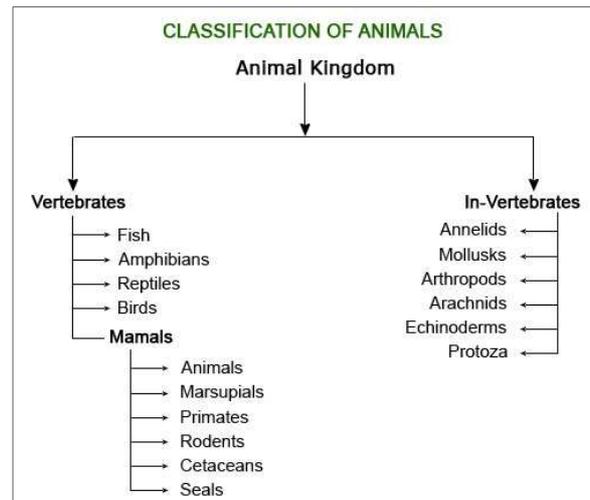


### 3. ANIMAL TAXONOMY

Animals are a major group of mostly multicellular, eukaryotic organisms of the kingdom *Animalia*. Animals have bodies differentiated into separate tissues. These include muscles which are able to contract and control locomotion and nerve tissue which sends and processes signals. All animals are heterotrophs, meaning that they feed directly or indirectly on other living things. They are often subdivided into groups such as carnivores, herbivores, omnivores and parasites.



#### INVERTEBRATES – animals without a backbone

There are several groups of invertebrates: **protozoa** are simple, single-celled organisms. Most protozoa are microscopic in size and they play an essential role in the food chain. Protozoa take in oxygen and give off carbon dioxide through their cell membrane. **Echinoderms** are marine animals (e.g. sea star, sea urchin). Most of them have arms or spines that radiate from the center of their body. **Annelids** have existed on Earth for over 120 million years. Their bodies are divided into segments. Commonly known annelids include earthworms, roundworms and flatworms. **Mollusks** have a soft, skin-like organ covered with a hard outside shell. They live both on land (the snail and slug) and in water (the oyster, mussel and octopus). Land living mollusks move slowly on a flat sole; ocean living mollusks swim by ejecting water from their body. **Arthropods** make up over 75% of the world's animal species and include animals such as insects (fly, beetle, butterfly, bee, wasp) or arachnids (spiders, scorpions, mites, ticks) and crustaceans. Arthropods have limbs with joints that allow them to move. Some have antennae as part of their sensory system.

#### VERTEBRATES – animals with a backbone

Almost  $\frac{3}{4}$  of the world's surface is covered in water which is home to over 20,000 different species of **fish**. Most fish breathe through gills which perform the gas exchange between the water and the fish's blood and allow the fish to breathe oxygen in the water. Fishes are vertebrates with a skeleton made of bone or cartilage. Bony fishes have a swim bladder, a gas-filled sac, that they can inflate or deflate which allows them to float in the water. Most fish swim using a tail fin; other fins help the fish change direction and stop. **Amphibians** lay their eggs in water and their young resemble small fish. Most amphibians can both walk and swim in water, their body temperature changes with its environment. In cold climates, amphibians hibernate during the winter. **Reptiles** are air-breathing animals living not only on land but in water. Their most noticeable feature are the scales that cover their body. Reptiles are often called cold-blooded because their body temperature depends on the external temperature. Crocodiles and alligators are large reptiles that feed on large animals they catch on land or in water using their powerful jaws and teeth. Lizards and snakes form the largest group of reptiles. Lizards often shed their tail to escape from predators and they can grow a new tail. Some snakes are poisonous, or venomous, such as the rattle snake or cobra. They have fangs which bite into their prey and inject poison into the victim. There are over 8,000 species of **birds**. Birds have

three major differentiating characteristics: wings for flight, feathers and a beak. Their bones and skull are very thin, making their bodies extremely light. They also have claws and muscles on their feet designed to hold onto a perch even while the bird is sleeping.

**Mammals** have several unique characteristics that differentiate them from other animals. Most mammals have hair, or fur, covering their body. They are capable of regulating their body temperature. Their metabolism controls heat production, and the sweat glands help cool the body. These allow the mammal to maintain a constant body temperature. One other difference is that mammals give birth to fully formed babies and the female mammals produce milk to feed their young. Most mammals walk on four legs, with the exception of humans. Common mammals include: **primates, carnivores, marsupials, rodents, ungulates, whales, dolphins and seals.**

- **Marsupial Mammals** are best known for the Australian members of the family, the kangaroo and the koala. Marsupials are different from other mammals because they have an abdominal pouch to carry their young. Here the baby marsupial matures for weeks or even months.
- **Carnivores** are meat-eaters. They have sharp claws and teeth with which to kill their prey. This group includes cats both domestic and big cats, dogs, wolves, hyenas, bears, foxes, etc. Cetaceans are also carnivores but they have their own category.
- **Rodents** are the largest family of mammals. The name of the species means “gnawing animal”, because of their large incisor teeth and the way they eat. There are 3 major types of rodents: squirrel-like (squirrel, gopher) with large eyes and bushy long tails; mouse-like rodents (mouse, rat, hamster) and porcupines with their long, sharp quills for protection.
- **Ungulates** are animals that have hooves. Ungulates can be further split into - odd-toed ungulates - have an odd number of toes and are also grazing animals - horse, donkey, zebra; even-toed ungulates - have an even number of toes - pig, giraffe, deer, antelope, goat, cow, sheep, llama, camel and elephants.
- **Cetaceans** live in water, but they must come to the surface to breathe air. Whales and dolphins can dive deep in the water on a single breath. They also have a highly developed brain and are considered to be very intelligent. Dolphins, as well as some whales, can use echolocation to find food and identify objects around them.
- **Seals, Seal Lions and Walrus** are marine mammals. Seals are well designed to swim in water. Their bodies are very streamlined and their flippers propel them quickly through the water. Walruses differ from seals in that they have large tusks.
- **Primates** have several distinctive features that separate them from other mammals: well developed hands and feet with fingers and toes, and opposable thumbs enabling them to grab things. Primate eyes are forward in the head giving them stereoscopic vision and allowing them to judge distance. They also have large, highly developed brains. Parents care for and educate their young much longer than other animals.

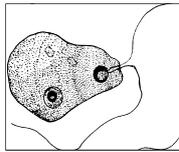
**Adapted from:** <http://www.tulane.edu/~wiser/protozoology/notes/INTRO.html>,  
<http://www.kidport.com/RefLIB/Science/Animals/Animals.htm>, [www.wikipedia.org](http://www.wikipedia.org);  
<http://www.naturalhistoryonthenet.com/Mammals/classification.htm>

### 1. Reading comprehension

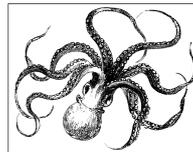
Answer the questions

- 1) What is the main feature of invertebrates and which family is the largest one?
- 2) Explain the mechanism of fish breathing
- 3) Name some distinctive characteristics of birds
- 4) What is unique about mammals?
- 5) What is the function of thumb and eyes in primates?

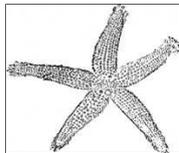
### 2. Lexis: Label the pictures of invertebrates with correct name of their phylum:



a) .....



d) .....



b) .....



e) .....



c) .....

### 3. Translation

Translate the following expressions into English. The first letters have been given.

- |                            |                             |
|----------------------------|-----------------------------|
| a. jednobuněčný organismus | s_____ - c_____ o_____      |
| b. řídit pohyb             | c_____ l_____               |
| c. tvrdá vnější ulita      | h_____ o_____ s_____        |
| d. plavat vypuzováním vody | s_____ by e_____ w_____     |
| e. klást vajíčka ve vodě   | l_____ e_____ in w_____     |
| f. žít se velkými zvířaty  | f_____ o_____ l_____ a_____ |
| g. křídla, peří, zobák     | w_____, f_____, b_____      |
| h. stálá tělesná teplota   | c_____ b_____ t_____        |
| i. velké kly               | l_____ t_____               |
| j. ostré ostny na ochranu  | s_____ q_____ for p_____    |

**4. Gap fill: Fill in the gaps in the text below with the words from the box**

feed	fur	controls	birth	from	capable
temperature	glands	constant	differentiate		

Mammals have several unique characteristics that..... them ..... other animals. Most mammals have hair, or ....., covering their body. They are..... of regulating their body ..... Their metabolism..... heat production, and the sweat..... help cool the body. These allow the mammal to maintain a..... body temperature. One other difference is that mammals give..... to fully formed babies and the female mammals produce milk to..... their young.

**5. Complete the table by writing distinctive features or name of the phylum. An example has been done for you.**

DISTINCTIVE FEATURES	PHYLUM
body divided into segments	annelids
hard outside shell	
inflate/deflate swim bladder	
	amphibians
scales covering body; cold-blooded	
	birds
	marsupials
meat-eating mammals; sharp teeth to kill prey	
	rodents
dive deep on a single breath	
	primates
hoofed mammals	

**6. Identify proper phylum/subphylum for each of the animals below and give their Czech equivalent:**

	<i>Phylum</i>	<i>Czech</i>
1) wasp	_____	_____
2) horse	_____	_____
3) koala	_____	_____
4) lizard	_____	_____
5) fox	_____	_____
6) sheep	_____	_____
7) squirrel	_____	_____
8) rattle snake	_____	_____
9) alligator	_____	_____
10) porcupine	_____	_____

## VOCABULARY

amphibian	/æm'fɪbiən/	obojživelník
annelida	/ə'nelɪdɑ/	kroužkovci
antenna	/æn'tenə/	tykadlo
arachnid	/ə'ræknɪd/	pavoukovec
arthropod	/'ɑ:(r)θrəpəd/	členovec
backbone	/'bæk,bəʊn/	páteř
beak	/bi:k/	zobák
bee	/bi:/	včela
beetle	/'bi:t(ə)l/	brouk
butterfly	/'bʌtə(r),flaɪ/	motýl
carbon dioxide	/'kɑ:(r)bən daɪ'ɒksaɪd/	oxid uhličitý
carnivore	/'kɑ:(r)nɪvɔ:(r)/	masožravec
cartilage	/'kɑ:(r)təlɪdʒ/	chrupavka
cetacean	/sɪ'teɪʃən/	kytovec
claw	/klɔ:/	drápek, pařát
crustacean	/'krʌ'steɪʃ(ə)n/	korýř
differentiate	/'dɪfə'renʃieɪt/	rozlišovat, odlišit
earthworm	/'ɜ:θ,wɜ:(r)m/	žížala
echinoderms	/'ɪkaɪnə,dʒ:rmz/	ostnokožci
essential	/'ɪsenʃ(ə)l/	nezbytný, nutný
fang	/fæŋ/	jedovatý zub hada, tesák
feather	/'feðə(r)/	pero, pírko
feed	/fi:d/	krmit
flipper	/'flɪpə(r)/	ploutev
fly	/flaɪ/	moucha, muřka
fur	/'fɜ:(r)/	srst, kořich
gills	/'gɪlz/	žábry
give off	/'gɪv ɒf/	vylučovat, vyzařovat
gnaw	/'nɔ:/	hryzat, hlodat
gopher	/'gəʊfə(r)/	sysel
herbivore	/'hɜ:(r)bɪ,vɔ:(r)/	býložravec
heterotroph	/'hetərə'trɒf/	konzument, heterotrof
hibernate	/'haɪbə(r)neɪt/	přezimovat, hibernovat

hoof (pl. hooves)	/hu:f/	kopyto
incisor	/ɪn'saɪzə(r)/	řezák
insect	/'ɪnsɛkt/	hmyz
invertebrate	/ɪn'vɜ:(r)tɪbrət/	bezobratlý
jaw	/dʒɔ:/	čelist
joint	/dʒɔɪnt/	kloub
limb	/lɪm/	končetina
lizard	/'lɪzə(r)d/	Ještěr (ka)
mammal	/'mæm(ə)l/	savec
marine	/mə'ri:n/	mořský
marsupial	/mɑ:(r)'su:piəl/	vačnatec
mature	/mə'tʃʊə(r)/	dospět, dozrát
mite	/maɪt/	roztoč
mollusk	/'mɒləsk/	měkkýš
multicellular	/,mʌltɪ'seljʊlə(r)/	mnohobuněčný
muscle	/'mʌs(ə)l/	sval
noticeable	/'nəʊtɪsəb(ə)l/	patrný, zjevný
omnivore	/'ɒmnɪ,vɔ:(r)/	všežravec
oyster	/'ɔɪstə(r)/	ústřice
parasite	/'pærəsait/	parazit
perch	/pɜ:(r)tʃ/	bidýlko, hřad
poisonous	/'pɔɪz(ə)nəs/	jedovatý
porcupine	/'pɔ:(r)kjʊpaɪn/	dikobraz
pouch	/paʊtʃ/	vak
prey	/preɪ/	kořist
primate	/'praɪmeɪt/	primát
protozoan	/,prəʊtə'zəʊən/	prvok
quill	/kwɪl/	bodlina, osten
rattlesnake	/'ræt(ə)l,sneɪk/	chřestýš
reptile	/'reptail/	plaz
rodent	/'rəʊd(ə)nt/	hlodavec
roundworm	/'raʊnd,wɜ:(r)m/	škrkavka
scale	/skeɪl/	šupina
scorpion	/'skɔ:(r)pɪən/	štír, škorpión

seal	/si:l/	tuleň, lachtan
shed	/ʃed/	svléknout, shodit
shell	/ʃel/	skořápka, ulita, mušle
skull	/skʌl/	lebka
slug	/slʌg/	slimák
snail	/sneɪl/	hlemýžď, plž
sole	/səʊl/	noha, chodidlo
species	/'spi:ʃi:z/	druh (živočišný)
spine	/spain/	osten, bodlina, trn
surface	/'sɜ:(r)fɪs/	povrch, povrchový
sweat gland	/swet glænd/	potní žláza
swim bladder	/swɪm 'blædə(r)/	plynový měchýř
tail fin	/teɪl fɪn/	ocasní ploutev
tick	/tɪk/	klíště
tissue	/'tɪʃu:/	tkáň
ungulate	/'ʌŋgjʊleɪt/	kopytník
vertebrate	/'vɜ:(r)tɪbrət/	obratlovec
walrus	/'wɔ:lɹəs/	mrož
wasp	/wɒsp/	vosa