

TECHNOMap

Teacher Guide

Lessons for Middle & High School Students: Grades 6 - 9



Technology Project using

Google Slides

Design an interactive map.

In this project, students create an interactive map that demonstrates how human and physical geography intersect. The topic can be global, national, provincial, state, regional, or local. The map will have markers that, when clicked, provide facts about a location. This is a great way to explore and learn about an area or issue.

To start, students study sample maps. Next, using an inquiry-based approach, students select a research question to investigate. Students are then guided through creating slides and adjusting the flow of information to make a clickable map using Google Slides. Upon completion, their interactive map is shared with others.

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Table of Contents

TechnoMap Overview	i
Technology Integration Ideas	ii
Prepare to Teach TechnoMap.....	iii
Assignment 1 What is an Interactive Map?.....	1
What is an Interactive Map?	1
Study Sample Interactive Maps	2
Assignment 2 Brainstorm a Topic for your Interactive Map	3
Research Question Ideas	3
Select the Topic for your Interactive Map	3
Assignment 3 Organize Research Findings.....	4
Assignment 4 Create the Map Slide.....	5
Login to Google Drive and Create a Presentation.....	5
Rename the File	5
Change Slide Layout to Blank	5
Add a Map Title Using Word Art	5
Insert a Picture of a Map.....	7
Add a Text Box with Instructions	7
Add a Slide Background (Optional)	8
Log Out from Google Drive	8
Assignment 5 Create Information Slides	9
Log into Google Drive and Open the Interactive Map	9
Insert a New Slide and Select the Layout	9
Add a Title to the Information Slide.....	9
Add Information to the Slide.....	10
Bullet the Text.....	10
Decorate the Slide	10
Complete the Remaining Information Slides.....	10
Log Out from Google Drive	10
Assignment 6 Connect Slides in Interactive Map	11
Log into Google Drive and Open the Interactive Map	11
Add a Map Marker	11
Insert a Hyperlink onto the Map Marker.....	12
View Interactive Map to Discover a Problem with Slide Advancement	12
Add a Shape with a Hyperlink to Control Slide Advancement	13
View Interactive Map to Discover a Problem with the Map Marker.....	14
Change the Object Order of the Map Marker to Fix the Problem	14
Add Remaining Map Markers to Connect to Information Slides	15
View Interactive Map to Discover another Problem with Slide Advancement	15
Add a Shape with a Hyperlink to Information Slides to Fix Problem	16
Check the Links	16
Log Out from Google Drive	16
Assignment 7 Interactive Map Checklist	17
Is Your Interactive Map Complete?.....	17
Editing Tips.....	17
Design Challenges	17
Assignment 8 Share the Interactive Map.....	18
Log into Google Drive and Open the Interactive Map	18

Option 1: Share the Interactive Map with a Friend	18
Option 2: Post a Link to a Blog or Website	19
Extension Activity 1: Research Using Google Docs.....	20
Extension Activity 2: Screen Capture a Road Map	22
Extension Activity 3: Image Workshop.....	23
Extension Activity 4: Organize Facts using a Table	25
Extension Activity 5: Add Hotspots.....	27
Appendix A: Assessment Tools	28
Interactive Map Marking Sheet.....	28
TechnoMap Skill Summary	29
Appendix B: Material List.....	30

TechnoMap Overview

<p><i>Purpose:</i> Create an interactive map that communicates information about a location.</p>	<p><i>Preparation:</i> (see <i>Preparing to Teach</i>)</p> <ul style="list-style-type: none"> • Install Google Chrome • Sign up for a Google Account • Install Adobe Reader or other PDF app • Share <i>Map</i> folder with students • Prepare <i>TechnoMap</i> folder for Google Drive (optional steps for Assignment 1) • Download and print Flashcards and Tool Summary from TechnHub (optional)
<p><i>Objectives:</i> (see <i>Appendix A: Skill Summary</i>)</p> <ul style="list-style-type: none"> • identify a topic area for inquiry • investigate a research question • organize research findings • explain the importance of an area • create an interactive map • select an appropriate slide layout • apply a suitable slide background • format text to enhance readability • insert and format word art and pictures • connect information using hyperlinks • critically evaluate an interactive map • communicate with an audience • explore the interaction between human and physical geography 	<p><i>Materials:</i> (see <i>Appendix B:</i> for a complete list)</p> <ul style="list-style-type: none"> • Map Checklist • Map Marking Sheet • Map Skill Summary • Map folder <ul style="list-style-type: none"> ◦ Workbook Assignment Sheets ◦ Sample Maps – Industry, Oil Spill Effects, Transcontinental Railroad ◦ Organizer template (optional) • <i>TechnoMap</i> folder (optional) • Parent Letter and Certificate (optional) • Flashcards and Tool Summary (optional)
<p><i>Summary of Activities:</i></p> <ul style="list-style-type: none"> • Gain an understanding of the purpose of an interactive map. View samples. • Brainstorm a topic for the interactive map. • Investigate a research question. Summarize findings in an organizer. • Create a map slide with a Word art title and a suitable map of the area. • Create information slides that contains facts about a location. • Connect markers on the map to information slides. Troubleshoot problems to control slide advancement. • Complete the interactive map and use a checklist to guide revisions. • Share the interactive map with the teacher or friends. 	
<p><i>Extension Activities:</i></p> <ul style="list-style-type: none"> • Research using Google Docs: Using the Explore tool to search for information. Cite the source. • Screen Capture a Road Map: Use Google Maps to save a picture of a road map. • Image Workshop: Discover multiple methods to insert images onto slides. • Organize Facts using a Table: Summarize information or create a pro/con comparison. • Add Hotspots: Insert a hyperlink onto a text box that links to a website about the topic. 	
<p><i>Assessment:</i></p> <ul style="list-style-type: none"> • Self-Evaluation (Map Checklist – Assignment 7) • Teacher Evaluation (Map Marking Sheet, Map Skill Summary) 	
<p><i>Notes:</i></p> <ul style="list-style-type: none"> • If you are a classroom teacher have students create an interactive map about a topic they are studying. • If you are a computer teacher have students build an interactive map about a family holiday, neighborhood hotspots, or personal exploration of themselves. 	

Technology Integration Ideas

TechnoMap integrates into curriculum. Students create an interactive map that explores how human and physical geography intersect. The map can be of the world, country, province or state, region, or a city. Select a topic based on an area of study within geography, history, or social studies curriculum. Below are some suggestions:

- *People and Places*: Explain how the land influences human activity. Map the use of natural resources, industry, or recreation in an area.
- *Historical Exploration*: Explore a time period or event in history. Map the location and detail the importance of historical battles, treaties, and exploration routes.
- *Celebrate Differences*: Pinpoint what makes an area unique. Map each region and explain what makes it different.
- *Current Events*: Report what is happening around the world, across the country, or in your own hometown. Map the site of each event and provide the facts.
- *National Pride*: Express why you love your country or city. Use cultural symbols to identify sites, events, landforms, or other locations that make it a great place to live.
- *Environmental Awareness*: Investigate an environmental issue. Map the impact it has had on an area.
- *Tourist Attractions*: Plan a trip or highlight reasons to visit an area. Map places that tourists will want to see.
- *Label It*: Label parts of a map. Provide facts and pictures about each location.
- *Personal Map*: Take a photograph of yourself. Place a map marker over your head that connects to a slide that tells about your beliefs, current mental state, dreams, or what you are thinking. Place a map marker over your heart that connects to a slide that expresses what you value or love. Place a map marker over your hands or feet that connect to a slide that reveals what you like to do, hobbies, interests, or skills.

Understand the Big Picture

Not sure where to integrate TechnoMap?

There are 3 samples provided for this project. The first sample is about Industry in Ontario. It examines how a few select industries affect the economy. The second sample is of the Gulf of Mexico. It explores the environmental impact of the oil spill in 2010. The third sample is of the first Transcontinental Railroad. It looks at how the need for more efficient travel was developed. These samples provide ideas on how you can integrate these activities into your curriculum.

Assignment 1 What is an Interactive Map?

In this project, you are going to create an interactive map using Google Slides.

To prepare for this activity study sample maps to gain ideas about how you can creatively communicate information about a location.

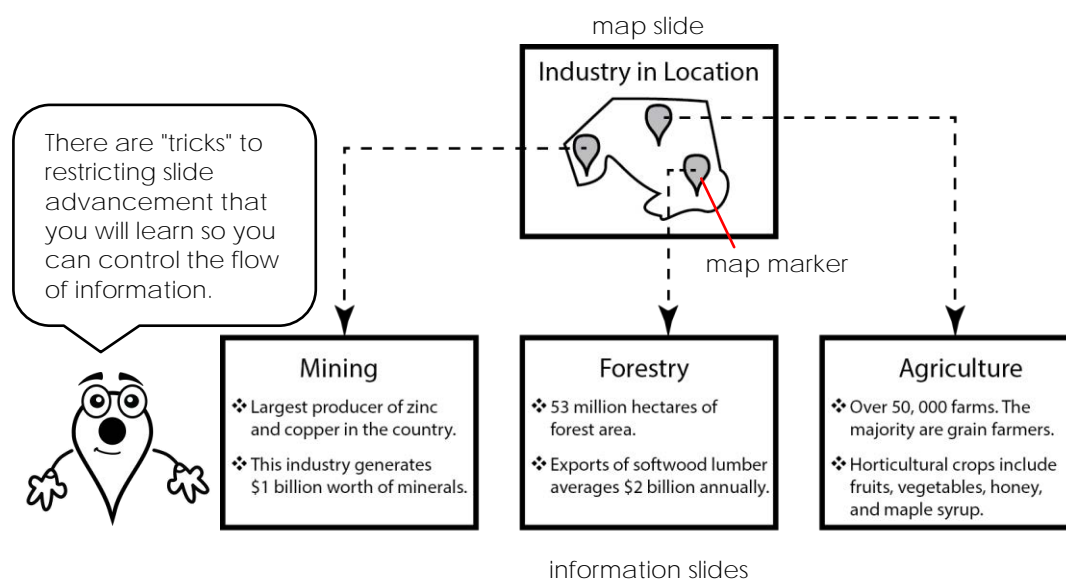


What is an Interactive Map?

An interactive map contains markers that, when clicked, explain facts about the location. This is a great way to communicate information. You can make an interactive map that allows people to explore and learn. For example, the map can be about an area's:

- transportation system
- waterways
- natural resources
- landmarks
- distinct regions
- environment
- economy
- industry
- agriculture
- manufacturing
- tourism
- recreation
- history
- indigenous people
- culture
- national identity
- current events
- heritage

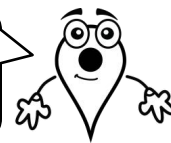
You will be making an interactive map using Google Slides. On the first slide you will add a map. Markers will be placed onto the map to pinpoint areas of importance. Slides will be created providing information about each area. Markers will be added to the first slide and hyperlinks will connect markers to information slides.



Study Sample Interactive Maps

- ▷ Ask your teacher how to view the maps.

Get ideas for making your own interactive map. What do you like?



1. View the industry sample. Answer the questions.

- a. Click the tractor symbol. What information is displayed?

Agriculture in Ontario

- b. Click anywhere on the information slide. What happens?

Return to interactive map.

- c. The interactive map has been created so that information flow is controlled. Click anywhere on the interactive map. Do NOT click a symbol. What happens?

Nothing

- d. Click on the other two symbols. What information do they communicate about industry?

Mining and Forestry in Ontario



2. Return to the Map folder. View the Oil Spill Effects sample. Answer the questions.

- a. An interactive map can be used to describe an environmental issue. Look at the slide background. What does the design tell about the area?

It shows an actual photo of the oil spill.

- b. Click a black marker. What information is on the slide?

Facts about: Deep-water Coral, Ridley Sea Turtle, Bluefin Tuna

- c. Return to the map. Click *Deepwater Horizon Oil Spill Facts*. What information is included in the table?

Facts about oil spill: status, human cost, oil spilled, spill time, boom used, fines, solutions



3. Return to the Map folder. View the Transcontinental Railroad sample. Answer the questions.

- a. An interactive map can be used to detail the importance of a historical event. Click the *Pros and Cons train* symbol. What is on the information slide?

Table listing pros and cons, link to a website about the railroad

- b. Explore the interactive map. What do you like about the design?

e.g. background, map, word art, transparent text boxes, crop images



Assignment 4 Create the Map Slide

Using your research organizer, start to construct your interactive map. In this assignment you will:

- ✓ create a map title using Word art
- ✓ insert a picture of a map
- ✓ add a text box that provides instructions



Login to Google Drive and Create a Presentation

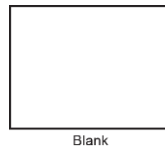
- ▷ Sign into Google Drive.
- ▷ Click *New*. Select *Google Slides*.

Rename the File

- ▷ In the TOP LEFT CORNER, click *Untitled presentation*. Type a Map Name. Press ENTER.

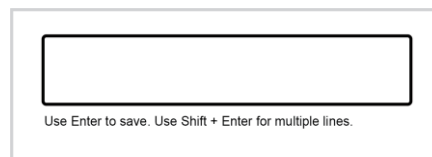
Change Slide Layout to Blank

- ▷ Close the *Themes* sidebar if it is open. ✕
- ▷ Click *Apply layout* from the Slides toolbar. Choose *Blank* or from the Slide menu, click *Apply Layout* and choose *Blank*.



Add a Map Title Using Word Art

- ▷ Click the *Insert* menu and choose *Word art*. **A**
- ▷ Type the Map Title. Press ENTER.





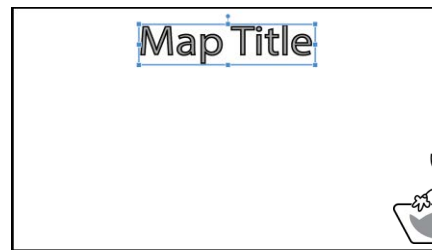
Format the Word Art


- ▶ With the Word art selected, click *Font* and pick a style for the letters. 


Pick a font that is easy to read.




- ▶ To change the letter size, rest the cursor over a handle. When it turns into a two-way arrow , drag IN to make the title smaller or OUT to make it larger.
- ▶ Position the Word art on the slide: Rest the cursor over the Word art. When it turns into a four-way arrow , drag into position.




Double click or right click on the Word art and choose *Edit Text*  to make changes.

- ▶ Fill the Word art with a color that suits the topic. Click *Fill color*.  Click *Solid* or *Gradient*. Pick an option.

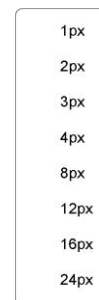
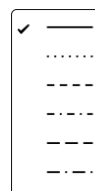


- ▶ Format the outline around the letters. Click *Border color*.  Pick *Transparent* if you do not want a line OR a color if you do.



- ▶ IF you have an outline:

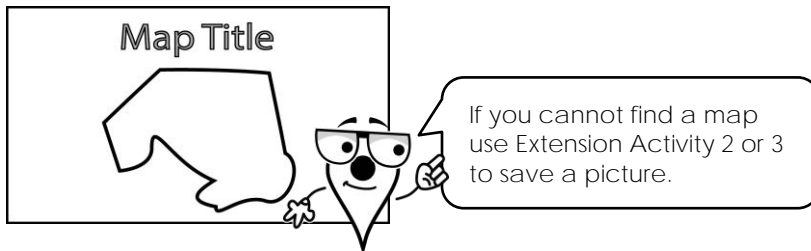
- Set the thickness. Click *Border weight*.  From the menu select an option.

- Set a line style. Click *Border dash*.  From the menu select an option.




Insert a Picture of a Map



- ▷ Click *Insert Image*  or from the Insert menu, select *Image*.
- ▷ From the submenu, click *Search the web*. 
 - In the *Search for images* pane, type location **map** (e.g. Ontario map, map of Ontario, street map of Ontario). Press ENTER.
 - Scroll through the pictures until you find one you like.
 - Select the image.
 - Click *Insert* if it is suitable or deselect the image and try again.

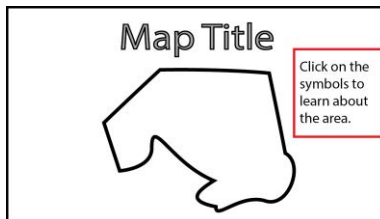


- ▷ Use your skills to resize , place , apply a border , and set border color. 

Do you want to crop the picture into a shape? Click the Crop Image arrow . Choose a category and then select a shape.

Add a Text Box with Instructions

- ▷ Click *Text box*. 
Click and drag to draw a text box on the slide.
- ▷ Type instructions that will tell the viewer to click on map markers.
- ▷ Select the text, click *Font* and pick a style for the letters.
- ▷ Click *Text color* and choose a color from the palette. 

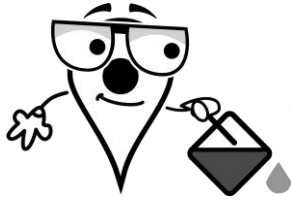


- ▷ Use your skills to format the text box fill , border color , and border weight. 


TIP | Use a Shape instead of a Text box

Click *Shape* . Choose a category and a shape. Click and drag to draw a shape. Type to add text.

Add a Slide Background (Optional)

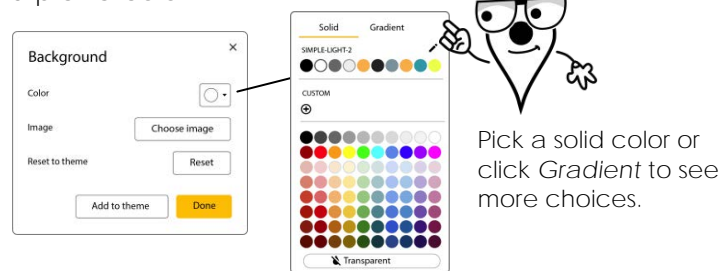


You may like the white background. However, you may want to add a splash of color or use a picture as a background. If you do, follow these instructions.

- ▶ Click on a blank area of the slide or press ESC to deselect any objects.
- ▶ Click *Background*.  Or from the Slide menu, click *Change background*.

Option 1: Choose a Color

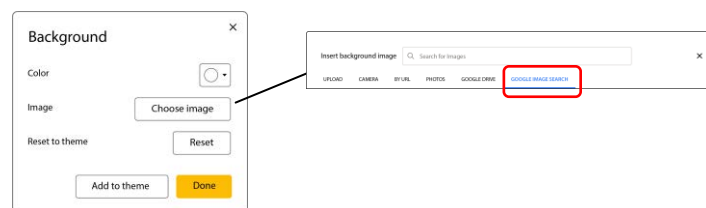
- ▶ Click the arrow beside *Color* and pick a color.



- ▶ Click *Done*.

Option 2: Choose a Picture using Search

- ▶ Beside *Image*, click *Choose image*.



Pick a picture that is wide. This will look the best.

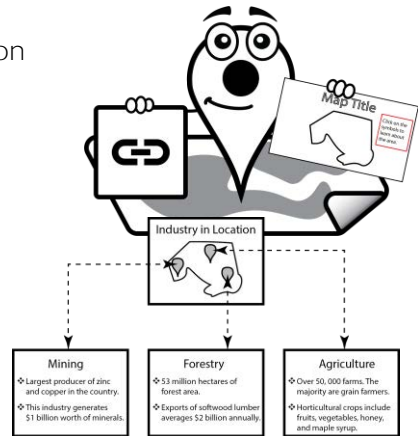
- ▶ Click *Google Image Search*.
 - In the search box, type a search word. Press ENTER.
 - Scroll through the pictures until you find one you like.
 - Click on it and then click *Select*.
- ▶ Click *Done*.

Log Out from Google Drive

Assignment 6 Connect Slides in Interactive Map

In this assignment you use hyperlinks to control the flow of information on the interactive map. You will:

- ✓ add a map marker and insert a hyperlink to an information slide
- ✓ resolve slide advancement problems to control flow of information on the map slide
- ✓ use skills to add remaining map markers
- ✓ connect each information slide to the map slide

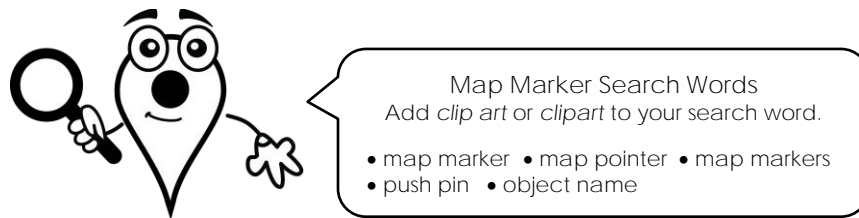


Log into Google Drive and Open the Interactive Map

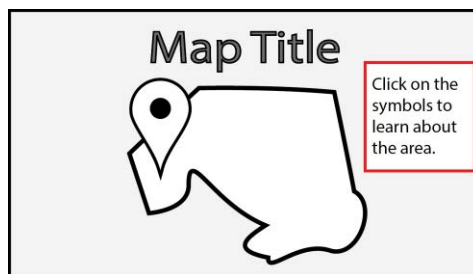
- ▷ Display the title slide.

Add a Map Marker

You need to place markers onto your map. A marker can be a symbol of an object to represent the information it will lead to, or it can be a simple push pin.




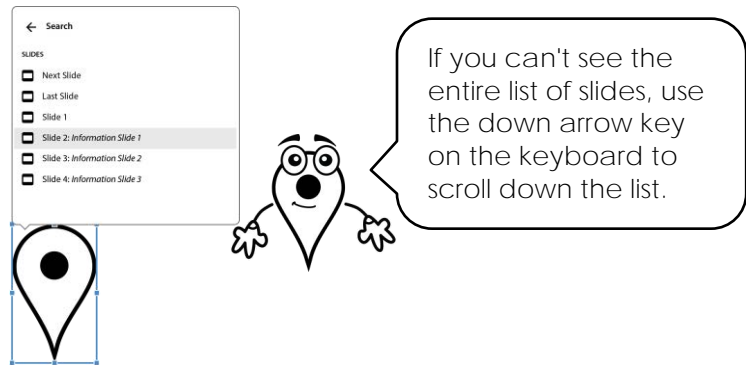
- ▷ Click *Insert Image* or from the Insert menu, select *Image*.
- ▷ From the menu, click *Search the web*.
- In the search pane, type **map marker**. Press ENTER.
- Scroll through the pictures until you find one you like.
- Click on it and then click *Insert*.



- ▷ Use your skills to resize and place the marker on the map.

Insert a Hyperlink onto the Map Marker


- ▶ Select the map marker on the slide.
- ▶ Click *Insert link*. 
- ▶ Select *Slides in this presentation*
Pick the appropriate slide from the list.

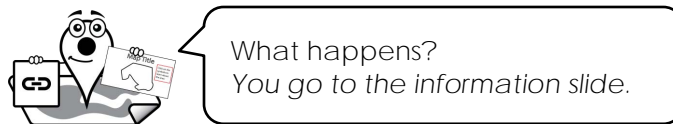


- ▶ To edit the link, click on the marker.
Click  to edit or  to remove the link.



View Interactive Map to Discover a Problem with Slide Advancement

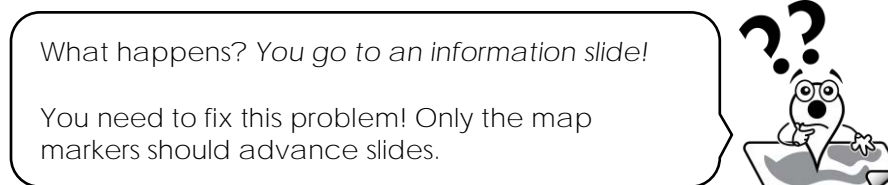
- ▶ Click *Present*. 
- ▶ Click the map marker.



- ▶ Click *Previous*, to return to the map slide.



- ▶ Click ANYWHERE on the map.




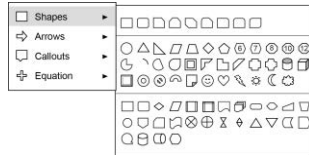
- ▶ Press ESC to exit presentation mode.

Add a Shape with a Hyperlink to Control Slide Advancement

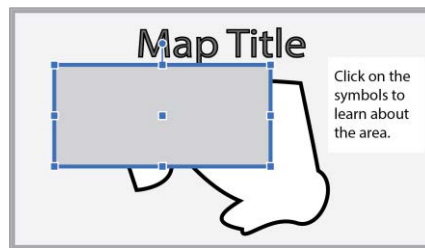
ONLY a map marker should advance slides. You are going to add a shape with a hyperlink that will be used to control the flow of information.

Draw a Rectangle over the Map Slide

- ▷ Display the title slide.
- ▷ Click *Shape*. 
Click the *Shapes* category, then select the *rectangle*.




- ▷ Draw a box on a portion of the map slide.

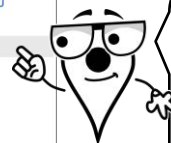
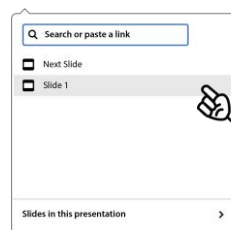


- ▷ Change the *Fill color* to *Transparent*. 



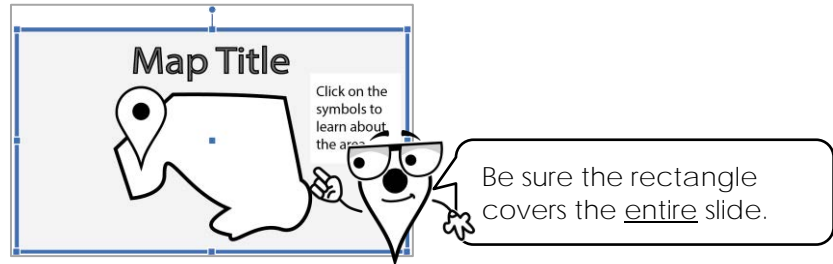
Insert a Hyperlink that Connects to the Map Slide

- ▷ With the rectangle selected, click *Insert link*. 
- ▷ Select *Slides in this presentation*
Pick *Slide 1* from list. (It is the map slide.)



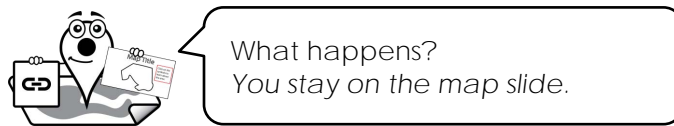
When a person clicks on the map slide they are clicking the shape. The shape when clicked will show the map slide instead of advancing to the next slide.

- ▷ Resize the rectangle to cover the ENTIRE map slide.

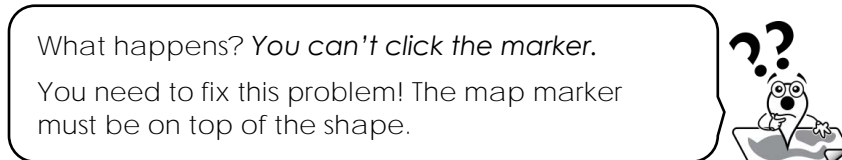


View Interactive Map to Discover a Problem with the Map Marker

- ▷ Click *Present*.
- ▷ Click ANYWHERE on the map.



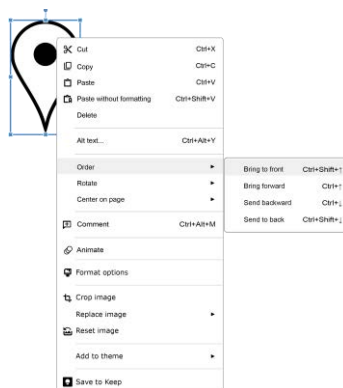
- ▷ Click the map marker.



- ▷ Press ESC to exit presentation mode.


Change the Object Order of the Map Marker to Fix the Problem

- ▷ Select the rectangle. Resize it so that you have access to the map marker.
- ▷ Right click the map marker. From the menu select *Order*. Select *Bring to front*.



- ▷ Restore the rectangle to fill the slide.
- ▷ Align the rectangle on the slide:
 - Right click the rectangle.
From the menu select *Center on page*. Select *Horizontally*.
 - Right click the rectangle AGAIN.
From the menu select *Center on page*. Select *Vertically*.

▷ Test the Presentation

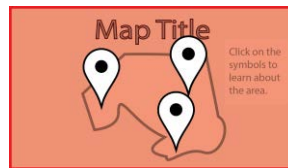
- Click *Present*. 
- Click ANYWHERE on the map. It should NOT advance.
- Click on the MAP MARKER. It should advance to the information slide.



▷ Press ESC to exit presentation mode.

Add Remaining Map Markers to Connect to Information Slides


- ▷ Use your skills to add more map markers.
Connect each one to the correct information slide.



TIP

The new map markers are added ON TOP of the rectangle so there is no need to adjust object order.

View Interactive Map to Discover another Problem with Slide Advancement


- ▷ Click *Present*. 
- ▷ Click a map marker.
- ▷ Click ANYWHERE on the information slide.

What happens? *You go to the next slide!*
You need to fix this problem! When an information slide is clicked it should display the map slide.





▷ Press ESC to exit presentation mode.

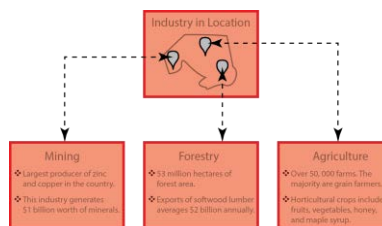
Add a Shape with a Hyperlink to Information Slides to Fix Problem

- ▷ View the first information slide.
- ▷ Draw a rectangle over the information slide. 

TIP

Draw a small rectangle to more easily access the hyperlink menu then resize the shape to fit the slide.

- ▷ Change the fill color to *Transparent*. 
- ▷ Add a hyperlink to go to the map slide:
 - With the rectangle selected, click *Insert link*. 
 - Select *Slides in this presentation*
Pick *Slide 1* from list. (It is the map slide.)
- ▷ Resize the rectangle to cover the entire slide.
- ▷ Repeat for the other information slides.



Each information slide should have a rectangle with a hyperlink that connects to the map slide.

Check the Links

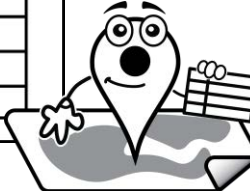
- ▷ Display the map slide and click *Present*.
 - Click a map marker.
 - Click the information slide. It should take you back to the map slide.
 - Check the remaining markers and information slides.
- ▷ Make any adjustments.

Log Out from Google Drive

Extension Activity 4: Organize Facts using a Table

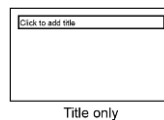
What type of facts or figures do people want to know about your topic? Using a table is a great way to communicate information clearly. A table is a grid made up of rows and columns. Row headings can be added to the first column. Information is then placed in each table row.

Population	35,000,000
Language	English and French
Capital	City Name
Currency	Dollars
Area	9,000,000 km ²

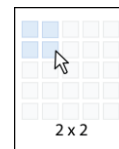


Follow the instructions to create a table.

1. Click the *New slide* arrow. 
2. Select the *Title Only* layout.



3. Click in the title placeholder and type a Title.
4. Create a table.
 - a. Click the *Insert* menu and select *Table*.
 - b. Drag the cursor over the grid until the table is 2 x 2, then click to apply.
 - c. Hold the cursor over the table border until it turns into a four-way arrow.
 - d. Drag the table to position it below the title.



5. Add the row headings into column 1.

TIP | Change the Number of Rows or Columns

Add a row quickly | Position the cursor in the rightmost cell of the bottom row. Press TAB.

Add a row/column | Click and drag to select a row/column. Right click on the selection and choose an option to insert a row or column.

Remove a row/column | Click and drag to select a row/column. Right click on the selection and choose *Delete row* or *Delete column*.

6. Adjust column width to make more room for the facts.
 - a. Hold the cursor over the vertical border in the middle of the table.
 - b. When the cursor turns into a two-way arrow, drag the border line to the LEFT.

Heading 1	
Heading 2	
Heading 3	

7. Add the facts into the table.
8. Use your skills to format the text: Arial - 54 + ***B*** ***T*** ***U*** ***A***
9. Fill the row headings with color:
 - a. Select column 1.
 - b. Click the *Fill color* tool. Select an option from the palette.

Heading 1	Interesting fact
Heading 2	Interesting fact
Heading 3	Interesting fact

10. Apply a border line:
 - a. Click and drag to select ALL the CELLS.
 - b. Pick a border color and border weight.
11. Add a link from the table slide to the map slide:
 - a. Add a rectangle to cover the slide.
 - b. Set the fill color to transparent.
 - c. Insert a link to connect to the map slide.
12. On the map slide, add a marker to the map and then connect it to the table slide.
Remember to link the table slide back to the map slide.

Appendix A: Assessment Tools

Interactive Map Marking Sheet

Navigation	
<ul style="list-style-type: none">• On the map slide, ONLY the map markers advance slides.• Map markers connect to correct information slides.• All information slides connect to the map slide when clicked.	/3
Content	
<ul style="list-style-type: none">• Each map maker is placed in the correct location.• The information on each slide is interesting and tells about the location or topic.• Spelling on all slides is correct.	/16
Design	
<ul style="list-style-type: none">• The map is suitable to topic.• Slide backgrounds are attractive and enhance the message.• The information on each slide is formatted so that it is easy to read.	/6
Comments:	
	/25

Click the map below to view a sample project in your web browser.
View it as a slideshow to explore the links and see the additional pages.

Long Term Effects of the Oil Spill in the Gulf of Mexico

Deepwater Horizon Oil Spill Facts

Ridley Turtle

Deep-water Coral

Bluefin Tuna

In 2010, the *Deepwater Horizon* oil rig exploded and caused about 5 million barrels of oil to spill into the Gulf of Mexico.

Click the map marker symbols to learn about the environmental damage.

Legend:
■ Beached oil
■ Booms
■ Wildlife reserves

Source: NOAA

Scale: 0 10 20 30 40 miles