Life through deep time: case notebook.

Name: Class: Date:

Use this notebook with the lesson. Each box follows a screen or two. For each case, write what you concluded before you read what the scientists concluded, then compare.

SCREEN 2 Deep time

a Find each event on the time-scale and fill in the table.

EVENT	MILLIONS OF YEARS AGO	TIME ON THE 24-HOUR CLOCK
Earth forms	4,567	00:00:00
Oldest evidence of life		
Oxygen builds up in the air		
Oldest eukaryote fossils		
Ediacaran animals		
Cambrian Explosion begins		
Non-bird dinosaurs die out		
Australian megafauna die out		

b For how much of Earth history was all life single-celled? Use the table to explain.

SCREENS 3 AND 4 How life began, and the first life

a Each part of the Miller–Urey apparatus stood for part of the early Earth.

PART OF THE APPARATUS	WHAT IT STOOD FOR
Flask of boiling water	
Flask of gases	
Spark between electrodes	
Condenser	

b My conclusion about the experiment before I read on, and one limitation of it:

c How did eukaryote cells come from prokaryotes? Explain endosymbiosis in two or three sentences.

SCREEN 5 Reading fossils and rocks

a Sketch each structure the right way up, and say how it shows which way is up.

STRUCTURE	SKETCH	HOW IT SHOWS THE TOP
Cross-bedding		
Graded bedding		
Ripple marks		
Mud cracks		

b Three ways a fossil can form, and one reason the fossil record is incomplete:

SCREENS 6 AND 7 Sprigg's fossils and the Cambrian

a For each specimen, give the time it lived and its environment.

SPECIMEN	WHEN IT LIVED	ENVIRONMENT
Dickinsonia (Ediacaran)		
Archaeocyath		
Trilobite		
Graptolite		
Ammonite		
Dinosaur		
Diprotodon		

b What did I conclude about Sprigg's fossils at each step, and what changed scientists' minds?

c Why is the Cambrian Explosion significant? Give two reasons.

SCREEN 8 What killed the dinosaurs?

a Sort the evidence. Tick the explanation each piece supports; some support both.

EVIDENCE	ASTEROID IMPACT	VOLCANIC ERUPTIONS
Iridium in the boundary clay		
Shocked quartz		
The Chicxulub crater		
The Deccan Traps		
The timing of the eruptions		

b My conclusion, how sure I am, and what evidence would change my mind:

SCREEN 9 The sixth wave?

a What killed Australia's megafauna? For each explanation, give one piece of evidence for it and one limit of the evidence.

EXPLANATION	EVIDENCE FOR IT	A LIMIT OF THE EVIDENCE
People hunting or changing the land		
Climate change		

b Why is current biodiversity loss almost entirely caused by humans? Name two causes.

c Should geologists name the Anthropocene? My position and my best reason: