



Earth science for years 5/6

# Active Earth – living fossil

Earth science for  
9 - 11 years old

The workshop is based on this pdf booklet originally prepared by the Earth Science Education Unit and now available on the [Earthlearningidea](http://Earthlearningidea.com) website. It contains a workshop summary, the outcomes, teacher guidance, risk assessments and resources lists - as in the following slides

# Earthlearningidea online video workshops

## Purpose – ESEU background

- Most Earthlearningidea online video workshops are based, with permission, on workshops originally developed by the Earth Science Education Unit (ESEU)
- These were designed as interactive workshops for teachers and trainees, involving interaction, discussion and presentations by participants to others
- Global research into professional development workshops shows that these aspects are critical to success
- ESEU research shows that this workshop approach is highly successful in changing teaching in schools; evaluation feedback has also been very strong

# Earthlearningidea online video workshops

## Purpose – Earthlearningidea development

The Earthlearningidea Team has developed the ESEU workshops into online video workshops for those unable to take part in face to face interactive workshops

Each workshop is led by a PowerPoint presentation and has an accompanying booklet that contains all the activity background details, resource lists, risk assessments, etc.

The individual workshop activities have been published for open access online at the website:

<https://www.earthlearningidea.com/>

Each workshop activity has a question script and a video keyed into CASE principles, that can be accessed through the PowerPoint hyperlinks

The aim is to facilitate online Earth science learning

# Earthlearningidea online video workshops

## Teaching Earth science using the Cognitive Acceleration through Science (CASE) approach

- The activities in this workshop are keyed into the CASE approach – to develop thinking skills while teaching key Earth science material
- If you are unfamiliar with the CASE approach, you can access a video introduction at:  
<https://www.earthlearningidea.com/Video/CASE.html>
- An exemplar Earth science teaching activity with a question script using the CASE approach is at:  
[https://www.earthlearningidea.com/Video/Atmosphere\\_ocean.html](https://www.earthlearningidea.com/Video/Atmosphere_ocean.html)

# **Earthlearningidea online video workshops**

## **Running Earthlearningidea online video workshops**

Each workshop is led by a PowerPoint presentation

Launch the PowerPoint

Some slides contain hyperlinks to MP4 video files

Run the hyperlinked files and then return to the PowerPoint, flick through any slides you have already seen, and continue

The workshop is presented in this way so that the workshop itself, or individual videos, can be used in classroom teaching

# Active Earth – living fossil

Video run times	m	s
Starter: Running the fossilisation film backwards	8	48
How could I become fossilised	7	18
How many Great, Great, Great, Great Grandparents	8	08
How many <u>beany</u> beetles? - the evolution game	10	13
The washing line of time	9	12
Thinking like Mary Anning - "A woman in a man's world"	10	43
Flowing water - moving sand	9	99
' <u>Brickquake</u> ' - can earthquakes be predicted?	11	88
Blow up your own volcano	9	59
Plenary: Dinosaur footprints - the story from the evidence	13	21
Optional: How to survive and earthquake	0	56
Optional: What was it like to be there? - bringing a fossil back to life	6	41
Optional: Neighbourhood stone watch	3	02

# Active Earth – living fossil

## Summary

Try a series of 'hands-on' activities to explore how organisms inherit their characteristics and become fossilised before investigating a range of landscape - forming and potentially hazardous Earth processes - in a practical, enquiry-based way.

# Active Earth – living fossil

## Workshop outcomes

The workshop and its activities provide the following outcomes:

- insights into what fossils are, how they form and what they can tell us about evolving life on Earth;
- how organisms inherit characteristics and the processes that result in evolution;
- insights into the life of a fossil hunter;
- opportunities for exploring landscape-forming and potentially hazardous Earth processes
- practical activities that develop skills of investigation, discussion, argumentation and creativity;
- exploration of the elements of science and geography that affect the landscape;
- guidance on how the elements of Earth science in the curriculum can be taught most effectively.



# Active Earth – living fossil

**Explore the Earth using this wide range of activities:**

Note: those practical activities needing apparatus/materials are shown with a \*

Starter: Running the fossilisation film backwards to ‘bring a fossil back to life’

Circus activity 1: How could I become fossilised?

Circus activity 2: How many Great Great Great Great Grandparents?

Circus activity 3: How many beany beetles? - the evolution game\*

Circus activity 4: The washing line of time\*

Circus activity 5: Thinking like Mary Anning - “A woman in a man’s world”

Circus activity 6: Flowing water - moving sand\*

Circus activity 7: ‘Brickquake’ - can earthquakes be predicted?\*

Circus activity 8: Blow up your own volcano!\*

Plenary: Dinosaur footprints - the story from the evidence

Optional activity: How to survive an earthquake

Optional activity: What was it like to be there? - bringing a fossil to life

Optional activity: Neighbourhood stone watch

# Active Earth living fossil

Carry out risk assessments before the following activities:

Circus activity 7: 'Brickquake' - can earthquakes be predicted?  
Optional activity: Neighbourhood stone watch



# Active Earth – living fossil

Starter: Running the fossilisation film backwards to 'bring a fossil back to life'



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Fossilisation\\_film.html](https://www.earthlearningidea.com/Video/Pr_Fossilisation_film.html)

[www.earthlearningidea.com](http://www.earthlearningidea.com)

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# Active Earth – living fossil

Starter: Running the fossilisation film backwards to  
'bring a fossil back to life - the dying moments'



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# Active Earth – living fossil

Starter: Running the fossilisation film backwards to  
'bring a fossil back to life'



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# Active Earth – living fossil

Starter: Running the fossilisation film backwards to  
'bring a fossil back to life'



# Active Earth – living fossil

Circus activity 1:  
How could I  
become fossilised?



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_How\\_become\\_fossilised.html](https://www.earthlearningidea.com/Video/Pr_How_become_fossilised.html)

# Active Earth – living fossil

Circus activity 1: How could I become fossilised?



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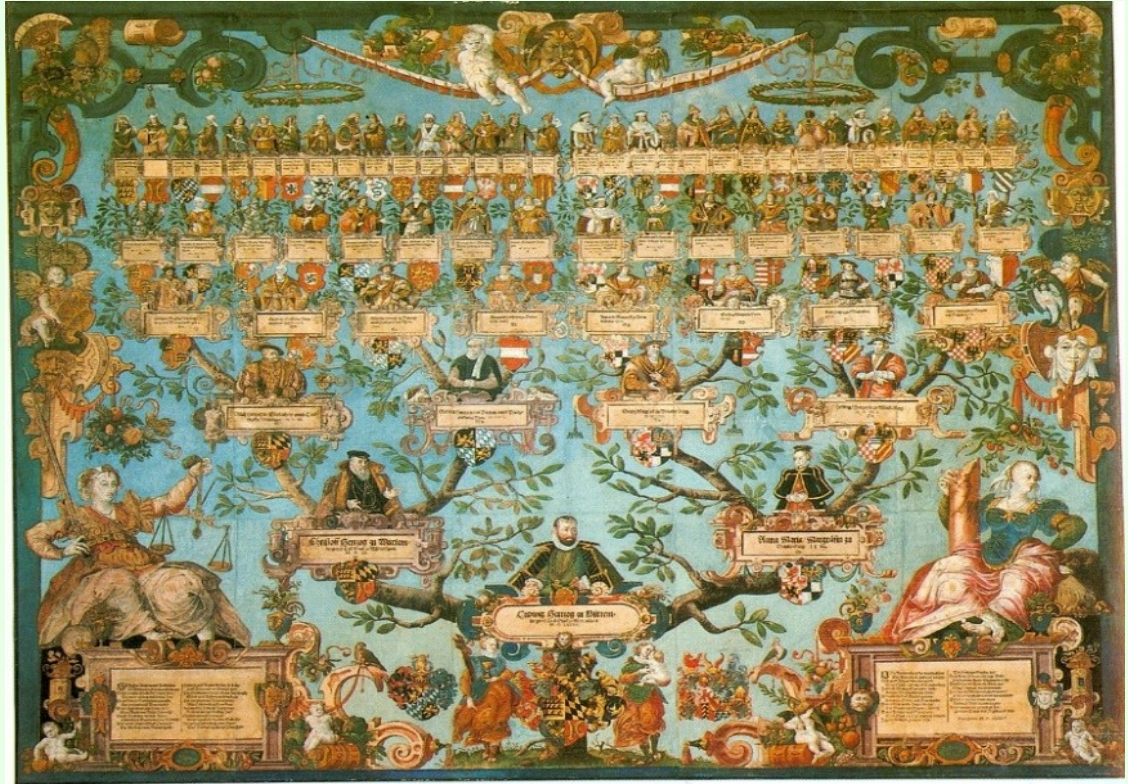
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# Active Earth – living fossil

Circus activity 2: How many Great Great Great Grandparents?



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Great\\_grandparents.html](https://www.earthlearningidea.com/Video/Pr_Great_grandparents.html)

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Circus activity 3:  
How many  
beany beetles? -  
the evolution  
game



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Beany\\_beetles.html](https://www.earthlearningidea.com/Video/Pr_Beany_beetles.html)

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## Circus activity 4: The washing line of time



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Washing\\_line\\_time.html](https://www.earthlearningidea.com/Video/Pr_Washing_line_time.html)

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Circus activity 5:  
Thinking like Mary  
Anning - “A woman  
in a man’s world”



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Mary\\_Anning.html](https://www.earthlearningidea.com/Video/Pr_Mary_Anning.html)

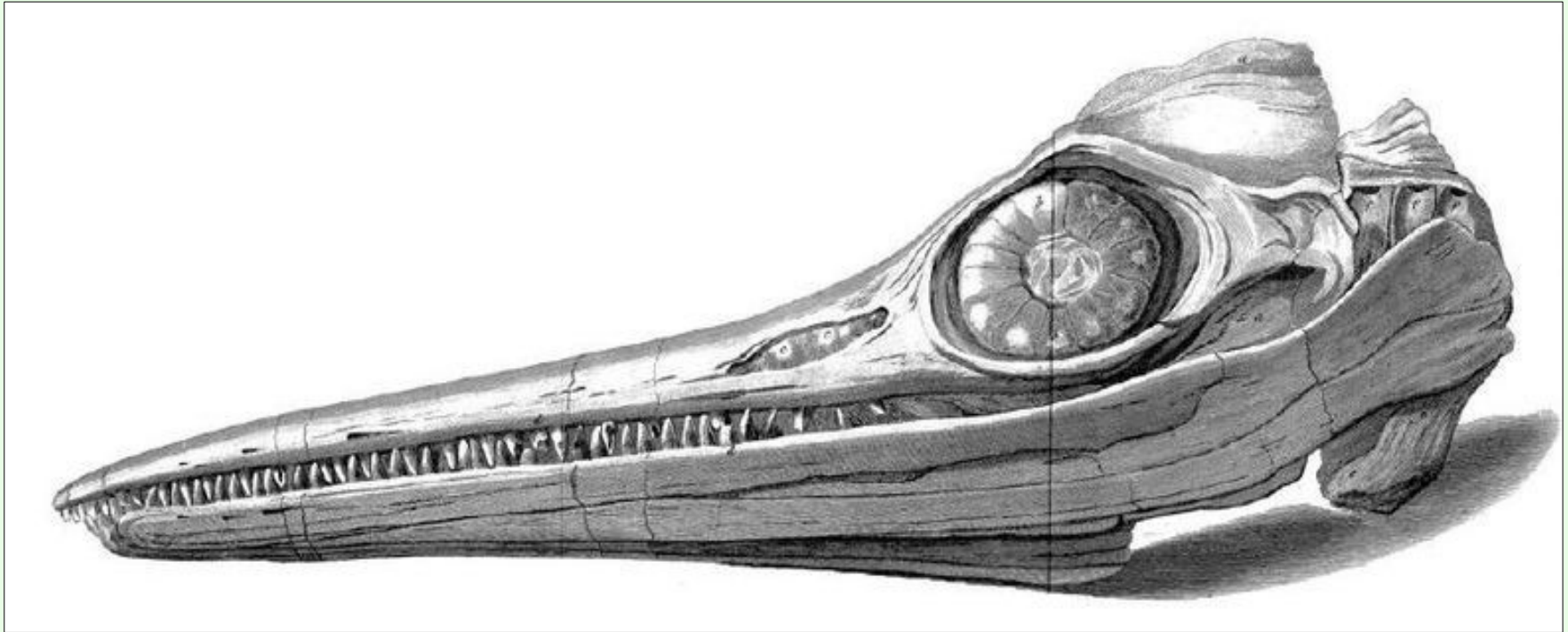
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# Active Earth – living fossil

Circus activity 5: Thinking like Mary Anning - “A woman in a man’s world” - Ichthyosaur



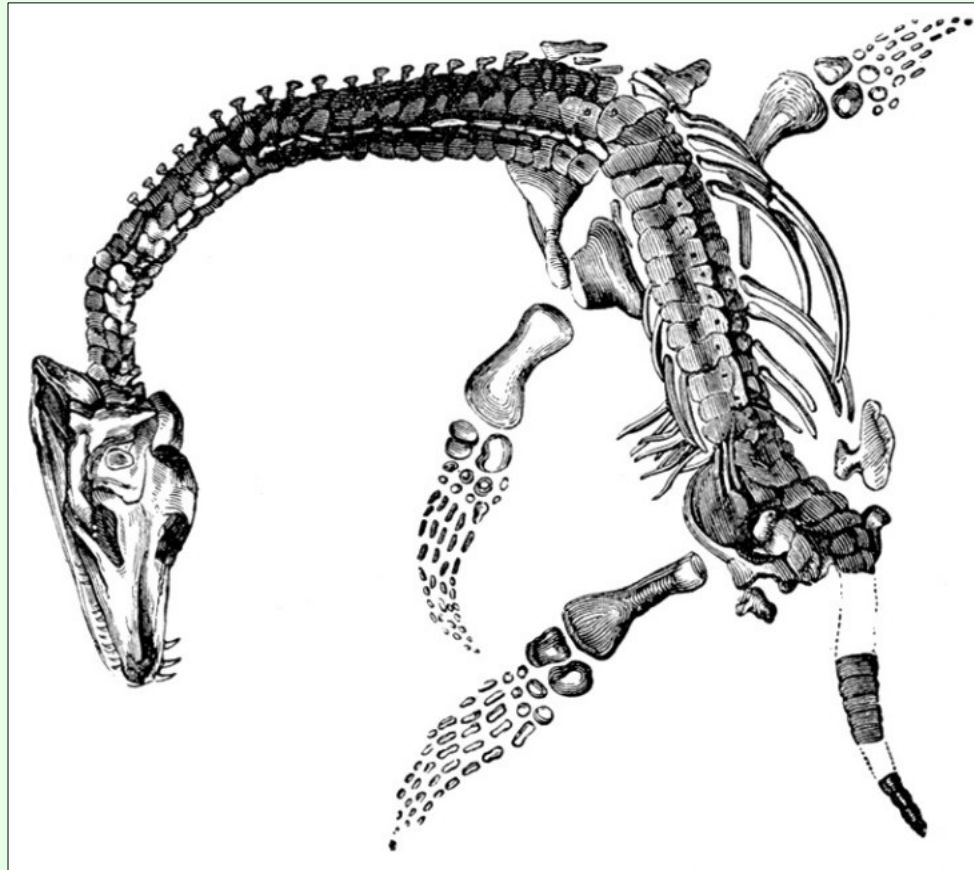
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# Active Earth – living fossil

Circus activity 5: Thinking like Mary Anning - “A woman in a man’s world” - plesiosaur



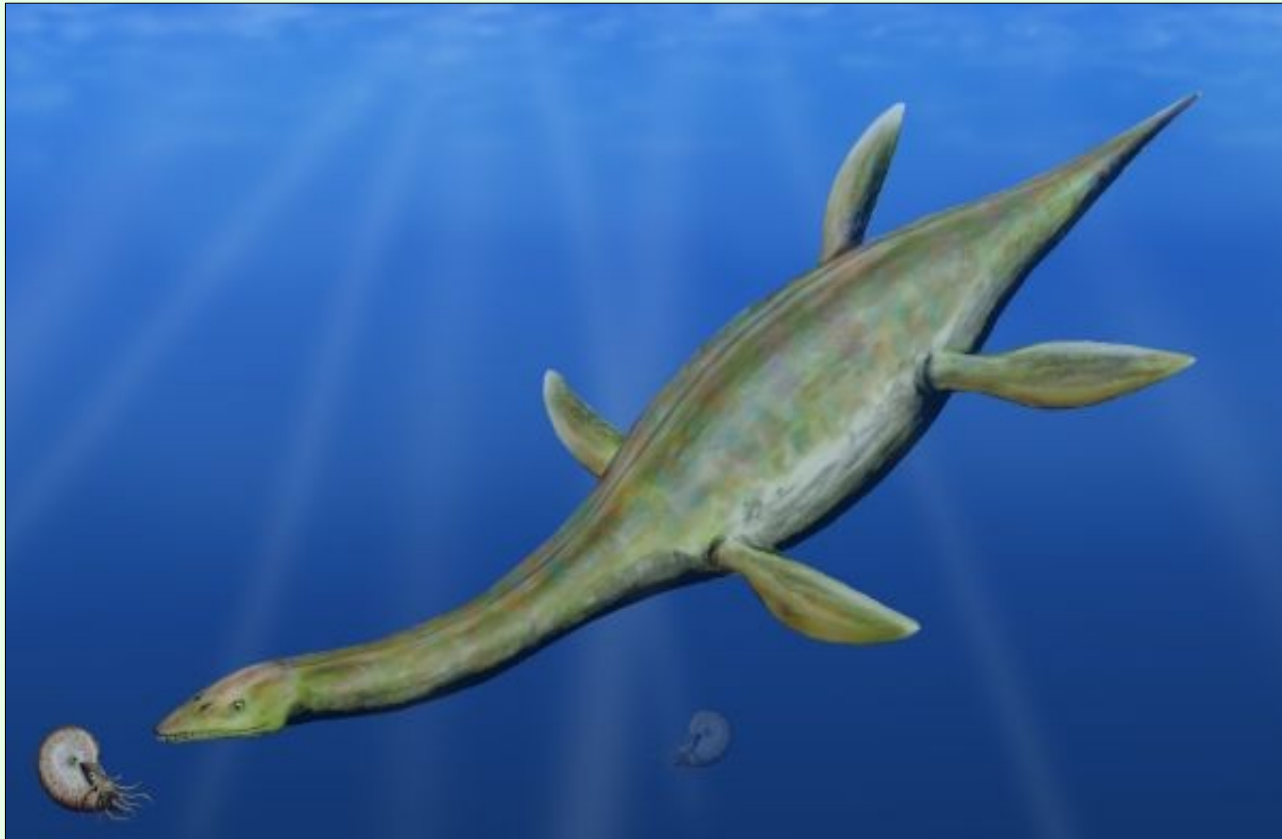
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# Active Earth – living fossil

Circus activity 5: Thinking like Mary Anning -  
“A woman in a man’s world” - plesiosaur



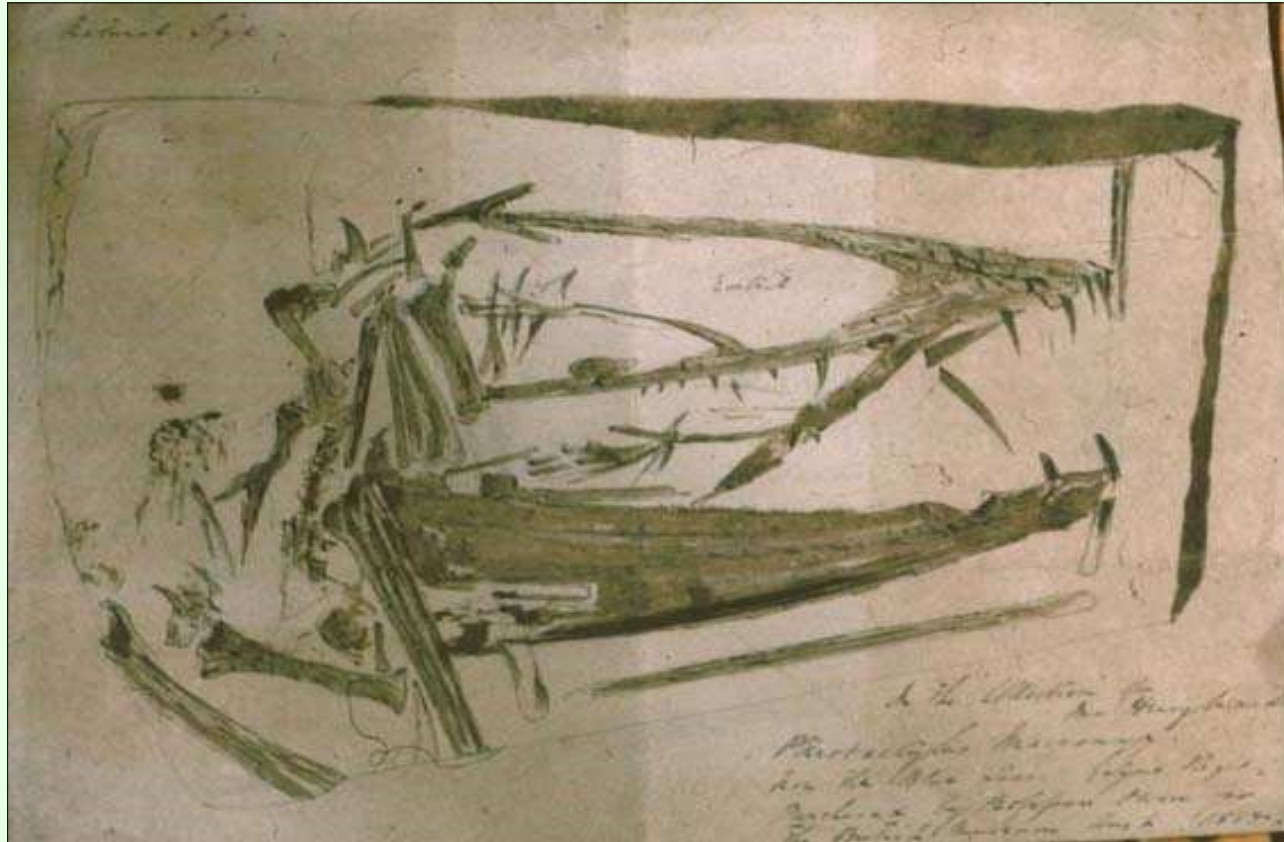
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# Active Earth – living fossil

Circus activity 5: Thinking like Mary Anning -  
“A woman in a man’s world” - Pterodactyl



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# Active Earth – living fossil

Circus activity 5: Thinking like Mary Anning -  
“A woman in a man’s world” - Pterodactyl



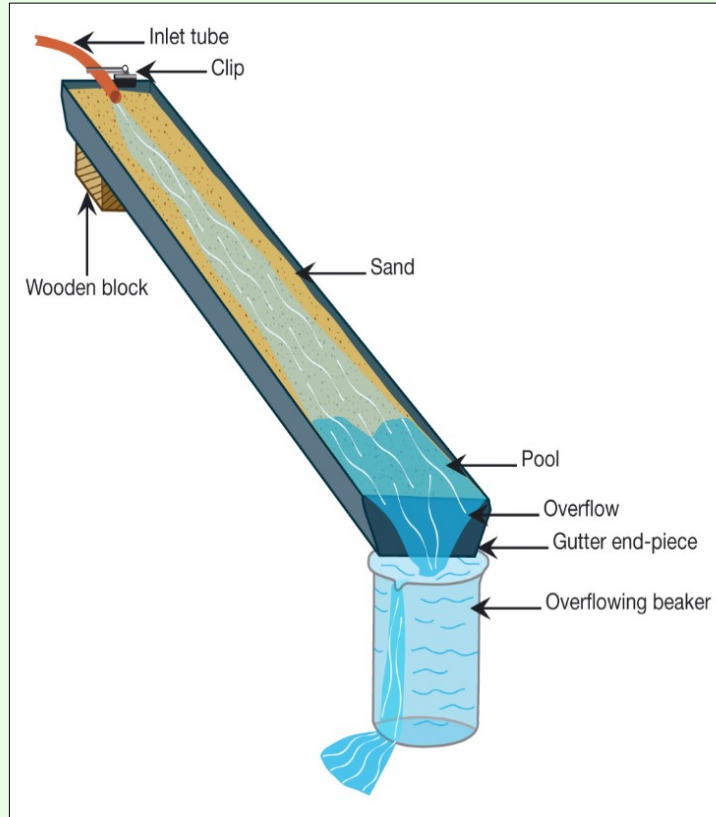
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## Circus activity 6: Flowing water – moving sand



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Flowing\\_water\\_moving\\_sand\\_part1.html](https://www.earthlearningidea.com/Video/Pr_Flowing_water_moving_sand_part1.html)

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# Active Earth – living fossil

Circus activity 6: Flowing water – moving sand



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Circus activity 7:  
'Brickquake' - can  
earthquakes be  
predicted?

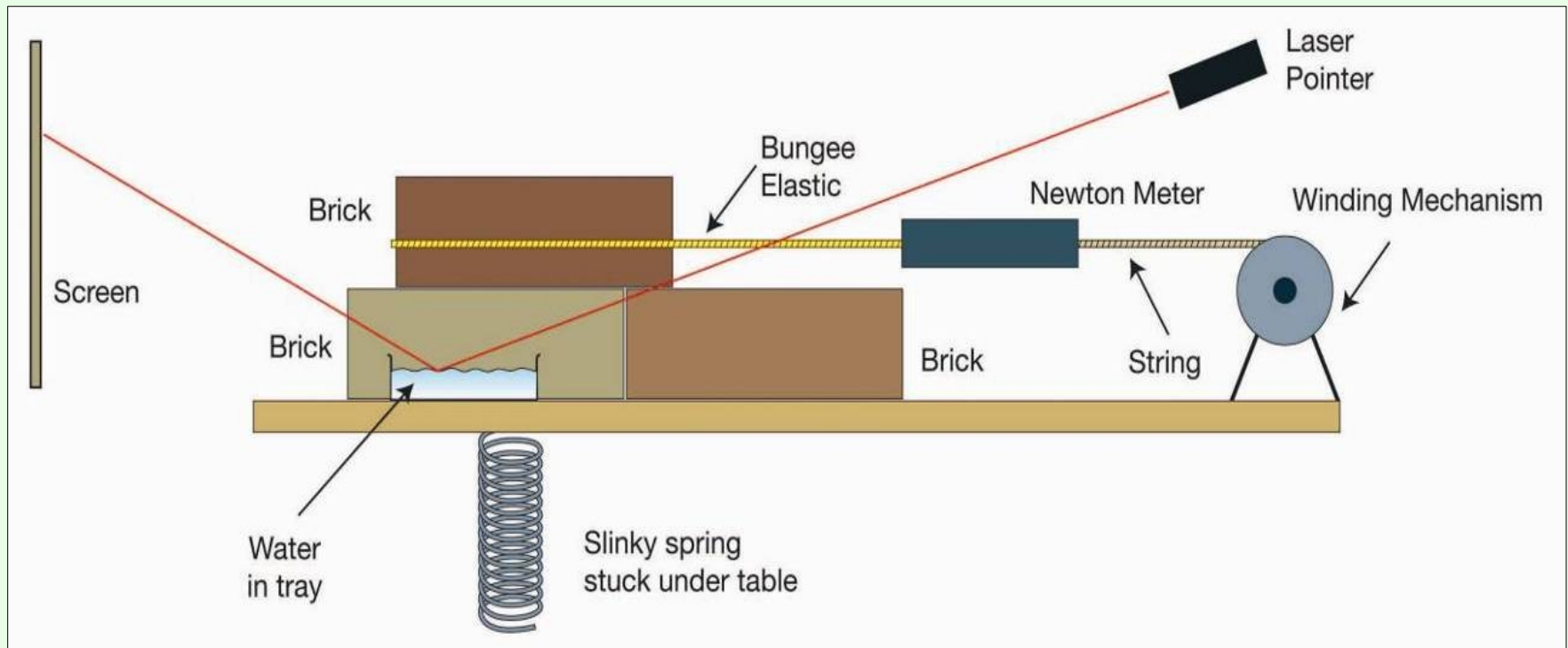


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[https://www.earthlearningidea.com/Video/Pr\\_Brickquake\\_part1.html](https://www.earthlearningidea.com/Video/Pr_Brickquake_part1.html)

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Circus activity 7: 'Brickquake' - can earthquakes be predicted?



# Active Earth – living fossil

Circus activity 8: Blow up your own volcano!



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Blow\\_up\\_volcano.html](https://www.earthlearningidea.com/Video/Pr_Blow_up_volcano.html)

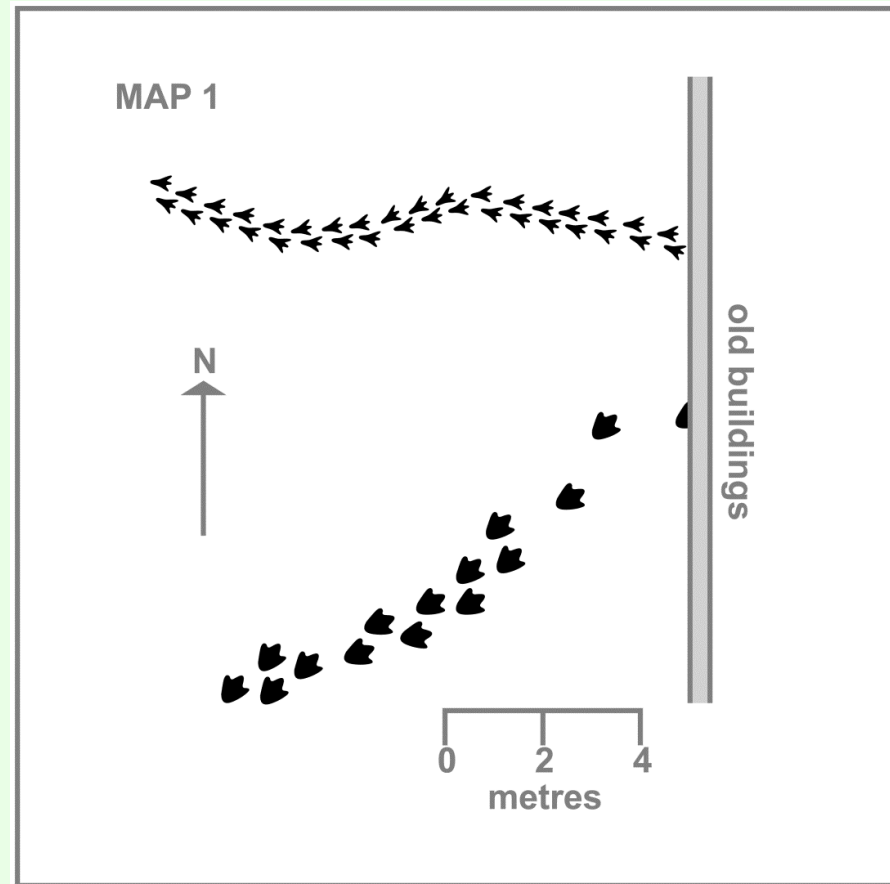
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# Active Earth – living fossil

Plenary:  
Dinosaur  
footprints - the  
story from the  
evidence



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Dino\\_footprints.html](https://www.earthlearningidea.com/Video/Pr_Dino_footprints.html)

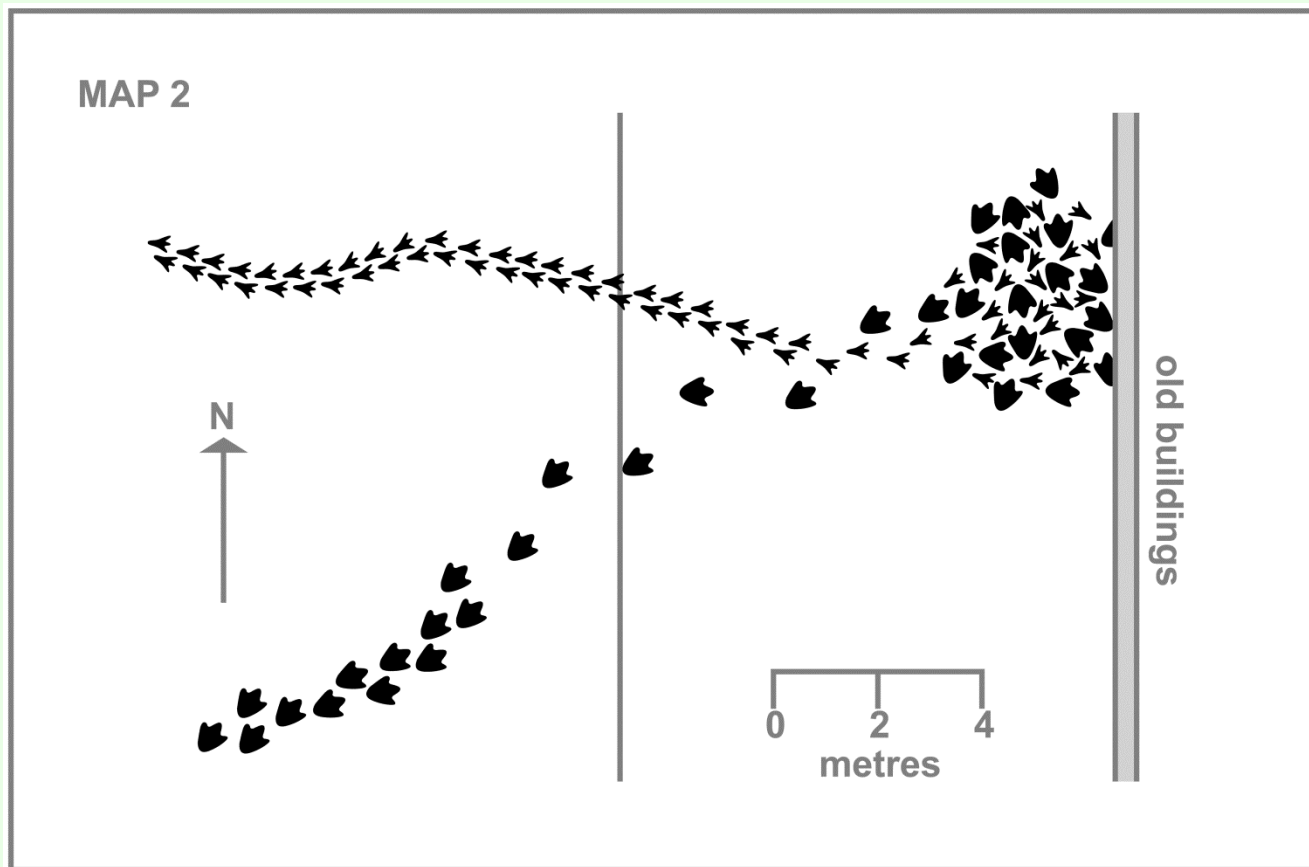
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# Active Earth – living fossil

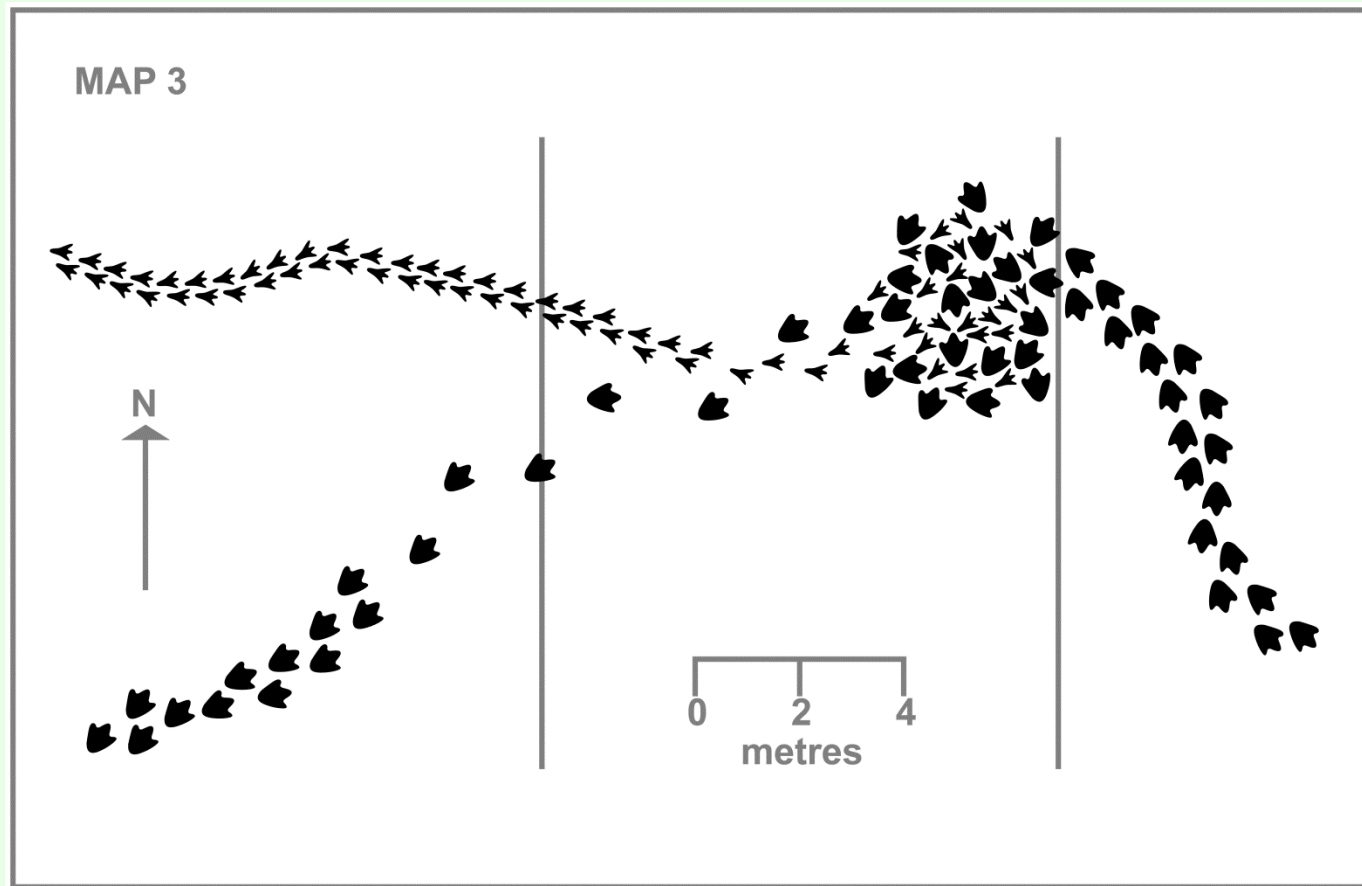
Plenary: Dinosaur footprints - the story from the evidence





# Active Earth – living fossil

Plenary: Dinosaur footprints - the story from the evidence



# Active Earth – living fossil

## Optional activity: How to survive an earthquake

What to do in an earthquake - the California Office of Emergency Services recommends:

- If indoors, bend down or lie on the floor, taking cover under a sturdy desk, table or other furniture. Hold on and be prepared to move with it, remaining in position until the ground stops shaking and it's safe to move. Avoid windows, fireplaces, wood stoves, heavy furniture or appliances. In a crowded area, take cover and stay put.
- If outside, get into the open, away from buildings, trees, lamp posts, power lines or signs.
- If driving, remain in your car. Stay away from bridges, tunnels, overpasses. Move your car out of traffic, but avoid stopping under trees, lamp posts, power lines or signs.
- In a mountainous area, or near unstable land, be alert to falling rock and debris that could be loosened by the earthquake.
- If you are at the beach, move to higher ground.

Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Surviving\\_earthquake.html](https://www.earthlearningidea.com/Video/Pr_Surviving_earthquake.html)

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# Active Earth – living fossil

Optional activity: What was it like to be there? -  
bringing a fossil to life - trilobite

When it was alive:  
What sort of place was this animal  
living in?  
What did it breathe?  
What did it eat?  
Was it a hunter? - or hunted? - or  
both?  
What could it have seen?  
What could it have sensed?  
How did it die? - can we tell?  
What happened after it died?



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_What\\_like\\_be\\_there.html](https://www.earthlearningidea.com/Video/Pr_What_like_be_there.html)

# Active Earth – living fossil

Optional activity: What was it like to be there? -  
bringing a fossil to life - dinosaur



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# Active Earth – living fossil

Optional activity: What was it like to be there? -  
bringing a fossil to life - coral



Colonial fossil coral *Cladophyllia* from Jurassic (200 - 145 million year old) rocks in Wiltshire, UK, Photo: Elizabeth Devon. Specimen about 15 cm across.

# Active Earth – living fossil

Optional activity: Neighbourhood stone watch



Go to video hyperlink:

[https://www.earthlearningidea.com/Video/Pr\\_Neighbourhood\\_stone.html](https://www.earthlearningidea.com/Video/Pr_Neighbourhood_stone.html)

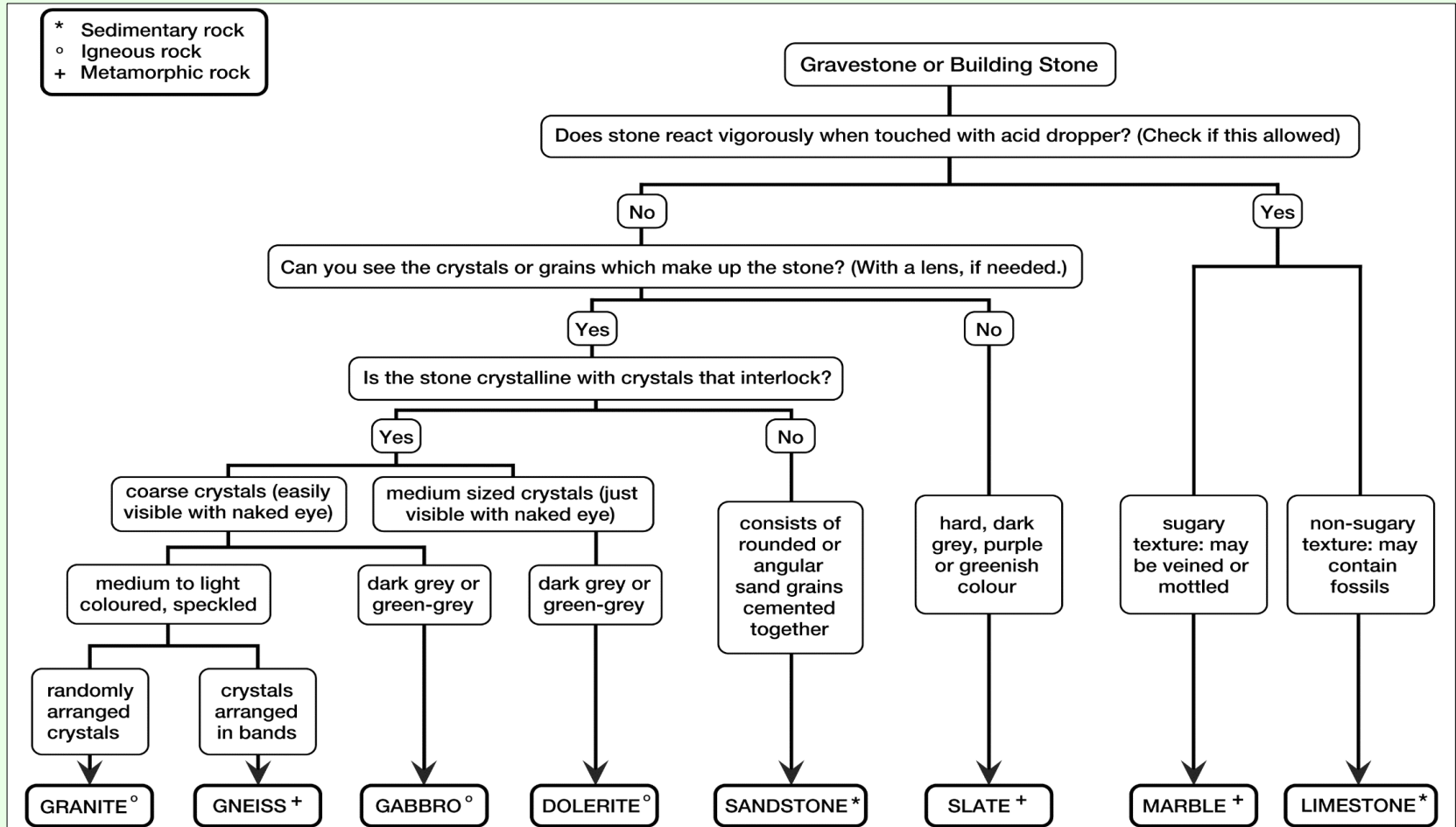
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# Active Earth – living fossil

## Optional activity: Neighbourhood stone watch



# Active Earth – living fossil

## Workshop outcomes

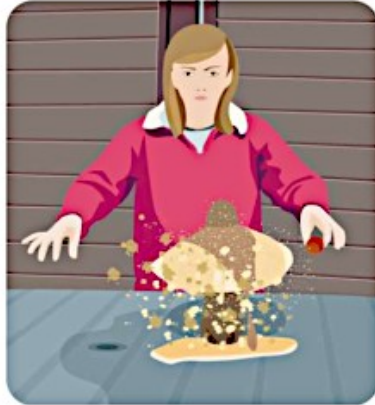
The workshop and its activities provide the following outcomes:

- insights into what fossils are, how they form and what they can tell us about evolving life on Earth;
- how organisms inherit characteristics and the processes that result in evolution;
- insights into the life of a fossil hunter;
- opportunities for exploring landscape-forming and potentially hazardous Earth processes
- practical activities that develop skills of investigation, discussion, argumentation and creativity;
- exploration of the elements of science and geography that affect the landscape;
- guidance on how the elements of Earth science in the curriculum can be taught most effectively.



# ESEU

Teaching the Dynamic Earth  
**Active Earth – living fossil**  
ESEU upper KS2 workshop material



Earth science for years 5/6

