GECKODAILY CLASSROOM RESOURCES · EDUCATOR GUIDE

Comparative Reptile Biology: Five Geckos, Five Strategies

GRADE BAND
Upper high school through introductory college biology

DURATION
One 45-60 minute class period (extendable to two with the full activity below)

Learning objectives

- Compare and contrast reproductive strategies across squamate reptiles, including oviparity, temperature-dependent sex determination, and obligate parthenogenesis.
- Identify examples of convergent evolution (adhesive toe pads evolving independently in two different families) and shared ancestry (eyelids and clawed toes shared within family Eublepharidae).
- Use IUCN Red List categories to connect classroom taxonomy to real conservation status, using the crested gecko's Vulnerable listing and 1994 rediscovery as a case study.
- Practice reading and interpreting a comparative data table across multiple species.

Materials

- Comparative Reptile Biology Chart (this PDF set - print one per student or pair)
- Species Fact Sheets for each of the five species (print the subset relevant to your activity, or all five for the full comparison)
- Species Adaptations & Physiology Worksheets (optional - assign per student or per station)
- Reptile Biology Glossary (keep visible or distribute as a reference handout)

Warm-up

Show students the five common names (Leopard Gecko, Crested Gecko, Bearded Dragon, Mourning Gecko, African Fat-Tailed Gecko) without further detail. Ask: 'These are all often called reptiles kept as pets. Do you think they reproduce the same way? Are they all active at the same time of day?' Collect a few predictions before revealing the comparison chart.

Activity outline

- **Step 1.** Divide students into five groups (or five stations), one per species. Each group reads that species' Fact Sheet and completes the matching Adaptations & Physiology Worksheet.
- **Step 2.** Regroup so that each new group has one representative from each original species group (a jigsaw structure). Each representative teaches the others their species' key reproductive strategy and one notable adaptation.
- **Step 3.** As a full class, fill in the Comparative Reptile Biology Chart together, row by row, using what each jigsaw group reported.
- **Step 4.** Close with the discussion questions below, using the completed chart as shared evidence.

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Discussion questions

- Which two species are most closely related (same family), and which two traits do they share as a result?
- Which species' toe pads are the result of convergent evolution rather than shared ancestry? What is the evidence?
- Why might obligate parthenogenesis be an advantage for a species spreading across many isolated islands, but a potential long-term genetic risk?
- The crested gecko was presumed extinct for over a century. What does its 1994 rediscovery suggest about the limits of assuming a species is extinct from an absence of sightings?
- Four of the five species are nocturnal or cathemeral, and one (the bearded dragon) is strongly diurnal. What trade-offs might explain why a species would evolve to be active by day versus by night in a hot, dry environment?

Extensions

- Have students research one additional gecko or lizard species not covered here and add a row to their own copy of the comparison chart.
- Assign a short written comparison of temperature-dependent sex determination (leopard and fat-tailed geckos) versus temperature-overridden chromosomal sex determination (bearded dragon) as a bridge into a genetics unit.
- For an ecology extension, have students look up the current IUCN Red List entry for the crested gecko online and summarise what has changed, if anything, since this sheet was written.

A note on adapting this plan

This outline is written to be adapted freely - swap in local curriculum standards, shorten the jigsaw activity to a single-species read for a shorter period, or use the Fact Sheets alone as pre-reading before a lab or museum visit.