

7.1 Teacher Key

Cause and Effect: Andrew Hallidie, Wire Rope and Cable Cars How did Andrew Hallidie get the idea to use wire rope (cables) on street railways (trams)?		
Cause/ Effect/Detail	Text	Questions/Notes
	I was largely induced to think over the matter from	Signal words are bolded
Cause	seeing the <u>difficulty and pain</u> the horses experienced in hauling the cars up <u>Jackson</u> Street, from Kearny to Stockton Street, on which street	What do the words “hauling” and “up” tell you about Jackson Street? It is steep.
Detail of Cause	four or five horses <u>were needed for the purpose</u>	Normally only one or two horses were needed and drivers did not have to yell at them or crack the whip. So, what do these details tell us about the street? Horses had a very hard time pulling the car up the street.
Detail of Cause	The driving being accompanied by the free use of the <u>whip and voice</u> , and	
Effect/Cause	Occasionally by the horses <u>falling</u> and being <u>dragged</u> down the hill on their sides,	What caused the horses to fall? The steepness of the street and the strain of pulling so hard
Effect/Cause	By the car loaded with <u>passengers sliding</u> on its track	What dragged them? The car sliding down the hill
Effect/Cause	With the view of obviating these difficulties (<u>the difficulty and pain of horses pulling cars up steep hills and the accidents</u>), and for the purpose of reducing the expense of operating street railways	Why were the trams so expensive in San Francisco? They needed more horses to pull the cars, which would cost more money to feed, house, and train. Accidents could cause injuries and require repairs.
Effect	I devoted all my available time to the careful consideration of the subject (<u>the difficulty and expense of pulling cars up San Francisco’s hills</u>) and so far matured my plans that I had California Street surveyed ... [in order] to <u>run a rope</u> railway.	How did Hallidie solve the problem created by these causes? He replaced the horses with wire rope. The cable pulls the car up the hill.

Answer this question in a short paragraph:

How did Andrew Hallidie get the idea to use wire rope (cables) on street railways (trams)?

Answers will vary but should include his experience seeing many horses pulling cars up steep hills and accidents in which horses fell and cars slid down, dragging the horses along, and his realizing how expensive this method was.