

TRANSCONTINENTAL

A simulation of the development of American transportation

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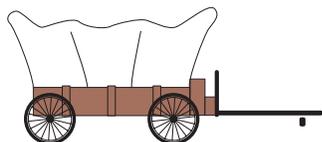
PURPOSE

Within less than 400 years the United States expanded from small isolated colonies nestled along the Atlantic Ocean to become one of the world's leading nations. This expansion could not have occurred without the development of fast, efficient methods of transporting people, goods, and information.

TRANSCONTINENTAL is the study of the events that made this development possible. This simulation can be used by students in the middle elementary grades and in junior high school, as well as with slower learners on the high school level. It is designed to help students learn and experience the following:

Knowledge

1. Development of various means of transportation
2. Interrelationship between these means of transportation
3. Introductory scientific information needed for the development of these means of transportation
4. The effects of these means of transportation upon the development of the United States
5. Awareness of the interrelation of advances of knowledge



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Attitudes

1. Appreciating the dynamics of group involvement
2. Appreciating the benefits of individual research
3. Valuing the knowledge gained by listening to fellow students' presentations
4. Enjoying and feeling empathy for the times and people who advanced the knowledge necessary for these changes to take place

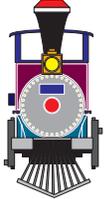
Skills

1. Using a variety of resource materials
2. Using a variety of learning methods
3. Organizing information gathered
4. Effectively presenting this information
5. Using our language correctly, both orally and in written form
6. Becoming a productive and cooperative member of a group
7. Working productively on an individual basis
8. Developing imagination while creating projects
9. Gaining knowledge from classroom presentations
10. Appreciating differing learning styles and levels of knowledge
11. Enjoying the process of learning

OVERVIEW

TRANSCONTINENTAL is a simulation developed to help children learn about the transportation of people, goods, and information in the early days of the United States. This learning takes place within a format of a race between the competing companies involved in the building of the transcontinental railroad.

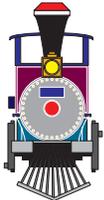
TRANSCONTINENTAL is divided into four phases:



Phase 1

Phase 1

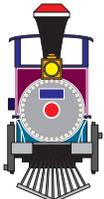
- PRE-TEST
- Discuss the materials found in the Student Guide
- Organize teams—led by teacher-appointed leader
- Work time to complete the BASIC INFORMATION CARDS and PROJECT/REPORT CARDS



Phase 2

Phase 2

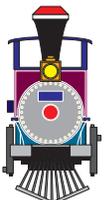
- Present what has been learned by the team members to their own team
- Develop a retrieval system
- Practice how to present the information during the race
- Move teams' train symbols along the route of the transcontinental trains on a large bulletin-board map of the United States. Base the moves on the number of points earned in this phase



Phase 3

Phase 3

- Answer RACE CARDS in front of the entire class
- Move teams' train symbols along the route of the transcontinental trains on a large bulletin-board map of the United States. Base the moves on the number of points earned in this phase



Phase 4

Phase 4

- POST-TEST
- Review what has been learned about transportation and about working within the simulation format
- Culmination activities

EDUCATIONAL THEORIES - 1

In order that all children in your class may learn as effectively as possible, the following theories of learning have been incorporated into the activities, questions, projects, and reports of TRANSCONTINENTAL.

Bloom's taxonomy Benjamin Bloom developed his classification system for the elements of learning in 1948. His taxonomy demonstrated that thinking is a multi-layered process beginning with recall of information and developing into the higher levels of analysis, synthesis, and evaluation.



Level 1: Knowledge

During this lowest level of learning, students work with simple recall. They move from general knowledge to specific knowledge.

- Defining
- Describing
- Identifying
- Listing
- Locating
- Matching
- Reciting
- Telling
- Writing



Level 2: Comprehension

During this second level of learning, students work with the ability to understand the meaning of material.

- Demonstrating
- Explaining
- Extending
- Inferring
- Summarizing



Level 3: Application

During this third level of learning, students use material in new situations. This may include concepts and rules (as in grammar or spelling).

- Changing
- Computing
- Constructing
- Producing
- Relating
- Solving
- Using



Level 4: Analysis

During this fourth level of learning, students work with the ability to sort material into its basic structure, and to organize the material to show a basic understanding.

- Breaking down
- Diagramming
- Discriminating
- Selecting
- Separating
- Making inferences
- Simplifying
- Supporting ideas

EDUCATIONAL THEORIES - 2



Level 5: Synthesis

During this fifth level of learning, students form new patterns by taking the parts and forming a different whole.

- Creating
- Designing
- Composing
- Predicting
- Reorganizing
- Revising



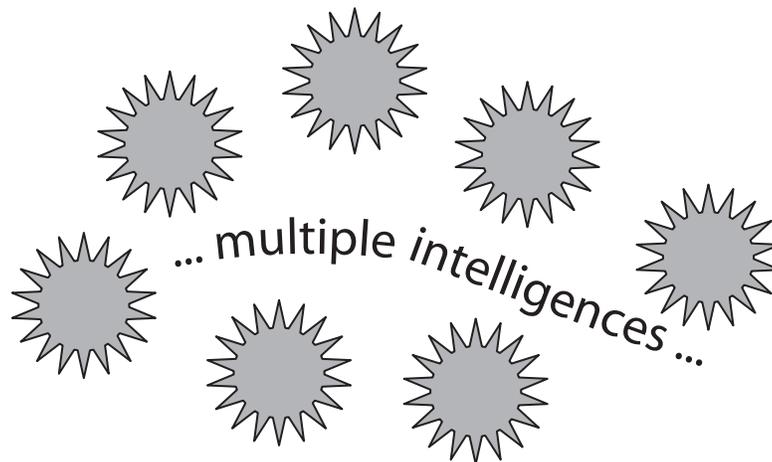
Level 6: Evaluation

During this highest learning level, students work with judgmental decisions regarding values. This highest level contains elements of all other categories plus value judgments based on clearly defined criteria.

- Comparing
- Contrasting
- Criticizing
- Interpreting
- Relating
- Justifying

Gardner's theory of multiple intelligence Howard Gardner listed the following forms of intelligence in his Theory of Multiple Intelligences.

- **Linguistic** (Language): reading, talking, telling
- **Logical-mathematical**: finding categories; identifying patterns, abstractions, and equivalencies; solving math and logic problems
- **Musical**: making and listening to music
- **Spatial**: visuals, relationships between objects and space, use of different materials: art, models, diagrams, maps
- **Bodily-kinesthetic**: excels at physical activities: athlete, dancer
- **Interpersonal**: aware of own and other persons' feelings, compassion, leadership skills
- **Intrapersonal**: organized, goal setter and self-motivated



TRANSPORTATION TIMELINE

Week 1

<p>Introduction</p> <p>Pre-test</p> <p>Read and discuss Student Guide</p> <p>Assign captains and members to two teams—CP and UP</p> <p>1</p>	<p>Phase 1</p> <p>Organize teams</p> <p>Review research materials</p> <p>Delegate tasks</p> <p>Plan retrieval system</p> <p>2</p>	<p>Worktime to answer question cards and do project reports</p> <p>3</p>	<p>Continue Day 3</p> <p>4</p>	<p>Continue Day 4</p> <p>5</p>
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Week 2

<p>Phase 2</p> <p>Team members present what they have learned to their own team</p> <p>Review Student Guide map and timeline handout</p> <p>Review/practice presentation skills; review use of retrieval system</p> <p>Move train symbol on large bulletin board map</p> <p>1 2</p>	<p>Phase 3</p> <p>Each day half the members of each team draw Race cards</p> <p>Allow five minutes to prepare answers using retrieval and buddy system</p> <p>Present answers to cards</p> <p>Move train symbol on large bulletin board map</p> <p>3 4</p>	<p>Phase 4</p> <p>Declare winners</p> <p>Reenact original meeting of trains</p> <p>Present projects, skits, etc.; celebrate with refreshments</p> <p>Evaluation; post-test</p> <p>5</p>
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OPTIONS

- Prior to beginning the simulation, meet with the team captains to preview the steps involved and make preparations. When the simulation begins, these captains might take over some of the activities listed for you, such as previewing the simulation, reviewing the information in the Student Guide, organizing the race, leading evaluation discussions and presentations to parents at PTA, open house, etc. Grading of the POST-TESTS should remain your responsibility.
- Rather than two teams within a classroom, the teams could be made up of two separate classrooms competing with each other.
- Allow more time for the research phase, particularly if there are a great many films, speakers, etc., available to use with the class.
- Videotape any of the activities. Obtain a camcorder and video cassette from the district or from a parent. Show portions of this videotape at the celebration in Phase 4, or at an open house, a PTA meeting, or to next year's students prior to their beginning the simulation.
- Possibly allow students time overnight to prepare answers for Race Cards and presentations.

SETUP DIRECTIONS

Prior to beginning TRANSCONTINENTAL, meet with the captains of each team. These captains are to assist with the preparation of any needed materials.



Having the captains work with you on preparation will build anticipation of the upcoming simulation.

1. Duplication

- CAPTAIN'S CONTRACT (two: one for each captain)
- PRE/POST-TEST (two per student)
- BASIC INFORMATION CARDS and PROJECT/REPORT CARDS (one set of each per team—duplicate each set on different colored heavy paper; possibly laminate them)
- RACE CARDS (classroom set)
- TRAIN MARKER (one marker for each team)
- ANSWER FORM (one sheet for each of the BASIC INFORMATION CARDS and PROJECT/REPORT CARDS for each team—approximately 200)
- WHAT HAPPENED WHEN (one per student)
- RACE PRESENTATION SCORE CARD (one per student)
- INDIVIDUAL EFFORT SCORE CARD (one per student)
- CERTIFICATE OF PARTICIPATION (one per student)

2. Room environment

- Set aside one bulletin board for a large map of the United States showing the routes of the two competing companies. Use the RACE MAP in this Teacher Guide to make an overlay transparency, and then use the overlay to make a large bulletin-board-size map on butcher paper. The team captains can do this.
- Display pictures, models, or artifacts that might be available for any of the various forms of transportation.
- Provide space for each of the teams: 1) to keep its research supplies and materials during the preparation phase and 2) to put its completed retrieval system of answers, reports, and projects.

3. Gathering needed materials

- Assemble all books and resource materials (see information sources). Provide each team with its own encyclopedia set if possible. Other sources will need to be shared.
- Order any appropriate films and/or filmstrips available in your school district. Set up a viewing center for the filmstrips.
- Canvas students, parents, local groups, and fellow teachers for speakers who may have expertise in any of the specific areas of this study.
- Cut different colored strips of paper for each team to use to indicate who is using a particular book in the resource center.
- Provide folders and boxes for the teams to use to organize their research materials, retrieval system, and completed projects.
- Make preparations for field trips to any nearby museum that might have models, replicas, or preserved trains, wagons, etc.



Railroad hobby groups might be willing to give talks to your class or to help with field trips.

SCORING AND EVALUATION - 1

General information

- There are seven basic topics divided into eight BASIC INFORMATION CARD sheets.
- Each student pair is to choose a topic of interest and complete the cards on that subject. Each completed card is worth one point.
- When all the BASIC INFORMATION CARDS are completed on one topic, the students should proceed to the Project Cards.
- In order to complete the cards in the amount of time given, it will be necessary to do some of the work at home. (Note: Since it is unlikely that there will be time to complete all of the PROJECT/REPORT CARDS, student pairs are required to complete only two of the four given. If time, however, they may do one or two others for extra credit.)



Encourage students to work together. It is unlikely students can complete all the PROJECT/REPORT CARDS, so encourage them to complete some cards at home.

Basic Information and Project/Report scorecard

- This card is to be completed by the team Captain at the end of Phase 2. The number of points earned (from one to five points per card) is determined by the Captain, based on the quality of the work done.
- No points are earned for the PROJECT/REPORT CARDS until all the BASIC INFORMATION CARDS are completed.
- At the beginning of Phase 3, the students move their team's train symbol the number of points earned.

Race presentation scorecard

- This card is to be completed at the time of the presentation. One card is given to each presenter based on an average of the points given by you and each of the Captains.
- The total number of points earned can be written in large numbers on the back of the card and held up for the class to see, as in an Olympic competition, or the score cards can be given to the students at the end of all the presentations for the day, or be given out on the final day.
- The students move their team's train symbol the number of points earned.

SCORING AND EVALUATION - 2

Certificate of participation

- All students will receive a certificate with the total number of points earned indicated on it.

Evaluation

- The total number of points earned during Phases 2 and 3 as well as the scores on the PRE/POST TEST and MAP TEST can be used to evaluate the individual student's progress and translated to a letter grade, if necessary.



The same test is used for both pre/post tests. After post test is graded, have students compare their pre and post test answers.

Answers to pre/post test

- Part 1: g, b, f, a, c, j, e, d, i, h, l, k.
- Part 2: 10, 12, 3, 9, 1, 7, 4, 13, 5, 11, 6, 8, 14, 2.
- Part 3: 1. T, 2. F, 3. F, 4. T, 5. T, 6. F, 7. F, 8. F, 9. T, 10. F, 11. F, 12. T, 13. T, 14. T, 15. F, 16. T, 17. T, 18. F, 19. F, 20. T.
- Part 4: 1. Russia, 2. Romans, 3. horse, 4. English, 5. mail-news, 6. Indians, 7. steam engine, 8. steamboats-Canal, 9. trains-steamboats-canal, 10. Civil War, 11. Stanford, 12. Durant, 13. Butterfield stageline, 14. Western Union, 15. Great Plains, 16. internal combustion, 17. assembly line, 18. roads, 19. airplanes-trucks, 20. pollution-congestion.
- Part 5: See map
- Part 6: Answers will vary. In essence, transportation of people, goods, and news across the nation became faster, easier, and safer. With development of other railroad routes throughout the west, these areas were opened to settlement. It united the country.



Before students select team captains, discuss what qualities are needed in a leader.

One week prior to beginning the simulation

1. Choose a Captain to lead each team. *Option:* Have students vote—by written ballot—for their choices. In either case, the Captains should be selected on the basis of leadership qualities, not popularity.
2. Meet with the Captains and go over the CAPTAIN'S CONTRACT. Review their responsibilities before the simulation, during each phase, and after the simulation.
3. Both you and the Captains sign the contracts.
4. Choose members for each team. You may have the Captains assist you in making these selections.
5. Together with the Captains, prepare and assemble needed materials.

Week 1

Day 1

1. Introduce the simulation.
2. Administer the PRE-TEST. Save these tests so your students can compare them with the POST-TEST administered at the end of the simulation. Answers are found on page 8.
3. Discuss simulations in general, and this one in particular.
4. Distribute Student Guides. Read the Introduction. Go over “Steps to Follow” and “How to ...” information together as a class. Assign “History of Transportation” as overnight reading. Answer questions.
5. Introduce Captains. Assign students to teams.



The “History of Transportation” may be assigned as overnight reading or can be read together in groups on Day 2.

Day 2

1. Begin Phase 1. Have teams meet in assigned areas.
2. Team members decide who is going to research the specific areas: Railroads, steamships, canals, roads, trails, and a miscellaneous group who research horses, the Louisiana Purchase, the Pony Express, and the telegraph. Normally, a pair of students are assigned each topic, but you might have to vary this due to class size.
3. Team members review research materials that are available (books, encyclopedias, magazines, filmstrips, etc.) and plan a retrieval system to be used to find answers quickly and easily during Phase 3.
4. Team pairs preview the BASIC INFORMATION CARDS and PROJECT/REPORT CARDS, plan how they are going to do the tasks, and who is going to do what.

Days 3-5

1. The balance of the week is work time. It will be necessary for team members to do some of the tasks at home.
2. End Phase 1.

Week 2

Days 1-2

1. Begin Phase 2. Have teams meet in assigned areas.
2. Captains lead their team in a review of presentation standards and of the information retrieval systems that have been set up.
3. Team members—individually, in pairs, or small groups—present the information they have learned, and the projects and reports they have done. Their job is to teach the other members of their team about their particular area of expertise. Have team members take notes while these presentations are given.
4. Review the routes of the various forms of transportation as shown on the Transcontinental Map found in the Student Guide.
5. Distribute and review the events listed on the WHAT HAPPENED WHEN handout.
6. Captains complete INDIVIDUAL EFFORT SCORE CARDS as the members make their presentations. You and the Captain together review the scores before the cards are given to the students.
7. End Phase 2.



Team members teach each other what they have learned. Then students answer questions based on what they have learned from their fellow team members.

Day 3

1. Begin Phase 3 by giving each team a train marker. Have each student pair in each team move their team's train symbol on the bulletin board map the number of spaces they have earned in Phase 2. (Alternating the teams gives the feeling of the railroad being built from both ends, simultaneously.)
2. The Captains of each team draw 10 RACE CARDS. They do not look at the cards. At a signal, each Captain turns one card over and gives it to a team member. These students have five minutes to prepare answers for the cards, plus practice how the answer is going to be presented. Each team then gives its answer and moves its train the number of points earned.
3. Team members who have not drawn cards are required to assist the presenters in finding the answers and preparing presentations.
4. Presenters from both teams take turns giving responses to the cards they have drawn. During the presentation, you and the team Captains should complete RACE PRESENTATION SCORE CARDS. (**Note:** Each question must be answered by a different team member until all members have responded.)

Scoring: You and the Captains place scores on the RACE PRESENTATION SCORE CARDS. The presenter receives an average of the three grades, which is written on the back of one of the cards and held up for all to see. The presenter then moves the team train.