



**Life:Powered**

**WHERE IN  
AMERICA: A Lesson  
on Energy Sources  
for Middle and  
High School  
Students**

# WHERE IN AMERICA: A Lesson on Energy Resources for Middle & High School Students

**(See Worksheet: *Where in America?*)**

This activity will acquaint the students with the location of natural resources and power plants in their state. Discuss as a class where the power they use everyday comes from.

## Objective

The objective of this unit is to familiarize students with the location of natural resources and power plants in their state.

## Materials

- Worksheet *Where in America?*
- Blank state map
- Computer with internet access
- Pencil
- Colored pencils

## Guiding questions:

- Does your local city have its own power plant? (At this point they may not know.)
- What natural resource is used to produce the electricity? (Accept any ideas they have.)
- Where does that natural resource come from? (Answers will vary; at this point, accept their ideas.)
- Where does the gasoline come from that powers their parents' cars?
- Students probably will not know the answers to these questions at this point. The idea is to get them started thinking about the natural resources we have in the United States and how they are used to produce the energy we use every day.

Place the students in groups of two with one computer per group and make sure all have located the website:

<http://www.eia.gov/state/?sid=TX>

ZOOM OUT TO FIND YOUR STATE. You may have to guide them in using the map. There is a tremendous amount of information on the map that can be observed by checking and unchecking different layers. The work-sheet questions are designed to help them observe closely and make connections between different map layers.

After completing the activity, discuss the questions as a whole class. Emphasize any ideas that have changed from before exploring the map.

## ENGAGE: Where in America? Worksheet

In this activity we will explore where natural resources and power plants are located in your state.

### Materials

- *Where in America?* worksheet
- Blank state map
- Computer with internet access
- Pencil
- Colored pencils

### Procedure:

1. Go to <http://www.eia.gov/state/?sid=TX>.
2. Enlarge the map to full screen by clicking on the arrows in the bottom right corner of the map.
3. Find your state and Enlarge to fill most of the screen using the scroll bar in the upper left corner of the screen. (Use the Escape button on your keyboard to get out of the large view and go back to the web site.)
4. In the upper right corner, click on the Layers/Legend tab. When it opens, click on the red X to remove all symbols.
5. Under Map Layers, click on the box next to All Coal Mines. Notice where they are and mark them on your map using a black triangle.
6. Uncheck the Coal Mines and check a different power plant type.
7. Create a color/shape key for each of the types of power plant in the table below.
8. Go down to All Power Plants and click on Biomass Power Plant. On your map, mark where these power plants are located. Count approximately how many there are and then uncheck them.
9. Do the same for each of the following types of power plants: Coal, Geothermal, Hydroelectric, Natural Gas, Nuclear, Petroleum, Solar, and Wind.

Power Plant Type	Key	Number
Biomass		
Coal		
Geothermal		
Hydroelectric		
Natural Gas		
Nuclear		
Petroleum		
Solar		
Wind		

## Where in America? Worksheet cont'd

1. On the Layers, scroll down to Fossil Resources and check Coal Field. Very lightly with the pencil, shade in the areas on your map which have coal fields.



2. Uncheck the Coal Field and check the Tight Oil/Shale Gas Play. Lightly enclose these areas with the pencil and fill with hatch marks.



3. Uncheck the Tight Oil/Shale Gas Play and check the Sedimentary Basin. Lightly enclose these areas with pencil and fill with dots.



*Note: These Fossil Resource areas may overlap in places.*

4. Now uncheck the Sedimentary Basin and go to the Oil and Gas Wells and Platforms and check the Oil and Gas Wells. **Notice where they are located.** If you zoom in close, you can distinguish individual wells. The brown dots are oil wells and the blue dots are gas wells.

5. Uncheck the Oil and Gas Wells, go to Oil/Gas Refining and Processing and check Petroleum Refinery. Where are most of the refineries located?

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Think about where the oil and gas wells are located and where the Petroleum Refineries are located.

1. Why are the refineries located where they are ?

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2. How does the oil and gas get to the refineries? To find out, click on the Pipelines and Transmission button and **look at where the different kinds of pipelines are located.** You can click on each kind of pipeline individually and see where they go.

3. Uncheck the Petroleum Refinery and the Pipelines and Transmission boxes, go to Oil/Gas Refining and Processing, and check the Natural Gas Processing Plant. Where are they located?

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4. Now check the Natural Gas Power Plant and see how the two are related.

5. Uncheck Natural Gas Power Plant and check Geothermal Potential. Notice the locations of the shaded areas.

6. Uncheck the Geothermal Potential.

## Where in America? Worksheet cont'd

Answer the following questions:

1. Which type of power plant is most common in your state? Why do you think that might be? \_\_\_\_\_  
\_\_\_\_\_

2. How many geothermal power plants are located in your state? Why do you think that is the case? \_\_\_\_\_  
\_\_\_\_\_

3. Where are hydroelectric power plants located? Why?  
\_\_\_\_\_  
\_\_\_\_\_

4. Why do you think wind power is only available in certain locations?  
\_\_\_\_\_  
\_\_\_\_\_

5. What do you think determines the location of solar power plants?  
\_\_\_\_\_  
\_\_\_\_\_

6. How does the location of the oil and gas wells relate to the location of the tight oil/shale gas plays and the sedimentary basins?  
\_\_\_\_\_  
\_\_\_\_\_

7. Where are most of the petroleum refineries located? Why do you think they are located there?  
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