# BIODIVERSITY AND ECOSYSTEM HEALTH LESSON PLAN

Introduce biodiversity and why it is so important in maintaining healthy ecosystems. Investigate why species populations fluctuate and what impact this can have on the health of the ecosystem. Read about the Galapagos Giant Tortoise – a keystone species.

**Resources required:** Biodiversity and Ecosystem Health handout, population factors cards, Galapagos giant tortoise factsheet, link to species index.

### 1. FIRE STARTER

Ask students for a definition of Biodiversity – they may want to partition the word – bio and diverse. Share their ideas and scribe a definition together. Ask students to discuss the following questions: Why does Galapagos have high biodiversity? Why is biodiversity so important? Share ideas. You can refer to the Biodiversity and Ecosystem Health handout for further information.

### 2. GAINING GROUND

Ask students what factors could affect population numbers of species. Scribe their ideas. Explain the difference between density-dependent and density-independent factors (refer to the Biodiversity and Ecosystem Health handout for explanation) Give pairs/groups a set of population factors cards. Ask them to decide whether they are density-dependent or density-independent. Explain their decisions.

### 3. MAKING WAVES

Introduce the Galapagos giant tortoise as a keystone species and its importance in maintaining a balanced and healthy ecosystem of the islands. Read about how their population has greatly declined and what affect this may have on the biodiversity of ecosystems.

The Galapagos giant tortoise factsheet provides further information.

### LEARNING OBJECTIVES

- To know that species populations fluctuate according to a range of factors
- To understand biodiversity can improve the health of an ecosystem
- To appreciate that the fluctuation in size of one species population can affect other species populations

### STUDENTS' OUTCOMES

- To give examples of factors that affect species population sizes. Should refer to density-dependent and density-independent factors
- To explain how biodiversity can improve the ecosystem health and their ability to cope with environmental change

### KEY VOCABULARY:

Biodiversity, ecosystem, keystone species, population fluctuation, density dependent factors, density independent factors