Name:

3.1 Diversity of Organisms	**Learning Objectives**
3.1.1 Diversity of organisms	1. List the five kingdoms used to classify plant and animals
3.1.2 Microorganisms	2. Outline the distribution of fungi & bacteria in nature
3.1.7 Plant e.g. flowering plant	3. Discuss the plant kingdom with the flowering plant as an example
3.1.8 Animal e.g. human	4. Discuss the animal kingdom with the human as an example

Monera - prokaryotes (bacteria) Features = single-celled, microscopic, no nucleus or other organelles, have a cell wall, normally reproduce asexually.

Protista - amoeba, algae and fungus-like slime moulds. Features = true nucleus, mainly single-celled or simple multicellular (no tissues)

Fungi – e.g. yeasts, moulds, mushrooms, lichens, mildew. Features = Most multicellular and consist of hyphae. Cell wall (contains chitin), true nucleus but no chlorophyll. Heterotrophic - saprophytes (causing decay and recycling of nutrients) or parasites. Reproduce by spores.

Plants – complex, multicellular, photosynthetic (producers), cellulose in cell walls, often have large vacuoles, non-motile, reproduce asexually and sexually, protect embryo for a time in parent plant e.g. mosses, ferns and seed-producing plants (non-flowering plants e.g. pine and flowering plants e.g. grasses, trees, flowers).

Animals – multicellular, no cell wall, consumers (heterotrophs) - eat other organisms for food, most show differentiation – tissue and organ specialisation, most have a nervous system and muscular system, normally reproduce sexually, non-motile egg and motile sperm.
Animals range from sponges, jellyfish, flatworms, roundworms and segmented worms, snails, insects to animals with backbones such as fish, birds and humans.

Viruses?
Have features of both living and non-living material. Extremely small and consist of a protein coat, a nucleic acid and some enzymes. Existing outside cells ⇒ non-living. Inside cells ⇒ alive because they use host cells to reproduce. They don't demonstrate many of the characteristics of living organisms!

LC questions

2005 HL

15. (b)(ii) Other than being prokaryotic, state **two** ways in which a typical bacterial cell differs from a typical human cell (e.g. cell from cheek lining).

2010 HL

3. (b) To which kingdom does *Amoeba* belong? ……

2010 HL
12. (b) (i) To which kingdom do bacteria belong?

2012 HL

8. (a) (i) Are fungi prokaryotic or eukaryotic? _____

(ii) Name **one** structure in plant cells not found in fungi.

2013 HL

14.

(c)

(ii) Name an organism that is used in industrial fermentation.

(iii) To which kingdom does this organism belong?

2014 HL

4. (a) The living world may be divided into five kingdoms: Monera; Protista; Fungi; Plantae; Animalia.

In the case of **each** of the following pairs of kingdoms give any structural feature of members of the first-named kingdom **not found** in members of the second kingdom.

(i) Fungi and Animalia. _____

(ii) Plantae and Fungi. _____

(iii) Animalia and Monera. _____

(iv) Protista and Animalia. _____

(b) In **each** of the following cases, name an organism that fits the description.

(i) A multicellular fungus. _____

(ii) A member of the Protista that catches and consumes smaller organisms.

_____

(iii) A harmful member of the Monera. _____

SEC Sample Paper OL

15. (b)

(i) To which kingdom does *Rhizopus* belong?

2012 OL

13. (a) All organisms may be classified (grouped) into five kingdoms.
(i) Suggest **one** advantage of classifying organisms.

2014

4. (a) The living world may be divided into five kingdoms: Monera; Protista; Fungi; Plantae; Animalia.

In the case of **each** of the following pairs of kingdoms give any structural feature of members of the first-named kingdom **not found** in members of the second kingdom.

(i) Fungi and Animalia. _____

(ii) Plantae and Fungi. _____

(iii) Animalia and Monera. _____

(iv) Protista and Animalia. _____

(b) In **each** of the following cases, name an organism that fits the description.

(i) A multicellular fungus. _____

(ii) A member of the Protista that catches and consumes smaller organisms.

_____

(iii) A harmful member of the Monera. _____

LC answers

2010 HL Q3

	(b)	Protista **or** Protoctista	**3**

2005 HL Q15(b)				
	(b)	**(i)**	Diagram (wall, membrane) Labels	**3, 0** **2(3)**
		(ii)	Cell wall / size / capsule / flagellum / plasmid	**2(3)**

2010 HL Q12

	(b)	(i)	Monera **or** Prokaryotae	**3**

2012 HL Q8

		(ii)	Chloroplast	**3**

2013 HL Q12

	(b)	(i)	*Monera	**3**

2014 HL Q4

4.		**8 + 7 + 5(1)**
(a)	(i)	**Cell wall or hypha (or named hypha) or mycelium or named reproductive structure**
	(ii)	**Chloroplast or cellulose cell wall or named anatomical feature**
	(iii)	**Nucleus or mitochondrion or multicellular or eukaryotic or nervous system or digestive system or reproductive system or muscular system**
	(iv)	**(Can be) unicellular or (can have) chloroplast or pseudopodia or contractile vacuole or food vacuole**
(b)	(i)	**Rhizopus (or bread mould) or other named fungus**
	(ii)	**Amoeba**
	(iii)	**Any named (harmful) bacterium or named (harmful) effect of a bacterium** [*NB The word* 'bacterium' *is essential if effect given*]

2013 HL Q14(c)

14.	(c)	(i)	Anaerobic respiration	**3**
		(ii)	Yeast	**3**
		(iii)	*Fungi	**3**

2012 OL Q13

13				**7 + 2(1)**
	(a)	(i)	EG. Identification	(1 pt)

2014

(a) (i) Cell wall **or** hypha (or named hypha) **or** mycelium **or** named reproductive structure

(ii) Chloroplast **or** cellulose cell wall **or** named anatomical feature

(iii) Nucleus **or** mitochondrion **or** multicellular **or** eukaryotic **or**

nervous system **or** digestive system **or** reproductive system **or**

muscular system

(iv) (Can be) unicellular **or (can** have) chloroplast **or** pseudopodia

or contractile vacuole **or** food vacuole

(i) Rhizopus (or bread mould) **or** other named fungus

(ii) Amoeba

(iii) Any named (harmful) bacterium

or named (harmful) effect of a bacterium *The word* 'bacterium' *is essential if effect given]* DNB