

# Deinosor Cymreig Newydd

## A New Welsh Dinosaur

Yn 2014, gwnaeth dau gasglwr o'r De ddarganfyddiad mwya'u hoes wrth chwilota am ffosilau ym Mhenarth.

In 2014, two Welsh collectors made the discovery of a lifetime while fossil hunting at Penarth.

Dyma nhw'n canfod sawl bloc rhydd o graig yn cynnwys rhan o sgerbwd deinosor bychan.

They found several loose blocks containing the partial skeleton of a small dinosaur.

Mae archwiliad o'r dannedd a'r esgyrn yn awgrymu taw deinosor theropod cigysol ydoedd, yn perthyn i'r *Coelophysis*.

Grŵp o ddeinosoriaid deudroed cigysol oedd theropodau yn bennaf. Dyma gyndeidiau ein hadar ni heddiw, ac roedd gan ambell un plu!

Theropods were a group of mostly carnivorous, bipedal dinosaurs. They are the ancestors of all birds, and some had feathers!

Examination of the teeth and bones suggests it is a meat-eating theropod dinosaur, related to *Coelophysis*.

Cafodd ei sgubo i'r môr mawr naill ai ar ôl disgyn i afon, neu ar ôl marw ar y glannau.

It was swept out to sea after falling into a river, or dying on the shore.

Roedd yn byw yn nechrau'r cyfnod Jwrasig, 201 miliwn o flynyddoedd yn ôl.

Theropod bach main oedd y *Coelophysis*, oedd yn byw yn ne'r Unol Daleithiau. Roedd yn tyfu hyd at 3m o hyd.

*Coelophysis* was a small, slender theropod, found in southern USA. It grew up to 3m long.

It lived at the very earliest part of the Jurassic Period, 201 million years ago.

Ail-greu'r deinosor newydd Cymreig.  
Reconstruction of the appearance of the new Welsh dinosaur.



Mae rhigol yn asgwrn y grafanc lle'r oedd y wain geratinaidd finio yn sownd.

The claw bone shows a groove where the sharp keratinous sheath was attached.



Mae ganddo ddannedd miniog.  
Its teeth have sharp serrated edges.

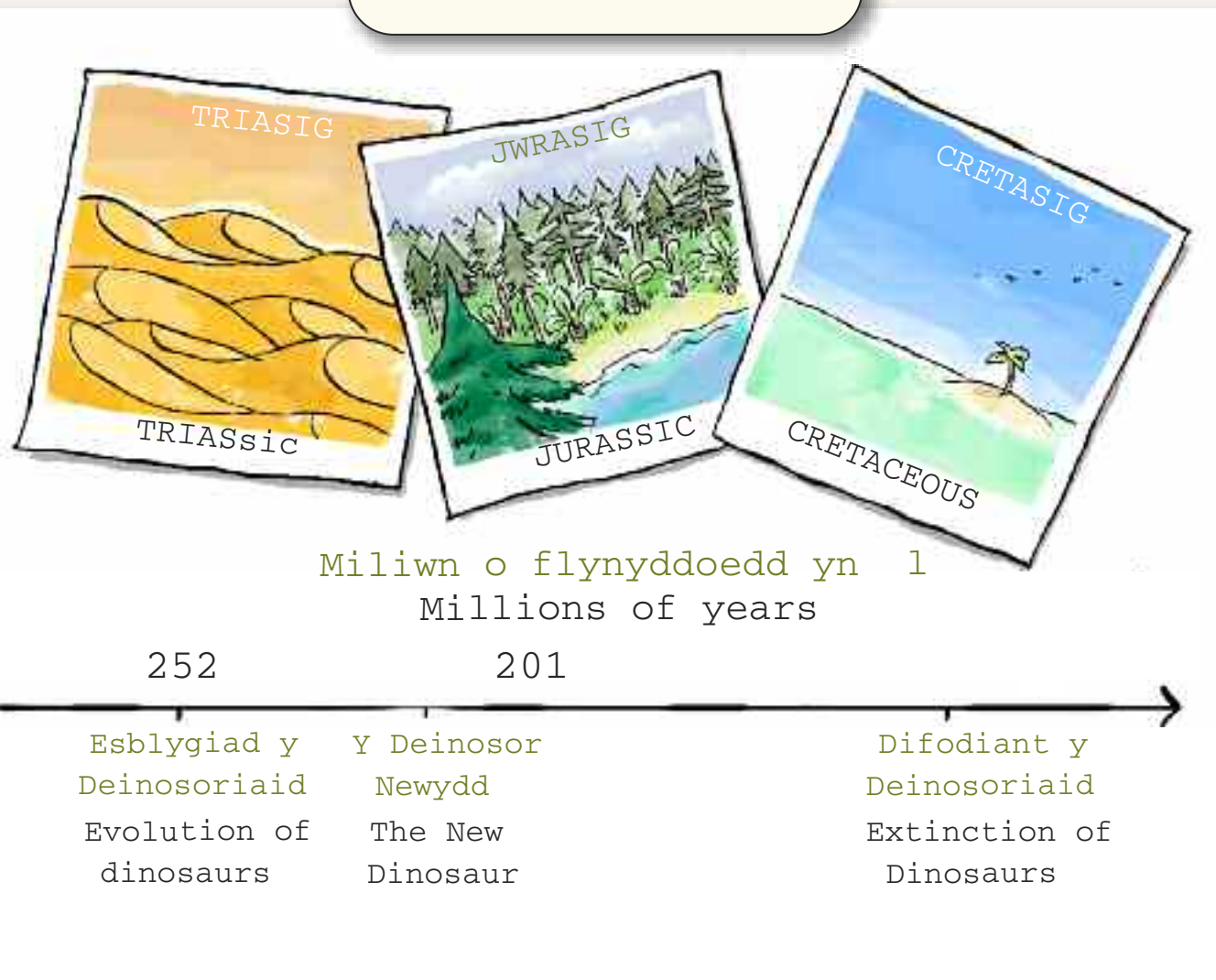


Mae'r tibia a'r fibwla (esgyrn rhan isa'r goes) wedi'u cadw ar ffurf tri dimensiwn.

The tibia and fibula (lower leg bones) are preserved in three dimensions.



Amserlen ddaearegol  
Geological time scale



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### Pa fath o ddeinosor yw e?

Roedd y deinosor Cymreig newydd yn gefnder pell i *Tyrannosaurus rex*, er ei fod yn byw 130 miliwn o flynyddoedd ynghynt.

Hwn oedd un o'r mathau cynharaf o ddeinosor; yn fain ac ysgafndroed, tua 50cm o daldra, gyda chynffon hir. Roedd yn ysglyfaethwr brwd fyddai'n bwyta mamaliaid bach, madfallod ac ymlusgiaid eraill.

Rydyn ni'n gwybod taw deinosor ifanc ydoedd, gan nad oedd pob asgwrn wedi ffurfio'n llawn. Ar ôl iddo farw, cafodd ei fwya'n rhannol gan bysgod, draenogod môr ac anifeiliaid ysglyfaethus eraill. Oherwydd hyn, gwasgarwyd ei esgyrn cyn ffosileiddio.

Nid yw pob asgwrn wedi goroesi, ond mae gennym ddigon yma ar gyfer ail-gread ohono. Cadwyd yr esgyrn mewn sawl bloc calchfaen a mwd a ddaeth yn rhydd o'r clogwyn wrth i'r creigiau ddisgyn a dymchwel.

### What sort of dinosaur is it?

The new Welsh dinosaur was a distant cousin of *Tyrannosaurus rex*, although it lived about 130 million years earlier.

It was one of the earliest types of dinosaurs; slender and agile, standing about 50cm tall, with a long tail. It was an active predator which ate small mammals, lizards and other reptiles.

We know it is a juvenile as not all of its bones were fully formed. After it died, the young dinosaur was partially eaten by fish, sea urchins and other scavenging animals. This caused its bones to be scattered before they were fossilised.

Not all of the bones were preserved, but we have enough to reconstruct its appearance. The bones are preserved in several blocks of limestone and mud, which fell out of the cliff in a rock fall.

*Deinosor theropod anferth o'r Unol Daleithiau oedd Tyrannosaurus rex. Roedd yn tyfu dros 12m o hyd, a hwn oedd un o'r ysglyfaethwyr mwyaf ar y tir.*

*Tyrannosaurus rex was a huge North American theropod dinosaur. It grew to over 12m long, and was one of the largest predators on land.*

Mae'r dant hwn yn dal yn sownd wrth yr ên.  
This tooth is still attached to the jaw.



Mae llawer o ddarnau o ffosilau draenogod môr ysglyfaethus yng nghyffiniau'r esgyrn.

There are many pieces of scavenging fossil sea urchins scattered around the bones.



Mae'r rhan fwyaf o esgyrn y dwylo a'r bysedd yma.  
Most of the hand and finger bones are preserved.



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### Oes yna ddeinورياid Cymreig eraill?

Y sbesimen hwn yw'r sgerbwdd theropod cyntaf i'w ddarganfod yma, ond nid dyma'r unig ffosil deinosor o Gymru.

Mae esgyrn a dannedd deinورياid cigysol eraill wedi'u canfod yng Nghymru, sy'n awgrymu bod theropodau bach a mawr yn byw yma. Cafodd darn o asgwrn gèn â sawl dant, o ddeinosor tua 8m o hyd a berthynai i'r *Megalosaurus*, ei ddarganfod ger Pen-y-bont ar Ogwr.

Yn y 1950au, cafodd rhan o sgerbwdd deinosor ei ddarganfod mewn chwarel ger y Bont-faen. Deinosor ifanc oedd hwnnw hefyd a chafodd ei enwi'n *Pantydraco caduci*. Deinosor sauropodomorff llysysol, bach oedd hwn, yn perthyn i'r *Thecodontosaurus* a ganfuwyd mewn creigiau o oedran tebyg ger Bryste.

Gèn megalosaur drawiadol gafodd ei darganfod yn Stormy Down ger Pen-y-bont ar Ogwr ym 1898.

The impressive megalosaur jaw found in 1898 at Stormy Down, near Bridgend.



### Are there other Welsh dinosaurs?

This new specimen is not the only dinosaur fossil from Wales, but it is the first skeleton of a theropod found here.

Isolated teeth and bones of other carnivorous dinosaurs have been found in Wales. These suggest that both small and large theropods were living in this area. A piece of jaw bone containing several teeth, found near Bridgend, belonged to a dinosaur related to *Megalosaurus*, which was about 8m long.

Grŵp o ddeinورياid gwddf hir oedd yn bwyta planhigion oedd y Sauropodomorffiaid. Mae'r rhain yn cynnwys yr anifeiliaid tir mwyaf erioed, gyda rhai dros 50m o hyd.

Sauropodomorphs were a group of long-necked, plant eating dinosaurs. These include the largest ever land animals and some were over 50m long.

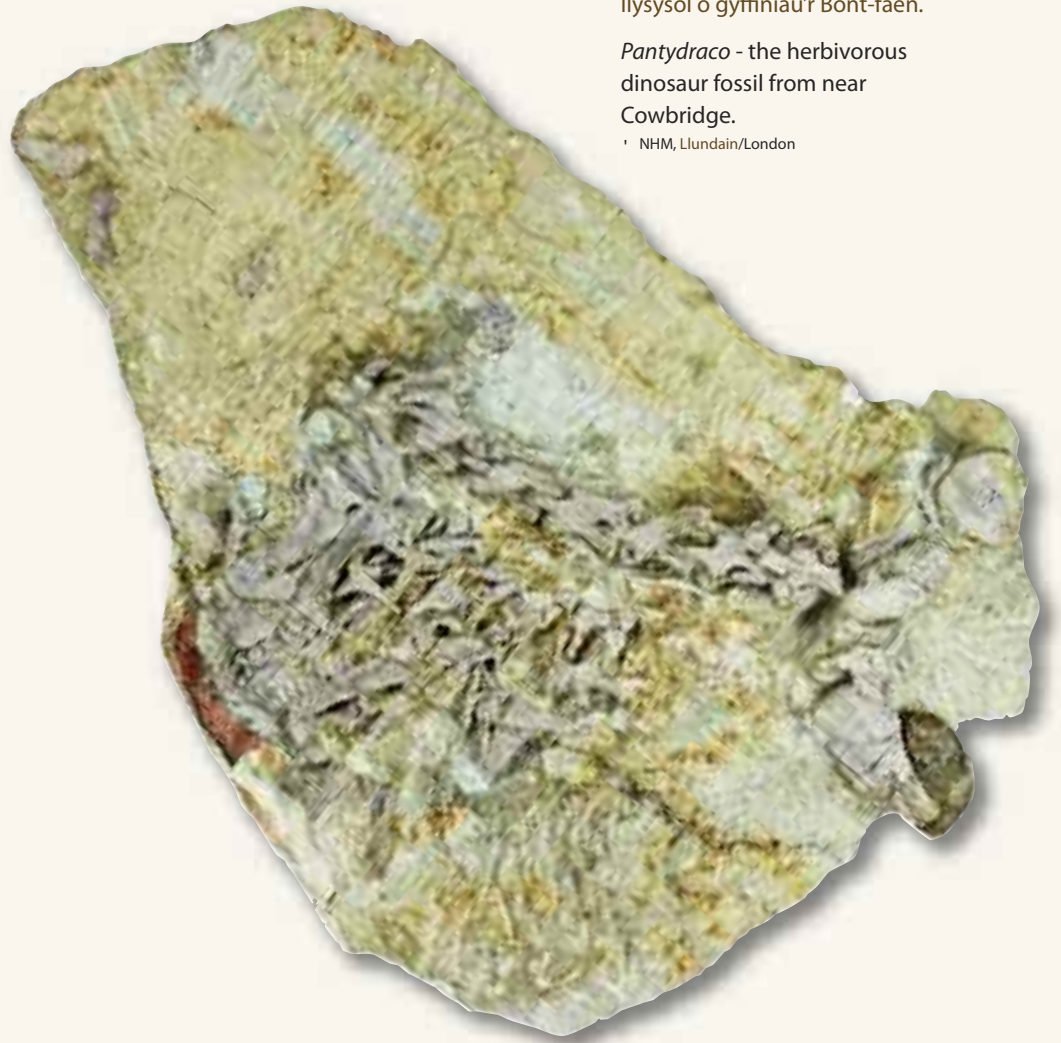
Roedd deinورياid bach llysysol *Thecodontosaurus* a *Pantydraco* yn byw tua'r un adeg â'r theropod newydd.

*Thecodontosaurus* and *Pantydraco* were small herbivorous dinosaurs which lived at around the same time as the new theropod.

In the 1950s a partial dinosaur skeleton was discovered in a quarry near Cowbridge. This was also a juvenile, and is named *Pantydraco caduci*. It was a small, plant-eating sauropodomorph dinosaur, related to *Thecodontosaurus*, found in rocks of a similar age near Bristol.

*Pantydraco* – ffosil deinosor llysysol o gyffiniau'r Bont-faen.

*Pantydraco* - the herbivorous dinosaur fossil from near Cowbridge.  
\* NHM, Llundain/London



Ail-gread o Gymru yn y Cyfnod Triasig Diweddar.

Reconstruction of Wales in the late Triassic.

\* J. Sibbick



# Deinosor Cymreig Newydd

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### Glan y môr Jwrasig Cymreig

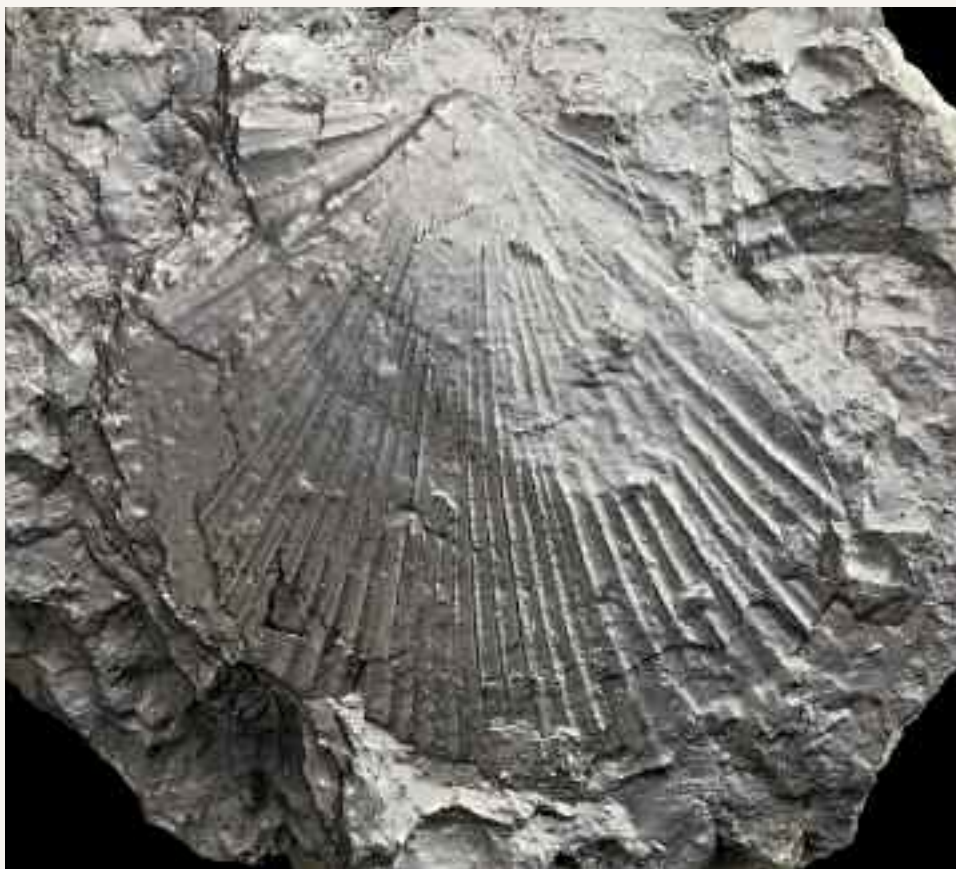
201 miliwn o flynyddoedd yn ôl, roedd arfordir de Cymru yn gynnes braf.

Diffeithdir poeth oedd Cymru amser maith yn ôl, yn y cyfnod Triasig. Erbyn dechrau'r oes Jwrasig, roedd lefel y môr yn graddol godi ac wedi gorchuddio'r tir isaf. Roedd planhigion ac anifeiliaid yn ffynnu yn yr hinsawdd wlypach.

Dechreuodd y mamaliaid cyntaf, maint llygod bach, ymgartrefu yma, gan fwyta pryfed yn bennaf. Roedd madfallod bach ac ymlusgiaid eraill yn byw yma hefyd, ac mae eu dannedd a'u hesgyrn i'w gweld mewn holltau calchfaen carbonifferaidd sydd wedi'u hail-lenwi.

Roedd ein moroedd cynnes yn gynefin i folysgiaid, cwrelau, pysgod a mamaliaid eraill y môr. Roedd amonitau go iawn yn esblygu am y tro cyntaf. Roedd ymlusgiaid morol mawr ac ysglyfaethus, fel yr ichthyosoriaid a'r plesiosoriaid, yn nofio'r dyfroedd hyn ac mae eu hesgyrn ffosiledig yn cael eu canfod yn aml.

*Chlamys*, cragen ddwyfalfog.  
*Chlamys*, a bivalve.



### A Jurassic Welsh seaside

201 million years ago, south Wales was a warm, coastal area.

Previously, in the Triassic, Wales had a hot desert environment. By the early Jurassic, the sea-level was rising steadily, and had covered the lowest areas of land. Plants and animals flourished in the wetter climate.

The very first mammals inhabited this land; these were mouse-sized and mostly ate insects. Small lizards and other reptiles also lived here, and we find their bones and teeth within infilled fissures in Carboniferous limestone.

*Roedd Cymru'n dipyn agosach at y cyhydedd 201 miliwn o flynyddoedd yn ôl, a dyna pam roedd yr hinsawdd mor gynnes.*

*201 million years ago, Wales lay much closer to the equator which is why the climate was much warmer.*

*Mae ogofâu, pantiau a holltau'n ffurfio mewn calchfaen wrth i'r graig hydoddi'n raddol mewn dŵr glaw. Mae anifeiliaid yn aml yn mynd yn sownd ynddynt, ac yn marw yn y fan a'r lle.*

*Caves, hollows and fissures form in limestone as the rock slowly dissolves in rain water. Animals often get trapped in these, and die there.*

The warm seas were home to molluscs, corals, fish and other marine animals. The first true ammonites were evolving. Large, predatory, marine reptiles, such as ichthyosaurs and plesiosaurs also swam in these waters and their fossilised bones are often found.

*Psiloceras*, amonit.  
*Psiloceras*, an ammonite.



Plesiosor.  
Plesiosaur.  
\* J.Bow



Cimwch.  
Lobster.



Penglog Ichthyosor.  
Ichthyosaur skull.



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### “Ni wedi darganfod deinosor!”

Nick a Rob Hanigan, dau frawd sy'n hanu'n wreiddiol o Lanilltud Fawr, wnaeth y darganfyddiad pwysig hwn.

Mae Nick a Rob yn chwilota am ffosilau'n rheolaidd ym Mhenarth a'r cylch. Pan glywon nhw fod clogwyn arall wedi cwmpo, dyma fynd ati i archwilio'r creigiau'n ofalus a gweld bod rhai'n cynnwys darnau o esgyrn ffosiledig. Dychwelodd y ddau i'r traeth dro ar ôl tro i chwilio am ragor o ddarnau coll, gan ridyllu'r mwd i ganfod esgyrn mân.

Ar ôl sylweddoli pwysigrwydd eu darganfyddiad, dyma drefnu i'w baratoi'n ofalus gyda chyfarpar arbenigol a chymryd castiau o'r prif slabiau. Cynhaliwyd archwiliadau pelydr-x a sganiau cyn i'r arbenigwyr gadarnhau taw deinosor newydd oedd y darganfyddiad cyffrous hwn.

Mae Nick a Rob wedi cydweithio â churaduron Amgueddfa Cymru gydol y broses. Diolch iddyn nhw am eu haelioni'n cyfrannu'r sbesimen pwysig hwn yn arbennig i'r Amgueddfa, i'w gadw a'i warchod er budd cenedlaethau'r dyfodol.

Mae'r Amgueddfa yn gofalu am gasgliad enfawr o ffosilau sy'n dangos amrywiaeth daearegol ein gwlad, yn ogystal â sbesimenau cymharol eraill o bob cwr o'r byd. Rydym yn defnyddio gwybodaeth o'r casgliad hwn sydd o bwys rhyngwladol i helpu i greu darlun o esblygiad bywyd ar y ddaear.

Nick a Rob Hanigan yn casglu'r deinosor.  
Nick and Rob Hanigan collecting the dinosaur.



Fertebra cyn, ac ar ôl, y gwaith paratoi.  
Vertebrae before and after preparation.



Esgyrn y fraich cyn, ac ar ôl, y gwaith paratoi.  
The arm bones before and after preparation.



### “We've found a dinosaur!”

This unique discovery was made by Nick and Rob Hanigan, two brothers who grew up in Llantwit Major.

Nick and Rob regularly go fossil hunting in the Penarth area. When they heard of a new cliff fall they carefully checked the fallen rocks and recognised that some contained pieces of fossilised bone. They returned to the beach many times to hunt for missing pieces, sieving the mud to find small bones.

Realising the importance of this find, they arranged for it to be carefully prepared with specialist equipment, and took casts of the main slabs. X-rays and scans were also carried out before experts confirmed the exciting discovery was indeed a new dinosaur.

Throughout the process, Nick and Rob have worked closely with curators at Amgueddfa Cymru. They are generously donating this important specimen to the Museum to preserve it for future generations.

The Museum cares for a huge collection of fossils which represents the diversity of Welsh geology, as well as comparative specimens from around the world. We use the information within this globally important collection to help build a picture of how life has evolved on Earth.

Arbenigwyr yn archwilio'r ffosil.  
Experts examining the fossil.



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### Diolchiadau:

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