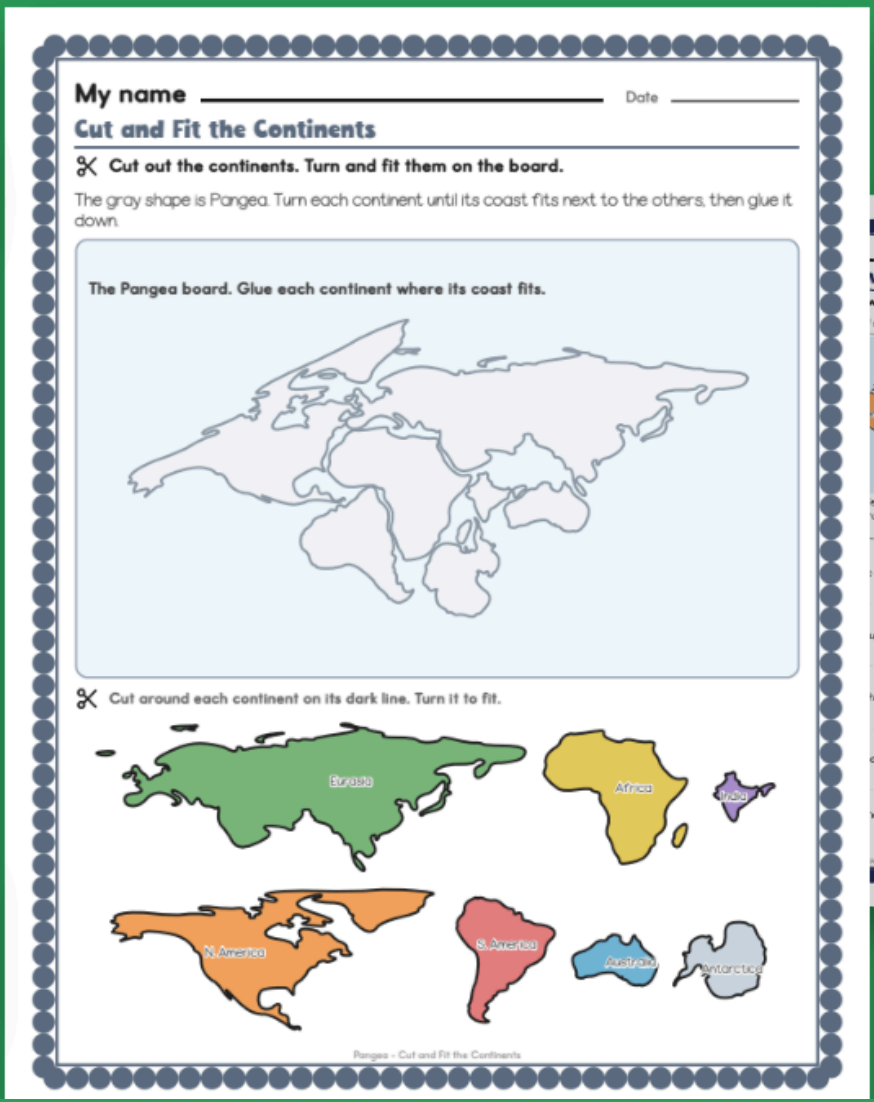
PANGEA WORKSHEETS

CONTINENTAL DRIFT EVIDENCE, CUT AND FIT MAP - GRADES 6-8

25 STUDENT PAGES







Bright Path Sped

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This is a fillable PDF

- Open it in a PDF reader (Adobe Acrobat Reader, Preview, or your browser), click into a line or a box, type, and Save As.
- Every name line, answer box, check box and ruled box on the student pages is a type-in field, and so are the tracker and the other record pages. You can also print any page and write by hand. Print the cut pages on plain paper.
- It works offline, with no account needed.

Print at 100 percent

Turn off fit to page and shrink to fit so the ruled lines stay 0.34 inch apart and the cut pieces stay full size. Fossils are purple, rocks are brown, ice and climate are blue and coastline fit is green, and every box also carries the word, so a black and white copy reads too.

Student work

A filled-in tracker, class grid or team note carries a real student's name. Keep it in the data folder.

Need help?

If a field will not behave or a page will not print the way you expect, use Ask a Question on the product page before leaving a review. A fix to the file ships as a free update from My Purchases.

PREVIEW

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Teacher Notes

The parts of a student page, the page types in order, and a few teaching notes.

The parts of a page

- **The color code.** Fossils are purple, rocks are brown, ice and climate are blue and coastline fit is green on the reference page, the readings, the sort mats and the keys.
- **The answer box.** A bordered box. Click it to type, or print and write in it.
- **The check box.** Fossils, rocks, ice and climate or coastline fit; true or false; and the quiz choices.
- **The ruled work box.** Lines 0.34 inch apart, one idea to a line.
- **The cut lines.** Cut-and-fit: 7 continents in 2 rows, each cell at least 0.95 inch, cut around the dark outline. Sort 1: 6 pieces, 2.4 by 1.46. Sort 2: 8 pieces, 4 across by 2 down, each 1.8 by 1.3. Sort 3: 10 pieces, 5 across by 2 down, each 1.46 by 1.15. Edge to edge.

Page type	What it looks like	What the student does
Four Kinds of Evidence; Pangea Words	2 pages, 6 items	Four clue types with a drawn example of each, then six words to match.
Read: six short readings	6 pages, 30 items	Wegener's idea, fossils, rocks, ice and climate, why people doubted it, the later explanation.
Read the Map: Pangea and today	2 pages, 10 items	Count marks and name the continents a line crosses.
Worked Example	1 page, 3 items	Four steps on a fossil picture, then a Your Turn on a rock picture.
Name the Evidence 1 and 2	2 pages, 16 items	Sentences, then short clues.
Fossil Chart; The Growing Ocean	2 pages, 18 items	Total a chart; multiply a rate by years; find ages of seafloor rock.
Fix It 1 and 2	2 pages, 10 items	True or false; rewrite each false statement.
Claim, Evidence, Reasoning 1 and 2	2 pages, 12 items	Four short scenarios with invented numbers.
Quiz; Short Answer	2 pages, 15 items	Ten choices, then five written answers.

Two steps, marked by a shape

- **Circle.** Name the Evidence 1 (page 16): clues in a sentence.
- **Triangle.** Name the Evidence 2 (page 17): short clues, no story to lean on.

Teaching notes

- Pangea is also spelled Pangaea; both are correct. Say it every day: **fossils, rocks, ice, fit**: four clues, one idea.
- The continents on these pages are simplified outlines, not a true map and not to scale. Show a real map or globe next to the cut-and-fit page.
- The cut-and-fit page is solved by turning each continent until its coast fits its neighbor. The fit is a classroom illustration, not a measured reconstruction. The key (page 35) shows the solved board.
- Wegener was right that the continents moved but could not say how. The last two readings let students see why the idea waited. All numbers are invented for practice. No lab procedure is included.

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

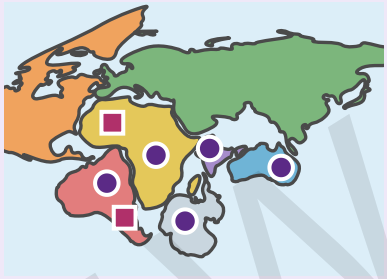
Four Kinds of Evidence

Read about the four kinds of clues. Keep this page next to you.

Wegener put four kinds of clues together. Every kind has its own color on these pages.

Fossils

What the same fossil on continents now far apart.
It shows a living thing could not cross a wide ocean.
Mark on the map a purple dot or square.



Rocks

What mountain chains and rock layers that match.
It shows the chains join up when the continents slide together.
Mark on the map a brown line.



Ice and Climate

What glacier scratches in warm places, and coal in a frozen one.
It shows the land was once somewhere colder.
Mark on the map a blue line.



Coastline Fit

What coastlines that fit like puzzle pieces.
It shows the continents could once be one piece.
Mark on the map the shapes themselves.



PREVIEW

My name _____ Date _____

Read: Wegener's Idea

Read. Then answer the questions.

Look at a world map. The west coast of Africa and the east coast of South America look like they could fit together. In 1912 a scientist named Alfred Wegener said they once did. He said all the continents were joined in one giant landmass, later called Pangea, which means all land. Over a very long time, he said, the land broke apart and the pieces slowly moved to where they are today. This idea is called continental drift. Pangea began to split more than 200 million years ago.



1. Who said the continents were once joined?

☐ **Alfred Wegener** ☐ **a glacier** ☐ **a ridge**

2. What does Pangea mean?

☐ **new rock** ☐ **all land** ☐ **two oceans**

3. What is the idea that continents move called?

☐ **continental drift** ☐ **a seafloor map** ☐ **a fossil study**

4. Which two coastlines look like they fit together?

_____

5. What happened to Pangea over a very long time?

_____

PREVIEW

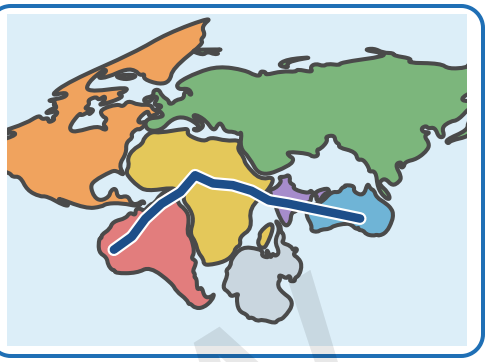
Preview - Bright Path Sped

My name _____ Date _____

Read: Ice and Climate Clues

Read. Then answer the questions.

Scientists found long scratches in rock in South America, Africa, India, Australia and Antarctica. Moving glaciers make scratches like these. But most of these places are warm today. Plants tell a second story: coal made from swamp plants is found in Antarctica, which is frozen now. Wegener said the land must have been in different places long ago. When the continents are put back together, the scratches line up around one area of land.



1. What makes long scratches in rock?

☐ **moving glaciers** ☐ **soft rain** ☐ **warm swamps**

2. What does coal in Antarctica tell us?

☐ **it was always frozen** ☐ **swamp plants once grew there** ☐ **coal falls from the sky**

3. Glacier scratches in warm places suggest the land was once...

☐ **under a desert** ☐ **exactly where it is now** ☐ **in a different place**

4. Name two places with glacier scratches.

_____

5. What happens to the scratches when the continents are put back together?

_____

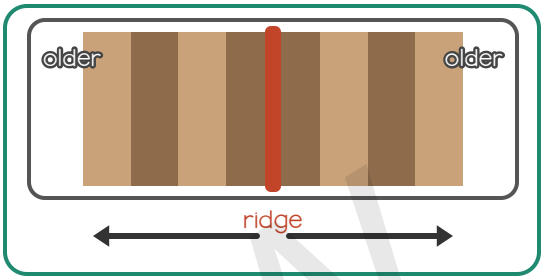
PREVIEW

My name _____ Date _____

Read: The Later Explanation

Read. Then answer the questions.

In the 1950s and 1960s, scientists mapped the ocean floor and found a long chain of underwater mountains called a ridge. At a ridge, hot rock rises, cools and makes new ocean floor, which pushes the older floor away on both sides. This is seafloor spreading. Rock is youngest at the ridge and older farther away. Earth's outer layer is broken into giant slabs called plates, and the continents ride along on them. Plates move only a few centimeters a year, about as fast as fingernails grow. Over millions of years, that is far enough to move continents apart.



1. What is in the middle of the ocean where new floor forms?

☐ **a ridge** ☐ **a glacier** ☐ **a swamp**

2. Where is ocean-floor rock youngest?

☐ **far from the ridge** ☐ **at the ridge** ☐ **at the coast**

3. What carries the continents along?

☐ **ice** ☐ **plates** ☐ **waves**

4. What is seafloor spreading?

_____

5. How fast do plates move?

_____

PREVIEW

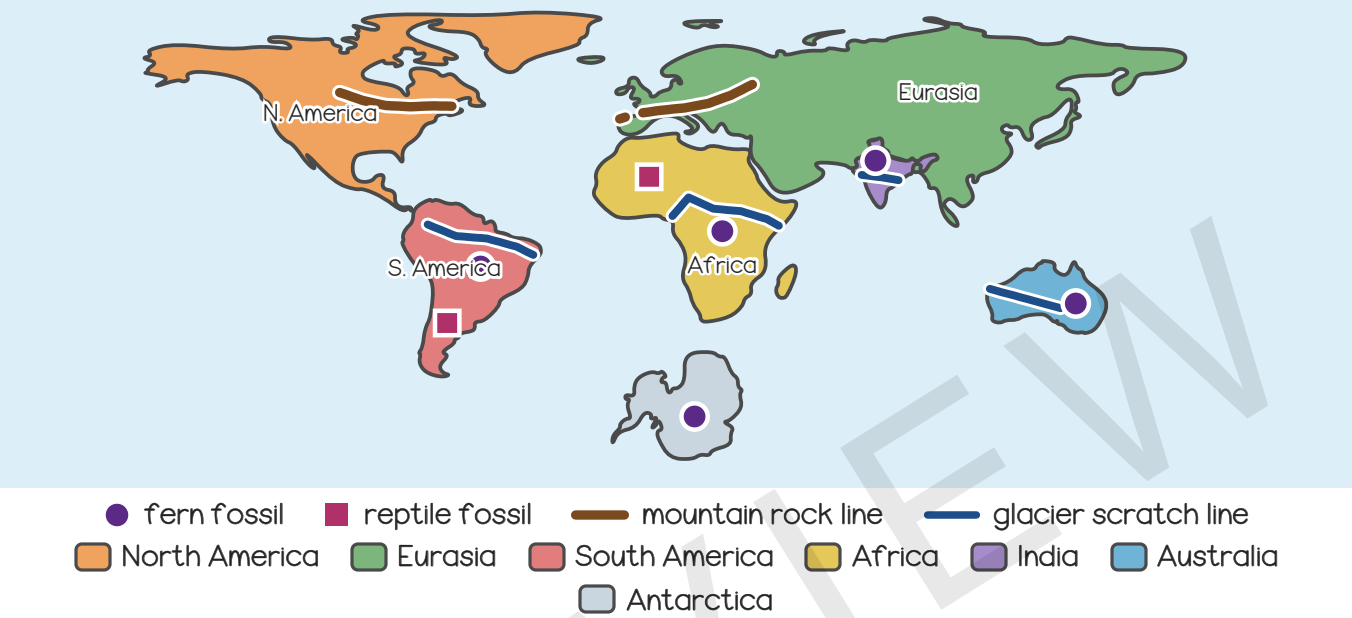
Preview - Bright Path Sped

My name _____ Date _____

Read the Map of Today

Look at the map. Answer each question.

The continents are simplified outlines, not to scale. This is today: the continents are apart.



1. Which two continents have a reptile mark? _____

2. How many land shapes are on this map? _____

3. Which two continents have a rock line but no fossil mark? _____

4. Which two continents look like they could fit together like puzzle pieces? _____

5. What could you look for to show two continents were once joined? _____

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Name the Evidence 2

Check one box for each one. Write how you know.

Each clue fits one kind. Which one?

1. Rock layers that match on both sides of an ocean.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

2. The edges look like puzzle pieces.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

3. The same living thing from long ago, on two continents.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

4. Marks left by moving ice.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

5. How well the outlines of two continents match.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

6. A mountain chain that stops at one coast and starts again across the ocean.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

7. A plant that could not cross a wide ocean, found on both sides.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

8. Scratches in rock on a continent where glaciers do not form today.

☐ **fossils** ☐ **rocks** ☐ **ice and climate** ☐ **coastline fit** **I know because** _____

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

The Growing Ocean

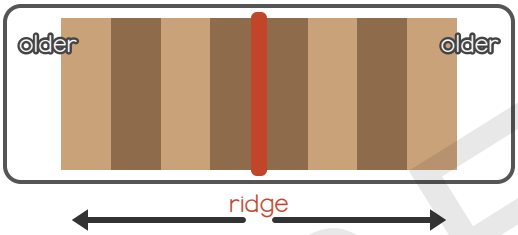
Fill in the tables. Then answer.

These numbers are invented for practice. New floor adds the same number of cm every year. Multiply the rate by the years.

Ridge	10 years	20 years	50 years
Ridge A (2 cm a year)			
Ridge B (5 cm a year)			

Which ridge makes the ocean wider faster? ☐

After 20 years, how many cm wider is it than the other ridge? ☐



The ridge is in the middle. The red line is where new floor forms. The floor moves away on both sides, so the rock gets older the farther it is from the ridge.

Distance from the ridge	Age of the rock (million years)
0 km	0
100 km	5
200 km	10
300 km	15

The ages go up by the same amount each 100 km. By how much? ☐

Rock at 300 km is how many million years older than rock at 100 km? ☐

PREVIEW

My name _____ Date _____

Fix It 2

Is it true or false? Fix each false one.

Some of these are true. Some have a mistake. Rewrite each false one so it is true.

1. Glacier scratches in a warm place show the land was once somewhere colder. ☐ true ☐ false

   If false, fix it: _____

2. Every scientist agreed with Wegener right away. ☐ true ☐ false

   If false, fix it: _____

3. New ocean floor forms at a ridge. ☐ true ☐ false

   If false, fix it: _____

4. The oldest ocean-floor rock is at the ridge. ☐ true ☐ false

   If false, fix it: _____

5. Continents move by themselves, with nothing carrying them. ☐ true ☐ false

   If false, fix it: _____

PREVIEW

Preview - Bright Ezee Shed

My name _____ Date _____

Quiz

Check the best answer for each one.

1. What was the giant landmass that held all the continents called?

   ☐ **Pangea** ☐ **a ridge** ☐ **a glacier**

2. Who proposed continental drift in 1912?

   ☐ **Isaac Newton** ☐ **Alfred Wegener** ☐ **Charles Darwin**

3. The same fossil on two far-apart continents is a clue that the land was once...

   ☐ **bigger** ☐ **frozen** ☐ **joined**

4. Which kind of evidence is matching mountain rock?

   ☐ **rocks** ☐ **fossils** ☐ **ice**

5. Glacier scratches in a warm place suggest the land was once...

   ☐ **somewhere colder** ☐ **under a desert** ☐ **in the sky**

6. Why did many scientists doubt Wegener?

   ☐ **he had no clues** ☐ **he could not name the force** ☐ **he drew bad maps**

7. New ocean floor forms at...

   ☐ **a coast** ☐ **a glacier** ☐ **a ridge**

8. Ocean-floor rock is youngest...

   ☐ **at the ridge** ☐ **far from the ridge** ☐ **at the coast**

9. Continents are carried along on...

   ☐ **glaciers** ☐ **plates** ☐ **fossils**

10. Pangea began to split...

    ☐ **last year** ☐ **in 1912** ☐ **more than 200 million years ago**

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Cut and Fit the Continents

Cut out the continents. Turn and fit them on the board.

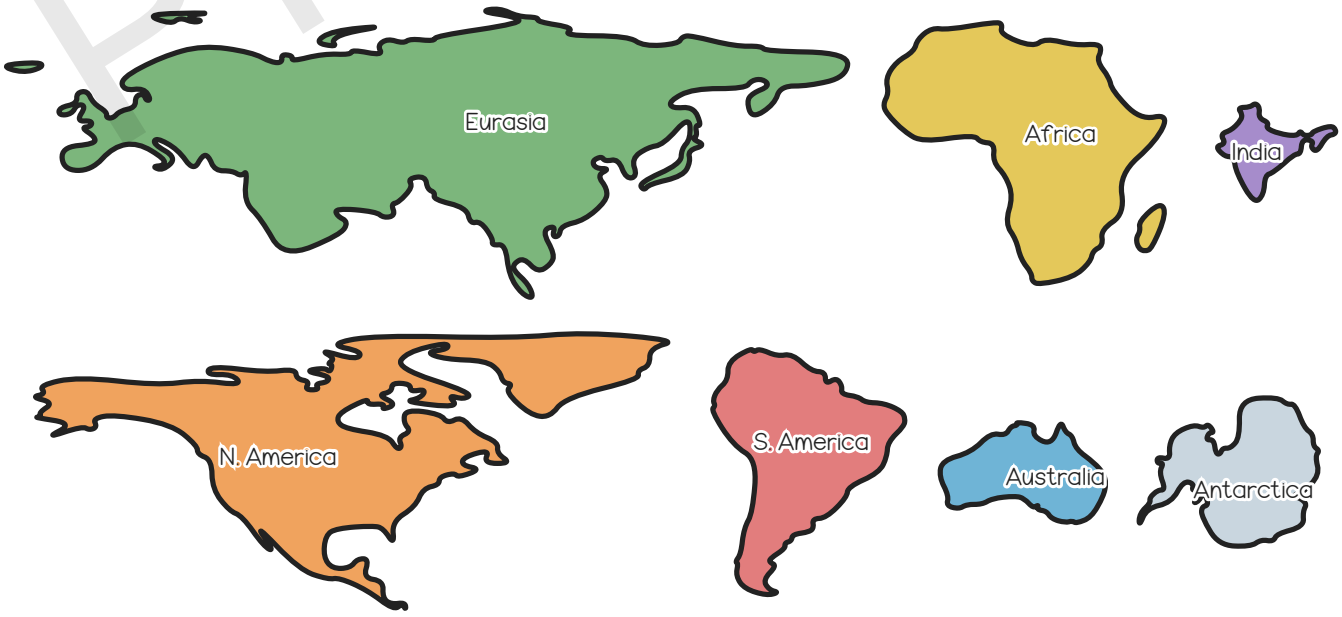
The gray shape is Pangea. Turn each continent until its coast fits next to the others, then glue it down.

The Pangea board. Glue each continent where its coast fits.



PREVIEW

Cut around each continent on its dark line. Turn it to fit.



Preview - Bright Path Shed

My name _____ Date _____

Cut and Sort 2

Cut out the pieces. Paste each one in its box.

Each piece is a clue. Paste two pieces in each box.

Fossils	Rocks	Ice and Climate	Coastline Fit

PREVIEW

Cut on the dashed lines: one cut across and three down.

 mountain rock in Scotland matches mountain rock in North America	 South America and Africa have coasts with matching bumps	 glacier scratches in India, a warm country	 a reptile fossil in South America and in Africa
 a seed fern fossil on five continents	 scratches from ice on rock in Africa and South America	 the continents' edges look like puzzle pieces	 a mountain belt that breaks at the ocean and starts again

Answer Key: Name the Evidence and Sorts

Fossils: the same living thing in two places. Rocks: matching rock and mountains. Ice and climate: scratches and coal in the wrong place. Coastline fit: the outlines. In the sort keys, r1 c1 is the top left piece.

Name the Evidence 1 page 16

#	Item	Type	A good clue
1	A scientist finds the same reptile fossil in Africa and in South America.	Fossils	the same living thing, on two continents
2	The east coast of one continent looks like it fits the west coast of another.	Coastline Fit	the shapes of the coasts
3	Scratches from a glacier are found in a place that is warm today.	Ice and Climate	moving ice in a warm place
4	A mountain range in North America is made of the same rock as a range in Scotland.	Rocks	matching rock across an ocean
5	Fern fossils are found in India, Australia and Antarctica.	Fossils	the same plant on far-apart continents
6	Rock layers on two continents are the same age and have the same minerals.	Rocks	matching rock layers
7	Cut-out shapes of Africa and South America slide together with very few gaps.	Coastline Fit	the shapes fit
8	Coal from swamp plants is found in Antarctica, which is frozen now.	Ice and Climate	the climate was different long ago

Cut and Sort 1 page 27

Piece	Piece shows	Box
r1 c1	a fern fossil found in India and in Antarctica	Fossils
r1 c2	the same kind of rock layers in South America and Africa	Rocks
r1 c3	scratches made by a glacier, found in a warm place	Ice and Climate
r2 c1	a mountain chain that lines up across an ocean	Rocks
r2 c2	a freshwater reptile fossil in Africa and South America	Fossils
r2 c3	deep ice scratches in rock on five warm continents	Ice and Climate

Name the Evidence 2 page 17

#	Item	Type	A good clue
1	Rock layers that match on both sides of an ocean.	Rocks	rock evidence
2	The edges look like puzzle pieces.	Coastline Fit	coastline fit
3	The same living thing from long ago, on two continents.	Fossils	a fossil on both
4	Marks left by moving ice.	Ice and Climate	glacier scratches
5	How well the outlines of two continents match.	Coastline Fit	outlines match
6	A mountain chain that stops at one coast and starts again across the ocean.	Rocks	the chain continues
7	A plant that could not cross a wide ocean, found on both sides.	Fossils	a land plant on both sides
8	Scratches in rock on a continent where glaciers do not form today.	Ice and Climate	ice in a warm place

Cut and Sort 2 page 28

Piece	Piece shows	Box
r1 c1	mountain rock in Scotland matches mountain rock in North America	Rocks
r1 c2	South America and Africa have coasts with matching bumps	Coastline Fit
r1 c3	glacier scratches in India, a warm country	Ice and Climate
r1 c4	a reptile fossil in South America and in Africa	Fossils
r2 c1	a seed fern fossil on five continents	Fossils
r2 c2	scratches from ice on rock in Africa and South America	Ice and Climate
r2 c3	the continents' edges look like puzzle pieces	Coastline Fit
r2 c4	a mountain belt that breaks at the ocean and starts again	Rocks

PREVIEW

Answer Key: Fix It and Quiz

Accept a fixed sentence that says the same thing in a student's own words.

Fix It 1 page 20

#	Is it	Fixed sentence
1	true	-
2	false	Pangea was a giant landmass that held all the continents.
3	false	The same fossil on two continents is a clue that the land was once joined.
4	true	-
5	false	Plates move a few centimeters a year, about as fast as fingernails grow.

Fix It 2 page 21

#	Is it	Fixed sentence
1	true	-
2	false	Many scientists doubted him because he could not explain how continents move.
3	true	-
4	false	The youngest rock is at the ridge. Rock gets older farther away.
5	false	Continents ride along on slowly moving plates.

Quiz page 24

#	Answer
1	Pangea
2	Alfred Wegener
3	joined
4	rocks
5	somewhere colder
6	he could not name the force
7	a ridge
8	at the ridge
9	plates
10	more than 200 million years ago

Where to go after the quiz

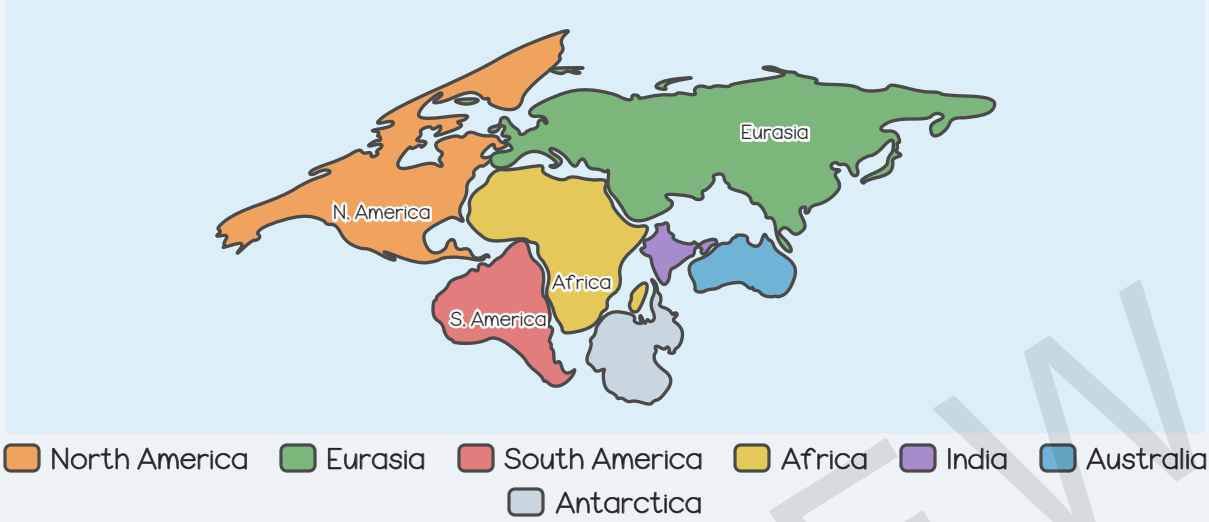
- Missed the evidence items (3, 4, 5): sort again on pages 27 and 28.
- Missed the doubt or the later explanation (6 to 9): reread pages 11 and 12, then sort page 29.
- Missed the Pangea items (1, 2, 10): reread page 7 and fit the continents on page 26.

PREVIEW

Answer Key: Cut and Fit and Sort 3

Pages 26 and 29. The fit is checked by the coasts, not by an exact match.

Cut and Fit the Continents (page 26)



The solved board, with every continent in its place. Accept a fit that is close: the check is that each coast sits against its neighbor with few gaps and no overlap. The fit is a classroom illustration, not a measured reconstruction.

Cut and Sort 3 page 29

Piece	Piece shows	Box
r1 c1	a ridge on the ocean floor	Found Later
r1 c2	the same fossil on two continents	Wegener's Clues
r1 c3	magnetic stripes that match on both sides	Found Later
r1 c4	coastlines that fit	Wegener's Clues
r1 c5	satellites that measure plate speed	Found Later
r2 c1	matching mountain rock	Wegener's Clues
r2 c2	glacier scratches in warm places	Wegener's Clues
r2 c3	young rock at a ridge, older rock farther away	Found Later
r2 c4	fern fossils in cold Antarctica	Wegener's Clues
r2 c5	earthquakes along plate edges	Found Later

PREVIEW

Team Note

Use this page between team meetings or when a student moves classes, to hand off what changed without writing a note from scratch. Everything below is observable, with a blank for the number or the wording your team already uses.

Student _____ Team member _____ Date _____

Page type	Covered since last note (Y/N)	Items right	Still blank
Words and readings			
Maps and worked example			
Name the Evidence			
Charts and data			
Fix It and claims			
Fit and sorts			

What I saw (observable, not a conclusion)

- Named the kind of evidence correctly on ___ of ___ items without a prompt.
- Fit the cut-out continents by matching the coasts: yes / no / with a reminder.
- Used a number or a clue as evidence: yes / no / with a reminder.
- Used the reference page (page 5): yes / no / with a reminder.

Next step

- Next page or set: ___, because ___ (what you saw).
- What to try in another class or at home: ___.
- What to keep doing because it is working: ___.
- Anything for the team meeting to decide: ___ (this page records what happened, never a label or a plan).

Summary, in one or two sentences, for whoever reads this next

A filled-in line, for reference

"Named the kind of evidence on 6 of 8 items on Name the Evidence 1 without a prompt on 11/6. Next step: ask whether the clue is a living thing, a rock, ice or an outline before choosing." That is the level of detail this page is built for. It matches the filled example on page 40.

PREVIEW

Devon's Tracker (Invented Student)

Devon R. is invented; nothing on this page describes a real student. The blank tracker is on page 36.

Student: Devon R. (an invented student)

Teacher: Ms. Alvarez (invented)

Month: November

Page	Page type and set	Items	Right	Date	Notes
6	Pangea Words	6	5	11/3	Mixed up fossil and glacier
7	Read: Wegener's Idea	5	5	11/4	-
8	Read: Fossil Clues	5	-	-	-
9	Read: Rock Clues	5	-	-	-
10	Read: Ice and Climate Clues	5	-	-	-
11	Read: Why People Doubted It	5	-	-	-
12	Read: The Later Explanation	5	-	-	-
13	Read the Pangea Map	5	4	11/5	Counted the squares as continents
14	Read the Map of Today	5	-	-	-
15	Worked Example	3	-	-	-
16	Name the Evidence 1	8	6	11/6	Called two rock clues fossil clues
17	Name the Evidence 2	8	-	-	-
18	Read the Fossil Chart	8	6	11/10	Added one row wrong
19	The Growing Ocean	10	-	-	-
20	Fix It 1	5	-	-	-
21	Fix It 2	5	-	-	-
22	Claim, Evidence, Reasoning 1	6	-	-	-
23	Claim, Evidence, Reasoning 2	6	-	-	-
24	Quiz	10	-	-	-
25	Short Answer	5	-	-	-
26	Cut and Fit the Continents	7	-	-	-
27	Cut and Sort 1	6	5	11/12	One piece pasted in the wrong box
28	Cut and Sort 2	8	-	-	-
29	Cut and Sort 3	10	-	-	-

How to read it

Devon R. has done **6 of 24** scored pages and got **31 of 38** items right with no prompt. **1** page was all right and **5** carry a note. Every number comes from the table.

What the table points to

The lowest pages are Name the Evidence 1 (6 of 8) and Read the Fossil Chart (6 of 8). That is where the next practice goes. The 18 pages left blank are not tried yet, never wrong.

PREVIEW

Binder Cover

Slide this into the front of a binder. The divider tabs and a spine label to cut out are on the next page (page 43).

Science - Earth Science





PANGEA

Continental Drift Evidence

Learn | **Practice** | **Check**

Teacher _____ Class or student _____

PREVIEW