Pittsburgh: City of Innovation

CMU Children's School
Staff / Parent Discussion 1/30/15

Why Study Pittsburgh?

The goal for families and educators is helping children establish a sense of themselves and their place in the world. We may help them explore questions, such as Who? What? Where? When? How? and Why?

During this unit, we will emphasize the many ways we **live**, **work**, **learn**, and **play** in Pittsburgh. We will highlight the special features of Pittsburgh that make it a unique city, and we will learn about the Pittsburgh innovations that have impacted the world.

Key Concepts Related to Pittsburgh

- ***Geography*** features of the rivers, land, mountains, etc. that made Pittsburgh a good place to found a city, unique features of the Pittsburgh neighborhoods, ways we use maps to navigate the city …
  - ***Earth science*** – land features, climate, weather, and seasons of Pittsburgh

[Children's understanding of maps / "Me on the Map"]

- ***Social Studies, Culture & History*** of humans living, working, learning, and playing in Pittsburgh …
  - ***Physical science*** of city building, transportation, industries, communication …
  - ***Math*** for counting, measuring, comparing, contrasting, and graphing Pittsburgh features (e.g., bridges, tunnels, buildings, etc.), as well as for time in years …
  - ***Technologies*** developed in Pittsburgh emphasize our tradition of innovation …

[Children's understanding of history / Heinz History Center Videos]

- ***The Arts & Literature*** celebrated in Pittsburgh cultural institutions, such as the art museum, theatres, music halls, etc., as well as famous artists, musicians, and authors, and actors from Pittsburgh …

[Everyone's favorite neighbor & children's media advocate, Mr. Rogers]

- ***Life science*** emphasis on sustainable living, green building, etc. so that we can have a healthy Pittsburgh environment for people, animals, and plants …

[Explore the Pittsburgh parks, conservatory, zoo, aviary, all with an emphasis on conservation of the environment.]

Developmental Benefits of Exploring Pittsburgh

• **Self-Esteem & Independence** – building pride and confidence re: home, neighborhood, city, as well as the self-regulation skills for navigating, etc.
• **Interaction & Cooperation** – taking responsibility for keeping neighborhood clean, cooperating with neighbors, etc.
• **Communication** – learning new vocabulary related to Pittsburgh landmarks and city features for describing experiences, writing labels, drawing illustrations, etc.
• **Discovery & Exploration** – strengthening skills in observation, counting, measuring, comparing & contrasting Pittsburgh's land, water, plant & animal life, etc., as well as for experimenting with physical science related to Pittsburgh industry
• **Physical Capabilities / Health & Safety** – strengthening eye-hand coordination and body movements when exploring the city, with special emphasis on street safety
• **Artistic Expression & Appreciation** – appreciating Pittsburgh artists, musicians, etc., as well as using similar styles to create new ways of representing the city in art, drama, or other media

Additional Resources for Exploring Pittsburgh as a Family

Heinz History Center in the Strip District
Fort Pitt Museum & Block House at Point State Park

http://www.heinzhistorycenter.org

Pittsburgh History and Landmarks Foundation

http://www.phlf.org

Downtown Dragons web site with tour, songs, etc.

http://www.phlf.org/dragons/home.html

Pittsburgh Tunnel Tour

http://pghbridges.com/articles/fieldnote_tunneltour.htm
NOTE that the Wabash tunnel is actually finished and usually open.

Ride the Inclines and the Subway

http://www.duquesneincline.org http://www.portauthority.org/paac/

Pittsburgh Mural at CMU by Doug Cooper

[https://www.andrew.cmu.edu/user/dcooper/universitymural.html]

Helping very young children to start learning about maps

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Figure 1

Children can, of course, learn about maps – in school they learn to interpret and use maps successfully. It is not surprising that children who have been introduced to maps in the classroom and have been given specific training can achieve sophisticated map skills. But what has intrigued some geographers and psychologists is whether very young children have a knowledge of maps, even before any formal training.

Young children's potential to use maps has generated a great deal of debate. Some experts on child development (like Jean Piaget) believed that children would have little or no ability to understand a map until after the age of seven or eight years. This was, in the past, quite a prevalent viewpoint and was one of the reasons why earlier generations of young children experienced little or no map work in the early primary years.

More recently, some geographers (like the late Jim Blaut in the United States) took a view that was as far removed from Piaget's as it was possible to be. Blaut proposed that even the youngest children can understand images of the world. According to Blaut, very young children should be able to look at an image, like an aerial photograph of a town, and see if for what it represents. In other words, they should immediately see the photograph as a picture of a landscape – they will not be confused by it or see it just as a series of lines shapes and patterns. Blaut thought that young children in all societies and cultures should have a spontaneous ability to recognise aerial views and simple maps.

Several years ago Blaut demonstrated the abilities of young children by asking them to describe what they could see in black and white aerial photographs of urban landscapes. He found that children down to about five years of age could spontaneously name what they saw as roads, houses, buildings, trees, parks and other geographic features. Such an immediate understanding suggested that children do not have any difficulty interpreting an aerial perspective, and many geographers have concluded that children's very good ability to interpret representations like aerial photographs could be the basis for understanding simple maps.

Although the fact that young children were so good at recognising aerial views has been established for some time, there have been a number of unanswered questions about children's early abilities with aerial photographs. These include questions like:

How early do children first have an awareness of such photographs?

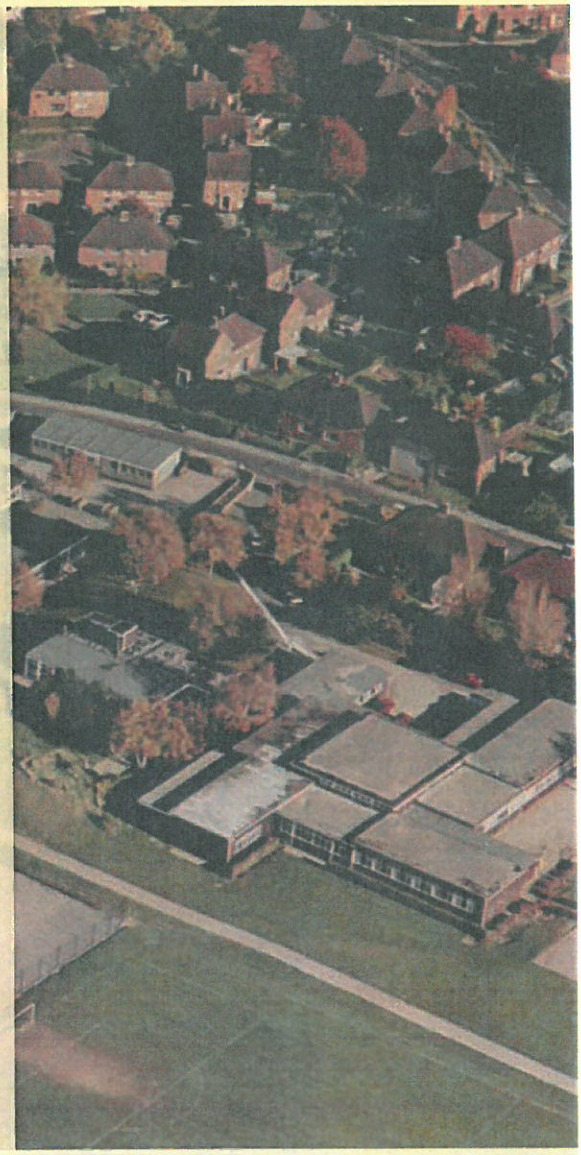
Does an awareness of aerial photographs help children understand maps?

and what experience do young children need to be able to understand a photograph as a representation of part of the world?

These are questions that we have addressed in research with young children in nursery and primary schools.

When are children first able to recognise features in an aerial photograph?

Figure 2



We showed children who are three and four years of age large-scale aerial photographs, like the ones in figures 1 and 2. Some were in colour and others were black and white photographs. The photographs were either taken from directly above the landscape (vertical ones such as figure 1) or were taken from an oblique angle (figure 2).

We asked the children to name what they could see in the photographs, and most of them could give an appropriate name to the majority of features. Children were slightly better at naming features on the colour photographs, but this was only when colour itself was an important clue. For example, a rectangular area behind a house on a black and white photograph might be ambiguous; but if the same area was green in a colour picture, it was easily labelled as grass or a lawn.

The largest difference in performance was between vertical and oblique photographs, because children could usually name more features correctly on oblique pictures. This was not surprising, because the oblique angle often meant that some features were more recognisable. For example, the view of a feature that includes information about windows on one side of the feature makes it easier to name correctly as a house or a building.

Such results demonstrated that even nursery-school-age children could recognise and understand aerial photographs – an age group much younger than previously tested. This finding supported Blaut's idea that very young children, without any specific training, can look at a photograph taken from above and spontaneously interpret it is a representation of the world.

Can children who understand aerial photographs also understand maps?

In the past children's awareness of aerial photographs was always assessed by asking them to look at photographs and name the features they could recognise. We wanted to find out if children could relate a photograph to the place that it represented. To do this we gave children photographs of their school and its neighbourhood.

The children took the photograph outside and we pointed out on the photograph to where toys or sweets had been hidden around the school (see figure 3). To find these the children had to use the photograph to work out the direction and location of the hidden objects. We found that even four-year-olds could do this successfully. In other words, the children were aware that an aerial photograph was more than just a picture of a landscape, but was a picture of a particular landscape, and once they knew where a target object was on the photograph, they could work out where it was on the ground.

In effect, the children were using the aerial photographs like maps, so we wanted to find out if using photographs could actually help children learn about maps. To do this we showed four-year-olds both an aerial photograph of their school and a map. The map was a line drawing based on the photograph. As before, the children were asked to use the map or the photograph to find specific places in the environment. Every child was asked to use both the photograph and the map, but some of the children used the photograph before the map and some used the map before the photograph.

Irrespective of which representation they were using, all the children were able to find some of the target locations. However, the children found more of the target locations when they were using the photograph, so it seemed that four-year-olds were better at understanding a photograph than a map. But what was striking was that if the children used the map after they had already used the aerial photograph, they performed much better with the map than when they used the map first. In other words, just a brief prior experience with an aerial photograph contributed to the children's understanding of the map. We inferred from this finding

Figure 3

that experience of aerial photographs may well contribute to children's understanding of maps.

What experience do young children need to be able to understand a photograph?

The fact that children do recognise aerial views without any specific training is intriguing and prompts a question about what sort of experiences might contribute to children's ability to recognise an aerial perspective. Geographers like Jim Blaut and David Stea have suggested that one way that children experience views of landscapes is from playing with toys. They suggested that when children arrange toys like model houses, cars and trees on the floor they are generating model landscapes, and these are landscapes that children view from a variety of perspectives as they play with them. This suggestion is attractive because young children are constantly playing with small-scale models (buildings, vehicles, people and animals). This may be the experience they need as a basis for appreciating small-scale photographs of real landscapes.

We investigated whether young children do in fact make model landscapes in the course of toy play. We gave more than 60 three- and four-year-olds a large set of attractive new toys that included model buildings, houses, trees, road pieces, vehicles and other landscape features (see figure 4). Some children were not given any instructions but were just asked to play with the toys on the floor. Others were specifically asked to make 'a place where people live, like a town or a city'.

Figure 4

To our surprise, most of the children did little at all with the models. The majority of children just played with one or two individual items. Some did use all the model items, but only put them in groups, with all the buildings in a row, the road pieces in a single line or all the trees in a pile. Only a handful of children spread the items across the floor in anything that might be called a model landscape with, for example, buildings connected by roads and with other features in appropriate places.

This was an unexpected finding, because young children are very familiar with small-scale toys that represent features from the real world. Children have model houses, garages, farms, zoos, train sets, and all manner of toys that reflect real landscapes. In particular, many children have 'play-mats' that often have attractive designs, including roads and environmental features. But despite the presence of such toys in children's lives, they do not seem to encourage children to make layouts that reflect the geography of the real environment.

Although children are not explicitly shown aerial views by their parents or teachers, even very young children see numerous landscape views in the course of reading picture books and watching television, films, and cartoons. These media are full of stories and illustrations of flying carpets, flying superheroes, and even flying snowmen. Children also see many factual programmes – for instance, about animals, birds or the environment – that may include numerous aerial views. These programmes often juxtapose a ground-level scene with, a second later, a view from an aerial perspective. What is noticeable when such editing occurs in programmes is that even young children do not seem to be surprised or confused by the rapidly alternating viewpoints. This might indicate that young children are capable of adapting to multiple viewpoints without much difficulty. Exactly how well children interpret different perspectives and how all their experience of books and films contributes to their recognition of aerial photographs is still a fascinating issue that has hardly been investigated.

Conclusions

Nursery-aged children are very good at interpreting aerial photographs. We have mainly shown children large-scale colour photographs, either of their own schools or of environments that are similar to the ones in which they live. These types of photographs can be recognised and understood by very young children. We also believe that showing young children aerial photographs can be an important step in improving children's first awareness of simple maps. Showing aerial photographs to children is, of course, easy to do and in our experience children are fascinated by a view from above, especially if the view includes places (like school or home) that they can identify.

We now know that young children are able to interpret aerial views of landscapes in photographs well before they can represent landscapes in toy play. This does not support the proposal put forward by some geographers that toy play helps children to learn about aerial views, and it may well be the opposite that seeing aerial views helps children to incorporate landscape layouts in their toy play.

As yet we do not know what type of experiences contribute to young children's remarkable ability to understand and appreciate aerial photographs and maps, but we can speculate that one factor may be the wealth of aerial views that children experience through their interaction with a variety of media, such as books and television. If this is the case, then encouraging children to look at, think about and talk about any image that shows the world from above may be a way of encouraging a later awareness of more formal representations when children start to study map work.

Introduction

Children are born into history. They have no memory of it, yet they find themselves in the middle of a story that began before they became one of its characters. Children also want to have a place in history—their first historical questions are: "Where did I come from?" and "Was I always here?" These two questions contain the two main meanings of *history*: It's the *story* of people and events, and it's the record of times *past*. And because it's to us that they address these questions, we are in the best position to help prepare our children to achieve the lifelong task of finding their place in history by helping them learn what shaped the world into which they were born. Without information about their history, children don't "get" a lot of what they hear and see around them.

Although parents can be a positive force in helping their children develop an interest in history, they also can undermine their children's attitudes by saying things such as: "History is boring," or "I hated history class when I was in school." Although you can't *make* your child like history, you can encourage her[1] to do so, and you can take steps to ensure that she learns to appreciate its value.

To begin, you can develop some of the following "history habits" that show your child that history is important not only as a school subject but in everyday life.

History Habits

Habits are activities that we do on a regular basis. We *acquire* habits by choosing to make them a part of our life. It's worth the time and effort to develop good habits because they enhance our well-being. The following history habits can enrich your life experiences and those of your child.

1. Please note: In this booklet, we refer to a child as "she" in some places and "he" in others. We do this to make the booklet easier to read. Please understand, however, that every point that we make is the same for boys and girls.

Share family history with your child, particularly your own memories of the people and places of your childhood. Encourage your parents and other relatives to talk with your child about family history.

Read with your child about people and events that have made a difference in the world and discuss the readings together. (The list of publications in the **Resources** section at the end of this booklet can serve as a starting point for choosing materials.)

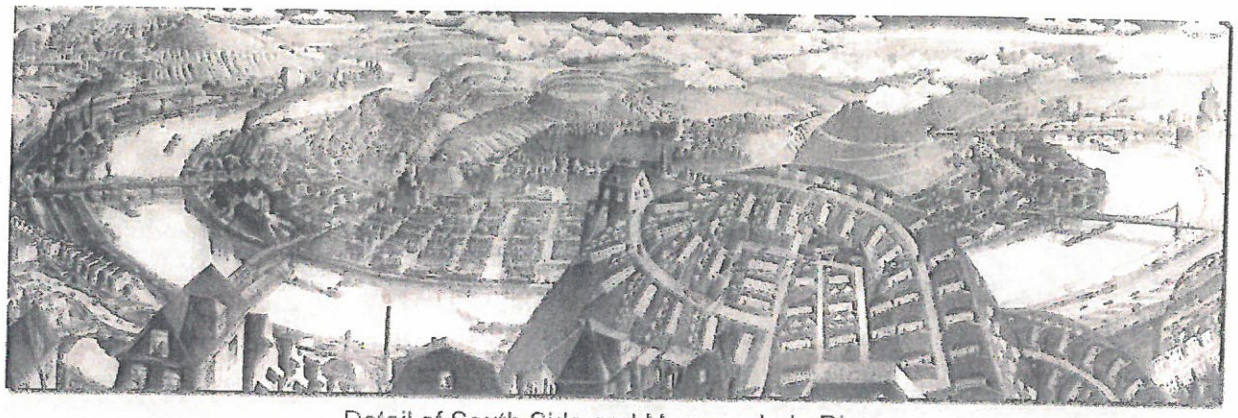
Help your child know that the people who make history are real people just like her, and that they have ideas and dreams, work hard and experience failure and success. Introduce your child to local community leaders in person if possible and to national and world leaders (both current and those of the past) by means of newspapers, books, TV and the Internet.

Watch TV programs about important historical topics with your family and encourage discussion about the program as you watch. Check out library books on the same topic and learn more about it. See if the books and TV programs agree on significant issues and discuss any differences.

Make globes, maps and encyclopedias (both print and online versions) available to your child and find ways to use them often. You can use a reference to Africa in your child's favorite story as an opportunity to point out the continent on a globe. You can use the red, white and green stripes on a box of spaghetti to help her find Italy on a map and to learn more about its culture by looking it up in the encyclopedia.

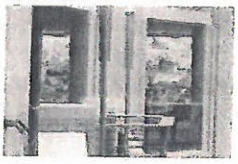
Check out from your library or buy a collection of great speeches and other written documents to read with your child from time to time. As you read, pause frequently and try to restate the key points in these documents in language that your child can understand.

Carnegie Mellon University Center Mural (1996)



Detail of South Side and Monongahela River




Artist: Douglas Cooper, Carnegie Mellon

Artist Assistants: Jonathan Kline + John Trivelli

About the mural...

When I saw the Rotunda in architect Michael Dennis' plans for the University Center, I immediately knew I wanted to do a mural there. Each of the peripheral walls of the Rotunda had its own compass orientation- east, west, and north. I thought I could use these to orient visitors to the campus and city as well as orient them in multiple time periods.

The Eastwall Mural: 1945 to 1965

The east wall shows Oakland in the foreground and looks across Junction Hollow to the campus as it appeared in its last years as Carnegie Tech when I was a student there. In the surrounding Oakland neighborhood, you can find Forbes Field, the former home of the Pirates, the Carnegie Museum before its 1970 addition, the Jones and Laughlin Steel Mill, the industry of the Monongahela River valley and the spectacular fire at the "Greeks", a favorite bar on Forbes Avenue.

The Westwall Mural: The present and future campus

Large in the foreground of the west wall as it looks across Junction Hollow to Oakland is the recently completed University Center as well as the soon to be realized Purnell Center for the Arts. Along the lower edge of the mural, I have incorporated personal anecdotes from the years 1965-70 when was a student in architecture at Carnegie Mellon.

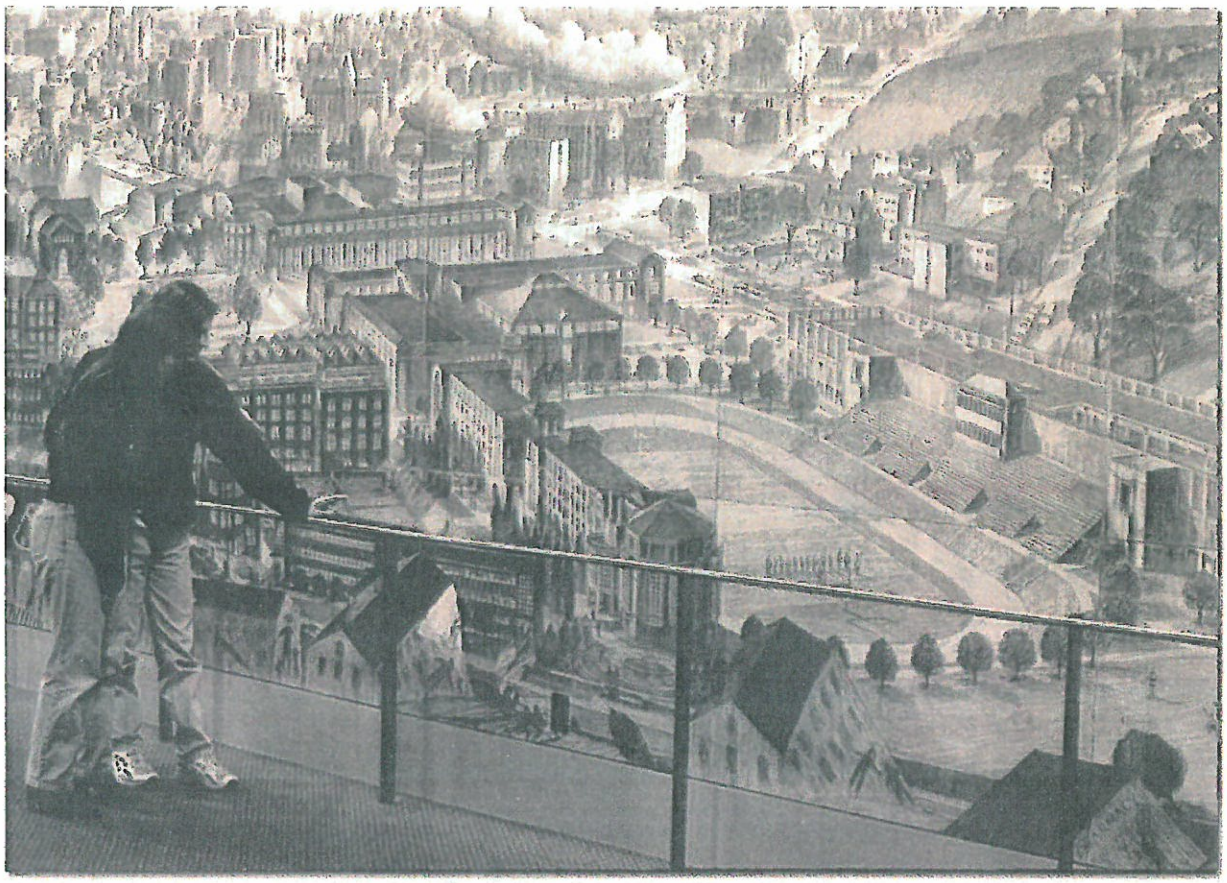
The Northwall Mural: The Pittsburgh environment

The north wall mural, from left to right, follows the Monongahela River from present-day downtown Pittsburgh to McKeesport. Ducking in and out of the entrance alcoves into the adjacent ballroom, it depicts the city in several earlier times as well. You can find Exposition Park, the original home of the Pirates and nearby, Andrew Carnegie, who lived on Ridge Avenue overlooking the Park. Further to the right you can see the Tech campus as it appeared from 1920-40. The buildings of Henry Hornbostel's original plan form the core of the campus and some of the other buildings much loved by alumni from those first decades are there also. Further up-river are the Homestead Mill during the 1892 strike (the Pinkerton Barge is shown burning), the Turtle Creek Valley and Kennywood Park. Flying low over the Homestead Hi-level Bridge is the mystery plane that crashed in the river during the late 1950s and has never been found.

All three walls are designed to give viewers the sense that they can "walk into" the space depicted in the mural. Whether by turning corners into alcoves, as is the case with the Northwall Mural, or by extending full height from baseboard to the ceiling, as occurs throughout, the intention is to present no visible edges. The sense of the art work is not that of a picture on a wall, but of an edgeless view into a space beyond.

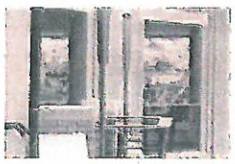
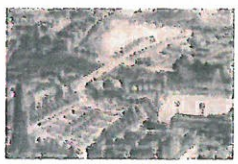
Click here for "Making the University Center Mural"

Carnegie Mellon University Center Mural (1996)



View of Carnegie Mellon's Gesling Stadium



Artist: Douglas Cooper, Carnegie Mellon

Artist Assistants: Jonathan Kline + John Trivelli

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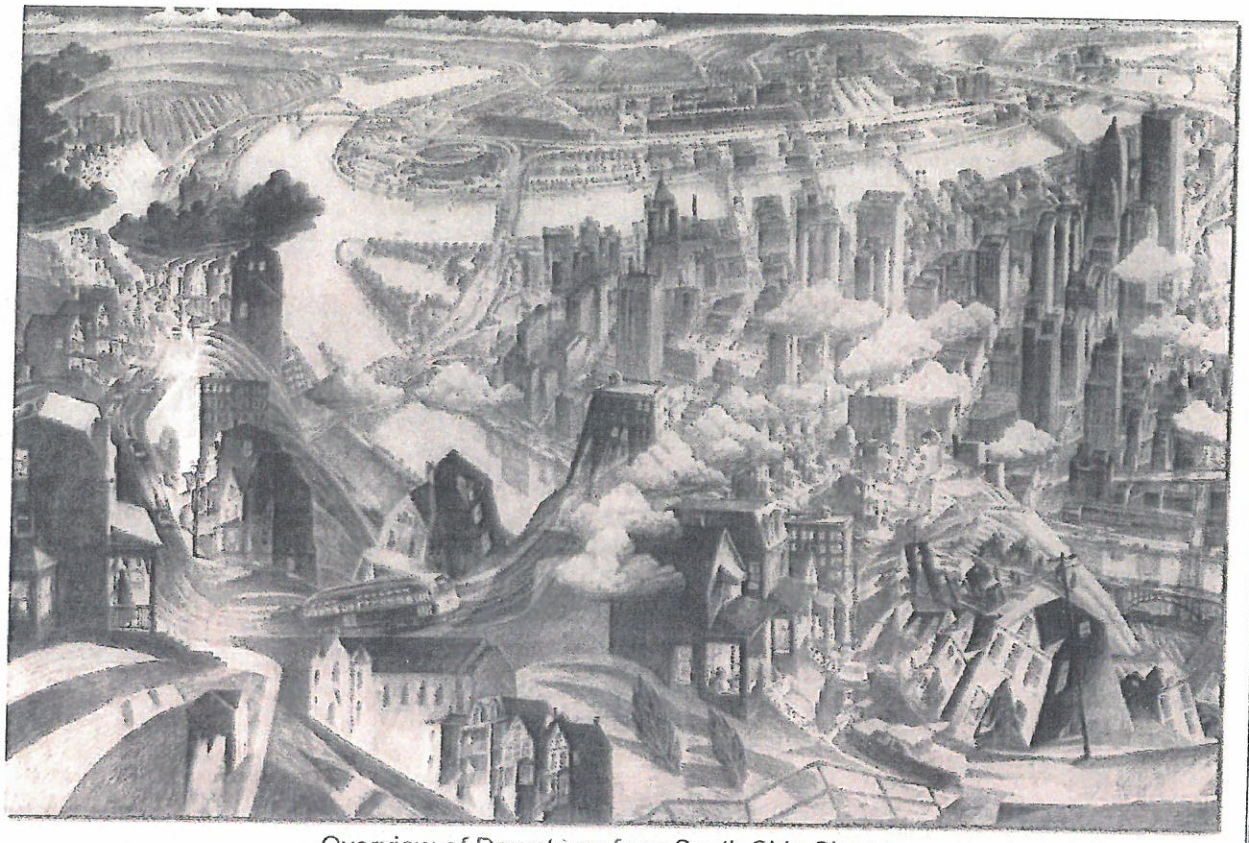
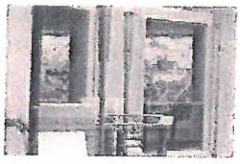


Overview of Downtown from South Side Slopes

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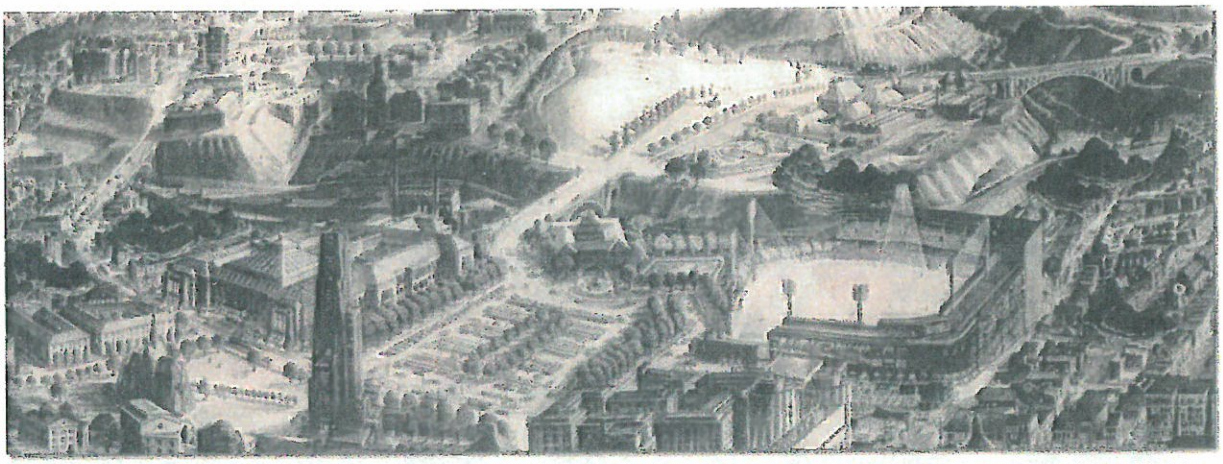
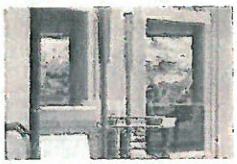


View of Oakland Neighborhood with Cathedral of Learning, Carnegie Museum, and Forbes Field

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Why Pittsburgh?

Why did you / your family choose Pittsburgh as home at this time in your life?

What are your family's three favorite Pittsburgh activities?

1)

2)

3)

In what neighborhood do you live?

What are its best features?

What would improve your neighborhood?

What suggestions can you offer to Children's School educators for the Pittsburgh Unit?