

## TEACHERS ACTIVITIES



### Theme:

Trains transport people and goods from one place to another.

### Topics For Discussion:

Invite students to share their experiences riding on trains, including traveling on a passenger train, sightseeing on an excursion train, using an overhead train or subway in the city, and the like.



Before viewing the program, discuss the concept of "hero." Ask students to identify people in present day who are heroes and tell why are they considered heroic. Invite students to tell who their heroes are. Discuss the fact that heroes are not always famous people.



Discuss what it means to be brave. Ask students to tell about a situation in which they were especially brave. What helped them be brave?



Discuss Kate Shelley's actions. Why did she risk her own personal safety to go to the train station? How did she overcome her fear of the dark and of crossing the railroad trestle? Ask students to put themselves in Kate's place and describe what they would have done in those same circumstances.

### Curriculum Extension Activities:

Have the class set up a train information station in the classroom. Cut cereal boxes of different sizes in half and use the bottom half for train cars. Cardboard rolls glued or taped to the bottoms of the boxes can serve as wheels. Arrange the boxes in a train. Brainstorm with students different types of information they want to learn about trains, and have them make labels for the cars accordingly. For example, the cars might be labeled as follows: "History of Trains," "What Trains Carry," "Railroad Jobs," etc. After students have watched the program and as they read more about trains, they can write important facts they want to remember on small pieces of paper and put them in the appropriate train cars.

As a culminating activity for the study described above, use the collected information to assemble a train museum. Before the class gets started, discuss what may be found in a museum and how it is arranged. Have small groups each assume the responsibility for one of the train cars and decide how to organize and display the information. They might use posters, murals, charts, books they have written, models, audiotapes, etc., to present what they have learned. World Wide Web resources might provide additional material, as in the form of downloadable photographs. (Check copyright information on websites before downloading. It is usually considered "fair use" if the material stays within the classroom or school and is not reproduced for distribution by any means.)



Several railroad terms were mentioned in the program. The students' research will likely yield much more specialized railroad vocabulary. Have the class make a dictionary of train words. Discuss how dictionaries are organized, and have students make pages containing a word, its definition, and an illustration. Include the dictionary in the museum display.



If possible to arrange, take the class on a field trip to a train station. Notice the different workers at the station and on the train. Tour the different cars on a train, including the engine.



Kate Shelley's actions became almost legendary. Work with the library media specialist and locate other legends and songs associated with trains and the railroad. Casey Jones and John Henry are both linked to railroads in stories. Obtain some of these legends and read them to the class. Sing songs, such as "I've Been Working on the Railroad" and "Morningtown Ride."



Start a bulletin board about young people who are heroes. Have students search newspapers and magazines for pictures and articles about children and teenagers who have performed heroic deeds. As these pieces are added to the board, discuss why the young people are heroes.



Brainstorm a list of different types of transportation. Have students categorize the forms into "Land Transportation," "Water Transportation," and "Air Transportation." Use the categories as an opportunity to distinguish similar forms, such as discussing the difference among a "canoe," a "rowboat," a "kayak," a "yacht," and the like.

A telegraph was used to pass information in the story. Locate a copy of the Morse Code (a series of dots and dashes in various combinations that represent each letter of the alphabet) and display it. Have students figure out their names in Morse Code. Obtain several flashlights, darken the room, and have partners click the flashlights quickly (for dots) and slowly (for dashes) to transmit their names to each other. Discuss different means of communication that might be used today to transmit news of danger.



*Kate Shelley and the Midnight Express* is a biography. It is a special type of biography—"slice-of-life"—that tells about an event or a small portion of a person's life. Discuss biography as a type of literature. Ask students what types of information they expect to find in a biography. With the help of the library media specialist, locate other picture book biographies for students to examine to see if their assumptions about the content were correct.

### **SUPPLEMENTARY BOOKLIST:**

TRAINS AT WORK  
by Richard Ammon (Atheneum)

FREIGHT TRAIN  
by Donald Crews (Greenwillow)

TRAINS  
by Gail Gibbons (Holiday House)

A RIDE IN THE CRUMMY  
by Gary Hines, illus. by Anna Grossnickle Hines (Greenwillow)

JOHN HENRY  
by Julius Lester, illus. by Jerry Pinkney (Dial)

SHE'S BEEN WORKING ON THE RAILROAD  
by Nancy Smiler Levinson, photos by Shirley Burman (Lodestar)

ALL ABOARD ABC  
by Doug Magee & Robert Newman (Cobblehill)

CASEY JONES: THE STORY OF A BRAVE ENGINEER  
by Glen Rounds (Golden Gate Junior)

KATE SHELLEY: BOUND FOR LEGEND  
by Robert D. San Souci, illus. by Max Ginsburg (Dial)

TRAIN SONG  
by Diane Siebert, illus. by Mike Wimmer (HarperCollins)

THE REAL MCCOY: THE LIFE OF AN AFRICAN-AMERICAN INVENTOR  
by Wendy Towle, illus. by Wil Clay (Scholastic)

I'VE BEEN WORKING ON THE RAILROAD  
illus. by Nadine Bernard Westcott (Hyperion)

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## Description:

This true story is about 15-year-old Kate who bravely rushed out into a storm to save two men as well as prevent hundreds of other lives from being lost. LeVar explores Amtrak's Coast Starlight train and sees how trains are maintained at the train yard before boarding the Coast Starlight to travel along the California coastline. Together with LeVar, we tour the engineer's cab, find out what an engineer does, and watch film clips of early trains.



### Social Studies Concepts:

- ◆ transportation
- ◆ communication
- ◆ geography
- ◆ history



## Classroom Activities:

### Transportation

Trains are only one of the many forms of transportation; have students brainstorm a list of others. Collect (or have students create) pictures of various forms of transportation (both present and past) and use them as a display where students can identify and categorize these modes as "Land Transportation," "Water Transportation," and "Air Transportation."



### Transportation/Communication

In the story a telegraph was used for communication. Discuss what a telegraph is, how it was used and why it was important in the past. Research Morse Code and have students use it to spell their first names. Then provide several flashlights so they can practice the dots (fast flashes) and dashes (slower flashes) and send their name or a short message to others in the class. Discuss the process of using Morse Code – what were the challenges, what are some situations where this type of communication would work well, etc.

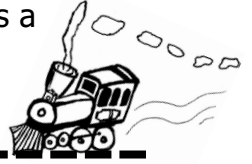


### Transportation

Obtain a map that details the railroads across the United States (check a train station, or download one from the Internet (see appendix for suggested websites) and post it in the classroom. Have students use the map to name various places they could travel to and from on a train. Explain that in the past railroads were the fastest modes of transportation, and compare that speed to the fastest modes of transportation today. If possible, take a field trip to a train station or invite a speaker who has had experience with the railroad system.

## Geography

Using the railway map from the previous activity, have students find and highlight the first train track system that went across the United States from the east coast to the west coast. Discuss the impact of this intercontinental railway when previously horses had been the fastest way to travel. How do they think it changed travel, transporting goods and communication via the mail? Ask students to write a story about their experiences as a passenger on that first train traveling across the United States. Suggest that they include what they saw, what they experienced and the reason for their trip.



## History

Invite a train enthusiast to visit the class to talk about their hobby of collecting trains, and train memorabilia. Ask them to share what they know about the history of the railroad with the class. Prepare students beforehand by having them think of topics or questions to discuss with the speaker.



## History

Discuss with students what it means to be brave, how this applies to Kate, and how she overcame her fear of the dark and of crossing the railroad trestle. Ask students what they think they may have done in that situation. Display a variety of books about real life heroes, and read one or more to the class. Then ask students to write a personal experience about a time when they overcame something they feared. (Most students this age will be able to relate to being afraid of the dark, getting lost, or fear of failing at some task.)

Book suggestions:

**Stitching Stars** by *Mary Lyons*

**The Story Of Quilts** by *Harriet Powers*

**Adventurous Spirit; A Story About Ellen Swallow Richard** by *Ethlie Ann Vare*

**Sacagawea** by *Dennis Fradin*

**Booker T. Washington** by *Jack L. Roberts*

**George Washington's Mother** by *Jean Fritz*

**Zora Hurston and the Chinaberry Tree** by *William Miller*

## Do-At-Home Activity:

### Transportation Survey

Encourage families to discuss and chart the types of transportation they have used.

# Rolling Down The Railroad



**Key Words:** momentum, mass, speed, trains

**Concept:** Trains take a long time to stop because of their great mass and speed.

Anyone who works around trains will caution children never to play near railroad tracks because trains take a very long time to stop. Trains have a great deal of momentum. Momentum is the scientific measure of an object's mass and speed. The more momentum something has, the longer it takes it to slow down and stop. Because trains generally travel at high speeds and are so large and heavy, their momentum is great. It takes a very, very long time for a train to stop.

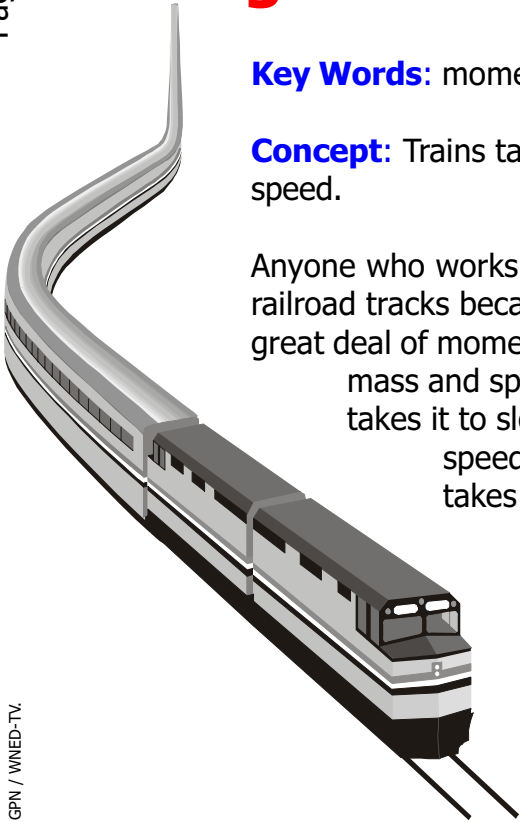
**Materials:** A child's roller skate with wheels that turn easily, two similar large soup cans—one empty & one full and unopened, several books, a piece of plywood or other thin wood that is about 24" x 6", a hallway or other open area with a hard smooth floor-covering, large rubber bands, masking tape, meter stick (optional).

1. On a smooth hard surface floor have students create a ramp by slanting a piece of wood from the top of a 4" or 5" stack of books.

2. Have them fasten an empty soup can to a roller skate using rubber bands or masking tape. Then have them release the skate from the top of the ramp and observe as it rolls down the ramp and across the floor until it comes to a stop on its own. Use masking tape to mark the point where the can stopped and/or measure the distance using a meter stick.

3. For the next trial, have students fasten a full, unopened soup can on the skate. Before they release the skate have them predict whether they think it will go a longer or shorter distance than the skate with the empty can. Have them release the skate and mark or measure the point where it stops. Ask them why this skate went further. (*This skate carries a heavier load/mass and its momentum is greater so it will travel a longer distance. Because of the mass it carries, a train will take a very long time to stop, even with strong brakes.*)

**Extension:** Measure how far the skate travels with other objects attached to it.



# Letting Off Steam

**Key Words:** steam, forces, push, pull

**Concept:** Steam can be used as a force to push objects.

Most modern trains use diesel or electrical power, but the very first trains used steam to power their mighty engines. They burned wood or coal to heat water that produced steam. The steam then pushed the pistons that drove the engine.

**Materials:** Tea kettle with a whistle, hot plate, water, meter stick, 2" x 6" strip of waxed paper, tape, a cooking mitt.

1. Have students tape a strip of waxed paper to the end of a meter stick.
2. Place several cups of water in a cool teakettle, set it on a hot plate and turn on the heat. Explain that as the water heats up, it will change to water vapor and steam, which will rise from the kettle. Remind students to stay back from the hot plate, the kettle, and the steam because all will be very hot and could cause burns.
3. After the whistle on the kettle indicates that the water is heated, turn off the hot plate, put on a cooking mitt and remove the kettle. Ask students to share their thoughts on what caused the whistle to sound. (*The rising steam was forced out of the kettle whistle causing it to sound in much the same way as when they blow in a whistle.*)
4. Turn the hot plate back on. Before putting the kettle on the hot plate, latch open the kettle spout lid (remember to wear a cooking mitt for this). To show how steam can be used to push objects, ask a student to hold one end of the meter stick and position the end with the waxed paper strips over the steam escaping from the kettle. Ask students to describe what happens to the paper strip. (*The force that is created by the hot water changing to steam is pushing them. This is the same force that moved steam engines.*)

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