# TECHNOMap

# Teacher Guide

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



Technology Course using

# Google Slides

Design an interactive map.

In this course, 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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This section provides valuable information about teaching TechnoMap. It includes an overview of the course. In addition, there are ideas for implementation and technology integration.

For additional guidance, open the course in TechnoHub and select Get Started to access preparatory steps, resource list, and scheduling timetable.

TechnoMap Overview

TechnoMap Course Outline

Technology Integration Ideas

### TechnoMap Overview

In this course, 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.

#### Students complete the following tasks:

- ➤ In Session 1, students develop a concept for an interactive map. An interactive map contains markers that, when clicked, explain facts about the location. It allows people to explore and learn. The map could be of historical landmarks, current events, environmental hotspots, or tourism sites. To prepare for the task, students study three unique interactive maps to discover the possibilities. Afterwards, they select a research question from a list that connects to a geographic region. For example, it could be 'What impact has an event or industry had on the environment?', ' 'What types of agriculture are done in a particular area?' or 'What places should a tourist visit?'. The question will become the topic of their interactive map, with the map markers providing the answers.
- ➤ In Session 2, students research the topic for their interactive map. Using an organizer, they collect facts for three locations. They record the position of the location for future placement of a map marker. In the following session, students will insert a map onto a presentation slide using an online picture. However, if students require a specialty map, an optional activity explains how to collect an image of a city or street map using a screen capture extension.
- ➤ In Session 3, students begin to create their interactive map. To start, they apply computing skills to build a simple slide. It will include a title, image of a map, and viewer instructions. To produce a unique design, students explore WordArt, picture, and shape style options. They also learn how to customize the color, transparency, or image on a slide background. This is an excellent way to attract attention.
- In Session 4, students create an information slide for each map marker. Each one describes the significance of a location on the map. To make the information easy to read, students apply a custom bulleted list. An optional activity explains how to save an image from the Internet and a variety of other sources.

- In Session 5, students make the map interactive. They create a connection from the map to each information slide using map markers. Controls are added to allow the viewer to return to the map. Slide advancement is adjusted to manage the transitions. Multiple tests are conducted to make certain it is easy to explore and learn. An optional activity shows how to organize information using a table. This is a great way to summarize facts and figures about a topic. Viewers will appreciate the extra details. A second optional activity explains how to insert a link to an interesting article on the Internet to prompt the viewer to discover even more about the topic.
- ➤ In Session 6, In this session, students share their interactive map with viewers. To start, they complete a checklist to verify the navigation, content, and design. Editing tips help resolve common issues related to map markers or connections. An optional extension activity explains how to add a video to a slide, which presents another way for viewers to learn about a topic. Upon completion, students select how to publish their map. One choice has a person sit at their device and take a virtual trip. Another choice is a map exhibit that projects a file onto a screen for a larger audience. Alternatively, or in addition to the other ideas, a third choice is to print the slides and connect them together using string to produce a unique bulletin board. All three options make it fun and easy to explore the world!

### TechnoMap Course Outline

Purpose: Create an interactive map that communicates information about a location.

#### Objectives: (see Appendix A: Skill Summary)

- 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

#### Preparation:

- Install Google Chrome
- Sign up for a Google Account
- Share Map folder with students
- Prepare TechnoMap folder for Google Drive (optional steps for Assignment 1)
- Download and print Flashcards and Tool Summary from <u>TechnHub</u> (optional)

#### Materials:

- Assessment:
  - Map Checklist
  - o Map Marking Sheet
  - o Map Skill Summary
- Map folder
  - o Sample Maps Industry, Oil Spill Effects, Transcontinental Railroad
  - o Organizer template (optional)
- <u>TechnoMap</u> folder (optional)
- Parent Letter and Certificate (optional)
- Flashcards and Tool Summary (optional)

#### Summary of Activities:

- 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 contain 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.

#### Extension Activities:

- 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.
- Add a Video: Insert a YouTube video to connect viewers to additional information.

#### Assessment:

- Self-Evaluation (Map Checklist Assignment 7)
- Teacher Evaluation (Map Marking Sheet, Map Skill Summary)

#### Notes:

- If you are a classroom teacher, have students create an interactive map about a topic they are studying.
- If you are a computer teacher, students can build an interactive map about a family holiday, neighborhood hot spots, 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
  connects 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 course. 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.



In this session, students develop a concept for an interactive map. An interactive map contains markers that, when clicked, explain facts about the location. It allows people to explore and learn. The map could be of historical landmarks, current events, environmental hotspots, or tourism sites. To prepare for the task, students study three unique interactive maps to discover the possibilities. Afterwards, they select a research question from a list that connects to a geographic region. For example, it could be 'What impact has an event or industry had on the environment?', ' 'What types of agriculture are done in a particular area?' or 'What places should a tourist visit?'. The question will become the topic of their interactive map, with the map markers providing the answers.

Assignment 1: What is an Interactive Map?

Assignment 2: Brainstorm a Topic for your Interactive Map

## Assignment 1: What is an Interactive Map?

In this course, 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?

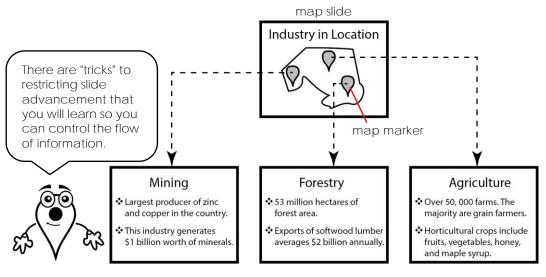
An interactive map contains markers that, when clicked, explain facts about the location. This is a great way to communicate information. You can make an interactive map that allows people to explore and learn. For example, the map can be about an area's:

- 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.



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?

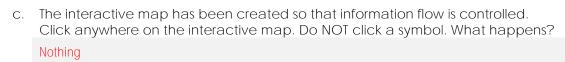


- 1. View the industry sample. Answer the questions.
- a. Click the tractor symbol. What information is displayed?

#### Agriculture in Ontario

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

Return to interactive map.



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?

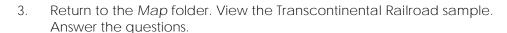
It shows an actual photo of the oil spill.

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



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





Long Term Effects of the Oil Spill

in the Gulf of Mexico

This is a preview of the teacher guide.
Pages have been omitted.





In this session, students begin to create their interactive map. To start, they apply computing skills to build a simple slide. It will include a title, image of a map, and viewer instructions. To produce a unique design, students explore WordArt, picture, and shape style options. They also learn how to customize the color, transparency, or image on a slide background. This is an excellent way to attract attention.

Assignment 4: Create the Map Slide

## 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.

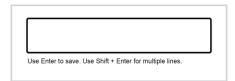
Change Slide Layout to Blank

- Close the Themes sidebar if it is open.
- Click Apply layout 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. 
   ♠
- > Type the Map Title. Press ENTER.

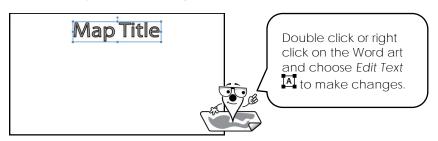


#### Format the Word Art



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 mouse over the Word art.
   When the cursor turns into a four-way arrow ♣, drag into position.



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:
  - o Set the thickness. Click Border weight. From the menu select an option.
  - o Set a line style. Click Border dash. From the menu select an option.





#### Insert a Picture of a Map

- > From the submenu, click Search the web.
  - o In the Search in Google Images pane, type location map (e.g. Ontario map, map of Ontario, street map of Ontario). Press ENTER.
  - o Scroll through the pictures until you find one you like.
  - o Select the image.
  - o Click Insert if it is suitable or deselect the image and try again.

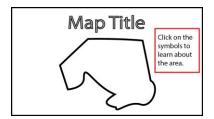


#### **DESIGN TIPS**

The map covers the word art. Adjust object order. Select the map, choose Order > Send to back from the Arrange menu.

#### Add a Text Box with Instructions

- Click Text box. **TT**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. Arial
- Click Text color and choose a color from the palette. A



ightharpoonup Use your skills to format the text box fill ightharpoonup, border color ho, and border weight.

TIP | Use a Shape instead of a Text box

Click Shape  $\mathfrak{Q}$ . 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 slide background. However, you may want to add a splash of color or use a picture as a background. If you do, follow these instructions.

Right click on the slide background. Choose Change background. igode



#### Option 1: Choose a Color

Click the arrow beside Color and pick a color.



D Click Done.

#### Option 2: Choose a Picture using Search

▶ Beside Image, pick Choose image.



Search Word Tips: Use these words or combine them with a search word to find a background. Make the word plural to change the search results.

location name	fabric	pattern	paper	texture
topic name	wood	background	wallpaper	abstract
design	vector	gradient	map	free

- ▷ Click Google Images.
  - o 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 Insert.
- D Click Done.

#### Log Out from Google Drive

This is a preview of the teacher guide.
Pages have been omitted.





In this session, students make the map interactive. They create a connection from the map to each information slide using map markers. Controls are added to allow the viewer to return to the map. Slide advancement is adjusted to manage the transitions. Multiple tests are conducted to make certain it is easy to explore and learn. An optional activity shows how to organize information using a table. This is a great way to summarize facts and figures about a topic. Viewers will appreciate the extra details. A second optional activity explains how to insert a link to an interesting article on the Internet to prompt the viewer to discover even more about the topic.

Assignment 6: Connect Slides in Interactive Map

Session 5 Extension Activity 1: Organize Facts Using a Table

Session 5 Extension Activity 2: Add Hotspots

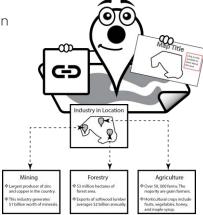
## Assignment 6: Connect Slides in Interactive Map

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.



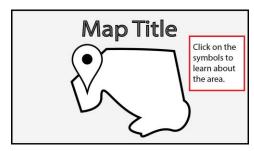
#### Add a Map Marker

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 

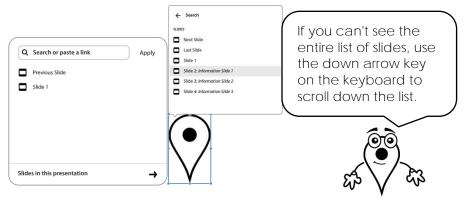
  or from the Insert menu, select Image.
- > From the menu, click Search the web.
  - o In the search pane, type map marker or other symbol. Press ENTER.
  - o Scroll through the pictures until you find one you like.
  - o Click on it and then click Insert.



 $\triangleright$  Use your skills to resize  $\P$  and place  $\Phi$  the marker on the map.

Insert a Hyperlink onto the Map Marker

- > Select a map marker on the slide.
- > Select Slides in this presentation Pick the appropriate slide from the list.

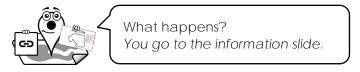


➤ To edit the link, click on the marker.
 Click to edit or to remove the link.



View Interactive Map to Discover a Problem with Slide Advancement

- Click Slideshow. Slideshow .
- Click the map marker.



Description Click Previous in the bottom left corner until you return to the map slide.



What happens? You go to an information slide!

You need to fix this problem! Only the map markers should advance slides.



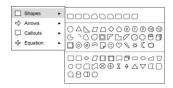
> Press ESC to exit presentation mode.

#### Add a Shape with a Hyperlink to Control Slide Advancement

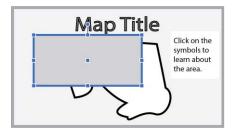
ONLY a map marker should advance slides. You are going to add a shape with a hyperlink that will be used to control the flow of information.

#### <u>Draw a Rectangle over the Map Slide</u>

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



Draw a box on a portion of the map slide.

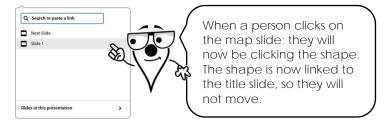


▷ Change the Fill color to Transparent. 
 ♠

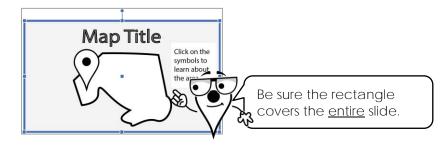


#### Insert a Hyperlink that Connects to the Map Slide

- Select Slides in this presentation Pick Slide 1 from list. (It is the map slide.)

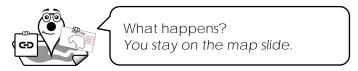


▶ Resize the rectangle to cover the ENTIRE map slide.



View Interactive Map to Discover a Problem with the Map Marker

- Click Slideshow. Slideshow .



Click the map marker.



What happens? You can't click the marker.

You need to fix this problem! The map marker must be on top of the shape.



▶ 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.



- ▶ Resize the rectangle to fill 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
  - o Click Slideshow. Slideshow
  - o Click ANYWHERE on the map. It should NOT advance.



- o 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 side.



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 Slideshow.
- ▷ Click a map marker.

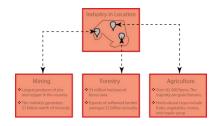
What happens? You go to the next slide! You need to fix this problem! When an information slide is clicked it should display the map slide.



> Press ESC to exit presentation mode.

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

- View the first information slide (slide 2).
- Draw a rectangle. 2
- ▷ Change the fill color to Transparent. ♣
- > Add a hyperlink to go to the map slide:
  - With the rectangle selected, click Insert link.
  - o Select Slides in this presentation Pick Slide 1 from list. (It is the map slide.)
- > Resize the rectangle to cover the entire slide.
- > Repeat on the other information slides.



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

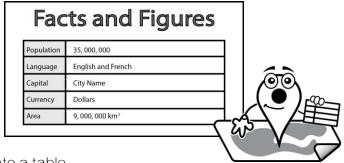
#### Check the Links

- Display the map slide and click Slideshow. Slideshow.
  - o Click a map marker.
  - o Click the information slide. It should take you back to the map slide.
  - o Check the remaining markers and information slides.

Log Out from Google Drive

## Session 5 Extension Activity 1: 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.

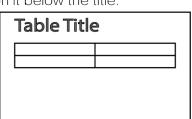


Follow the instructions to create a table.

- 1. Open the Interactive map in Google Slides.
- 2. Select the last slide thumbnail.
- 3. Click the New slide arrow.
- 4. Select the Title Only layout.



- 5. Click in the title placeholder and type a Title.
- 6. Create a table.
  - a. Click the Insert menu and select Table. lacktriangle
  - 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.







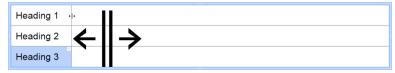
7. Add the row headings into column 1.

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.

- 8. 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.



- 9. Add the facts into the table.
- 10. Use your skills to format the text: Arial 29 + **B** I U A
- 11. 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

- 12. Apply a border line:
  - a. Click and drag to select ALL the CELLS.
- 13. Add a link from the table slide to the map slide:
  - a. Add a rectangle to cover the slide. Q
  - b. Set the fill color to transparent.
  - c. Insert a link to connect to the map slide.
- 14. Move to the map slide.
  - a. Add a map marker or shape and text to describe the content such as Pros & Cons or Interesting Facts.

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- b. Insert a link to connect to the table slide.
- 15. Click Slideshow slideshow and test the links.

This is a preview of the teacher guide.
Pages have been omitted.





Refer to the appendices for additional resources:

Appendix A: Assessment Tools

Appendix B: Contact Information

# Appendix A: Assessment Tools

# Interactive Map Marking Sheet

Navigation	
<ul> <li>On the map slide, ONLY the map markers advance slides.</li> </ul>	
Map markers connect to correct information slides.	
<ul> <li>All information slides connect to the map slide when clicked.</li> </ul>	
All information slides connect to the map slide when clicked.	/3
Content	
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	
The map is suitable to the 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:	, 0
	/25

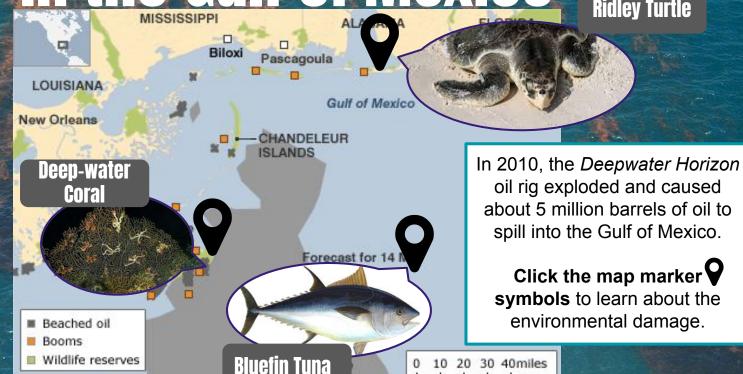


This course includes a sample of a completed project. Teachers can use this resource for demonstration purposes or as a source of inspiration.

# Long Term Effects of the Oil Spill in the Gulf of Mexico Ridley Turtle

Deepwater Horizon Oil Spill Facts

Source: NOAA



# **Deep-water Coral**

- Coral are animals that can live up to 500 years.
- Deep-water coral grows as deep as 6500 feet in the Gulf of Mexico.
- Coral is important because it provides habitat and food for many species.
- The oil spill damaged the reefs; many have turned a bleached white or dull brown and have become covered with unnatural growths. Some have died.
- Scientists think that coral, due to their long lifespan and slow pace of life, will continue to show negative effects for a long time into the future.

# **Bluefin Tuna**

- ond
- Bluefin tuna can weigh up to 1500 pounds and measure 6 feet long.
- Although not yet endangered, bluefin tuna have already been overfished.
- They spawn in the Gulf of Mexico in April, May, and June.
- The Deepwater Horizon oil rig exploded April 20, 2010 in the middle of bluefin tuna breeding season.
- Spawning occurs at the surface where oil slicks coat fish skin, clog their gills, and contaminate their prey.
- Oil can cause heart defects in both the larvae and adult fish leading to slower swimming, inability to catch food, and heart attacks.

# **Ridley Sea Turtle**

- The smallest but most endangered sea turtle, the Ridley sea turtle lays its eggs on beaches and prefers shallow water.
- Gulf of Mexico waters are its only breeding ground.
- Turtles mistake oil spill tar balls for food.
- Young turtle hatchlings rely on floating seaweed for protection but seaweed was killed by lack of sunlight due to oil slicks.
- Oil cleanup tactics such as chemicals to break up the oil and burning surface oil killed turtles.
- 456 turtles were rescued, cleaned and released. Nests and eggs were removed from oil spill beaches, hatched at Kennedy Space Center, and released.

# Deepwater Horizon Oil Spill Facts

Status	Largest accidental oil spill in history.	
Human Cost	Killed 11 people and injured 17 others.	
Oil Spilled	About 5,000,000 barrels of crude oil spilled into the Gulf of Mexico.	
Spill Time	Oil gushed from the well for 87 days before it was capped.	
Boom Used	5,500,000 miles of barrier boom were used to try to contain, collect, and absorb the oil.	
Fines	BP was fined \$40 billion in fines and cleanup costs and an additional \$16 billion as a result of the Clean Water Act.	
Solutions	Microbes were released to help break down and digest the oil. New regulations require oil companies to have a plan to plug a well within 24 hours and to have a back-up rig close by.	