

# Math Northampton Trail

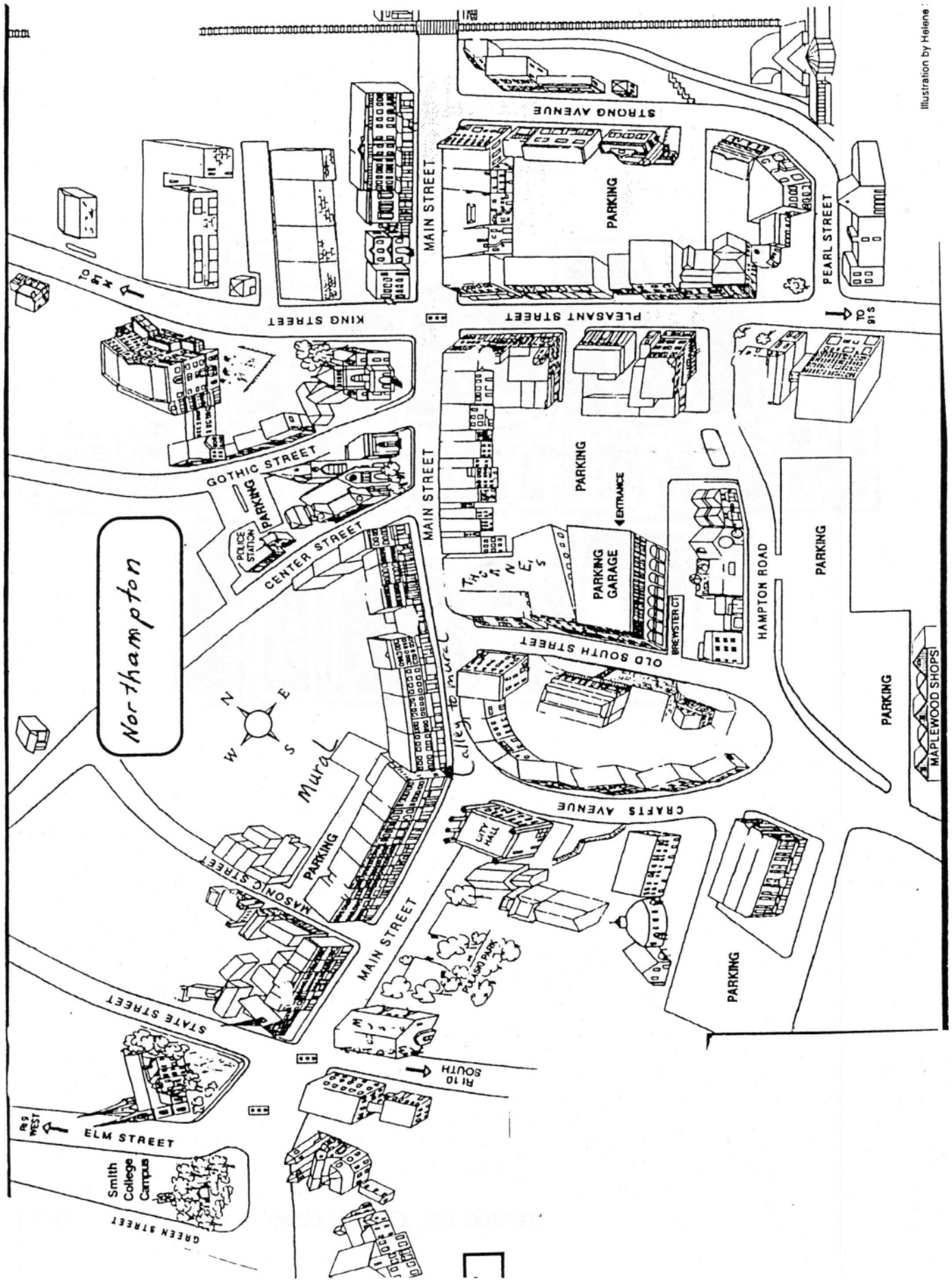


Illustration by Helene

# NORTHAMPTON MATH TRAIL

Welcome to the Northampton Math Trail! Today you will be gathering data, working problems, and making observations as you walk along Main Street. Some problems can be completed right on the trail and some will need to be finished back in the classroom- You should not need to go into any stores (except for ice cream later) in order to find the information you need. Enjoy yourself, and remember MATH IS EVERYWHERE!

You will be eating lunch at Pulaski Park, next to the Academy of Music. After lunch your group will have an opportunity to buy ice cream for dessert- Please notice the ice cream places as you walk Main Street.

Write the names of your group members here:

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## SCAVENGER HUNT

During your travels on Main Street, be alert for answers to the following questions:

- 1) Where can you find Roman Numerals in use?
- 2) Look at the Silverscape building. What is the time and temperature today?
- 3) Which building looks like a castle?
- 4) a. How many arches are on the façade of 99 Main Street, the Hampshire Council of Governments?  
  
b. What animal is on the weathervane?
- 5) Do you see the restaurant called "Cha Cha Cha"? Is there a shorter, more mathematical way to express this name?
- 6) Walk carefully down Crackerbarrel Alley to see the mural painted on the brick building past the parking lot. Name three occupations that are depicted by women in this mural.
- 7) Next to B-Side Records is the Daly Building. Look up at the top of the building and you will see a sign. What year was this building built? \_\_\_\_\_  
  
How many years has this building been standing? \_\_\_\_\_
- 8) Make up your own scavenger hunt question!

## SIGN WATCHING - Alphabet

As you are walking on Main Street, be observant! Look at the signs in and on the buildings, and find a word for each letter of the alphabet. It can be done - even X and Z!

A	N
B	O
C	P
D	Q
E	R
F	S
G	T
H	U
I	V
J	W
K	X
L	Y
M	Z

## BONUS: INTERDISCIPLINARY SIGNS

Along the way, while you are looking at the signs, see if you can find names of stores that might refer to subject areas. Example: The Dancing Bear would fit both the science category (bear) and the artistic category (dancing). Be creative!

Science 1. 2. 3.	History 1. 2. 3.
English/Language Arts 1. 2. 3.	Math 1. 2. 3.
Art, Music, Health, PE, Tech Ed... 1. 2. 3.	Other? 1. 2. 3.

## RESTAURANT PROBLEM

Many people love the variety of restaurants in Northampton- Let's find out how many restaurants there are in just one block of Main Street.

### Data Collection

Look for the block that has Silverscape Designs on one side and Florence Savings Bank on the other side. The other end of the block has Toasted Owl on one side and Fire Cuisine on the other. Write down all of the names of the stores on both sides of this block - street level ONLY.

SILVERSCAPE

FLORENCE SAVINGS

TOASTED OWL

FIRE CUISINE

Total number of restaurants: \_\_\_\_\_ Total number of storefronts: \_\_\_\_\_

Write this information as a fraction and a percent. \_\_\_\_\_

Make a statement about the number of restaurants on this block.

Which restaurant would you like to try? \_\_\_\_\_

## WINDOW WASHING PROBLEM

The new owner of the building that includes Veracruzana, Fitzwilly's and Toasted Owl needs to hire a contractor to wash the windows.

### Data Collection

Notice there are four levels of windows above the shops. Make a sketch of these windows.

How many windows are there in total above the shops? \_\_\_\_\_

### Problem Solving (can be completed at school on separate paper)

The owner has received the following two estimates:

- 1) *ABC Window Wash* estimates 15 minutes per window (inside and outside) and charges \$14 per hour.

What would it cost to hire *ABC Window Wash*? \_\_\_\_\_

- 2) *Clean Glass Co* quotes a figure of \$198 plus a charge of \$59 because of the height of the building. What would it cost to hire *Clean Glass*? \_\_\_\_\_

- 3) Which company would you hire and why? \_\_\_\_\_

### FASCINATING FACTS

Read the plaque on the wall to the left of the door to Fitzwilly's. Name three fascinating facts about this building and who worked here.

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

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

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



## MAIN STREET CLEANERS PROBLEM

### Data Collection

Check the sign in the window. What percent discount do college students get for dry cleaning orders? \_\_\_\_\_

### Problem Solving

Pretend that you attend Smith College and your roommate borrowed your suede jacket. She (or he) returns it, but it is a mess and you take it to the cleaners. Suede is expensive to clean, and the bill comes to \$31.75. You mention that you are a college student and show them your student ID. How much will you have to pay with the student discount? (Don't forget Massachusetts sales tax!)

## PARK PROBLEMS

Take a break, sit down in Pulaski Park, and observe the people around you.

Out of the next 20 people that you see, how many are wearing glasses? \_\_\_\_\_  
What percent is that? \_\_\_\_\_

Now look at cars. How many of the next 20 cars that pass by are white? \_\_\_\_\_  
What percent is that? \_\_\_\_\_

Make up your own characteristic to look for.

What did you choose? \_\_\_\_\_

What percent is this? \_\_\_\_\_

# B-SIDE RECORDS

## Data Collection

Check the sign in the door to determine the hours of operation for B-Side Records. List the Days and Hours B-Side is open: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Problem Solving

You have been hired by B-Side Records to work part-time after school. You will work Monday, Wednesday, and Friday from 3:00 pm until closing, and all day Saturday, at the rate of \$6.15 per hour. Payroll deductions will be 12% of your gross pay.

- a. How many hours per week will you work? \_\_\_\_\_
- b. What will be your gross pay per week? \_\_\_\_\_
- c. After deductions, what will be your net pay per week? \_\_\_\_\_

As an employee of B-Side Records you get a 20% discount on all CDs that you purchase. List four CDs that you would like to own (B-Side has just about everything!), and give each a reasonable price (assume CDs sell between \$12.99 - 21.99, or \$32.99 for a double CD). Calculate the price after the discount. Don't forget to add 5% Massachusetts sales tax-

- 1. \_\_\_\_\_ \$ \_\_\_\_\_
- 2. \_\_\_\_\_ \$ \_\_\_\_\_
- 3. \_\_\_\_\_ \$ \_\_\_\_\_
- 4. \_\_\_\_\_ \$ \_\_\_\_\_

Total before discount: \$ \_\_\_\_\_

Total after discount: \$ \_\_\_\_\_

MA Sales Tax (5%) \$ \_\_\_\_\_

Final cost of CDs \$ \_\_\_\_\_

## ACADEMY OF MUSIC PROBLEM

Just below the triangular top of the building you see the words "Academy of Music". Sketch the figure that surrounds these words.

How many sides does this figure have? \_\_\_\_\_

This figure has an interesting mathematical name - look it up when you get back to school.

\_\_\_\_\_

How many other shapes do you see when you look at this beautiful building? (We found five different geometric shapes - can you find more?)

Sketch and name them

## WAR MEMORIAL PROBLEM

Near Pulaski Park you will find the War Memorial which lists the names of those from this area who died in past wars. The Memorial is made out of polished stone and is set at an angle with a small garden placed at the base. There is a brick circle with a flagpole in the middle between the two Memorial panels.

### Data Collection

Find the Merchant Marine emblem on the Memorial. Sketch the emblem and measure its diameter (use either centimeters or inches). Use this measurement to compute the area and circumference now.

SKETCH

Notice the brick circle around the flagpole. Your task is to find the area and circumference of the largest circle. This is not as easy as it appears. Make a sketch and be sure to include all measurements that you need (don't forget units!).

SKETCH