

ADAPTIVE RADIATION

SOURCE UNKNOWN

Directional selection in different lines of evolution from a common ancestor produces the pattern of evolution known as adaptive radiation. This exercise has been designed to illustrate certain concepts in evolutionary theory.

Each of the animals on the following pages represents a particular stage of evolutionary development. These creatures do not represent animals on Earth today or in the past, but do reflect certain evolutionary trends. It should be noted that the animals may only represent an ancestral type, not necessarily the actual ancestor.

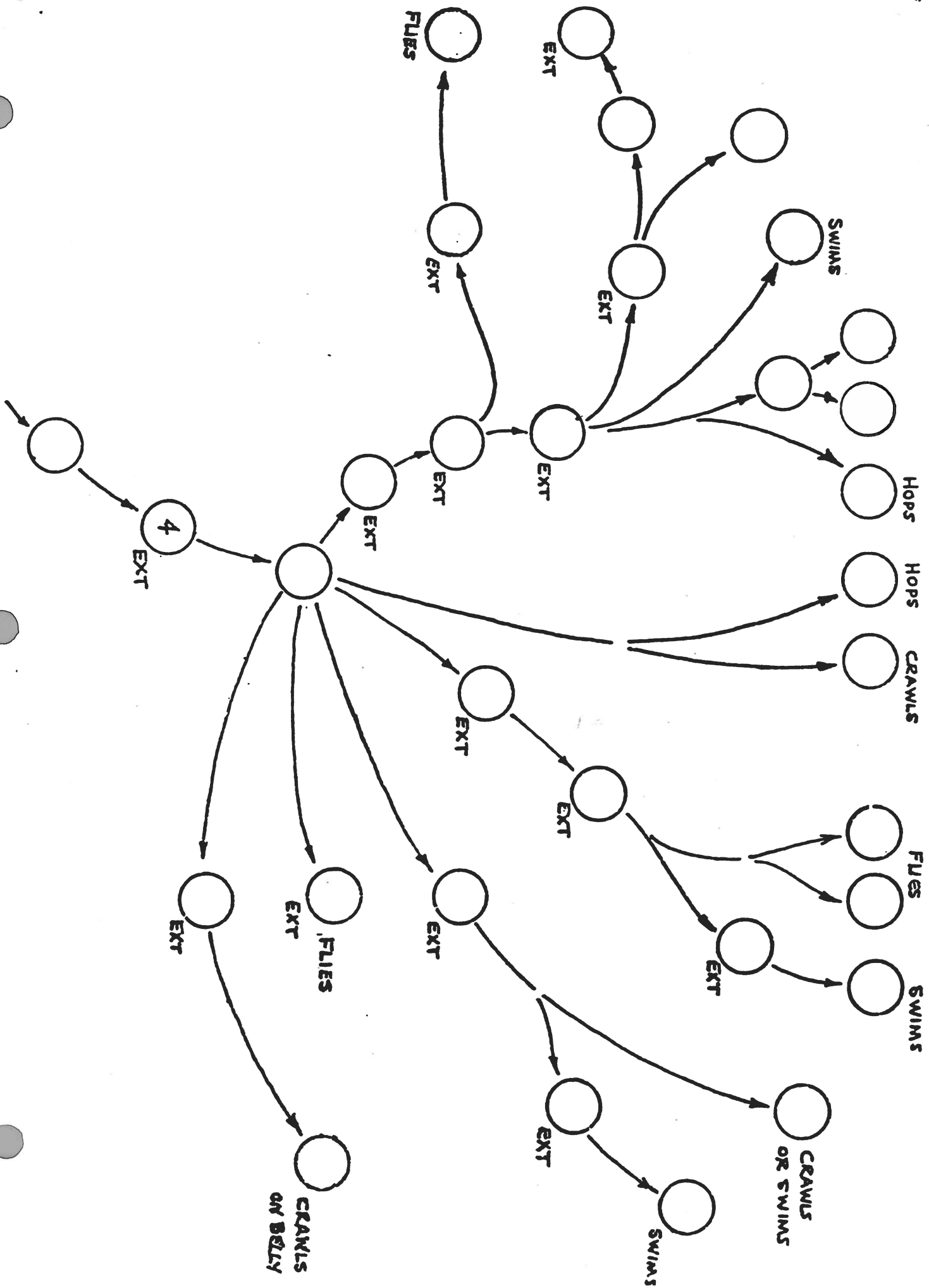
Cut out the pictures and attempt to arrange them in a pattern that shows the evolutionary relationship between them. Record your results on page five by placing the number of the animal in the appropriate space. You have been given some clues to assist you.

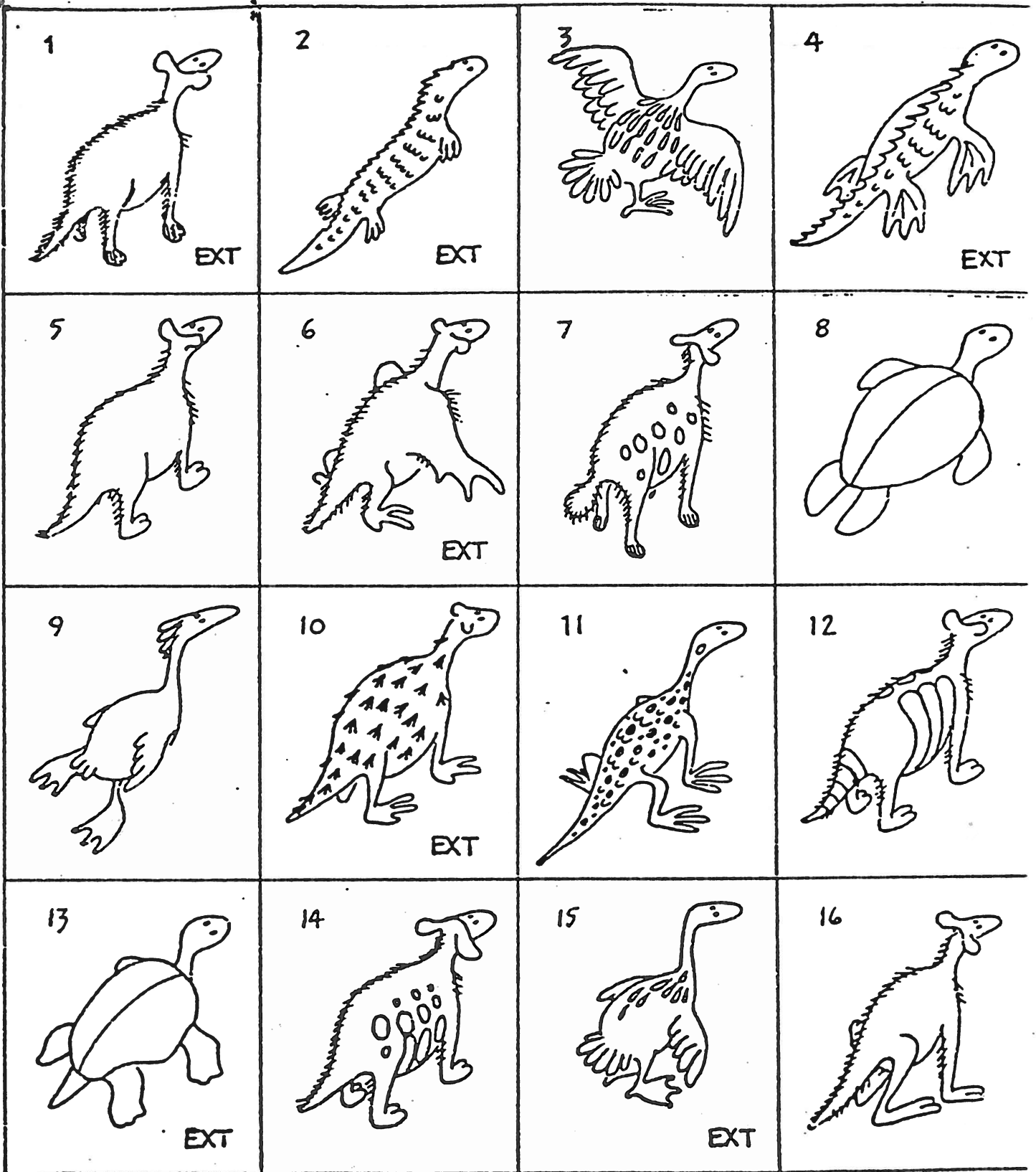
The following concepts should be kept in mind.

- Present day organisms can often be traced back to a common ancestor.
- Evolutionary development initially proceeds from simple to complex. Later adaptation may result in apparently simpler forms.
- New structures may evolve and old structures may be lost.
- Evolutionary change occurs through small structural changes.
- Divergent and parallel evolution can occur from a common ancestor.
- Certain well-adapted ancestral types may survive while forms descended from them have become extinct.

After you have completed the task, answer the following questions:

1. What factors do you believe could cause an unspecialized ancestral type to evolve in many different directions?
2. Where in this exercise are the following illustrated:
 - a) evolution to a simpler form.
 - b) old structures lost.
 - c) old structures modified for new functions.
 - d) survival of ancestral types with the extinction of descendants.
 - e) parallel evolution.
3. Which of the animals are likely to be different species of the same genus?
4. What factors might have caused the extinction of number 19?



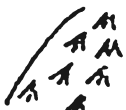


hair



scales

EXT = known only from the fossil record



hair-like scales



feathers

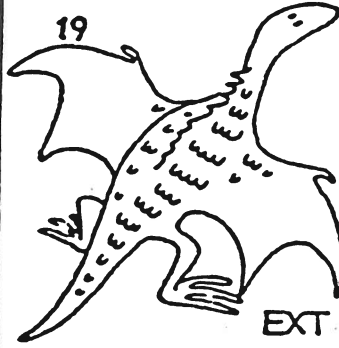
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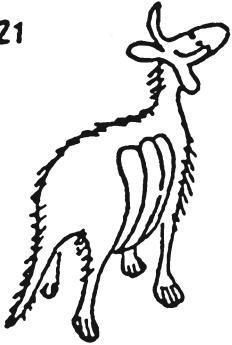
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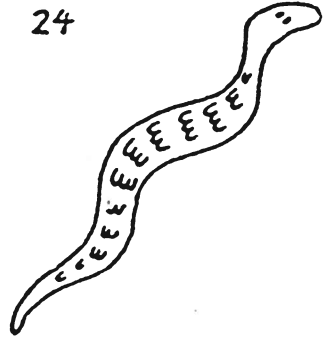
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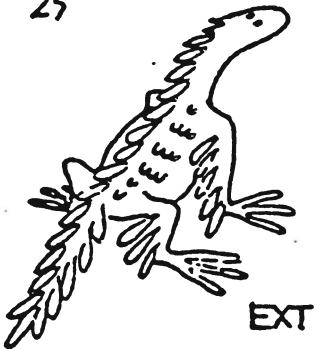
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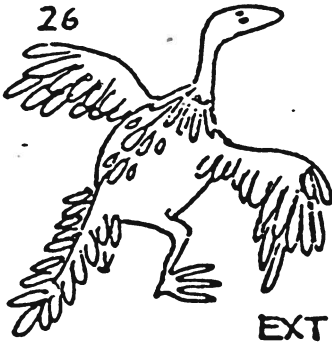
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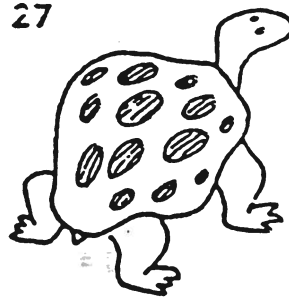
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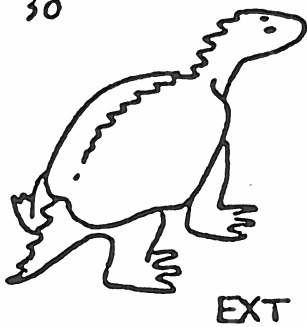
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