Math at the Mall
Teacher Page

Grades 6-8
Thinking Tool: ATTRIBUTE LISTING: a generating tool

Sample Standards:
Uses a variety of strategies to understand problem-solving situations and processes (e.g., considers different strategies and approaches to a problem, restates problem from various perspectives).
Represents problem situations in and translates among oral, written, concrete, pictorial, and graphical forms.

Materials, Resources, and Preparation

For this activity, it would be helpful to have a map or brochure for an area shopping mall, showing the layout of the mall and listing its stores. If that is not available in printed form at a local mall, you may be able to locate the information from the website of one or more major malls (in your area, or see below). Of course, you could also reconstruct a familiar area mall on paper, a chalkboard, or a whiteboard through discussion with your students. You will also want to have available a copy of the Student page for each student.

The (very!) large “Mall of America” in Bloomington, MN has an interactive directory and map at: http://www.mallofamerica.com/shopping/directory

The similarly huge West Edmonton Mall in Alberta, Canada has the same feature on its website, which is: http://www.wem.ca/#/store-directory-maps/.

Getting Started

Begin with a general discussion about visiting a shopping mall. Ask the students about their favorite things to do at the mall, or the areas in the mall they most enjoy visiting. Are there also some aspects of a trip to the mall that are less enjoyable? What are those?

After this discussion, ask the students, “What are the parts of the mall that we have been talking about?” Explain that these might be called “attributes” of the mall—certain places, activities, or features that the mall has. Some might be common attributes, or things you’d see or find at any mall, anywhere you might go. Others might be unique to a certain mall (characteristics or features that make a certain mall “special” or a “one-of-a-kind” place).
Procedure

1. Ask the students whether they’ve ever found themselves thinking about math when they’ve been at the mall. Collect several student responses, and then ask, “In what ways might you see math being used at the mall?”

“Money” might be a common response to the question. (If it doesn’t come up, and the students have any difficulty coming up with ways math might be used at the mall, suggest this as a “prompt.”) Discuss some basic math problems that might deal with money at the mall (e.g., select certain items and add up their total cost; estimate the amount of sales tax at a certain percentage; making change).

2. Tell the students that there are really many ways that math and the mall might be connected. Today, we’ll be using a tool named “Attribute List” to look into that connection.

3. Return to your discussion of the attributes or parts of a mall. Now, ask the class to generate a list of some of the basic attributes of any mall. What would any mall have, no matter where it might be? Record the students’ responses as they generate a list of mall attributes.

Don’t do their thinking for them, but be certain that they look beyond the most obvious possibilities. Have they considered, for example: stores, corridors, entrances, the food court, employees, products, equipment, visitors (people), the parking area, vehicles, signs and displays, art objects, entertainment, restrooms, benches or seating?

4. After you’ve generated a list of many attributes of any mall, tell the students that their task will now be to select five attributes of a mall, and for each of those attributes, to make up at least three different kinds of math challenges that relate to it. They will also need to think about how those math challenges might best be worked on (what kind of math data will be involved, how will they obtain the data, what kinds of math processes needed to solve the challenge, and best ways to present or share the solutions). You might have the students work individually, or divide them into teams or groups.

For example, if they considered the food court, they might consider the variety of different foods available. This might involve counting and comparing menu items, categorizing the vendors into certain categories (snacks, pizza, sandwiches, perhaps, or ethnic “mix”). Or, they might study the traffic flow in the food court (e.g., number of visitors for each vendor, or total numbers of visitors at various times, or the number of vendors patrons visit before selecting one, or interviewing patrons to determine amounts spent or reasons for selection).

The approaches to dealing with the challenges might include surveys, interviews, observations, and the challenges’ results might lead to different measurements as well as various choices of graphs, charts, or tables to present the data. The parking lot might lead to challenges relating to total area, size of parking spaces, relationship of cars parked to distance from entrances, or to studying traffic volume at certain times, color or make of vehicles, numbers of occupants per vehicle, time required when people exit the mall to find their vehicle, or other challenges.

© 2013, Center for Creative Learning
Closure

Provide time for the students to share and discuss their results, and to work on several of the challenges they have created. You may also enjoy sharing a book with them: *The Math Curse* by Jon Scieszka (Viking, 1995), which poses the interesting challenge that “everything can be thought of as a math problem.”

Variations and Follow-Up

1. Have your students share the math challenges they’ve created with students in another class.

2. Take a field trip to an area mall to do “field research” on the activity, or to carry out one or more of the challenges they created.

3. Vary the activity by using places other than a mall, or by linking the Attribute Listing task to other content areas instead of, or in addition to, math.

4. Some other interesting print resources on “real-life” math applications include the following publications from Prufrock Press (www.prufrock.com):

   25 real life math investigations that will astound teachers and students. By Edward Zaccaro

   On-the-job math mysteries: Real-life math from exciting careers. By Marya Washington Tyler

   Real life math mysteries. By Marya Washington Tyler
# Math at the Mall

**Student Page**

<table>
<thead>
<tr>
<th>Mall Attribute</th>
<th>Math Challenge</th>
<th>How to Present</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>