SCIENCE | GRADES 6 TO 9 | ANSWER KEY

Claim, Evidence, Reasoning with Data

Read a table or a graph, write a claim, and tie the evidence to a science idea

IN THIS PACKET YOU WILL LEARN TO

- ✓ Tell a claim from evidence and from reasoning
- ✓ Read a table, a bar graph, and a line graph
- ✓ Write a CER paragraph that uses data
- ✓ Fix a CER that leaves the science idea out

Name _____

Teacher _____

Class _____

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Name _____ Date _____

Claim, Evidence, Reasoning

ANSWER KEY LEARN

Read each part with your teacher, then look at the finished example.

WORDS TO KNOW

claim	A sentence that answers the question. It is a statement, and it can be tested.
evidence	Data from a table, a graph, or a text that supports the claim. Evidence names numbers or comparisons from the source.
reasoning	The science idea that links the evidence to the claim.

A FINISHED CER

Question: Do plants grow taller with more hours of light?

1. Claim: Plants grow taller when they get more hours of light.
2. Evidence: Plants with 12 hours of light averaged 14 cm, and plants with 6 hours averaged 8 cm.
3. Reasoning: Plants use light to make food, so more light can mean more growth if water and soil stay the same.

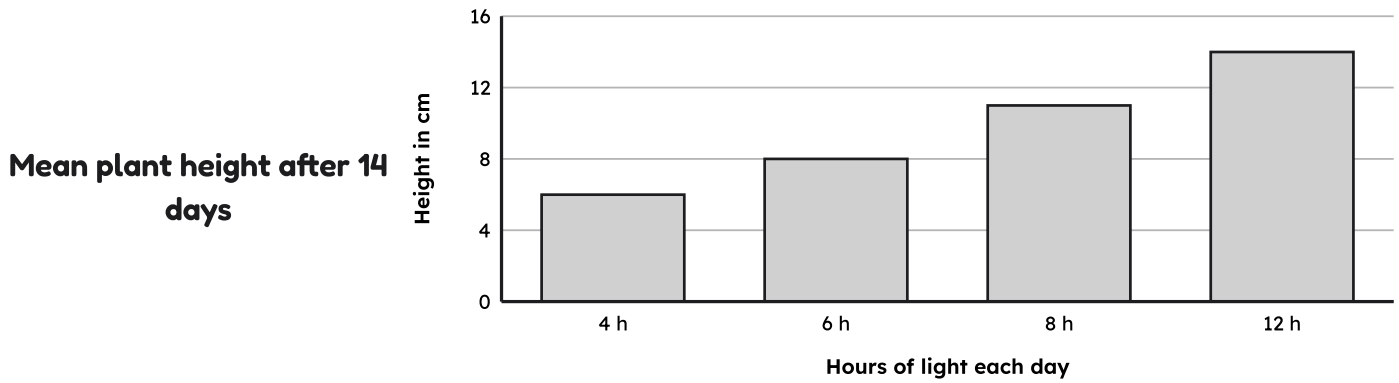
Claim, evidence, reasoning.

Name _____ Date _____

Reading a Bar Graph

ANSWER KEY LEARN

Read the graph, and remember that each bar is a mean height after two weeks.



1. The mean height at 8 hours is **11** cm.

2. The tallest mean is at **12** hours of light.

Name _____ Date _____

Pull Evidence from a Table

ANSWER KEY | GUIDED PRACTICE

Read the table, then write a claim and one evidence sentence that uses a number from the table.

Sleep and mean reaction time

Hours of sleep	Mean reaction time (ms)	Number of students
5	380	12
6	340	15
7	300	18
8	270	14
9	260	9

1. Write a claim that answers this question: How is sleep related to reaction time?

   Students who slept more hours had faster mean reaction times.

2. Write one evidence sentence that uses a number from the table.

   Students who slept 5 hours had a mean reaction time of 380 ms, and students who slept 8 hours had a mean of 270 ms.

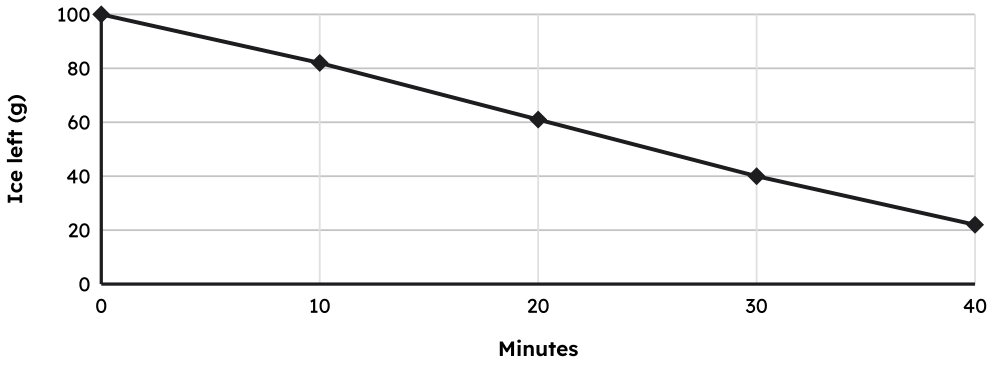
Name _____ Date _____

Read a Line Graph

ANSWER KEY PRACTICE ★

The graph shows how much ice was left in one open cup over 40 minutes. Write the missing numbers, then write one sentence of evidence.

Ice left in a cup after 40 minutes



1. At 20 minutes, about **61** g of ice was left.

2. At 40 minutes, about **22** g of ice was left.

3. Write one evidence sentence about how the ice changed over time.

The ice dropped from 100 g at 0 minutes to about 22 g at 40 minutes.

Name _____ Date _____

Write the Reasoning

ANSWER KEY | PRACTICE ★★

The claim and the evidence are given. Write the reasoning that links them to a science idea.

1. Claim: Plants grow taller with more light. Evidence: 12-hour plants averaged 14 cm and 6-hour plants averaged 8 cm. Write the reasoning that links the numbers to that claim.

   Plants use light to make food, so more hours of light can mean more food and more growth if water and soil stay the same.

2. Claim: More sleep is related to faster reactions. Evidence: 5-hour sleepers averaged 380 ms and 8-hour sleepers averaged 270 ms. Write the reasoning that links the numbers to that claim.

   Sleep helps the brain stay alert, so students who slept more could respond faster on the timer.

Name _____ Date _____

Sort the Sentences

ANSWER KEY | CUT AND PASTE

Cut out the nine cards. Glue each sentence under Claim, Evidence, or Reasoning.

Claim	Evidence	Reasoning
Plants grow taller with more light.	12-hour plants averaged 14 cm.	Plants use light to make food.
More sleep is related to faster reactions.	5-hour sleepers averaged 380 ms.	Sleep helps the brain stay alert.
Insulation slows how fast ice melts.	The open cup had 22 g of ice left.	Air is a poor conductor of heat.

✂

More sleep is related to faster reactions.	12-hour plants averaged 14 cm.	5-hour sleepers averaged 380 ms.
Sleep helps the brain stay alert.	Insulation slows how fast ice melts.	Air is a poor conductor of heat.
Plants grow taller with more light.	Plants use light to make food.	The open cup had 22 g of ice left.

Name _____ Date _____

Match the Part

ANSWER KEY MATCH

Read each sentence on the left. Find the part it belongs to on the right, and write the letter on the line.

SENTENCE		PART
1. Longer pendulums have longer periods.	B	**A** reasoning
2. The 40 cm pendulum had a period of 1.3 s.	E	**B** claim
3. A longer string gives the mass a longer path each swing.	A	**C** evidence
4. Dark cloth warms faster in the sun.	D	**D** claim
5. The black cloth reached 34 C and the white cloth reached 27 C.	C	**E** evidence
6. Dark colors absorb more light energy.	F	**F** reasoning

Name _____ Date _____

CER Riddle

ANSWER KEY | RIDDLE

Write the word that fits each clue. The first letters, in order, answer the riddle.

What should you do with a graph before you write a claim?

R	E	A	D
1	2	3	4

CODE TABLE

Average	Claim	Data	Evidence	Hypothesis	Reasoning
A	C	D	E	H	R

1. The science idea that links evidence to a claim: **Reasoning**
2. Numbers from a table that support the claim: **Evidence**
3. The mean of a set of trials: **Average**
4. Numbers you pull from a graph or a table: **Data**

Name _____ Date _____

Write a Full CER

ANSWER KEY APPLY

Read the table, then write a CER that answers the question. Use at least one number in the evidence.

Pendulum length and period

Length (cm)	Mean period (s)	Trials
10	0.6	5
20	0.9	5
40	1.3	5
80	1.8	5

1. How does pendulum length relate to period? Write a full CER that uses at least one number.
   Claim: _____. Evidence: _____. Reasoning: _____.

Claim: Longer pendulums have longer periods. Evidence: The 10 cm pendulum had a mean period of 0.6 s, and the 80 cm pendulum had a mean period of 1.8 s. Reasoning: A longer string gives the mass a longer path on each swing, so each swing takes more time.

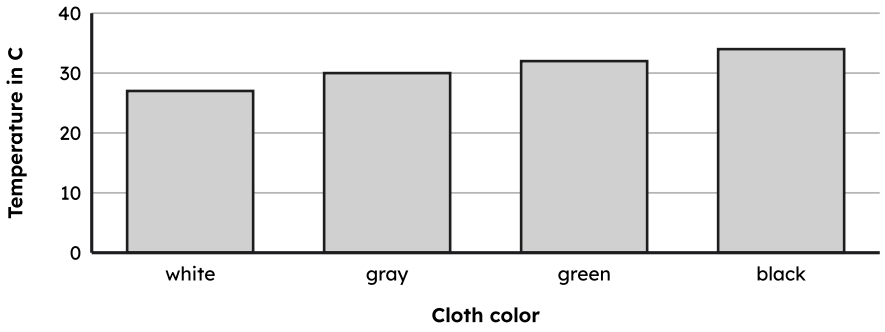
Name _____ Date _____

A Second CER

ANSWER KEY APPLY

Read the graph, then write a CER that answers the question. Use at least one number in the evidence.

Cloth temperature after 15 minutes in sun



1. How does cloth color relate to temperature in the sun? Write a full CER that uses at least one number.

Claim: Darker cloth reaches a higher temperature in the sun. Evidence: The black cloth reached 34 C and the white cloth reached 27 C. Reasoning: Dark colors absorb more light energy, so they warm more than light colors.

Name _____ Date _____

Find the Mistake

ANSWER KEY | ERROR ANALYSIS ★★

Each box shows a student's CER. Tell what is missing, then write the missing step.

Dev's CER about sleep

Claim: Sleep helps.

Evidence: Kids did better.

Reasoning: Because I think so.

1. What is missing from Dev's evidence and reasoning?

   The evidence has no number from the table, and the reasoning is an opinion instead of a science idea.

2. Rewrite the evidence sentence with a number from the sleep table.

   YOUR WORK

   Students who slept 5 hours averaged 380 ms, and students who slept 8 hours averaged 270 ms.

Name _____ Date _____

Explain How You Choose

ANSWER KEY WRITE ABOUT IT

Answer each question in complete sentences. Use the words claim, evidence, and reasoning.

1. How do you choose evidence from a graph or a table?

I pick numbers that I can compare, such as the highest and lowest bars, and I name the units.

2. How is reasoning different from a claim?

A claim answers the question, and reasoning is the science idea that tells why the evidence supports that answer.

Name _____ Date _____

Mixed Review

ANSWER KEY REVIEW

Use the plant-height graph from the Learn page, then write a short CER.

1. At 4 hours of light the mean height was **6** cm.

2. At 12 hours of light the mean height was **14** cm.

3. Write a short CER that answers this question: Do plants grow taller with more hours of light?

Claim: Plants grow taller with more hours of light. Evidence: 4-hour plants averaged 6 cm and 12-hour plants averaged 14 cm. Reasoning: Plants use light to make food, so more light can mean more growth.

Name _____ Date _____

Exit Tickets

ANSWER KEY CHECK

Your teacher will cut this page on the dotted line so each student gets one ticket. Label the sentence and write one evidence sentence.

CER Exit Ticket

Name _____

1. "Plants grow taller with more light." This sentence is a **claim**

2. Write one evidence sentence that uses a number from the plant graph.

Plants with 12 hours of light averaged 14 cm.

CER Exit Ticket

Name _____

1. "Plants grow taller with more light." This sentence is a **claim**

2. Write one evidence sentence that uses a number from the plant graph.

Plants with 12 hours of light averaged 14 cm.

Name _____ Date _____

How Did I Do?

ANSWER KEY SELF-CHECK

Read each skill and put a check in the box that fits you best. Then answer the two questions at the bottom of the page.

Skill	I can do this on my own.	I can do this with a little help.	I am still learning this.
I can tell a claim from evidence and from reasoning.	☐	☐	☐
I can read a table, a bar graph, and a line graph.	☐	☐	☐
I can write a CER paragraph that uses a number.	☐	☐	☐
I can write reasoning that names a science idea.	☐	☐	☐
I can fix a CER that leaves the science idea out.	☐	☐	☐

1. Which skill do you want to practice more, and why?

Answers will vary. Look for a specific skill and a reason.

2. Which data set from this packet helped you the most, and what claim did you write from it?

Answers will vary. Look for a named data set and a complete claim.