MISSION 1 · GRADES 3-5 · CASE FILE A

The Case of the 2-Inch Snow Day

Detective's question: why does the same snow close one school and not another?

Name _____

Date _____

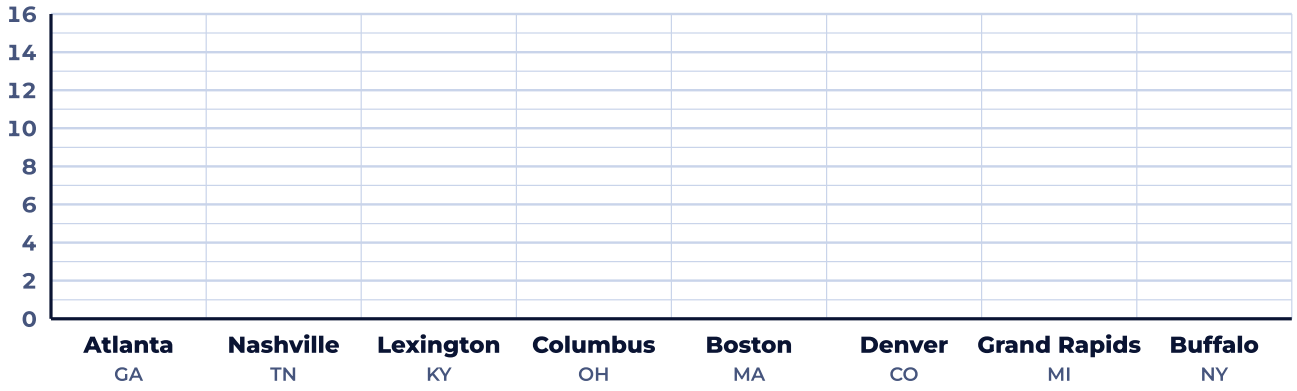
The mystery: on January 28, 2014, about 2½ inches of snow fell on Atlanta. Traffic froze, thousands of drivers left their cars, and some kids spent the night at school. In Buffalo, 2 inches is just another winter day. Why?

EVIDENCE A · SNOW RECORDS

City	Days a winter with 2+ inches
Atlanta, GA	**less than 1**
Nashville, TN	**less than 1**
Lexington, KY	**2**
Columbus, OH	**4**
Boston, MA	**8**
Denver, CO	**9**
Grand Rapids, MI	**14**
Buffalo, NY	**15**



1 **Graph the evidence.** Color one square for each day. Atlanta and Nashville get less than 1 day, so color just a thin line.



2 Which city gets 2 inches most often? _____

3 How many **more** days does Denver get than Lexington? _____

DID YOU KNOW?

Buffalo's airport gets about 95 inches of snow in a normal winter. That's almost 8 feet: taller than the tallest basketball players!

Data: NOAA 1991-2020 snowfall normals

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MISSION 1 · GRADES 3-5 · CASE FILE B

The Kentucky Twins

Same snow. Different answer. Follow the clues.

Name _____

Date _____

The Kentucky twins: Lexington and Pike County get almost the same snow every winter, about 13 and 14 inches. So they should get the same number of snow days... right?



Snow from space: both districts were buried after the January 2025 storm NASA Worldview / VIIRS, January 9, 2025

EVIDENCE B · SNOW DAYS, 12 WINTERS

Winter	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	21-22
Lexington	7	7	1	3	13	7	4	1	5	3	0	3
Pike County	20	18	4	9	26	20	10	4	7	7	4	6

1 In how many of the 12 winters did Pike County have **more** snow days? _____

2 Which winter had the most snow days in **both** places? _____

CLUE 1

Pike County is in the Appalachian Mountains. Lexington sits in the rolling hills of the Bluegrass.

CLUE 2

Mountain roads are steep and curvy. A school bus can't stop on an icy hill.

CLUE 3

Pike County is the biggest county in Kentucky, so many bus rides are long ones on back roads.

3 Use the clues: why does Pike County close more often than Lexington?

Data: Kentucky Department of Education school calendars, winters 2009-10 to 2021-22 without virtual days (2020-21 skipped)

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MISSION 1 · GRADES 3-5 · CASE REPORT

Case Closed

Claim, evidence, reasoning, and a solution of your own.

Name _____

Date _____

Case report: Atlanta's superintendent wants your advice. Should Atlanta buy a fleet of snowplows like Buffalo's? Explain it like a scientist: a claim, your evidence, your reasoning.

CLAIM

Schools close for snow when...

_____

_____

_____

EVIDENCE

Two facts from my case files:

_____

_____

_____

REASONING

This happens because...

_____

_____

_____

1 **Design a solution.** Check one idea that helps kids get to school safely, or keep learning, when snow and ice come.

- ☐ **Salt and brine trucks** — Melt ice on the main roads
- ☐ **Snow chains for buses** — Help tires grip on hills
- ☐ **A learning day at home** — Class happens online or on paper
- ☐ **Start 2 hours later** — Give roads time to get treated

2 My claim: this idea works well because

_____

_____

3 One problem it might have:

_____

_____

CASE CLOSED!

You've earned the Snow Detective badge

Color it in, or ask your teacher for the sticker.

MISSION 1 · GRADES 3-5 · TAKE-HOME

Be a Snow Spotter

Measure snow like the pros,
then bring your data to class.

Name _____

Date _____

Take-home mission: next time it snows, measure it the way real weather spotters do. Ask a grown-up to come with you.

STEP 1

Find the right spot

Flat and open, away from buildings, trees and drifts.

STEP 2

Ruler straight down

Push it down until it touches the ground.

STEP 3

Read it

Read where the snow stops, to the nearest 1/4 inch.

STEP 4

Do it 3 times

Measure 3 spots and write all three.

1 My measurements

Date	Time	Spot 1	Spot 2	Spot 3

2 **Back in class:** put an X above the line for every measurement your class brings in.



inches of snow (each small mark is 1/4 inch)

3 Most common measurement: _____ inches

4 Biggest minus smallest: _____ inches

SAFETY FIRST

Stay out of the street, away from snowplows and off of ice. Measuring in your yard or on the playground is perfect.

Method adapted from CoCoRaHS (cocorahs.org)

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