

THE RESEARCH TRAIN

Pre-K+

**(A study for one child or a
whole class)**



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Note from Cindy and Virginia

Karen developed this unit to use with her own child. It would work really well for homeschoolers. However, it certainly can be adapted to use with a primary classroom as an exciting introduction to research.

A note from the author, Karen

The Student

I am developing this unit for my 5 year-old daughter, Kaley, who is an artistic, precocious learner, with advanced reading skills and a passionate interest in trains.

The Goals

This will be Kaley's first *formal* experience into first hand investigation and research. The intent is for her to develop rudimentary research skills by using her passion for trains to practice these skills with the hope that she will begin to use these techniques at an early age. We will use some train resources which will, no doubt, help to increase her understanding of trains and their impact and role in society. However, the primary objective of this particular unit is to give her research tools and the opportunity to apply them.

Train Ride into Research

This unit will be presented as a train ride. The steps within IIM that will be included on the train ride are Topic, Goals Setting, Research, Organizing, Goal Evaluation, Product, and Presentation.

The culminating activity will be a simulated train ride that takes the student through the concepts of research which she illustrates as scenery with train facts as examples of each of the following: Topic, Goals Setting, Source, Notefact, and Category. These investigation concepts will be scenery and destinations along the train route.

RESOURCES

Books

Fiction: Thomas the Tank Engine stories

Nonfiction: Books with types of trains, function of trains, role of trains in society (titles to be determined)

Supplies Needed

Cardboard boxes for tank engine and cars

Decorative items for train

Computer

Paper, large and small

Crayons and paint

Pencil or pen

STEP 1 - TOPIC

Parent steps

I will:

- a. Talk with Kaley about the concept of research as a form of discovery
- b. Share the steps and words used in IIM
- c. Make a regular time each week for several weeks to work on this project
- d. Work with her to develop a concept train (map)

Student steps

Kaley will:

- a. Participate in exploratory activities
- b. Help to develop her first concept map (train)



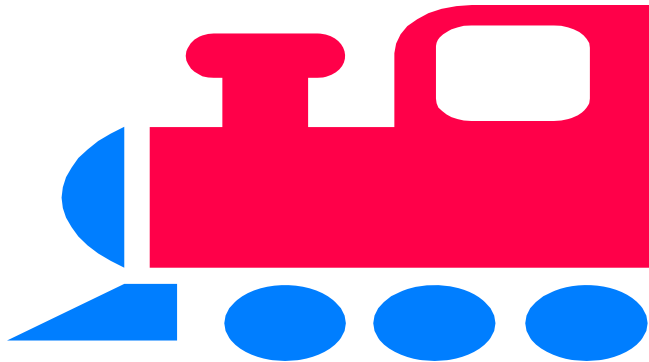
Topic Lessons

1. Define and discuss the words and concepts within IIM
2. Pick the primary concepts which she does not immediately understand and help her create crayon or paint illustrations that will help her understand
3. Explain what a glossary is
4. Have her create a chart to her liking that will hold the words for her glossary
5. Have her select a couple of the Thomas the Tank Engine stories. I will read one to her, and she will read one to me.
6. Have her select one of her nonfiction train books and reread it together. Go to the library and locate a slightly more advanced nonfiction train book and read it together.
7. Create a concept train (map). Have Kaley make the outline of a train with cars. Then have her write and web what she already knows about trains from the fiction and nonfiction reading. Have her list some questions she has about trains.

Simplified Concept Train (Sample)

Transportation
Of food
Of supplies
Of people
Of what else?

Who Invented Trains? Why?
People, to carry stuff
Why else?



What did we do before trains?
Ride horses
Walk
What else?

What did we do after trains?
(How did trains change
society?)
People could ride on them
How else?

STEP 2 – GOAL SETTING

Parent steps

I will:

- a. Create key questions
- b. Help Kaley put questions on appropriate cars

Student steps

Kaley will:

1. Help create open-ended questions



Goal Setting Lessons

1. Put my questions on a goal setting chart – the question train
2. Help Kaley place her questions by category – on the appropriate train car

SAMPLE GOAL SETTING – THE QUESTION TRAIN (What we want to know about trains)

My questions: *What do trains do? How do trains affect our lives? What would happen if we didn't have trains?*



Possible Kaley questions: What kinds of foods do trains carry? What do I have because of trains? Would I still have food without trains? Why can't trains come to our house? Where do trains come from? Who invented trains? Where do trains go? How are trains made?

STEP 3 – RESEARCH

Parent steps

I will:

- a. Prepare charts for each resource
- b. Talk about not copying other people's work
- c. Write bibliographic information
- d. Help Kaley focus on answering our questions
- e. Help Kaley record notefacts onto each chart
- f. Help Kaley follow IIM notefact protocol, model examples
- g. Record source numbers on magnifying glasses
- h. Help Kaley add to glossary
- i. Repeat e-h for each source
- j. Post what she does

Student steps

Kaley will:

- a. Help identify notefacts
- b. Find words she doesn't know for glossary
- c. Learn meaning of words she doesn't know



Research Lessons

1. Kaley has already read many fiction and nonfiction books about trains. Now she will read a new nonfiction book with me (title to be determined) about the history of trains. Together we will develop the notefacts. (Source 1)
2. Investigate on the Internet about the different things trains do (teach her Google). Find 1 good source site (to be determined). Together we will develop notefacts from this site. (Source 2)
3. Select one of her books on trains with photographic pictures. Observe and talk about these pictures. Develop notefacts. (Source 3)
4. Refer back to our questions
5. Add to our glossary

STEP 4 – ORGANIZING

Parent steps

I will:

- a. Prepare an Organizing Notefacts chart using IIM samples
- b. Help Kaley with categories
- c. Help Kaley write category names
- d. Guide discussion of category choices

Student steps

Kaley will:

- a. Prepare an Organizing Notefacts chart using IIM samples
- b. Choose color for each category
- c. Cut notefacts into strips
- d. Glue notefacts into categories



Organizing Lessons

1. Play some categorizing games with Kaley such as with colors and shapes.
 - a. Have Kaley choose one of her toy bins and organize the toys into categories.
 - b. Discuss the concepts of category and have Kaley explain why she feels each toy goes into which category.
2. Follow parent steps a – d.

STEP 5 – GOAL EVALUATION

Parent steps

I will:

- a. Evaluate set goals
- b. Check Kaley's glossary knowledge
- c. Lead discussion of new things she knows about trains

Student steps

Kaley will:

- a. Discuss and respond to the following:
 - What was our topic?
 - What was one of our goals?
 - What could be a new goal for further research?
 - What's a source?
 - What's a notefact?



Goal Evaluation Lessons

1. Reflect and evaluate Kaley's engagement, response and sections of mastery in each of the following areas:
 - Topic
 - Goal setting
 - Research
 - Organization
 - Goal Evaluation
 - Product
 - Presentation
2. To help evaluate her understanding, Kaley will create her own book about trains. She will select and put one of our questions at the top of each page in her book. We will incorporate her love of fiction about trains by having her create a little story on each page that utilizes some of the ideas and facts that answer that question. Have her illustrate the book as desired with artistic tools of choice.

STEP 6 – PRODUCT

Parent steps

I will:

- a. Talk with Kaley about potential audience for her book, i.e., father, brothers, friends, the local train museum
- b. Help her build a cardboard train
- c. Post her Research Scenery for the simulated train ride
- d. Be a passenger on the “Research Train Ride”

Student steps

Kaley will:

- a. Build a cardboard train
- b. Create Research Scenery for “Train Ride”
- c. Conduct the simulated “Research Train Ride”



Product Lessons

1. We will use cardboard boxes to build a train
2. Using facts she has learned about trains, Kaley will create words and illustrations on large paper which represent the following: Topic, Goals Setting, Source, Notefact, Category and any other concepts of her choosing. Each of these areas will be on one piece of paper. These will become the scenery and destinations for our “train ride.”
3. We will post the papers on a large wall.
4. Kaley will be the conductor and I will be the passenger. Together we will take the “Research Train Ride” going through the various Research Destinations, and she will talk a little bit about the scenery and destinations.

STEP 7 - PRESENTATION

Parent steps

I will:

- a. Help Kaley determine who else might want to go on the Research Train Ride

Student steps

Kaley will:

- a. Invite friends and family to take the train ride (singly or in groups)



Presentation Lessons

1. Kaley will act as conductor for the Research Train for interested friends and family.
2. As the train goes through the various “countrysides” and “destinations” she will explain the various skills along the Research Way, teaching what she has learned.

Toot, toot! All aboard!

