

AIA Westchester / Mid – Hudson and the Yonkers Public Schools

2008-9 After-school Enrichment Course at the Martin Luther King Jr. Elementary School: “Design Club”

SCHEDULE OF DESIGN CLUB SESSIONS:

- Class 1: December 4, 2008, “Introduction to Design”
- Class 2: December 11, 2008, “Measurement and Scale”
- Class 3: December 18, 2008, “What is a Plan?”
- Class 4: January 8, 2009, “What is a Habitat?”
- Class 5: January 15, 2009, “All About Mud”
- Class 6: January 22, 2009, “Building Materials”
- Class 7: January 29, 2009, “Architectural Models”
- Class 8: February 5, 2009, “Architectural Models 2”
- Class 9: February 26, 2009, “You’re My Client”
- Class 10: March 5, 2009, “Strength of Shapes”
- Class 11: March 12, 2009
- Class 12: March 19, 2009, “Strength of Shapes 2”
- Class 13: March 26, 2009, “Building with Steel”
- Class 14: April 2, 2009, “Build a Dome Project”
- Class 15: April 16, 2009, “Geometry and Pattern Extravaganza”
- Class 16: April 23, 2009, “Frank Lloyd Wright and the Guggenheim Museum”
- Field Trip: May 12, 2009, The Guggenheim Museum

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #1: December 4, 2008

Lead Teacher: Ray Beeler

Assistants: Len Brandes, Julie Evans

TOPIC: INTRODUCTION TO DESIGN

Presentation:

- What is an Architect?
- What is a designer?
- Kids introduce themselves and name something they see in the room that was designed (ie desk, lights, windows, room, etc...)
- Conclusion: almost everything we use has been designed by someone
- Show example of a chair (hold up one of their chairs)
- See if anyone has seen a chair that looks different
- Show pictures of all different types of chairs (kitchen, lounge, sofa, car seat, subway bench, etc.....) Establish that chair designs must meet functional needs
- Show pictures of different “styles” over time (rock cut bench, baroque, early American, Mies, Corbu, etc...)
- Discuss that this is what design is all about
- Establish that Architecture is similar
- Show a picture of their school (front elevation)...and then show images of other school designs (different time periods and different climates). Establish that differences in design spring from many factors

Project:

- Re-design the front of their school
- On the hand out (color image of their school on 11x17 paper).....they redesign their school by coloring over the image (printed light).
- Finish up with a discussion of what ideas they had and what they did.

Supplies:

- Xerox copies of school front elevation (photos pasted up)
- Color pencils

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**2008-9 After-school Enrichment Course at the Martin Luther King
Elementary School: “Design Club”**

CLASS #2: December 11, 2008

Lead Teacher: Len Brandes

Assistants: Ray Beeler, Valerie Brown

TOPIC: Measurement and Scale

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #3: December 18, 2008

Lead Teacher: Ray Beeler

Assistants: Bill Pfaff, Julie Evans

TOPIC: WHAT IS A PLAN?

Presentation:

- Quick review of previous classes
- Demonstrate what a plan is.....take an apple, cut it in half and show them the plan
- Then draw the plan of the apple on a sketch pad
- Show images of plans: simple volumes (cube, etc...), art classroom, school, gymnasium, dining room, hotel, hospital, dentist office, office building.....see if they can guess what each plan is.
- Show some plans of buildings: simple shed, bungalow, Palladian villa, Corbu's Ronchamp and urban plan (NYC)
- Show some images of a building and then sketch the plan (Florence Baptistery and a Greek Temple)

Project:

- Look at the plan of an art classroom again
- Then they draw a plan of their art classroom using what they learned about plans this week and what they learned about measuring last week
- Finish up with a discussion of what ideas they had and what they did
- Homework: measure their bedrooms and try to draw the plan

Supplies:

- Grid paper
- Pencils and colored pencils

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #4: January 8, 2009

Lead Teacher: William Pfaff

Assistants: Ray Beeler, Carol Cioppa, Julie Evans

TOPIC: WHAT IS A HABITAT?

Presentation:

- Quick review of previous classes
- Habitats: Discuss the word 'habitat'.... ask the class to define it
- Architects, Design, & Habitats: Discuss how we, as Architects, design people's 'habitats'
- Show examples of several unique habitats for people.
- Animal Habitats: Discuss how animals and insects 'architects' and design and build their habitats.
- Have the class identify ten unique animal or insect habitats.
- Find pictures of these examples in books
- Break for snacks

Project:

- Habitat Design Project: Hand out habitat design project sheets for the following environments: arctic, beach, desert, forest, mountaintop, underwater
- Have them design what their habitat might be like for their particular environment
- At the conclusion show and discuss what they did and the different ideas they had

Supplies:

- Pre-printed 11 x 17 sheets with sample color photos at the top of the sheet for the representative habitat environments: arctic, beach, desert, forest, mountaintop, underwater
- Pencils and colored pencils

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #5: January 15, 2009

Lead Teacher: Julie Evans

Assistants: Carol Cioppa, Ray Beeler

TOPIC: ALL ABOUT MUD

Presentation:

1. Review last week’s discussion on Habitat.
2. Ask what humans use to build their habitats.
Wood? Straw? Metal? Glass? Bricks? Plastic? Leaves? Mud? Stone?
3. Discuss how to they decide what to use.
Strong? Easy to use? Easy to find? Beautiful?
4. Present a fast history of human construction with mud, showing:
 - 10,000 b.c. mud, mud brick, and straw farm houses, straw roofs
 - 2,600 b.c. Great Pyramids: cut stone. Ordinary Egyptians homes: mud brick
 - 500 b.c. Celtic farm houses, wattle & daub
 - 500 b.c. Roman aqueducts: brick and concrete
 - 200 b.c. Great Wall of China: rammed earth.
 - 1000 a.d American Southwest: adobe villages
 - 1296 a.d. Florence: Brunelleschi’s dome – brick, stone, and beautiful terra cotta roofs
 - 1750 a.d. Charlestown: colonial brick house
 - 1906 Louis Sullivan’s Minnesota Savings bank: beautiful terra cotta panels
5. Pass around samples of real bricks, stone (irregular natural stone and cut stone), and tile. Discuss how brick is easier to use than stone, easier to count, pick up, and to lay in a straight line, and you don’t have to cut it. You can make it where you live, you don’t have to transport very far. Show how brick is same length and width (grip) of a human hand.

Project:

Use natural terra cotta colored clay to make little bricks, demonstrate. Instruct the kids to make as many as they can, in as close to the same size and shape as they can. Then have them work alone or together to build little walls, houses, or compounds.

Materials:

- Amaco Air Dry Terra Cotta Modeling Clay. (2) 10 pound boxes of clay was more than enough for this class *and* the next class. (for 16 kids +/-)
- Plastic clay modeling tools

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #6: January 22, 2008

Lead Teacher: Carol Cioppa

Assistants: Julie Evans, Len Brandes

TOPIC: Building Materials

Presentation:

- Quick review of previous class about mud & bricks.
- Select 5 students each of whom will read a paragraph from The Three Little Pigs fairytale
- As each read a paragraph and look at the illustrations, talk about why each house made out of straw then twigs will not work & pass around a bundle of straw, then bundles of twigs.
- After the last paragraph, talk about the last strong house made of bricks. Look at samples of bricks.
- Snack.

Project:

- Show a small model made from a mix of the interlocking sticks and plain sticks.
- Take last weeks clay models and add to them with additional clay, & some of the twigs and straw.
- Others took the interlocking sticks and made constructions that were either stand alone or fitted into the clay models. Colored construction paper was used as roofs, flags and other embellishments to the models.

Supplies:

- Colored clay
- Elmer’s glue & glue sticks
- Interlocking sticks & plain pop sickle-type sticks
- Colored construction paper

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #7: January 29, 2009

Lead Teacher: Ray Beeler

Assistants: Julie Evans, Jerome Kerner

TOPIC: ARCHITECTURAL MODELS

Presentation:

- Quick review of previous sessions building out of clay and sticks
- Discussion of what an architectural model is
- Show some examples (real models):
 - o Used as tool in designing
 - o Can try different ideas quickly
 - o Show ideas to clients
 - o Easier to change than built project
- Show some examples of models in books (at the kid's 3 tables)
- Show example of 3D “models” developed in the computer
- Discuss how models can be made by cutting out flat things and putting together
- Show example of laser cut chair pieces.....let them try and put the pieces together
- Break for snack

Project:

- Demonstrate how the heavy paper template we've prepared can be cut and taped together to form a simple house (each of us demonstrates this at the 3 tables)
- First, they can color and draw on their templates *doors, windows, etc....)
- Then they cut out the templates and tape together their house
- Show and tell where they show their work

Supplies:

- Templates printed on heavy paper
- Blunt scissors
- Scotch tape
- Colored pencils

AIA Westchester / Mid – Hudson and the Yonkers Public Schools

2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #8: February 5, 2009

Lead Teacher: William Pfaff

Assistants: None

TOPIC: ARCHITECTURAL MODELS

Presentation:

- Quick review of previous session building architectural model of house from heavy paper templates
- Discussion of other type buildings that, as an architect, one might design and make an architectural model of
- Show some examples of other types of buildings with forms that are different from the houses they did last week
- Break for snack

Project:

- Demonstrate how the heavy paper template we've prepared can be cut and taped together to form a simple building 'modular component'
- Demonstrate how the simple building 'modular component' can be combined with other simple building 'modular components' to create a larger building
- First they cut out the templates and tape together their building 'modular components'
- Then they combine modules
- Then they embellish their building modules with color, applied designs, and other building elements
- Individually show and tell their work

Supplies:

- Templates printed on heavy paper
- Blunt scissors
- Scotch tape
- Colored pencils
- Color construction paper
- Markers

MLK Design Club

CLASS #9: February 26, 2009

“You’re my client”:

Lead Teacher: Julie Evans

Assistants: Ray Beeler

Presentation:

Discuss the differences between Architecture and ‘fine art’, sculpture and painting. (We showed images from Neutra and others vs. ‘pure’ sculpture) Architects and artists all deal with design, form, beauty, expression, but Architects always work with and need to *listen* to their clients. *And they get paid by clients!!* Discuss the challenges, responsibility, and fun of problem-solving.

Project: Design a room for your client.

The class breaks out into pairs. The kids take turns interviewing each other, using the attached questionnaire. Each kid gets to be both a client and an architect. After they’ve filled in the questionnaire, they’re given ½” scale, gridded room plans, and ½” scale drawings of furniture to copy trace or refer to, and off they go!!

This was a fun exercise in that it was multi-layered in terms of skills (listening, writing, drawing, understanding plan and scale). It was interesting to watch the kids with stronger writing skills automatically help their classmates fill in the questionnaires.

QUESTIONNAIRE

Client's name _____

1. What are your 2 favorite colors?
2. What is your favorite sport?
3. Who is your favorite singer?
4. What is your favorite story or movie?
5. Do you share your bedroom with a brother or sister?
6. Do you have a pet? Does your pet stay in your room?
7. What do you keep in your room?
8. What do you like to do in your room?
9. What would you MOST like to have in your room?

Architect's name _____

AIA Westchester / Mid – Hudson and the Yonkers Public Schools

2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #10: March 5, 2009

Lead Teacher: Jerome Kerner

Assistants: Ray Beeler

TOPIC: STRENGTH OF SHAPES

Presentation:

- Using four common shapes: the circle, triangle, square and an arch.....demonstrate how strength is created by shape and not just by the thickness or mass of the material.
- Present a diagram of each shape on one page (8 1/2 x 11) that is handed out to each pupil.
- Using a 3D model of each shape, show how a force can be applied to the shape and how the shape withstands the force. This discussion should be about 10 to 15 minutes.
 - o For the dome (circle) use half an egg, soft boil and eliminate the yoke.
 - o For the arch, use a piece of cardboard. Hold the cardboard flat and load it with a weight, then arch the cardboard and apply the same weight to show increased ability to withstand the force.
 - o For the square, demonstrate the added strength of the cube with a top (six sided) verses flat plate on two walls.
 - o For the triangle, use either a pyramid of struts or pleated cardboard to show how this shape adds strength.
- Break for snack

Project:

- Using paper and crayon have each pupil draw a design using each of the shapes in combination.
- Have them explore new ways of creating space.
- Individually show and tell their work.

Supplies:

- Paper
- Crayons
- Markers
- Colored pencils

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #12: March 19, 2009

Lead Teacher: Jerome Kerner

Assistants: Ray Beeler and Jim Miller

TOPIC: STRENGTH OF SHAPES – part 2

Presentation:

- Using clay...show how common shapes (and more complex plan shapes) contribute to strength and show that strength is not created only by the thickness or mass of the material.
- Present a diagram of each shape that was discussed in class 10 (circle, triangle, square and arch) and talk in more detail about the dome and vault shapes.
- Show pictures of igloo and primitive domed huts and longhouses.
- Show pictures of a cluster of huts to demonstrate the early concept of community.
- Break for snack

Project:

- Place butcher paper on the desks and caution against getting their clothing covered with clay (this project can be a bit messy).
- Divide up the clay and give each table a copy of the photos to use as a template.
- Demonstrate ways of building the dome out of clay blocks. Since using corbelling of the blocks is pretty time consuming and difficult.....have them roll “snakes” and build up the dome with each snake getting progressively smaller as one method.
- Have the students explore the plastic nature of the clay.
- Try creating flat strips and twisting.
- Have the students explore the ways that shape allows walls to be more stable (ie undulating or zig-zag walls)
- Individually show and tell their work.

Supplies:

- Butcher paper
- Clay
- Knives for cutting clay
- Plastic knives for students to work with

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #13: March 26, 2009

Lead Teacher: Ray Beeler

Assistants: Carol Kurth

TOPIC: Building with steel

Presentation:

- Introduction to steel.....pass around a piece of steel
- Quick review of past classes about building with masonry
- Bridge examples:
 - o Roman aqueduct built of masonry with many closely spaced piers
 - o 19th century iron bridge that spans between masonry piers
- Train station examples:
 - o 19th century wood train shed with lots of wood posts
 - o 20th century steel train shed with huge open spans
- Building examples:
 - o Greek stone temple where lots of columns support stone lintels
 - o Picture of Empire State Building.....then a picture during construction showing the steel frame
 - o Pictures of other buildings under construction showing steel frames
 - o Example of the Sears Tower as an expression of the steel structure on the exterior
 - o Example of the Eiffel tower as exposed steel structure
 - o Example of geodesic domes built of steel
- Break for snack

Project:

- Build structures out of toothpicks and marshmallows (like the geodesic domes)
- Break into 2 groups...one group builds a tower structure, one group builds a bridge structure
- Show and tell where they show their work

Supplies:

- Round toothpicks
- Small marshmallows (make sure they sit open for a few days and are stale and not too soft)

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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #14: April 2, 2009

Lead Teacher: Julie Evans

Assistants: Carol Kurth and Ray Beeler

TOPIC: BUILD A DOME PROJECT

Presentation:

- Review of concepts presented in the last session dealing with the characteristics of steel
- Break for snack

Project:

- Follow the project guidelines in the attached Chicago Architecture Foundation’s “Build A Dome” project

Supplies:

- 180 newspaper pages (all the same size)
- 2 to 3 rolls of blue paint making tape
- A large open work space

AIA Westchester / Mid – Hudson and the Yonkers Public Schools

2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #15: April 16, 2009

Lead Teacher: Julie Evans
Assistants: Carol Kurth, Mondana Rezania, Ray Beeler

TOPIC: GEOMETRY & PATTERN EXTRAVAGANZA

Presentation:

1. Show huge assortment of patterns (photos) from across centuries and cultures- brick, fabric, curtain walls, domes, arches, mosaics, honeycombs, etc... on mounted boards.
2. Show and pass around fabric and tile samples with a range of shapes and patterns.
2. Ask the kids to identify the shapes in the images (hexagons, triangles, polygons, etc.)
3. Discuss pattern as something with repetition, order...

Project:

Have the kids develop their own patterns on pre-gridded paper of their choosing (from simple square grids to 30-60 grids, to interlocking circles. Or ask them to try to copy one of the patterns they see on the boards.

Materials:

- Pre-gridded card stock
- Colored Pencils or crayons.

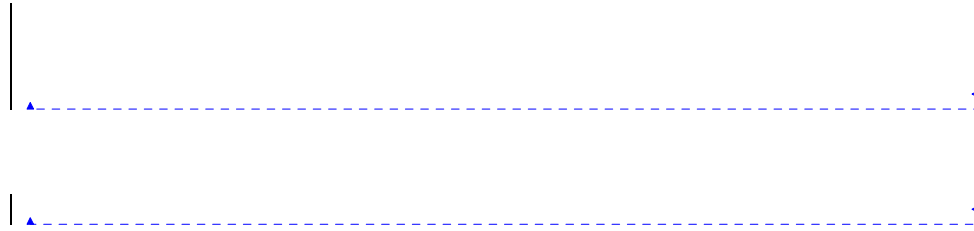
NB: I think this idea might need to be broken into two classes. This was a big idea in just one class, and we could have had a more specific 'project.' Perhaps a 'design principles' or fundamentals class early in the year... exercises with pure symmetry, repetition, geometry, then a later class where they do something more personal and expressive with pattern. The second class could have a tie-in with an interior, textile, or other (allied) designer.

Two other thoughts:

-Have the kids bring in a favorite image and try to repeat, flip, etc. and develop a pattern.

-Develop patterns in the round. Each kid has to do one repeating element 6 times, then pass to neighbor who adds another element to the pattern, and so on, until everyone at a table has embellished a pattern...

-Julie



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2008-9 After-school Enrichment Course at the Martin Luther King Elementary School: “Design Club”

CLASS #16: April 23, 2009

Lead Teacher: Ray Beeler

Assistants: Mondana Rezanian, Michael Picarillo

TOPIC: FRANK LLOYD WRIGHT AND THE GUGGENHEIM MUSEUM

Presentation:

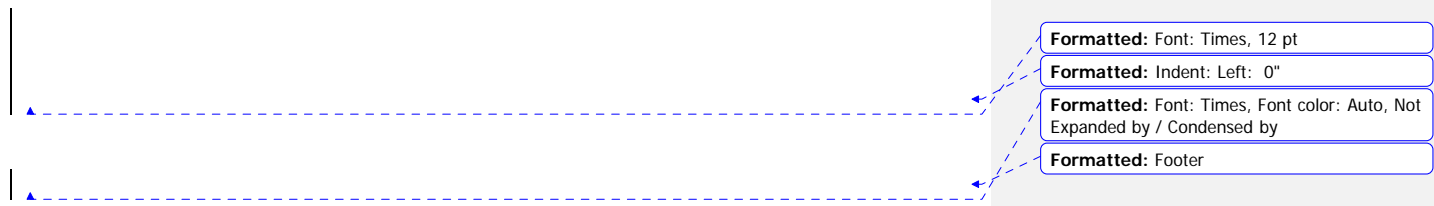
1. In preparation for the upcoming field trip to the Guggenheim Museum, this class is an introduction to the Guggenheim’s Architect, Frank Lloyd Wright, and the design of the museum
2. A 10 to 15 minute power point presentation included the following:
 - Image of the Architect
 - Residential work: image of a fairly conventional “tudor” house FLW designed at the very start of his career, then images of a few of his breakthrough “prarie style” houses (Robie and Vosburgh), and finally Fallingwater. Discussion of how he rethought the conception of a house.
 - To illustrate how FLW also rethought the museum....start with an image of what many people think of when they think of a museum – ie a classical façade and organization (McKim Mead and White Columbian Exhibition building shown).
 - Show the context of the Guggenheim (5th Avenue street wall).
 - Images of the museum design breaking the street wall.
 - Early scheme for the museum showing a very boxy form.
 - Inspiration from the form of a stepped pyramid or ziggurat.
 - Show schemes that incorporated a ziggurat form.
 - Then show the breakthrough scheme that inverted the ziggurat.
 - Show the final design in plan, section and renderings.
 - Show photos of the museum (inside and out) giving the kids images for use in their project.

Project:

Pass out pre-formatted 8 ½” x 11” templates (title block and square drawing area) printed on heavy card stock for the kids to use in drawing their own interpretation of the Guggenheim Museum design. Use the drawings to create a poster (scanned and placed into a grid of squares) for possible presentation to the school and the museum.

Materials:

- Pre-formatted card stock drawing templates
- Colored Pencils or crayons.



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YONKERS PUBLIC SCHOOL SYSTEM PARTICIPANTS

- Leslie Grant, Principal
- Janice Cabbell, Director of Career Development and Occupational Studies
- Mayra Olavarria, Classroom organizer
- Beth Kroupa, Art Teacher

AIA WESTCHESTER / MID – HUDSON PARTICIPANTS

- Raymond Beeler AIA, Lead Teacher, Design Club Program Director, Chapter President 2009
- Len Brandes AIA, Lead Teacher
- Valerie Brown Hon AIA NYS, Teacher
- Carol Cioppa AIA, Lead Teacher, Chapter Immediate Past President 2009
- Julie Evans AIA, Lead Teacher, Chapter Director 2009
- Jerome Kerner AIA, Lead Teacher
- Carol Kurth AIA, Lead Teacher
- Jim Miller AIA, Lead Teacher
- Bill Pfaff AIA, Lead Teacher, Chapter Secretary / Treasurer 2009
- Michael Piccirillo AIA, Teacher
- Mondana Rezania AIA, Teacher

MLK JR. 3rd, 4th AND 5th GRADE STUDENTS

- Fantasia Allen
- Cytalli Aguilar
- Nashaly Collazo
- Elissa Cooper
- Radhaly Genoa
- Alfred Koomson
- Luis Lara
- Tania Lara
- Chyenne Marabel
- Timothy Marsh
- Corrie Marsh
- Airess Martin
- James Morrison
- Dashanique McGriff-Dixon
- Jaquan McMillan
- Jocelynn Ruiz
- Tiana Sigler
- Vanessa Soriano
- Eridanis Torralba
- Miasia Tuthill