



<b>Enseignement secondaire</b>		
<b>Classes internationales</b>		
	<b>Régime anglophone</b>	
<b>Biologie</b>		
<b>Programme</b>		
<b>4IEC</b>		
Leçons hebdomadaires: 2		
Langue véhiculaire: anglais		
Nombre minimal de devoirs par trimestre : 1		

## I. Organisation and maintenance of organisms

### I.1 Organisms are made of cells

- Describe the levels of organization within organisms, specialized cells
- Describe cell structures as well as corresponding functions: nucleus, cytoplasm, cell membrane, cell wall, chloroplast and vacuole (simplified overview, see 2I SL book for guidance)
- Compare the structures of different cells

### I.2 Biological molecules

- Organic molecules (carbohydrates, lipids, proteins, nucleic acids) and basic biochemistry
- Testing for biochemicals (glucose and starch)
- Catabolism and anabolism
- Enzymes control biochemical reactions in living organisms
- Mode of action of enzymes (active site, activation energy, lock-and-key model,...)
- Factors affecting the rate of reaction of enzymes

### I.3 Nutrition and digestion

- Overview – digestive systems & functions
- Animal nutrition converts food molecules to a usable form
- Appecificity and function of distinct digestive enzymes
- Ingestion, digestion, absorption, assimilation and egestion, defecation as well as peristalsis
- Importance of surface area in digestion and absorption
- Diffusion enables absorption by the small intestine (simple diffusion)



## **I.4 Gas exchange**

- Overview – respiratory system & functions
- Gas exchange supplies oxygen for respiration (diffusion)
- Loss of surface area for gas exchange in emphysema
- Smoking and disease

## **I.5 Circulation**

- Blood as transport medium
- The circulatory system
- Different types of blood vessels
- The heart
- Vaccination
- Allergies

# **II. Development of organisms and the continuity of life:**

## **II.1 Sexual and asexual reproduction**

Explain the differences between sexual and asexual reproduction

Explain characteristics of offspring produced by sexual and asexual reproduction

## **II.2 Human Reproduction**

- Reproduction in humans
- The menstrual cycle
- Copulation and conception
- Contraception
- Pregnancy
- Twins
- Sexually transmitted diseases
- Growth and development

## **II.3 Reproduction in plants**

- Overview - structures of the flower and their functions
- Asexual reproduction
- Artificial selection in plants