



Winter Weather Station

Mission: A cold wave is sweeping the country. Read temperatures from five cities over three days, order them, and find how much the temperature changed. Watch out: negative numbers work differently!

Big question: How do we compare, order, and find differences between temperatures below zero?

★ Warm-up: Which is warmer?

Circle the warmer temperature and explain.

−3 °F or −9 °F ✓ **−3 °F.**

−1 °F or 0 °F ✓ **0 °F.**

Key vocabulary

Negative number	A number less than 0.
Compare	Tell which number is greater or less.
Change	How much a value went up or down.
Number line	A line showing numbers in order; left/down is smaller.

1 Box 1

Order Monday

Order Monday's temperatures from coldest to warmest.

Put in order: Anchorage −12 · Fort Wayne −6 · Indianapolis −3 · Miami 22 · Minneapolis −9

1. **Anchorage −12**
2. **Minneapolis −9**
3. **Fort Wayne −6**
4. **Indianapolis −3**
5. **Miami 22**

2 Box 2

Fort Wayne warms up

In the simulator: Look at Fort Wayne on Monday and Wednesday.

How many degrees did Fort Wayne warm up from Monday (−6) to Wednesday (3)?

Answer: _____ °F ✓ **9**

3 Box 3

Minneapolis cools

In the simulator: Look at Minneapolis on Tuesday and Wednesday.

How many degrees did Minneapolis drop from Tuesday to Wednesday?

Answer: _____ °F ✓ **7**

4 Box 4

Biggest gap

On Monday, how many degrees warmer was Miami (22) than Anchorage (−12)?

Answer: _____ °F ✓ **34**

Show your thinking:

5 Box 5

Error detective

What is wrong with Leo's thinking?

☐ −9 is farther below 0, so it is colder; −3 is warmer ☐ Nothing ☐ They are the same

✓ **−9 is farther below 0, so it is colder; −3 is warmer**

6 Box 6

Legend: average 🏆 Legend only

What is Anchorage's average temperature over the three days (−12, −15, −9)?

Answer: _____ °F ✓ **-12**

Show your thinking:

7 Box 7

Weather report

Write a one-paragraph weather report comparing two cities. Use at least one negative temperature and the words "warmer" or "colder".

Look for: Compares; Uses a negative temperature; a number from the simulator

Exit ticket: answer the big question in your own words

How do we compare, order, and find differences between temperatures below zero?

Look for: On a thermometer, colder temperatures are lower (smaller numbers): $-12 < -6 < 3$. The change from -6 to 3 is 9 degrees (6 up to zero, then 3 more). Comparing the positions on the number line tells which is warmer.

Completion codes

Students see a code like **ABC-I3** when they finish. The first part must match below. The letter is the level (E = Explorer, I = Investigator, L = Legend), and the number at the end is how many stars they earned.

Level	Code starts with
🔍 Explorer	1PU-E
🔍 Investigator	1G3-I

 Watch for these misconceptions

- "–8 is greater than –3 because $8 > 3$." On the number line, –8 is farther left.
- "Absolute value makes a number the opposite." It is distance, so $|5|$ is still 5.
- "(3, 2) and (2, 3) are the same point." Order matters: x first, then y.