MONDAY APRIL 17TH

QUIZ 6.3 MECHANISMS OF EVOLUTION TOMORROW!

LAB 21 HUNGRY GAMES DUE TOMORROW!

STARTER:

- HOW DOES "SURVIVAL OF THE FITTEST" APPLY TO THE ORGANISMS IN THIS VIDEO?
- DESCRIBE HOW NATURAL SELECTION IS WORKING IN THIS VIDEO.

6.4 SPECIATION & 6.5 CLASSIFICATION

6.4 STANDARD OBJECTIVES:

- DEFINE SPECIES & SPECIATION
- DESCRIBE PREZYGOTIC CAUSES OF SPECIATION AND GIVE EXAMPLES
- POSTZYGOTIC CAUSES OF SPECIATION AND GIVE EXAMPLES

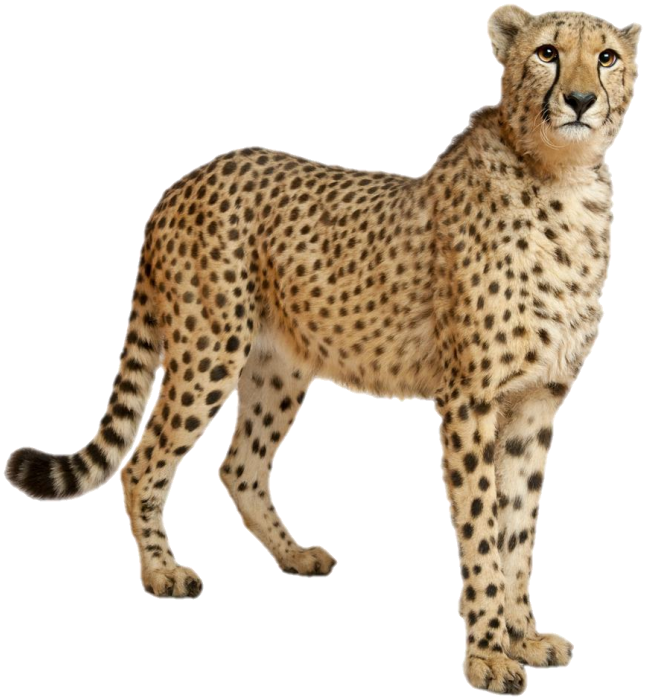
6.5 STANDARD OBJECTIVES:

- DESCRIBE THE IMPORTANCE OF CLASSIFICATION OF SPECIES
- UTILIZE A CLADOGRAM TO DESCRIBE EVOLUTIONARY RELATIONSHIPS
- CREATE A CLADOGRAM TO DEMONSTRATE EVOLUTIONARY RELATIONSHIPS
- UTILIZE A PHYLOGENETIC TREE TO DESCRIBE EVOLUTIONARY RELATIONSHIPS

6.4 SPECIATION

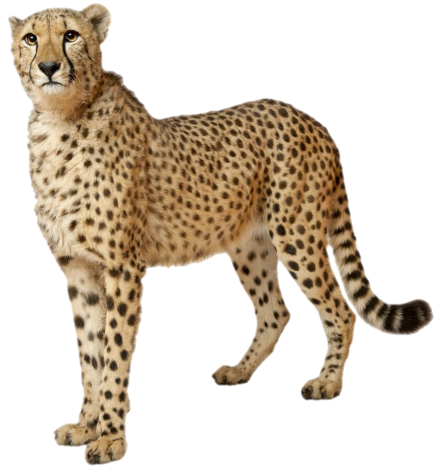
WHAT IS A SPECIES?

(NOT TO SCALE...)



6.4 SPECIATION

WHAT IS A SPECIES?



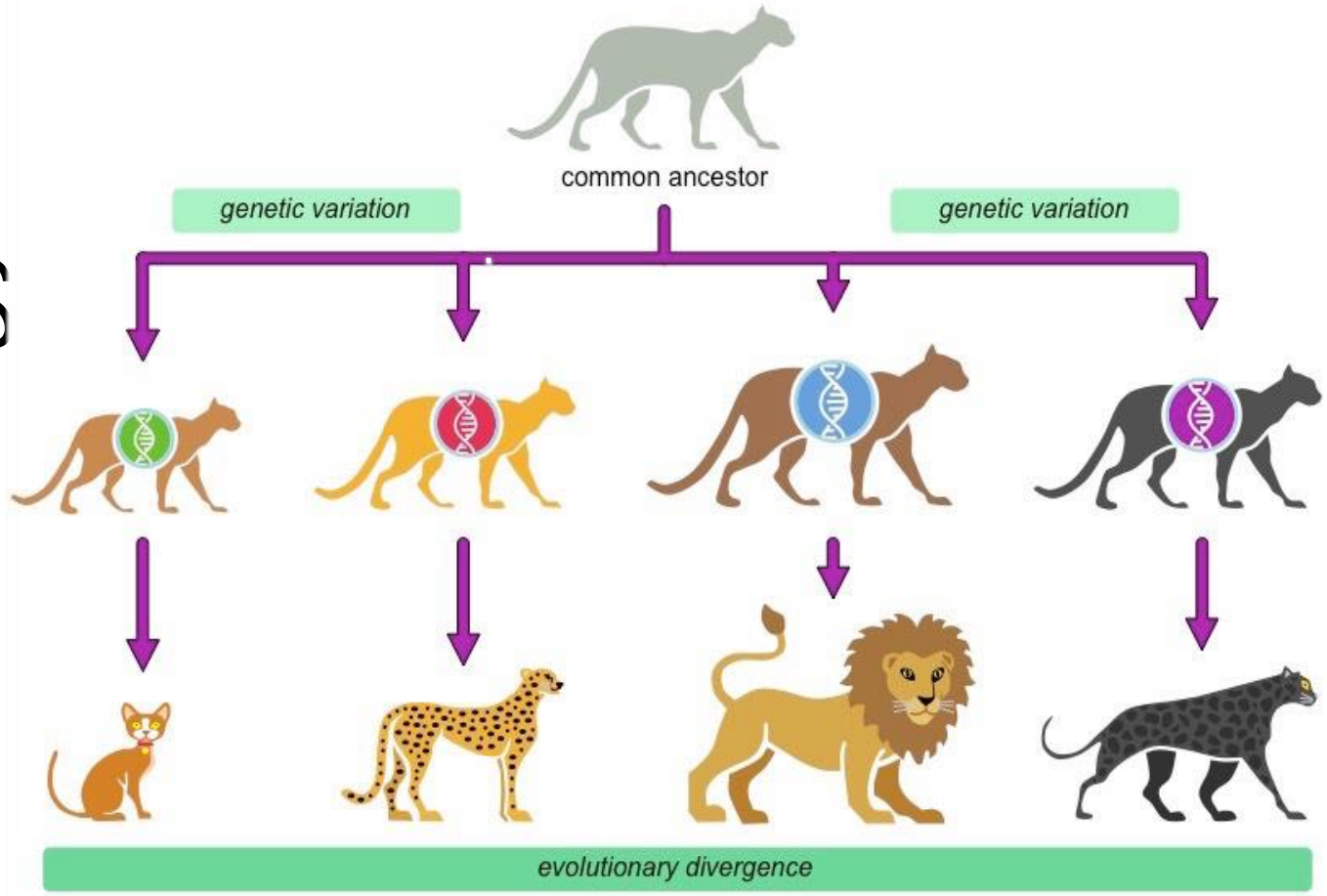
- A GROUP OF BREEDING ORGANISMS CAN REPRODUCE AND PRODUCE FERTILE OFFSPRING

- (FERTILE = BE ABLE TO REPRODUCE)

6.4 SPECIATION

SPECIATION

- SEPARATING OF ONE SPECIES INTO TWO OR MORE NEW, UNIQUE SPECIES

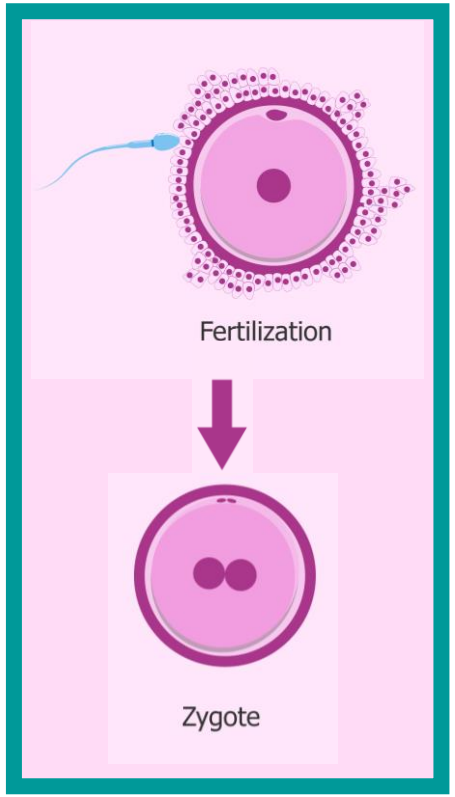


6.4 SPECIATION

SPECIATION

PRE-ZYGOTIC SPECIATION

"BEFORE ZYGOTE"
(AKA REPRODUCTIVE ISOLATION)
DIFFERENCES BETWEEN ORGANISMS PREVENT THEM FROM REPRODUCING TO CREATE A ZYGOTE



POST-ZYGOTIC SPECIATION

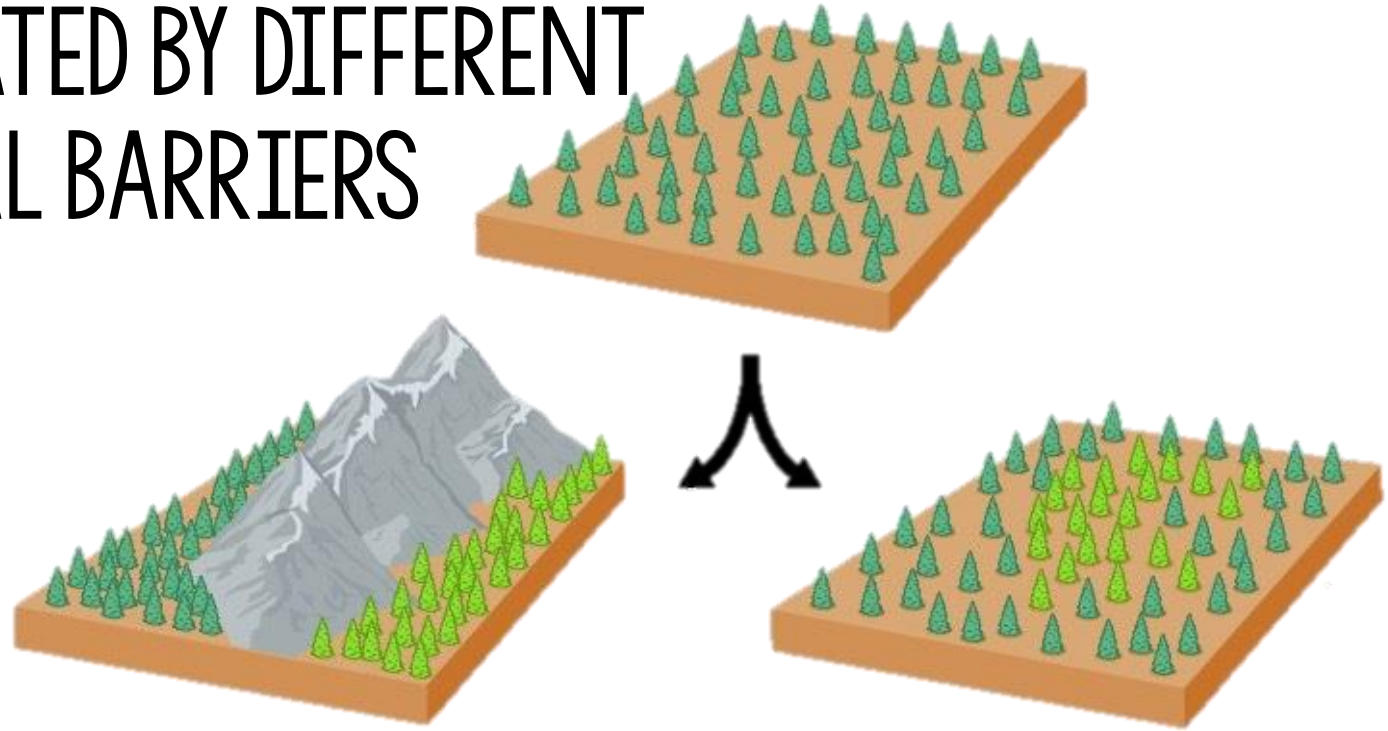
"AFTER ZYGOTE"
SIMILARITIES ALLOW ORGANISMS TO ATTEMPT TO REPRODUCE, BUT ZYGOTE FORMED WILL NOT DEVELOP

6.4 SPECIATION

PREZYGOTIC SPECIATION

HABITAT ISOLATION

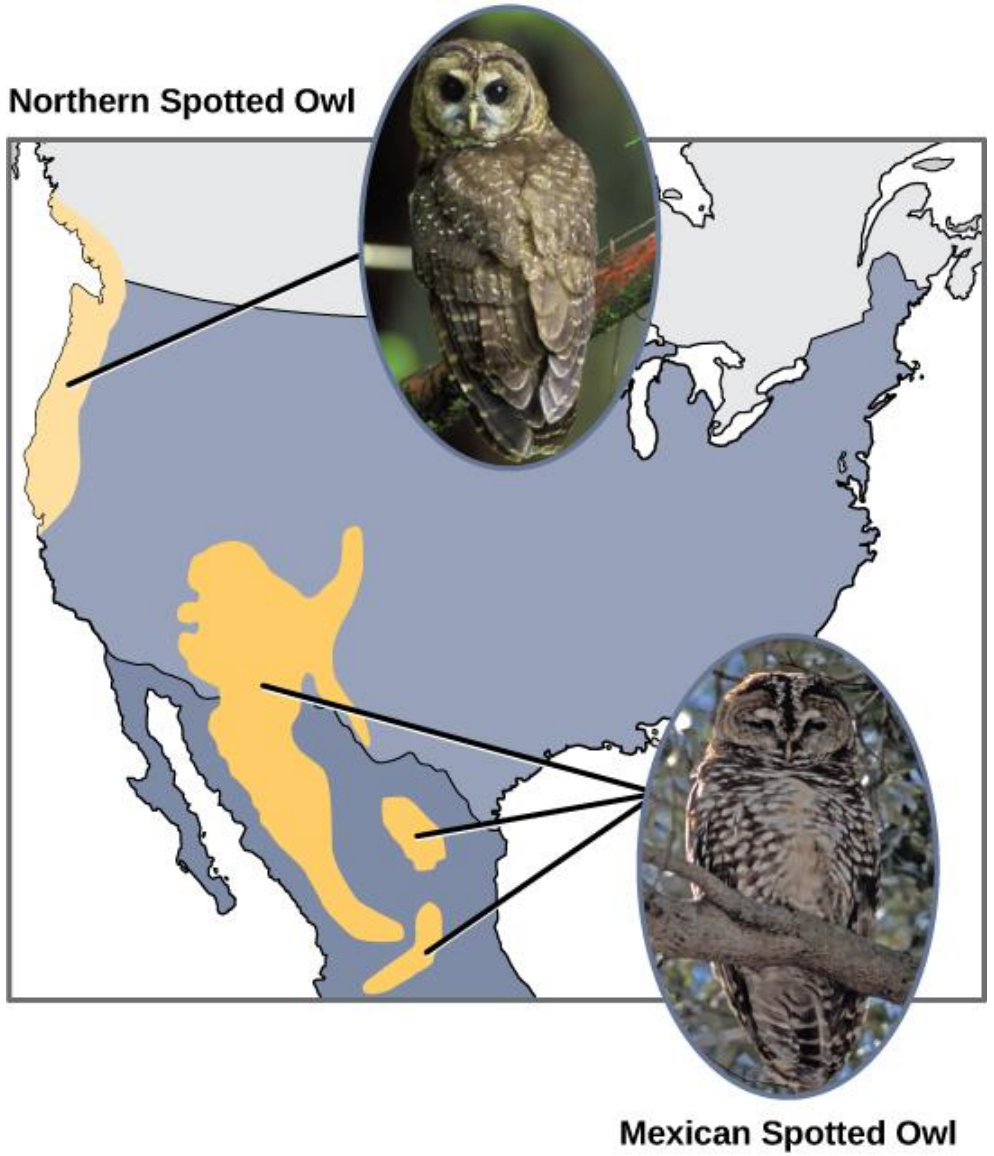
- TWO POPULATIONS SEPARATED BY DIFFERENT HABITATS OR GEOGRAPHICAL BARRIERS

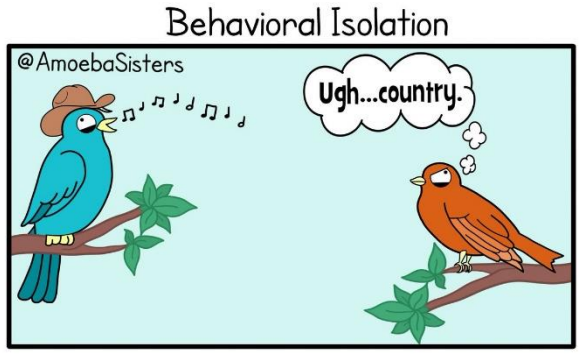


6.4 SPECIATION

TWO SPECIES OF NORTH AMERICAN OWLS.

WHAT IS SEPARATING THEM?





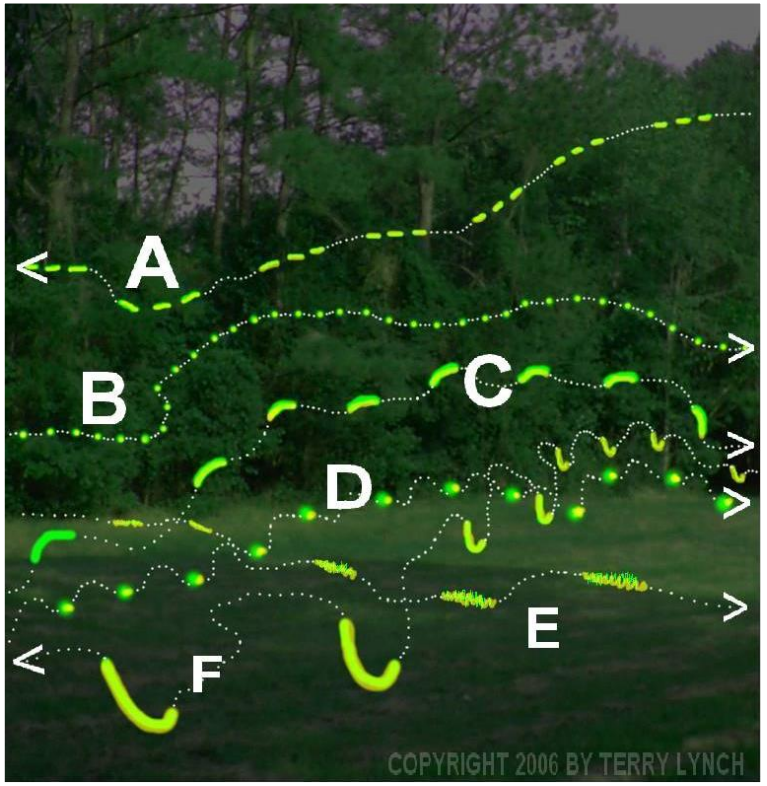
6.4 SPECIATION

PREZYGOTIC SPECIATION

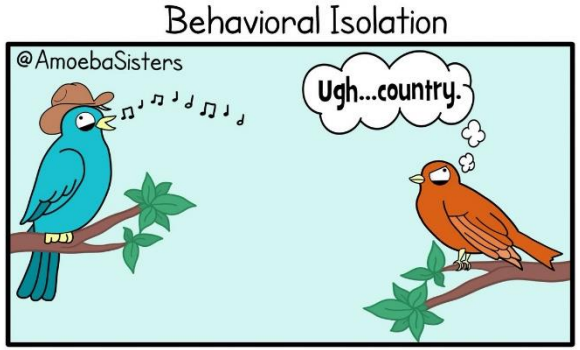
BEHAVIORAL ISOLATION

- BEHAVIORS PREVENTS TWO SPECIES FROM REPRODUCING OR INTERACTING

DIFFERENT MALE FIRE FLIES PRODUCE DIFFERENT LIGHT PATTERNS FOR FEMALES TO RECOGNIZE



6.4 SPECIATION



MORE THAN 40 SPECIES OF BIRD-OF-PARADISE

DIFFERENT MATING BEHAVIORS AND COLOR PATTERNS

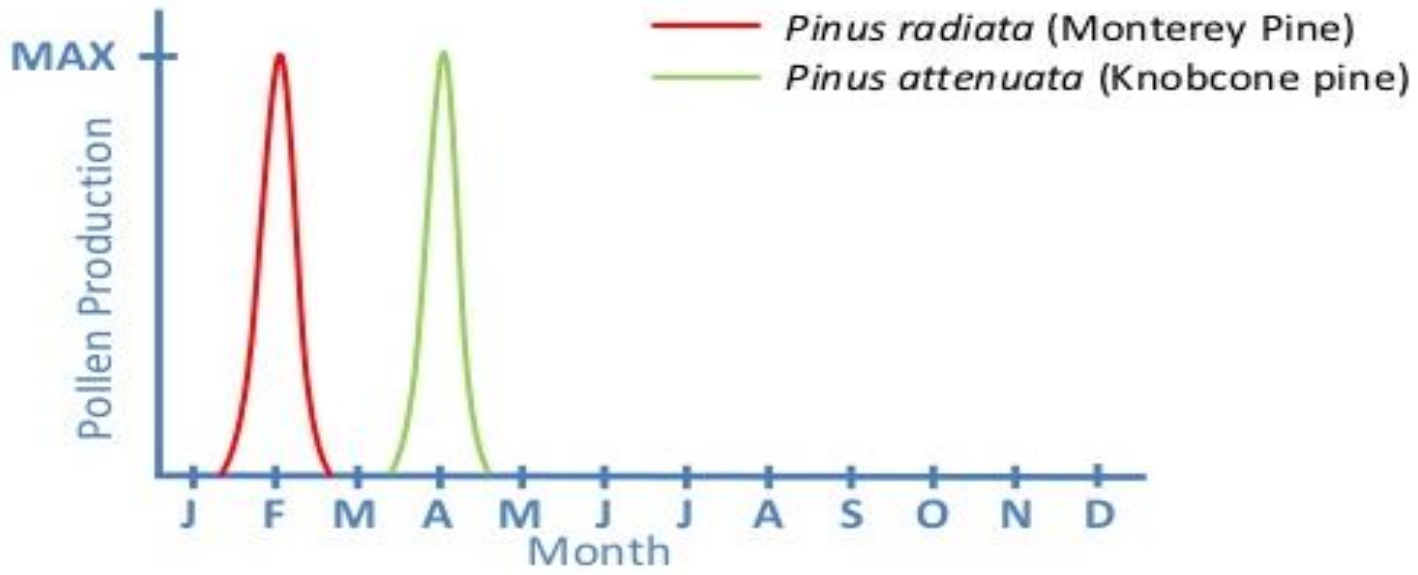
REMINDER: SEXUAL SELECTION IS AT PLAY HERE!

6.4 SPECIATION

PREZYGOTIC SPECIATION

TEMPORAL ISOLATION

- TEMPORAL = TIMING
- DIFFERENT MAY SPECIES REPRODUCE AT DIFFERENT TIMES OF DAY OR YEAR



6.4 SPECIATION

PREZYGOTIC SPECIATION

CICADAS

3 SPECIES REPRODUCE AT DIFFERENT TIMES BUT THEY "SYNC" TOGETHER EVERY 221 YEARS & INTERBREED!

6.4 SPECIATION

POSTZYGOTIC SPECIATION

- SIMILARITIES BETWEEN TWO SPECIES ALLOW FOR INTERBREEDING
- BUT OFFSPRING PRODUCED IS NOT CAPABLE OF REPRODUCING

TIGON

MALE TIGER

+

FEMALE LION

LIGER

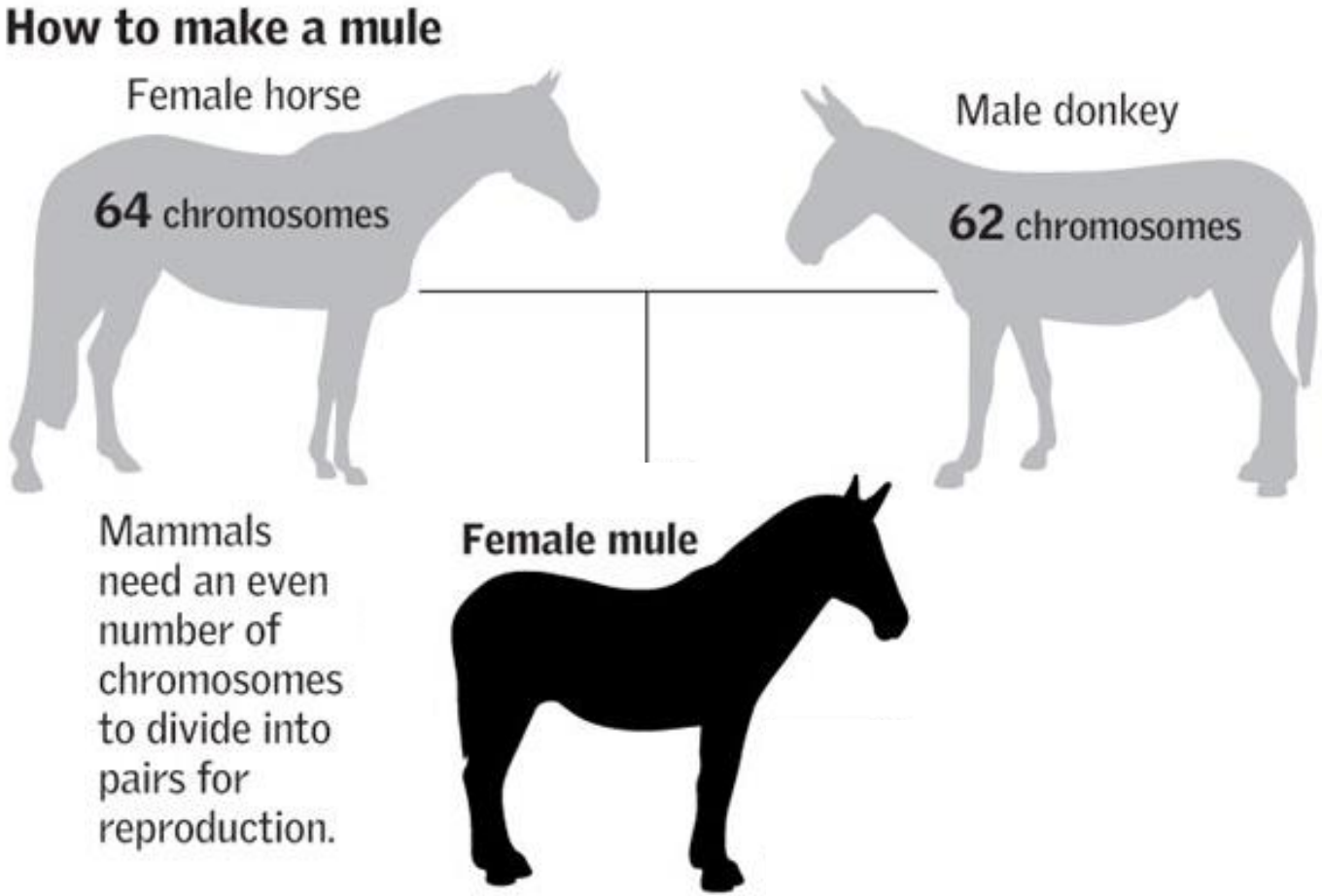
MALE LION

+

FEMALE TIGER

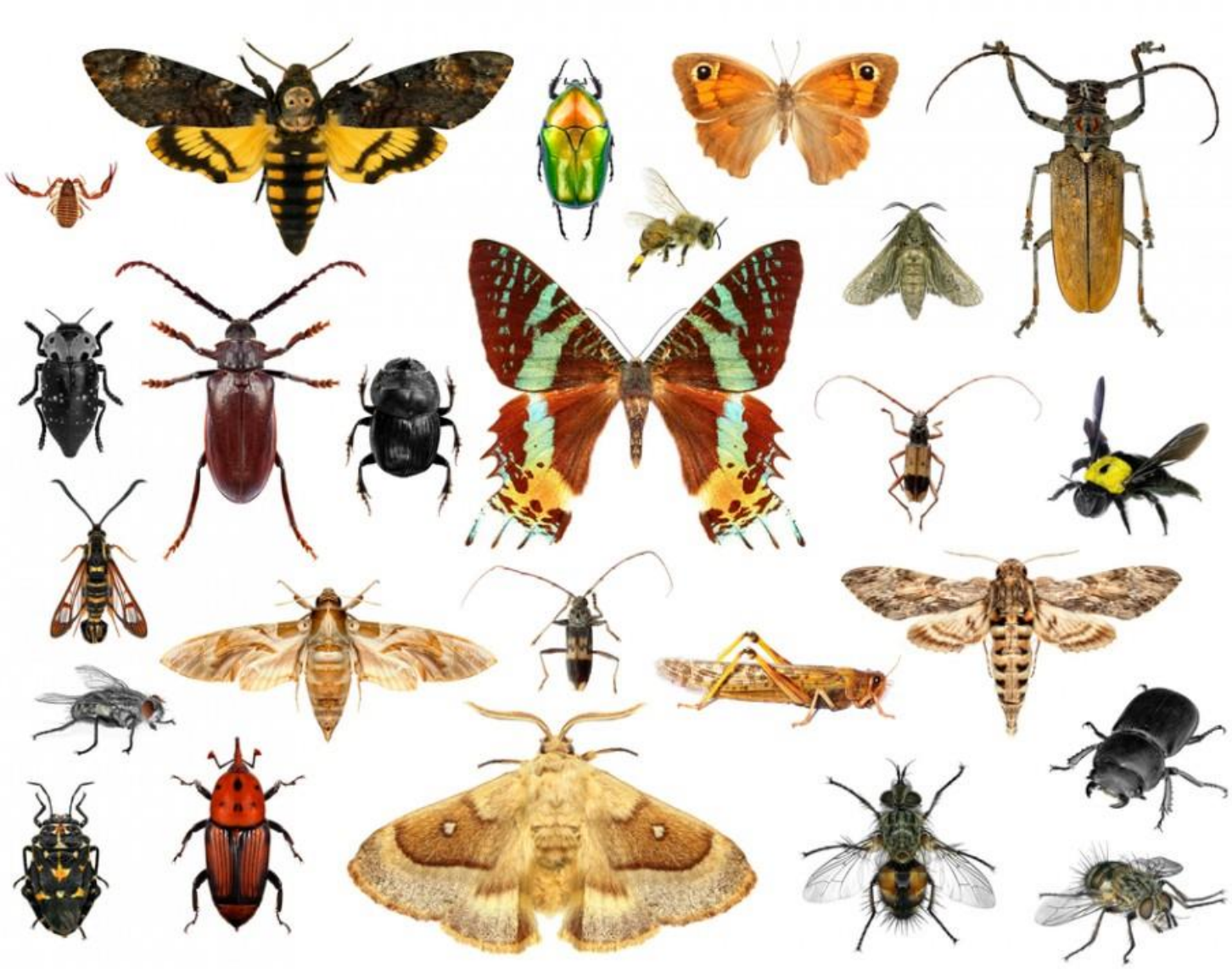
6.4 SPECIATION

POSTZYGOTIC SPECIATION



6.5 CLASSIFICATION

WHY CLASSIFY ALL THE SPECIES THAT HAVE RESULTED FROM EVOLUTION?



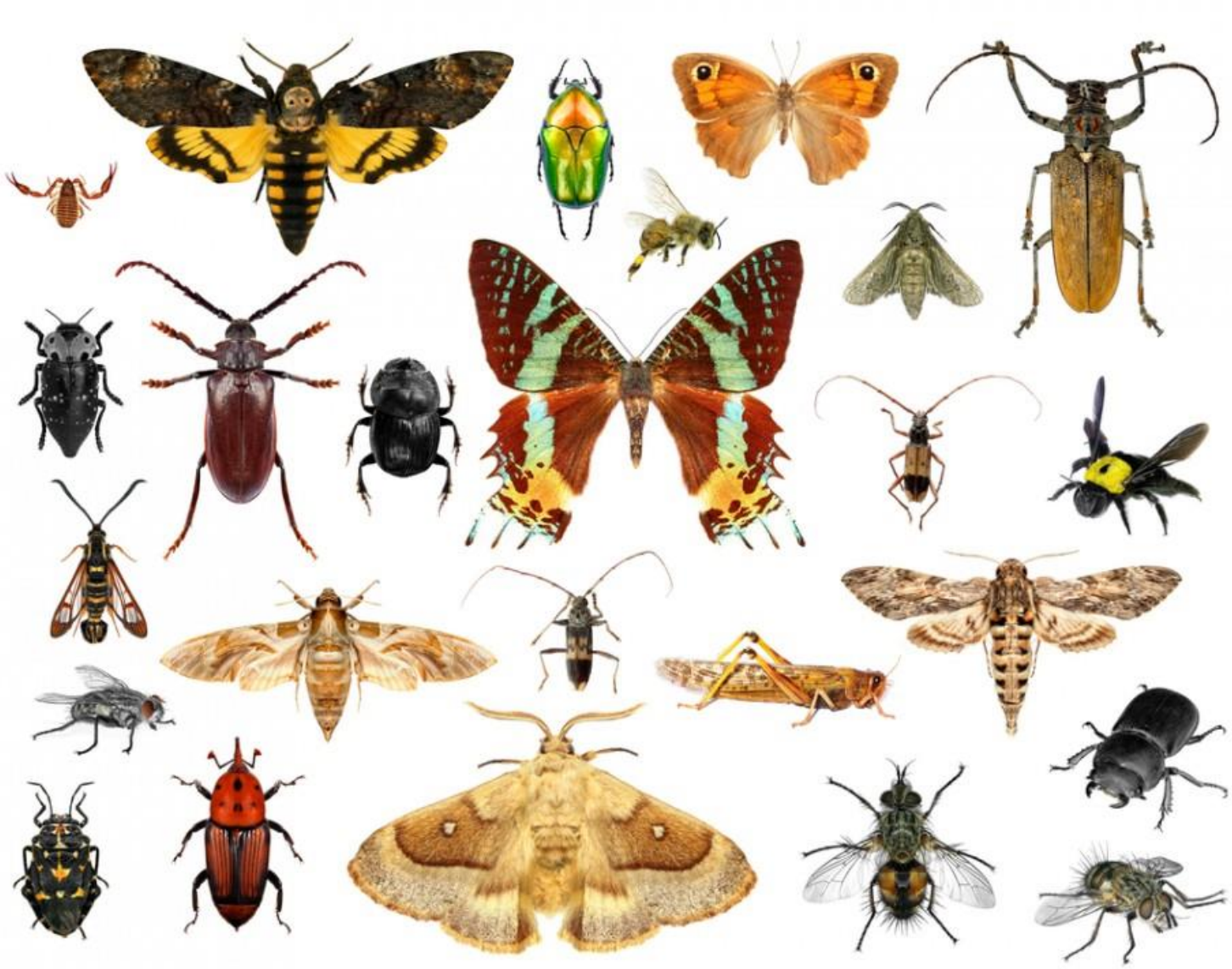
6.5 CLASSIFICATION

EASY TO IDENTIFY, GROUP, AND ORGANIZE!

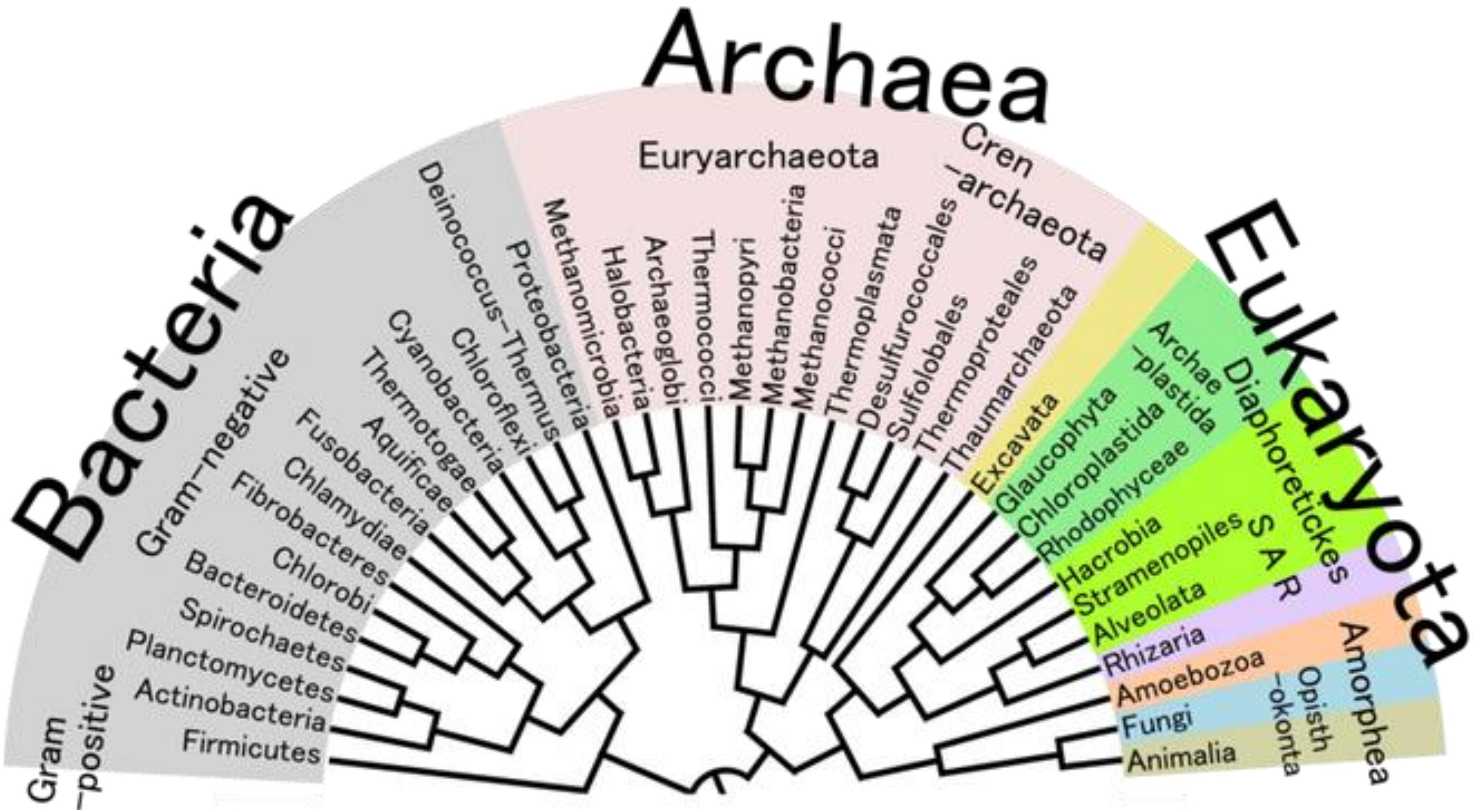
CAN ALSO IDENTIFY RELATIONSHIPS

~2 MILLION KNOWN SPECIES

POSSIBLY 2-100 MILLION MORE TO IDENTIFY!



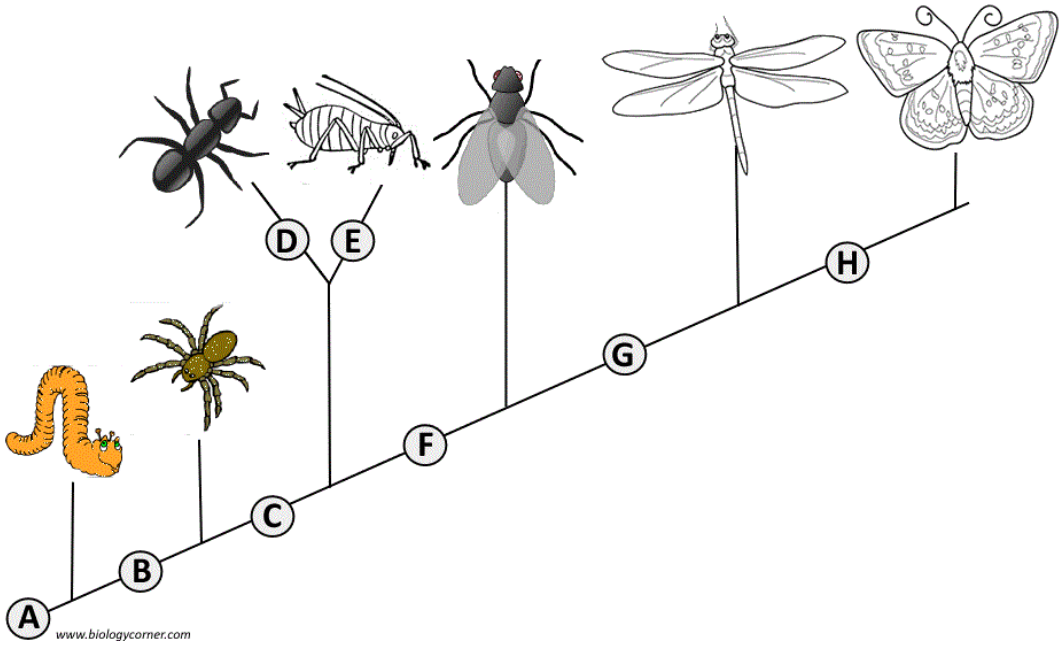
6.5 CLASSIFICATION



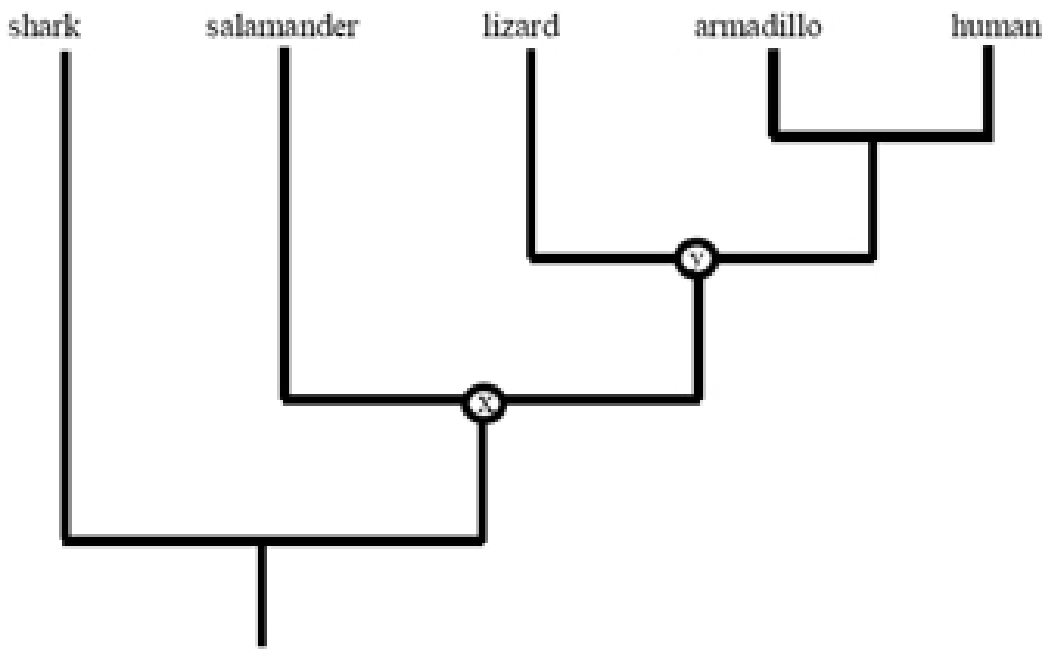
6.5 CLASSIFICATION

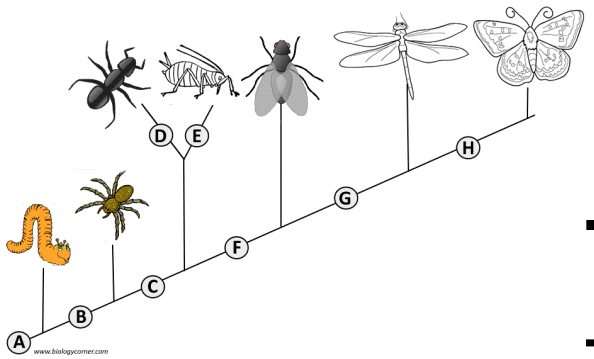
TWO METHODS TO CLASSIFY

CLADOGRAMS

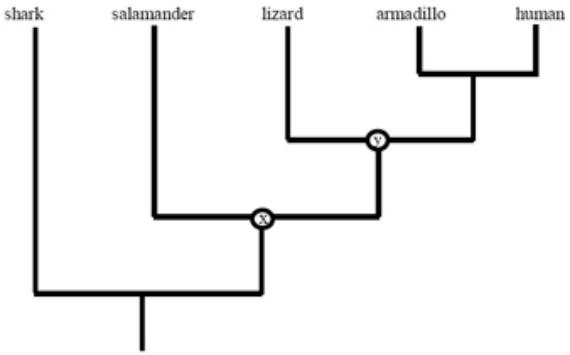


PHYLOGENETIC TREES





6.5 CLASSIFICATION



TWO METHODS TO CLASSIFY

CLADOGRAMS

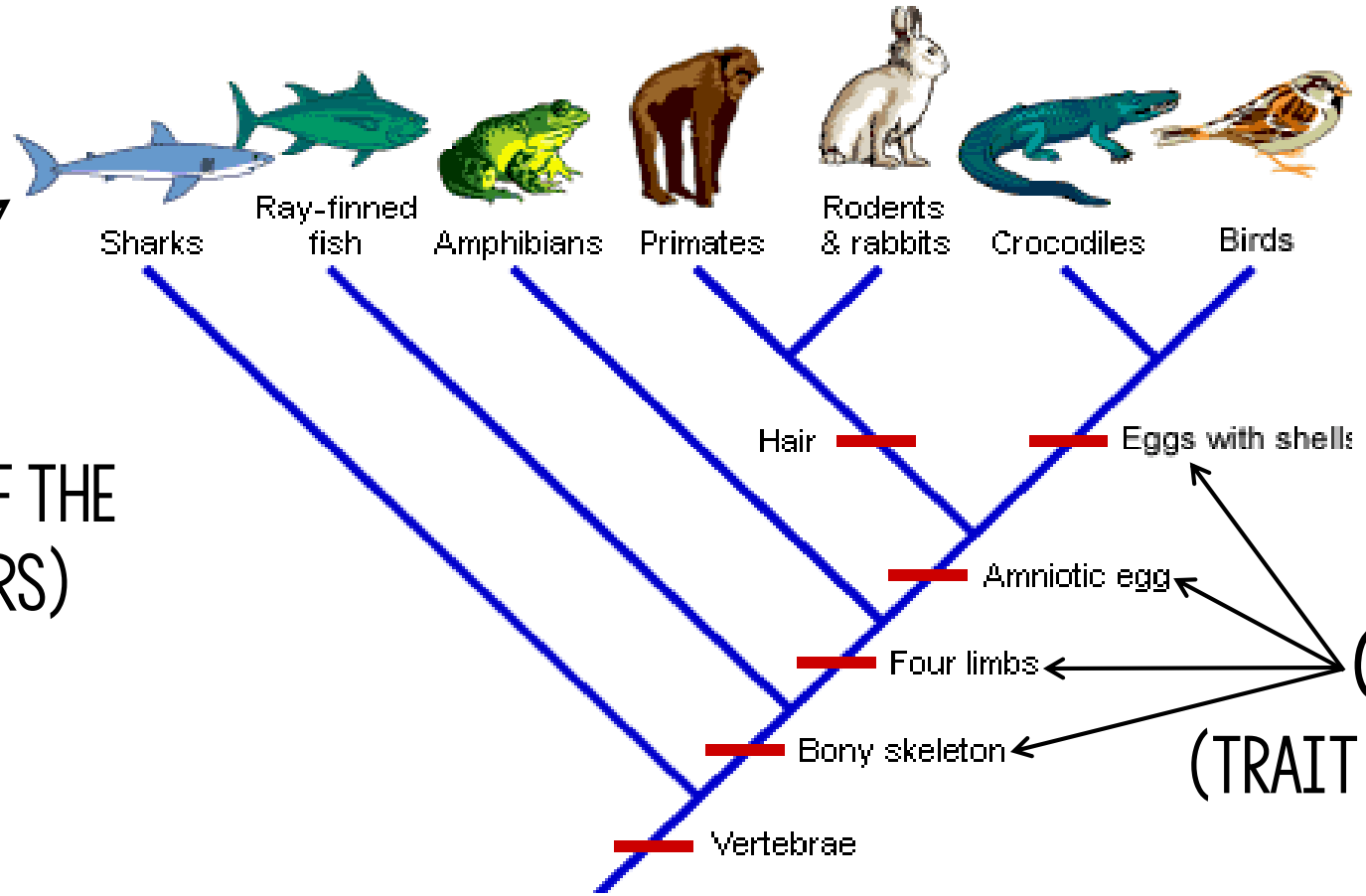
USED TO SHOW SIMILARITIES AMONG SPECIES AND DEVELOPMENT OF NEW CHARACTERISTICS

PHYLOGENETIC TREES

USED TO SHOW EVOLUTIONARY TIME AND COMMON ANCESTRY; CAN USE PHYSICAL CHARACTERISTICS OR DNA!

6.5 CLASSIFICATION

READING A CLADOGRAM

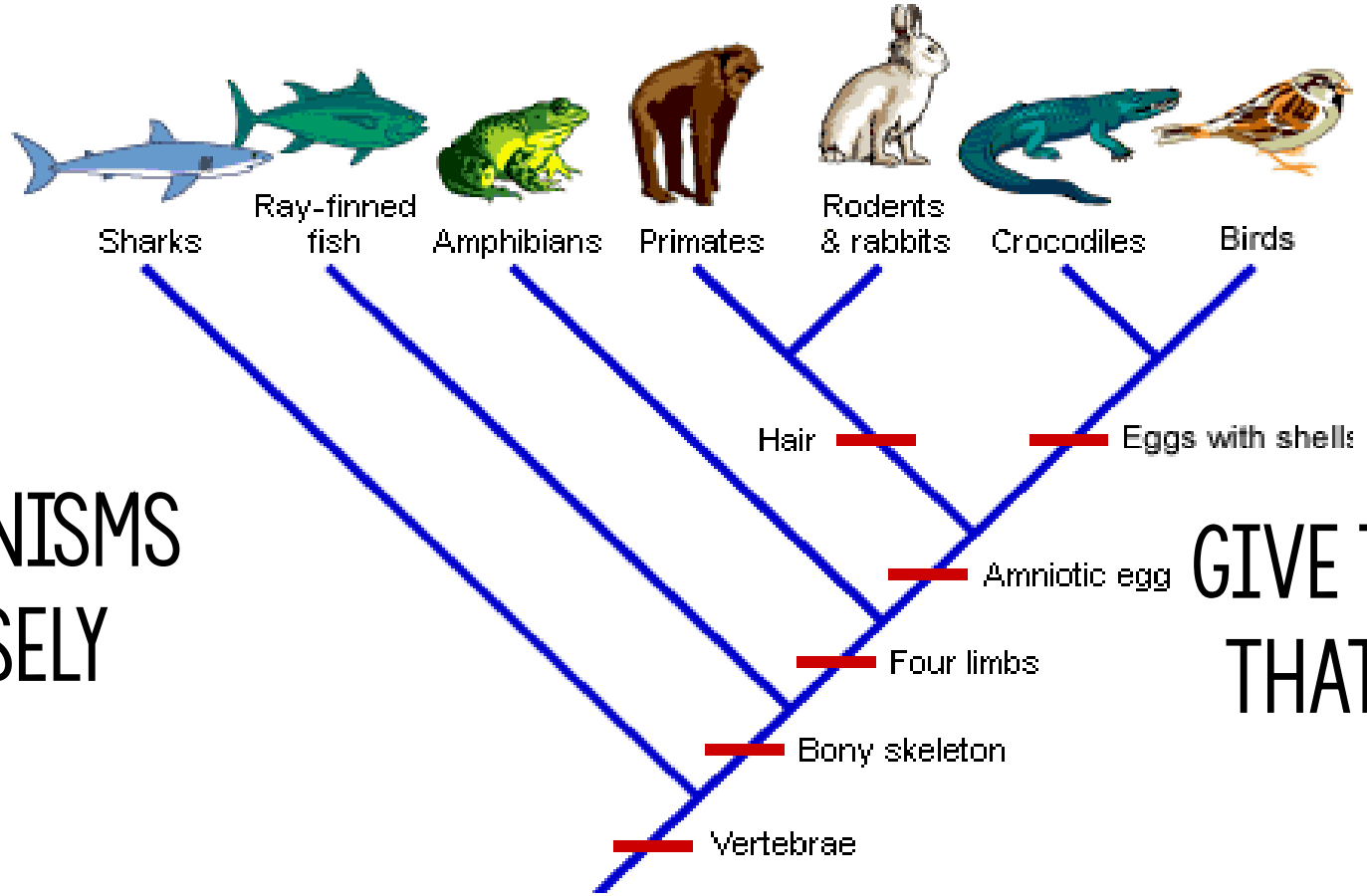


OUT GROUP
(HAS THE FEWEST OF THE LISTED CHARACTERS)

CHARACTER
(TRAIT DEVELOPED THROUGH EVOLUTION)

6.5 CLASSIFICATION

READING A CLADOGRAM



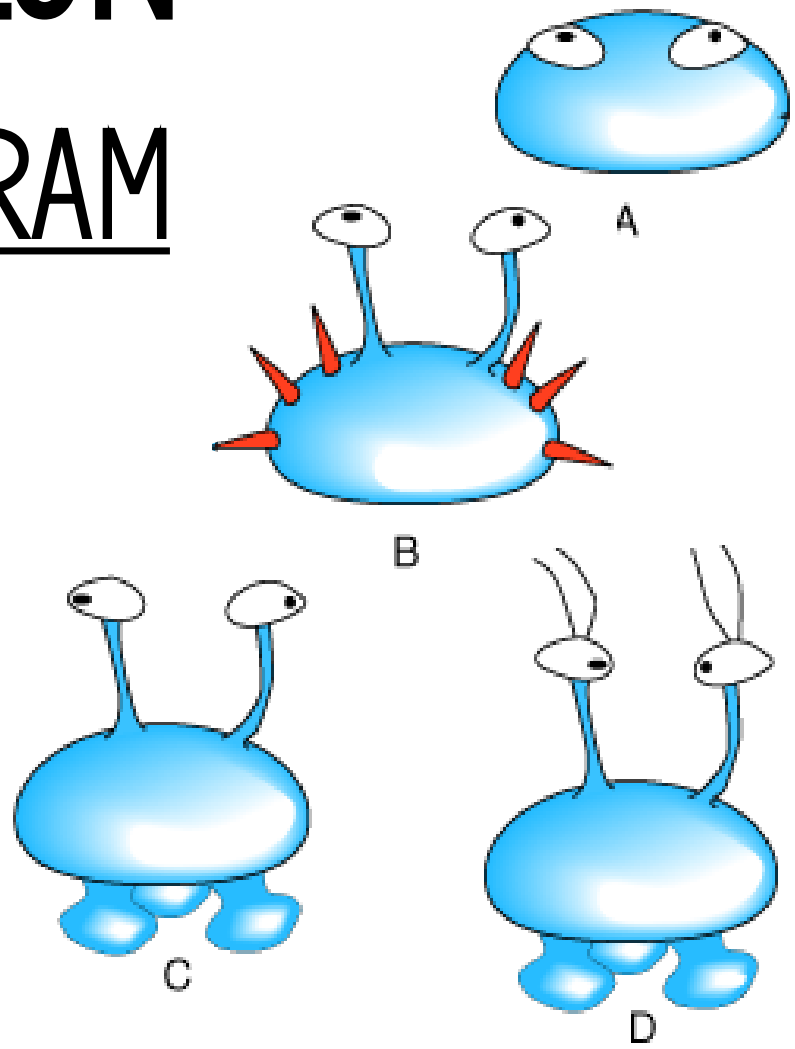
GIVE TWO ORGANISMS THAT ARE CLOSELY RELATED

GIVE TWO ORGANISMS THAT ARE DISTANTLY RELATED

6.5 CLASSIFICATION

CREATING A CLADOGRAM

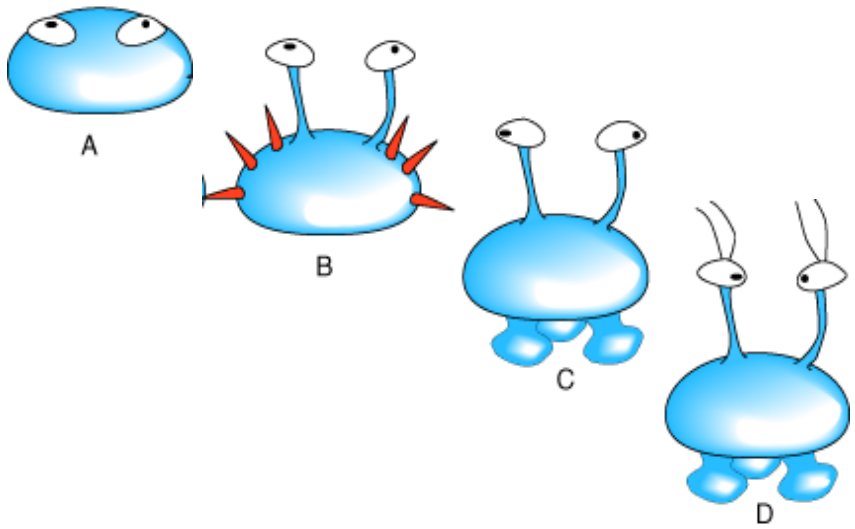
	SPIKES	EYES	EYELASHES	LEGS
ORGANISM A				
ORGANISM B				
ORGANISM C				
ORGANISM D				
TOTAL #				

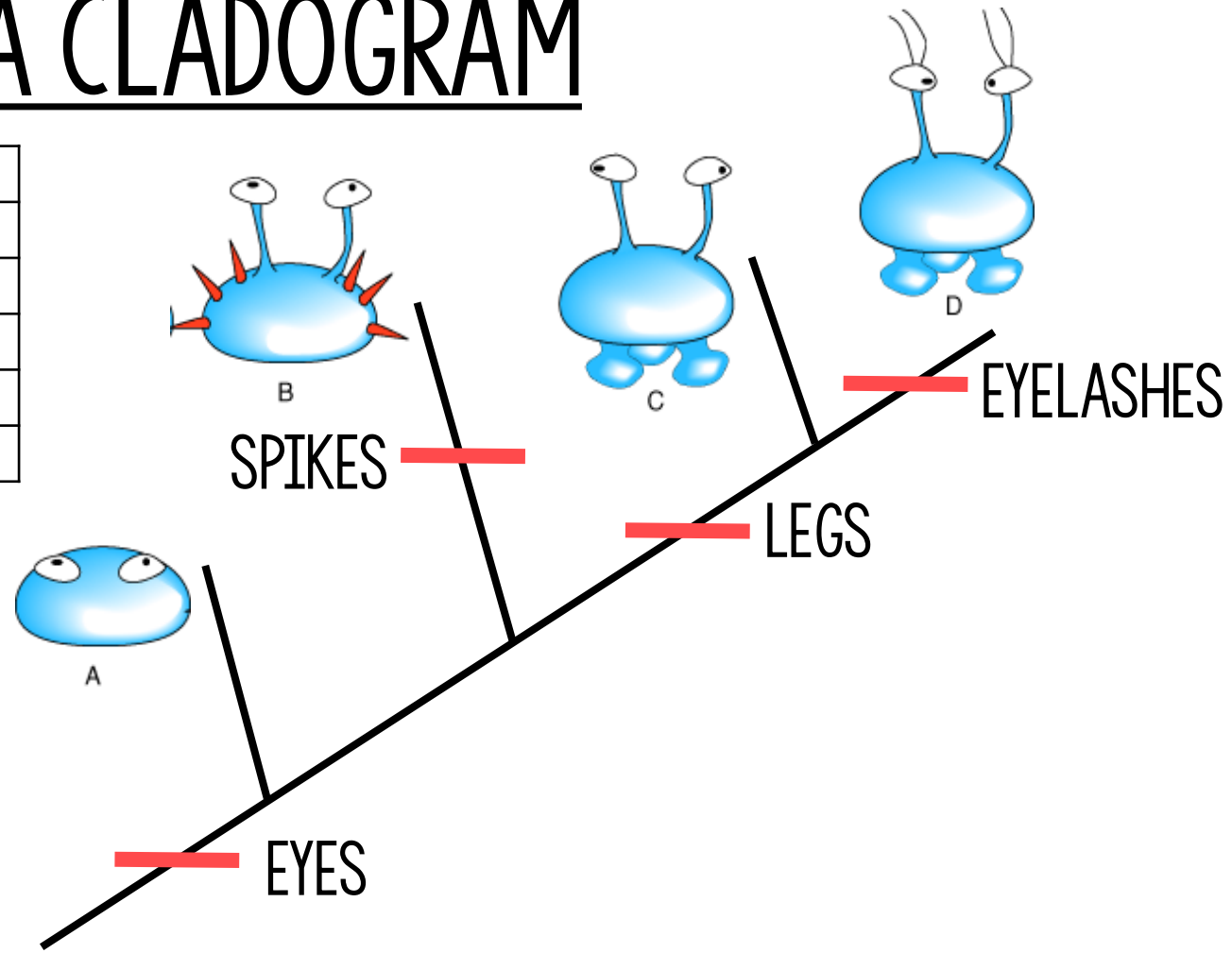


6.5 CLASSIFICATION

CREATING A CLADOGRAM

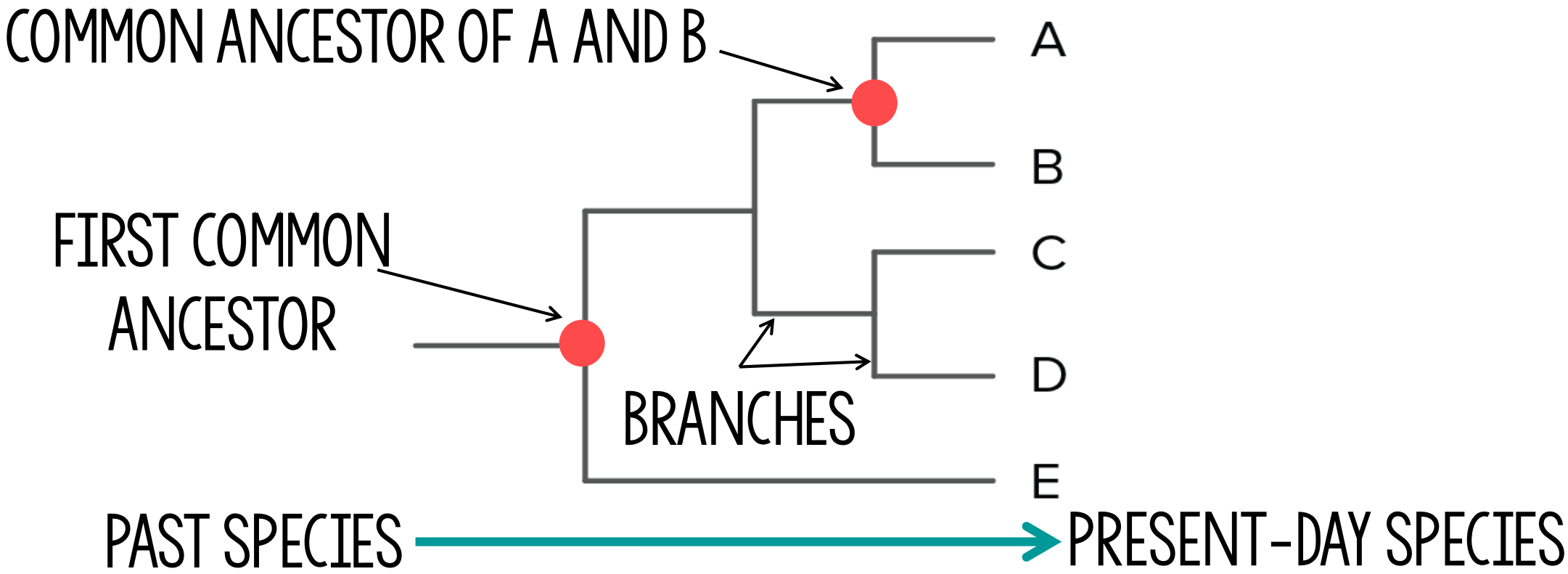
	SPIKES	EYES	EYELASHES	LEGS
ORGANISM A		+		
ORGANISM B	+	+		
ORGANISM C		+		+
ORGANISM D		+	+	+
TOTAL #	1	4	1	2





6.5 CLASSIFICATION

READING PHYLOGENETIC TREES



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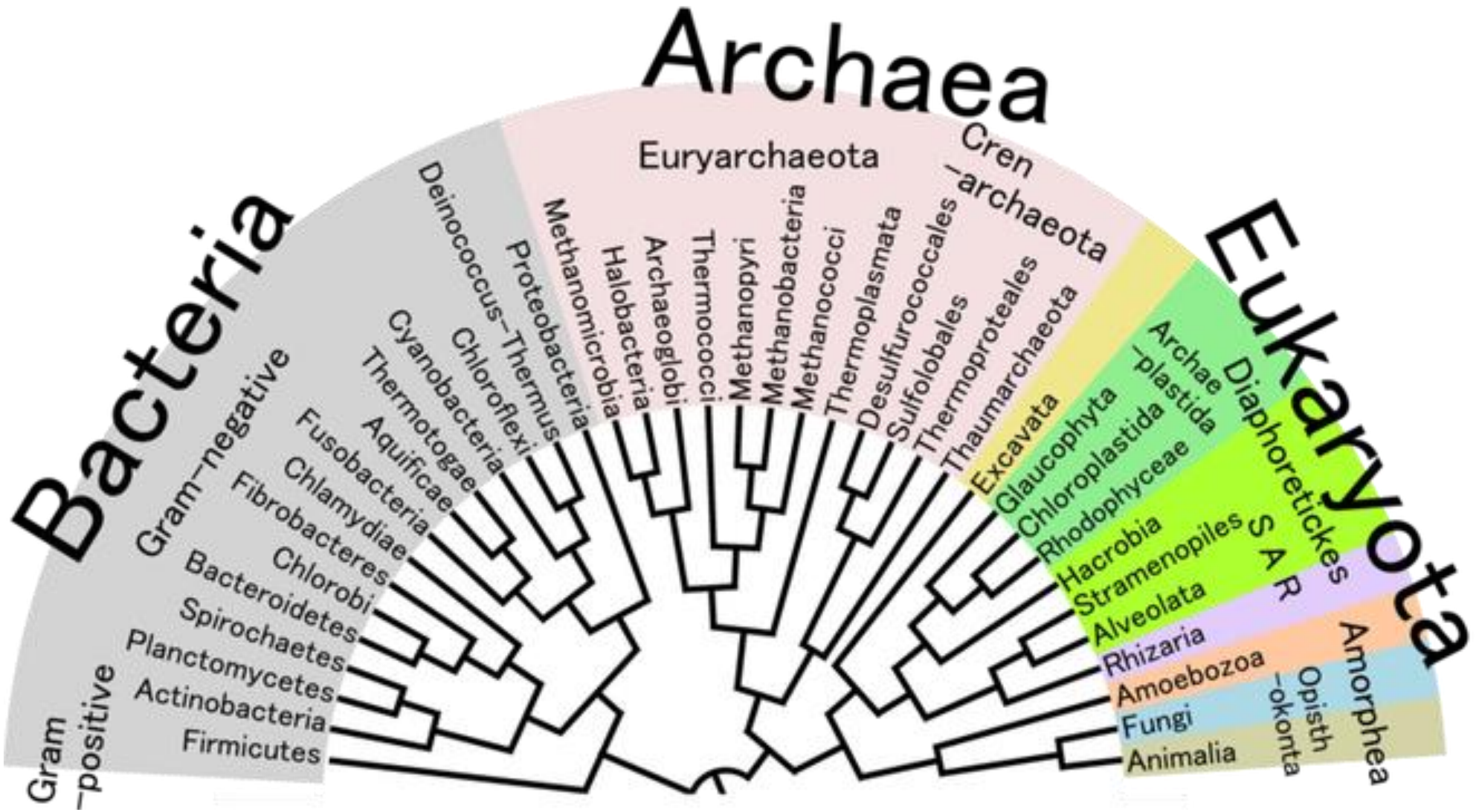

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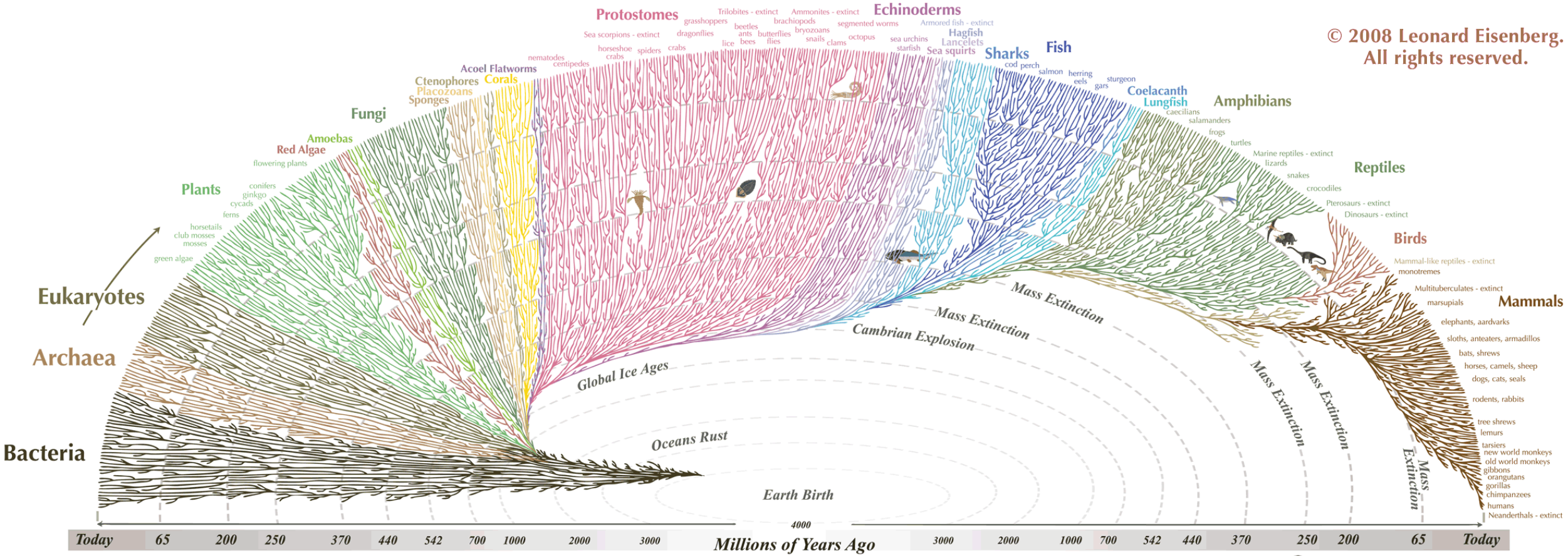

All the major and many of the minor living branches of life are shown on this diagram, but only a few of those that have gone extinct are shown. Example: Dinosaurs - extinct