

## **IMPROVE THE FUTURE WITH NAVIGATION TECHNOLOGY: THINK STRATEGICALLY WITH MAPS**

### **Project Description**

Students will:

1. Identify ways to improve the safety of public transportation through technology, particularly the use of vehicle location systems.
2. Analyze current CTA bus routes and identify the rationale for current routes.
3. Set standards for safe and efficient transportation to events and locations such as the United Center or the University of Illinois.
4. Work in teams to design a better route from their community to three different kinds of places:  
a university in the city;  
a place where there are events they want to attend;  
a place they want to work  
The new routes must: increase access to transportation; maintain or increase safety in neighborhoods; maintain approximately the same time of travel as current routes.
5. Prepare a persuasive presentation about their route recommendations

How students participate:

Option 1: Each student can do one route.

Option 2: Three students work on routes, with one for each destination.

Option 3: Students work in pairs.

Option 4: Class project, with one kind of destination each week.

Option 5: Student researcher collects data from the Internet, class uses the data either individually, in pairs, in teams, as a class.

### **Project Correlation with Learning Goals**

Students will analyze situations that enable them to improve their abilities to locate, collect, analyze, and synthesize information to make decisions (Goal 5 and Goal 10).

Students will prepare and present persuasive statements (Goals 3 and 4).

Students will interpret geographic information from maps (Goal 17).

Students will expand their ability to work in teams. (Workplace 2000)

Students will learn more about their own city, its communities, its universities, its workplaces. (While this is not a state or city goal it is essential to expand our students' understanding of their own city and particularly to focus them on their future as university students and workers.)

## Unit Pre-Assessment

How does the CTA decide where bus routes are located?

What are three important things to know about public transportation?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

What are three important ways people use Information Technology in transportation?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Which university do you think you will attend when you graduate from high school?

\_\_\_\_\_

What career do you want to have after you complete college?

\_\_\_\_\_

## Activity 1: Analyzing Routes

Your class is going to figure out better ways to get from your community to other locations by public transportation. Start by reading a map. When you read a map you take the same steps you take when you read a story. You locate information, analyze it, and make inferences.

**Use a CTA map to answer these questions.**

1. What kinds of roads do most of the buses travel on?
2. Choose one route. Infer why it is where it is. Tell what people it serves and why the CTA would put that route where it is.
3. If you wanted to go from your high school to the United Stadium, which buses would you take?
4. Estimate how long that trip would take by bus. \_\_\_\_\_ minutes
5. Estimate how long that trip would take by car. \_\_\_\_\_minutes
6. How much would the trip cost if you went by car? \$\_\_\_\_\_

*(This is a complicated question. You need to include not just the cost of gas but parking, car insurance, and car payments. For example, if you own a car and are making monthly payments of \$300 then you are paying \$10 a day just to have that car. Add the cost of insurance, which could be \$700 a year, and it's about \$12 a day just to have the car.)*

## Activity 2: Rules for Routes

Workers at the CTA decide which are the best routes for buses.

They think about:

Public safety—not putting a route where the bus will have difficulty getting down the street safely

Access—where people live and work

Need—where people need to travel to frequently

Take the CTA map.

Choose one route.

Which neighborhoods does it serve?

Why might the CTA have chosen the roads the bus uses?

Make up the story of one person who uses the route.

1. Who is that person?
2. Where does that person live?
3. Where does that person go on the bus?

What might that person say about the bus route—how would that person want it changed to make it better?

### Activity 3: Student Choices

Students will work individually, as pairs, or as a team to design better routes to three places in the city

A university

A place where events take place

A place you want to work

1. How will you decide which places to choose?

2. What are the destinations?

Tasks to do:

- a. Figure out the current route to the places you choose—distance, places
- b. Figure out locations for bus stops to pick up more persons more conveniently.
- c. Figure out the route for the bus to take.
- d. Write reasons to make this change.
- e. Prepare presentation on the proposed route

### Activity 4: Better Routes

### GO TO THE UNIVERSITY

Use CTA maps and MapQuest to analyze the current bus routes for the destinations you choose. You can work on this individually, in pairs, as a team. Your job is to figure out the current bus routes to from your school to a place people need to go. Then you recommend better ways to route the buses so they make it more convenient and stay as safe as they are or get even safer.

CHOOSE A UNIVERSITY IN CHICAGO YOU WANT TO ATTEND. THAT'S THE DESTINATION

Destination	Distance (Use Map Quest to figure out the distance.)	Estimated Time (Use Map Quest to get driving time and then add time for stops)	How many bus stops are there?	Schedule

How would you change the route to make it better?

What are three persuasive points you would make in a presentation about your better route?

#### Activity 4: Better Routes

#### GET TO AND FROM THE EVENT SAFELY

Use CTA maps and MapQuest to analyze the current bus routes for the destinations you choose. You can work on this individually, in pairs, as a team. Your job is to figure out the current bus routes to from your school to a place people need to go. Then you recommend better ways to route the buses so they make it more convenient and stay as safe as they are or get even safer.

**CHOOSE A PLACE WHERE PEOPLE GO FOR EVENTS SUCH AS NAVY PIER OR THE UNITED STADIUM. THAT'S THE DESTINATION.**

Destination	Distance (Use Map Quest to figure out the distance.)	Estimated Time (Use Map Quest to get driving time and then add time for stops)	How many bus stops are there?	Schedule

How would you change the route to make it better?

What are three persuasive points you would make in a presentation about your better route?

### Activity 4: Better Routes

### GET TO AND FROM WORK

Use CTA maps and MapQuest to analyze the current bus routes for the destinations you choose. You can work on this individually, in pairs, as a team. Your job is to figure out the current bus routes to from your school to a place people need to go. Then you recommend better ways to route the buses so they make it more convenient and stay as safe as they are or get even safer.

CHOOSE A PLACE YOU WANT TO WORK. THAT'S THE DESTINATION.

Destination	Distance (Use Map Quest to figure out the distance.)	Estimated Time (Use Map Quest to get driving time and then add time for stops)	How many bus stops are there?	Schedule

How would you change the route to make it better?

What are three persuasive points you would make in a presentation about your better route?



## Activity 5: The Smart Bus

There is a lot of information about traveling—there are reports on the radio and there are on-line displays of current information about travel time and weather conditions.

Improve the bus.

Make it safer and more efficient with transportation information.

What information should the driver see on the control panels for the bus?

Design that driver's information display.

In each rectangle put one kind of information the driver could use.

We put one row to show what it could be like. You put the others.

Weather conditions	Current Speed	Number of Passengers Waiting at Next Bus Stop
_____	_____	_____
_____	_____	_____
_____	_____	_____

### Passenger information:

What information should the passengers get?

Make another chart that shows what they should see displayed at the bus stop.

Make one more chart that shows what they should see displayed on the bus.

## Activity 6: Make Your Point

Step 1: Contrast your route to the current route. Use a chart or Venn diagram to do that. Your chart will be part of your presentation.

ROUTE: From \_\_\_\_\_ to \_\_\_\_\_.

Category	Current Route	Proposed Route
Distance		
Time		
Safety		
Convenience/Access		
Schedule		
Another feature		

### 2. Why change?

Make a list of reasons why the CTA should change to your proposed route.

3.. Design a concise persuasive presentation that uses your chart and makes those reasons clear. Your presentation must be logical and clear. You can use a computer to show maps, charts, diagrams, and information tables, but the presentation must be five minutes at most.

## Unit Assessment

What are the three most important things you learned from this unit about

Chicago

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Public Transportation

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Transportation Information Technology

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Which university do you think you will attend when you graduate from high school?

\_\_\_\_\_

What career do you want to have after you complete college?

\_\_\_\_\_

### **More Thinking for Added Credit**

Make up a test on Chicago transportation for students in another class. Include map reading in the test.