

Running the fossilisation film backwards Bringing a fossil 'back to life'

This activity uses examples to 'bring fossils to life' for pupils by asking them to imagine a film being taken of an animal as it dies and sinks to the ground before being fossilised. They then 'run the film backwards' imagining in reverse how the animal actually did sink to the ground and how it lived before that fatal moment. All the photos used here show the fossil lying on the bed where it came to rest.

Horseshoe crab



Horseshoe crab fossil (length about 20 cm) – specimen in the Jura Museum, Eichstätt, Bavaria.

Photo: Dee Edwards

Ask a pupil to lie on a table with his arms beneath him and his feet on the ground to mimic the body of this fossil horseshoe crab. Point out the head, the body and the tail. Ask why the limbs of the fossil cannot be seen (they are beneath the body). Then ask the pupil to 'run the film backwards' showing how the animal came to rest in this position. Expect him to slide backwards off the table, keeping his body horizontal, and to 'crawl' further backwards using his arms or to 'swim' backwards and upwards, using his arms as paddles in reverse.

Dinosaur

Ask your pupils to re-enact the final moments of this *Tarbosaurus* dinosaur fossil by 'running the film backwards'. One of them could lie down in roughly the position shown in the photograph, before trying to move from there to the original life position.



Fossil dinosaur *Tarbosaurus* (these had longer tails than is preserved here, and their bodies can be up to 10 m long)

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Ammonite



Ammonite fossil *Asteroceras* (diameter about 9 cm)

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For a more challenging activity, needing knowledge of ammonite lifestyles and more imagination, ask your pupils to 'run the film backwards' for this ammonite as a thought experiment. Ammonites, which are now extinct, probably had a lifestyle like the living *Nautilus*. The chambers inside their shells contained gases allowing them to float vertically in the water with the largest chambers at the bottom. The animal lived within the largest chamber, using tentacles for feeding, and squirting out water to move it along through the water by 'jet propulsion'.

Fossils from your collection

Try to bring fossils from your collection 'to life' by 'running the film backwards' for them as well.

The back up

Title: Running the fossilisation film backwards

Subtitle: Bringing a fossil 'back to life'

Topic: A thought experiment, including possible re-enactment, to recreate the likely 'final moments' of an animal which later became a fossil.

Age range of pupils: 5 – 18 years

Time needed to complete activity: 5 minutes or more depending upon how many times the activity is run.

Pupil learning outcomes: Pupils can:

- explain that a fossil is the remains of a once-living organism;
- imagine and describe (or re-enact) the final moments of an animal before death prior to fossilisation.

Context:

The activity provides examples of how to 'run the fossilisation film' backwards to help pupils to visualise what a fossil may have looked and acted like during life and in the few moments before death.

The dying trail of the horseshoe crab (*Mesolimulus walchi*) pictured above has actually been preserved and is shown below, indicating how the animal apparently 'staggered' to its last resting place. Did any of your pupils get close to this?



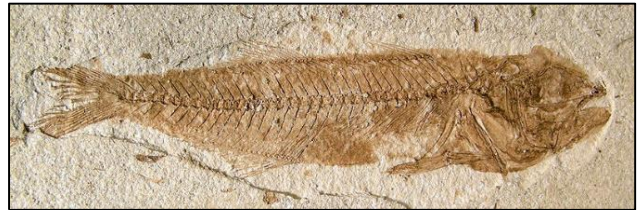
Horseshoe crab fossil and trail – specimen in the Jura Museum, Eichstätt, Bavaria

Photo: Dee Edwards

The activity can be based on any well-preserved fossil in its final resting place in the rock. These could be real fossils, plaster casts or photographs, such as those used in the activity above, or the fish photograph below.

Following up the activity:

Try 'running the film backwards' to work out how this fossil fish might have lived.



Fossil fish *Percomorph* (these can be 50 cm long)

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Try the 'What was it like to be there' Earthlearningideas to visualise what the environments where the animals were fossilised were like at the time.

Underlying principles:

- Fossils are the remains of living organisms.
- Elements of the lifestyles of fossils can be visualised from their preserved characteristics, together with evidence from other sources such as living organisms, exceptionally well-preserved specimens and evidence preserved in the rocks in which the fossils are found.

Thinking skill development:

Pupils have to bridge between the fossils they are shown and the original lifestyle of the 'real thing' by using their imagination and creativity and possibly their role-playing and acting skills.

Resource list:

- well-preserved fossils as original fossils, plaster casts or photographs

Useful links:

See the U-tube animation of fossilisation at: <http://www.youtube.com/watch?v=SEdfRy6DQns>

Source: Devised by Chris King of the Earthlearningidea Team; Dee Edwards suggested using the horseshoe crab example and kindly provided the photos.

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