

Wonderchicken teachers notes

Wonderchicken has one of the best preserved fossil bird skulls in the world. Use this online display to find out how CT scanning can help us visualise delicate fossils without damaging them, how we reconstruct an animal that no one has ever seen and how close observation of features help us to identify a fossils closest relatives.

Curriculum links

Science: Evolution and inheritance, Living things and their habitats. **Art:** Illustration

Resources

- Dawn of the Wonder Chicken online display

<https://wserv4.esc.cam.ac.uk/online-exhibitions/index.php/Shorthand/dawn-of-the-wonderchicken-2/>

- Duck photos <https://www.flickr.com/photos/131708321@N02/albums/72157684427852883>
- Chicken photos <https://www.flickr.com/photos/131708321@N02/albums/72157686934966996>
- Sketchfab <https://sketchfab.com>

Classification

Daniel and his colleagues compared hundreds of anatomical features of the Wonderchicken with those of major groups of living birds.

Look: Use Daniel's photography site to look at lots of pictures of ducks and chickens.

Think: What characteristics do the duck group share? What characteristics do the chicken group share? Eg Beak shape, leg length.

Do: Can you make any smaller groupings? Eg ducks with long legs. How do the characteristics you have identified help them survive? Eg webbed feet for swimming.

Use your list of characteristics to make a classification key to help someone decide if a bird is in the Anseriformes - the duck group or Galliformes - the chicken group. Swap your key with another group to check it works or if it needs refining. Wonderchicken has duck and chicken characteristics meaning it is close to the common ancestor of duck-like birds and chicken-like birds.

Using technology

Daniel's team have been able to study the details in this tiny, fragile skull because they didn't have to remove it from the rock and risk damaging it. They used high-resolution microCT scanning to image the skull while it was still in the rock and 3D printing to make an exact replica.

Sketchfab is a great free resource for 3D scanned fossils that can be used in the browser without downloading any software. Go to the Sketchfab site, search for 'Woodwardian Collection' this is part of the Museums founding collection, and choose the 'fossil urchin'.

Look: Do you know what creature it is?

Think: Where did it live? Research other sea urchins that are alive today, look at some photos and find out what colours living urchins are. What colour might this one have been when it was alive? Is there anything missing from this fossil that you find on living urchins?

Do: Make your own reconstruction drawing of how this urchin might have looked like when it was alive. Make notes on why you chose the colours you did and how they would help it survive in its habitat.

