

grading policy

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-- each question worth 2 pts = 1 pt for correct ID,
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 - extra credit only applies toward lab grade**
 - quizzes will be given at the beginning of labs**

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- **tip: beginning for lab 4, look at scientific names for upcoming labs in advance of the next week's lab**

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- **presentations will be posted on website**

nuts and bolts of scientific nomenclature

- **most orders within Class Mammalia end in “a”**
most families within Class Mammalia end in “idae”
both orders and families are always capitalized

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nuts and bolts of scientific nomenclature

- **most orders within Class Mammalia end in “a”
most families within Class Mammalia end in “idae”
both orders and families are always capitalized**
- **genus (capitalized) followed by species (not capitalized) constitutes the specific epithet or Latin binomial**
- **Latin binomial is written in italics or is underlined, but not both**

nuts and bolts of scientific nomenclature

- for example:

Order: Carnivora

Family: Mephitidae

Genus: *Spilogale* or Spilogale

Specific epithet: *Spilogale gracilis*

or Spilogale gracilis



all-purpose study guide: Animal Diversity Website at Univ. Michigan

- <http://animaldiversity.org/accounts/Mammalia>

The screenshot shows a web browser window displaying the Animal Diversity Web (ADW) website. The browser's address bar shows the URL <http://animaldiversity.org/accounts/Mammalia/>. The website header includes the ADW logo and the University of Michigan Museum of Zoology logo. The main content area is titled "Mammalia mammals" and features a navigation menu on the left with options like Home, About Us, and Educational Resources. Below the title, there are social media links for Facebook and Twitter, and a row of five small images of various mammals. The author is listed as "By Matthew Wund and Phil Myers". A table of contents lists various topics such as Diversity, Geographic Range, and Lifespan/Longevity. A "Diversity" section contains a paragraph of text about the classification of mammals. On the right side, there is a search bar with the word "coyote" entered, and a "Connect with us" section with social media icons for Facebook, Twitter, and Pinterest. A black banner at the top right promotes the ADW Pocket Guides app.

Animal Diversity Web

University of Michigan
MUSEUM OF ZOOLOGY

Home

About Us

About Animal Names

Educational Resources

Special Collections

Glossary

Browse Animalia

Mammalia
mammals

Facebook Twitter

By Matthew Wund and Phil Myers

Diversity	Lifespan/Longevity	Economic Importance for Humans:
Geographic Range	Behavior	Positive
Habitat	Communication and Perception	Economic Importance for Humans:
Physical Description	Food Habits	Negative
Development	Predation	Conservation Status
Reproduction	Ecosystem Roles	Contributors
		References

Diversity

The Class Mammalia includes about 5000 species placed in 26 orders. Systematists do not yet agree on the exact number or on how some orders and families are related to others. The Animal Diversity Web generally follows the arrangement used by Wilson and Reeder (2005). Exciting new information, however, coming from phylogenies based on molecular evidence and from new fossils, is changing our understanding of many groups. For example, skunks have been placed in the new family Mephitidae, separate from their traditional place within the Mustelidae (Dragoo and Honeycutt 1997, Flynn et al., 2005). The Animal Diversity Web follows this revised classification. Whales almost certainly arose from within the Artiodactyla (Matthee et al. 2001; Gingerich et al. 2001). The traditional subdivision of the Chiroptera into megabats and microbats may not accurately reflect evolutionary history (Teeling et al. 2002). Even more fundamentally, molecular evidence suggests that monotremes (Prototheria, egg-laying mammals) and marsupials (Metatheria) may be more closely related to each other than to placental mammals (Eutheria) (Janke et al. 1997), and placental mammals may be organized into larger groups (Afrotheria, Laurasiatheria, Boreoeutheria, etc.) that are quite different from traditional ones (Murphy et al. 2001). (Dragoo and Honeycutt, 1997; Flynn, et al., 2005; Gingerich, et al., 2001; Janke, et al., 1997;

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The Animal Diversity Web team is excited to announce ADW Pocket Guides!

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f t p

coyote

Taxon Information

Explore Data @ Quaarvark

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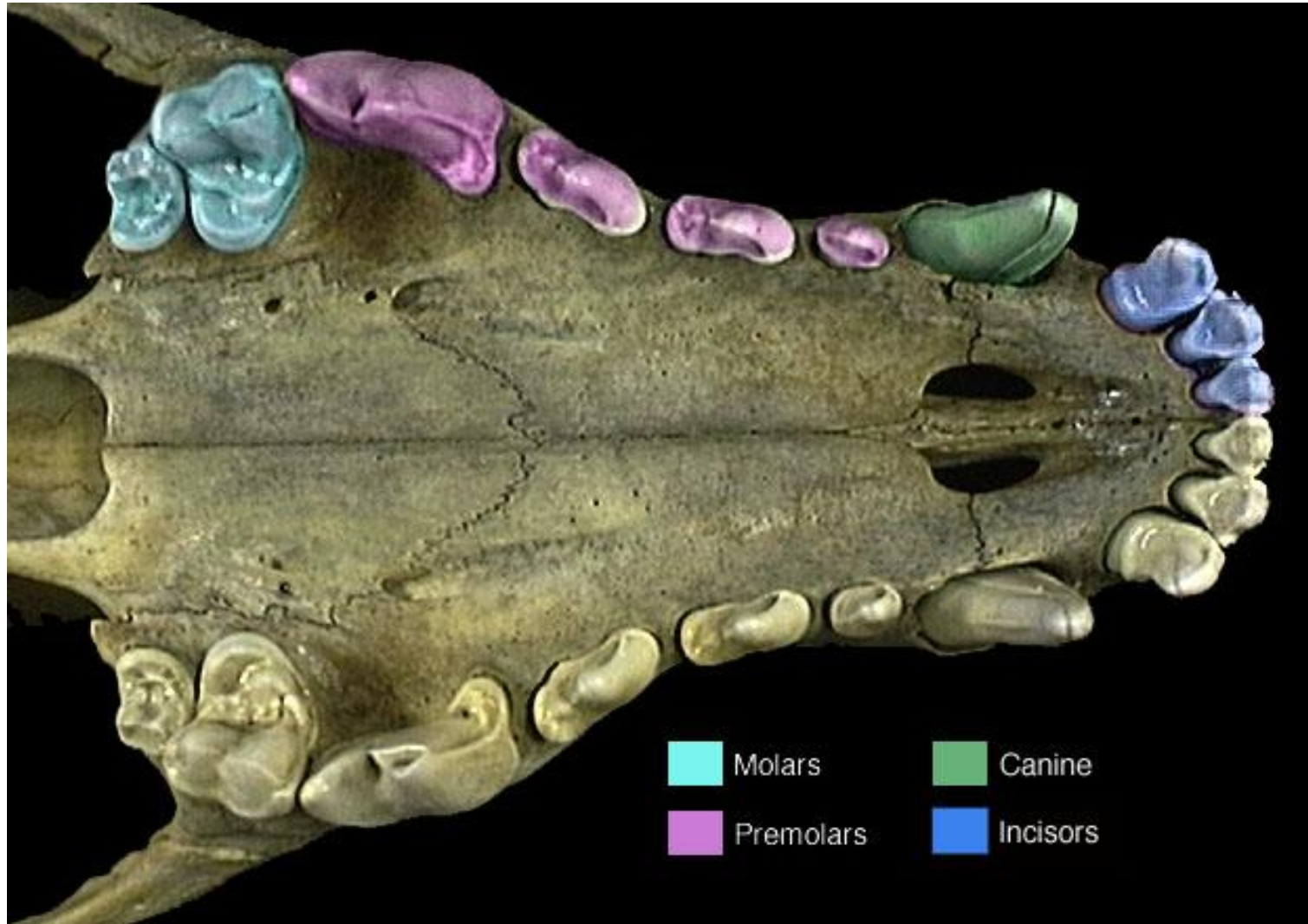
Specimens

Sounds

Classification

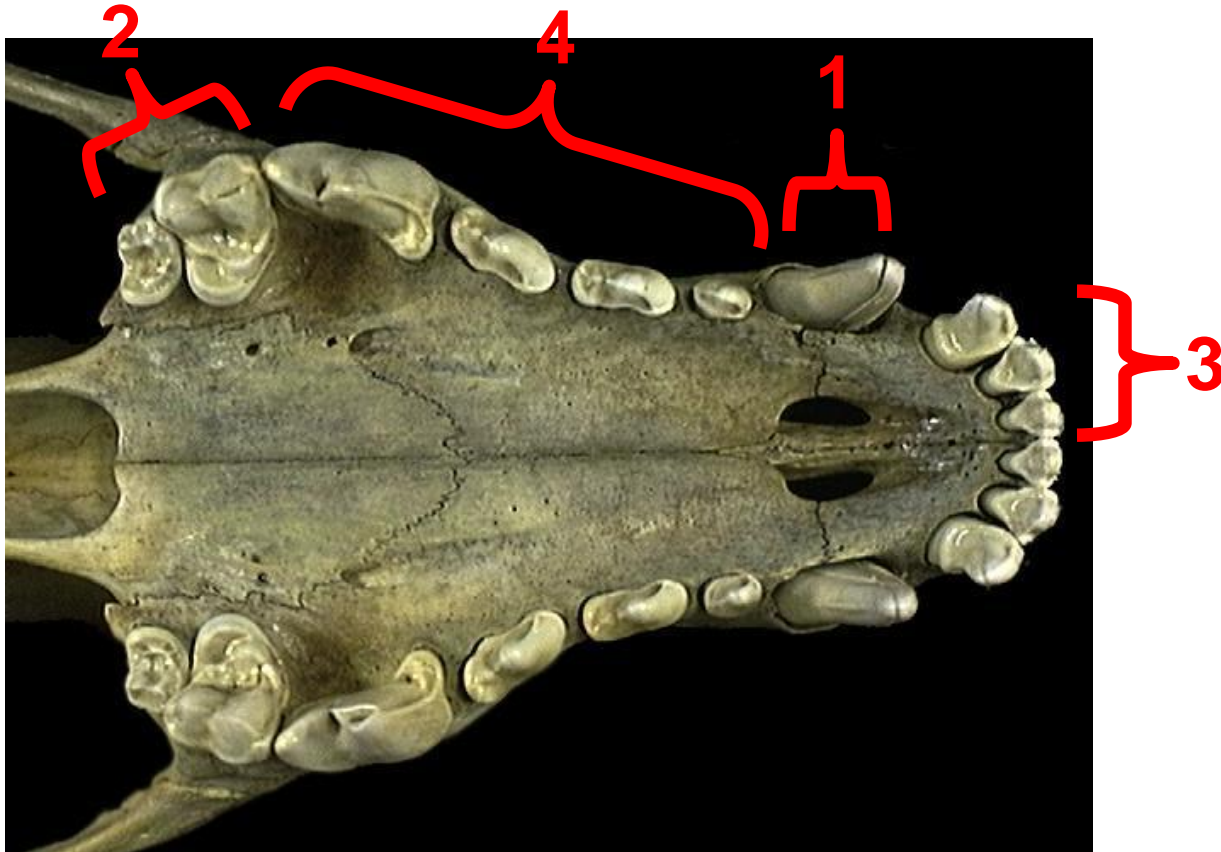
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dental formulae: the bare bones



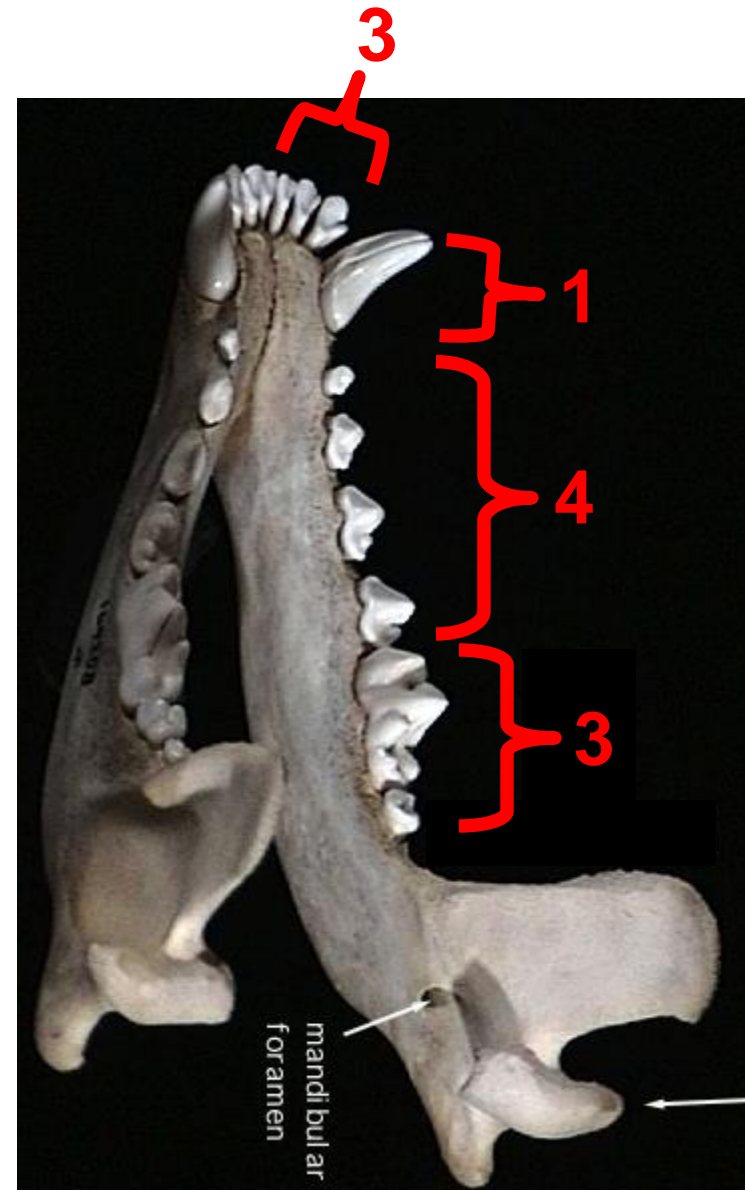
dental formulae: the bare bones

Canis lupus = I3 C1 P4 M2



dental formulae: the bare bones

Canis lupus = I3 C1 P4 M2
i3 c1 p4 m3



dental formulae: the bare bones

Canis lupus = 3/3 1/1 4/4 2/3

or 3-1-4-2/3-1-4-3



dentition and alternative lifestyles

Incisors = unicuspid (usually), often for grasping or cutting

- in primitive eutherians, 3 upper incisors per quadrant
- in metatherians, 5 upper incisors per quadrant
- restricted to premaxilla



dentition and alternative lifestyles

Canines = unicuspid and single-rooted, often for holding and stabbing

- never more than 1 per side in cranium or mandible
- first teeth in the maxilla



dentition and alternative lifestyles

Premolars = unicuspid or bicuspid (usually), vary in size and function

- in primitive eutherians, 4 per quadrant
- in metatherians, 3 per quadrant
- typically with only 1 row of cusps

dentition and alternative lifestyles

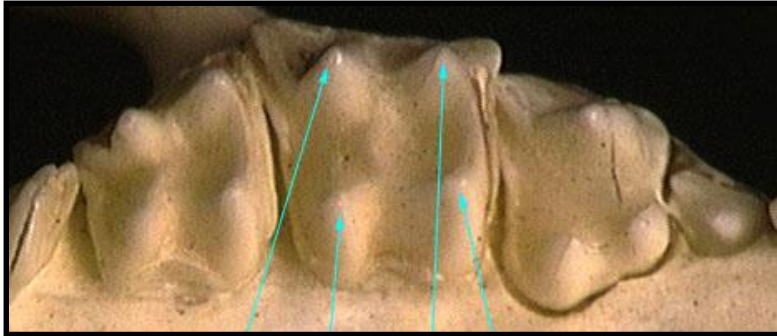
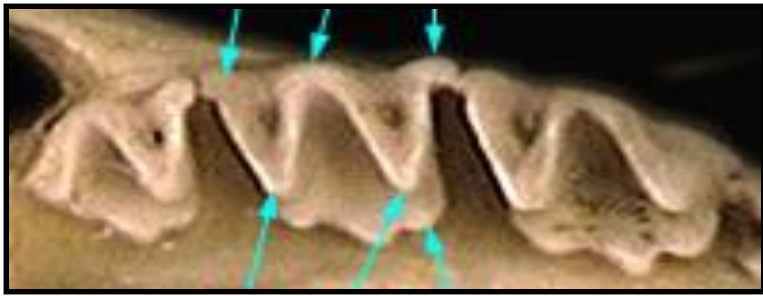
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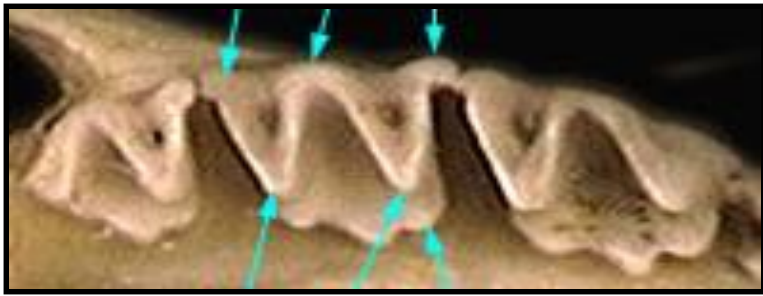
- in primitive eutherians, 4 per quadrant
- in metatherians, 3 per quadrant
- typically with only 1 row of cusps

Molars = bicuspid or multicuspid, vary in size and function

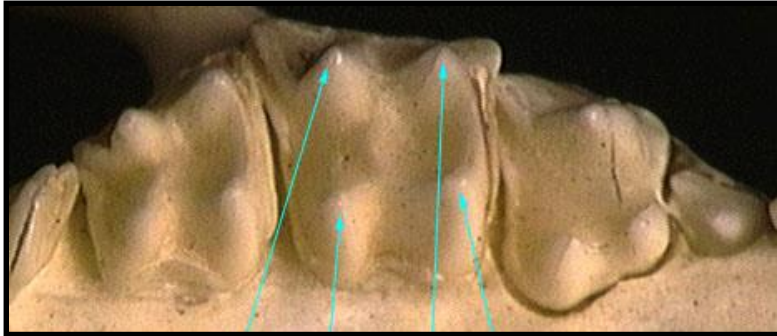
- in primitive eutherians, 4 per quadrant
- in metatherians, 3 per quadrant
- fully erupted only in adults
- typically with >1 row of cusps

Dilambdodont = cusps comprised of “V”s or “W”s. Found in bats, shrews, moles.

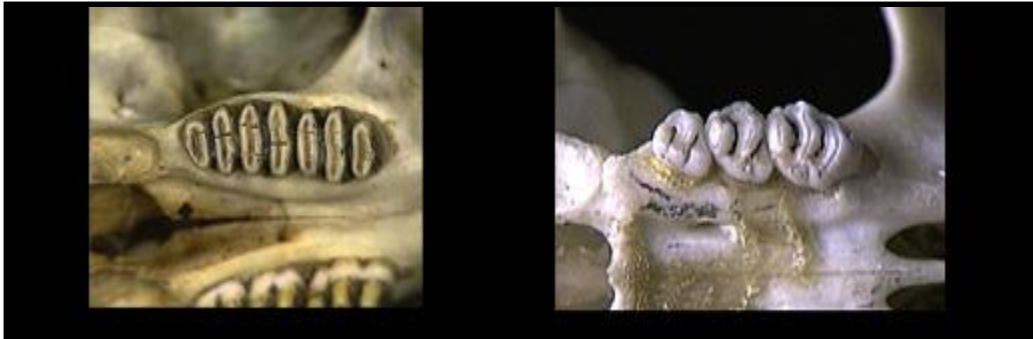


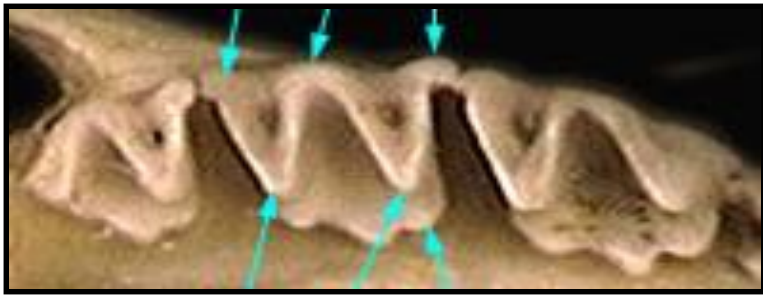


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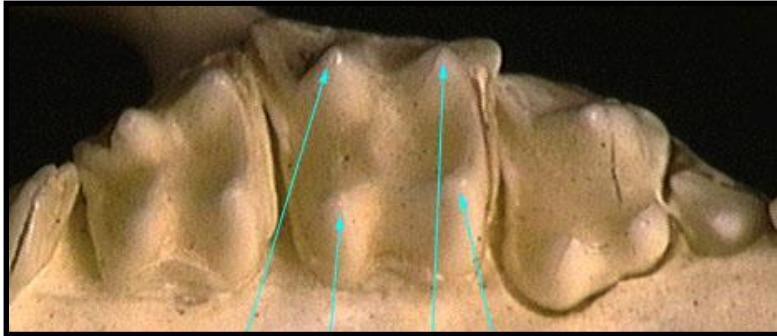


Bunodont = 3-4 rounded cusps. Found in pigs, bears, raccoons, humans.





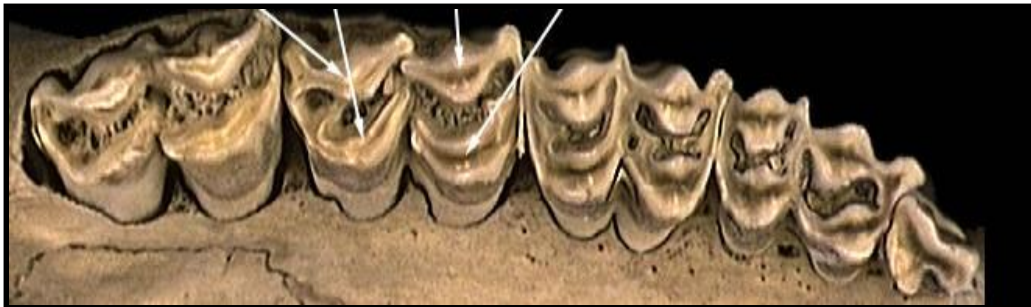
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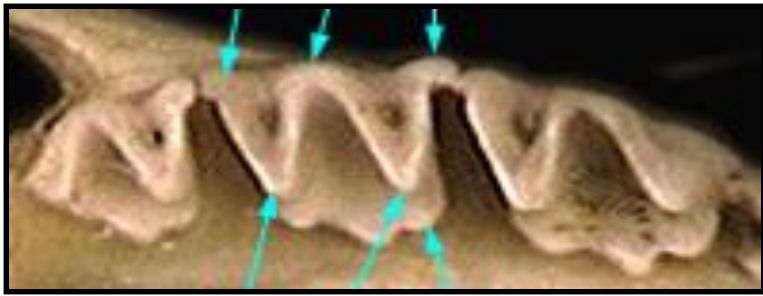


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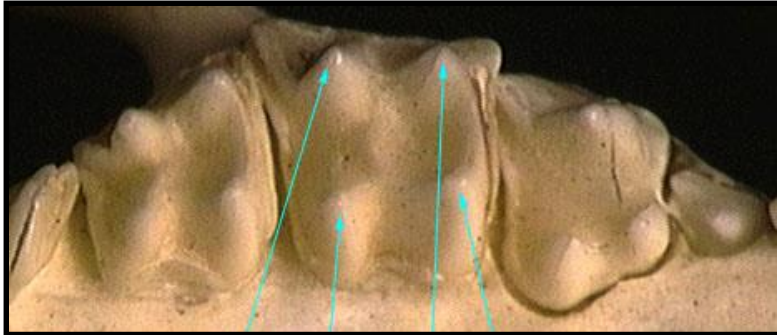


Lophodont = elongated, transverse cusps. Found in many rodents.





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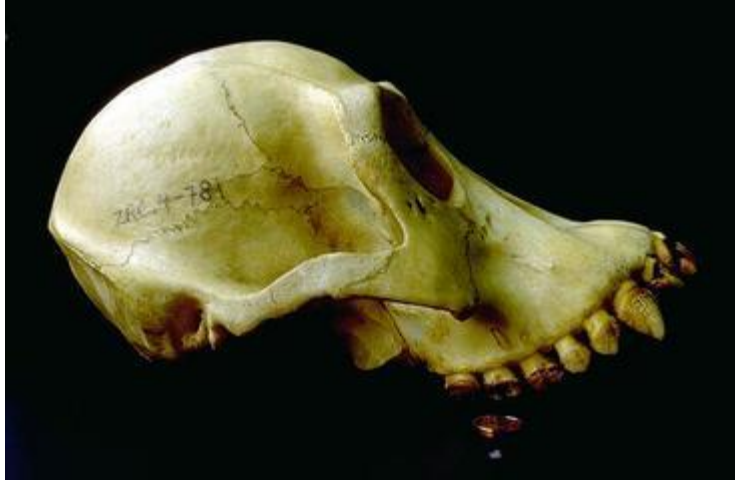


Lophodont = elongated, transverse cusps. Found in many rodents.



Selenodont = cusps elongated antero-posteriorly. Found in many ungulates.

skulls: the bare bones



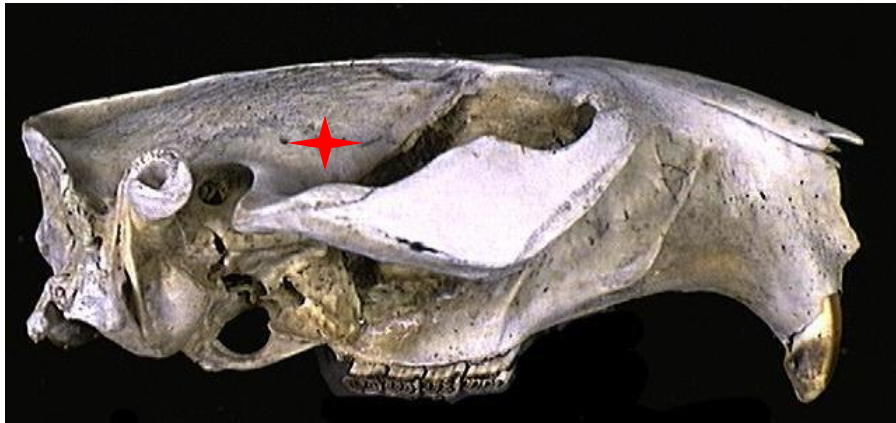
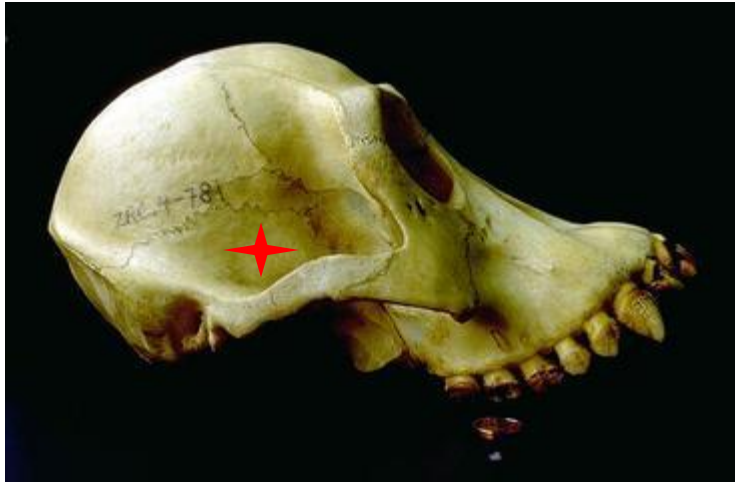
skulls: the bare bones



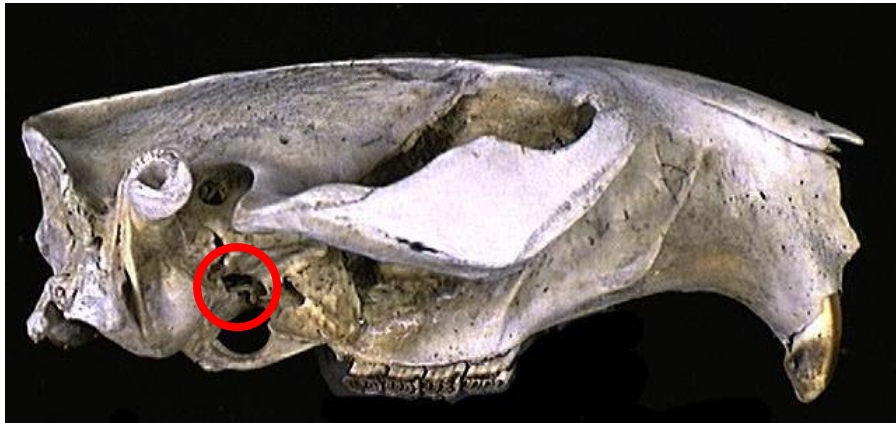
skulls: the bare bones



skulls: the bare bones



skulls: the bare bones



skull structures (from handout)

Quiz 1: 6-8 questions on skull structures, 1-2 questions on dental formulae, 1-2 questions on types of dentition

Characteristics of mammalian skulls covered in test 1