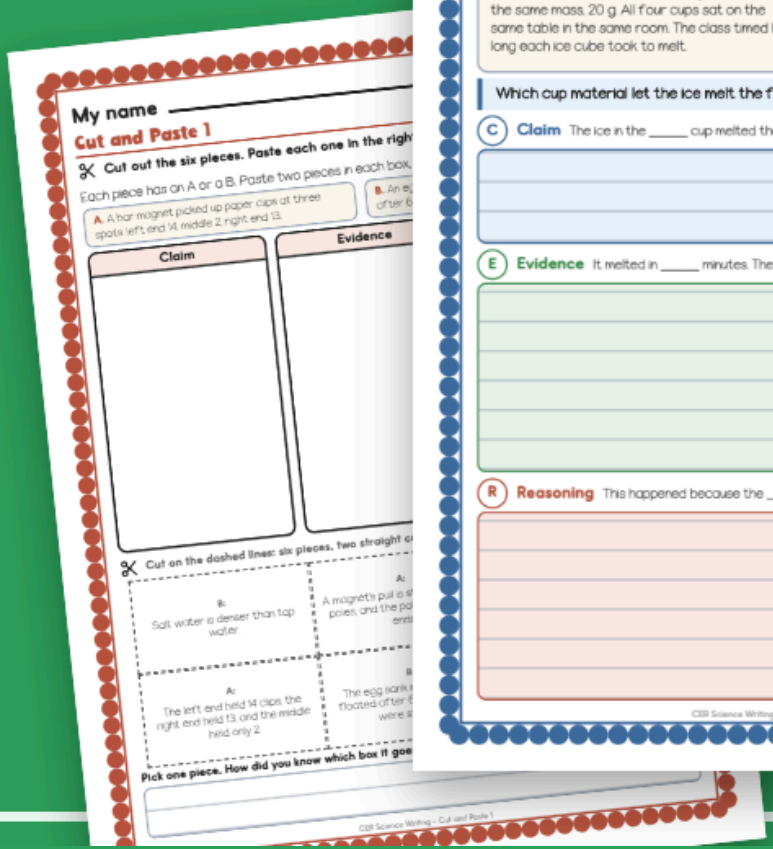
CER SCIENCE WRITING

CLAIM, EVIDENCE, REASONING GRADES 6-8



43 PAGES

12 DATA SCENARIOS


My name

Cut and Paste 1

Cut out the six pieces. Paste each one in the righ

Each piece has an A or a B. Paste two pieces in each box.

A. A bar magnet picked up paper clips at three spots: left end 14, middle 2, right end 13.

B. An e... after 6...

Claim

Evidence

Cut on the dashed lines: six pieces, two straight c...

B: Salt water is denser than tap water.

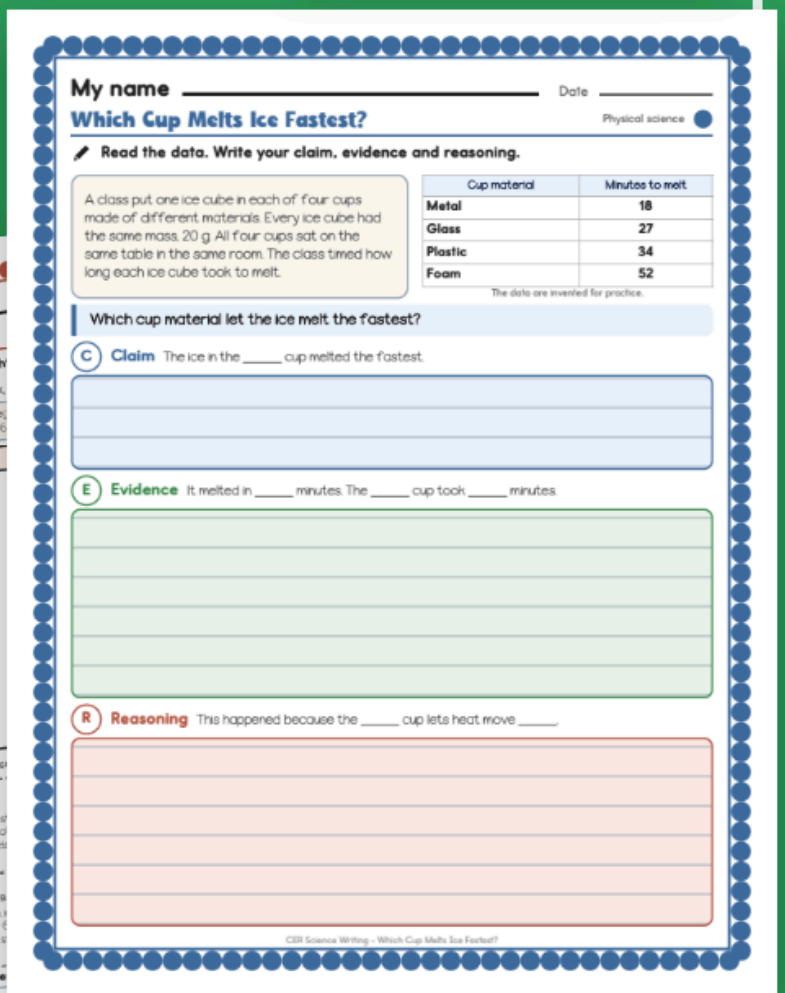
A: A magnet's pull is s... poles, and the po... ends.

A: The left end held 14 clips, the right end held 13, and the middle held only 2.

B: The egg sank... floated after 6... were s...

Pick one piece. How did you know which box it goe...

CER Science Writing - Cut and Paste 1


My name _____ Date _____

Which Cup Melts Ice Fastest?

Physical science

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

A class put one ice cube in each of four cups made of different materials. Every ice cube had the same mass, 20 g. All four cups sat on the same table in the same room. The class timed how long each ice cube took to melt.

Cup material	Minutes to melt
Metal	18
Glass	27
Plastic	34
Foam	52

The data are invented for practice.

Which cup material let the ice melt the fastest?

C Claim The ice in the _____ cup melted the fastest.

E Evidence It melted in _____ minutes. The _____ cup took _____ minutes.

R Reasoning This happened because the _____ cup lets heat move _____.

CER Science Writing - Which Cup Melts Ice Fastest?

Bright Path Sped

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- Every name line, writing box, answer box and check box on the student pages is a type-in field, and so are the tracker, class grid, team note and family page. You can also print any page and write by hand.
- It works offline. No account, no subscription, no internet connection needed after you download it.

Print at 100 percent

Turn off fit to page and shrink to fit so the ruled lines keep their spacing. Every student page reads when copied in black and white.

Student work

A filled-in tracker, class grid or team note carries a real student's name. Keep it in the data folder, and use a first name only on any page that leaves your hands.

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PREVIEW

Teacher Notes

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

The parts of a page

- **The writing box.** A ruled box **0.34** inch a line, colored for Claim (blue), Evidence (green) and Reasoning (rust). Click it to type, or print and write.
- **The data table.** Printed on the page. The data are invented for practice and made to show a clear trend.
- **The answer box.** A bordered box for a short answer. **The check box:** strong or weak, yes or not yet.
- **The shape.** A circle, a square or a triangle at the top right tells the frame: full stems, starters or blank boxes.
- **The cut line.** Six pieces in a 3 by 2 grid, each **2.4** by **1.25** inches, edge to edge: two cuts across and two down.

Page type	What it looks like	What the student does
Parts, Words, Read a Data Table, Frames	4 pages	The handout, six words, reading a table, the three kinds of frame.
Worked Example 1 and 2	2 pages	A full CER with the reason each part works.
12 science scenarios	12 pages	Setup and data table, a question, then Claim, Evidence and Reasoning boxes.
Weak or Strong Evidence	2 pages, 6 problems	A made-up student's evidence. Strong or weak? If weak, write it better.
Partner check, Self check	2 pages	Check boxes and a star and wish for a partner, eight yes or not yet lines for the writer.
Cut and Paste 1 to 3	3 pages, 18 pieces	Sort claim, evidence and reasoning twice, sort strong and weak evidence.

Three steps up, marked by a shape

- **Circle, full stems (pages 11 to 14).** A sentence with blanks for each part. One clear trend in every table.
- **Square, starters (pages 15 to 18).** A few words to start each part. The rock page uses a table of observations, not numbers.
- **Triangle, blank boxes (pages 19 to 22).** No stems. Tables are bigger (a density table with a calculated column, five trials with a total) or the idea is trickier (too much water, salt and freezing).

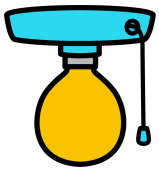
Teaching notes

- Say it every day: **claim = answer, evidence = data, reasoning = science idea.** Reasoning is the part students skip, so it gets the most room.
- Start on the circle pages, move to the square pages when the stems feel easy, and use the triangle pages for independent writing.
- A claim that does not match the data is a chance to teach: ask the student to point to the row that supports it.
- The rubric on page 30 scores each part from 0 to 3. Adjust the wording to your own grading; this file does not convert it to a grade.

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____



The Parts of a CER

Read about the three parts. Keep this page next to you.

Claim

What is my answer?

- Answer the question in one sentence.
- Say what you think is true.
- Use words from the question.

Start with:
I claim that ...

Evidence

What does the data say?

- Use numbers from the table.
- Use at least two pieces of data.
- Say which number goes with which.

Start with:
The data show that ...

Reasoning

Why does it happen?

- Name a science idea.
- Link the idea to your evidence.
- Say why the evidence backs up the claim.

Start with:
This is because ...

CER stands for Claim, Evidence, Reasoning. It is how scientists show their thinking.

Here is one, from Worked Example 1 (page 9). The question was: How does the surface change how far the car coasts?

C The rougher the surface, the shorter the distance the car coasts.

E On tile the car coasted 210 cm. On sandpaper it coasted only 45 cm.

R Friction is a force that pushes against motion where two surfaces touch. A rough surface makes more friction, so the car loses its motion energy sooner and stops sooner.

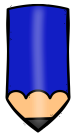
Say it in your own words: what is the job of the reasoning?

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Frames to Help You Write



Pick the frame that helps you. Keep this page next to you.

There are three ways to get help. Your teacher will tell you which one to use. The shape is printed at the top of each CER page.

Circle: finish the sentences

Full sentence stems with blanks to fill. Each stem tells you what kind of word goes in the blank.

Example, for Which Cup Melts Ice Fastest?

Claim: The ice in the _____ cup melted the fastest.

Evidence: It melted in _____ minutes. The _____ cup took _____ minutes.

Reasoning: This happened because the _____ cup lets heat move _____.

Square: start the sentences

A short starter for each part. You finish the sentence in your own words.

Example, for Which Cup Melts Ice Fastest?

Claim: I claim that ...

Evidence: The data show that ... For example, ...

Reasoning: This is because ... The science idea is ...

Triangle: write it yourself

Only the three boxes. You write every word. Check your work with the list on page 26.

Example, for Which Cup Melts Ice Fastest?

Claim: Answer the question in one sentence.

Evidence: Use numbers from the data.

Reasoning: Explain why with a science idea.

Words that help you connect your ideas

because **so** **this shows** **compared to** **which means** **for example**
as ... goes up, ... goes down **the data show**

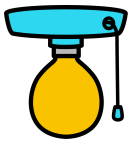
Write one sentence about any CER page. Use a helping word.

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Worked Example 2: Yeast and Sugar



Read how it is done. Follow along.

A class put 1 spoon of yeast in warm water in two bottles. Bottle A also got 1 spoon of sugar. Bottle B got no sugar. A balloon on each bottle caught any gas. After 20 minutes the class measured how wide each balloon was.

Bottle	Sugar added?	Balloon width (cm)
A	**Yes**	**9**
B	**No**	**1**

The data are invented for practice.

Does yeast need sugar to make gas?

C Claim

Yes. Yeast needs sugar to make gas.

Why it works: It says yes and answers the question that was asked.

E Evidence

The balloon on bottle A, with sugar, grew to 9 cm wide. The balloon on bottle B, with no sugar, grew to only 1 cm.

Why it works: It compares both bottles and uses their numbers.

R Reasoning

Yeast is a living thing. It uses sugar as food and gives off carbon dioxide gas as it does. With no sugar, the yeast has no food to use, so very little gas is made.

Why it works: It says what yeast does with sugar and why that makes gas.

Look at the three colors. Each part has a job. A strong CER has all three.

Your turn: find one more number in the table. Write a sentence that uses it.

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Which Color Gets Warmest in the Sun?

Earth science

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

A class taped sheets of paper in four colors over four thermometers and set them in the sun for 20 minutes. Every thermometer started at 22 degrees C.

Paper color	Temperature after 20 minutes (degrees C)
Black	**38**
Green	**33**
Gray	**30**
White	**27**

The data are invented for practice.

Which color of paper got warmest in the sun?

C Claim The _____ paper got warmest.

E Evidence The thermometer under the _____ paper reached _____ degrees C. The one under the _____ paper reached _____ degrees C.

R Reasoning Dark colors _____ more light energy, and light colors _____ more of it.

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Sugar in Warm and Cold Water

Physical science

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

A class dropped one sugar cube of the same size into 200 mL of water at four temperatures. They stirred each cup the same way and timed how long it took until no sugar could be seen.

Water temperature (degrees C)	Seconds to dissolve
10	95
25	62
40	38
60	21

The data are invented for practice.

How does water temperature change how fast sugar dissolves?

C Claim I claim that ...

E Evidence The data show that ... For example, ...

R Reasoning This is because ... The science idea is ...

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

What Kind of Rock Is It?

Earth science

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

A class looked at three rock samples with a hand lens. Rock types are igneous, sedimentary and metamorphic. The class wrote down what they saw.

What we saw	Rock 1	Rock 2	Rock 3
Layers or bands	**Flat layers**	**None**	**Wavy bands**
Grains or crystals	**Rounded grains stuck together**	**Large crystals locked together**	**Crystals squeezed flat**
Fossils	**A shell print**	**None**	**None**

The data are invented for practice.

What type of rock is Rock 1?

C Claim I claim that ...

E Evidence The data show that ... For example, ...

R Reasoning This is because ... The science idea is ...

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Seeds and Water

Life science

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

A class put 20 radish seeds on a paper towel in each of four dishes. Each dish got a different amount of water every day. After 7 days the class counted how many seeds had sprouted.

Water each day (mL)	Seeds sprouted (out of 20)
0	**0**
5	**14**
10	**18**
50 (dish flooded)	**6**

The data are invented for practice.

How does the amount of water change how many seeds sprout?

C Claim

Answer the question in one sentence.

E Evidence

Use numbers from the data.

R Reasoning

Explain why with a science idea.

PREVIEW

My name _____ Date _____

Weak or Strong Evidence 1



Read each sentence. Is the evidence strong or weak?

The students are made up for practice. Strong evidence uses numbers from the data and matches the table.

1 Claim: Bean plants in the sun grew taller than bean plants in a closet.

The data: Sunny window 24 cm. Closet 9 cm. (14 days)

A made-up student wrote: "The plants in the sun looked healthier."

This evidence is ☐ **strong** ☐ **weak**

Why? If it is weak, write stronger evidence.

2 Claim: A toy car stops sooner on carpet than on tile.

The data: Tile 210 cm. Wood 160 cm. Carpet 70 cm.

A made-up student wrote: "The car coasted 70 cm on the carpet and 210 cm on the tile."

This evidence is ☐ **strong** ☐ **weak**

Why? If it is weak, write stronger evidence.

3 Claim: Sugar dissolves faster in warm water than in cold water.

The data: Cold water (10 degrees C) 95 seconds. Warm water (40 degrees C) 38 seconds.

A made-up student wrote: "The sugar dissolved in 38 seconds."

This evidence is ☐ **strong** ☐ **weak**

Why? If it is weak, write stronger evidence.

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Check a Partner's CER

Read your partner's CER. Check each box.

My partner is _____

C Claim

Does the claim answer the question?	☐ yes	☐ not yet
Does the claim match the data?	☐ yes	☐ not yet

E Evidence

Does it use numbers from the table?	☐ yes	☐ not yet
Does it use at least two numbers?	☐ yes	☐ not yet

R Reasoning

Does it name a science idea?	☐ yes	☐ not yet
Does it say why the evidence supports the claim?	☐ yes	☐ not yet

One star: something that works well

One wish: something to add or fix

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Cut and Paste 2

Cut out the six pieces. Paste each one in the right box.

Each piece has an A or a B. Paste two pieces in each box, one from A and one from B.

A. Bread in a damp bag grew mold over 12 square cm in 5 days. Bread in a dry bag grew mold over 1 square cm.

B. A stick's shadow was 180 cm long at 8 am, 90 cm at 10 am and 40 cm at noon.

Claim	Evidence	Reasoning

PREVIEW

Cut on the dashed lines: six pieces, two straight cuts across and two down.

B: The shadow was 180 cm at 8 am, 90 cm at 10 am and 40 cm at noon.	**A:** Mold grows faster in a damp place.	**A:** Mold is a living thing that needs moisture to grow.
B: At noon the Sun is highest in the sky, so objects block its light in a shorter shadow.	**B:** A shadow is shortest at noon.	**A:** After 5 days the damp bag had mold over 12 square cm and the dry bag only 1 square cm.

Pick one piece. How did you know which box it goes in?

CER Rubric and Scoring Grid

One rubric for every scenario page. Each part is scored 0 to 3.

Part	3	2	1	0	Score
Claim	Answers the question in a clear sentence and matches the data.	Answers the question but is vague, or only partly matches the data.	Repeats the question, or does not match the data.	No claim.	
Evidence	Two or more specific pieces of data from the table, compared.	One specific piece of data, or data that are not compared.	An opinion, or data that are not in the table.	No evidence.	
Reasoning	Names a science idea and says why the evidence supports the claim.	Names a science idea but does not link it to the evidence.	Repeats the evidence, or gives an idea that does not fit.	No reasoning.	

Student	Page	Claim	Evidence	Reasoning	Total (of 9)

PREVIEW

How to use it

- Score each part of one CER from 0 to 3 and write the total out of 9. Copy the total to the tracker.
- A part with a 3 does what the sample responses do; the samples are on pages 31 to 33.
- These are the file's own words. Change them to match the rubric your school already uses.

Sample Responses: Circle Pages

Sample answers. Accept other wording that gives a claim that matches the data, at least two pieces of data from the table, and a science idea that links them. Every number was checked against its own table.

Scenario	Sample claim	Sample evidence	Sample reasoning
Which Cup Melts Ice Fastest? page 11	The ice in the metal cup melted the fastest.	The ice in the metal cup melted in 18 minutes. The ice in the foam cup took 52 minutes, the longest.	Metal moves thermal energy (heat) from the warm room into the ice faster than glass, plastic or foam can. Foam is a poor conductor, so it slows that energy down. The more energy that reaches the ice, the sooner it melts.
Does a Plant Need Light? page 12	Yes. Bean plants need light to grow well.	The plants in the light had 8 leaves and dark green leaves. The plants in the dark had only 3 leaves and pale yellow leaves.	Plants use light energy to make their own food in photosynthesis. Without light the plants made very little food, so they grew fewer leaves and could not stay green.
Which Color Gets Warmest in the Sun? page 13	The black paper got warmest.	The thermometer under the black paper reached 38 degrees C. The one under the white paper reached only 27 degrees C. Both started at 22 degrees C.	Dark colors absorb more of the light energy that hits them, and light colors reflect more of it. Absorbed light energy turns into thermal energy, so the black paper heated up the most.
Ball and Ramp page 14	A higher ramp makes the ball roll the 100 cm faster.	On the 5 cm ramp the ball took **2.8** seconds. On the 20 cm ramp it took only **1.5** seconds.	A higher ramp is steeper, so gravity pulls the ball along the slope with more effect and the ball speeds up more. A faster ball covers the same distance in less time.

PREVIEW

Answer Key: Words, Tables, Evidence, Sorts

Sort pieces are numbered 1 to 6 across the cutting strip, row by row. The students in Weak or Strong Evidence are invented.

Words page 6

#	Word	Letter
1	Claim	B
2	Evidence	E
3	Reasoning	F
4	Data	A
5	Variable	D
6	Trend	C

Claim, evidence or reasoning page 6

#	Sentence	It is
7	The sugar took 95 seconds to dissolve in cold water.	evidence
8	Warm particles move faster, so they hit the sugar more often.	reasoning
9	The cold water dissolved the sugar slowest.	claim

Read a Data Table page 7

#	Question	Answer
1	What did the class change in this test?	the mass hung on the spring
2	What did the class measure?	the length of the spring
3	What is the longest spring length?	16
4	What is the shortest spring length?	10
5	How much longer is the longest than the shortest (cm)?	6
6	As the mass goes up, the spring gets	longer

Weak or Strong Evidence pages 23, 24

#	Strong or weak, and why
1	**Weak**. It is an opinion. It has no numbers from the data. Better: The plants in the sun grew to 24 cm. The plants in the closet grew to only 9 cm.
2	**Strong**. It uses two numbers from the table and compares them.
3	**Weak**. It gives only one number and does not compare it with the cold water. Better: The sugar dissolved in 38 seconds in warm water and took 95 seconds in cold water.
4	**Strong**. Both numbers match the table and they are compared.
5	**Strong**. It uses both counts from the data and they match the table.
6	**Weak**. The number does not match the table. 95 minutes belongs to the cup with no salt. Better: The cup with no salt froze in 95 minutes. The cup with 20 g of salt took 175 minutes.

Cut and Paste 1 page 27

#	Piece	Box
1	B: Salt water is denser …	Claim
2	A: A magnet's pull is …	Reasoning
3	B: Dissolved salt adds mass …	Reasoning
4	A: The left end held …	Evidence
5	B: The egg sank in …	Evidence
6	A: A bar magnet is …	Claim

Cut and Paste 2 page 28

#	Piece	Box
1	B: The shadow was 180 …	Evidence
2	A: Mold grows faster in …	Claim
3	A: Mold is a living …	Reasoning
4	B: At noon the Sun …	Reasoning
5	B: A shadow is shortest …	Claim
6	A: After 5 days the …	Evidence

Cut and Paste 3 page 29

#	Piece	Box
1	My family buys Brand …	Weak
2	Brand A absorbed 38 …	Strong
3	Brand A did well …	Weak
4	Brand A held 38 …	Strong
5	Brand A looks thicker.	Weak
6	Brand A absorbed 14 …	Strong

PREVIEW

CER Tracker

One student, every scored page. Filled example: page 39.

Student _____ Teacher _____ Month _____

Page	Page type	Items	Right	Date	Notes
6	Words to Know	9			
7	Read a Data Table	6			
11	Which Cup Melts Ice Fastest?	3			
12	Does a Plant Need Light?	3			
13	Which Color Gets Warmest in the Sun?	3			
14	Ball and Ramp	3			
15	Sugar in Warm and Cold Water	3			
16	Water on a Slope	3			
17	Cricket Chirps	3			
18	What Kind of Rock Is It?	3			
19	Sink or Float?	3			
20	Seeds and Water	3			
21	Pill Bug Choice	3			
22	Salt and Freezing Water	3			
23	Weak or Strong Evidence 1	3			
24	Weak or Strong Evidence 2	3			
27	Cut and Paste 1	6			
28	Cut and Paste 2	6			
29	Cut and Paste 3	6			

PREVIEW

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 75 items on the 19 scored pages. On a scenario page the three items are the claim, the evidence and the reasoning. Sample responses: pages 31 to 33; answer key: page 34. Filled example: page 39.

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

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 data tables			
Circle pages (full stems)			
Square pages (starters)			
Triangle pages (blank boxes)			
Weak or strong evidence			
Sorts			

What I saw (observable, not a conclusion)

- Wrote a claim that answered the question on ___ of ___ pages.
- Used numbers from the table in the evidence on ___ of ___ pages.
- Named a science idea in the reasoning on ___ of ___ pages (rubric page 30).
- Needed: full stems / starters / blank boxes / a verbal prompt.

Next step

- Next page or frame: ___, 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

"Got 2 of 3 parts right on Which Color Gets Warmest in the Sun without a prompt on 10/13. Next step: circle the numbers in the table before writing the evidence." That is the level of detail this page is built for. It matches the filled example on page 39.

PREVIEW

CER at Home

Dear family, this week we are writing about science using a claim, evidence and reasoning. These questions are for talking, not for a grade. Short answers are fine.

Student _____ Week of _____

Three things to talk about

- Ask your student to show you a table from the folder. Ask: "What is the question, and what does the data say?"
- Ask: "What is your claim, and which numbers back it up?" A claim is an answer; evidence is the numbers.
- Ask: "What science idea explains it?" That part is the reasoning, and it is the hardest one. A guess is fine.

My words from home

A question we looked at _____

The numbers that back it up _____

The science idea that explains it _____

Words that may come up

Claim: an answer to the question. **Evidence:** numbers and facts from the data. **Reasoning:** the science idea that links the evidence to the claim. **Data:** what was measured or observed. **Trend:** a pattern, like going up.

Note from the teacher

Note from home

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 42).

Science - Writing

CER

SCIENCE WRITING

Claim, Evidence, Reasoning

Claim | **Evidence** | **Reasoning**

Teacher _____

Class or student _____

PREVIEW