

EduROM - Biology Topic and Lesson List

Disc 1 - The characteristics of life	
Topic	Lesson Name
What is life? Where do life processes take place?	<ol style="list-style-type: none"> 1. From nature to biology 2. What is life? 3. What is alive and what is not? 4. Organisms, organs, tissues, cells 5. The cell: a brick, a factory, a store of information 6. What exactly does "life" mean?
Basic life processes	<ol style="list-style-type: none"> 1. Life processes 2. Production in a leaf 3. Five types of heterotrophy 4. Symbionts pay for food 5. Where does energy come from? 6. Excretion of harmful substances 7. Motion 8. The not-so-active plants 9. Growth and development 10. There are not always two parents 11. Excitability 12. Adaptive capacities
How has man classified the nature around him?	<ol style="list-style-type: none"> 1. Unity or diversity? 2. You can make it, too! 3. How to build a system? 4. The kingdom divided 5. What is a species? 6. How do you determine the name of a species? 7. One nature - five kingdoms 8. The Monera and Protista 9. Fungi 10. Plants 11. Animals
The structure of the bacterial, animal and fungal cell	<ol style="list-style-type: none"> 1. The cell: a simple and perfect solution 2. The bacterial cell 3. The complicated structures of the simple cell 4. The animal cell 5. The cell membrane 6. The organelles in an animal cell 7. The fungal cell 8. Mesosomes 9. The nucleoid (nucleus is in syllabus) 10. Ribosomes 11. Cytoplasm 12. The information centre 13. The protein and lipid factory 14. Corrections and modifications 15. The cell's power stations 16. The cytoplasm and its skeleton
The plant cell - the most complicated of cells	<ol style="list-style-type: none"> 1. The diversity of shapes and sizes 2. What is new in a plant cell? 3. The common feature 4. A store of everything 5. Where does photosynthesis take place? 6. Is this all about the complicated cell? 7. The cell under the optical microscope 8. Electron microscopes
Bacteria: the commonest unicellular organisms	<ol style="list-style-type: none"> 1. The ubiquitous bacteria 2. The resistance to adverse factors 3. The size and form 4. Auto-trophism among bacteria 5. Three ways of acquiring food 6. Saprophytes 7. Parasites 8. Symbionts 9. Breathing

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Bacteria: the commonest unicellular organisms	<ol style="list-style-type: none"> 10. The "boiling" life 11. Bacteria and the biosphere 12. Bacteria and humans
Organisms that build colonies	<ol style="list-style-type: none"> 1. What is a colony? 2. Simple colonies 3. Complex colonies: the volvox 4. The creation of a daughter colony of the volvox 5. The sponges (Porifera) - the structure and the habitat 6. Specialisation of cells in sponges
From a colony to a multicellular organism	<ol style="list-style-type: none"> 1. The growing complexity 2. Multicellular algae 3. Thalli of complex structures 4. Simple tissular animals 5. The structure of cnidarians 6. Cnidarians: the ethereal carnivores 7. Hydrozoans 8. Scyphozoans 9. Corals 10. Huge numbers of brown algae 11. Stinging cells 12. Sensory cells 13. Epithelial - muscle cells 14. The sea light and bell
The cell - and then?	<ol style="list-style-type: none"> 1. From a cell to a tissue 2. Tissues 3. Different structures, same functions 4. An animal organ and a plant organ 5. A system: team work
Fungi: neither plants nor animals	<ol style="list-style-type: none"> 1. The deceptive similarity 2. Why do fungi deserve a separate kingdom? 3. The gemmating fungi 4. How is a fungus structured? 5. Do fungi have genders? 6. A review of common capped mushrooms 7. Saprophytic fungi support life on Earth 8. Fungi: useful or harmful? 9. The importance of fungi 10. A fungus and an alga in a relationship 11. The pioneers of life 12. Food and medicine

EduROM - Biology Topic and Lesson List

Disc 2 - The world of plants	
Topic	Lesson Name
A review of the world of plants	<ol style="list-style-type: none"> 1. The kingdom of plants 2. Algae: Protista that look like plants 3. The green algae: so similar to plants 4. Bryophytes (mosses): sporal plants 5. Pteridophytes 6. Ferns 7. Lycopodia 8. Horsetails 9. Spermatophytes 10. Gymnospermous plants 11. Angiospermous plants 12. Monocotyledonous plants 13. Dicotyledonous plants
How do plants grow?	<ol style="list-style-type: none"> 1. It all starts with a spore 2. How does a plant grow? 3. The growth cones produce primary tissues 4. The growth cone 5. Grasses grow in a different way
The structure and function of primary plant tissues	<ol style="list-style-type: none"> 1. The plant's cloak 2. The epidermis: the covering layer of the stem and the leaves 3. The windows the plant sees the world through 4. The rhizodermis covers the root 5. The "filling" of a plant 6. An air store and a mattress in one 7. Protection against fractures 8. The conductive system of a plant 9. The hydraulics of a plant 10. How to feed all the organs
The primary structure of the stem and the root	<ol style="list-style-type: none"> 1. The primary structure of a plant 2. The underworld 3. A section of the root 4. Plants have scaffoldings 5. The stem seen from the inside 6. The location of the conductive bundles in mono- and dicotyledons 7. The leaf 8. The anatomy and functions of the leaf
The secondary structure of the stem and the root	<ol style="list-style-type: none"> 1. How is secondary structure created? 2. Secondary tissues 3. When does the root thicken? 4. How is the stem of a tree created? 5. What is hard? 6. Annual growth rings 7. A comparison of mono- and dicotyledons
Adaptation of organisms to the environment	<ol style="list-style-type: none"> 1. Deviations from patterns 2. How a plant is sucked underground 3. The living supports 4. Extracting water from air 5. What are respiratory roots? 6. The underground sprouts 7. Food storage and reproduction 8. Do cacti have leaves? 9. A moustache
Characteristics of ecological groups of plants	<ol style="list-style-type: none"> 1. A living organism and the environment 2. Plants and water 3. Misers of water management 4. Xeromorphic leaves 5. The mystery of the survival of cacti 6. Succulents 7. The predilection for salt 8. Mesophytes 9. They do not have to economise on water

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Characteristics of ecological groups of plants	<ol style="list-style-type: none"> 10. Some plants live in water, too 11. Do all plants need the same amount of light? 12. The fight for light
Photosynthesis as a method of nutrition	<ol style="list-style-type: none"> 1. Autotrophic and heterotrophic plants 2. How to be independent 3. A micro-factory 4. The course of photosynthesis 5. Chloroplasts never get tired 6. To make photosynthesis happen 7. The flow of the assimilated substances 8. The importance of photosynthesis
The diversity of methods of obtaining food by plants	<ol style="list-style-type: none"> 1. More than just autotrophy 2. Complete dependence 3. Into the host 4. Half a step ahead of parasites 5. A relationship for a life 6. A balanced diet 7. The killer hairs 8. The bladderwort's traps 9. The killer jugs
Respiration in plants	<ol style="list-style-type: none"> 1. Respiration - production of ATP 2. Aerobic and anaerobic respiration 3. Plants have aerobic respiration 4. The respiratory organs in plants 5. Respiration and photosynthesis 6. Mitochondria and chloroplasts in one cell 7. What does the intensity of respiration depend on? 8. You always need water
Water management in plants and excretion strategies	<ol style="list-style-type: none"> 1. The life-giving water 2. Physical phenomena are responsible for the flow of water within plants 3. Diffusion - motion of molecules 4. Osmosis - flow of water across semipermeable membranes 5. Transpiration - evaporation of water 6. Root pressure pumps water from beneath 7. Not only passive 8. Not only passive 9. Plants in early spring 10. How plants cry 11. Plants do not need kidneys 12. The excreted substances have important functions
Plants in motion	<ol style="list-style-type: none"> 1. How plants move 2. Tropisms - what are they? 3. Phototropism 4. The impact of the force of gravity on a plant 5. Thigmotropism 6. Nasties - what are they? 7. Sensitive to temperature 8. Sensitive to light 9. Seismonasties 10. Thigmonasties and chemonasties 11. The multifunctional plant hormones 12. Auxins 13. Auxins and phototropism 14. Other growth substances 15. Ethylene - a gas plant hormone 16. Do plants get nervous?
The flower, the seed, the fruit - structure and functions	<ol style="list-style-type: none"> 1. The success of spermatophytes 2. The most important parts of a flower 3. Gender of flowers 4. Cones - the flowers of gymnosperms 5. A joy for the eyes 6. Factories of pollen

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Disc 2 - The world of plants	
Topic	Lesson Name
The flower, the seed, the fruit - structure and functions	<ol style="list-style-type: none"> The hiding place of ovules Flowers that make up inflorescences The carrier of new life It is only angiosperms that produce fruits The world of fruits On your own The biggest seeder Water is useful, too Using animals The role of seeds and fruits for humans
The reproduction strategies of plants	<ol style="list-style-type: none"> Many strategies A whole organism from a single cell The dominant sporophyte - a sumptuous plant The generations of spermatophytes Copying the mother plant Simple reproduction Breaking the contact with the parent More than just stores Apomixis
Reproduction and growth of angiosperms	<ol style="list-style-type: none"> The mystery of the flower What goes on in the stamen? What goes on in the pistil? Pollination is necessary for sexual reproduction Auto-pollination Against auto-pollination The vast amounts of pollen The self-advertisement of flowers is aimed at pollination Double fertilisation The hidden life Woken up to life

EduROM - Biology Topic and Lesson List

Disc 3 - Anatomy of the human body	
Topic	Lesson Name
The characteristics of the structure and function of the human skin	<ol style="list-style-type: none"> The largest organ The epidermis The hair and nails Sweat glands Sebaceous glands Fat storage and elastic support Skin hygiene Mycoses Seborrhoea Acne
The skeleton	<ol style="list-style-type: none"> A bone lives and changes What does a bone consist of? Bone structure Yellow and red bone marrow The structure of the skeleton The axial skeleton The peripheral skeleton Joints Teeth Milk and permanent teeth Cartilages - Tender parts of skeleton
How does a muscle contract?	<ol style="list-style-type: none"> Basic rules of muscle contraction Why does a muscle shorten? The transverse striated muscle The cardiac muscle occurs only in the heart The smooth muscle is not striated What becomes tired in a muscle?
Various groups of muscles and their activities	<ol style="list-style-type: none"> Body movement, on other words skeleton movement Where are the muscles located? What other parts of our body can we move? We need muscles to breath We need muscles to eat and digest Muscles make our blood circulate Muscles are necessary to give birth We need muscles to look Other functions of the smooth muscles
Blood - liquid tissue	<ol style="list-style-type: none"> Transport company Life-giving water Red blood cells Oxygen transport from the lungs to the cells Defenders of the body Cut - bleeding Why do we examine blood? A medicine that saves lives Do you know your blood group?
The structure of the blood circulation system	<ol style="list-style-type: none"> From the heart to the organs and back again Veins and arteries As thin as hair The strange capillary vascular network in the liver The symbol of love The symbol of love is very busy Pulmonary circulation Systemic circulation 160,000 km of blood vessels
The lymphatic system and the immune system	<ol style="list-style-type: none"> The most important tasks of the lymphatic system Lymphatic vessels Fat absorption Defence of the organism The never-ending war Our own army Versatile lymphocytes

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Disc 3 - Anatomy of the human body	
Topic	Lesson Name
The lymphatic system and the immune system	<ol style="list-style-type: none"> The final battle: antigen - antibody Lymphocyte memory
The human respiratory system	<ol style="list-style-type: none"> The air necessary for life How much oxygen do we use? Lungs' capacity The shape of the nose The home of the voice The inhalation-exhalation tube What is the structure of the lungs? Functional and nutritive circulation
The structure of the human digestive system	<ol style="list-style-type: none"> A long road Digestion begins in the oral cavity At the crossroads Always in one direction only A store of eaten food The duodenum - the first part of the small intestine The pancreas The liver The intestinal villi The finishing-line for undigested food
The human urinary system	<ol style="list-style-type: none"> Harmful substances A purification plant weighing 320 grams Kidney made from nephrons A filter of blood vessels The renal tubule - the site of urine production The route of urine from the nephrons to the external parts of the body

EduROM - Biology Topic and Lesson List

Disc 4 - Human Life and reproduction	
Topic	Lesson Name
The activity of the digestive system	<ol style="list-style-type: none"> Intake, digestion and removal of remnants Enzymatic decomposition Breaking up and chewing What happens in the stomach? Initial section of the small intestine Purification plant or storeroom? Digestion in brief Food absorption Removal of unwanted remnants
The work of the heart	<ol style="list-style-type: none"> An organ that never tires The untiring organ The only muscle of its kind One-way blood flow Blood circulation in a figure-of-eight We can feel, hear and see the heart work Why does the heart beat faster? What does blood pressure mean?
Gas exchange	<ol style="list-style-type: none"> How do we breathe? The respiratory pigment If haemoglobin were not there The fate of carbon dioxide Myoglobin - a quarter of haemoglobin External respiration How do cells use oxygen?
The production of urine	<ol style="list-style-type: none"> The first step - filtering Resorption of valuable substances Water management The contents of human urine Urine analysis Additional excretion
Why do organisms reproduce?	<ol style="list-style-type: none"> Reproduction in the world of living beings Sexual and asexual reproduction Two types of fertilisation Two types of evolution Oviparity and viviparity One sex or two
A boy becomes a man	<ol style="list-style-type: none"> Maturation Changes From a boy into a man Male sex organs From the tubules to ejaculation
A girl becomes a woman	<ol style="list-style-type: none"> Clear changes The external reproductive organs The internal reproductive organs The moment of fertilisation A complex hormonal cycle
36 weeks in its own world	<ol style="list-style-type: none"> Which one is first? The first week of pregnancy The second week of pregnancy The third and fourth weeks of pregnancy The further evolution of the embryo The foetus Childbirth - a difficult beginning How does the mother change?
From birth to senility	<ol style="list-style-type: none"> Change of conditions A baby An infant Childhood Schooldays Maturity Middle age Old age

EduROM - Biology Topic and Lesson List

Disc 5 - Ecology & cohabitation of diverse species	
Topic	Lesson Name
What does ecology do?	<ol style="list-style-type: none"> 1. Two meanings of the "ecology" 2. Each organism has its environment 3. Biotic and abiotic factors 4. Matter circulates in the environment 5. Energy flows through the environment 6. Equilibrium in the environment 7. The environmental bank balance 8. The living world - one system working constantly
What units does an ecologist measure the environment with?	<ol style="list-style-type: none"> 1. The individual 2. Individuals put together make a population 3. All populations put together make a species 4. The ecological niche 5. Dimensions of an ecological niche
A portrait of a population	<ol style="list-style-type: none"> 1. How do populations differ from each other? 2. Number of population 3. Density of population 4. Reproductivity 5. Death rate 6. Immigration and emigration 7. Age structure 8. Gender structure 9. Spatial distribution
Living together	<ol style="list-style-type: none"> 1. It is worth cooperating 2. Sharing the environment 3. The group - more effective escape and hunting 4. Families - each one is different 5. More than a family - less than an organism 6. Communities of plants and animals
The ecology of eating	<ol style="list-style-type: none"> 1. Herbivory 2. The plants are still doing well 3. How can a plant avoid being eaten? 4. How to deal with plants 5. Like a herbivore with a herbivore 6. Equilibrium of herbivores and plants 7. The number of herbivores and the abundance of their food 8. Predation 9. How to outwit a predator
Exchanging profits, obstructing, taking away	<ol style="list-style-type: none"> 1. Shaping each other's fates 2. Interactions among organisms 3. The problem with symbiosis 4. Mutualism 5. Proto co-operation 6. Commensalism 7. Co-operation 8. Parasitism 9. Pathogenicity 10. Competitiveness 11. Allelopathy 12. Amensalism 13. Neutralism
Food creates the strongest bounds	<ol style="list-style-type: none"> 1. How to obtain energy and matter for oneself 2. Who produces and who consumes? 3. In line to be eaten 4. Trophic level 5. Those who eat leftovers 6. The flow of energy through the food chain 7. Trophic pyramids 8. Biomass 9. Food webs

EduROM - Biology Topic and Lesson List

Disc 6 - Human influence on nature	
Topic	Lesson Name
Independence from nature is an illusion	<ol style="list-style-type: none"> 1. Cotton - a game lost to nature 2. How to protect alfalfa? 3. Floods - causes and results 4. The moral 5. Nature's revenge for our ignorance
Action and reaction	<ol style="list-style-type: none"> 1. Christmas trees and moorland birds 2. Halophytes break out from a nature reserve 3. The influence of the household on nature 4. Human activities change nature 5. Use of environmental resources 6. Natural resources 7. Balanced development 8. Let us do something positive
Types of pollution	<ol style="list-style-type: none"> 1. When there is too much pollution 2. Waste - what cannot be used anymore 3. Why is pollution such a problem? 4. What do we pollute nature with? 5. Are refrigerators and deodorants a threat to life on Earth?
Species dying out	<ol style="list-style-type: none"> 1. At least eight species die out every hour 2. Rivalry and predation of alien species 3. Killed by man 4. The most endangered species
Reducing the risk of disease and death	<ol style="list-style-type: none"> 1. Above all, we take care of ourselves 2. Unnecessary things are the most dangerous 3. Protecting ourselves from the effects of our actions 4. Standards and monitoring of the environment 5. Double benefit 6. The most lasting product of our civilization - rubbish 7. As simple as utilization and recycling 8. Living organisms in environmental protection

EduROM - Biology Topic and Lesson List

Disc 7 - Characteristics of animals	
Topic	Lesson Name
All the animals of the world	<ol style="list-style-type: none"> 1. What makes you an animal? 2. How many animal species are there? 3. The Porifera - made of sponge 4. The living gels - ctenophores 5. The ugly flat worms - flatworms 6. The colourless, thin and round worms - roundworms 7. The water dwarves - rotifers 8. The softies (with shells and without them) - the molluscs 9. The sedentary inconspicuous ones the bryozoans 10. Those that are made up of many similar slices - the ringworms 11. The armoured perfection - the arthropods 12. Insects are a superpower 13. The slow sea-bed dwellers - the echinoderms 14. Those with a string in their back - the chordata 15. The talented backboned ones - the vertebrates 16. The division into invertebrates and vertebrates 17. A simplified classification of animals
The epithelium, the muscle, the nerve	<ol style="list-style-type: none"> 1. The epithelium - the functions 2. The epithelium - the structure 3. The epithelium in the bodies of animals 4. The epithelium as an outside sheath 5. Let's penetrate the inside of an animal's body 6. The skeletal muscles 7. The smooth muscles 8. The cardiac muscle 9. Muscle = activity 10. The nerves: two types of cells
The blood and the bone: what connects them?	<ol style="list-style-type: none"> 1. The structure and the functions 2. The classification and the location 3. The main supports: the cartilage 4. The main supports: the bone 5. The blood: a unique tissue 6. The plasma 7. Blood cells: the most numerous ones 8. Blood cells: the biggest and strangest ones 9. Blood cells: the smallest ones 10. What about invertebrates? 11. The lymph
The outer covers of animal bodies and their functions in various environments	<ol style="list-style-type: none"> 1. Protection - and more 2. Let's start from turbellarians 3. A smart adaptation 4. An external skeleton 5. The water environment 6. At the border of water and land 7. Life on land 8. The creation of bird skin: the versatile feather 9. The types of feathers 10. Thermoregulation and perception of stimuli 11. Mammary glands make us mammals
Animal defence and protection systems	<ol style="list-style-type: none"> 1. How to survive 2. Protective colours 3. Detering colours and shapes 4. A smart hoax 5. When colours let you down 6. The horns, antlers and fangs 7. A present for a carnivore 8. Hiding-places, motionlessness, shoals
The nervous system as the recipient of environmental stimuli	<ol style="list-style-type: none"> 1. The headquarters 2. The nervous system as a network 3. An active lifestyle influences the development of the nervous system 4. The primitive brain 5. The complicated ladder of an earthworm

EduROM - Biology Topic and Lesson List

Disc 7 - Characteristics of animals	
Topic	Lesson Name
The nervous system as the recipient of environmental stimuli	<ol style="list-style-type: none"> 6. The responsible brain 7. The most intelligent invertebrates 8. The anatomy of the vertebrate nervous system 9. The five parts of the vertebrate brain 10. Two in one
The structure and function of animal sense organs	<ol style="list-style-type: none"> 1. Communicating with the environment 2. The world's simplest eyes 3. The world as a honeycomb 4. Eyes that are better than ours? 5. The vertebrate eye 6. Each eye is different 7. Touch at a distance 8. Balance - one of the first animal senses 9. The world has so many sounds 10. Balance and hearing 11. How is sound created? 12. The labyrinth does not let you lose your way 13. Smelling things 14. Tasting things 15. Sensitive to temperature
The animal skeleton and muscles	<ol style="list-style-type: none"> 1. The skeleton - a support-and-protection structure 2. The skeleton inside the body 3. The body inside the skeleton 4. A liquid skeleton 5. A striped muscle 6. A muscle without stripes 7. The mystery of contraction 8. The elements of the motor system 9. One folds, the other straightens 10. The warmth of the muscles 11. The movements of flagella and cilia
The diversity of animal motion	<ol style="list-style-type: none"> 1. On pseudopodia 2. Twisting and turning 3. In a skin-and-muscle sack 4. With a flexible axis and without limbs 5. From a centipede to a biped 6. Examples of animal motion 7. Walking on different legs 8. Running and jumping 9. Swimming using special limbs
Animal nutrition: basic principles, processes and notions	<ol style="list-style-type: none"> 1. Why eat? 2. You can only use the simplest elements 3. Living nature is a source of food 4. Three types of food 5. You cannot produce vitamins yourself 6. Digestion from a chemical viewpoint 7. Enzymes in general 8. Digestive enzymes 9. How does a cell swallow? 10. A digestive system with one door 11. A digestive system with two doors 12. The digestive glands 13. A trip through a vertebrate digestive system
The diversity of nutrition	<ol style="list-style-type: none"> 1. Eating is my speciality 2. How to do nutrition without eating 3. To eat like a human being 4. Just biting and scraping 5. Just drinking 6. Eating earth and slime 7. Straining whatever floats in water 8. As hungry as a bison 9. As hungry as a wolf

EduROM - Biology Topic and Lesson List

Disc 8 - The nerves and endocrine systems	
Topic	Lesson Name
The eye and the ear - our main sources of information	<ol style="list-style-type: none"> 1. Animals and light 2. The structure of the human eye 3. How do certain parts of the eye work? 4. How do we see? 5. The eye as a well-protected information source 6. The nature of sound 7. The ear - the organ of hearing 8. How does the ear work? 9. The ear as the organ of balance
Smell, taste, touch	<ol style="list-style-type: none"> 1. Something smells here 2. How do we breathe and with what? 3. The transitory feeling of smell 4. Tasty or not? 5. The taste buds 6. A map of the tongue 7. Remembering tastes 8. To feel a touch
The chief of systems	<ol style="list-style-type: none"> 1. Untiring and necessary 2. Receiver and transmitter 3. The parts of the nervous system 4. The nerves 5. Three systems 6. The brain 7. The spinal cord 8. The shock-absorber
The transmission of information	<ol style="list-style-type: none"> 1. The neuron in a state of rest 2. Lightning-quick current flow 3. A quick run through the synapse (1) 4. From impulse to reaction 5. The arterial road of the nervous system 6. Brain nerves
So many possibilities in one brain!	<ol style="list-style-type: none"> 1. Similarities and differences 2. The anatomy of the brain 3. Activities beyond our control 4. Pyramids in the brain 5. The guard on the bridge 6. A relic of the past 7. The thalamus and the hypothalamus 8. Arbor vitae 9. The brain 10. The brain lobes 11. One or two brains? 12. Electroencephalogram (EEG)
Inborn and acquired reflexes	<ol style="list-style-type: none"> 1. Our reactions 2. What is a reflex? 3. Different lengths of the reflex arc 4. Unconditioned reflexes 5. Conditioned reflexes 6. The importance of conditioned reflexes
Stop the work of the heart	<ol style="list-style-type: none"> 1. The autonomous system 2. The sympathetic and parasympathetic systems 3. The sympathetic system 4. The parasympathetic system 5. Why are there two systems?
Support for the chief of systems	<ol style="list-style-type: none"> 1. An important assistant 2. Glands and hormones 3. Hormones in action 4. The activity of the hormones 5. Conductors 6. The tiny brain hypophysis

EduROM - Biology Topic and Lesson List

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Indispensable guards	<ol style="list-style-type: none"> 1. The thyroid - regulator of the metabolic rate 2. The parathyroid glands: neighbours of the thyroid 3. Islets of Langerhans 4. State of emergency glands 5. Testes or ovaries

EduROM - Biology Topic and Lesson List

Disc 9 - Inheritance of traits	
Topic	Lesson Name
The birth of genetics	<ol style="list-style-type: none"> 1. Continuity and variation 2. Genetics in the past 3. The difficult beginnings 4. The birth of genetics in a monastery garden 5. Pure lines and opposite traits 6. Some traits dominate, others are recessive 7. Mendel's laws 8. Thirty-four years of oblivion
Mitosis - the way somatic cells divide	<ol style="list-style-type: none"> 1. Chromosomes - the seat of the genes 2. The life of a cell 3. A genetic visiting card - the karyotype 4. DNA on the nucleosome beads 5. The ordered structure of a chromosome 6. Four phases of mitosis 7. The phenotype - the result of gene activity
Meiosis - the way in which reproductive cells are made	<ol style="list-style-type: none"> 1. Meiosis - the way in which reproductive cells are made 2. Meiosis - reductive division 3. Meiosis - two divisions 4. The importance of meiosis 5. One egg cell and millions of sperm cells
The chromosome theory of heredity	<ol style="list-style-type: none"> 1. The chromosome theory of heredity 2. One chromosome - many genes 3. Different from the others - sex chromosomes 4. Linked characteristics and independent assortment of genes 5. Genetic mapping 6. The complicated inheritance 7. Chromosome disorders 8. Plant polyploids 9. Changes in chromosome structure
The mystery of nucleic acid structure	<ol style="list-style-type: none"> 1. An unknown source of genetic information 2. The mystery of the structure of DNA 3. A chain of millions of nucleotides 4. Complementary strands 5. DNA replication 6. RNA
About the genetic code	<ol style="list-style-type: none"> 1. What do genes determine? 2. About the structure of proteins 3. One amino-acid - three nucleotides 4. Features of the genetic code 5. One gene - one polypeptide chain
Synthesis of proteins	<ol style="list-style-type: none"> 1. Genetic messenger urgently wanted 2. Transcription - rewriting genetic information 3. The genetic clover 4. Translation - interpreting genetic information 5. The guardians of translation 6. The fate of protein after translation?

EduROM - Biology Topic and Lesson List

Disc 10 - Nature's dynamic equilibrium	
Topic	Lesson Name
Information is as important as life itself	<ol style="list-style-type: none"> 1. Matter - energy - information 2. There is no life without information 3. Up-to-date news about the condition of the environment 4. Get the message! 5. Info-swindles and veracity 6. Communication - bilateral information exchange 7. Various signals are employed for communication 8. One must communicate when in a group
An ecosystem is a working organisation	<ol style="list-style-type: none"> 1. Ecosystem = biocoenosis + biotope 2. Biocoenosis - all the organisms of one ecosystem 3. Diversity is the wealth of an ecosystem 4. Biomes - major land ecosystems
Energy flows through nature	<ol style="list-style-type: none"> 1. The flow of energy is irreversible 2. The blue and red life energy 3. The energy of organisms is the energy of chemical bonds 4. How much of the energy contained in food can be utilised? 5. How does an organism spend and lose energy? 6. Other sources of energy
The circulation of matter in nature	<ol style="list-style-type: none"> 1. The living water 2. Oxygen - plants transform the atmosphere 3. Nitrogen - from nitrates to proteins 4. Carbon - the core of living matter 5. Phosphorus - from phosphates to DNA and ATP
Constant transformations in nature	<ol style="list-style-type: none"> 1. No two moments are the same 2. Energy is distributed unevenly! 3. What is important for nature and what is important for humans? 4. The mystery of balance
The geography of living organisms	<ol style="list-style-type: none"> 1. The geography of living organisms 2. The ocean - a less varied biotope 3. The land - an extremely varied biotope 4. The range of a species 5. The endemic species 6. Short-range species 7. Zoogeographical regions

EduROM - Biology Topic and Lesson List

Disc 11 - Animal organic functions	
Topic	Lesson Name
Animal transportation	<ol style="list-style-type: none"> 1. The selectivity of the cell membrane 2. Diffusion 3. Active transportation 4. Trips within the cell 5. Sponges and cnidarians 6. Flatworms and roundworms 7. The circulatory system
The diversity of animal circulatory systems	<ol style="list-style-type: none"> 1. The general design 2. The general design 3. Open or closed blood circulation 4. Closed blood circulation system of an earthworm 5. Arthropods have blue blood 6. Insects - somewhat different 7. Molluscs - closer to the vertebrates
The perfection of circulation in vertebrates	<ol style="list-style-type: none"> 1. A new habitat - a new way of breathing 2. Motorways 3. B-roads 4. Paths 5. The possibility to manoeuvre 6. Fish - a multi-component pump 7. Fish - circulation 8. Amphibians - a different heart 9. Amphibians - a longer road 10. Reptiles - a better heart 11. Reptiles - the travelling blood 12. Birds and mammals in one group 13. Birds and mammals - the travelling blood we already know 14. More than just oxygen 15. A support system
Animal respiration: basic principles, processes and notions	<ol style="list-style-type: none"> 1. Respiration is energy production 2. Energy - ATP - energy 3. Cells breathe, and so do organisms 4. How to catch that oxygen? 5. Haemoglobin: a protein that transports oxygen and carbon dioxide 6. How to get rid of that carbon dioxide? 7. How to breathe without oxygen?
The diversity of respiration types	<ol style="list-style-type: none"> 1. Breathing using only the surface of the body 2. Gills for oxygen in water 3. Lungs for oxygen in air 4. Can a fish have a lung? 5. How does an amphibian breathe? 6. How does a reptile breathe? 7. What is special about the respiratory system of a bird? 8. How does a mammal breathe? 9. How does an insect breathe? 10. A gill and a trachea
Osmoregulation and excretion	<ol style="list-style-type: none"> 1. How much water is there inside you? 2. What is osmoregulation about? 3. Metabolism 4. What products of metabolism have to be excreted? 5. What products do water animals excrete? 6. Amphibians and mammals excrete urea 7. Insects, reptiles and birds excrete uric acid
The invertebrate excretory and osmoregulatory organs	<ol style="list-style-type: none"> 1. Excretion is one of the most important life functions 2. Excretion in protozoa 3. What does a medusa excrete? 4. Nephridial apparatus - the real excretory systems 5. Earthworms excrete whatever is harmful and keep whatever is useful 6. Crayfish have excretory openings on their heads 7. Insects and arachnida excrete very small amounts of water

EduROM - Biology Topic and Lesson List

Disc 11 - Animal organic functions	
Topic	Lesson Name
The kidney - the excretory organ of mammals	<ol style="list-style-type: none"> 1. The kidney - the excretory organ of mammals 2. How does a renal glomerule function? 3. What happens in the renal tubules? 4. Where does the urine go from the tubules? 5. Freshwater fish do not drink water 6. Sea fish drink salty water 7. Reptiles excrete in various ways 8. What are the components of the mammal excretory system?
Asexual and sexual reproduction	<ol style="list-style-type: none"> 1. Protozoa do not die in old age 2. Gemmation is another method of asexual reproduction 3. We can envy the hydra its regenerative abilities 4. Sex cells originate in meiosis 5. Sperms - the male sex cells 6. Egg cells are biggest cells in female organisms 7. New life starts from a zygote 8. Internal and external fertilisation 9. Reproduction without fertilisation 10. Sexual processes in protozoa 11. What are the benefits of sexual reproduction
Animal reproductive systems	<ol style="list-style-type: none"> 1. The hydra as both sexual and asexual reproduction, and on top of that it's a hermaphrodite 2. The jellyfish that's floating near the shore used to be a polyp 3. Flatworms have very complicated reproductive systems 4. Mating may be a life-threatening business 5. Some fish look after their eggs 6. Oviparity and ovoviviparity 7. Viviparity 8. A mammal egg cell lives for a short time 9. How long can sperms survive in the genital tracts
Simple and complex development	<ol style="list-style-type: none"> 1. The life cycle - an individual starts at fertilisation and ends at death 2. The simple life cycle - the incomplete transformation 3. The complex life cycle - the complete transformation 4. Amphibian larvae have gills 5. Which animals produce fetal membranes? 6. Reptiles have simple life cycles 7. The structure of a bird egg 8. Fetal membranes in a bird egg 9. Nesting and non-nesting birds 10. Fetal membranes in mammals

EduROM - Biology Topic and Lesson List

Disc 12 - Human health	
Topic	Lesson Name
The condition of the motor system organs	<ol style="list-style-type: none"> 1. Defects of the spinal column 2. Defects can often be repaired 3. After 50 4. Rejuvenation through exercise 5. Reasons for muscle paralysis 6. Injuries to the motor organs
Hygiene of the respiratory system	<ol style="list-style-type: none"> 1. The indispensable supplier of oxygen 2. Benefits from sports training 3. The air which we breathe 4. Breathing through the nose 5. And how do you breathe? 6. A leaking dam 7. Droplet infection 8. Diseases of the respiratory system
The role of food components in human life	<ol style="list-style-type: none"> 1. Food and nourishment 2. What does food consist of? 3. Energy value 4. Counting calories 5. The organism's construction company 6. Food which contains saccharides 7. Lipids are essential as well 8. The hot issue of cholesterol 9. Vitamins - life without them is impossible 10. Sources and effects of vitamins 11. The world of minerals in the human organism 12. Life-giving water
Food hygiene and diseases of the digestive system	<ol style="list-style-type: none"> 1. The appropriate quantity, quality and time 2. Age and nutrition 3. The key to proper nutrition 4. The rules of proper nutrition 5. Preservatives and other additives 6. Diseases of the digestive system 7. Gastric and duodenal ulcers 8. Healthy teeth
Infectious diseases	<ol style="list-style-type: none"> 1. Unwanted guests 2. Terms connected with infectious diseases 3. The risk of becoming infected 4. Ways of becoming infected 5. The smallest germs 6. Viral diseases 7. Viral hepatitis 8. Infection with the hepatitis B virus 9. Vaccinate yourself! 10. Heine-Medin's disease 11. Larger than viruses 12. Known and unknown bacteria 13. Why is the throat sore? 14. Intolerable bacteria 15. Vaccinations
Human parasites	<ol style="list-style-type: none"> 1. In Greek parasite means scrounger 2. Trichomonas vaginilis and amoebiasis 3. What are the consequences of being bitten by a mosquito? 4. Liver fluke 5. The unarmed and armed tapeworm 6. Common parasites 7. Ascaris lumbricosis 8. Lice 9. Ticks

EduROM - Biology Topic and Lesson List

Disc 12 - Human health	
Topic	Lesson Name
Kidney diseases	<ol style="list-style-type: none"> 1. Regulation and excretion 2. Urinary system infection 3. How to prevent infection? 4. What is renal failure? 5. When do the kidneys stop working? 6. Proteinuria 7. Renal calculus formed in the kidneys 8. The only hope - a substitute for the kidney 9. Transplantation - the dream of those on dialysis
Ischaemic heart disease	<ol style="list-style-type: none"> 1. What is a heart attack? 2. Atheromatous plaques 3. How to fight with atheromatosis? 4. A healthy way of life 5. Cholesterol - good or bad?
Taking care of the sense organs	<ol style="list-style-type: none"> 1. Communication with the surroundings 2. Glasses and contact lenses 3. Myopia 4. Hyperopia 5. Astigmatism 6. Other damage to the organ of vision 7. What damages our organ of vision? 8. You can't get used to noise 9. Otitis media 10. Hearing aids
Alcohol, nicotine, narcotics - their influence on human health	<ol style="list-style-type: none"> 1. Addiction or habit? 2. An inglorious record 3. Nicotine 4. What else does "the tobacco bomb" consist of? 5. Passivesmokers 6. Mankind's evil spirit 7. The consequences of alcoholism 8. Don't rush! 9. Drug addiction 10. The characteristics of drug addiction 11. The best way: don't try it!
About human mental health	<ol style="list-style-type: none"> 1. Noble health 2. In a healthy body 3. Mental hygiene 4. The hygiene of learning 5. Sound sleep - a condition of being healthy 6. What does stress mean? 7. Stress in the biological sense 8. Too much is ... 9. Neuroses 10. A state of depression
AIDS: the disease of the 20th century	<ol style="list-style-type: none"> 1. The first victims of the 20th century epidemic 2. HIV viruses 3. Ways of being infected by AIDS 4. How can we avoid it? 5. Don't be afraid of shaking hands! 6. When can we be infected? 7. Where does the virus hide? 8. AIDS/AIDS - a social disease
The causes and prevention of neoplastic diseases	<ol style="list-style-type: none"> 1. How is a neoplasm formed? 2. Sorts of neoplasms 3. Why are they formed? 4. Cancer attacks the world 5. What each woman should know about Fighting neoplasms

EduROM - Biology Topic and Lesson List

Disc 12 - Human health	
Topic	Lesson Name
Metabolic and allergic diseases	<ol style="list-style-type: none"> 1. Metabolism disturbances 2. Fat tissue 3. Beginning in early childhood 4. Obesity - the reason for other diseases 5. Mistakes in nourishment 6. What is diabetes? 7. Two sorts of diabetes 8. Diabetes - a social disease 9. Phenylketonuria 10. Allergy and allergens 11. Allergens under the microscope 12. Catarrh comes with the spring 13. Asthma 14. How can we prevent allergies?
Principles of administering first-aid	<ol style="list-style-type: none"> 1. First-aid 2. First-aid kit 3. Wounds 4. Major bleeding 5. Nose-bleeds 6. Troubles with the sense organs: the ear and the eye 7. Fainting 8. Take care of your spinal column! 9. Choking 10. Artificial respiration 11. When the heart stops working 12. Frostbite 13. Heat stroke 14. Burns

EduROM - Biology Topic and Lesson List

Disc 13 - Genetic variation and evolution	
Topic	Lesson Name
Regulation of gene expression	<ol style="list-style-type: none"> 1. Genes under control 2. How do bacteria steer genes? 3. One gene - many regulators 4. Various cells from one zygote 5. Neoplasm - the disease of genes
Why does genetic information change?	<ol style="list-style-type: none"> 1. Mutations - changes in DNA 2. Point mutations 3. Molecular disease 4. Meiosis - recombination time 5. Helpers of chromosomes - plasmids 6. Genetic elements 7. Eaters of bacteria
Man manipulates genes	<ol style="list-style-type: none"> 1. Genetic engineering 2. The genetic scalpel and thread 3. What is DNA cloning? 4. Probing 5. DNA sequencing 6. Transgenic organisms 7. Biotechnology 8. Tremble with fear, ye viruses, bacteria and villains 9. Gene therapy 10. The safety of gene manipulation
The evolution of living organisms	<ol style="list-style-type: none"> 1. The fascinating biogenesis 2. It changes after all 3. Why has a giraffe got a long neck? 4. Darwin's educating voyage 5. The cause of change - natural selection 6. Genetics and evolution 7. Direct evidence of evolution 8. What was in the beginning?
The history of life on Earth	<ol style="list-style-type: none"> 1. As old as the hills 2. A new stage - multi-cellularity 3. The explosion of life 4. The first vertebrates 5. To dry land! 6. Fish on land? 7. In the Carboniferous forest 8. Life during the Permian Period 9. The age of reptiles 10. Ancestral bird and megazostrodon 11. The catastrophe 12. Mammals on stage!
The evolution of man	<ol style="list-style-type: none"> 1. Why mammals? 2. Primates - the order you belong to 3. On two legs 4. From Australopithecus to Homo erectus 5. Every inch a European - the -Neanderthal 6. Farewell to Africa 7. The people from Cro-Magnon 8. One species - different races 9. The process of evolution continues