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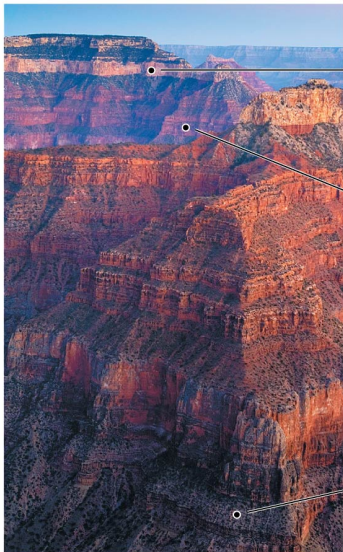
Fossils

Younger rock layers

Older rock layers

Tracks from a mammal-like reptile
~275 mya

Fern
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Trilobite
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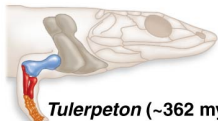- Extinction is one piece of evidence that species are changing

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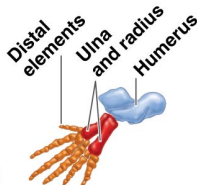   - *But not very convincing evidence!*

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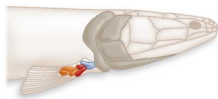   - *But not very convincing evidence!*

Transitional forms

Distal elements, Ulna and radius, Humerus

Tulerpeton (~362 mya)

Acanthostega (~365 mya)

Tiktaalik (~375 mya)

Fin rays

Eusthenopteron (~385 mya)

▶ When a species disappears from the fossil record, a similar species often appears

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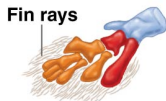*Tulerpeton* (~362 mya)

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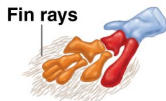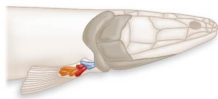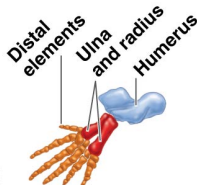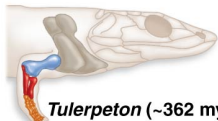
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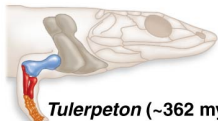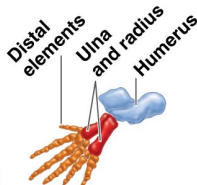*Tulerpeton* (~362 mya)

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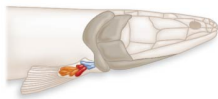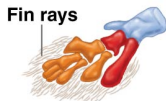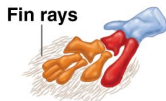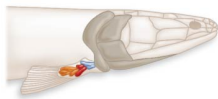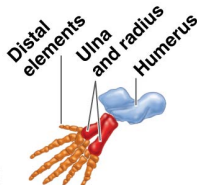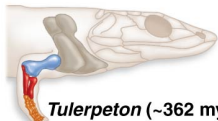*Tulerpeton* (~362 mya)

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Tuberculosis

PROCESS: EVOLUTION OF DRUG RESISTANCE

M. tuberculosis in lung tissue

1. A chance mutation occurs.

Mutant cell
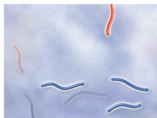
2. Drug therapy kills most bacteria without the mutation.

3. Mutant cells proliferate.

4. Drug therapy is ineffective against mutant cells.

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(a) Pattern: Although the Galápagos mockingbirds are extremely similar, distinct species are found on different islands.

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Nesomimus trifasciatus

Nesomimus melanotis

Nesomimus macdonaldi

(b) Recent data support Darwin's hypothesis that the Galápagos mockingbirds share a common ancestor.

N. parvulus (Santa Cruz)
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N. melanotis (San Cristobal)
N. parvulus (Genovesa)
N. macdonaldi (Española)

Common ancestor

Mockingbird species from the Caribbean and Gulf of Mexico

Islands where species are found

Galápagos Islands

Genovesa
Marchena
Santiago
Santa Cruz
Isabela
Floreana
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Common ancestor

50 km

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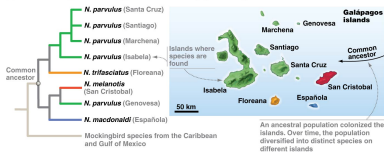
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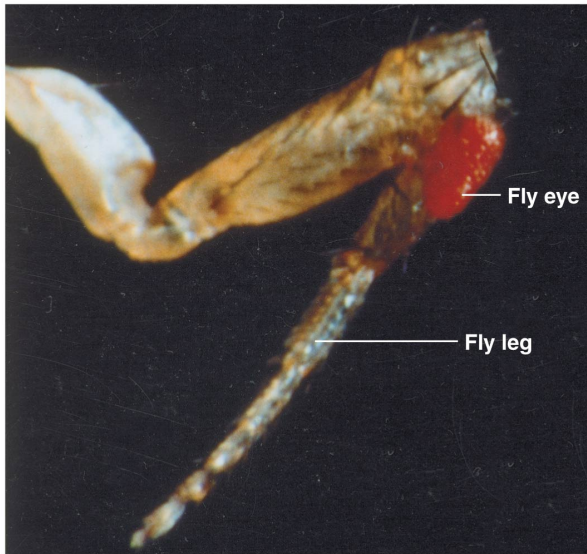 - The genetic code itself is shared (with rare, minor exceptions) by all living organisms
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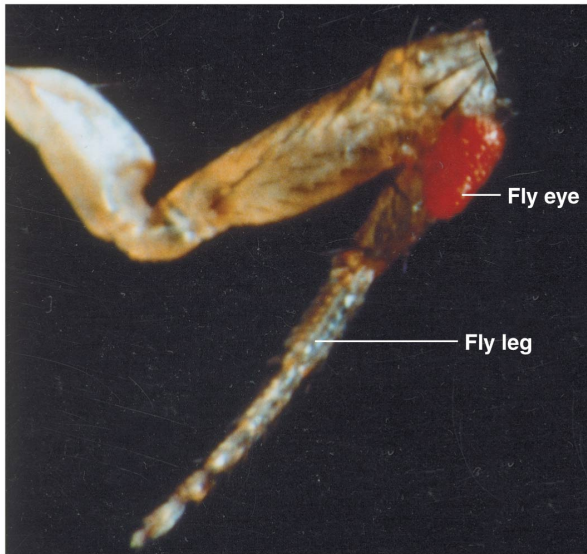
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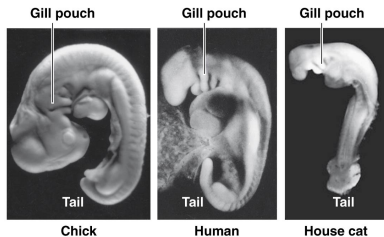
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Chick   Human   House cat

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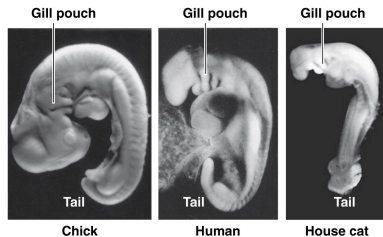
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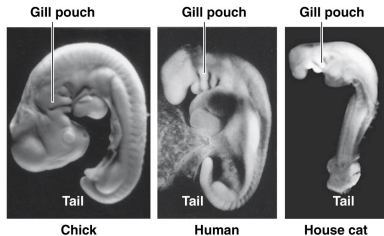- **Developmental homology** is homology in the traits of **embryos** (developing organisms)
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Structural homology

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Carpals
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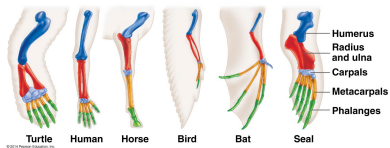
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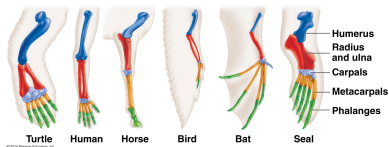
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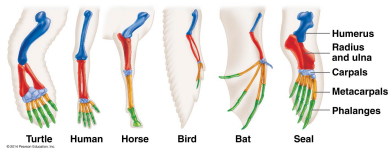
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Other examples

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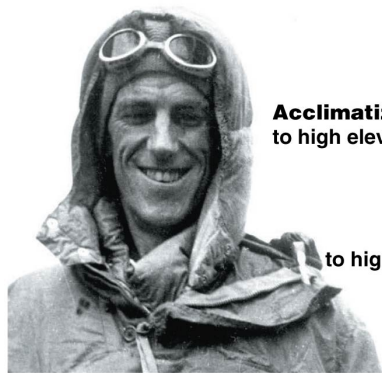
Acclimatized to high elevation

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