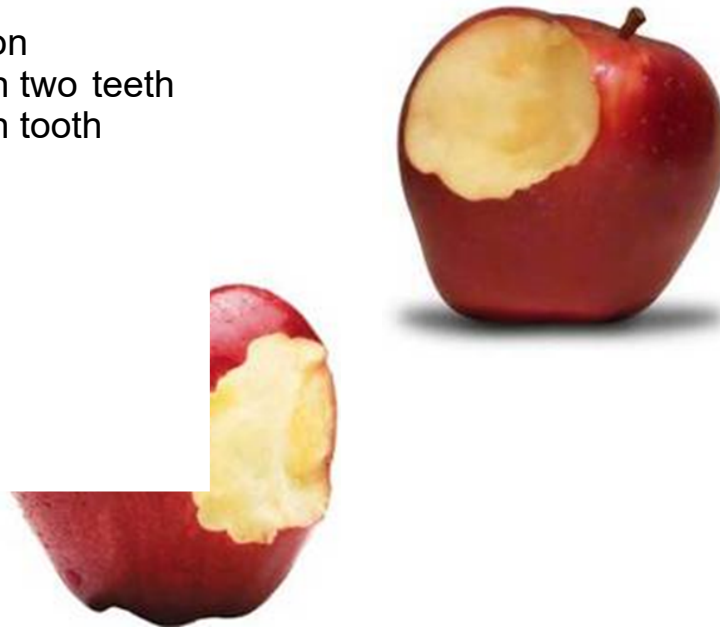# Impressive Evidence

Continued...

Can you tell the difference of these bite marks?

- The shape or curvature
- No. of tooth marks
- Horizontal diameter
- Vertical diameter
- Depth of depression
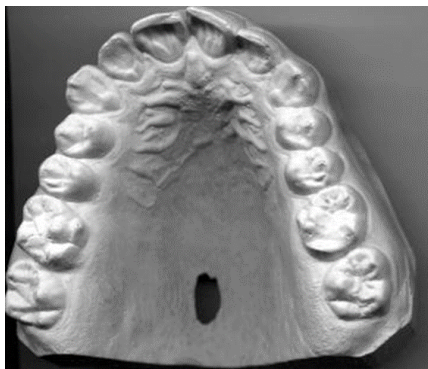- Distances between two teeth
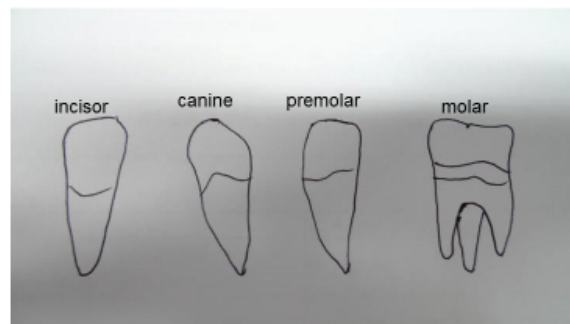- Orientation of each tooth

What can these bites tell us?

Dentitions of Humans and Animals

Dentition refers to the number and arrangement of different types of teeth in a mammal.
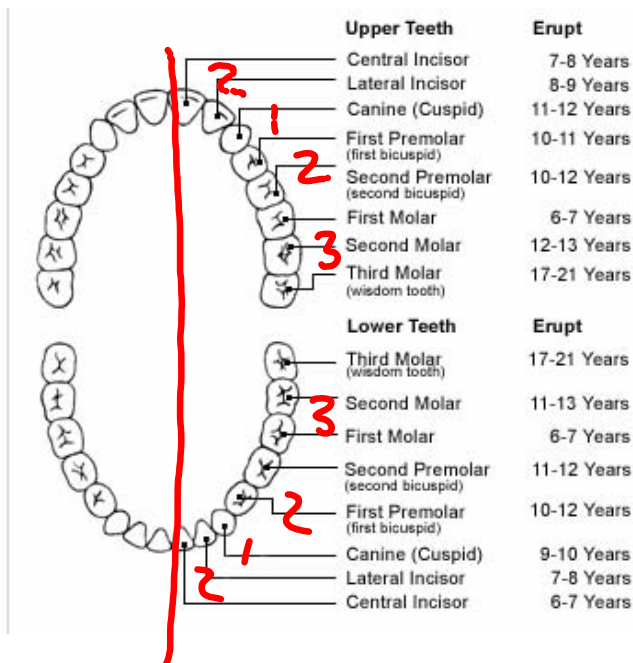
Shapes of teeth

incisor   canine   premolar   molar

Teeth on each side of the jaw

Tooth type		Incisors	Canines	Premolars	Molars	Total
Number of teeth	Upper jaw					16
	Lower jaw					16
General feature		Front teeth All have thin edges Square shaped Single rooted	Cone-shaped Single rooted	Two cusps Single rooted	Square 4 and 5 cusps Largest teeth in jaw Multiple rooted	
Function						

Upper Teeth	Erupt
Central Incisor	7-8 Years
Lateral Incisor	8-9 Years
Canine (Cuspid)	11-12 Years
First Premolar (first bicuspid)	10-11 Years
Second Premolar (second bicuspid)	10-12 Years
First Molar	6-7 Years
Second Molar	12-13 Years
Third Molar (wisdom tooth)	17-21 Years

Lower Teeth	Erupt
Third Molar (wisdom tooth)	17-21 Years
Second Molar	11-13 Years
First Molar	6-7 Years
Second Premolar (second bicuspid)	11-12 Years
First Premolar (first bicuspid)	10-12 Years
Canine (Cuspid)	9-10 Years
Lateral Incisor	7-8 Years
Central Incisor	6-7 Years

Dentition can be represented by a dental formula, which shows the numbers and types of teeth on each side of the upper and lower jaws. For example, the dental formula of a human adult is:

$$\frac{2}{2} \quad \frac{1}{1} \quad \frac{2}{2} \quad \frac{3}{3}$$

$$\frac{2123}{2123} = \frac{8}{8} \cdot \frac{16}{16}$$

$$= 32 \, tot$$

Try to do the following calculation with the dental formula!

Total number of teeth on each side

$$= \frac{2123}{2123} = \frac{8}{8} \times 2 \quad \frac{16}{16}$$

Total number of teeth of adult human

$$= \underline{\qquad 32 \qquad}$$

Dentition of different animals

The dentitions of different animals vary according to their diets. In other word, biologists can predict whether an animal is:
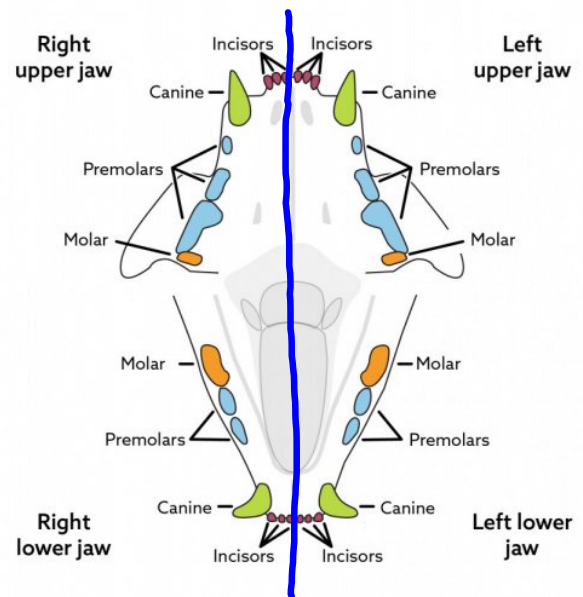
-
- or
-

by studying the dentition of an animal. Similarly, forensic scientists can make use of an animal bite to determine the identity of an animal.

1. Carnivores

Carnivores feed mainly upon ____, their dentitions are characterized by well-developed ____ ____ ____. The premolars and molar are strong ____ ____ ____.

Dental Assessment Chart for Cats
© LifeLearn Inc.

Right upper jaw — Incisors — Incisors — Left upper jaw
Canine — Canine
Premolars — Premolars
Molar — Molar
Molar — Molar
Premolars — Premolars
Canine — Canine
Right lower jaw — Incisors — Incisors — Left lower jaw

The previous diagrams show the dentition of a cat. Try to work out its dental formula.

$$\frac{3 \quad 1 \quad 3 \quad 1}{3 \quad 1 \quad 2 \quad 1}$$

Using this formula how many teeth would a cat have?

$$\frac{8}{7} \times 2 = \frac{16}{14} = \boxed{30}$$

Dentition of Sheep

Upper arcade of sheep (lateral view)

Incisors   Canine   Premolar   Molar

Lower arcade of sheep (lateral view)
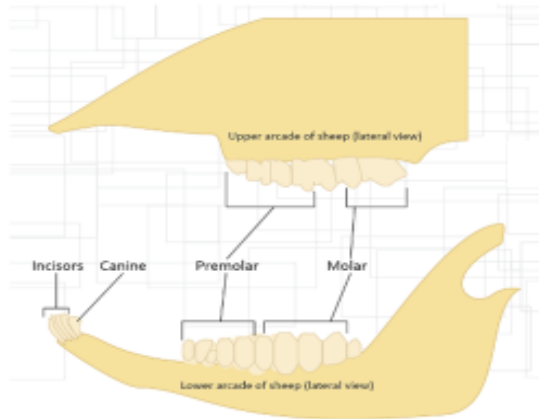
2. Herbivores

Herbivores feed mainly on matter. Most herbivores have no or very small · but they usually have a

for easy manipulation of plant matter during chewing. The premolars and molar

8

The previous diagrams show the dentition of a sheep. Try to work out its dental formula.

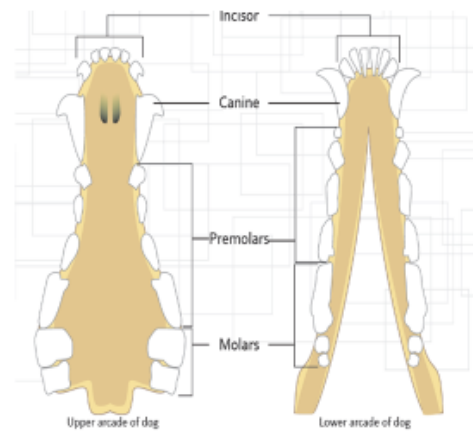$$\frac{0 \quad 0 \quad 4 \quad 2}{4 \quad 1 \quad 4 \quad 5}$$

Using this formula how many teeth would a sheep have?

$$\frac{6}{14} \times 2 = \frac{12}{28} = 40$$

3. Omnivores

Omnivores have very distinctive teeth that help with the digestion of their ... ... They often have long,

Dentition of Dogs

Incisor
Canine
Premolars
Molars
Upper arcade of dog   Lower arcade of dog

The previous diagram was for a dog. What is the dental formula for a dog?

$$\frac{3 \ 1 \ 4 \ 2}{3 \ 1 \ 4 \ 3}$$

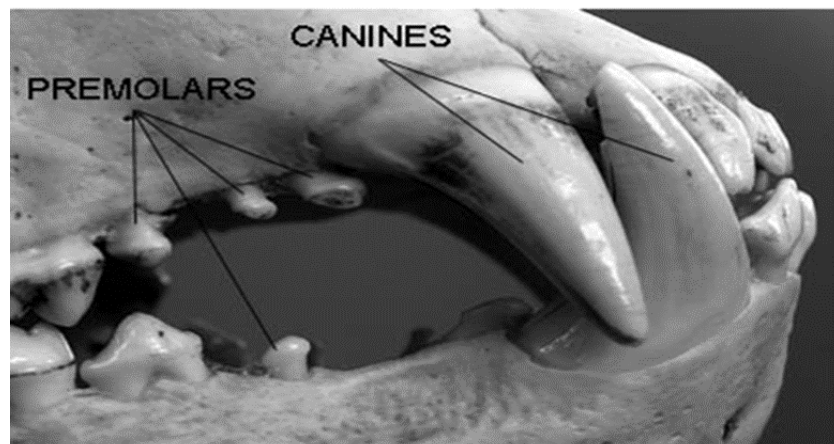Using this formula how many teeth would a dog have?

$$\frac{10}{11} \times 2 = \frac{20}{22} = \boxed{42}$$

Which one is an Omnivoire?

Humans are described as omnivores whose primary food sources include both plants and animals. Which of the following dentitions belongs to an omnivore? Explain your answer.


Black Bear's Jaw

C.
- Canines are pointed for tearing meat;
- A diastema between incisors and premolars for manipulating plant;
- Premolars and molars have relatively flat surface for grinding plant;
- Possessing features for eating both plant and meat.

Animal Attack!!!!

On Sunday, Jenny went on a picnic in the countryside. She was attacked by an animal with the bite mark shown below.
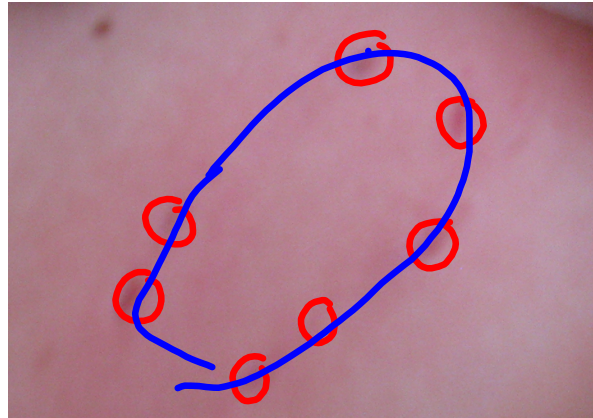

Which animal caused the bite?

- The diameter is about ½ point finger, bigger than the bite mark of fruit bat;
- Canine marks are not very deep and prominent, not a dog or a cat;
- The curvature is similar to that of human bites. Monkeys and humans are primates and the curvatures of their bites are similar.

The Most Famous Bite Mark Case of the Twentieth Century

Ted Bundy
Former Law Student
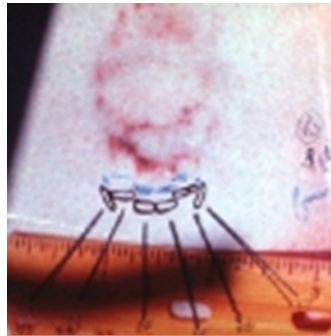
Note the Yellow Ruler in the Bite Mark Photo

Bundy Bite Mark Comparison

http://www.forensic.to/webhome/bitemarks1/

F30 Article - How Forensic Dentistry Works.docx

Ted Bundy

When :

Victims :

Evidence :

Attachments

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