

Home Ice Highway

It's road-trip season in the made-up Northern Lights League. Use the map, scale and time zones to plan every hop between home rinks.

Name _____

Date _____

TRAVEL TOOLKIT

Grid

letter first,
then number

Scale

1 square =
75 miles

Distance

$a^2 + b^2 = c^2$
when diagonal

Zones

ET • CT • MT
clock shifts

PUCK DROP

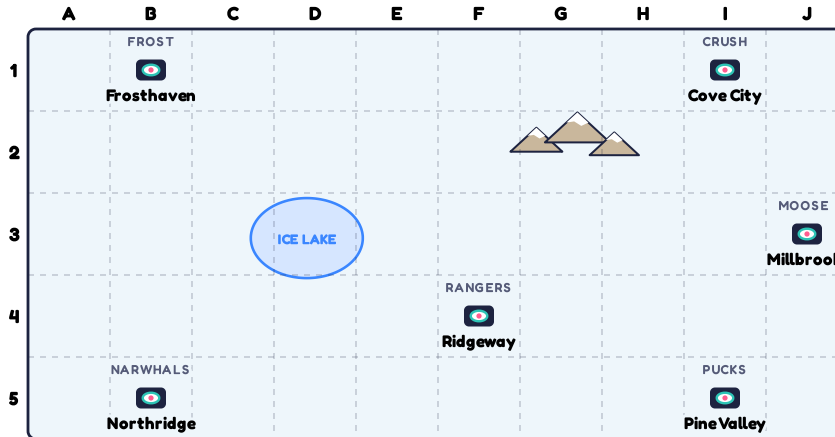
7:00

ZONE

ET

FIND • MEASURE • CONVERT

NORTHERN LIGHTS LEAGUE MAP



LEGEND

 Home rink

 Ice Lake

 Mountains

SCALE

0 75 150 mi
1 square = 75 miles

- 1 In which grid square is **Ridgeway**? Write the letter, then the number.

WORK SPACE

Square: _____

ROOKIE

- 2 Which team plays its home games in square **J3**?

WORK SPACE

Team: _____

ROOKIE

- 3 A bus travels in a straight line from **Frosthaven** to **Cove City**. In which direction does it travel?

WORK SPACE

Direction: _____

STARTER

- 4 In which **intermediate direction** (NE, NW, SE or SW) is Frosthaven from **Ridgeway**?

WORK SPACE

Direction: _____

STARTER

- 5 Use the scale. What is the straight-line distance, in miles, from **Frosthaven** to **Cove City**?

WORK SPACE

_____ miles

PRO

- 6 Ridgeway is **4 squares east** and **3 squares south** of Frosthaven. What is the straight-line distance, in miles, between them?

WORK SPACE

_____ miles

PRO

- 7 A bus drives straight from **Northridge** to **Frosthaven**, then straight from Frosthaven to **Ridgeway**. What is the total distance, in miles?

WORK SPACE

_____ miles

ALL-STAR

- 8 A bus drives **440 miles** at **55 mph**, with one **45-minute** stop. It leaves at **7:00 AM Mountain Time**. Central Time is 1 hour ahead. What time does it arrive, in Central Time?

WORK SPACE

Arrival: _____ CT

CHALLENGE ★

A Read the Mileage Chart

Roads bend around Ice Lake and the mountains, so road miles are longer than straight-line miles. Find one town in a row and the other in a column.

ROAD MILES	FROSTHAVEN	COVE CITY	NORTHBRIDGE	RIDGEWAY
Frosthaven	—	560	310	410
Cove City	560	—	690	390
Northridge	310	690	—	440
Ridgeway	410	390	440	—

Made-up Northern Lights League towns.

- How many road miles is it from **Frosthaven** to **Ridgeway**? _____ miles
- Which town is **closest** to Ridgeway by road? Town: _____
- A bus drives from **Cove City** to **Ridgeway**, then from Ridgeway to **Northridge**. How many road miles is that in all? _____ miles
- How many road miles **longer** is the trip Cove City to Ridgeway to Northridge than the direct road from Cove City to Northridge? _____ miles

B Travel Words

Write the word from the bank that matches each meaning. One word is not used.

Word bank: puck drop · scale · time zone · intermediate direction · legend

- shows how a distance on the map matches a real distance
- a region that shares the same clock time
- the moment the referee drops the puck to start play
- a direction halfway between two cardinals, like northwest

C Puck Drop & Pace

Convert clocks across zones, then compare air miles, road miles and speed.

TIME ZONES

Mountain (MT): Frosthaven, Northridge · **Central (CT):** Ridgeway · **Eastern (ET):** Cove City, Pine Valley, Millbrook. Central is **1 hour behind** Eastern. Mountain is **2 hours behind** Eastern.

- Puck drop in **Cove City** is at **7:00 PM Eastern**. What time is that in Frosthaven, in **Mountain Time**?

WORK SPACE

Grid of 20 squares for working space.

_____ MT

- Puck drop in **Cove City** is at **7:00 PM Eastern**. What time is that in Ridgeway, in **Central Time**?

WORK SPACE

Grid of 20 squares for working space.

_____ CT

- Straight-line (air) miles from Frosthaven to Cove City are **525**. Road miles are **560**. By what **percent** is the road trip longer than the air distance? Round to **1 decimal place**.

WORK SPACE

Grid of 20 squares for working space.

_____ %

- A Crush bus covers the **560** road miles from Frosthaven to Cove City in **8 hours**. What is its average speed in miles per hour?

WORK SPACE

Grid of 20 squares for working space.

_____ mph

BONUS · YOUR TURN

Pick any two rinks. Write the **grid squares**, the **compass direction** from the first to the second, and either the **straight-line miles** (use $a^2 + b^2 = c^2$ if diagonal) or the **road miles** from the chart.

- _____
- _____
- _____

Answer Key (for teachers & parents)

Answers for **Home Ice Highway**, with the work shown. Print pages 1 and 2 for students, and keep this page for checking. Bonus answers vary; check that the squares, direction and miles all match the map or chart.

Page 1 Problems

- Answer: **F4**
Ridgeway is in column F, row 4.
- Answer: **Millbrook Moose**
Their rink is in square J3.
- Answer: **East**
B1 to I1 stays in row 1 and moves right.
- Answer: **Northwest**
F4 to B1 goes up (north) and left (west).
- Answer: **525 miles**
B1 to I1 is 7 squares, and $7 \times 75 = 525$.
- Answer: **375 miles**
 $4^2 + 3^2 = 25$, and $\sqrt{25} = 5$ squares.
 $5 \times 75 = 375$.
- Answer: **675 miles**
Northridge to Frosthaven: 4 squares $\times 75 = 300$.
Frosthaven to Ridgeway: $375. 300 + 375 = 675$.
- Answer: **4:45 PM CT**
 $440 \div 55 = 8$ hours. 7:00 AM + 8 h 45 min = 3:45 PM Mountain.
Central is 1 hour ahead: 4:45 PM.

Quick score

Page 1 problems	_____ / 8
A · Mileage Chart	_____ / 4
B · Travel Words	_____ / 4
C · Puck Drop & Pace	_____ / 4
Total	_____ / 20

Skills practiced

Map grids Map scale Pythagorean theorem Intermediate directions
Mileage charts Time zones Percents Unit rates

Teaching tip: Question 6 is a 3-4-5 triangle scaled by 75 miles, so no calculator is needed. In question 8, students often forget the stop or shift the clock the wrong way. Have them draw a time-zone number line (MT, CT, ET from west to east). In C3, remind them the percent is of the air distance, not the road distance.

A · Read the Mileage Chart

- Answer: **410 miles**
Frosthaven row, Ridgeway column: 410.
- Answer: **Cove City**
390 miles. Frosthaven is 410 and Northridge is 440.
- Answer: **830 miles**
 $390 + 440 = 830$.
- Answer: **140 miles**
 $830 - 690 = 140$.

B · Travel Words

- Answer: **scale**
- Answer: **time zone**
- Answer: **puck drop**
- Answer: **intermediate direction**

Not used: Legend

C · Puck Drop & Pace

- Answer: **5:00 PM MT**
Mountain is 2 hours behind Eastern.
- Answer: **6:00 PM CT**
Central is 1 hour behind Eastern.
- Answer: **6.7%**
 $560 - 525 = 35. 35 \div 525 \times 100 = 6.66\ldots$, about 6.7.
- Answer: **70 mph**
 $560 \div 8 = 70$.