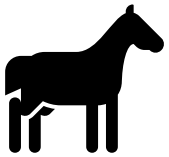
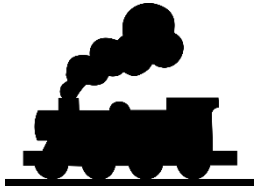
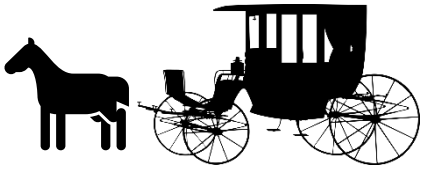
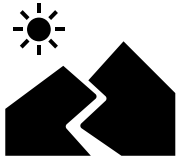
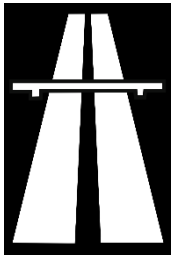
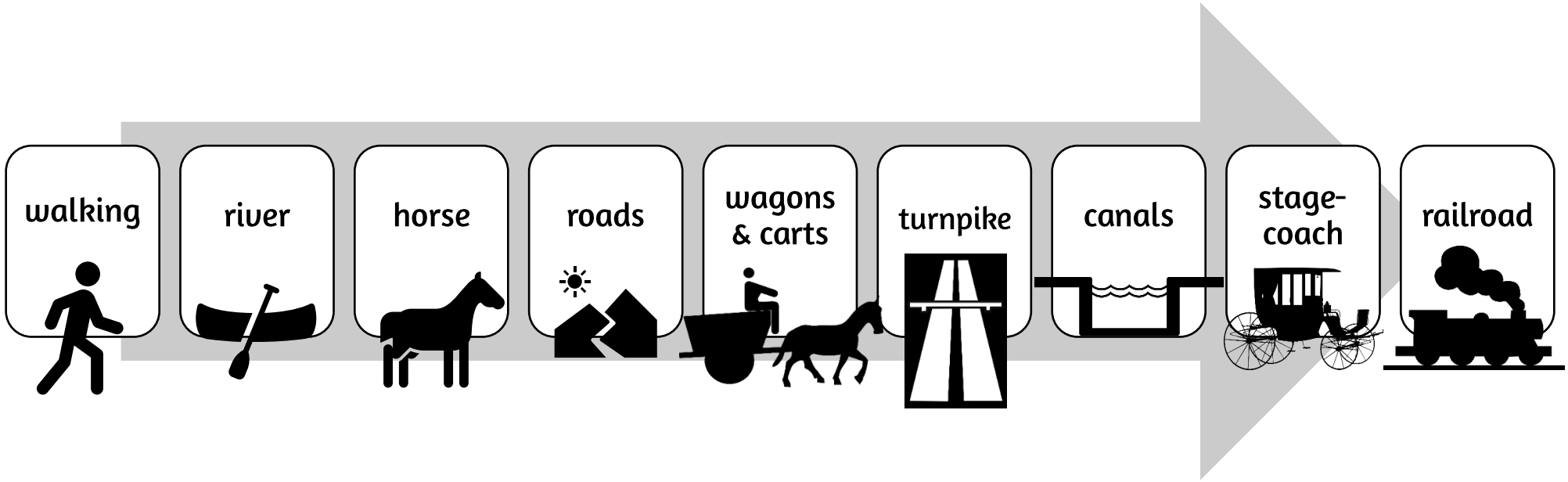
Modes of Transportation Cards

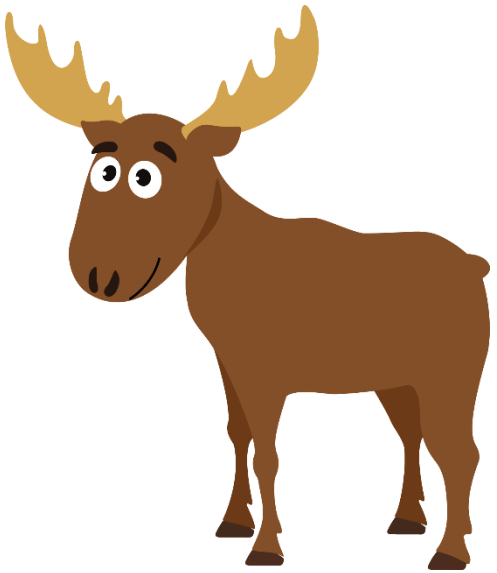
canal 	horse 	river 
cart & wagon 	railroad 	stagecoach 
road 	 turnpike	walking 



Modes of Transportation

(in order)

How did the movement of goods and people change during this time?

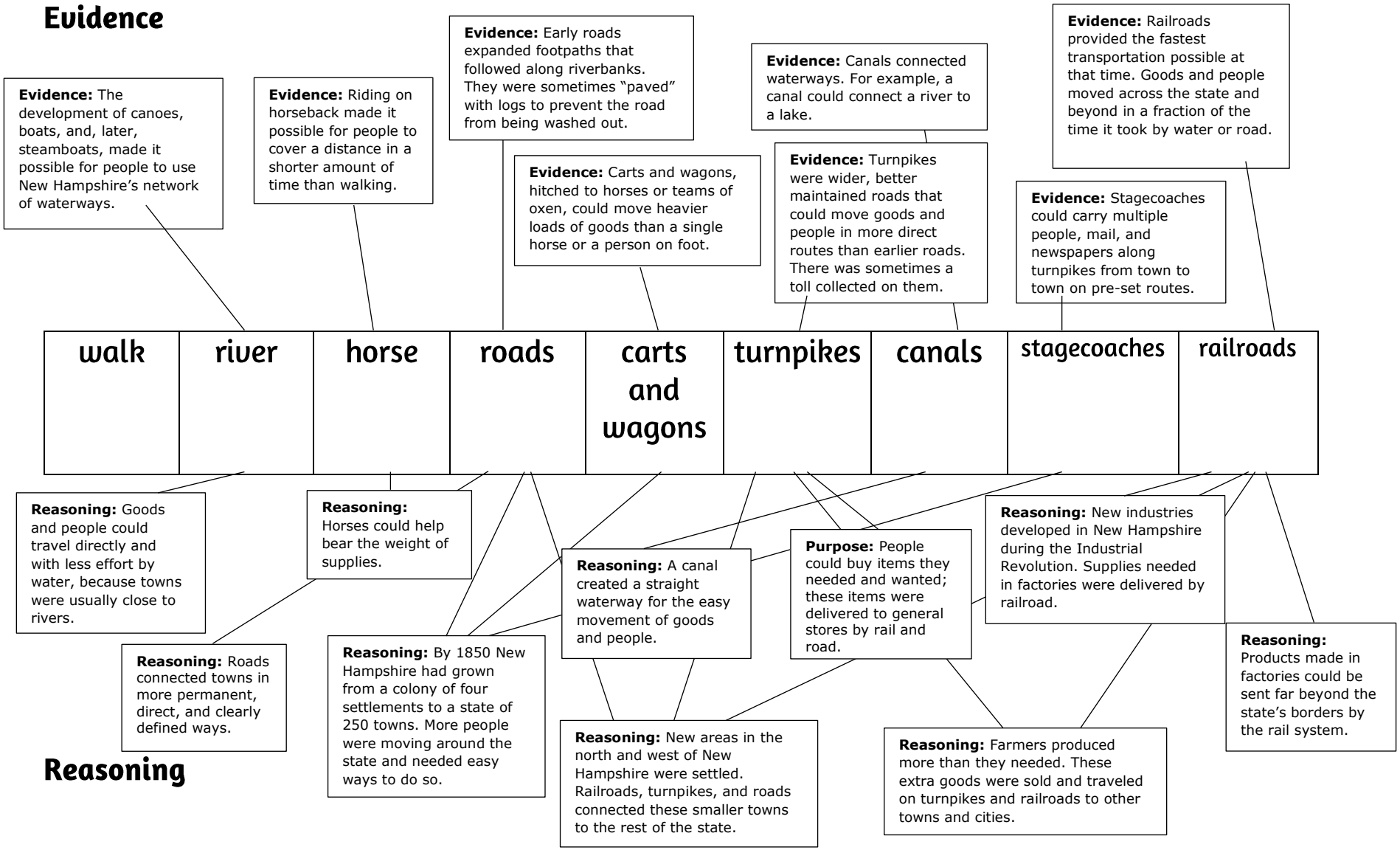


New Hampshire on the Move

Evidence: Riding on horseback made it possible for people to cover a distance in a shorter amount of time than walking.	**Evidence:** The development of canoes, boats, and, later, steamboats, made it possible for people to use New Hampshire's network of waterways.	**Evidence:** Canals connected waterways. For example, a canal could connect a river to a lake.
Reasoning: Horses could help bear the weight of supplies.	**Reasoning:** Goods and people could travel directly and with less effort by water, because towns were usually close to rivers.	**Reasoning:** A canal created a straight waterway for the easy movement of goods and people.
Evidence: Carts and wagons, hitched to horses or teams of oxen, could move heavier loads of goods than a single horse or a person on foot.	**Evidence:** Railroads provided the fastest transportation possible at that time. Goods and people moved across the state and beyond in a fraction of the time it took by water or road.	**Evidence:** Early roads expanded footpaths that followed along riverbanks. They were sometimes "paved" with logs to prevent the road from being washed out.
Reasoning: Roads connected towns in more permanent, direct, and clearly defined ways.	**Reasoning:** By 1850 New Hampshire had grown from a colony of four settlements to a state of 250 towns. More people were moving around the state and needed easy ways to do so.	**Reasoning:** New areas in the north and west of New Hampshire were settled. Railroads, turnpikes, and roads connected these smaller towns to the rest of the state.
Reasoning: New industries developed in New Hampshire during the Industrial Revolution. Supplies needed in factories were delivered by railroad.	**Reasoning:** Products made in factories could be sent far beyond the state's borders by the rail system.	**Reasoning:** Farmers produced more than they needed. These extra goods were sold and traveled on turnpikes and railroads to other towns and cities.
Evidence: Turnpikes were wider, better maintained roads that could move goods and people in more direct routes than earlier roads. There was sometimes a toll collected on them.	**Purpose:** People could buy items they needed and wanted; these items were delivered to general stores by rail and road.	**Evidence:** Stagecoaches could carry multiple people, mail, and newspapers along turnpikes from town to town on pre-set routes.

Lesson 7.1: New Hampshire on the Move

New Hampshire on the Move: Sample Layout



Lesson 7.1: New Hampshire on the Move

Name_____

CER: Claim – Evidence – Reasoning Paragraph

Topic: What is the subject of the question?

_____

_____

Claim: What is your response to the question?

_____

_____

Evidence: What text evidence supports your claim?

Detail 1	Detail 2
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Reasoning: How does your evidence connect to the claim?

_____

_____

_____

_____

Conclusion: Make a final statement about your claim.

_____

_____

Lesson 7.1: New Hampshire on the Move

Name_____

The Ox-Cart Man's New and Improved Travel Plan

In Donald Hall's book *Ox-Cart Man*, a farmer living in New Hampshire in the early 19th century makes a long journey to sell at Portsmouth Market the extra goods his family has grown and made. He travels the way most people in New Hampshire did during that time. He walks alongside a cart pulled by an ox . . . for 10 days!

Let's make this easier for him. Imagine that:

- The year is 1845
- The Ox-Cart man is a successful sheep farmer.
- He has many more transportation options available to get his fleece to Portsmouth Market.

Complete the following tasks to help the farmer make the most **efficient** plan for getting the wool to market. Use the data and maps provided to plan the journey. You will need to think about how easy it is to access the transportation, how much it costs to use the transportation, and how quickly the transportation will move the goods.

1. Imagine the Ox-Cart man has a flock of 400 sheep. Each fleece weighs about five pounds. How much does his shipment of fleeces weigh in total?

2. What is the Ox-Cart man's starting point? Donald Hall doesn't tell us the name of the village or town near the farm, but we can use math and maps to narrow down our options.
    a. In the 19th century, when people walked along **turnpikes**, they usually walked about 16 miles a day. But the Ox-Cart man probably didn't just use a turnpike. Small town roads were rocky, hilly, and zig-zaggy. Plus, he was walking alongside an ox pulling a heavy cart. Let's slow him down to covering six miles a day. The Ox-Cart man's journey was 10 days of walking. How many miles did he cover?

    b. Use that answer and "New Hampshire Town Boundaries" to figure out which towns were that far away from the Ox-Cart man's destination (Portsmouth) if he was walking from the west. Use a ruler and the scale on the map to help you. What are some possible starting points? (Hint: 140,000 feet equals about 26.5 miles.)

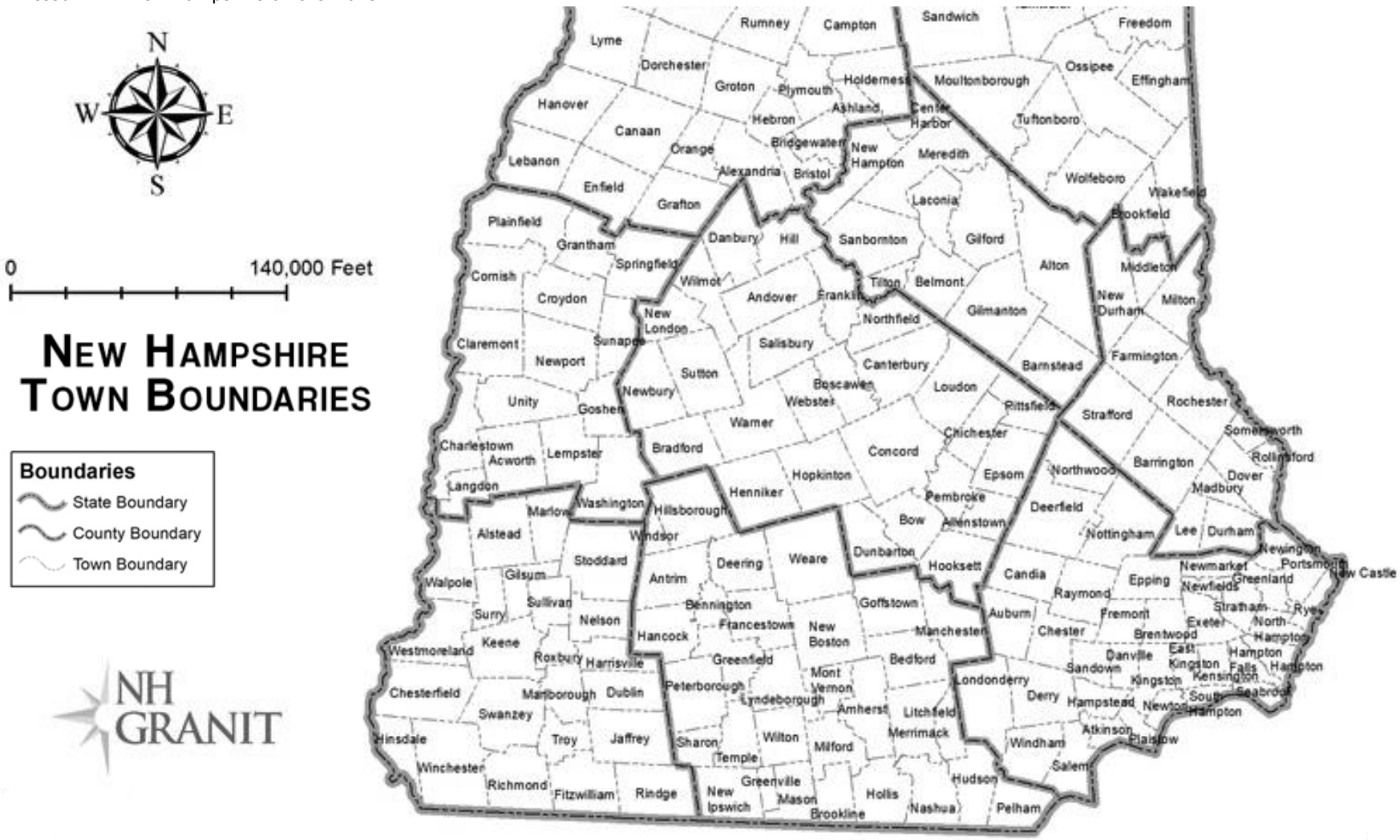
3. Choose one of these towns as your starting point. Explore the southern New Hampshire portion of "Map of Maine, New Hampshire […]" online at the Library of Congress. Which transportation modes are available near that town? (Hint: look at the map's key to understand what modes each style of line represents.)

4. This chart provides some typical costs of using certain types of transportation in 1840. Complete the chart to get a sense of how much it would cost the Ox-Cart man to get his fleece to Portsmouth from your chosen starting point.

		Total cost
Miles traveled from first page:	Road cost: 10 cents per mile for a cart drawn by two oxen	
Weight of fleece from first page:	Rail cost: 7 cents per 2,000 pounds per mile	
	Canal cost: 25 cents total per 100 pounds	

5. Now plan your route. What combination of transportation should the Ox-Cart man use to get to market as quickly and as cheaply as possible? Draw your route on the "Town Boundaries" map to show the path he should take. Label the transportation modes he should use.

Lesson 7.1: New Hampshire on the Move



Lesson 7.1: New Hampshire on the Move

Name Answer Key

The Ox-Cart Man's New and Improved Travel Plan

In Donald Hall's book *Ox-Cart Man*, a farmer living in New Hampshire in the early 19th century makes a long journey to sell the extra goods his family has grown and made at Portsmouth Market. He travels the way most people in New Hampshire did during that time. He walks alongside a cart pulled by an ox…for ten days!

Let's make this easier for him. Imagine that:

- The year is 1845
- The Ox-Cart man is a successful sheep farmer.
- He has many more transportation options available to get his fleece to Portsmouth Market.

Complete the following tasks to help the farmer make the most **efficient** plan for getting the wool to market. Use the data and maps provided to plan the journey. You will need to think how easy it is to access the transportation, how much it costs to use the transportation, and how quickly the transportation will move the goods.

1. Imagine the Ox-Cart man has a flock of 400 sheep. Each fleece weighs about five pounds. How much does his shipment of fleeces weigh in total?

   2,000 pounds or one ton

2. What is the Ox-Cart man's starting point? Donald Hall doesn't tell us the name of the village or town near the farm, but we can use math and maps to narrow down our options.
   a. In the 19th century, when people walked along **turnpikes**, they usually walked about 16 miles a day. But the Ox-Cart man probably didn't just use a turnpike. Small town roads were rocky, hilly, and zig-zaggy. Plus, he was walking alongside an ox pulling a heavy cart. Let's slow him down to covering six miles a day. The Ox-Cart man's journey was ten days of walking. How many miles did he cover?

      60 miles

   b. Use that answer and "New Hampshire Town Boundaries" to figure out which towns were that far away from the Ox-Cart man's destination, Portsmouth, if he was walking from the west. Use a ruler and the scale on the map to help you. What are some possible starting points? (Hint: 140,000 feet equals about 26.5 miles.)

      There are many towns about 60 miles west of Portsmouth, including: Rindge, Jaffrey, Deering, Hillsborough, Dublin, Hancock, and Antrim.

3. Choose one of these towns as your starting point. Explore the southern New Hampshire portion of "Map of Maine, New Hampshire […]" online at the Library of Congress. Which transportation modes are available near that town? (Hint: look at the map's key to understand what modes each style of line represents.)

   Answers will vary depending upon the starting point.

4. This chart provides some typical costs of using certain transportation in 1840. Complete the chart to get a sense of how much it would cost the Ox-Cart man to get his fleece to Portsmouth from your chosen starting point.

		Total shipping cost
Miles traveled from first page: **60 miles**	Road cost: 10 cents per mile for a cart drawn by two oxen	**60 x .10 = $6.00 to travel all by road**
Weight of fleece from first page: **2,000 pounds of fleece**	Rail cost: 7 cents per 2,000 pounds per mile	**60 x .07 = $4.20 to travel all by rail**
	Canal cost: 25 cents total per 100 pounds	**2000/100 = 20 sets of 100 pounds** **.25 x 20 = $5.00 to travel all by canal**

5. Now plan your route. What combination of transportation should the Ox-Cart man should use to get to market as quickly and as cheaply as possible? Draw your route on the "Town Boundaries" map to show the path he should take. Label the transportation modes he should use.

   Answers will vary.

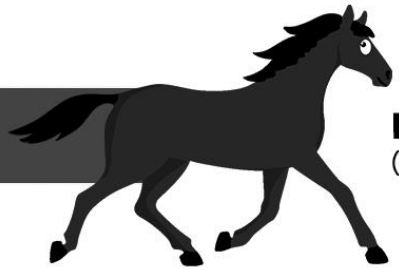
COMPARING TRAVEL TIMES

How long does it take to get from Boston to the base of Mount Washington? Well, it depends on how you travel! Take a look at how long the trip would take using the different methods of transportation people have used.

16 DAYS

Walking
(10 miles per day)

8 DAYS



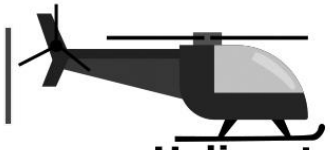
Horseback
(20 miles per day)

3 DAYS

Stagecoach
(60 miles per day)

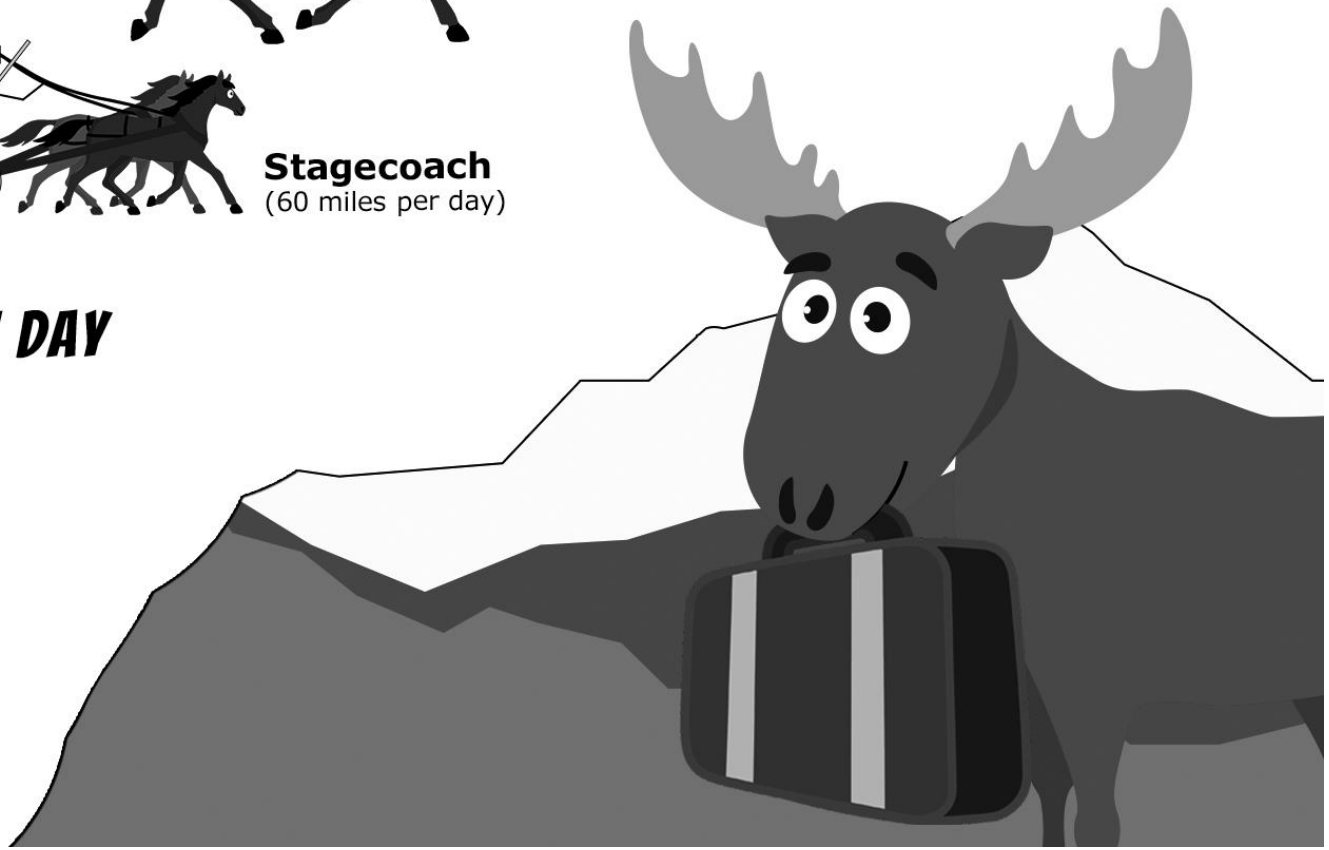
1 DAY

4 HOURS



Helicopter

1 HOUR



Transportation Systems: Pros and Cons

Directions:

1. Read the statements about transportation systems developed in 19th-century New Hampshire.

2. Decide which system the statement is describing and circle the word in the statement or write it below.

3. Decide whether it is describing an advantage (pro) or a disadvantage (con) about using that system. Write a plus (+) for advantages and a minus (-) for disadvantages.

4. Then, cut the statements and paste them in the correct boxes on the chart.

Although travel on the river was not very useful for people, it was effective for goods. They were carried on 75-foot longboats or rafts made of tree trunks tied together with rope.	Building canals to connect lakes and rivers required systems of locks and drops to control water levels. It was expensive and complicated work.
Rail travel was faster than any other options available at the time.	Travel by river and canal was slow. The trip from Concord to Boston could take 4–5 days.
In 1803, the Middlesex Canal opened, linking the Merrimack River at Lowell, Massachusetts, to Boston Harbor. The canal helped open Boston markets to New Hampshire farmers.	Travel by road was slow and difficult. There were not many maps or signs, other than granite mile markers, which meant it was difficult for travelers to find their way along turnpikes.
Turnpikes were better built than town roads. They had fewer rocks, were made level and less hilly, and included sturdy bridges to cross rivers and streams.	Railroads brought raw materials to new factories all over the state. The railroads also allowed them to send their finished products to market.
Train tracks crossed town lines, so the state legislature had to approve each railroad line. Getting this approval took time and organization at many levels.	After the First New Hampshire Turnpike was built, many more roads started being built between 1796 and 1809. By 1809, the state was crisscrossed by roughly two dozen turnpikes covering 600 miles of road.

Lesson 7.1: New Hampshire on the Move

Spring and summer were difficult seasons to be on the roads, as mud often made both the turnpikes and town roads too muddy for travel.	In 1807, a one-mile canal opened on the Merrimack River in Manchester, allowing boats to go around the Amoskeag Falls and travel north.
Railroads could move large amounts of goods and people.	Laying out rail lines was very expensive.
Travel by river was not possible in the winter months because of ice. Travel on rivers could also be made difficult by extreme rain and floods.	Rail lines could be laid almost anywhere in New Hampshire, making nearly every corner of the state accessible to trains. Rails also required less maintenance than roads.

Lesson 7.1: New Hampshire on the Move

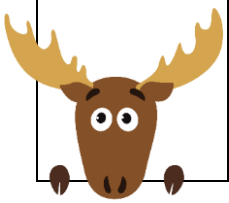
Name_____

Transportation Systems: Pros and Cons

System	Pro	Con
Roads		
Rivers		

Lesson 7.1: New Hampshire on the Move

System	Pro	Con
Railroads		



Lesson 7.1: New Hampshire on the Move

Name Answer Key

Transportation Systems: Pros and Cons

System	Pro	Con
Roads	Building the First New Hampshire Turnpike started many roads being built between 1796 and 1809. By 1809, roughly two dozen turnpikes covering 600 miles of road crisscrossed the state. Turnpikes were better built than town roads. They had fewer rocks, were made level and less hilly, and included sturdy bridges to cross rivers and streams.	Travel by road was slow and difficult. There were not many maps or signs, other than granite mile markers, which meant it was difficult for travelers to find their way along turnpikes. Spring and summer were difficult seasons to be on the roads, as mud often made both the turnpikes and town roads too muddy for travel.
Rivers	In 1803, Middlesex Canal opened, linking the Merrimack River at Lowell, MA to Boston Harbor. The canal helped open Boston markets to New Hampshire farmers. In 1807, a one-mile canal opened on the Merrimack River, allowing boats to go around the Amoskeag Falls and travel north. Although travel on the river was not very useful for people, it was effective for goods. They were carried on 75-foot longboats or rafts made of tree trunks tied together with rope.	Travel by river and canal was slow. The trip from Concord to Boston could take 4–5 days. Building canals to connect lakes and rivers required systems of locks and drops to control water levels. It was expensive and complicated work. Travel by river was not possible in the winter months because of ice. Travel on rivers could also be threatened by extreme rain and floods.
Railroads	Rail travel was faster than any other options available at the time. Railroads could move large amounts of goods and people. Rail lines could be laid almost anywhere in New Hampshire, making nearly every corner of the state accessible. Rails also required less maintenance than roads. Railroads brought new factories all over the state raw materials. They allowed them to send their finished products to market.	Laying out rail lines was very expensive. Train tracks crossed town lines, so the state legislature had to approve each line. This took time and organization at many levels.