Mathematics | Grade 3

Architecture presents so many opportunities to nurture the awareness of geometry and at the same time instill an appreciation for the historic buildings in New Orleans and the value of preservation.

The CCSS recommends Grade 3 instructional time focus on these three critical areas:
developing an understanding of fractions, especially unit fractions
developing an understanding of the structure of rectangular arrays and of area
describing and analyzing two-dimensional shapes.

The following items are taken from the Grade 3 Common Core State Standards for Math:

Grade 3
Number & Operations—Fractions

Develop understanding of fractions as numbers.
CCSS.MATH.CONTENT.3.NF.A.1
CCSS.MATH.CONTENT.3.NF.A.1
Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. *For example: Identify the Pitot House a one whole and let the columns partition the whole into b equal parts.*

CCSS.MATH.CONTENT.3.NF.A.2
Understand a fraction as a number on the number line; represent fractions on a number line diagram.

Measurement & Data

Solve problems involving measurement and estimation.   CCSS.MATH.CONTENT.3.MD.A.1
CCSS.MATH.CONTENT.3.MD.A.1
Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
Represent and interpret data.
For example: create a time line measuring time intervals in years and plot significant dates related to the Pitot House.

CCSS.MATH.CONTENT.3.MD.B.3
CCSS.MATH.CONTENT.3.MD.B.3
Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
For example, draw a bar graph and let each square in the bar graph represent a column or window, shutter...

CCSS.MATH.CONTENT.3.MD.B.4
CCSS.MATH.CONTENT.3.MD.B.4
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

CCSS.MATH.CONTENT.3.MD.C.5
CCSS.MATH.CONTENT.3.MD.C.5
Recognize area as an attribute of plane figures and understand concepts of area measurement.
Geometric measurement: recognize perimeter.
For example, measure the perimeter of the Pitot House and compute the area of the footprint.

CCSS.MATH.CONTENT.3.MD.D.8
CCSS.MATH.CONTENT.3.MD.D.8
Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Geometry

Reason with shapes and their attributes.

CCSS.MATH.CONTENT.3.G.A.1
CCSS.MATH.CONTENT.3.G.A.1

Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

For example, looking at the architecture of the Pitot House, identify and sketch examples of quadrilaterals and divide these examples into subcategories.

CCSS.MATH.CONTENT.3.G.A.2
CCSS.MATH.CONTENT.3.G.A.2

Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.