

Modelling folding – by hand Using your hands to demonstrate different fold features

The features of folds and their names can be shown by using your hands, like this:

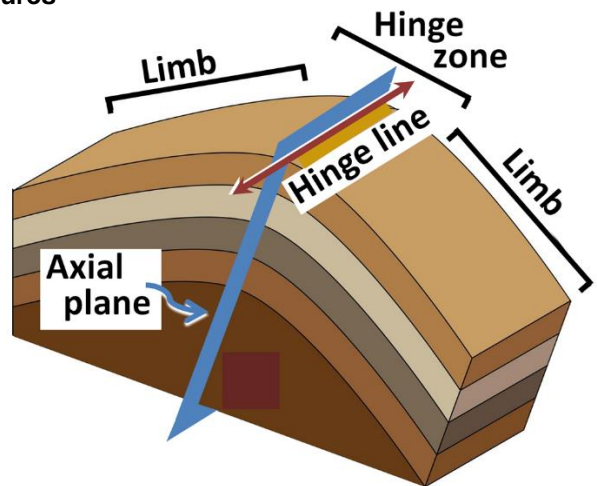
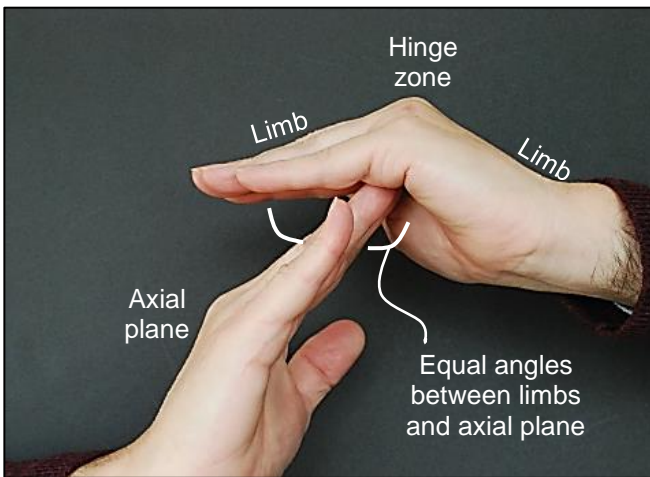
Antiform and synform



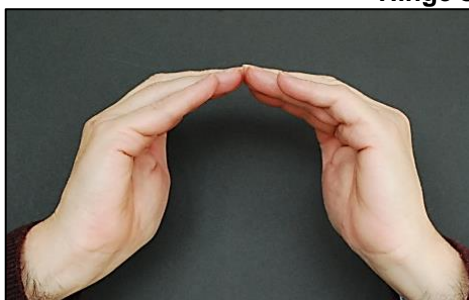
Antiform on the left, synform on the right. Where rock sequences have not been overturned, antiforms = anticlines and synforms = synclines.

Folded limestone, Glaserbachklamm, Germany.

Fold features



Hinge shape

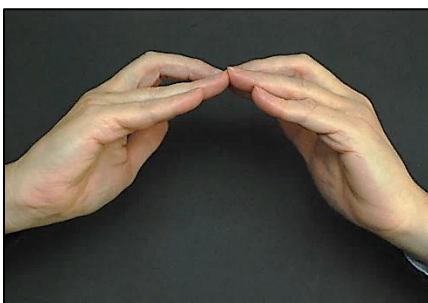


Rounded hinge.



Angular hinge.

Fold tightness



Open fold, angle between limbs (hinge angle) greater than 70°.



Tight fold, hinge angle less than 70°.



Isoclinal fold, parallel limbs.

Fold attitude



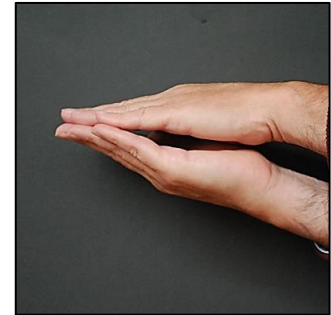
Upright fold, axial plane (AP) vertical.



Inclined fold, AP inclined.

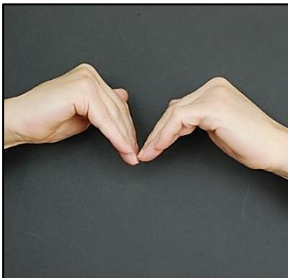


Overturned fold, one limb tilted more than 90°.

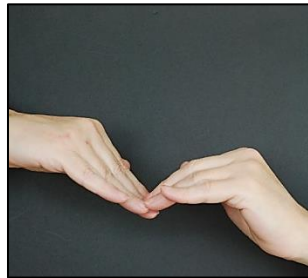


Recumbent fold, lying on its side.

Fold symmetry



Symmetrical fold, limbs have equal lengths.



Asymmetrical fold, one limb is longer than the other.



Symmetrical folds in Crete.



Asymmetrical fold, Orkney, UK.

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The back up

Title: Modelling folding – by hand.

Subtitle: Using your hands to demonstrate different fold features.

Topic: Pupils use their hands to demonstrate different elements of folding in rocks.

Age range of pupils: 14 years upwards

Time needed to complete activity: 10 minutes

Pupil learning outcomes: Pupils can:

- describe rock folding using the correct terminology;
- demonstrate this with their hands.

Context:

The educational advantages of using your hands to model geoscience features and processes have been explained in the Earthlearningidea, *Rock cycle at your fingertips*.

Describing folding in rocks involves complex terminology. Through this activity, pupils use their hands to model and name the different terms used.

Following up the activity:

Extra terminology of rock folding can be demonstrated using your hands through the Earthlearningideas: *'Right way up or upside down? modelling antiforms and synforms by hand - use your hands to show how folds can be the right way up or inverted'* and *'Visualising plunging folds: with a piece of paper and your hands - using your hands and folded and torn paper to show the patterns made by plunging folds'*.

Pupils could be asked for different ways of illustrating the terminology of rock folding, they might suggest:

- drawing and labelling folds on paper or a white- or black-board;
- making and labelling paper models;
- using modelling clay and labelling the features with sticky labels.

Underlying principles:

- Much of the terminology for describing folds can be illustrated using your hands.

Thinking skill development:

Illustrating folding terminology with your hands involves construction, relating the hand models to real world folded rocks involves bridging.

Resource list:

- just your hands

Source: Devised by Chris King; photos by Peter Kennett, both of the Earthlearningidea Team.

Useful links:

See: <http://www.geologypage.com/2015/12/geological-folds.html>

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The Earthlearningidea hand-modelling activities	
Modelling Earth processes	The rock cycle at your fingertips: modelling the rock cycle with your fingers
	Plate margins by hand: modelling plate margins and plate movement with your hands
	Modelling by hand 'when the youngest rock is not on top': illustrating how rock sequences can have older rocks on top of younger ones
	Modelling unconformity – by hand: using your hands to demonstrate how unconformities form
Modelling structural geology nomenclature	Modelling Earth stresses isometrically: using your hands to model Earth stresses
	Modelling folding – by hand: using your hands to demonstrate different fold features
	Right way up or upside down? - modelling anti- and synforms by hand: use your hands to show how folds can be the right way up or inverted
	Visualising plunging folds - with a piece of paper and your hands: using your hands and folded and torn paper to show the patterns made by plunging folds
Climate change activities	Modelling faulting – by hand: using your hands to demonstrate different fault features
	The Earth during Milankovitch cycles – by hand: modelling the Earth's squashed orbit, tilt and wobble using your hands
	Modelling tipping points – by hands: demonstrating tipping points in the Earth's system with the hands of three pupils