Wind and atmospheric pressure

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe how Wind and atmospheric pressure determines distribution of organisms in an ecosystem
 - * describing how Wind and atmospheric affects the distribution of organisms in an ecosystem
 - * Drawing and labeling of instruments used in measuring wind direction & strength
 - * Instruments for measuring strength of wind, direction of wind and atmospheric pressure
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 29-30
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 34-35
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 51-52 3
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EVALUATION Continuous assessment test

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Write down correct answers to questions asked in the test
 - * Learner recalls and writes down answers questions asked
 - * Teacher supervises learners as they write down their examination
 - * Question papers
 - * Marking scheme
 - Comprehensive secondary Biology students Bk. 3 page 1-30
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 70
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 94 4-5
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ECOLOGY

Factors affecting the distribution of organisms in an ecosystem salinity

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe how salinity affects the distribution of organisms in aquatic ecosystems
- * describing how salinity affects the distribution of organisms in aquatic ecosystems
- * discussion on the role of salinity in distribution of organisms and methods of measuring salinity

- * diagrams of aquatic profile of lakes/oceans
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 31
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 35-36
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 51 10 1
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ECOLOGY

Factors in an ecosystem and how they affect distribution of organisms Waves, curves and Tides

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * describe how waves, currents and tides affects the distribution of organisms in aquatic ecosystem
 - * describing how waves, currents and tides affects the distribution of organisms in aquatic ecosystems
 - * diagrams of aquatic profile of lakes/oceans
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 31-32
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 36
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 49- 51 2
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ECOLOGY

Factors in an ecosystem and how they affect distribution of organisms Edaphic factors

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe how Edaphic factors affects the distribution of organisms in an ecosystem
- * Describing how Edaphic factors affects the distribution of organisms in an ecosystem
- * Discussion on the role of edaphic factors in distribution of organisms in an ecosystem
- * Soil samples of different types from different places
- * petri dishes
- * Local environment
- Comprehensive secondary Biology students Bk. 3 page 32
- Teachers bk. 3 pages 8-24
- KLB secondary Biology Students book 3 Page 36
- KLB teachers book 3 pages 28-56
- Principles of biology vol. 2 pages 52 3

ECOLOGY

Factors in an ecosystem and how they affect distribution of organisms (practical lesson)

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Measure certain factors in samples of different soils
 - * Measuring the PH and soil water content in sandy, clay and loamy soils
 - * Samples of sandy, clay and loamy soils
 - * Weighing balance
 - * Source of heat
 - * Universal indicator
 - * Funnel/filter papers
 - * Cotton wool
 - * Measuring cylinders
 - Comprehensive secondary Biology students Bk. 3 page 32
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 36
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 92-93 4-5
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ECOLOGY

Factors in an ecosystem and how they affect distribution of organisms Geological factors

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe how Geological factors affect the distribution of organisms in an ecosystem
- * Describing how Geological factors affect the distribution of organisms in an ecosystem
- * Discussion on the role of geological factors in the distribution of organisms in an ecosystem
- * Local environment
- * Maps or photographs of various landscapes
- Comprehensive secondary Biology students Bk. 3 page 32-33

- Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page
 - KLB teachers book 3 pages
 - Principles of biology vol. 2 pages 54 11 1
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ECOLOGY

Abiotic factors in an ecosystem

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe how Abiotic factors affect the distribution of organisms in an ecosystem
 - * Describing how other Abiotic factors affect the distribution of organisms in an ecosystem
 - * Discussion on the role of pollutants, oxygen concentration in the distribution of organisms in an ecosystem
 - * Local environment
 - * Photographs of polluted environments
 - Comprehensive secondary Biology students Bk. 3 page 33
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page
 - KLB teachers book 3 pages
 - Principles of biology vol. 2 pages 52-54 2
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ECOLOGY

Biotic factors in an ecosystem Competition

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe how competition affects the distribution of organisms in an ecosystem
 - * Describing how competition affects the distribution of organisms in an ecosystem
 - * Discussion on how competition affects the distribution of organisms in an ecosystem
 - * Local environment
 - * Graphs showing relation of different organisms in an ecosystem using a factor e.g. food
 - Comprehensive secondary Biology students Bk. 3 page 40
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 37-38
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 56-58 3
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ECOLOGY

Biotic factors in an ecosystem Predation and Symbiosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe how Predation and Symbiosis affects the distribution of organisms in an ecosystem
 - * Describing how Predation and Symbiosis affects the distribution of organisms in an ecosystem
 - * Discussion on the role of Predation and Symbiosis in the distribution of organisms in an ecosystem
 - * Drawing and labeling parts of a leguminous root
 - * Leguminous root
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 40-41
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 39-40
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 57-59 4-5
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ECOLOGY

Parasitism and saprophytism

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Differentiate between Parasitism and saprophytism
 - * Describe how Parasitism and saprophytism influence the distribution of organisms in an ecosystem e.g. Tick and cattle
 - * Differentiating between Parasitism and saprophytism
 - * Describing how Parasitism and saprophytism influence the distribution of organisms in an ecosystem e.g. Tick and cattle
 - * Discussion on Parasitism and saprophytism and their role in distribution of organisms in an ecosystem
 - * Live/preserved specimen of common parasites
 - * Diagrams or photographs of common Parasitism and saprophytism
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 41
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 39-40
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 58-59 12 1
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ECOLOGY

Recycling of matter and energy flow in an ecosystem

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the interaction between organisms in an ecosystem
 - * Describing the interaction between organisms in an ecosystem
 - * Discussion on the role of producers, consumers and decomposers in an ecosystem
 - * Construction of a pyramid of biomass and numbers
 - * Chart showing pyramid of biomass and numbers
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 37-39
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 44-45
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 69-71 2
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ECOLOGY

Nitrogen cycle & carbon cycle

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the role of decomposers in Nitrogen cycle & carbon cycle
 - * Describing the Nitrogen cycle
 - * Discussion on the role of decomposers in Nitrogen cycle
 - * Construction of the Nitrogen cycle
 - * Wall chart on Nitrogen cycle
 - Comprehensive secondary Biology students Bk. 3 page 41-42
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 41-42
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 71-73 3
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ECOLOGY

Recycling of matter & energy flow in an ecosystem

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define the terms food chain and food web
- * Construct food chains and food webs
- * Defining the terms food chain and food web
- * Discussion on food chains and food webs
- * Constructing food chains and food webs
- * Examples of food chains and food webs

- Comprehensive secondary Biology students Bk. 3 page 37-38
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 42-44
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 74 4-5
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ECOLOGY

Recycling of matter & energy flow in an ecosystem

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe energy flow in a local ecosystem and Construct food chains and food webs
 - * Studying energy flow in a local ecosystem
 - * Constructing food chains and food webs
 - * Comprehensive secondary Biology students Bk. 3 page 37-38, 39-40
 - * Teachers bk. 3 pages 8-24
 - * KLB secondary Biology Students book 3 Page 42-44
 - * KLB teachers book 3 pages 28-56
 - * Principles of biology vol. 2 pages 69-70 13
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REVISION AND END OF TERM EXAMINATIONS

BIOLOGY FORM 3 TERM 2

ECOLOGY

Population

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define population
 - * List down the characteristics of population
 - * Defining population
 - * Listing characteristics of population
 - * Photographs of population
 - * Data on population of some organisms shown e.g. in a graph
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 33-34
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 46
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 75-81 2
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ECOLOGY

Population estimation

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain the use of quadrants and transects as methods of Population estimation
 - * Describing how quadrants and transects as methods of Population estimation
 - * Discussion on the use of quadrants and transects as methods of Population estimation
 - * Quadrants
 - * Wall charts with transects
 - * 2 ropes with IM interval marks
 - Comprehensive secondary Biology students Bk. 3 page 35-36
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 46-48
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 82-84 3
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ECOLOGY

Population estimation

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain the capture ?recapture method of population estimation
 - * Describing capture recapture method of population estimation
 - * Using capture recapture method by estimating the total number of beads in a beaker
 - * Beads of two colors
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 36-37
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 49
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 84 4-5
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ECOLOGY

Population estimation (practical lesson)

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Use quadrant method to estimate population of named organisms within the compound
 - * Identifying, estimating and recording organisms in the school compound using quadrant method
 - * School compound
 - * Quadrant
 - * herbs
 - Comprehensive secondary Biology students Bk. 3 page 36-37
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 47
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 82-83 2 1
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ECOLOGY

Population estimation

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe total count, aerial count and aerial photography and other methods of population estimation
 - * Describing total count, aerial count and aerial photography and other methods of population estimation
 - * Discussion on these methods of population estimation.
 - * Photographs of populations
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 35
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 46
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 81-82 2
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ECOLOGY

Adaptation of organisms to their habitats

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate to the adaptations of xerophytes to their habitats
- * Discuss the adaptations of xerophytes to their habitats
- * Photographs and diagrams of xerophytes
- * Local environment
- Comprehensive secondary Biology students Bk. 3 page 42-44

- Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 50-51
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 60-62 3
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ECOLOGY

Adaptation of organisms to their habitats

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate to the adaptations of mesophytes to their habitats
 - * Discuss the adaptations of mesophytes to their habitats
 - * Photographs and diagrams of mesophytes
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 44-45
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 51
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 62-63 4-5
-

ECOLOGY

Adaptation of organisms to their habitats

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate to the adaptations of hydrophytes to their habitats
 - * Observe, draw and label parts of named hydrophytes, mesophytes and xerophyte plants
 - * Discuss the adaptations of hydrophytes to their habitats
 - * Observing, drawing and labeling structures of xerophytes, mesophytes and hydrophytes
 - * Photographs and diagrams of mesophytes e.g. black jack
 - * Hydrophytes e.g. papyrus
 - * Xerophytes e.g. cactus
 - * Hand lens
 - * Blade
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 42-46
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 52-53
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 63-64 3 1
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ECOLOGY

Adaptation of organisms to their habitats

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate to the adaptations of halophytes to their habitats
 - * Discussion on the adaptations of halophytes to their habitats
 - * Describing the adaptations of halophytes to their habitats
 - * Photographs and diagrams of halophytes
 - * Local environment
 - * Wall charts on halophytes
 - Comprehensive secondary Biology students Bk. 3 page 46-47
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 53-54
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 65 2
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ECOLOGY

Environmental pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain pollution and give examples of pollutants
 - * Defining pollution and identifying various pollutants
 - * Discussion on pollutants within and around the school compound
 - * Photographs and diagrams of polluted areas
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 46-47
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 55-56
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 100-101 3
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ECOLOGY

Air pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the various air pollutants
- * Identify various air pollutants
- * Describing various air pollutants
- * Photographs and diagrams of air pollution

* Local environment

- Comprehensive secondary Biology students Bk. 3 page 47
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 56
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 100-104 4-5
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ECOLOGY

Air pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Discuss the effects of air pollution on the environment
 - * Suggest methods of controlling air pollution
 - * Discussing the effects of air pollution on human health and animals
 - * Suggesting methods of controlling air pollution
 - * Photographs and diagrams of areas polluted by air
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 47-50
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 56-59
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 101-104 4 1
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ECOLOGY

Land/ soil pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe various causes of Land/ soil pollution
 - * Identification and description of various causes of Land/ soil pollution
 - * Photographs and diagrams of polluted land
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 47-50
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 62-64
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 104-105 2
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ECOLOGY

Land/ soil pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Discuss the effects of Land/ soil pollution and human health in rural and urban centers
 - * Suggest methods of controlling Land/ soil pollution
 - * Discussion on the effects of Land/ soil pollution on human and animal health
 - * Suggesting methods of controlling Land/ soil pollution
 - * Photographs and diagrams of polluted land
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 47-50
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 62-64
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 104-105 3
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ECOLOGY

Water pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the causes of Water pollution
 - * Identifying and describing the causes of Water pollution
 - * Photographs and diagrams of polluted water
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 50-52
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 60-62
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 105-108 4-5
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ECOLOGY

Environmental pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify other causes of environmental pollution in rural and urban centers
- * Identifying and describing the causes of environmental pollution e.g. noise, radioactive pollutions
- * Photographs and diagrams of polluted environment
- * Local environment
- Comprehensive secondary Biology students Bk. 3 page 47-53
- Teachers bk. 3 pages 8-24
- KLB secondary Biology Students book 3 Page 64
- KLB teachers book 3 pages 28-56
- Principles of biology vol. 2 pages 108-112 5 1 E

ECOLOGY

Continuous assessment test

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Write down correct answers to questions asked in the test
 - * Learner recalls and writes down answers questions asked
 - * Teacher supervises learners as they write down their examination
 - * Question papers
 - * Marking scheme
 - Comprehensive secondary Biology students Bk. 3 page 33-52
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page
 - KLB teachers book 3 pages
 - Principles of biology vol. 2 pages 100-110 2
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ECOLOGY

Water pollution

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Discuss the effects of water pollution on human health in rural and urban centers and other organisms
 - * Suggest methods of controlling water pollution
 - * Discussion on the effects of water pollution on human health in rural and urban centers and other organisms
 - * Suggesting methods of controlling water pollution
 - * Photographs and diagrams of polluted areas
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 50-52
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 60-62
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 105-108 3
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ECOLOGY

Human diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify symptoms of cholera and typhoid fever
 - * State methods of transmission
 - * Suggest control measures
 - * Discussion on the symptoms, methods of transmission and control of cholera and typhoid fever
 - * resource person e.g. school nurse
 - * Journals, periodicals and newspapers from library having information about cholera and typhoid fever
 - Comprehensive secondary Biology students Bk. 3 page 53-54
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 64-66
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 121-122 4-5
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ECOLOGY

Protozoan diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the causes, symptoms and methods of transmission and control of malaria
 - * Discussion on the causes, symptoms and methods of transmission and control of malaria
 - * resource person e.g. school nurse
 - * Journals, periodicals and newspapers from library having information about malaria
 - Comprehensive secondary Biology students Bk. 3 page 54-55
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 66-70
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 129-130 6 1
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ECOLOGY

Protozoan diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the causes, symptoms and methods of transmission of amoebic dysentery
 - * Suggest control methods of amoebic dysentery
 - * Discussion on the causes, symptoms and methods of transmission and control of amoebic dysentery
 - * Resource person e.g. school nurse
 - * Wall charts on life cycle of entamoeba histolytica
 - Comprehensive secondary Biology students Bk. 3 page 55
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 66-67
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 131 2
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ECOLOGY

Diseases caused by parasitic worms

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the causes, symptoms and methods of transmission of ascariasis
 - * Discussion on the causes, symptoms and methods of transmission of ascariasis
 - * Resource person e.g. school nurse
 - * Wall charts on life cycle of ascaris tumbricoides
 - * Journals, periodicals and newspapers having information about ascaris tumbricoides
 - Comprehensive secondary Biology students Bk. 3 page 56
 - Teachers bk. 3 pages 8-24
 - KLB secondary Biology Students book 3 Page 67-68
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 124-128 3
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ECOLOGY

Diseases caused by parasitic worms

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the causes, symptoms and methods of transmission and control of schistosomiasis
- * Discussion on the causes, symptoms and methods of transmission and control of schistosomiasis
- * Resource person e.g. school nurse
- * Wall charts on life cycle of schistosomiasis
- Comprehensive secondary Biology students Bk. 3 page 55-56
- Teachers bk. 3 pages 8-24

- KLB secondary Biology Students book 3 Page 69-70
 - KLB teachers book 3 pages 28-56
 - Principles of biology vol. 2 pages 124-128 4-5
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REPRODUCTION

Introduction to reproduction

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define reproduction and state its importance
 - * Differentiate between asexual and sexual reproduction
 - * Defining reproduction
 - * Differentiation between asexual and sexual reproduction
 - * Stating the importance of reproduction
 - * Recourse person e.g. school nurse
 - * Wall charts on significance of reproduction
 - Comprehensive secondary Biology students Bk. 3 page 64,103
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 78
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 141 7 1
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REPRODUCTION

Concepts of reproduction

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the appearance and location of chromosomes
- * Describing the appearance and location of chromosomes
- * Modeling chromosomes using Plasticine
- * Drawing and labeling chromosomes
- * Chart showing chromosomes
- * Plasticine of different colours
- * Manila paper
- Comprehensive secondary Biology students Bk. 3 page 64-65
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 79

- KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 141 2
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REPRODUCTION

Mitosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define mitosis
 - * Describe chromosomal movement during mitosis
 - * Defining mitosis and description of stages of mitosis
 - * Description of chromosomal movement in mitosis
 - * Wall Chart showing mitosis
 - * Plasticine of different colours
 - * Use of mitosis pictures
 - Comprehensive secondary Biology students Bk. 3 page 65-67
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 79-82
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 142-144 3
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REPRODUCTION

Mitosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the movement of chromosomes in mitosis
 - * Identify stages of mitosis
 - * Identifying stages of mitosis
 - * Describing chromosomal movement in mitosis
 - * Drawing the stages of mitosis
 - * Wall Chart showing mitosis
 - * Plasticine of different colours
 - * Use of mitosis pictures
 - * photomicrographs
 - Comprehensive secondary Biology students Bk. 3 page 65-67
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 79-82
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 142-144 4-5
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REPRODUCTION

Mitosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify and describe stages of mitosis
- * Identifying stages of mitosis
- * Describing the stages of mitosis
- * Drawing the stages of mitosis
- * Wall Chart showing mitosis
- * Plasticine of different colours
- * Use of mitosis pictures
- * Photomicrographs
- Comprehensive secondary Biology students Bk. 3 page 65-67
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 79-82
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 142-144 8 1

REPRODUCTION

Significance of mitosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * State the significance of mitosis in reproduction
- * Stating the significance of mitosis in reproduction
- * Discussion on the significance of mitosis
- * Wall Chart showing stages of mitosis
- Comprehensive secondary Biology students Bk. 3 page 66-67
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 82
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 142-143 2

EVALUATION Continuous assessment test

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Write down correct answers to questions asked in the test
- * Learner recalls and writes down answers questions asked
- * Teacher supervises learners as they write down their examination
- * Question papers
- * Marking scheme
- Comprehensive secondary Biology students Bk. 3 page 64-112
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 128-131

- KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 180-185 3
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REPRODUCTION

Meiosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define meiosis
 - * State the stages of meiosis
 - * Describe the chromosome movement during meiosis
 - * Defining meiosis
 - * Describing the stages of meiosis
 - * Describing the chromosome movement during meiosis
 - * Wall Chart showing stages of meiosis
 - * Plasticine
 - * photomicrographs
 - Comprehensive secondary Biology students Bk. 3 page 67-70
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 82-85
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 144-145 4-5
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REPRODUCTION

Meiosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Observe the stages of meiosis
 - * Describe the movement of chromosomes during meiosis Observing, identifying and drawing stages of meiosis in anther cells under a microscope
 - * Mature flower of hibiscus plant
 - * Microscopes
 - Comprehensive secondary Biology students Bk. 3 page 104-105
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 86
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 144-145 9 1
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REPRODUCTION

Significance of meiosis in reproduction

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * State the significance of meiosis in reproduction
 - * Stating the significance of meiosis in reproduction
 - * Discussion on the significance of meiosis in reproduction
 - * Charts showing stages of meiosis
 - * photomicrographs
 - Comprehensive secondary Biology students Bk. 3 page 70
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 86
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 145 2
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REPRODUCTION

Difference between mitosis and meiosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Differentiate between mitosis and meiosis
- * Discussion on the difference between mitosis and meiosis
- * Charts on meiosis and mitosis
- Comprehensive secondary Biology students Bk. 3 page 70
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 87
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 145-146 3

REPRODUCTION

Asexual reproduction Binary fission

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * State and describe the importance of Binary fission
 - * Describing the importance of Binary fission
 - * Drawing on stages of Binary fission in amoeba
 - * Protozoan infusio
 - * Microscope
 - * Hand lenses
 - Comprehensive secondary Biology students Bk. 3 page 70-72
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 87-88
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 146 4-5
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REPRODUCTION

Binary fission

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Observe spore formation in bread mould (mucor) and binary fission in paramecium
 - * Description of binary fission and sporulation in reproduction
 - * Drawing and labeling bread mould showing pore-producing structures
 - * Protozoan infusion
 - * Light Microscope
 - * Hand lenses
 - * Bread mould (mucor) growing on bread
 - Comprehensive secondary Biology students Bk. 3 page 70-72
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 87-88
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 146-147 10 1
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REPRODUCTION

Asexual reproduction Budding

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * State and describing the importance of budding in reproduction
- * Observing drawing and budding cells of yeast
- * Identifying, stating and describing the importance of budding in reproduction
- * Observing, drawing and labeling budding cells of yeast
- * Yeast fermentation (prepared an hour to the lesson)
- * Microscope, slides
- * Cover slips Methylene blue stain
- Comprehensive secondary Biology students Bk. 3 page 72
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 89
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 146-147 2

REPRODUCTION

Asexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the external structure of a typical flower
 - * Identifying the external floral parts
 - * Observing, drawing and describing corolla and calyx of a flower
 - * Big mature flowers e.g. hibiscus
 - * Hand lenses
 - Comprehensive secondary Biology students Bk. 3 page 73
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 90-91
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 152-155 3
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the internal structure of a typical flower
 - * Identifying the internal floral parts
 - * Observing, identifying and describing stamens and carpels of a flower
 - * Big mature flowers e.g. hibiscus & Nandi flame
 - * Hand lenses
 - * blade
 - Comprehensive secondary Biology students Bk. 3 page 73
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 91
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 154-156 4-5
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Observe, describe and draw different types of pollen grains
- * Describe the structure of ovules
- * Describe other characteristics of flowers
- * Observing, Identifying, and recording other characteristics of flowers
- * Comparing insect pollinated and wind pollinated flowers
- * A variety of mature wind and insect pollinated flowers
- * Light microscope
- * Microscope slides
- * Cover slips
- Comprehensive secondary Biology students Bk. 3 page 79,105
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 91-92
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 157-158 11 1

REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe and compare adaptations of wind and insect pollinated flowers
- * Observing, Identifying, and recording other characteristics of flowers
- * Comparing insect pollinated and wind pollinated flowers
- * A variety of mature flowers still attached to their stem
- * Local environment

- Comprehensive secondary Biology students Bk. 3 page 74-75
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 94-95
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 159 2
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the features and mechanisms that hinder self-pollination and self-fertilization
 - * Describing pollination
 - * Stating the types of pollination
 - * Comparing adaptations of wind pollinated and insect pollinated flowers
 - * Insect and wind pollinated flowers
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 74-78
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 94-95
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 159 3
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the process of fertilization in flowering plants
 - * Describing double fertilization in flowering plants
 - * Describing features and mechanisms hindering self-pollination and self-fertilization
 - * Variety of mature flowers
 - * Local environment
 - * Wall charts of various types of flowers
 - Comprehensive secondary Biology students Bk. 3 page 78
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 96-97
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 159-160 4-5
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe and explain how embryo and seeds are formed in flowering plants
 - * Describing and explaining the formation of embryo and seed in flowering plants
 - * Wall charts showing embryo formation in flowering plants
 - * Bean seeds
 - Comprehensive secondary Biology students Bk. 3 page 79-80
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 97-98
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 161-162 12 1
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe how fruits are formed in flowering plants
 - * Describing and explaining fruit formation in flowering plants
 - * Specimen of fruits
 - Comprehensive secondary Biology students Bk. 3 page 80-82, 107
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 97-100
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 161-165 2
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REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Differentiate between a fruit and a seed
- * Differentiating between fruits and seeds
- * Fruits
- * seeds
- Comprehensive secondary Biology students Bk. 3 page 82, 107
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 97-100
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 161-165 3

REPRODUCTION

Sexual reproduction in flowering plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe and explain how different seeds and fruits are dispersed
 - * Describing and explaining methods of fruit and seed dispersal
 - * Different types of fruits and seeds
 - Comprehensive secondary Biology students Bk. 3 page 80-82
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 102-104
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 164-165 4-5
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REPRODUCTION

Classifying fruits

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Classifying various types of fruits and describe their placentation
 - * Description and examination of placentation of various fruits
 - * Handouts on types of fruits
 - * Various types of fruits
 - Comprehensive secondary Biology students Bk. 3 page 84-87
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 101-104
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 162-165 13
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REVISION AND END OF TERM EXAMINATIONS

BIOLOGY FORM 3 TERM 3 1 1
REPRODUCTION
Sexual reproduction

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Differentiate between internal and external fertilization
 - * Describe external fertilization in amphibians
 - * Differentiating between internal and external fertilization
 - * Discussion on external fertilization in amphibians
 - * Amphibian eggs in a jelly string
 - * Hand lenses
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 91,107
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 104
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 165-166 2
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REPRODUCTION
Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate the structure of mammalian male reproductive system to its functions
 - * Relating the structure of mammalian male reproductive system to its functions
 - * Drawing and labeling the male reproductive system
 - * Wall chart on the male reproductive system
 - * Dissected small mammal
 - Comprehensive secondary Biology students Bk. 3 page 93,107
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 105-106
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 166-167 3
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REPRODUCTION
Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate the structure of mammalian male reproductive organ and spermatozoa to its function
- * Drawing and labeling the structure of the spermatozoa
- * Relating the spermatozoa to its function
- * Wall chart on spermatozoa
- Comprehensive secondary Biology students Bk. 3 page 93-95

- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 112
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 169 4-5

REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate the structure of mammalian female reproductive system to its function
 - * Discussion of the female reproductive system
 - * Drawing and labeling and relating the female reproductive system to its functions
 - * Charts showing female reproductive system
 - * Dissected small animals
 - Comprehensive secondary Biology students Bk. 3 page 95,107
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 108-110
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 167-168 2 1
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REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Relate the structure of mammalian ovum to its function
 - * Drawing and labeling and relating the structure of the ovum to its functions
 - * Wall Charts showing structure of the ovum
 - Comprehensive secondary Biology students Bk. 3 page 92-93
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 108-109
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 169-170 2
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REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe internal fertilization in mammals
- * Defining fertilization
- * Discussion on internal fertilization in mammals
- * Wall Charts on fertilization process
- Comprehensive secondary Biology students Bk. 3 page 95
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 111-113
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 171-172 3

REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the fertilization process
- * Describing the fertilization process
- * Drawing and labeling the fertilized ovum
- * Wall Charts on the process of fertilization
- Comprehensive secondary Biology students Bk. 3 page 95
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 112-114
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 171-172 4-5

REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe implantation and the role of the placenta in mammals
- * Describing implantation
- * Explaining the role of the placenta in mammals
- * Wall Charts showing the stages of implantation
- Comprehensive secondary Biology students Bk. 3 page 95
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 114-116
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 173-174 3 1

REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define gestation in mammals
- * Identify different gestation periods in different mammals
- * Defining gestation
- * Identifying different gestation periods in different mammals
- * Wall Charts containing gestation periods of different mammals
- * Photograph of a foetus
- Comprehensive secondary Biology students Bk. 3 page 97
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 116-117
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 173-174 2

REPRODUCTION

Sexual reproduction in mammals

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe birth and explain parental care
- * Defining different terms used in birth
- * Explaining the parental care
- * Drawing and labeling the foetus
- * Wall Charts showing definitions of different terms in birth
- * Photographs on parturition
- Comprehensive secondary Biology students Bk. 3 page 76
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 117-119
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 177-179 3

REPRODUCTION

Role of hormones in human reproduction

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the role of hormones in reproduction of humans
- * Discussion on role of hormones in reproduction of humans
- * Wall Charts showing hormones involved with reproduction in human beings and their effects
- Comprehensive secondary Biology students Bk. 3 page 97-98
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 120-123
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 175-176 4-5

REPRODUCTION

Menstrual cycle

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the role of hormones in the menstrual cycle
- * Discussion on role of hormones in the menstrual cycle
- * Wall Charts on the menstrual cycle
- Comprehensive secondary Biology students Bk. 3 page 97-98
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 121-124
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 175-177 4 1

REPRODUCTION

Sexually transmitted diseases/infections

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify symptoms and explain the methods of transmission and prevention of gonorrhea and herpes simplex
- * Discussion on symptoms, methods of transmission and prevention of gonorrhea and herpes simplex
- * Photographs of body parts affected by STI's
- * Resource persons e.g. school nurse
- Comprehensive secondary Biology students Bk. 3 page 99-101
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 123-125
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 179 2

REPRODUCTION

Sexually transmitted diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify symptoms and explain the methods of transmission and prevention of syphilis and trichomoniasis
- * Discussion on symptoms and explain the methods of transmission and prevention of syphilis and trichomoniasis
- * Photographs of body parts affected by STI's
- Comprehensive secondary Biology students Bk. 3 page 99-100
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 124

- KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 179 3
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REPRODUCTION

Sexually transmitted infections

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify symptoms and explain the methods of transmission and prevention of candidiasis and hepatitis
- * Discussion on symptoms and explain the methods of transmission and prevention of candidiasis and hepatitis
- * Photographs showing the symptoms of candidiasis and hepatitis
- Comprehensive secondary Biology students Bk. 3 page 100-102
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 124-125
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 179 4-5

REPRODUCTION

Sexually transmitted diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the causes and modes of transmission of HIV/AIDS and prevention of HIV and AIDS
 - * Identify effects of HIV/AIDS in human economy
 - * Identifying the causes and modes of transmission of HIV/AIDS
 - * Discussion on the causes and modes of transmission of HIV/AIDS
 - * Photographs of patients showing the signs & symptoms HIV and AIDS
 - Comprehensive secondary Biology students Bk. 3 page 100-102
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 125-127
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 179-180 5 1
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REPRODUCTION

Sexually transmitted diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify the symptoms of HIV/AIDS and stages of HIV and AIDS
- * Discussion on symptoms of HIV/AIDS

- * Photographs of patients showing the signs & symptoms HIV and AIDS
 - Comprehensive secondary Biology students Bk. 3 page 102-103
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 125-126
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 180 2
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REPRODUCTION

Sexually transmitted diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain ways of preventing and controlling the spread of HIV/AIDS
- * Explaining ways of preventing and controlling the spread of HIV/AIDS
- * Discussion on methods of preventing and controlling the spread of HIV/AIDS
- * Photographs of patients showing the signs & symptoms HIV and AIDS
- Comprehensive secondary Biology students Bk. 3 page 102-103
- Teachers bk. 3 pages 25-45
- KLB secondary Biology Students book 3 Page 126
- KLB teachers book 3 pages 57-78
- Principles of biology vol. 2 pages 179 3

EVALUATION

Continuous assessment test

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Answer questions asked in the test
 - * Learner recalls and writes down answers to questions asked
 - * Teacher supervises the learners as they write examinations
 - * Question papers
 - * Marking scheme
 - Comprehensive secondary Biology students Bk. 3 page 64-103
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 128-131
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 180-184 4-5
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REPRODUCTION

Sexually transmitted diseases

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Discuss the social effects of HIV/AIDS
 - * Discussion on the social effects of HIV/AIDS
 - * Handouts on STDs
 - Comprehensive secondary Biology students Bk. 3 page 103
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 127
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 180 6 1
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REPRODUCTION

Asexual and sexual reproduction

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain the advantages and disadvantages of sexual and asexual reproduction
 - * Explaining the advantages and disadvantages of sexual and asexual reproduction
 - * Charts showing advantages and disadvantages of sexual and asexual reproduction
 - Comprehensive secondary Biology students Bk. 3 page 103
 - Teachers bk. 3 pages 25-45
 - KLB secondary Biology Students book 3 Page 127-128
 - KLB teachers book 3 pages 57-78
 - Principles of biology vol. 2 pages 179-180 2
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GROWTH AND DEVELOPMENT

Concept of growth and development

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define the terms growth and development
 - * Describe the sigmoid growth curve
 - * Defining the terms growth and development
 - * Describing the sigmoid growth curve
 - * Charts showing sigmoid curve
 - Comprehensive secondary Biology students Bk. 3 page 113
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 132
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 186 3
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GROWTH AND DEVELOPMENT

Measurement of growth

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the phases of sigmoid curve
 - * Describe the intermittent growth curve
 - * Describing the phases of sigmoid curve
 - * Describing the intermittent growth curve
 - * Charts showing growth curves
 - Comprehensive secondary Biology students Bk. 3 page 113
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 133-135
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 186-190 4-5
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GROWTH AND DEVELOPMENT

Measurement of growth

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Analyze data on growth rate
- * Draw growth curves
- * Analyzing data on growth rate
- * Drawing growth curves
- * Charts showing growth curves
- * Data on growth rate
- Comprehensive secondary Biology students Bk. 3 page 113,116-117,125
- Teachers bk. 3 pages 46-64
- KLB secondary Biology Students book 3 Page 133-135
- KLB teachers book 3 pages 79-98
- Principles of biology vol. 2 pages 190 7 1

GROWTH AND DEVELOPMENT

Growth and development in plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define seed dormancy
- * Identify factors affecting viability and dormancy of seeds
- * Defining seed dormancy
- * Identifying factors affecting viability and dormancy of seeds
- * Dry bean seeds
- * Dry maize seeds
- Comprehensive secondary Biology students Bk. 3 page 113-114
- Teachers bk. 3 pages 46-64
- KLB secondary Biology Students book 3 Page 136-137
- KLB teachers book 3 pages 79-98

-Principles of biology vol. 2 pages 190,198 2

GROWTH AND DEVELOPMENT

Growth and development in plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identify factors affecting seed dormancy
 - * Identifying causes of seed dormancy
 - * Dry bean seeds
 - * Dry maize seeds
 - Comprehensive secondary Biology students Bk. 3 page 113-114
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 136-137
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 190,198 3
-

GROWTH AND DEVELOPMENT

Growth and development in plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define seed germination
- * Differentiate between types of seed germination
- * Observing, drawing and labeling types of seed germination in beans and maize
- * Differentiate between epigeal and hypogeal germination
- * Seedling of maize and beans at different stages of development
- Comprehensive secondary Biology students Bk. 3 page 114-145
- Teachers bk. 3 pages 46-64
- KLB secondary Biology Students book 3 Page 137,141-142
- KLB teachers book 3 pages 79-98
- Principles of biology vol.2 pages 191 4-5

GROWTH AND DEVELOPMENT

Conditions necessary for germination

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Identifying Conditions necessary for germination - oxygen
- * setting up experiments to investigate conditions (oxygen) necessary for germination of seeds
- * maize grains and beans seeds
- * cotton wool

- * flasks
 - * pyrogalllic acid
 - * muslin bags
 - * germination maize and bean seeds
 - Comprehensive secondary Biology students Bk. 3 page 114-115
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 138
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 192-193 8 1
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GROWTH AND DEVELOPMENT

Conditions necessary for seed germination

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Investigate the necessity of water and warmth
 - * Investigating the necessity of water and warmth
 - * Beans seeds
 - * cotton wool
 - * 4 petri dishes
 - * Labels
 - * Thermometer
 - * refrigerator
 - Comprehensive secondary Biology students Bk. 3 page 127-128
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 138,140
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 192 2
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GROWTH AND DEVELOPMENT

Conditions necessary for seed germination

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Investigate the necessity of water and warmth
 - * Investigating the necessity of warmth
 - * Beans seeds
 - * cotton wool
 - * 4 petri dishes
 - * Labels
 - * Thermometer
 - * refrigerator
 - Comprehensive secondary Biology students Bk. 3 page 127-128
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 138,140
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 192 3
-

EVALUATION

Continuous assessment test

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Write down the correct answers to questions asked in the test
 - * Learner recalls and writes down answers to questions asked
 - * Teacher supervises the learners as they write down the exams
 - * Question paper
 - * Marking scheme
 - Comprehensive secondary Biology students Bk. 3 page 132
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 134,138
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 203,206 4-5
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GROWTH AND DEVELOPMENT

Growth in seedling

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe the region of growth in seedlings
- * Identify the regions of growth
- * Describing the region of growth in seedlings
- * Identifying the regions of growth
- * Charts on shoot and root tips
- * Potted plants
- * Local environment
- Comprehensive secondary Biology students Bk. 3 page 131-132
- Teachers bk. 3 pages 46-64
- KLB secondary Biology Students book 3 Page 143-144

- KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 193-194 9 1
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GROWTH AND DEVELOPMENT

Growth in seedling

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Determine the regions of growth in seedlings
 - * Measure the aspect of growth in a given seedling
 - * Determine the regions of growth in seedlings by measuring one parameter -height
 - * Growing seedling
 - * Rulers
 - * Local environment
 - Comprehensive secondary Biology students Bk. 3 page 115-116
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 143-144
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 194, 196 2-3
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GROWTH AND DEVELOPMENT

Primary and secondary growth

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe growth in plants I.e. Primary and secondary growths
 - * Investigate primary and secondary growth in a seedling
 - * Discussion on Primary and secondary growth in plants
 - * Investigating primary and secondary growth in a seedling
 - * Bean seeds
 - * Beakers
 - * Cotton wool
 - * Soft board
 - * Piece of wire
 - * Indian ink
 - * Thread
 - * Ruler
 - * Petri dishes
 - Comprehensive secondary Biology students Bk. 3 page 118-120
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 144-145
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 195-198 4-5
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GROWTH AND DEVELOPMENT

Role of hormones in plants

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain the role of hormones in regulation of growth and development in plants
 - * Discussion on the role common hormones in growth and development of plants
 - * cytokinins
 - * ethylene
 - * Abscissic acid
 - * Auxins and gibberellins
 - * Chart on plant hormones and their effects
 - Comprehensive secondary Biology students Bk. 3 page 121-122
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 146-147
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 195-199 10 1
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GROWTH AND DEVELOPMENT

Apical dominance

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Explain Apical dominance in plants
 - * Discussion on Apical dominance in plants
 - * Explaining Apical dominance in plants
 - * Stating the application of Apical dominance in agriculture
 - * Photographs of plants
 - * Specimen of plants that are pruned and others that are not
 - Comprehensive secondary Biology students Bk. 3 page 122
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 147-148
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 198-199 2-3
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GROWTH AND DEVELOPMENT

Metamorphosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Define metamorphosis
 - * Distinguish between complete and incomplete metamorphosis
 - * Describe complete metamorphosis in housefly and anopheles mosquito
 - * Defining metamorphosis
 - * Distinguishing between complete and incomplete metamorphosis
 - * Describing complete metamorphosis in housefly and anopheles mosquito
 - * Chart on the life cycles of housefly and anopheles mosquito
 - Comprehensive secondary Biology students Bk. 3 page 118-120
 - Teachers bk. 3 pages 46-64
 - KLB secondary Biology Students book 3 Page 148-149
 - KLB teachers book 3 pages 79-98
 - Principles of biology vol. 2 pages 199-203 4-5
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GROWTH AND DEVELOPMENT

Incomplete metamorphosis

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe incomplete metamorphosis in a cockroach
 - * Describing incomplete metamorphosis in a cockroach
 - * Discussion on the life cycle of a cockroach
 - * Drawing and labeling Incomplete metamorphic stages
 - * Chart on the life cycles of a cockroach
 - * Preserved specimens showing stages of growth in a cockroach
 - * Comprehensive secondary Biology students Bk. 3 page 124-125
 - * Teachers bk. 3 pages 46-64
 - * KLB secondary Biology Students book 3 Page 144-150
 - * KLB teachers book 3 pages 79-98
 - * Principles of biology vol. 2 pages 203 11 1-2
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GROWTH AND DEVELOPMENT

Role of growth hormones in insects

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Describe and explain the Role of growth hormones in metamorphosis in insects
- * Discussion of the Role of growth hormones in metamorphosis in insects
- * Wall Charts on hormones involved in metamorphosis
- Comprehensive secondary Biology students Bk. 3 page 125-126
- Teachers bk. 3 pages 46-64
- KLB secondary Biology Students book 3 Page 150-151
- KLB teachers book 3 pages 79-98
- Principles of biology vol 2 pages 203 3-5

GROWTH AND DEVELOPMENT

Metamorphosis (practical lesson)

OBJECTIVES:

By the end of the lesson, the learner should be able to:

- * Observe metamorphosis in some insects
- * Observing, identifying, drawing and labeling various stages of insect development
- * Eggs of various insects
- * Pupae and caterpillars
- * Specimen bottles
- * Transparent reagent bottles
- * Green vegetables
- * forceps

-Comprehensive secondary Biology students Bk. 3 page 129-130

-Teachers bk. 3 pages 46-64

-KLB secondary Biology Students book 3 Page 150

-KLB teachers book 3 pages 79-98

-Principles of biology vol. 2 pages 200-203 12

REVISION AND END OF TERM EXAMINATIONS
