

Extinction

Extinction by replacement

Pa I **F** 10 min

Students calculate how long it will take for a species to become extinct which is decreasing in numbers by 1% or 2% each year while the competitor is increasing by the same amount each year. This can lead to a discussion on how low the numbers must be before the chance of finding a mate is negligible; and on how quickly one species will replace another.

Triops

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You can buy Triops' eggs and grow them in the classroom. This animal lives in fresh water lakes which often dry up. It has been around for more than 300 m.a. It has remarkable survival strategies. This can lead to a good discussion on how it survives. See "Planet Earth" Winter 2008. Published by the Natural Environment Research Council.

Idea taken from Chris Bedford

Extinction and continental drift

Pa I 30 min or G 45 min **F**

This exercise is to show the effects of the continents coming together on the variety of species. There are four continents each with different land, littoral and shallow marine species. As the continents collide so species come into competition and so some survive and some become extinct. This can be done as a paper exercise for individual students or with the class divided into 4 groups each owning an island with a set of species which compete as the islands collide.

KT mass extinction

Pa I 45 min

Students summarise the arguments for a meteoric and a volcanic cause of the mass extinction either from a written source or from the power point presentation by Rosalind White, free from Dept of Geology, Leicester University LE1 7RH.

How much gas to kill the dinosaurs

Pa I 10 min **F**

Students calculate the annual yield of sulphur dioxide from the Deccan traps which erupted 1.3 million km³ of lava over about 0.5 m.a. Many of the lava flows have volumes of over 100km³ and would have been extruded over a period of 1 to 10 years. Measurements suggest each cubic kilometre of lava have released 4.5 million tons of SO².

(Taken from Sulphur in Deccan Magmas by Stephen Sparks, Science vol 319 21st March 2008 p1654-1656)

Volcanoes and meteorites

Pa I 20 min

Students plot the times of mass extinctions, major meteorites and major eruptions to see that there is no clear relationship to between them.

Cascade

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If one key species becomes extinct this may cause a number of dependant species to also die out and could lead to a mass extinction. Students discuss the effect of squirrels dying out (oak trees depend on squirrels to bury their acorns and oak trees are home to many types of insect which in turn nourish insectivorous birds and bats) and of honey bees becoming extinct (honey bees fertilise a large variety of wild and domesticated plants)