

Academic Standards Fulfilled by a Field Trip to Taliesin West

Architecture Math Mayhem	3
Mathematics Standards	3
Third Grade	3
Fourth Grade	4
Fifth Grade	4
Sixth Grade	5
Seventh Grade	5
Eighth Grade	6
High School	6
Building Bridges	8
Career Literacy Standards	8
Kindergarten – Second Grade	8
Third Grade – Fifth Grade	8
Sixth Grade – Eighth Grade	8
The Art and Science of Cyanotypes	10
Visual Arts	10
Kindergarten	10
First Grade	10
Second Grade	10
Third Grade	10
Fourth Grade	11
Fifth Grade	11
Sixth Grade	11
Seventh Grade	11
Eighth Grade	11
High School Proficient	12

First Grade	12
Second Grade	12
Third Grade	13
Fourth Grade	13
Fifth Grade	13
Sixth Grade	14
Seventh Grade	14
Eighth Grade	14
High School	15

Architecture Math Mayhem

Mathematics Standards

Third Grade

- a. 3.OA.A Represent and solve problems involving whole number multiplication and division.
- b. 3.OA.B Understand properties of multiplication and the relationship between multiplication and division.
- c. 3.OA.C Multiply and divide within 100
- d. 3.OA.D.10 When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- e. 3.MD.C Geometric measurement: Understand concepts of area and perimeter. Understand area as an attribute of plane figures and understand concepts of area measurement.
 - i. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
 - ii. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
- f. 3.MD.C.7 b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
- g. 3.MD.C.8 Solve real-world and mathematical problems involving perimeters of plane figures and areas of rectangles, including finding the perimeter given the side lengths, finding an unknown side length. Represent rectangles with the same perimeter and different areas or with the same area and different perimeters.
- h. 3.MP.1 Make sense of problems and persevere in solving them. Mathematically proficient students explain to themselves the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. While engaging in productive struggle to solve a problem, they continually ask themselves, “Does this make sense?” to monitor and evaluate their progress and change course if necessary. Once they have a solution, they look back at the problem to determine if the solution is reasonable and accurate. Mathematically proficient students check their solutions to problems using different methods, approaches, or representations. They also compare and understand different representations of problems and different solution pathways, both their own and those of others.
- i. 3.MP.6 Attend to precision. Mathematically proficient students clearly communicate to others using appropriate mathematical terminology, and craft explanations that convey their reasoning. When making mathematical arguments about a solution, strategy, or conjecture, they describe mathematical relationships and connect their words clearly to their representations. Mathematically proficient students understand meanings of symbols used in mathematics, calculate accurately and efficiently, label quantities appropriately, and record their work clearly and concisely.

Fourth Grade

- a. 4.OA.C.6 When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- b. 4.MD.A.1 Know relative sizes of measurement units within one system of units which could include km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit and in a smaller unit in terms of a larger unit. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).
- c. 4.MD.A.3 Apply the area and perimeter formulas for rectangles in mathematical problems and problems in real-world contexts including problems with unknown side lengths. See Table 2.
- d. 4.MP.1 Make sense of problems and persevere in solving them. Mathematically proficient students explain to themselves the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. While engaging in productive struggle to solve a problem, they continually ask themselves, "Does this make sense?" to monitor and evaluate their progress and change course if necessary. Once they have a solution, they look back at the problem to determine if the solution is reasonable and accurate. Mathematically proficient students check their solutions to problems using different methods, approaches, or representations. They also compare and understand different representations of problems and different solution pathways, both their own and those of others.
- e. 4.MP.6 Attend to precision. Mathematically proficient students clearly communicate to others using appropriate mathematical terminology, and craft explanations that convey their reasoning. When making mathematical arguments about a solution, strategy, or conjecture, they describe mathematical relationships and connect their words clearly to their representations. Mathematically proficient students understand meanings of symbols used in mathematics, calculate accurately and efficiently, label quantities appropriately, and record their work clearly and concisely.

Fifth Grade

- a. 5.MP.1 Make sense of problems and persevere in solving them. Mathematically proficient students explain to themselves the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. While engaging in productive struggle to solve a problem, they continually ask themselves, "Does this make sense?" to monitor and evaluate their progress and change course if necessary. Once they have a solution, they look back at the problem to determine if the solution is reasonable and accurate. Mathematically proficient students check their solutions to problems using different methods, approaches, or representations. They also compare and understand different representations of problems and different solution pathways, both their own and those of others.

- b. **5.MP.6 Attend to precision.** Mathematically proficient students clearly communicate to others using appropriate mathematical terminology, and craft explanations that convey their reasoning. When making mathematical arguments about a solution, strategy, or conjecture, they describe mathematical relationships and connect their words clearly to their representations. Mathematically proficient students understand meanings of symbols used in mathematics, calculate accurately and efficiently, label quantities appropriately, and record their work clearly and concisely.
- c. **5.MP.8 Look for and express regularity in repeated reasoning.** Mathematically proficient students look for and describe regularities as they solve multiple related problems. They formulate conjectures about what they notice and

representations of problems and different solution pathways, both their own and those of others.

- c. **QR.MP.6 Attend to precision.** Mathematically proficient students clearly

- i. 4.1 Identify collaborative skills needed to achieve a common goal (i.e., open-mindedness, conflict resolution, active listening, emotional intelligence, delegation, understanding a variety of perspectives, managing priorities, meeting expectations, and having a cooperative spirit and mutual respect, etc.)
- ii. 4.2 Identify skills that promote teamwork (i.e., leadership, motivation, problem-solving, reliability, etc.)
- iii. 4.3 Practice behaviors that facilitate collaboration with peers (i.e., active listening, providing feedback, respecting the differences of others, taking personal responsibility, etc.)

The Art and Science of Cyanotypes

Visual Arts

Kindergarten

- a. **Creating 2. Organize and Develop Artistic Ideas and Work a. Through experimentation, build skills in various media and approaches to art-making (e.g., using the elements of modern art, applying artistic ideas from diverse cultures).**
- b. **Observe**

practices, issues, and ethics of appropriation, fair use, copyright, open source, and creative commons as they apply to creating works of art and design.

b. Responding: 7. Perceive and Analyze Artistic Work a. Explain how ar

new technologies on the environment and the growth of cities, and the impact of transportation and infrastructure on settlement and migration

Sixth Grade

a.

- e. 8.SP.4.2 Evaluate the influence of various causes of events and developments in the past.
- f. 8.G.2.1 Examine impact of and responses to environmental issues such as air, water, and land pollution, deforestation, urban sprawl, and changes to climate.
- g. 8.G.2.2 Evaluate how political, social, and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.

High School

- a. HS.SP.1.1 Evaluate how events and developments were shaped by unique circumstances of time and place as well as broader contexts.
- b. HS.SP.1.2 Analyze change and continuity in historical eras.
- c. HS.SP.1.3 Evaluate the significance of past events as they relate to their own lives and the world.
- d. HS.SP.1.4 Use compelling questions generated about individuals and groups to assess how the significance of their actions changes over time and is shaped by the historical context.
- e. HS.SP.2.3 Demonstrate historical empathy when examining individuals or groups in the past whose perspectives might be very different from those held today.
- f. HS.G.2.3 Evaluate the impact of human settlement on the environment and culture of specific places and regions.
- g. HS.G.2.4 Evaluate the use and sustainability of natural resources.
- h. HS.H.4.2 Explain how artistic, philosophical, and scientific ideas have developed and shaped society and institutions.