

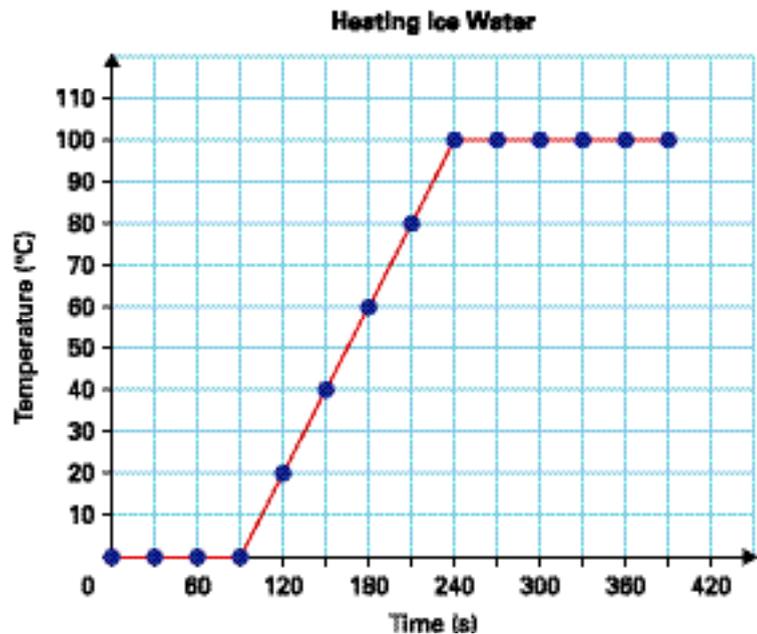
Getting Started

Interpreting Data

Tynessa's science class did an experiment to see how long a piece of ice takes to melt and turn into boiling water. Tynessa's group put some ice in water, heated it, and recorded the temperature every 30 s.

They displayed their data in a table and as a broken-line graph.

Time (s)	Temperature (°C)
0	0
30	0
60	0
90	0
120	20
150	40
180	60
210	80
240	100
270	100
300	100
330	100
360	100
390	100



? **What conclusions can you make about the group's experiment?**

- A. How long did the temperature of the water take to reach 70°C?
- B. Estimate the temperature of the water after 105 s.
- C. When was the temperature increasing?
- D. When was the temperature not changing? What was happening then?
- E. Why do you think different scales are used on the two axes?
- F. Why do you think there are no negative numbers on either axis?
- G. What other information can you tell about the group's experiment from the data?



Do You Remember?

1. Use $<$ or $>$ to make each statement true.

- a) $8 \square 0$ c) $24 \square 6$
 b) $12 \square 14$ d) $99 \square 113$

2. Which is true, $a < b$ or $a > b$?



3. Add.

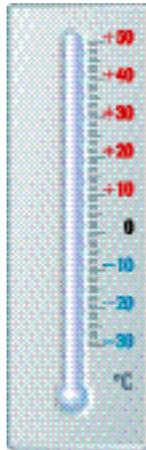
- a) $12 + 19$ c) $8 + 105$
 b) $32 + 45$ d) $23 + 38 + 93$

4. Subtract.

- a) $37 - 21$ c) $126 - 58$
 b) $65 - 65$ d) $107 - 36 - 14$

5. Use the thermometer to answer each question.

- a) Today's temperature is 4°C . Locate 4°C on the thermometer.
 b) Tomorrow's temperature is predicted to be 5°C lower than today's temperature. Locate the predicted temperature on the thermometer.
 c) What is tomorrow's predicted temperature?
 d) Why is $-6^{\circ}\text{C} < -4^{\circ}\text{C}$?
 e) How many degrees colder is a temperature of -2°C than a temperature of $+1^{\circ}\text{C}$?



6. A **positive sign (+)** describes numbers **above zero**. A **negative sign (-)** describes numbers **below zero**. Use $+$ or $-$ to write the best number for each situation. Explain why you chose the sign you did.

- a) Tara has \$25 in her bank account.

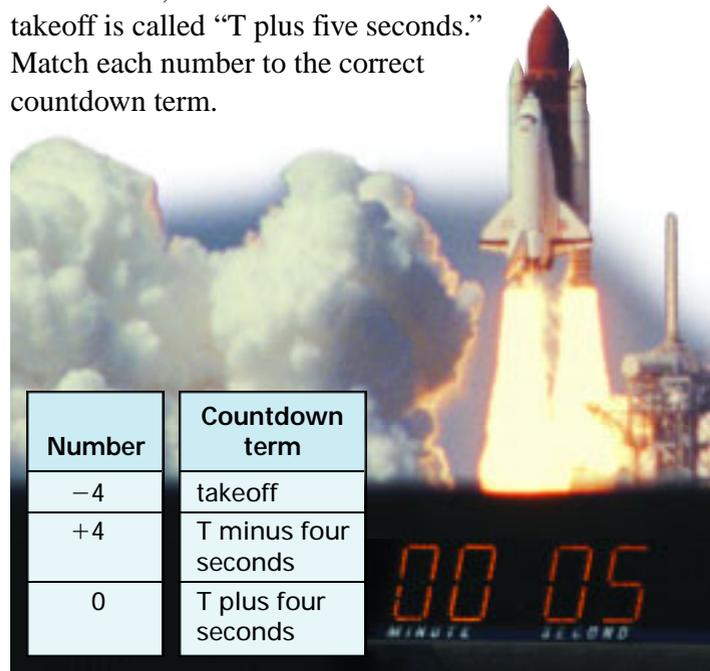
b) Takuya owes a library fine of \$2.

c) The George Massey Tunnel under the Fraser River in Richmond, British Columbia, is 20 m below sea level.

d) On March 8, the temperature in Grand Prairie, Alberta, was 38°C below zero.

e) On July 20, the temperature in Athens, Greece, was 41°C above zero.

7. In a countdown to a rocket launch, the time 5 s before takeoff is called "T minus five seconds," and the time 5 s after takeoff is called "T plus five seconds." Match each number to the correct countdown term.



Number	Countdown term
-4	takeoff
+4	T minus four seconds
0	T plus four seconds

8. a) Write definitions for "positive" and "negative" in your own words.
 b) Compare your definitions with the definitions in a dictionary. How are they the same? How are they different?
 c) Keep the definitions near you as you progress through the chapter to see how your understanding of the words "positive" and "negative" changes.