This is a preview. The number of pages is limited. Some pages are omitted.
TechnoResearch is available for Docs and Word.
https://www.technokids.com/store/elementary-school/technoresearch/teaching-research-skills.aspx

TECHNOResearch

Teacher Guide

Lessons for Elementary and Middle School: Grades 3-9

Technology Project using

Google Docs

Research to make a fact card.

In this project, students develop research skills as they create a Fact Card using Google Docs. To start, students brainstorm a topic and plan their research project. Next, they use strategies to retrieve quality information from reliable sources. The facts are then processed using paraphrasing techniques to transform an outline into a one sheet report. The publication is shared with others as a part of a Fun Fact Card Collection. Extension activities challenge students to develop skimming and scanning techniques, practice advanced research strategies, arrange facts in a table, and recognize sources of information. The goal of this project is to teach skills that are transferable to any research project.

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TechnoResearch Overview

Purpose: Develop research strategies to create a fact card in Google Docs.

Objectives: (see Appendix A: Skill Summary)

- identify audience and presentation format
- formulate a plan to guide research
- gather information using research strategies
- assess the quality of information
- classify facts using an outline
- define terminology in a glossary
- cite the source using a proper format
- paraphrase facts to avoid plagiarism
- present information clearly on a fact card
- apply word processing skills
- evaluate research procedures and skills

Preparation: (see Preparing to Teach)

- Install Google Chrome
- Sign up for a Google Drive account
- Install Adobe Reader or another PDF app
- Share Research folder with students
- Download and print Flashcards and Tool Summary from TechnoHub (optional)

Materials: (see *Appendix B*: for a complete list)

- Assessment: Fact Card Checklist, Research Self-Reflection, Fact Card Marking Sheet, Research Skill Summary
- Research folder
  - Workbook Assignment Sheets
  - Samples: Pioneer1, Pioneer 2, Space, Biography
- Parent Letters and Certificate
- Flashcards and Tool Summary (optional)

Summary of Activities:

- Assess research skills. Study fact cards to gain an understanding of the research project.
- Use Explore tool and Wikipedia to gain ideas. Build a word list and ask questions to narrow focus.
- Organize ideas. Create an outline with headings in Google Docs.
- Use an online encyclopedia to gather facts. Track the source of information using the Cite feature.
- Research a topic using Google Search. Apply strategies to find trustworthy information quickly.
- Make a glossary that defines terminology using the Define tool or online dictionaries.
- Paraphrase facts by rewriting them using simple sentences that are easy to read and understand.
- Format font, create a bulleted list, adjust line spacing, and indent lines to lay out text on the page.
- Adjust the orientation, page color, and margins. Add images and set the text wrap and borders.
- Complete checklist, then have a peer review the fact card. Make revisions based on assessment.
- Print the fact card or email a link to the teacher. Share collection with others.

Extension Activities:

- Save Time! Skim and Scan: Apply tips to understand the main point and find specific facts.
- Cite Sources of Information: Understand citations. Use an online generator.
- Explore Google Search: Filter results, find an exact phrase, exclude words, define terms, and more!
- Use Primary and Secondary Sources: Compare sources to understand their usefulness.
- Arrange Fact Card using a Table: Use table cells to arrange text and images in a columnar design.

Assessment:

- Self and Peer Evaluation Checklist (Fact Card Checklist – Assignment 10)
- Self-Evaluation (Research Self-Reflection – Assignment 12)
- Teacher Evaluation (Fact Card Marking Sheet, Research Skill Summary)

Notes:

- This project can be applied to any curriculum unit. Teachers can set the area of study or have students select the research topic.
- The activities focus on explicitly teaching research skills. The goal is to provide procedures and skills that are transferable to any research situation.
- Elementary students new to research will benefit from the systematic introduction of skills. The teacher may want to model the instructions using a direct instruction approach. In addition, it is a good idea to talk with students about their ideas to make sure their research topic is doable within the allocated time frame.
- Middle and high school students should complete the extension activities to learn additional research strategies.

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Technology Integration Ideas

TechnoResearch integrates into any curriculum-based research project because the topic is open-ended. Teachers can apply it to numerous areas of study within social studies, science, history, or geography. The activities include a systematic approach to the development of research skills, providing a foundation for future learning.

The project follows stages of the research process.

- *Planning Stage*: Students establish a topic and develop a research plan. To start they broaden their knowledge to explore the possibilities. Next, they generate a word list to highlight what they currently know. From this list, they narrow their focus by posing guiding research questions.
- *Information Retrieval Stage*: Students gather facts from multiple sources and organize them using an outline. They apply research strategies to find trustworthy information quickly. Also, they learn how to track sources.
- *Information Processing Stage*: Students synthesize information to transform it into a fact card for children. To avoid plagiarism, they paraphrase the text into their own words. Word processing skills are applied to present findings in an interesting way.
- *Information Sharing Stage*: Students present the final product. Fact cards are combined with classmates' cards to create a Fun Fact Collection. The collection can be placed in the classroom or library or posted to the Internet as a helpful resource to children.
- *Evaluation Stage*: Students reflect upon their learning. They assess research procedures and skills. Connections are made to how this learning can be applied to future situations.

TechnoResearch fits in with a multitude of teaching situations.

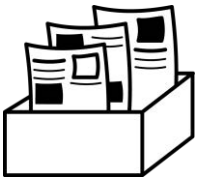
- *Library Media Specialist*: A teacher librarian can use the activities to teach essential research skills with a focus upon information retrieval, plagiarism, and citing the source.
- *Subject-Specific or Classroom Teacher*: The teacher can include the activities as part of a curriculum unit to have students acquire knowledge in a meaningful way.
- *Computer Teacher*: The computer teacher can use the activities to teach valuable Internet search strategies and word processing skills.
- *Language Arts Teacher*: The teacher can include the activities as part of the language arts unit that focuses upon report writing and organizational strategies. The fact card can be easily transformed into a report by adding an introductory and concluding paragraph.

Understand the Big Picture

Not sure where to integrate TechnoResearch? View samples to gain a better understanding of the project. The *Pioneer, Space, and Biography* Fun Fact Cards showcase a range of topics. Study the content, layout, and design.

Assignment 1 Study the Fun Fact Card Collection

In this project, you are going to create a *Fun Fact Card* for kids to use to learn about a topic. The fact card will be written for people your age or a bit younger. It will have information, pictures, and a glossary.

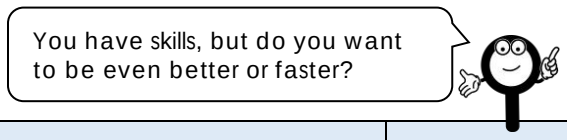


Your fact card will be combined with classmates' cards to create a *Fun Fact Card Collection*. These fact cards can be printed and placed as a helpful resource in the classroom or library. Or you can post them on the Internet as an online library, or *cybrary,* for students at your school.

To make a fact card you will use the Internet to research. To make sure you do not waste time, you will learn how to find information fast. You will also be given tips to assess quality, track sources, and reword information.

What Research Skills Do You Want to Learn?

You likely already use the Internet to find information. Think about the skills you have. Place a checkmark ✓ where you want to learn more time saving tips.



Research Skills	I have this skill.	I want to save time. *Teach me more tips!*
I make a plan before starting a research project.		
I use keywords to find information fast.		
I can pick the best website quickly from search results.		
I know many places on the Internet that have facts.		
I can tell if information on a website is true.		
I can skim and scan information to seek what I need.		
I organize the facts that I gather.		
I keep track of where I find information.		
I rewrite information into my own words.		
I share information with others so that they understand it.		

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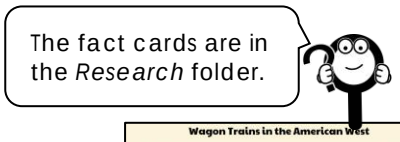
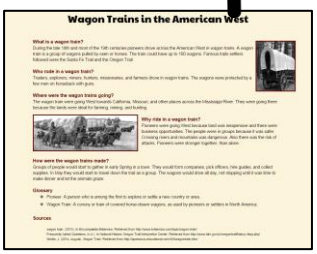
Study Fact Cards



View the Pioneer 1 fact card:



1. a. The fact card divides information using headings.
   Under which heading is information about the reasons pioneers used wagon trains to travel?

   Why ride in a wagon train?

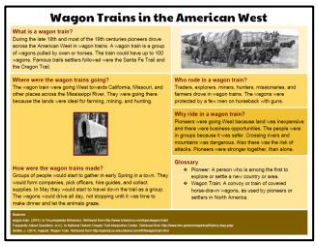
   b. A glossary is used to define the meaning of words.
   What words are in the glossary?

   pioneer, wagon train

   c. There are links to websites on the Internet.
   Why would this be helpful to someone?

   They can learn more about the topic.

View the Pioneer 2 fact card:



2. a. You are going to learn tips for using Google Docs to arrange information and images on the page.
   List differences between Pioneer 1 and Pioneer 2 fact cards.

   -
   -

   b. Which fact card do you like more? ☐ Pioneer 1 ☐ Pioneer 2

View another fact card such as Space or Biography.

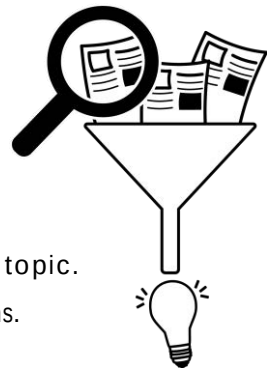
3. a. Fact Card Name:

   b. What do you like about this fact card?

   -
   -

4. The fact cards are for kids. The facts must fit onto one sheet of paper.
   What do you think is the most important thing kids need to make the information easy to understand?

Assignment 2 Broaden Then Narrow Your Topic



You will do a quick Internet search to expand your ideas.
You will then sort through your options to narrow your research focus.

Follow these tips!

- *Explore Your Topic:* Use the Explore tool to get ideas.
- *Gain Knowledge:* Use Wikipedia to learn a bit about the topic.
- *Build Word List:* Show what you know. Make a list of terms about your topic.
- *Narrow Your Focus:* Think about what you want to learn. Ask questions.

Ask your teacher what general topic you are to study.
If you get to pick, then choose a topic that interests you.

What is your broad topic area? This is your starting point!

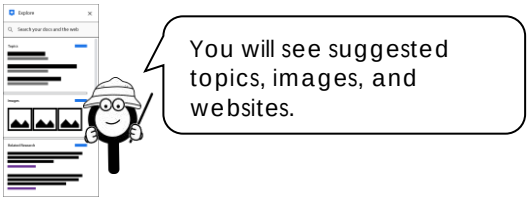
Open Google Docs and Create a New Document

- ▷ Sign into Google Drive. Use the Chrome web browser.
- ▷ Click *New*. + From the list, select *Google Docs*.

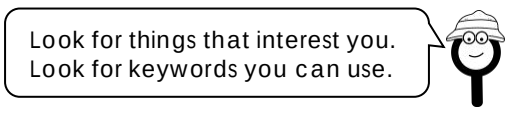
Use the Explore Tool to Investigate Your Topic

The Explore tool in Google Docs is for finding facts. You can also see related images and insert them into your document. You are going to use it to explore your options.

- ▷ Type your *Topic Name*. Press ENTER.
  Select the word or phrase.
- ▷ Click *Explore* from the Tools menu.



- ▷ Do NOT read everything. Just *skim* and *scan* it quickly.
  - o Look quickly through the pictures.
  - o Read the website titles.
  - o Read a description that interests you.



- ▷ Be curious! In the Explore pane, modify the search term by adding more words or type in a new search word.

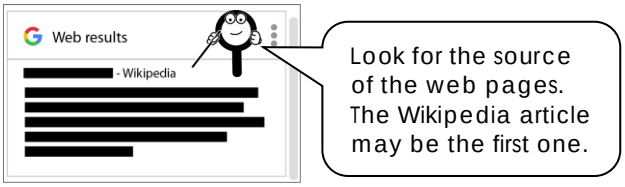
Use Wikipedia to Gain a Bit of Knowledge

Wikipedia is a free encyclopedia that has articles written by ordinary people. Anyone can edit an article. For these reasons, it is not a good idea to use Wikipedia as your *only* source of information. However, it is a great place to start a research project.

How should you use Wikipedia?

- learn a bit about a topic quickly.
- view information that relates to your topic to get more ideas.
- connect with other websites related to the topic.

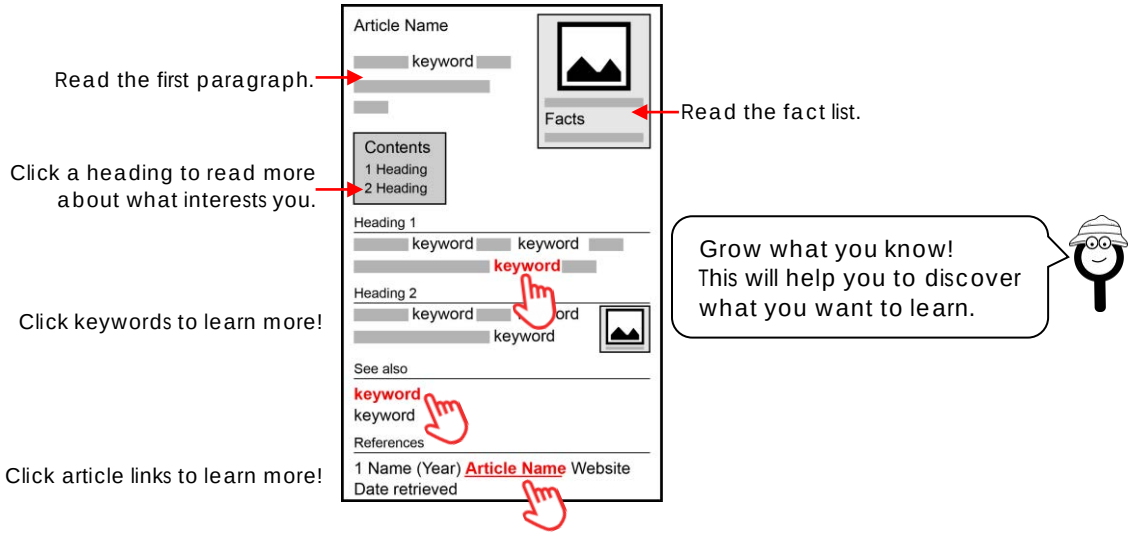
▷ Look through the Explore results about your topic.
Find the Wikipedia article. You may need to scroll down.



▷ Click the description to open the web page in a new browser tab.

▷ Save time! Do NOT read everything.

- Read the first few sentences or paragraph.
- Read the list of facts below the picture on the right.
- Look for a *Contents* list. Click on a heading that interests you. Read that!



▷ Get ideas! Wikipedia can help you expand your ideas. Click around!

- Click on keywords highlighted in text.
- Click on keywords in the *See also* section.
- Click on references at the bottom of the article.
- Click on external links at the bottom of the article.

Build a Word List

Based on your Internet search, you are going to make a list of words related to your topic.
This is a great way to discover what you already know about a topic.
You will use this list to narrow your research focus.

- ▷ Close the web browser tab with the Wikipedia article (X).
  The Google Docs file should still be open.

- ▷ Below the *Topic Name* make a list of words related to your topic.
  Press ENTER after each word.

Topic Name
word
word
word
word

Jot down as many words as you can.

What can be in the list?
- ✓ synonyms – different word used for topic
- ✓ objects related to topic
- ✓ places related to topic
- ✓ people related to topic

Narrow Your Focus

You are going to make a *Fun Fact Card* for kids.

The card will be one sheet of paper.
This means you won't be able to put EVERYTHING onto the card.

You must narrow your topic.

- ▷ Look over your list. You need to pick a topic for your fact card. Ask yourself:
  - o What will a kid find interesting?
  - o What do I want to know more about?

- ▷ Pick ONE idea from your list.
  Below the list of words, write the *NEW Topic Name*.

- ▷ Below the *NEW Topic Name* make a list of questions you have about the topic.
  Press ENTER after each one.

NEW Topic Name
who
what
where
when
why
how

You will make a research plan in the next assignment.
Which questions interest you the most?

Rename the Document and Then Sign Out of Google Drive

- ▷ Click in the *Untitled Document* box to rename the document.

- ▷ Sign out of Google Drive.

Assignment 9 Adjust Page Layout and Arrange Images

Your Fun Fact Card is almost finished.

Follow the instructions to change the page orientation, color, and margins to create a unique design. Insert images to illustrate the ideas.

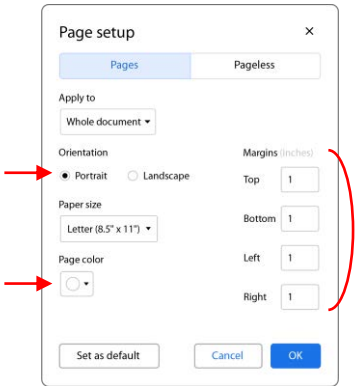
Open the Fact Card in Google Docs

Set the Page Orientation, Color, and Margins

- From the File menu, select *Page setup*.
- On the *Pages* tab:
  - Pick an *Orientation*. *Portrait* is tall, and *Landscape* is wide.
  - Set the *Page color*.
  - Adjust the *Margins*.

Orientation
If you are printing, ask your teacher which orientation they would like.

Page color
If you are printing the fact card keep it white. If you are sharing it digitally then pick a color.

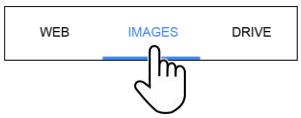


Margins
If you do not have much text, make the margins larger such as 1.5 or 2 to fill the page. If you have lots of text, make the margins smaller such as 0.75.

- Click *OK*.

Insert an Image Using the Explore Tool

- Position the cursor where you would like to add a picture.
- Click *Explore* from the Tools menu.
- Below the search box, select your topic or make a new search for the *topic name.*
- Click *Images*.

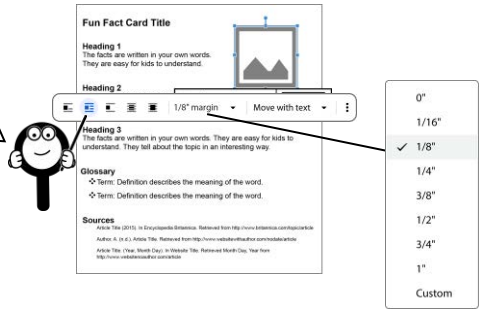


- When you find a picture you like, drag it onto your document or select the image and click *Insert*.
- Select the picture. Drag a corner handle in or out to resize.

Change the Text Wrap and Set Picture Margins

- Choose *Wrap text* from the toolbar below the selected image.
- Drag the picture anywhere on the page.

When you insert a picture, it is *In line*. This means it is treated as text. If you want to move the picture freely you must *Wrap text*.

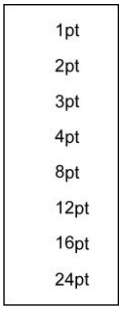


- Click *margin* to change the amount of space between the picture and text.

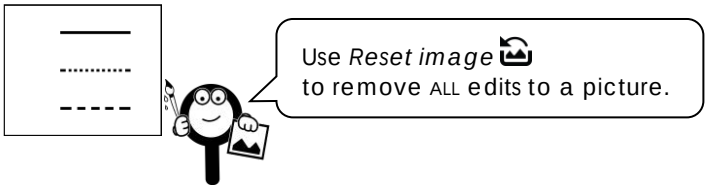
Apply a Picture Border

- Select the picture.
- Click *Border color*.
  From the palette, pick a color.

- Click *Border weight*.
  From the menu, select an option.



- Click *Border dash*.
  From the menu, select an option.



Complete the Fun Fact Card

▷ Use your skills to complete the card. Refer to the *Design Tips* for suggestions.

Fun Fact Card Title

Heading 1
The facts are written in your own words. They are easy for kids to understand. They tell about the topic in an interesting way.

Heading 2
The facts are written in your own words. They are easy for kids to understand. They tell about the topic in an interesting way.

Heading 3
The facts are written in your own words. They are easy for kids to understand. They tell about the topic in an interesting way.

Glossary

- term - definition describes the meaning of the word
- term - definition describes the meaning of the word

Sources

Article Title (2015). In Encyclopedia Britannica. Retrieved from ttp://www.britannica.com/topic/article

Author, A. (n.d.). Article Title. Retrieved from http://www.websitewithauthor.com/nodate/article/

Article Title. (Year, Month Day). Retrieved Month Day, Year, from http://www.websitenoauthor.com/article/

Complete *Extension Activity 5* to arrange facts using a table to create a unique design.

Design Tips

Move Text to the Header or Footer:

1. If you need more space, select the title.
2. Press CTRL + X on the keyboard.
3. From the Insert menu, select *Header & footers*. Pick *Header.*
4. Place the cursor in the header. Press CTRL + V to paste the title.
5. Use your skills to move *Sources*. TIP: Select *Header & footers* from the Insert menu and pick *Footer*.

Use a Horizontal Line as a Divider:

1. Place the cursor on the page.
2. From the Insert menu, select *Horizontal line*. ___

Separate Information Using White Space:

- Press ENTER to create space between headings.
- Adjust the line spacing.
- Decrease the font size of less important information. − 11 +

Recolor a Picture:

1. Select a picture. Click *Image options*. Click the *Recolor* arrow.
2. Click the *No Recolor* box. Pick an option such as *Grayscale*.

Sign Out from Google Drive

Assignment 12 Research Self-Reflection

What did you learn from completing the research project?
What skills do you think you will use again?

1. You learned many tips for narrowing a topic. Check the tips you would use again.

- ☐ Explore your topic to get ideas using the *Explore Tool* in Google Docs.
- ☐ Use *Wikipedia* to learn a bit about a topic.
- ☐ Build a word list of terms related to your topic. Pick an idea from the list.
- ☐ Think about what you want to learn. Make a list of research questions.

2. You learned to find quality information fast. Check the tips you would use again.

- ☐ Use an online encyclopedia as a starting point for a research project.
- ☐ Use keywords suggested by Google Search.
- ☐ Skim search results by reading the titles only to find the best one.
- ☐ Scan a search result description to make sure it has facts that are needed.
- ☐ Look for a reliable source of information in the search result title or web address.
- ☐ Give a web page a "Trust Test" before reading the information.
- ☐ Limit results to a trusted source using site:website topic as the search term.
- ☐ Use the *Define* tool in Google Docs or an online dictionary to define terms.

3. You learned to organize facts. Check the tips you would use again.

- ☐ Create an outline with headings to sort facts.
- ☐ Color-code facts to identify the source used to find the information.
- ☐ Copy and paste facts from a web page to gather information quickly.
- ☐ Remove formatting from facts to make them easier to work with later.
- ☐ Track the sources of information as you research information.

4. List search strategies you used during the research project that were helpful.

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5. You learned to put information in your own words so that you did not plagiarize. Check the tips you would use again.

- ☐ Rewrite large blocks of text into only one or two sentences.
- ☐ Delete facts you do not need because they are repetitive or uninteresting.
- ☐ State ideas simply using words that are easy to read and understand.

6. You learned to arrange information in an interesting way using Google Docs. Check the tips you would use again.

- ☐ Make a copy of an outline to keep the original research intact.
- ☐ Copy formatting to text using Paint Format to create a consistent design.
- ☐ Organize information using a bulleted list.
- ☐ Adjust page setup (orientation, color, and margins) to create a unique layout.
- ☐ Set the image margin to add white space between a picture and text.

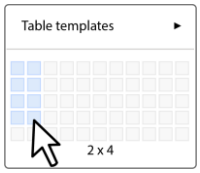
7. You made a Fun Fact Card using Google Docs.
List three other publications you could create using Google Docs.

8. What advice will you give to help a person save time when doing a research project?

Extension Activity 5: Arrange Fact Card Using a Table

Use a table to organize information in an interesting way!

1. Open the Fact Card in Google Docs.
2. Place the cursor at the TOP of the page below the title.
3. From the Insert menu, select *Table*.
   Drag to select a table 2 x 4. Click to add it to the page.



4. Select the first section of information. For example, Heading 1 and its facts.
   Press CTRL + X on the keyboard to cut it.
5. Place the cursor in the first cell. Press CTRL + V on the keyboard to paste the section.
6. Continue to cut and paste text to move each section into a different table cell.
   TIP: To move pictures into a cell, click *In line*.

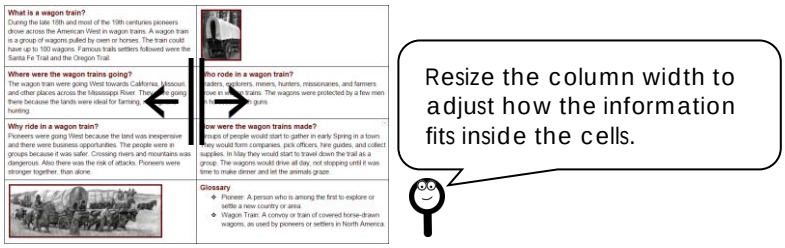
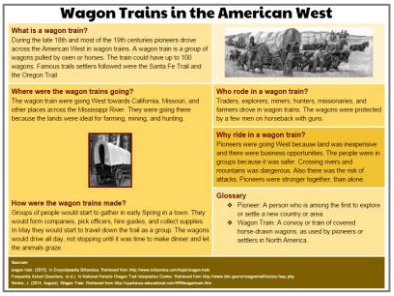


Table Design Tips:

- Need more rows? From the Format menu, click *Table* and *Insert rows above* or *Insert rows below*.
- Need more columns? From the Format menu, click *Table* and choose *Insert column left* or *Insert column right*.
- Have too many cells? Place the cursor in the row or cell you want to remove. From the Format menu, click *Table* and choose *Delete row*.

7. Get creative!

   Fill a cell with color.
   Use colors from the same column in the palette to create a consistent design.
   Add a border color.
   Pick white to divide each block of cells.
   Set the border weight.
   To remove borders select 0pt.
   Combine cells together. Select the cells.
   Right click on the selection and choose *Merge cells*.



8. Sign out of Google Drive.

Fact Card Marking Sheet

Organization
• Title tells about the topic. It stands out on the page. • Headings divide information into parts and tell about each group of facts. • Glossary defines important words related to the topic using a bulleted list. • Sources are listed using the proper format. There are at least 3 sources. • Information is logically organized. /10
Quality of Information
• The Fun Fact Card is interesting and informative. • Facts are rewritten using student's own words. • Information is from reliable sources that are trustworthy. • The text is easy for kids to read and understand. • There are no spelling or grammar errors. /10
Design
• Pictures illustrate the topic and are well-formatted. • The text formatting and color choices make the fact card look good. • Information has been arranged to fit on one page. • White space is used to separate information, so it is easy to read. • Page has a unique design. /5
Comments: /25