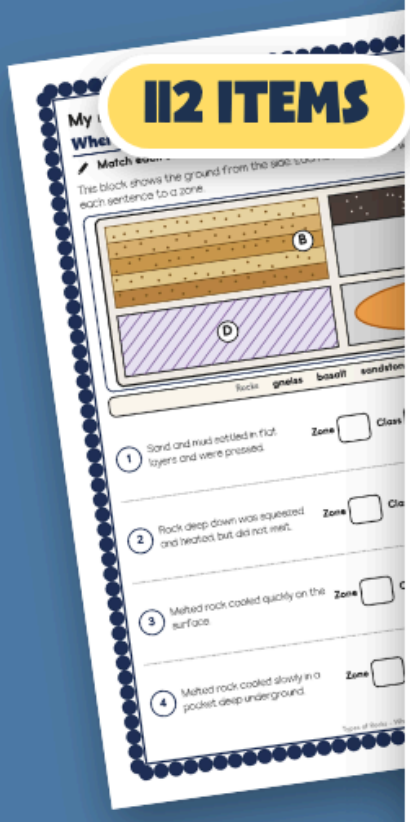
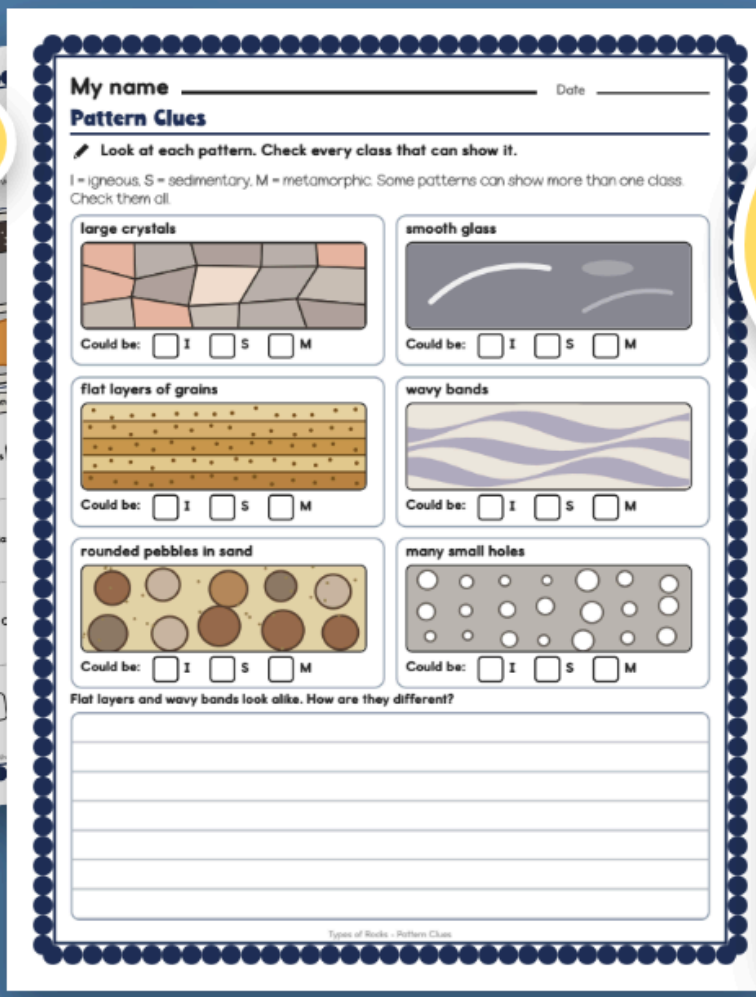
TYPES OF ROCKS

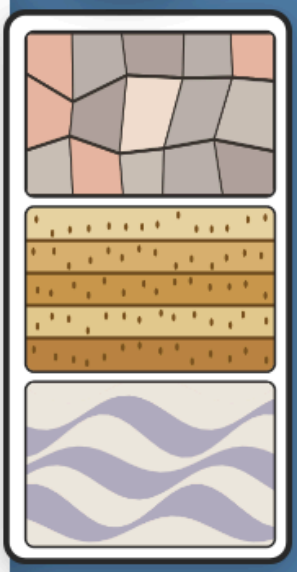
IGNEOUS, SEDIMENTARY, METAMORPHIC

112 ITEMS

40 PAGES







Bright Path Sped

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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 keep their size. Every picture in this file is a diagram drawn in black lines and flat color, and every box also carries its words, 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.

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PREVIEW

Teacher Notes

How the key works, the page types in order, and a few teaching notes.

How the key works

- **The key.** Two questions about how a rock formed. Question 1: did melted rock cool to make it? Yes means igneous. No leads to question 2: were bits of rock or shell pressed and cemented? Yes means sedimentary; No means metamorphic.
- **Why two questions.** Every rock in this file is one of the three classes, so the second No is metamorphic.
- **The pattern clues.** Crystals alone do not name a class: granite has them and so does marble. That is why the pattern page lets students check more than one class.
- **The cut lines.** Cut pages 1 and 2: 6 pieces, each 2.4 by 1.46 inches. Page 3: 10 pieces, each 1.46 by 1.15. Page 4: 5 pieces, each 1.46 by 1.5, and glue boxes 1.78 by 1.34. Edge to edge.

Page type	What it looks like	What the student does
How Rocks Form; Fact File; Words	3 pages, 6 items	Three formation chains, the traits of 12 rocks, six words to match.
Worked Example; Finish the Chart	2 pages, 7 items	A sample walked through the key in red, a Your Turn, then a blank key to fill.
Read and Classify 1 to 4	4 pages, 16 items	A written sample, three check boxes, the words that show it. Page 4 is field notes.
Pattern Clues; Where Rocks Form; Compare	3 pages, 17 items	Six patterns, a block of ground with four zones, two comparison tables.
Fix the Sort; Good Evidence?	2 pages, 12 items	Wrong reasons to fix; clues that do and do not help.
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.
Cut and Sort 1 to 3; Cut and Build the Chain	4 pages, 27 items	How it formed; a clue; rock names; paste five steps in order.

Three steps, marked by a shape

- **Circle.** Read and Classify 1 (page 10) and Cut and Sort 1 (page 23): the sample says how the rock formed.
- **Square.** Read and Classify 2 (page 11) and Cut and Sort 2 (page 24): the sample gives clues you read.
- **Triangle.** Read and Classify 3 and 4, Cut and Sort 3 and the chain (pages 12, 13, 25, 26): distractors such as color, then field notes.

Teaching notes

- Say it every day: **a rock is named by how it formed.**
- Students often name a class by color. Pages 17 and 18 ask for a reason about formation instead.
- Flat layers (sedimentary) and wavy bands (metamorphic) are easy to mix up. Page 14 asks students to say how they differ.
- For the whole loop of rocks changing from one class to another, pair this file with the rock cycle product. For how the bits in sedimentary rock get made and carried, see the weathering and erosion product. The cut-and-build page here shows only that part.

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

How Rocks Form

Read how each class forms. Keep this page next to you.

A rock is named by **how it formed**, not by its color. Melted rock under the ground is **magma**. On the surface it is **lava**.

Igneous: cooled from melted rock

Melted rock (magma or lava) → It cools → It hardens → **Igneous rock**

Sedimentary: bits pressed and cemented

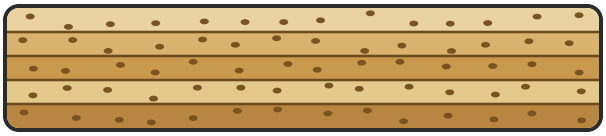
Bits of rock, sand, mud or shell → They settle in layers → They are pressed and cemented → **Sedimentary rock**

Metamorphic: changed by heat and pressure

An older rock → Heat and pressure change it → It does not melt → **Metamorphic rock**

Class	Clues you can read	Rocks in this file
Igneous	Crystals, smooth glass, or small holes from gas bubbles.	granite, basalt, obsidian, pumice
Sedimentary	Grains, pebbles, flat layers, or fossils.	sandstone, limestone, shale, conglomerate
Metamorphic	Wavy bands, hard flat sheets, or crystals that fit tightly.	marble, slate, quartzite, gneiss

Layers: flat and even



Sediment settles flat. Sedimentary rock.

Bands: wavy, squeezed



Heat and pressure bend it. Metamorphic rock.

PREVIEW

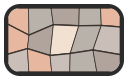
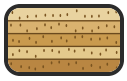
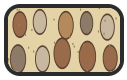
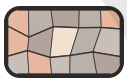
Preview - Bright Path Sped

My name _____ Date _____

Key Words

Match each word to what it means.

Write the letter of the meaning in the box.

 **Igneous rock**		**A**	small bits of rock, sand, mud or shell
 **Sedimentary rock**		**B**	rock that forms when melted rock cools and hardens
 **Metamorphic rock**		**C**	a push or squeeze on something
 **Sediment**		**D**	a solid with flat sides that grows in a regular shape
 **Crystal**		**E**	rock that forms when bits of rock or shell are pressed and cemented
 **Pressure**		**F**	rock that forms when an older rock is changed by heat and pressure

Use two of the words in one sentence.

PREVIEW

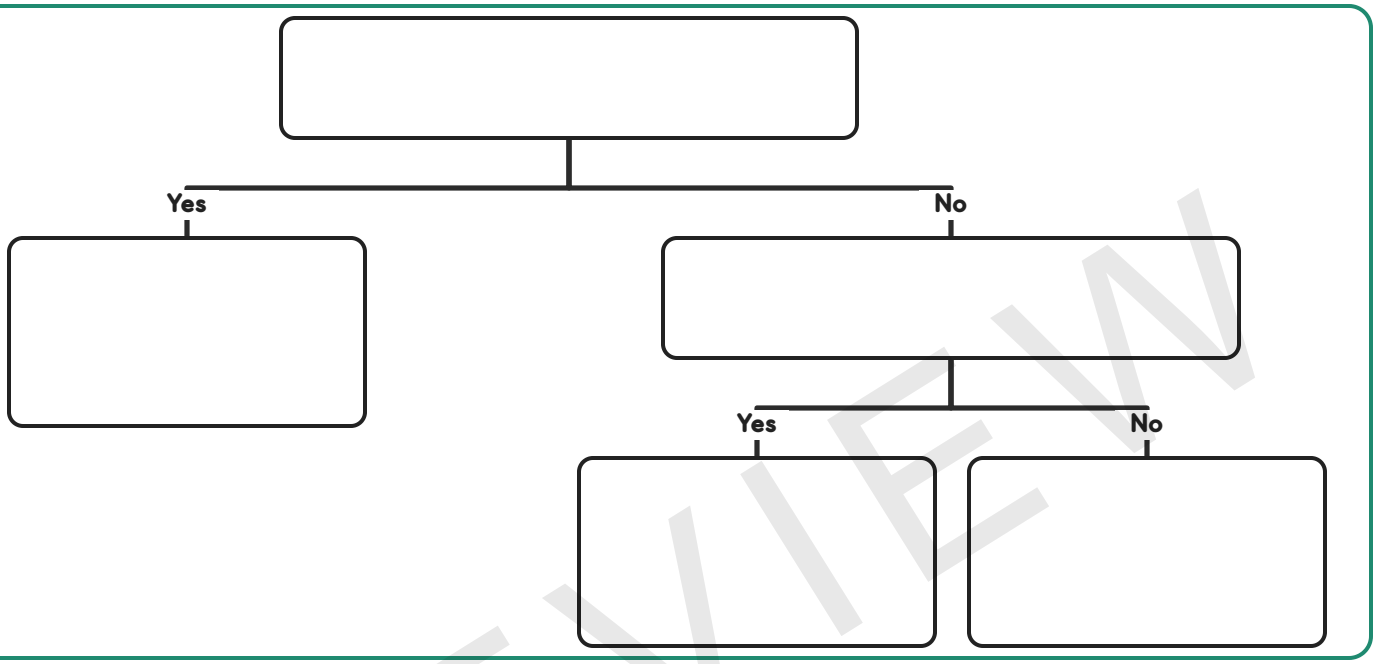
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My name _____ Date _____

Finish the Chart

Fill in the chart. Then test it.

Write the two questions in the green boxes. Write a class in each box at the bottom. The words are in the bank.



Word bank **Did melted rock cool to make it?** **Were bits of rock or shell pressed and cemented?** **Igneous** **Sedimentary** **Metamorphic**

Test it: pick a rock from the fact file (page 6). Follow your chart. Did you reach its class?

☐ **yes** ☐ **not yet**

Which rock did you test? Write the Yes and No answers you gave.

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Read and Classify 2

Read the sample. Name its class.

Ask: did melted rock cool to make it? Were bits pressed and cemented? Did heat and pressure change an older rock?

1. Rock 1 is made of thin layers of mud. It splits apart like the pages of a book, and one layer holds a shell print.

Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

2. Rock 2 is dark and has tiny crystals. It formed when lava cooled fast on the surface.

Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

3. Rock 3 has wavy bands of light and dark minerals. It was squeezed by heat and pressure deep in the crust.

Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

4. Rock 4 is full of rounded pebbles held together by sand. Water carried the pebbles and left them in a pile.

Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

PREVIEW

Preview - Bright Path Shed

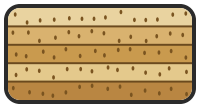
My name _____ Date _____

Read and Classify 4

Read the field notes. Name the class.

Ask: did melted rock cool to make it? Were bits pressed and cemented? Did heat and pressure change an older rock?

1. Field notes: has fossil shells; made of grains; found in flat layers.



Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

2. Field notes: smooth like glass; no crystals you can see; found beside an old lava flow.



Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

3. Field notes: splits into hard, flat sheets; very smooth; it used to be shale.



Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

4. Field notes: wavy bands of light and dark; sparkly crystals; squeezed deep underground.



Class ☐ **igneous** ☐ **sedimentary** ☐ **metamorphic**

Words that show it: _____

PREVIEW

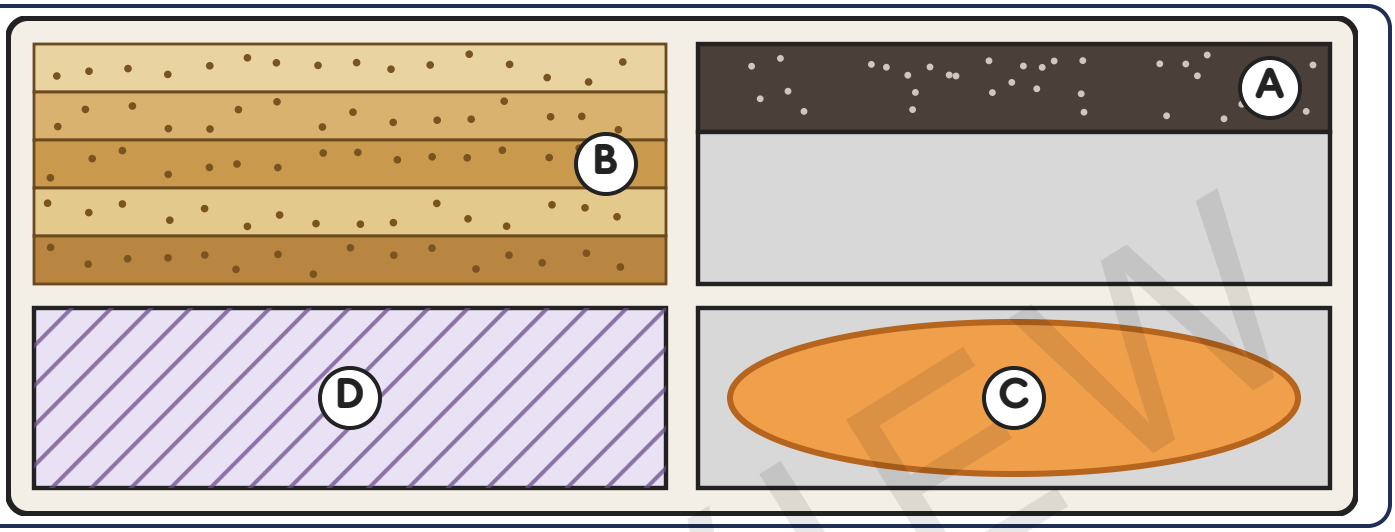
Preview - Bright Path Sped

My name _____ Date _____

Where Rocks Form

Match each sentence to a zone. Write the class and a rock.

This block shows the ground from the side. Each letter is a zone where a rock can form. Match each sentence to a zone.



Rocks **gneiss** **basalt** **sandstone** **granite**

1. Sand and mud settled in flat layers and were pressed. **Zone** ____ **Class** ____ **Rock** ____

2. Rock deep down was squeezed and heated, but did not melt. **Zone** ____ **Class** ____ **Rock** ____

3. Melted rock cooled quickly on the surface. **Zone** ____ **Class** ____ **Rock** ____

4. Melted rock cooled slowly in a pocket deep underground. **Zone** ____ **Class** ____ **Rock** ____

PREVIEW

My name _____ Date _____

Fix the Sort

Find the wrong reasons. Fix them.

Each sentence names a rock and gives a reason. Is the class right? Is the reason a good one?

1. Marble has crystals, so it is igneous. ☐ right ☐ wrong
   If wrong, write the right class and why: _____

2. Sandstone is made of pressed grains, so it is sedimentary. ☐ right ☐ wrong
   If wrong, write the right class and why: _____

3. Basalt is dark, so it is metamorphic. ☐ right ☐ wrong
   If wrong, write the right class and why: _____

4. Shale has thin layers, so it is sedimentary. ☐ right ☐ wrong
   If wrong, write the right class and why: _____

5. Gneiss has bands, so it is sedimentary. ☐ right ☐ wrong
   If wrong, write the right class and why: _____

6. Obsidian cooled fast from lava, so it is igneous. ☐ right ☐ wrong
   If wrong, write the right class and why: _____

PREVIEW

My name _____ Date _____

Claim, Evidence, Reasoning 1

Read the facts. Write your claim, evidence and reasoning.

Cooling speed (invented)

Rock P and Rock Q both formed from melted rock. The crystals in Rock P are about 6 mm across. The crystals in Rock Q are about 1 mm across. Which rock cooled more slowly?

Claim

Evidence: use the numbers or the clues

Reasoning: why does the evidence fit the claim?

A cliff with layers (invented)

A cliff shows 5 flat layers of sand and mud pressed together. The top layer holds a shell print. Is the rock igneous, sedimentary or metamorphic?

Claim

Evidence: use the numbers or the clues

Reasoning: why does the evidence fit the claim?

PREVIEW

Preview - Bright Ezee Shop

My name _____ Date _____

Short Answer

Answer each question in your own words.

Useful words **formed** **melted** **pressed** **cemented** **heat** **crystals**

1. Granite and marble both have crystals. How are they different?

2. Why does sedimentary rock often have layers?

3. Why is color a weak clue for a rock's class?

4. Write one clue you could read for each class: igneous, sedimentary and metamorphic.

5. Why can a fossil be found in limestone but not in basalt?

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Cut and Sort 2

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

What clue does each card give? Paste two pieces in each box.

Igneous cooled from melted rock	**Sedimentary** bits pressed and cemented	**Metamorphic** changed by heat and pressure

PREVIEW

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

Has rounded pebbles cemented together.	Has large crystals from slow cooling.	Has wavy bands of light and dark.
Is full of tiny holes from gas bubbles.	Is made of hard, flat sheets from squeezing.	Has fossil shells in thin layers.

Preview - Bright Path Shed

My name _____ Date _____

Cut and Build the Chain

Cut out the pieces. Paste them in order, 1 to 5.

This chain shows how a sedimentary rock forms. Read the five steps. Paste each step in its box, 1 to 5.

1 glue step 1 →	**2** glue step 2 →	**3** glue step 3
4 glue step 4 →	**5** glue step 5 →	**Sedimentary rock**

Cut on the dashed lines: four cuts down.

The weight of new layers presses them.	Rock is broken into small bits.	Minerals glue the bits into rock.	Water or wind carries the bits away.	The bits settle in flat layers.

PREVIEW

Answer Key: Words, Worked, Chart, Patterns and Zones

Every value was computed from the fact table or the page's own data.

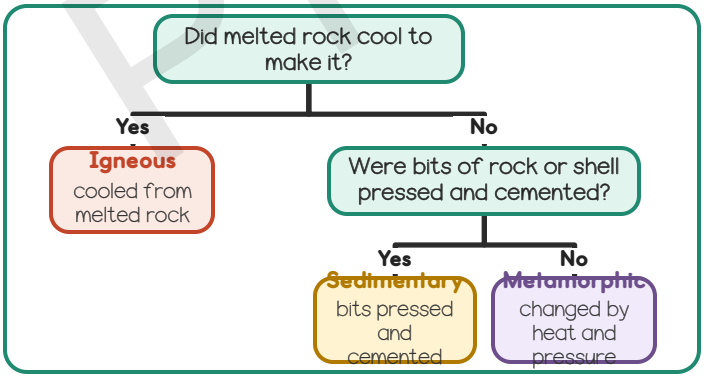
Key Words page 7

Word	Letter
Igneous rock	B
Sedimentary rock	E
Metamorphic rock	F
Sediment	A
Crystal	D
Pressure	C

Worked Example page 8

Sample	Yes or No	Class	Part
Rock 1	No, Yes	Sedimentary	example
Rock 2	Yes	Igneous	your turn
Rock 3	No, No	Metamorphic	your turn

Finish the Chart page 9



Accept the two questions in the bank, in this order, and the three classes in the boxes as shown. Check the test line by following the student's own chart.

Pattern Clues page 14

Pattern	Classes that can show it
large crystals	Igneous, Metamorphic (both)
smooth glass	Igneous
flat layers of grains	Sedimentary
wavy bands	Metamorphic
rounded pebbles in sand	Sedimentary
many small holes	Igneous

Where Rocks Form page 15

Zone	What happened	Class	Rock
A	Melted rock cooled quickly on the surface	Igneous	basalt
B	Sand and mud settled in flat layers and were pressed	Sedimentary	sandstone
C	Melted rock cooled slowly in a pocket deep underground	Igneous	granite
D	Rock deep down was squeezed and heated, but did not melt	Metamorphic	gneiss

Zones

Zone C and zone A are both igneous: slow cooling underground makes large crystals (granite); fast cooling at the surface makes tiny crystals (basalt). Accept any rock from the bank that fits the class and the zone.

PREVIEW

Answer Key: Claims, Quiz and Short Answer

Sample answers for pages 19, 20, 21 and 22. Accept any answer that says the same thing, with the evidence (a number or a clue about how it formed).

Cooling speed (page 19)

Claim: Rock P cooled more slowly. **Evidence:** The crystals in P are 6 mm and in Q are 1 mm, so P's crystals are 6 times as wide. **Reasoning:** Crystals need time to grow. Slow cooling gives them more time, so slower cooling makes larger crystals.

A cliff with layers (page 19)

Claim: The rock is sedimentary. **Evidence:** The cliff has 5 flat layers of pressed sand and mud, and one layer holds a shell print. **Reasoning:** Sediment settles in layers and is pressed into rock. A shell can be buried in soft sediment, but melted rock would destroy it.

Same parent, new rock (page 20)

Claim: Rock S is metamorphic. **Evidence:** S used to be sandstone, and its grains are now fused with none loose. An older rock changed. **Reasoning:** Heat and pressure can change a rock without melting it. A rock that changed from an older rock is metamorphic.

Which clues count? (page 20)

Claim: Sample T is igneous. **Evidence:** 3 of the 4 clues tell how it formed: lava cooled quickly, tiny crystals and an old lava flow. Being dark does not. **Reasoning:** Class comes from how a rock formed. Color is not a reason. Cooled lava means igneous.

Quiz page 21

#	Answer
1	melted rock cools
2	pressed bits of rock
3	changed from older rock
4	cooled slowly
5	limestone
6	marble
7	its color
8	it cooled too fast
9	quartzite
10	melting

Short Answer page 22

#	Question and a sample answer
1	**Granite and marble both have crystals. How are they different?** Granite formed when melted rock cooled and hardened. Marble formed when limestone was changed by heat and pressure without melting.
2	**Why does sedimentary rock often have layers?** Sediment settles in layers, and the weight of new layers presses the older ones into rock.
3	**Why is color a weak clue for a rock's class?** Rocks of all three classes can be gray or black. How a rock formed is what decides its class.
4	**Write one clue you could read for each class: igneous, sedimentary and metamorphic.** Sample: igneous, glassy or large crystals; sedimentary, pebbles, grains or fossils; metamorphic, wavy bands or flat hard sheets.
5	**Why can a fossil be found in limestone but not in basalt?** Shells and bones can be buried in soft sediment that turns into limestone. Basalt formed from melted rock, which would destroy them.

PREVIEW

Types of Rocks Tracker

One student, every scored page. Filled example: page 36.

Student _____ Teacher _____ Month _____

Page	Page type and set	Items	Right	Date	Notes
7	Key Words	6			
8	Worked Example	2			
9	Finish the Chart	5			
10	Read and Classify 1	4			
11	Read and Classify 2	4			
12	Read and Classify 3	4			
13	Read and Classify 4	4			
14	Pattern Clues	6			
15	Where Rocks Form	4			
16	Compare Two Rocks	7			
17	Fix the Sort	6			
18	Good Evidence?	6			
19	Claim, Evidence, Reasoning 1	6			
20	Claim, Evidence, Reasoning 2	6			
21	Quiz	10			
22	Short Answer	5			
23	Cut and Sort 1	6			
24	Cut and Sort 2	6			
25	Cut and Sort 3	10			
26	Cut and Build the Chain	5			

How to fill this in

Write how many items the student got right with no prompt, and the date. A blank means not tried yet, never wrong. There are 112 items on the 20 scored pages. Answer keys: pages 27 to 31. Filled example: page 36.

This month we are working on (your own standard or wording)

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, worked example and chart			
Reading a sample			
Patterns, zones and compare			
Fix it			
Claims, quiz and short answer			
Cut and sort			

What I saw (observable, not a conclusion)

- Named the class from a written sample on ___ of ___ items without a prompt.
- Gave words about how the rock formed (not its color) on ___ of ___ tries.
- Used a clue from the fact file as evidence: yes / no / with a reminder.
- Used the fact file (page 6): 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 class on 3 of 4 items on Read and Classify 2 without a prompt on 11/5. Next step: ask the student to say how the rock formed before choosing a class." That is the level of detail this page is built for. It matches the filled example on page 36.

PREVIEW

Jordan's Tracker (Invented Student)

Jordan T. is invented; nothing on this page describes a real student. The blank tracker is on page 32.

Student: Jordan T. (an invented student)

Teacher: Ms. Alvarez (invented)

Month: November

Page	Page type and set	Items	Right	Date	Notes
7	Key Words	6	5	11/3	Mixed up sediment and crystal
8	Worked Example	2	-	-	-
9	Finish the Chart	5	-	-	-
10	Read and Classify 1	4	4	11/4	-
11	Read and Classify 2	4	3	11/5	Named the wavy bands rock sedimentary
12	Read and Classify 3	4	-	-	-
13	Read and Classify 4	4	-	-	-
14	Pattern Clues	6	5	11/6	Checked only one class for large crystals
15	Where Rocks Form	4	-	-	-
16	Compare Two Rocks	7	-	-	-
17	Fix the Sort	6	4	11/10	Kept the color reason
18	Good Evidence?	6	-	-	-
19	Claim, Evidence, Reasoning 1	6	-	-	-
20	Claim, Evidence, Reasoning 2	6	-	-	-
21	Quiz	10	-	-	-
22	Short Answer	5	-	-	-
23	Cut and Sort 1	6	6	11/12	-
24	Cut and Sort 2	6	-	-	-
25	Cut and Sort 3	10	8	11/13	Marble and slate mixed with sedimentary
26	Cut and Build the Chain	5	-	-	-

How to read it

Jordan T. has done **7 of 20** scored pages and got **35 of 42** items right with no prompt. **2** pages were all right and **5** carry a note. Every number comes from the table.

What the table points to

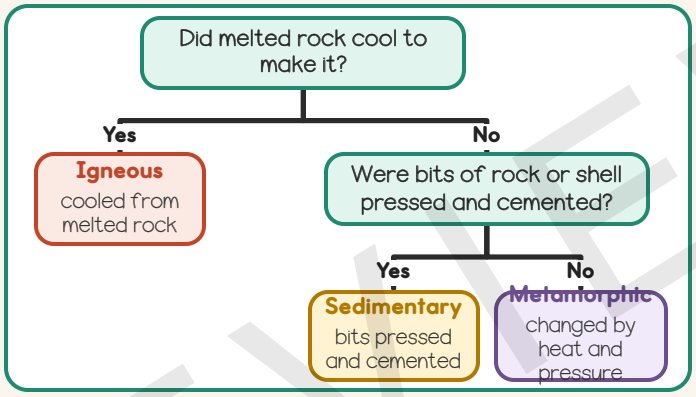
The lowest page is Fix the Sort (4 of 6). That is where the next practice goes. The 13 pages left blank are not tried yet, never wrong.

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 39).

Science - Earth Science



TYPES OF ROCKS

How Rocks Form

Igneous

Sedimentary

Metamorphic

Teacher _____

Class or student _____

PREVIEW