

VCE Biology – Exploring Evolutionary Change

Your Mission: The Leadbeater’s Possum is one of Australia’s most critically endangered mammals. With fewer than 50 lowland individuals left in the wild, scientists call this a “race against time.” Your mission is to act as a conservation biologist, using evidence, data, and creative problem-solving to help secure the species’ survival.

Pre-Visit Activity

Know your species	30 mins	Activity: Read the ABC article . Task: Extract key intelligence. <ul style="list-style-type: none"> What is the current population estimate in Yellingbo? What role do old-growth trees play? Why is the breeding program urgent? What genetic dangers exist in such a small population?
Simulating evolution under pressure	15 mins	Activity: Use a simple genetics simulator (e.g., BioMan Allele Frequency Sim). Task: Model how allele frequencies might change if possums: <ul style="list-style-type: none"> Stay isolated Receive gene flow from other populations
Critical countdown	10 mins	Activity: Team brainstorm. Task: Imagine it’s 2035. Possum numbers rise to 100. Which mechanisms of evolution (mutation, drift, gene flow, natural selection) will matter most? Share your “Top 3” as a crew.

Post-Visit Activity

Data detectives	20 mins	Activity: Use your YRTS morphology & DNA results. Mission Task: <ul style="list-style-type: none"> • Compare Leadbeater's vs. Sugar Glider traits • Match your gel/PCR results to species ID • Evaluate: what can morphology tell us, and where does it fail?
Conservation Dilemma Simulation	15 mins	Activity: Choose between three funding options (A – captive breeding, B – artificial hollows, C – gene rescue). Mission Task: Argue which strategy should be prioritised, using evidence from your data + the ABC article. Record your reasoning as a group pitch.
Communication Challenge: Save Our Species	10 mins	Activity: Create a short persuasive piece (choose: infographic, TikTok, podcast snippet, or 4-sentence pitch). Mission Task: Convince the Victorian public that saving Leadbeater's possum matters for biodiversity and ecosystem health.
Future Tech Scouts	5 mins	Activity: Quickfire brainstorm. Mission Task: Suggest one scientific tool (e.g., AI nest-box cameras, gene editing, eDNA surveys) that could transform conservation in the next 10–20 years.