

# WESTFIELD PUBLIC SCHOOLS

Westfield, New Jersey

## *Office of Instruction*

Course of Study

### **GEOMETRY/GEOMETRY ADVANCED/GEOMETRY HONORS**

School.....Westfield High School  
Department.....Mathematics  
Length of Course.....Full year  
Grade Levels.....Grades 9, 10  
Prerequisite.....Algebra I  
Date.....

#### **I. RATIONALE, DESCRIPTION AND PURPOSE**

Students study concepts of Euclidean geometry through the analysis of two-dimensional and three-dimensional figures. They make, test and establish the validity of geometric conjectures using logical reasoning and deduction. The inter-disciplinary nature of mathematics is emphasized by the integration of algebra with geometric concepts, as well as applications to art and science.

The three levels of geometry cover the same core curriculum. The courses are differentiated by the inclusion of extra topics, pacing and rigor. In addition, Geometry differs from Geometry Advanced in that there is increased opportunity for review and support. Geometry Honors differs from Geometry Advanced in that topics are covered in more depth, with a focus on theoretical foundations.

The Geometry course is intended for students who require a more methodical and hands-on approach to learning mathematics. Geometry Advanced is intended for students with a solid background in Algebra I. Geometry Honors is intended for students with a strong mathematics background and excellent Algebra I skills.

#### **II. OBJECTIVES**

This curriculum fulfills Westfield Board of Education expectations for student achievement. Course objectives are aligned with the New Jersey Student Learning Standards for Mathematics, English Language Arts, Science, Technology, and 21<sup>st</sup> Century Life and Careers.

Students:

- A. Identify, understand and apply basic geometric concepts, including vocabulary, definitions, properties and notation  
*NJ Student Learning Standards for Mathematics G.CO, G-SRT, G-C, G-GPE, G-GMD, G-MG*  
*NJ Student Learning Standards for Technology 8.1*
- B. Use deduction and the laws of logic to establish the validity of geometric conjectures, prove theorems and critique arguments  
*NJ Student Learning Standards for Mathematics G.CO, G-SRT, G-C, G-GPE, G-GMD, G-MG*  
*NJ Student Learning Standards for Science P3, P6, P7*
- C. Use coordinates to prove simple geometric theorems algebraically  
*NJ Student Learning Standards for Mathematics G.GPE*  
*NJ Student Learning Standards for Technology 8.1*
- D. Construct, follow and critique basic and complex<sup>1</sup> geometric proofs  
*NJ Student Learning Standards for Mathematics G.CO, G-SRT, G-C, G-GPE*  
*NJ Student Learning Standards for Science P6, P7*
- E. Use a variety of tools and methods to make formal geometric constructions  
*NJ Student Learning Standards for Mathematics G.CO, G.C*  
*NJ Student Learning Standards for Technology 8.1*
- F. Represent and understand the effect of rotations, reflections, translations and dilations of geometric shapes  
*NJ Student Learning Standards for Mathematics G.CO, G.SRT, G-MG*  
*NJ Student Learning Standards for Technology 8.1*
- G. Analyze properties and determine attributes of triangles, including congruence and similarity, make and test conjectures, and solve problems involving triangles  
*NJ Student Learning Standards for Mathematics G.CO, G.SRT*  
*NJ Student Learning Standards for Technology 8.1*
- H. Know, understand and apply properties of polygons and solve problems involving polygons  
*NJ Student Learning Standards for Mathematics G.CO, G.SRT, G-GPE, G-MG*  
*NJ Student Learning Standards for Technology 8.1*
- I. Apply trigonometric ratios, the Law of Sines<sup>2</sup> and the Law of Cosines<sup>3</sup> to solve problems involving right triangles  
*NJ Student Learning Standards for Mathematics G.SRT*  
*NJ Student Learning Standards for Technology 8.1*
- J. Analyze properties and apply theorems about circles to solve problems  
*NJ Student Learning Standards for Mathematics G.C*  
*NJ Student Learning Standards for Technology 8.1*
- K. Use formulas for perimeter, circumference, area and volume to solve problems involving basic and complex<sup>4</sup> geometric figures  
*NJ Student Learning Standards for Mathematics G.GPE, G.GMD, G.MG*  
*NJ Student Learning Standards for Science P5, P6, P7*  
*NJ Student Learning Standards for Technology 8.1*

---

<sup>1</sup> Geometry Advanced, Geometry Honors

<sup>2</sup> Geometry Honors

<sup>3</sup> Geometry Honors

<sup>4</sup> Geometry Advanced, Geometry Honors

L. Apply geometric concepts in modeling situations

*NJ Student Learning Standards for Mathematics G.MG*  
*NJ Student Learning Standards for Science P1, P2, P5, P6, P7*  
*NJ Student Learning Standards for Technology 8.1*

M. Develop practices and dispositions that lead to mathematical proficiency.

*NJ Student Learning Standards for Mathematics SMP1 – SMP8*  
*NJ Student Learning Standards for English Language Arts NJLSA.R7, NJLSA.R10, NJLSA.W1,*  
*NJLSA.SL1, NJLSA.SL2, NJLSA.SL3, NJLSA.SL4, NJLSA.SL5*  
*NJ Student Learning Standards for Science P1, P2, P3, P5, P6, P7, P8*  
*NJ Student Learning Standards for Technology 8.1*  
*NJ Student Learning Standards for 21<sup>st</sup> Century Life and Careers CRP*

### **III. CONTENT, SCOPE AND SEQUENCE**

The importance of mathematics in the development of all civilizations and cultures and its relevance to students' success regardless of career path is addressed throughout the secondary mathematics program. Emphasis is placed on the development of critical thinking and problem-solving skills, particularly through the use of everyday contexts and real-world applications.

#### A. Geometric structure

1. Using inductive reasoning and conjectures
  - a. Compare and contrast the concepts of deductive and inductive reasoning
  - b. Identify undefined notions of point, line, distance along a line and distance around a circular arc
  - c. Know precise definitions of basic geometric terms (*e.g.*, angle, circle, perpendicular lines, parallel lines, line segment, ray)
  - d. Construct geometric figures using a variety of tools and methods including technology
  - e. Construct the inscribed and circumscribed circles of a triangle
2. Rigid transformation
  - a. Represent, describe and compare transformations in the plane that preserve distance and angles, and those that do not
  - b. Describe rotations and reflections of polygons onto themselves
  - c. Develop definitions of rigid transformations (rotations, reflections, translations) using basic geometric terms
  - d. Draw a transformed figure using rigid transformations, specifying a sequence that will carry the figure onto the image
  - e. Use geometric descriptions of rigid motions to transform figures and predict the effect on the figure
  - f. Define congruence through rigid transformations
3. Transformations and coordinate geometry
  - a. Use coordinates to prove theorems algebraically
  - b. Prove the slope criteria for parallel and perpendicular lines
  - c. Determine betweenness and collinearity of points
4. Deductive reasoning and proof
  - a. Identify and contrast postulates, theorems, definitions and undefined terms
  - b. Prove theorems about lines and angles

5. Conditional statements and converses
    - a. Identify conditional statements and their hypotheses and conclusions
    - b. Determine converses of conditional statements and their truth
- B. Lines, angles and triangles
1. Lines and transversals
    - a. Use informal arguments to establish facts about the angle sum and exterior angle of a triangle
    - b. Identify and compare the angles created when parallel lines are cut by a transversal
    - c. Prove theorems about lines and angles
  2. Properties of triangles
    - a. Classify triangles by angles and sides
    - b. Investigate properties of isosceles and equilateral triangles
    - c. Construct triangles from given side lengths and/or angle measures
    - d. Use the triangle inequality theorem to determine restrictions on angle measure
  3. Special lines and points in triangles
    - a. Compare and contrast medians and altitudes of a triangle and their points of intersection
    - b. Identify points of concurrency on a triangle (incenter, circumcenter, centroid, orthocenter)
    - c. Explore the relationships between special points on a triangle and inscribed/circumscribed circles
    - d. Identify properties of a midline of a triangle
  4. Congruent triangle postulates and theorems
    - a. Develop concept of congruent triangles using rigid transformations
    - b. Use the definition of congruence to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent
    - c. Use notation to indicate correspondence between sides and angles of congruent triangles
    - d. Explain how the criteria for triangle congruence (ASA, SAS, SSS) follow from the definition of congruence
    - e. Prove theorems about triangles
  5. Using congruent triangles
    - a. Apply the fact that corresponding parts of congruent triangles are congruent
    - b. Prove and apply theorems resulting from congruence of triangles
    - c. Decompose complex diagrams to find congruent triangles
    - d. Use congruence criteria to solve real-world and mathematical problems
  6. Constructions
    - a. Create and analyze formal geometric constructions using straightedge and compass
    - b. Construct an equilateral triangle, square, and hexagon
    - c. Explore geometric relationships through dynamic geometry software
  7. Pythagorean Theorem and the distance formula
    - a. Explore proofs of Pythagorean Theorem
    - b. Apply the Pythagorean Theorem to find the distance between two points in a coordinate plane
    - c. Identify Pythagorean triples
    - d. Prove the converse of Pythagorean Theorem

- e. Make conjectures about acute and obtuse triangles using the converse of the Pythagorean Theorem
- f. Use Pythagorean Theorem to solve problems involving right triangles

### C. Similarity

1. Dilations
  - a. Determine if one figure is a dilation of another analytically and synthetically
  - b. Find and use the scale factor of a dilation
  - c. Utilize ratio and proportion to solve problems involving dilation
2. Applications
  - a. Prove that figures are similar by definition
  - b. Prove that triangles are similar using theorems
  - c. Prove that all circles are similar
  - d. Prove that dilations are similar to each other
  - e. Find missing values in similar figures
  - f. Prove and apply theorems resulting from similarity (midsegments, geometric means)
  - g. Apply similarity concepts to real-world applications involving proportionality
3. Right triangles and trigonometry
  - a. Use similarity to show that trigonometric ratios are consistent for a given angle
  - b. Understand and apply ratios for 30-60-90 and 45-45-90 triangles
  - c. Find missing sides of right triangles using trigonometric ratios and their inverses
  - d. Use calculators to determine the trigonometric ratios of a given angle and the angle for a given trigonometric ratio
  - e. Use triangle similarity to prove Pythagorean Theorem<sup>5</sup>
4. General triangles and trigonometry<sup>6</sup>
  - a. Prove and apply the formula  $A = \frac{1}{2} bc \sin A$
  - b. Derive and apply the Law of Sines and Law of Cosines

### D. Polygons

1. Classify polygons as convex/concave and according to sides and angles
2. Discover and apply formulas for the number of diagonals and the sum of the interior/exterior angles in a polygon
3. Discover and apply formulas for the measure of each interior/exterior angle in a regular polygon
4. Explore, prove and apply the properties of quadrilaterals
5. Prove that a quadrilateral is a parallelogram, kite, rectangle, rhombus, square, trapezoid or isosceles trapezoid through formal and coordinate proofs

### E. Circles

1. Derive and apply the equation of a circle
2. Chords, arcs, central angles and inscribed angles
  - a. Identify and apply the relationships between central and inscribed angles and their intercepted arcs
  - b. Identify and apply the relationship between congruent central angles, their intercepted arcs, and their corresponding chords

---

<sup>5</sup> Geometry Honors

<sup>6</sup> Geometry Honors

3. Lines and segments related to circles
  - a. Identify and apply the properties of chords, tangent lines and secant lines to a circle
  - b. Identify and apply the relationships between the arcs and angles formed when tangent segments, secant segments and chords intersect a circle
  - c. Explore and apply the relationship between a tangent line to a circle and the radius drawn to the point of tangency
  - d. Explore and apply the relationship between tangents, secants, and the lengths of related segments that they form with regard to a circle

#### F. Area and perimeter

1. Modeling with geometry
  - a. Review methods for finding the area of triangles, quadrilaterals, circles, segments of circles and irregular closed figures
  - b. Solve real-world and mathematical problems involving area and perimeter
  - c. Calculate the area of a triangle given its three side lengths<sup>7</sup>
  - d. Determine the relationship between the ratios of the sides, perimeter and areas of similar figures
2. Arc length and sector of a circle
  - a. Review the formulas for the area and circumference of a circle
  - b. Derive and apply the formula for the length of an arc of a circle
  - c. Derive and apply the formula for the area of a sector of a circle

#### G. Shapes in space

1. Relating 2-D and 3-D objects
  - a. Use nets to represent 3-D figures, calculate surface area and solve problems
  - b. Identify shapes of 2-D cross-sections of 3-D objects
  - c. Identify the 3-D objects generated by rotations of 2-D objects
2. Prisms and cylinders
  - a. Informally develop the formula for the volume of a cylinder
  - b. Compute surface area and volume of prisms and cylinders and solve related problems
  - c. Describe objects using geometric shapes, their measures and their properties
3. Pyramids and cones
  - a. Informally develop the formulas for the volume of a pyramid and cone
  - b. Compute surface area and volume of pyramids and cones and solve related problems
  - c. Describe objects using geometric shapes, their measures and their properties
4. Spheres
  - a. Compute surface area and volumes of spheres and solve related problems
  - b. Describe objects using geometric shapes, their measures and their properties
5. Analyzing dimensional changes
  - a. Represent transformations in the plane
  - b. Compare transformations that preserve distance and angle to those that do not

---

<sup>7</sup> Geometry Honors

#### **IV. INSTRUCTIONAL TECHNIQUES**

A variety of instructional approaches is employed to engage all students in the learning process and accommodate differences in readiness levels, interests and learning styles. Typical teaching techniques include, but are not limited to, the following:

- A. Teacher-directed whole group instruction and modeling of procedures
- B. Mini-lessons or individualized instruction for reinforcement or re-teaching of concepts
- C. Guided investigations/explorations
- D. Problem-based learning
- E. Modeling with manipulatives
- F. Flexible grouping
- G. Differentiated tasks
- H. Spiral review
- I. Independent practice
- J. Use of technology
- K. Integration of mathematics with other disciplines.

#### **V. EVALUATION**

Multiple techniques are employed to assess student understanding of mathematical concepts, skills, and thinking processes. These may include, but are not limited to the following:

- A. Written tests and quizzes, including baseline and benchmark assessments
- B. Cumulative tests
- C. Standardized tests
- D. Electronic data-gathering and tasks
- E. Homework
- F. Independent or group projects
- G. Presentations.

#### **VI. PROFESSIONAL DEVELOPMENT**

The following recommended activities support this curriculum:

- A. Opportunities to learn from and share ideas about teaching and learning mathematics with colleagues through meetings and peer observations, including collaborations between intermediate and high school teachers
- B. Collaboration with colleagues and department supervisor to discuss and reflect upon unit plans, homework, and assessment practices
- C. Planning time to develop and discuss the results of implementing differentiated lessons and incorporating technology to enhance student learning
- D. Attendance at workshops, conferences and courses that focus on relevant mathematics content, pedagogy, alternate assessment techniques or technology.

## APPENDIX I

### New Jersey Student Learning Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy).

**SMP1** – Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

**SMP2** – Reason abstractly and quantitatively.

Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

**SMP3** – Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is.



Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

**SMP4** – Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

**SMP5** – Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

**SMP6** – Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

**SMP7** – Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see  $7 \times 8$  equals the well-remembered  $7 \times 5 + 7 \times 3$ , in preparation for learning about the distributive property. In the expression  $x^2 + 9x + 14$ , older students can see the 14 as  $2 \times 7$  and the 9 as  $2 + 7$ . They recognize the

significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see  $5 - 3(x - y)^2$  as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers  $x$  and  $y$ .

**SMP8** – Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation  $(y - 2)/(x - 1) = 3$ . Noticing the regularity in the way terms cancel when expanding  $(x - 1)(x + 1)$ ,  $(x - 1)(x^2 + x + 1)$ , and  $(x - 1)(x^3 + x^2 + x + 1)$  might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

## **New Jersey Student Learning Standards for Mathematical Content**

### Congruence G-CO

Experiment with transformations in the plane.

1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Understand congruence in terms of rigid motions.

6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Prove geometric theorems.

9. Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
10. Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to  $180^\circ$ ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of*

*a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*

11. Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*

Make geometric constructions.

12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

### Similarity, Right Triangles, and Trigonometry G-SRT

Understand similarity in terms of similarity transformations.

1. Verify experimentally the properties of dilations given by a center and a scale factor:
  - a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
  - b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Prove theorems involving similarity.

4. Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*
5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Define trigonometric ratios and solve problems involving right triangles.

6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
7. Explain and use the relationship between the sine and cosine of complementary angles.
8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Apply trigonometry to general triangles.

9. (+) Derive the formula  $A = \frac{1}{2} ab \sin(C)$  for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.
11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

### Circles G-C

Understand and apply theorems about circles.

1. Prove that all circles are similar.
2. Identify and describe relationships among inscribed angles, radii, and chords. *Include the*

*relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*

3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
4. (+) Construct a tangent line from a point outside a given circle to the circle.

Find arc lengths and areas of sectors of circles.

5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

### Expressing Geometric Properties with Equations G-GPE

Translate between the geometric description and the equation for a conic section.

1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
2. Derive the equation of a parabola given a focus and directrix.

Use coordinates to prove simple geometric theorems algebraically.

4. Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point  $(1, \sqrt{3})$  lies on the circle centered at the origin and containing the point  $(0, 2)$ .*
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

### Geometric Measurement and Dimension G-GMD

Explain volume formulas and use them to solve problems.

1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Visualize relationships between two-dimensional and three-dimensional objects.

4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

## Modeling with Geometry G-MG

Apply geometric concepts in modeling situations.

1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios)

(+) Denotes additional mathematics that students should learn in order to take advanced courses.

The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>

## APPENDIX II

### **New Jersey Student Learning Standards for English Language Arts**

College and Career Readiness Anchor Standards for Reading:

**NJSLSA.R7** – Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

**NJSLSA.R10** – Read and comprehend complex literary and informational texts independently and proficiently.

College and Career Readiness Anchor Standard for Writing:

**NJSLSA.W1** – Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

College and Career Readiness Anchor Standards for Speaking and Listening:

**NJSLSA.SL1** – Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

**NJSLSA.SL2** – Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

**NJSLSA.SL3** – Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

**NJSLSA.SL4** – Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

**NJSLSA.SL5** – Make strategic use of digital and visual displays of data to express information and enhance understanding of presentations.

The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>

## APPENDIX III

### New Jersey Student Learning Standards for Science

#### **Appendix F – Science and Engineering Practices**

1. Asking questions and defining problems
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>

## APPENDIX IV

### New Jersey Student Learning Standards for Technology

**NJSLS 8.1 Educational Technology:** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>

## APPENDIX V

### New Jersey Student Learning Standards for 21<sup>st</sup> Century Life and Careers

**NJSLS Career Ready Practices:** These practices outline the skills that all individuals need to have to be truly adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness.

The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>

## APPENDIX VI

### Instructional Resources and Pacing Guide

Instructional resource for Geometry: *Geometry*, Randall Charles et al, Pearson (2015)

Suggested pacing:

| Unit                             | # teaching days |
|----------------------------------|-----------------|
| Tools of geometry                | 16              |
| Reasoning and proof              | 16              |
| Parallel and perpendicular lines | 16              |
| Congruent triangles              | 15              |
| Relationships within triangles   | 8               |
| Polygons and quadrilaterals      | 12              |
| Similarity                       | 5               |
| Right triangles and trigonometry | 16              |
| Transformations                  | 7               |
| Area                             | 13              |
| Surface area and volume          | 15              |
| Circles                          | 13              |
| Probability                      | 5               |

Instructional resource for Geometry Advanced & Geometry Honors: *Geometry for Enjoyment & Challenge*, Richard Rhoad et al, McDougal Littell (2000)

Suggested pacing:

| Unit<br>Course                          | # teaching days |        |
|---|-----------------|--------|
|   | Advanced        | Honors |
| Introduction to geometry                | 16              | 14     |
| Basic concepts and proofs               | 17              | 18     |
| Transformations in the coordinate plane | 10              | 10     |
| Congruent triangles                     | 16              | 14     |
| Lines in a plane                        | 5               | 9      |
| Parallel lines and related figures      | 9               | 11     |
| Polygons                                | 8               | 6      |
| Similar polygons                        | 11              | 12     |
| Pythagorean Theorem                     | 17              | 20     |
| Circles                                 | 24              | 21     |
| Area                                    | 10              | 10     |
| Surface area and volume                 | 10              | 8      |
| Locus and constructions                 | 3               | 7      |
| Probability                             | 9               | 5      |

**Westfield Public Schools**  
Westfield, NJ

*Office of Instruction*

Course of Study

**ELEMENTARY SCIENCE**

Schools ..... Elementary Schools  
Department ..... Science  
Length of Course ..... Full Year (125 min./week)  
Grade level ..... K – 5  
Prerequisite ..... None  
Date .....

**I. RATIONALE, DESCRIPTION, AND PURPOSE**

The goal of the elementary science curriculum is to foster students’ curiosity about the natural world and provide them with the skill set to plan and carry out investigations about natural phenomena. This goal includes providing students with the foundational concept knowledge in the areas of Physical Science, Earth & Space Science, Life Science, and Engineering Practice that they will continue to build upon in their secondary education in the sciences. Through authentic hands-on learning experiences students develop their ability to question, reason, argue, and communicate their findings.

The Elementary Science curriculum recognizes that children’s inherent curiosity and questions are a powerful tool for learning. Instructional strategies are crafted to capitalize on this by structuring the majority of the lessons with a student-centered, highly collaborative, hands on approach. Students are introduced to natural phenomena and then engaged in a guided inquiry framework to build content knowledge and experimentation skill in each foundational content area.

As students progress through each year of the curriculum, they revisit concepts at increasing levels of complexity and sophistication building toward a more complete understanding. In addition, the level of student critical thinking and argumentation builds year to year. Students are asked to evaluate phenomena in all grades by making observations and gathering evidence to make claims that address a question or problem statement. In later grades students expand on this to hone communication skills by engaging in argumentation and creation of evidence statements. This claim-evidence-reasoning process provides students a foundation for the scientific method that they will use throughout their academic science experience at Westfield Public Schools.

**II. OBJECTIVES**

The Elementary Science curriculum fulfills Westfield Board of Education expectations for student achievement. Course objectives are aligned with the New Jersey Student Learning Standards for Science, which are derived from the Next Generation Science Standards. Course



objectives also align with New Jersey Standards of Mathematical Practice, Technology, ELA Anchor Standards, and 21<sup>st</sup> Century Life and Careers.

Throughout the Elementary Science curriculum there are broad over-arching objectives that students engage in at increasing levels of sophistication as they progress. Students:

- A. Engage in collaborative science investigations using scientific best practice methods of questioning, experimentation, analysis, interpretation, explanation, and reevaluation

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P3, P4, P6, P8*

*New Jersey Student Learning Standards for Mathematical Practice: SMP1, SMP2*

*New Jersey Student Learning Standards for ELA Anchor Standards – Writing: W4, W6, W7*

*New Jersey Student Learning Standards for ELA Anchor Standards – Speaking and Listening: SL1, SL2, SL3*

*New Jersey Student Learning Standards for Technology: 8.1*

- B. Cite details and evidence from informational texts to identify main concepts; integrate multiple sources of information to create more complete understanding of the subject phenomenon

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P8*

*New Jersey Student Learning Standards for ELA Anchor Standards – Reading: R1, R2, R4, R5, R7, R8*

- C. Present arguments, using multiple methods of communication, regarding the validity of a claim developed from non-fiction text, observations of natural phenomenon, and/or constructed events with supporting data and evidence

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P7*

*New Jersey Student Learning Standards for Mathematical Practice: SMP3*

*New Jersey Student Learning Standards for ELA Anchor Standards – Reading: R8*

*New Jersey Student Learning Standards for ELA Anchor Standards – Writing: W1, W2*

*New Jersey Student Learning Standards for ELA Anchor Standards – Speaking and Listening: SL4, SL5*

- D. Make quantitative observations (e.g. length, mass, time, temperature, amount) of objects, events, and/or phenomenon to define their characteristics and make comparisons to alternate scenarios

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4, P5, P8*

*New Jersey Student Learning Standards for Science: Cross Cutting Concepts CCC3*

*New Jersey Student Learning Standards for Mathematical Practice: SMP5, SMP6, SMP7, SMP8*

- E. Use tools to make accurate and precise measurements; refine and improve measurements over time

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3*

*New Jersey Student Learning Standards for Mathematical Practice: SMP5, SMP6*

*New Jersey Student Learning Standards for Technology: 8.1*

- F. Communicate quantitative values using words, pictures, and/or graphs

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P5, P8*

*New Jersey Student Learning Standards for Science: Cross Cutting Concepts CCC1, CCC3*

*New Jersey Student Learning Standards for Mathematical Practice: SMP1, SMP4, SMP6*

*New Jersey Student Learning Standards for ELA Anchor Standards – Speaking and Listening: SL4, SL5*

**G. Investigate the role of science in society, the people who engage in professional science, and the career opportunities in science related fields**

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1*

*New Jersey Student Learning Standards for 21st Century Life and Careers: 9.1, 9.3*

*New Jersey Student Learning Standards for ELA Anchor Standards – Speaking and Listening: SL3*

At each grade level students engage in specific activities to meet the following objectives:

**Grade K Students:**

**A. Plan and conduct investigations to compare force and motion**

*New Jersey Student Learning Standards for Science: Performance Expectations K-PS2-1, K-PS2-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS2.A, PS2.B, PS2.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

**B. Investigate energy transfer by sunlight on Earth’s surface and design structures to harness or reduce its effect**

*New Jersey Student Learning Standards for Science: Performance Expectations K-PS3-1, K-PS3-2, K-2-ETS1-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4, P6*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS3.B, ETS1.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

**C. Observe local weather conditions to predict future weather and describe patterns over time**

*New Jersey Student Learning Standards for Science: Performance Expectations K-ESS2-1, K-ESS3-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P4, P8*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS2.B, ESS3.D, ETS1.A*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC2*

**D. Investigate relationships between plants and animals in their environments and how an environment can be modified to meet the survival needs of the organism**

*New Jersey Student Learning Standards for Science: Performance Expectations K-ESS2-2, K-ESS3-1, K-LS1-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P4, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS3.A, ESS2.E, ESS3.C, LS1.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC4*

**E. Design solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment**

*New Jersey Student Learning Standards for Science: Performance Expectations K-ESS3-3, K-2-ETS1-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P8*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS3.C, ETS1.B, ETS1.A*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

**Grade 1 Students:**

**A. Plan and conduct an investigation to determine the relationship between energy and sound production through vibrations**

*New Jersey Student Learning Standards for Science: Performance Expectations 1-PS4-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS4.A*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

**B. Plan and conduct an investigation involving energy transfer by designing a method to use light or sound to send information**

*New Jersey Student Learning Standards for Science: Performance Expectations 1-PS4-2, 1-PS4-3, 1-PS4-4, K-2-ETS1-3*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4, P6*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS4.B, PS4.C, ETS1.C*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

**C. Conduct observations of celestial objects to identify patterns and make predictions about future observations**

*New Jersey Student Learning Standards for Science: Performance Expectations 1-ESS1-1, 1-ESS1-2*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS1.A, ESS1.B*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1*

**D. Compare similarities and differences between adult plants and animals and their offspring; construct an argument showing how certain traits contribute to survival**

*New Jersey Student Learning Standards for Science: Performance Expectations 1-LS1-2, 1-LS3-1*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P6, P8*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS1.B, LS3.A, LS3.B*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1*

**E. Design solutions to a human problem by mimicking plant and/or animal structures that contribute to survival and growth**

*New Jersey Student Learning Standards for Science: Performance Expectations 1-LS1-1, K-2-ETS1-1, K-2-ETS1-2, K-2-ETS1-3*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P2, P4, P6*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS1.A, LS1.D, ETS1.A, ETS1.B, ETS1.C*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC6*

**Grade 2 Students:**

**A. Plan and conduct an investigation to classify different materials by their observable properties; analyze information to determine a material's best suited purpose based on its properties**

*New Jersey Student Learning Standards for Science: Performance Expectations 2-PS1-1, 2-PS1-2, K-2-ETS1-1*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS1.A, ETS1.A*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC2*

**B. Construct objects by assembly from small parts; create new objects by breaking down large objects and reusing components**

*New Jersey Student Learning Standards for Science: Performance Expectations 2-PS1-3, K-2-ETS1-1, K-2-ETS1-2*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P2, P6*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS1.A, ETS1.A, ETS1.B*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC5, CCC6*

**C. Evaluate how Earth materials can be changed over time and identify structures that contribute to the rate of change**

*New Jersey Student Learning Standards for Science: Performance Expectations 2-ESS1-1, 2-ESS2-1*  
*New Jersey Student Learning Standards for Science: Science and Engineering Practices P6*  
*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS1.C, ESS2.A, ETS1.C*  
*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC7*

- D. Interpret models that show how water is distributed across the Earth and construct an argument about how the distribution affects humans

*New Jersey Student Learning Standards for Science: Performance Expectations 2-PS1-4, 2-ESS2-2, 2-ESS2-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P7, P8*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS1.B, ESS2.B, ESS2.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC2*

- E. Plan and conduct an investigation to determine the needs for plant growth; develop a model for the life cycle of a simple plant

*New Jersey Student Learning Standards for Science: Performance Expectations 2-LS2-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS2.A*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

- F. Construct an argument that compares the diversity of life in different habitats and the relationship between plants and animals that are impacted by diversity

*New Jersey Student Learning Standards for Science: Performance Expectations 2-LS2-2, 2-LS4-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P3*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS2.A, LS4.D, ETS1.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC6*

### Grade 3 Students:

- A. Plan and conduct an investigation to show that balanced and unbalanced forces affect the motion of an object and that patterns can be identified to predict future motion

*New Jersey Student Learning Standards for Science: Performance Expectations 3-PS2-1, 3-PS2-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS2.A, PS2.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC2*

- B. Plan and conduct an investigation to evaluate non-contact electric or magnetic interactions between two objects and apply these principles to develop a solution to a design problem

*New Jersey Student Learning Standards for Science: Performance Expectations 3-PS2-3, 3-PS2-4, 3-5-ETS1-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P3*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS2.B, ETS1.B, ETS1.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

- C. Organize and analyze data to evaluate typical weather patterns over different seasons and in different regions on Earth

*New Jersey Student Learning Standards for Science: Performance Expectations 3-ESS2-1, 3-ESS2-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P4, P8*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS2.D*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1*

- D. Construct an argument supporting how engineering design can reduce the impact of a weather-related hazards for humans

*New Jersey Student Learning Standards for Science: Performance Expectations 3-ESS3-1, 3-5-ETS1-1, 3-5-ETS1-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P6, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS3.B, ETS1.A, ETS1.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

- E. Analyze and interpret data to provide evidence that organisms have similar life cycle characteristics but unique traits that are inherited from parents and influenced by the environment

*New Jersey Student Learning Standards for Science: Performance Expectations 3-LS1-1, 3-LS3-1, 3-LS3-2, 3-LS4-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P4, P6*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS1.B, LS2.C, LS3.A, LS3.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC2, CCC3*

- F. Construct an argument on how environment, habitat, collective groupings, and individual traits can influence an organism's survival

*New Jersey Student Learning Standards for Science: Performance Expectations 3-LS2-1, 3-LS4-2, 3-LS4-3, 3-LS4-4*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P6, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS2.C, LS2.D, LS4.B, LS4.C, LS4.D*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2, CCC4*

#### Grade 4 Students:

- A. Plan and conduct an investigation to evaluate speed and energy relationships for a moving object, and predict how energy is transferred between objects as a result of a collision

*New Jersey Student Learning Standards for Science: Performance Expectations 4-PS3-1, 4-PS3-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P6*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS3.A, PS3.B, PS3.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC5*

- B. Observe energy transfer by sound, light, heat, and electric currents to develop a device that converts energy from one form to another

*New Jersey Student Learning Standards for Science: Performance Expectations 4-PS3-2, 4-PS3-4, 3-5-ETS1-1, 3-5-ETS1-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P6*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS3.A, PS3.B, PS3.D, ETS1.A-C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC5*

- C. Develop a model to explain how waves can be used to create motion and transmit information

*New Jersey Student Learning Standards for Science: Performance Expectations 4-PS4-1, 4-PS4-2, 4-PS4-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P6*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS4.A, PS4.B, PS4.C, ETS1.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CC1, CCC2*

- D. Construct an argument that evaluates and describes how the Earth changes over time resulting from weathering and/or geological effects

*New Jersey Student Learning Standards for Science: Performance Expectations 4-ESS1-1, 4-ESS2-1, 4-ESS2-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P4, P6*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS1.C, ESS2.A, ESS2.B, ESS2.E*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CC1, CCC2*

- E. Evaluate how humans use Earth's natural resources and construct an argument about how resource use affects the environment

*New Jersey Student Learning Standards for Science: Performance Expectations 4-ESS3-1, 4-ESS3-2, 3-5-ETS1-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P6, P8*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS3.A, ESS3.B, ETS1.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

- F. Construct an argument evaluating how plant and animal structures support survival and how organisms receive, process, and respond to sensory information to adapt in their environment

*New Jersey Student Learning Standards for Science: Performance Expectations 4-LS1-1, 4-LS1-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS1.A, LS1.D*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC4*

**Grade 5 Students:**

- A. Plan and conduct an investigation to differentiate materials based on their properties; develop a model describing matter that is too small to be seen**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-PS1-1, 5-PS1-3, 3-5-ETS1-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P2, P3*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS1.A, ETS1.A*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC3*

- B. Plan and conduct an investigation to demonstrate the conservation of matter through experiments that involve heating, cooling, and/or mixing substances**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-PS1-2, 5-PS1-4*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P3, P5*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS1.A, PS1.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2, CCC3*

- C. Plan and conduct an investigation to evaluate the direction of the Earth's gravitational force on objects**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-PS2-1, 3-5-ETS1-1, 3-5-ETS1-3*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P1, P3, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS2.B, ETS1.A, ETS1.B, ETS1.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC2*

- D. Model the flow of energy through systems, with the Sun as the fundamental source of all energy**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-PS3-1, 5-LS2-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas PS3.D, LS1.C, LS2.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC4, CCC5*

- E. Evaluate the appearance of celestial objects based on relative distance to construct a model representing their patterns of apparent motion based on the Earth's motion**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-ESS1-1, 5-ESS1-2*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P4, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS1.A, ESS1.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC1, CCC3*

- F. Model the interaction of the geosphere, biosphere, hydrosphere, and/or atmosphere using evidence about the distribution of water on Earth**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-ESS2-1, 5-ESS2-2, 5-ESS3-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P5, P8*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas ESS2.A, ESS2.C, ESS3.C*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC3, CCC4*

- G. Construct an argument that demonstrated how the flow of matter and energy among plants, animals, decomposers, and the environment support organism survival.**

*New Jersey Student Learning Standards for Science: Performance Expectations 5-LS1-1, 5-LS2-1*

*New Jersey Student Learning Standards for Science: Science and Engineering Practices P2, P7*

*New Jersey Student Learning Standards for Science: Disciplinary Core Ideas LS1.C, LS2.A, LS2.B*

*New Jersey Student Learning Standards for Science: Crosscutting Concepts CCC4, CCC5*

### **III. CONTENT, SCOPE AND SEQUENCE**

The Elementary Science Curriculum is organized by content domains in the areas of Physical Science, Earth Science, and Life Science. Each content domain is broken into investigations, which are multi-part learning progressions on specific areas of focus. A pacing guide for content domains may be found in Appendix VI.

#### Grade K

- A. Physical Science – Investigating Motion and Energy
  - 1. Investigating how a push or pull (force) changes the motion of an object
  - 2. Exploring how magnitude of force affects changes in motion
  - 3. Investigating how objects exert forces on each other by touching
- B. Earth Science – Investigating Weather
  - 1. Using descriptive vocabulary to characterize weather
  - 2. Observing how energy from sunlight is absorbed by the Earth
  - 3. Describing how plants and animals react and prepare for changing weather
- C. Life Science – Investigating Plants and Animals
  - 1. Identifying patterns in what plants and animals need to survive
  - 2. Exploring properties of animal habitats
  - 3. Investigating conditions necessary for plant growth

#### Grade 1

- A. Physical Science – Investigating Sound and Light
  - 1. Creating sound by vibrations
  - 2. Identifying objects by their sound properties
  - 3. Exploring volume and pitch
  - 4. Creating shadows with natural and artificial light sources
  - 5. Reflecting light using mirrors
  - 6. Investigating relationship between light intensity and the ability to see
  - 7. Using sound and light to communicate over long distances
- B. Earth Science – Investigating Air and Weather
  - 1. Identifying different weather conditions
  - 2. Making observations about temperature, daylight, and cloud properties
  - 3. Making observations about changes in weather over time
  - 4. Making predictions using weather patterns
  - 5. Observing the moon and identifying patterns in appearance
  - 6. Investigating wind and its ability to apply force to objects
- C. Life Science – Investigating Plants and Animals
  - 1. Growing new plants from seeds
  - 2. Investigating what plants need for growth
  - 3. Growing new plants from components of adult plants
  - 4. Designing a terrarium
  - 5. Identifying plant and animal structures that promote survival
  - 6. Investigating the relationship between habitat and plant/animal survival

## Grade 2

- A. Physical Science – Investigating Solids and Liquids
  - 1. Describing and comparing states of matter
  - 2. Comparing and contrasting solid materials
  - 3. Creating objects from components and recycling to make new objects
  - 4. Classifying materials by observable properties
  - 5. Investigating solid/liquid mixtures
  - 6. Investigating material phase changes (solid/liquid)
- B. Earth Science – Investigating Pebbles, Sand, and Silt
  - a. Comparing rocks by observable properties
  - b. Simulating weathering of rocks by abrasion
  - c. Separating earth materials by size
  - d. Investigating soil composition
  - e. Engineering using earth materials
  - f. Investigating how weathering changes the Earth over time
  - g. Investigating where different types of water are found on Earth
- C. Life Science – Investigating Insects and Plants
  - a. Observing structures and behaviors of insects
  - b. Observing, comparing, and contrasting the life cycle stages of an insect
  - c. Recording changes over time of fast-growing plants
  - d. Modeling seed dispersal and/or pollination of plants
  - e. Creating a habitat to meet the life cycle needs of an insect
  - f. Observing how insects interact with their habitat throughout the life cycle

## Grade 3

- A. Physical Science – Investigating Motion and Matter
  - 1. Investigating non-contact forces
  - 2. Conducting experiments with balanced and unbalanced forces
  - 3. Predicting motion of modified systems
  - 4. Engineering design challenges with motion carts
- B. Earth Science – Investigating Water and Climate
  - 1. Observing properties of water
  - 2. Evaluating temperature changes and measurement
  - 3. Investigating temperature relationships of material properties
  - 4. Investigating chemical reactions of water-based mixtures
  - 5. Investigating evaporation and condensation mechanisms
  - 6. Identifying regional and seasonal weather impacts
  - 7. Describing different climates
  - 8. Designing solutions to weather related hazards



- C. Life Science – Investigating Structures of Life
  - 1. Quantifying resources needed for life and growth
  - 2. Comparing and contrasting structures that promote seed survival
  - 3. Identifying function of skeletal system components
  - 4. Reconstructing organism structure through patterns
  - 5. Identifying changes over time through fossil examination
  - 6. Creating models to demonstrate common and different structure properties

#### Grade 4

- A. Physical Science – Investigating Energy
  - 1. Investigating energy flow in an electric circuit
  - 2. Designing electric circuits to perform tasks
  - 3. Investigating the relationship between electricity and magnetism
  - 4. Transferring energy through sound, heat, and light
  - 5. Predicting energy outcomes resulting from collisions
  - 6. Identifying the relationship between motion, speed, and energy
  - 7. Modeling energy transfer with waves
  - 8. Investigating how waves are used in communication
- B. Earth Science – Investigating Soils, Rocks, and Landforms
  - 1. Exploring mechanisms that cause landscapes to change over time
  - 2. Investigating differences between physical and chemical weathering
  - 3. Relating environmental variables to rates of erosion and deposition
  - 4. Identifying patterns to make claims about how Earth changes over time
  - 5. Constructing solutions to alter the rate of Earth changes
- C. Life Science – Investigating Environments
  - 1. Observing and identifying adapted structures for survival
  - 2. Observing living organism behaviors and response to stimuli
  - 3. Creating relationships between organisms in a food chain
  - 4. Modeling population changes resulting from environmental factors
  - 5. Investigating range of tolerance in different organisms
  - 6. Identifying how environmental factors influence organism growth

#### Grade 5

- A. Physical Science – Investigating Mixtures and Solutions
  - 1. Engineering techniques to separate materials in mixtures and solutions
  - 2. Creating models to explain unseen events and phenomenon
  - 3. Comparing concentrations of different solutions through indirect measurement
  - 4. Quantifying the conservation of mass with solutions
  - 5. Identifying materials based on their properties
  - 6. Exploring physical vs. chemical changes as a result of mixing substances

## B. Earth Science – Investigating Earth and Sun

1. Creating models to demonstrate motions of objects in the sky
2. Constructing graphs of patterns in observations due to the Sun’s apparent motion
3. Evaluating the relative size and distance of astronomical objects
4. Investigating the properties and composition of Earth’s atmosphere
5. Evaluating energy transfer through conduction, convection, and radiation
6. Quantifying relative amounts of water type and distribution across the planet

## C. Life Science – Investigating Living Systems

1. Evaluating the Earth as a system consisting of subsystems
2. Differentiating the subsystems of geosphere, atmosphere, hydrosphere, and biosphere
3. Investigating food webs in the hydrosphere subsystem
4. Modeling matter and energy flow in a system of producers, consumers, and decomposers
5. Investigating energy transfer systems in living organisms
6. Comparing and contrasting respiratory and circulatory systems in humans.

## **IV. INSTRUCTIONAL TECHNIQUES**

A variety of instructional approaches are employed to engage all students in the learning process and accommodate differences in readiness levels, interests and learning styles. Typical teaching techniques include, but are not limited to, the following:

- A. Teacher directed whole group instruction
- B. Small group discussion
- C. Activating prior knowledge
- D. Hands-on activities
- E. Inquiry-based discovery
- F. Claim-Evidence-Reasoning investigation process
- G. Scientific argumentation
- H. Multimedia presentations
- I. Flexible grouping
- J. Differentiated tasks
- K. Learning centers
- L. Mini lessons or individualized instruction for reinforcement or re-teaching of concepts
- M. Guided investigations/explorations
- N. Spiral review of concepts
- O. Use of technology
- P. Integration of science with other disciplines.

## **V. EVALUATION**

Teachers employ assessment tools and techniques that enable children to demonstrate what they know in a variety of ways and provide reliable information from multiple sources. Assessment based on evidence of student learning enables teachers to make instructional decisions that lead to higher levels of achievement for all students.

Multiple techniques are employed to assess student understanding of science concepts, skills, and thinking processes. Assessments focus on important outcomes, not necessarily those that are easy to measure. Assessments that measure comprehensive content knowledge and skills application as detailed by this curriculum include, but are not limited to, the following categories:

- A. Ongoing formative assessment
  - 1. Student participation
  - 2. Student question/response quality
  - 3. Participation in group work
  - 4. Science notebook checks
  - 5. Hands-on activity progress
  
- B. Periodic summative assessment
  - 1. Written tests and quizzes, including baseline and benchmark assessments
  - 2. Oral assessments
  - 3. Claim-Evidence-Reasoning process work
  
- C. Product assessment
  - 1. Experimental findings
  - 2. Student argumentation/reflections
  - 3. Lab notebook/lab reports
  - 4. Student self-assessments.

## **VI. PROFESSIONAL DEVELOPMENT**

The following activities support this curriculum:

- A. Professional development workshops and in-service training
- B. Grade level meetings to share lesson ideas and instructional strategies with colleagues
- C. Out of district science workshops and conventions
- D. Training in the use of science equipment and materials appropriate to the classroom.

## **APPENDIX I**

### **New Jersey Student Learning Standards for Science**

#### **Physical Science Performance Expectations**

K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface.

K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.

1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.

4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.

4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

- 4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.
- 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
- 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.
- 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
- 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.
- 5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- 5-PS1-3. Make observations and measurements to identify materials based on their properties.
- 5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.
- 5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.
- 5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

#### Earth Science Performance Expectations

- K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.
- K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
- K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.
- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.
- 1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.
- 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.
- 2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.

- 3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- 3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.
- 3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.
- 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.
- 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
- 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
- 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.
- 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.
- 5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- 5-ESS2-2. Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
- 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- 5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
- 5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

### Life Science Performance Expectations

- K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.
- 1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
- 1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- 1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
- 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.
- 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.
- 3-LS2-1. Construct an argument that some animals form groups that help members survive.

3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

### Engineering, Technology, and Applications of Science Performance Expectations

K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

### Science and Engineering Practices

#### P1 - Asking Questions and Defining Problems

- P2 - Developing and Using Models
- P3 - Planning and Carrying Out Investigations
- P4 - Analyzing and Interpreting Data
- P5 - Using Mathematics and Computational Thinking
- P6 - Constructing Explanations and Designing Solutions
- P7 - Engaging in Argument from Evidence
- P8 - Obtaining, Evaluating, and Communicating Information

Disciplinary Core Ideas

- PS1.A - Structure and Properties of Matter
- PS1.B - Chemical Reactions
- PS2.A - Forces and Motion
- PS2.B - Types of Interactions
- PS2.C - Relationship Between Energy and Forces
- PS3.A - Definitions of Energy
- PS3.B - Conservation of Energy and Energy Transfer
- PS3.C - Relationship Between Energy and Forces
- PS3.D - Energy in Chemical Processes and Everyday Life
- PS4.A - Wave Properties
- PS4.B - Electromagnetic Radiation
- PS4.C - Information Technologies and Instrumentation
- ESS1.A - The Universe and its Stars
- ESS1.B - Earth and the Solar System
- ESS1.C - The History of Planet Earth
- ESS2.A - Earth Materials and Systems
- ESS2.B - Plate Tectonics and Large-Scale System Interactions
- ESS2.C - The Roles of Water in Earth's Surface Processes
- ESS2.D - Weather and Climate
- ESS2.E - Biogeology
- ESS3.A - Natural Resources
- ESS3.B - Natural Hazards
- ESS3.C - Human Impacts on Earth Systems
- ESS3.D - Global Climate Change
- LS1.A - Structure and Function
- LS1.B - Growth and Development of Organisms
- LS1.C - Organization for Matter and Energy Flow in Organisms
- LS1.D - Information Processing
- LS2.A - Interdependent Relationships in Ecosystems
- LS2.B - Cycles of Matter and Energy Transfer in Ecosystems
- LS2.C - Ecosystem Dynamics, Functioning, and Resilience
- LS2.D - Social Interactions and Group Behavior
- LS3.A - Inheritance of Traits



LS3.B - Variation of Traits  
LS4.B - Natural Selection  
LS4.C - Adaptation  
LS4.D - Biodiversity and Humans  
ETS1.A - Defining Engineering Problems  
ETS1.B - Developing Possible Solutions  
ETS1.C - Optimizing the Design Solution

#### Cross Cutting Concepts

CCC1 - Patterns  
CCC2 - Cause and effect: Mechanism and explanation  
CCC3 - Scale, proportion, and quantity  
CCC4 - Systems and system models  
CCC5 - Energy and matter: Flows, cycles, and conservation  
CCC6 - Structure and function  
CCC7 - Stability and change

*The entire standards document may be viewed at: <http://www.state.nj.us/education/cccs/2016/science/>*

## **APPENDIX II**

### **New Jersey Student Learning Standards for Technology**

Standard 8.1: (Educational Technology) All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/2014/tech/>*

## **APPENDIX III**

### **New Jersey Student Learning Standards for 21<sup>st</sup> Century Life and Careers**

Standard 9.1: (21st-Century Life and Career Skills) all students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

Standard 9.3: (Career Awareness, Exploration, and Preparation) all students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/2014/career/>*

## **APPENDIX IV**

### **New Jersey Student Learning Standards for Mathematical Practice**

- SMP1 – Make sense of problems and persevere in solving them
- SMP2 – Reason abstractly and quantitatively
- SMP3 – Construct viable arguments and critique the reasoning of others
- SMP4 – Model with mathematics
- SMP5 – Use appropriate tools strategically
- SMP6 – Attend to precision
- SMP7 – Look for and make use of structure
- SMP8 – Look for and express regularity in repeated reasoning

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/2016/math/>*

## **APPENDIX V**

### **New Jersey Student Learning Standards for English Language Arts**

#### **Anchor Standards – Reading: Key Ideas and Details**

NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

NJSLSA.R2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

#### **Anchor Standards – Reading: Craft and Structure**

NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

NJSLSA.R5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

#### **Anchor Standards – Reading: Integration of Knowledge and Ideas**

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

#### **Anchor Standards – Writing: Text Types and Purposes**

NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

Anchor Standards – Writing: Production and Distribution of Writing

NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Anchor Standards – Writing: Research to Build and Present Knowledge

NJSLSA.W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.

Anchor Standards – Speaking and Listening: Comprehension and Collaboration

NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

NJSLSA.SL3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Anchor Standards – Speaking and Listening: Presentation of Knowledge and Ideas

NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/2016/ela/>*

## APPENDIX VI

### Instructional Resources and Pacing Guide

#### Grade K

Instructional Resource: *Mystery Science*, [www.mysteryscience.com](http://www.mysteryscience.com) (2018)

Suggested Pacing:

Pacing is expressed in number of lessons\*

| Grade Level | Physical Science | Earth Science | Life Science |
|-------------|------------------|---------------|--------------|
| K           | 18 – 24          | 21 – 26       | 17 – 22      |

#### Grades 1 – 5

Instructional Resource: *FOSS Next Generation*, Delta Education (2017)

Suggested Pacing:

Pacing is expressed in number of lessons\*

| Grade Level | Physical Science | Earth Science | Life Science |
|-------------|------------------|---------------|--------------|
| 1           | 20 – 28          | 30 – 38       | 34 – 42      |
| 2           | 26 – 34          | 26 – 34       | 32 – 40      |
| 3           | 22 – 30          | 36 – 44       | 36 – 34      |
| 4           | 40 – 50          | 15 – 20       | 29 – 38      |
| 5           | 28 – 35          | 36 – 46       | 20 – 27      |

\*The number of lessons in Grade K is based on two science lessons per instructional week. The number of lessons in Grades 1 – 5 is based on 125 instructional minutes per week. This would equate to an average of 3 lessons per week at 40 – 45 minutes per lesson. It is assumed that there are 28 – 36 full instructional weeks per year. Suggested pacing may change based on variations in lesson duration and frequency.

**WESTFIELD PUBLIC SCHOOLS**

Westfield, New Jersey

*Office of Instruction*

Course of Study

**WORLD LANGUAGES - GRADE 6**

Schools ..... Roosevelt/Edison  
Department ..... World Languages  
Length of Course..... One Year  
Grade Level.....6  
Date .....

**I. RATIONALE, DESCRIPTION AND PURPOSE**

The Westfield Public Schools Department of World Languages seeks to provide a well-articulated program in order to prepare students to become responsible citizens in a multicultural and diverse global society. Language skills and cultural awareness promote cognitive development and academic achievement. The study of a world language promotes knowledge, understanding and respect for the perspectives, practices, and products of different cultures.

This course promotes communication with an understanding of the target language and culture. Knowing a language other than English, enables students to converse in the target language and become familiar with the history and the current issues of the people that the language represents. The language skills and cultural awareness that students develop in learning another language are of great value, particularly in education, business, world trade, travel, community and diplomacy.

This course is the first year of a three-year middle school sequence. It addresses a logical progression for language acquisition and provides a strong foundation with an immersion setting in the classroom, which enables sixth-grade students to develop language skills in listening, speaking, reading and writing, while maintaining a focus on language functions and oral production. Language skills and cultural awareness are further developed in seventh and eighth grade courses and ultimately lead to proficient language learners at the high school level.

## II. OBJECTIVES

World Languages - Grade 6 is aligned with the NJ Student Learning Standards for World Languages. These objectives also align with NJ Students Learning Standards for Visual and Performing Arts, English Language Arts, Social Studies, Technology, and 21<sup>st</sup> Century Life and Careers.

Students:

### Interpretive Communication Mode

- A. Recognize familiar spoken and written words and phrases contained in culturally authentic materials related to targeted themes

*New Jersey Student Learning Standards for World Languages 7.1.NM.A.1*

*New Jersey Student Learning Standards for ELA A. R2.*

*New Jersey Student Learning Standards for Technology 8.1.8.A.1, 8.1.8.A.2*

Comprehend and respond to conversations by native speakers on a variety of topics

*New Jersey Student Learning Standards for World Languages 7.1.NM.A.2*

*New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers 9.1*

Demonstrate comprehension of short conversations between speakers of the target language on familiar topics

*New Jersey Student Learning Standards for World Languages 7.1.NM.A.1, 7.1.NM.A.3, 7.1.NM.A.4, 7.1.NM.A.5, 1.NH.A.2*

*New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers 9.1, 9.2*

### Interpersonal Communication Mode

- B. Ask and respond to simple questions using memorized words and expressions

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.4*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

Use appropriate gestures and intonation in common daily interactions

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.3*

*New Jersey Student Learning Standards for 21st Century Life & Careers 9.1*

Use digital tools to exchange basic information about self and studied topics

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.1*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

Identify words and expressions from audio and visual resources based on familiar topics to participate in an exchange of information

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

Recognize key information from written sources to formulate an appropriate response

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

Briefly respond in writing to oral, audio, visual, and written prompts on familiar topics using memorized words, phrases, and expressions

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

### Presentational Mode

#### C. Recite simple rhymes, dialogues, songs and skits

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

Make presentations comparing/contrasting the target culture with their own

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.4*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

Use familiar words and expressions to describe people, places, and things

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.3*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

### Communities, Cultures, Comparisons, and Connections

#### D. Demonstrate an understanding of the similarities and differences of the target culture by making cultural comparisons and connections

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

Identify tangible cultural products and imitate cultural customs from the target culture

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1 and 9.2*

Collect information related to the cultural products, practices and perspectives associated with target culture to create a short presentation on specific themes with a target language audience.

*New Jersey Student Learning Standards for World Languages 7.1.NM*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

## **III. CONTENT. SCOPE. AND SEQUENCE**

The following themes are interwoven to provide the framework by which students communicate as they explore grammatical forms, cultural perspectives, make connections, comparisons, and prepare to participate in local and global communities. The grammatical structures presented following the themes and topics below, are offered as an important component to the logical continuum of the language acquisition process, but it is not the focus of instruction in the world languages classroom. Students explore grammar through context and with an emphasis of its functionality within the communicative approach.

## Themes

### A. Hello, world!

1. My world, my name, greetings, countries and nationalities (suggested time 5-6 weeks)
  - a. introduce oneself and others
  - b. exchange numbers
  - c. describe the day/identify dates
2. My identity (suggested time 5-6 weeks)
  - a. describe physical attributes
  - b. personality traits
  - c. express likes/dislikes

### B. My family and friends

1. Relationships (suggested time 5-6 weeks)
  - a. describe family and others
  - b. ask/tell age, birthdays and other dates
2. Clothing (suggested time 5-6 weeks)
  - a. describe quantity, color, and size
  - b. express possession and preference
  - c. express another's likes and dislikes

### C. Me, myself and I

1. My school (suggested time 5-6 weeks)
  - a. tell time
  - b. describe/create schedule
  - c. share extra-curricular activities
  - d. use adverbs of frequency (usually, often, rarely, etc.)
2. My classroom (suggested time 5-6 weeks)
  - a. describe classroom objects
  - b. discuss responsibilities
  - c. describe schedule
  - d. ask/tell time

## Grammatical Structures

### 1. French

- a. identify gender: masculine and feminine nouns
- b. identify definite and indefinite articles
- c. demonstrate possession using adjectives such as *mon/ma, ton/ta*
- d. express need using the verb *avoir*
- e. describe daily activities using verb *faire*
- f. describe daily activities using regular -ER verbs
- g. create negative sentences using *ne...pas*
- h. express likes and dislikes using *J'aime/Je n'aime pas + Infinitive*



- i. talk about where you are using the verb *être*
  - j. formulate questions with *est-ce que* and using inversion
  - k. create sentences using the verb *avoir* and the expression *il y a/ il n'y a pas*
  - l. analyze the agreement and position of adjectives
  - m. introduce difference between *C'est* vs. *Il est*
2. Spanish
- a. identifying gender: masculine and feminine nouns
  - b. knowing how numbers affect articles and adjectives
  - c. using definite and indefinite articles
  - d. demonstrating knowledge of subject pronouns and verb conjugations
  - e. knowing how to question and respond in the present tense
  - f. expressing affirmative and negative answers
  - g. using the simple future: *ir + a + infinitivo*
  - h. distinguishing between having feelings and possessions, with the verb *tener*
  - i. using present conjugations of *ser, estar, gustar*, and their uses
  - j. expressing obligations with *tener que*
  - k. using pronouns to clarify or emphasize the subject of an action
  - l. understanding and employing adjective agreement: characteristics and belongings
  - m. expressing present tense of regular (-ar, -er, -ir) verbs
  - n. using regular present tense verbs with irregular yo forms: *tener y conocer*
  - o. introducing briefly the verbs *hacer* and *jugar*

#### Cultural Perspectives, Products, and Practices

1. describe cultural differences in holidays celebrated in target-language-speaking countries
2. demonstrate increased awareness of and appreciation for the diversity of cultures, languages, and peoples
3. develop an awareness of the differences between one's own culture and the target culture
4. expand knowledge of specific practices of the target culture, to include social patterns, leisure and educational activities
5. recognize and welcoming the benefit associated with encompassing a broad range of opinions, ideas and visions, which are the result of specific historical, geographic and societal influences of a language and its culture.

#### **IV. INSTRUCTIONAL TECHNIQUES**

Differentiated instruction creates a student-centered environment that seeks to accommodate the diverse learners and provides multiple pathways to learning. A variety of instructional approaches is employed to involve all students in the learning process and accommodate differences in readiness levels, interests and learning styles. The target language is used as the primary means of communication by providing an immersion setting in which both, teachers and students use the target language at least 95% of the time. Instructional techniques include but are not limited to:

- A. Teacher-directed whole-group instruction
- B. Small-group instruction
- C. Flexible grouping
- D. Technology-based instruction
- E. Hands-on activities
- F. Research projects
- G. Guided reading and discussion
- H. Think-Pair-Share student partner activities
- I. Total Physical Response (TPR)

## **V. EVALUATION**

The purpose of assessment is to improve student learning, gauge student progress and make necessary adjustments in methodology when needed. Student assessment practices include but are not limited to:

- A. Informal Assessments
  - 1. total physical response
  - 2. aural practice
  - 3. role-play
  - 4. classroom observations during coupled and group activities
  - 5. games
- B. Formal Assessments
  - 1. baseline assessments
  - 2. benchmark assessments
  - 3. oral presentations
  - 4. written quizzes and tests
  - 5. aural assessments
  - 6. projects

## **VI. PROFESSIONAL DEVELOPMENT**

The following activities support this curriculum:

- A. Collaboration with colleagues through discussion and observation.
- B. Department meetings to plan and coordinate curriculum and activities.
- C. Visitation to districts that implement innovative language programs.
- D. Visitation of colleagues within our own district.
- E. Professional development through courses or conferences.

## APPENDIX I

### New Jersey Student Learning Standards for World Languages

**STANDARD 7.1** All students will be able to use a world language in addition to English to engage in meaningful conversation, to understand and interpret spoken and written language, and to present information, concepts, and ideas, while also gaining an understanding of the perspectives of other cultures. Through language study, they will make connections with other content areas, compare the language and culture studied with their own, and participate in home and global communities.

#### **Strand A – Interpretive Mode**

- 7.1.NM.A.1 Recognize familiar spoken or written words and phrases contained in culturally authentic materials using electronic information sources related to targeted themes.
- 7.1.NM.A.3 Recognize a few common gestures and cultural practices associated with the target culture(s).
- 7.1.NM.A.4 Identify familiar people, places, and objects based on simple oral and/or written descriptions.
- 7.1.NM.A.5 Demonstrate comprehension of brief oral and written messages using age and level appropriate, culturally authentic materials on familiar topics.
- 7.1.NH.A.2 Demonstrate comprehension of simple, oral and written directions, commands, and requests through appropriate physical response.

#### **Strand B – Interpersonal Mode**

- 7.1.NM.B.1 Use digital tools to exchange basic information at the word and memorized-phrase level related to self and targeted themes.
- 7.1.NM.B.2 Give and follow simple oral and written directions, commands, and requests when participating in age appropriate classroom and cultural activities.
- 7.1.NM.B.3 Imitate appropriate gestures and intonations of the target culture(s)/language during greetings, leave-, takings, and daily interactions.
- 7.1.NM.B.4 Ask and respond to simple questions, make requests, and express preferences using memorized words and phrases.

Exchange information using words, phrases, and short sentences practiced in class on familiar topics or on topics studied in other content areas.

#### **Strand C – Presentational Mode**

- 7.1.NM.C.1 Use basic information at the word and memorized-phrase level to create a multimedia-rich presentation on targeted themes to be shared virtually with a target language audience.
- 7.1.NM.C.2 Imitate, recite, and/or dramatize simple poetry, rhymes, songs, and skits.

- 7.1.NM.C.3 Present information from age- and level-appropriate, culturally authentic materials orally or in writing
- 7.1.NM.C.4 Name and label tangible cultural products and imitate cultural practices from the target culture(s).

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs>*

## APPENDIX II

### **New Jersey Student Learning Standards for Social Studies**

**STANDARD 6.1** All students will acquire the knowledge and skills to think analytically about how past and present interactions of people, cultures, and the environment shape the American heritage. Such knowledge and skills enable students to make informed decisions that reflect fundamental rights and core democratic values as productive citizens in local, national, and global communities.

**STANDARD 6.2** All students will acquire the knowledge and skills to think analytically and systematically about how past interactions of people, cultures, and the environment affect issues across time and cultures. Such knowledge and skills enable students to make informed decisions as socially and ethically responsible world citizens in the 21st century.

**STANDARD 6.3** All students will acquire the skills needed to be active, informed citizens who value diversity and promote cultural understanding by working collaboratively to address challenges that are inherent in living in an interconnected world.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX III

### **New Jersey Student Learning Standards for English Language Arts**

**STANDARD NJSLSA.R2.** Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX IV

### **New Jersey Student Learning Standards for Visual and Performing Arts**

**STANDARD 1.2. History of the Arts and Culture:** All students will understand the role, development, and influence of the arts throughout history and across cultures.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs>*

## APPENDIX V

### **New Jersey Student Learning Standards for Technology**

**STANDARD 8.1 Educational Technology:** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

**STANDARD 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:** All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX VI

### **New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers**

**STANDARD 9.1 (21<sup>st</sup> Century Life and Career Skills)** all students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

**WESTFIELD PUBLIC SCHOOLS**

Westfield, New Jersey

*Office of Instruction*

Course of Study

**WORLD LANGUAGES - GRADE 7**

Schools ..... Roosevelt/Edison  
Department ..... World Languages  
Length of Course..... One Year  
Grade Level.....7  
Date .....

**I. RATIONALE, DESCRIPTION AND PURPOSE**

The Westfield Public Schools Department of World Languages seeks to provide a well-articulated program in order to prepare students to become responsible citizens in a multicultural and diverse global society. Language skills and cultural awareness promote cognitive development and academic achievement. The study of a world language promotes knowledge, understanding and respect for the perspectives, practices, and products of different cultures.

This course promotes communication with an understanding of the target language and culture. Proficiency in a language other than English, enables students to converse in the target language and become familiar with the history and the current issues of the peoples that the target language represents. The language skills and cultural awareness that students develop in learning another language are of great value, particularly in education, business, world trade, travel, community and diplomacy.

This course is the second year of a three-year middle school sequence. In grade 7, students are introduced to more complex grammar structures and begin to form direct correlations between the language being learned and their own environment. They begin to express themselves using compound sentences and are able to talk about events using the past, present and future tenses. In addition, they gain a rich appreciation for the target cultures through exposure to authentic materials and meaningful educational experiences that represent the many nations where the target language is spoken.

## II. OBJECTIVES

World Languages - Grade 7 is aligned with the NJ Student Learning Standards for World Languages. These objectives also align with NJ Students Learning Standards for Visual and Performing Arts, English Language Arts, Social Studies, Technology, and 21<sup>st</sup> Century Life and Careers.

Students:

### Interpretive Communication Mode

- A. Identify some common and distinct features, such as prepositional phrases, expressions, and tenses among languages

*New Jersey Student Learning Standards for World Languages 7.1.NH.A.1*

*New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers 9.1*

*New Jersey Student Learning Standards for ELA A.R2.*

*New Jersey Student Learning Standards for Technology 8.1.8.A.1, 8.1.8.A.2*

Recognize interrelationships between the language and the culture of a given group of people

*New Jersey Student Learning Standards for World Languages 7.1.NM.A.2*

Explore the process of stereotyping

*New Jersey Student Learning Standards for World Languages 7.1.NM.A.3*

*New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers 9.1*

*New Jersey Student Learning Standards for ELA A.R2.*

Demonstrate comprehension of conversations on familiar topics between speakers of the target language

*New Jersey Student Learning Standards for World Languages 7.1.NH.A.5*

Demonstrate comprehension of oral directions, commands, and requests through physical response

*New Jersey Student Learning Standards for World Languages 7.1.NH.A.2*

### Interpersonal Communication Mode

- B. Create and respond to phrases, questions and sentences in the past, present and futures tenses

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.4*

*New Jersey Student Learning Standards for ELA A.R2.*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for 21<sup>st</sup> Century Life and Careers 9.1*

Generate and respond to short messages, opinions, directions, descriptions

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.3, 7.1.N.H.B.4, 7.1.N.H.B.5*

Express wishes, needs, doubts and emotions

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.2, 7.1.N.H.B.5*

Identify words and expressions from audio and visual resources based on familiar topics to participate in an exchange of information

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.1*

*New Jersey Student Learning Standards for 21<sup>st</sup> Century Life and Careers 9.1*

**Recognize key information from written sources to formulate an appropriate response**

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

**Recognize key information from written sources to formulate an appropriate response**

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

**Respond to oral, audio, visual, and written prompts on familiar topics using memorized words, phrases, and expressions**

*New Jersey Student Learning Standards for World Languages 7.1.NM.B.1, 7.1.NM.B.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

### Presentational Mode

**C. Describe people, places, things and details of everyday life**

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.3*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.1 and 1.2*

*New Jersey Student Learning Standards for Technology 8.1*

**Present information on target cultures**

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.5*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

**Use information to create a multi-media rich presentation on targeted themes**

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.3,*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

**Compare the customs of one's own culture and the studied culture**

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.3, 7.1.NH.C.3, 7.1.NM.C.5*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.1 and 1.2*

*New Jersey Student Learning Standards for Technology 8.1*

**Use familiar words and expressions to describe people, places, and things**

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.3*

*New Jersey Student Learning Standards for ELA A.R2.*

**Express and support opinions about various topics**

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.3*

*New Jersey Student Learning Standards for ELA A.R2.*

**Use available technology resources to create a present material**

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.3, 7.1.NM.C.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

*New Jersey Student Learning Standards for Technology 8.1*

### Communities, Cultures, Comparisons, and Connections

**D. Demonstrate an understanding of the similarities and differences of the target culture by making cultural comparisons and connections**

*New Jersey Student Learning Standards for World Languages 7.1.NM.C.3*

*New Jersey Student Learning Standards for ELA A.R2.*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.1 and 1.2*



Compare and contrast the cultural perspectives of the target cultures with those of one's own culture, as evidenced through the cultural products and cultural practices associated with each

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1 and 9.3*

*New Jersey Student Learning Standards for ELA A.R2.*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

*New Jersey Student Learning Standards for Technology 8.1*

Collect information related to the cultural products, practices, and perspectives associated with the target language cultures to create a short presentation on specific themes with a target language audience

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1 and 9.3*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

Collect information related to the cultural products, practices and perspectives associated with the target culture to create a short presentation on specific themes with a target language audience.

*New Jersey Student Learning Standards for World Languages 7.1.NM*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

### **III. CONTENT, SCOPE, AND SEQUENCE**

The following themes are interwoven to provide the framework by which students communicate as they explore cultural perspectives, make connections and comparisons, and prepare to participate in local and global communities. The grammatical structures presented following the themes and topics below, are offered as an important component to the logical continuum of the language acquisition process, but it is not the focus of instruction in the world languages classroom. Students explore grammar through context and with an emphasis of its functionality within the communicative approach.

#### Themes

##### A. My community

1. My city, places and buildings, transportation, directions (suggested time 5-6 weeks)
  - a. identify places, describe cities, request directions
  - b. provide directions within neighborhood
  - c. describe activities done in specific places
2. Shopping (suggested time 5-6 weeks)
  - a. talk about gifts
  - b. talk about kinds of stores
  - c. apply knowledge of numbers to make purchases
  - d. give instructions
  - e. identify and describe a “bargain”

- B. My free time (suggested time 5-6 weeks)
  - 1. talk about free time during weekdays, weekends, and vacation
  - 2. identify hobbies/sports
  - 3. express preferences
  
- C. The world around me (suggested time 6-7 weeks)
  - 1. compare/contrast target language holidays with other holidays
  - 2. draw parallels between vacation periods in America and target language countries
  - 3. talk about vacation destinations
  - 4. locate capital cities
  - 5. discuss means of transportation
  - 6. apply knowledge of numbers to discuss currency
  - 7. identify weather-specific activities
  - 8. talk about clothing/seasons
  
- D. Yum! (suggested time 6-7 weeks)
  - 1. the Restaurant
  - 2. order food
  - 3. ask for the check
  - 4. identify/describe food/drinks
  - 5. identify table settings
  - 6. differentiate foods between the U.S. and the target cultures
  - 7. identify food temperatures

### Grammatical Structures

- 1. French
  - a. using the verb *aller* and the preposition *à*
  - b. describing people and things with possessive adjectives
  - c. talking about living arrangements using *chez*
  - d. talking about future plans using le futur proche (*aller* + infinitive)
  - e. combining prepositions *à* and *de* with definite articles
  - f. talking about where one is coming from using the verb *venir*
  - g. using adjectives to describe people and things
  - h. describing people and things using irregular adjectives
  - i. using the verbs *acheter*, *préférer*, *mettre* to talk about clothing
  - j. comparing people and things using comparative adjectives
  - k. using the present tense of regular *-ir* and *-re* verbs
  - l. describing things using demonstrative and interrogative adjectives
  - m. talking about people using the pronoun *on*
  - n. giving commands and suggestions using the imperative tense
  - o. talking about activities using *faire*
  - p. describing oneself and others using expressions with *avoir*
  - q. talking about what one sees using the verb *voir*

- r. describing past events using the passé composé of regular *-er*, *-ir* and *-re*
  - s. verbs in the affirmative and negative
  - t. describing past events using the passé composé of irregular verbs (*être*, *avoir*, *faire*, *mettre*, *voir*)
  - u. talking about where one went using the passé composé of *aller*
  - v. discussing past actions using the passé composé with *être* (*arriver*, *rester*, *venir*, *sortir*, *entrer*, *rentrer*)
  - w. talking about a series of events using adverbs of sequence
  - x. expressing wants and needs using the verb *vouloir*
  - y. talking about what one eats and drinks using the verbs *prendre* and *boire*
2. Spanish
- a. identifying gender: masculine and feminine nouns
  - b. knowing how numbers affect articles and adjectives
  - c. using definite and indefinite articles
  - d. demonstrating knowledge of subject pronouns and verb conjugations
  - e. knowing how to question and respond in the present tense
  - f. expressing affirmative and negative answers
  - g. using the simple future: *ir + a + infinitivo*
  - h. distinguishing between having feelings and possessions, with the verb *tener*
  - i. using present conjugations of *ser*, *estar*, *gustar*, and their uses
  - j. expressing obligations with *tener que*
  - k. using pronouns to clarify or emphasize the subject of an action
  - l. understanding and employing adjective agreement: characteristics and belongings
  - m. expressing present tense of regular (-ar, -er, -ir) verbs
  - n. using regular present tense verbs with irregular yo forms: *tener y conocer*
  - o. introducing briefly the verbs *hacer* and *jugar*
  - p. demonstrating knowledge of e:ie stem changing verbs in the present tense.
  - q. demonstrating knowledge of o:ue stem changing verbs in the present tense.
  - r. demonstrating knowledge of e:i stem changing verbs in the present tense.
  - s. giving and following regular and irregular affirmative tú commands

### Cultural Perspectives, Products, and Practices

1. Discussing differences between towns and living establishments in various target-language-speaking countries
2. Exploring the cultural practices of target-language-speaking peoples including aspects of environment, sports, entertainment, food and art
3. Comparing architectural structures of target-language-speaking countries
4. Talking about how those in target-language-speaking countries travel throughout their towns
5. Discussing cultural traditions and currencies when shopping in target-language-speaking countries
6. Observing cultural similarities and differences between meals and dining etiquette
7. Comparing and contrasting personal style as it relates to fashion and society

#### **IV. INSTRUCTIONAL TECHNIQUES**

Differentiated instruction creates a student-centered environment which seeks to accommodate the diverse learners and provides multiple pathways to learning. A variety of instructional approaches is employed to involve all students in the learning process and accommodate differences in readiness levels, interests and learning styles. The target language is used as the primary means of communication by providing an immersion setting in which both, teachers and students use the target language at least 95% of the time. Instructional techniques include but are not limited to:

- A. Teacher-directed whole-group instruction
- B. Small-group instruction
- C. Flexible grouping
- D. Technology-based instruction
- E. Hands-on activities
- F. Research projects
- G. Guided reading and discussion
- H. Think-Pair-Share student partner activities
- I. Total Physical Response (TPR)

#### **V. EVALUATION**

The purpose of assessment is to improve student learning, gauge student progress and make necessary adjustments in methodology when needed. Student assessment practices include but are not limited to:

- A. Informal Assessments
  - 1. interviews
  - 2. oral presentations
  - 3. aural practice
  - 4. role-play
  - 5. classroom observations during collaborative activities
- B. Formal Assessments
  - 1. baseline assessments
  - 2. benchmark assessments
  - 3. short essays
  - 4. oral presentations
  - 5. written quizzes and tests
  - 6. aural assessments
  - 7. projects

## **VI. PROFESSIONAL DEVELOPMENT**

The following activities support this curriculum:

- A. Collaboration with colleagues through discussion and observation.
- B. Department meetings to plan and coordinate curriculum and activities.
- C. Visitation to districts that implement innovative language programs.
- D. Visitation of colleagues within our own district.
- E. Professional development through courses or conferences.

## APPENDIX I

### New Jersey Student Learning Standards for World Languages

**STANDARD 7.1** All students will be able to use a world language in addition to English to engage in meaningful conversation, to understand and interpret spoken and written language, and to present information, concepts, and ideas, while also gaining an understanding of the perspectives of other cultures. Through language study, they will make connections with other content areas, compare the language and culture studied with their own, and participate in home and global communities.

#### **Strand A – Interpretive Mode**

- 7.1.NM.A.1 Recognize familiar spoken or written words and phrases contained in culturally authentic materials using electronic information sources related to targeted themes.
- 7.1.NM.A.3 Recognize a few common gestures and cultural practices associated with the target culture(s).
- 7.1.NM.A.4 Identify familiar people, places, and objects based on simple oral and/or written descriptions.
- 7.1.NM.A.5 Demonstrate comprehension of brief oral and written messages using age and level appropriate, culturally authentic materials on familiar topics.
- 7.1.NH.A.2 Demonstrate comprehension of simple, oral and written directions, commands, and requests through appropriate physical response.

#### **Strand B – Interpersonal Mode**

- 7.1.NM.B.1 Use digital tools to exchange basic information at the word and memorized-phrase level related to self and targeted themes.
- 7.1.NM.B.2 Give and follow simple oral and written directions, commands, and requests when participating in age appropriate classroom and cultural activities.
- 7.1.NM.B.3 Imitate appropriate gestures and intonations of the target culture(s)/language during greetings, leave-, takings, and daily interactions.
- 7.1.NM.B.4 Ask and respond to simple questions, make requests, and express preferences using memorized words and phrases.

Exchange information using words, phrases, and short sentences practiced in class on familiar topics or on topics studied in other content areas.

#### **Strand C – Presentational Mode**

- 7.1.NM.C.1 Use basic information at the word and memorized-phrase level to create a multimedia-rich presentation on targeted themes to be shared virtually with a target language audience.
- 7.1.NM.C.2 Imitate, recite, and/or dramatize simple poetry, rhymes, songs, and skits.

- 7.1.NM.C.3 Present information from age- and level-appropriate, culturally authentic materials orally or in writing
- 7.1.NM.C.4 Name and label tangible cultural products and imitate cultural practices from the target culture(s).

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs>*

## APPENDIX II

### **New Jersey Student Learning Standards for Social Studies**

**STANDARD 6.1** All students will acquire the knowledge and skills to think analytically about how past and present interactions of people, cultures, and the environment shape the American heritage. Such knowledge and skills enable students to make informed decisions that reflect fundamental rights and core democratic values as productive citizens in local, national, and global communities.

**STANDARD 6.2** All students will acquire the knowledge and skills to think analytically and systematically about how past interactions of people, cultures, and the environment affect issues across time and cultures. Such knowledge and skills enable students to make informed decisions as socially and ethically responsible world citizens in the 21st century.

**STANDARD 6.3** All students will acquire the skills needed to be active, informed citizens who value diversity and promote cultural understanding by working collaboratively to address challenges that are inherent in living in an interconnected world.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX III

### **New Jersey Student Learning Standards for English Language Arts**

**STANDARD NJSLSA.R2.** Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX IV

### New Jersey Student Learning Standards for Visual and Performing Arts

**STANDARD 1.2. History of the Arts and Culture:** All students will understand the role, development, and influence of the arts throughout history and across cultures.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs>*

## APPENDIX V

### New Jersey Student Learning Standards for Technology

**STANDARD 8.1 Educational Technology:** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

**STANDARD 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:** All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX VI

### New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers

**STANDARD 9.1 (21<sup>st</sup> Century Life and Career Skills)** all students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*



**WESTFIELD PUBLIC SCHOOLS**

Westfield, New Jersey

*Office of Instruction*

Course of Study

**WORLD LANGUAGES - GRADE 8**

Schools ..... Roosevelt/Edison  
Department..... World Languages  
Length of course ..... One Year  
Grade Level.....8  
Date .....

**I. RATIONALE, DESCRIPTION AND PURPOSE**

The Westfield Public Schools Department of World Languages seeks to provide a well-articulated program in order to prepare students to become responsible citizens in a multicultural and diverse global society. Language skills and cultural awareness promote cognitive development and academic achievement. The study of a world language promotes knowledge, understanding and respect for the perspectives, practices, and products of different cultures.

This course promotes communication with an understanding of the target language and culture. Proficiency in a language other than English, enables students to converse in the target language and become familiar with the history and the current issues of the peoples that the language represents. The language skills and cultural awareness that students develop in learning another language are of great value, particularly in education, business, world trade, travel, community and diplomacy.

This course is the third year of a three-year middle school sequence that builds upon linguistic abilities that have been developed during prior years of language study. The strong foundation enables eighth-grade students to develop skills in a more in-depth manner and at a quicker pace, with increased emphasis on oral production, reading and writing. Language skills and cultural awareness are further developed in high school courses and ultimately lead to highly proficient language learners.

**II. OBJECTIVES**

World Languages - Grade 8 is aligned with the NJ Student Learning Standards for World Languages. These objectives also align with NJ Students Learning Standards for Visual and Performing Arts, English Language Arts, Social Studies, Technology, and 21<sup>st</sup> Century Life and Careers.

**Students:**

**A. Interpretive Communication Mode**

**Compare and contrast familiar words and phrases related to targeted themes**

*New Jersey Student Learning Standards for World Languages 7.1.NH.A.1*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

*New Jersey Student Learning Standards for Technology 8.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1*

**Identify prepositional phrases and temporal constructions**

*New Jersey Student Learning Standards for World Languages, 7.1.NH.A.1*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

**Demonstrate an understanding of the role of stereotyping in forming and sustaining prejudices**

*New Jersey Student Learning Standards for World Languages, 7.1.NH.A.3*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

*New Jersey Student Learning Standards for Social Studies 6.2*

**Demonstrate comprehension of dialogues between speakers of the target language**

*New Jersey Student Learning Standards for World Languages, 7.1.NH.A.1, 7.1.NH.A.3, 7.1.NH.A.5*

*New Jersey Student Learning Standards for English Language Arts A.R2*

**B. Interpersonal Communication Mode**

**Create and respond to simple and complex phrases, questions, and sentences**

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.1*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1, 9.3*

**Generate and respond to short messages, such as invitations, directions, announcements, and social exchanges**

*New Jersey Student Learning Standards for World Languages 7.1.IL.B.2*

*New Jersey Student Learning Standards for Technology 8.1*

**Interact with appropriate responses in limited social settings and basic situations**

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.4, 7.1.NH.B.5, 7.1.IL.B.3*

*New Jersey Student Learning Standards for Technology 8.1*

**Provide and obtain information on familiar topics such as daily and weekend activities**

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.4*

**Identify words and expressions from audio and visual resources based on complex topics to participate in an exchange of information**

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.1*

*New Jersey Student Learning Standards for English Language Arts A.L2*

*New Jersey Student Learning Standards for 21st Century Life & Careers 9.1*

*New Jersey Student Learning Standards for Technology 8.1*

Examine relationships between the language and the culture of a given group of people as evidenced in literary works and current media

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.2*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

Recognize key information from written sources to formulate an appropriate response

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.2*

*New Jersey Student Learning Standards for English Language Arts A.L2*

*New Jersey Student Learning Standards for Social Studies 6.2*

*New Jersey Student Learning Standards for Technology 8.1*

Compare/contrast the customs of their own culture with that of the target cultures

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.2, 7.1.NH.B.3*

*New Jersey Student Learning Standards for Technology 8.1*

Respond to oral, audio, visual and written prompts on familiar topics using complex words, phrases and expressions

*New Jersey Student Learning Standards for World Languages 7.1.NH.B.1*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

*New Jersey Student Learning Standards for Social Studies 6.2*

*New Jersey Student Learning Standards for Technology 8.1*

### C. Presentational Communication Mode

Describe people, places, things, and events with some details

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.3*

*New Jersey Student Learning Standards for Technology 8.1*

Express details of everyday life and past experiences

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.1 and 7.1.NH.C.3*

*New Jersey Student Learning Standards for 21st Century Life & Careers 9.1*

Organize thoughts into coherent speech

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.3, 7.1.NH.C.4*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

Compare and contrast cultural products and practices

*New Jersey Student Learning Standards for World Languages 7.1.NH.C.5*

*New Jersey Student Learning Standards for Technology 8.1*

Demonstrate awareness of contributions made in various fields by people from the target cultures

*New Jersey Student Learning Standards for World Languages 7.1.NH.C1, 7.1.NH.C2, 7.1.NH.C5*

*New Jersey Student Learning Standards for 21st Century Life & Careers 9.1*

#### D. Communities, Cultures, Comparisons & Connections

Demonstrate an understanding of the similarities and differences of the target culture by making cultural comparisons and connections

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

Compare and contrast the cultural perspectives of the target culture with those of one's own culture, as evidenced through the cultural products and cultural practices associated with each

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for English Language Arts A.R2, A.L2*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

*New Jersey Student Learning Standards for Social Studies 6.2 and 6.3*

*New Jersey Student Learning Standards for Technology 8.1*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1 and 9.2*

Synthesize information related to the cultural products, practices, perspectives associated with target culture to create a rich presentation on targeted themes with a target language audience.

*New Jersey Student Learning Standards for World Languages 7.1*

*New Jersey Student Learning Standards for Visual and Performing Arts 1.2*

*New Jersey Student Learning Standards for 21st Century Life and Careers 9.1 and 9.2*

### III. **CONTENT, SCOPE, AND SEQUENCE**

The following themes are interwoven to provide the framework by which students communicate as they explore cultural perspectives, make connections and comparisons, and prepare to participate in local and global communities. The grammatical structures presented following the themes and topics below, are offered as an important component to the logical continuum of the language acquisition process, but it is not the focus of instruction in the world languages classroom. Students explore grammar through context and with an emphasis of its functionality within the communicative approach.

#### Themes

##### A. My home

1. My routines (suggested time 3-4 weeks)
  - a. explain morning/night routines
  - b. describe celebrations
  - c. negotiate household chores
  - d. implement body parts to describe personal hygiene and grooming
  - e. identify preferences
2. My family responsibilities (suggested time 3-4 weeks)
  - a. compare and contrast personal chores with family chores
  - b. differentiate relationships between parents and siblings
  - c. describe physical/emotional traits of self and others
  - d. describe family events

## B. My past experiences

1. My weekend activities (suggested time 3-4 weeks)
  - a. describe things I did last weekend/last week/last month
  - b. describe recent past events with some detail
  - c. explain how responsibilities change as you grow older
2. My younger years (suggested time 5-6 weeks)
  - a. describe childhood with some detail
  - b. recount memories of middle school
  - c. compare/contrast life as a child with that of a preteen/teenager
  - d. compare/contrast middle school memories
  - e. describe friends now and then
  - f. identify preferences
  - g. describe plans with friends
3. My predictions (suggested time 3-4 weeks)
  - a. identify events from videos and other media
  - b. recognize appropriate sequence of events
  - c. make predictions

## C. My Future

1. Where do I see myself in 10 years? (suggested time 4-5 weeks)
  - a. identify professions and professional opportunities
  - b. recognize cultural structures
  - c. describe the jobs/areas that interest you
  - d. describe where you would like to live
2. My future living (suggested time 4-5 weeks)
  - a. explain differences between suburbia, city, and country
  - b. express preferences
  - c. describe farm living and agriculture
  - d. differentiate pets and other animals

## D. Contemporary living

1. What I do for fun? (suggested time 4-5 weeks)
  - a. identify my favorite pastimes
  - b. contrast my cultural events with others
  - c. distinguish passive vs active pastimes
2. Our cultural perspectives (suggested time 3-4 weeks)
  - a. compare/contrast target cultures with our own
  - b. describe different pastimes/activities/sports particular to a target culture
  - c. identify movies, actors, and/or famous people from the target cultures

## Grammatical Structures

### 1. French

- a. describing using the verb *être*, regular and irregular adjectives
- b. comparing *C'est* vs. *Il est/ Elle est*
- c. expressing feelings using the verb *avoir*
- d. using expressions with the verb *faire*
- e. asking questions using inversion
- f. expressing what one has just done and is going to do using the temporal expressions *venir + de* and *aller + infinitive*
- g. using the present tense with *depuis* to express how long one has been doing something
- h. talking in the past tense with *avoir* and *être*
- i. talking about people and things using *quelqu'un*, *quelque chose* and their negative opposites
- j. using *il y a* in the past tense to express how long ago events happened
- k. expressing want, ability and necessity using the verbs *vouloir*, *pouvoir* and *devoir*
- l. using the partitive article to express what one is eating
- m. using the verb *boire* to express what one is drinking
- n. talking about quantities and negation by using the preposition *de*
- o. using the adjective *tout*
- p. expressing what one must do using *il faut + infinitive*
- q. using direct and indirect object pronouns in the present, past, and imperative
- r. discussing who and what one knows using the verbs *connaître* and *savoir*
- s. talking about what one says, reads and write using the verbs *dire*, *lire*, and *écrire*
- t. recognizing and using verbs followed by an indirect object
- u. using stress pronouns in prepositional phrases

### 2. Spanish

- a. demonstrating knowledge of present tense regular verb conjugations
- b. demonstrating knowledge of present tense stem changing verb conjugations
- c. demonstrating knowledge of present tense irregular verb conjugations
- d. expressing use of reflexive verbs in the present tense and preterite tense
- e. using forms of *deber* to show what people should do
- f. describing actions using adverbs with *-mente*
- g. expressing regular and irregular preterit tense
- h. recognizing the imperfect tense
- i. asking and answering questions with direct and indirect object pronouns
- j. giving affirmative tú commands with regular, stem changing and irregular verbs
- k. giving negative tú commands with regular, stem changing and irregular verbs
- l. demonstrating knowledge of stem changing verb conjugations
- m. using informal regular and irregular commands in the affirmative and the negative
- n. expressing the simple future using *Ir + a + infinitive*
- o. using pronouns to clarify or emphasize the subject of an action
- p. demonstrating knowledge of regular present tense verbs with irregular *yo* forms
- q. demonstrating knowledge of the present participle tense of verbs to show progress of actions *estar + -ando/-iendo*

### Cultural Perspectives, Products, and Practices

1. Describing cultural differences in holidays celebrated in target language countries
2. Demonstrating increased awareness of and appreciation for the diversity of cultures including people, traditions, food, architecture, languages, poetry, art, music, dance, and handicrafts
3. Developing an awareness and appreciation of the differences between one's own culture and the target culture

## **IV. INSTRUCTIONAL TECHNIQUES**

Differentiated instruction creates a student-centered environment which seeks to accommodate the diverse learners and provides multiple pathways to learning. A variety of instructional approaches is employed to involve all students in the learning process and accommodate differences in readiness levels, interests and learning styles. The target language is used as the primary means of communication by providing an immersion setting in which both, teachers and students use the target language at least 95% of the time. Instructional techniques include but are not limited to:

- A. Teacher-directed whole-group instruction
- B. Small-group instruction
- C. Flexible grouping
- D. Technology-based instruction
- E. Hands-on activities
- F. Research projects
- G. Guided reading and discussion
- H. Think-Pair-Share student partner activities
- I. Total Physical Response (TPR)

## **V. EVALUATION**

The purpose of assessment is to improve student learning, gauge student progress and make necessary adjustments in methodology when needed. Student assessment practices include but are not limited to:

- A. Informal Assessments
  1. interviews
  2. oral presentations
  3. aural practice
  4. role-play
  5. classroom observations during coupled and group activities

B. Formal Assessments

1. baseline assessments
2. benchmark assessments
3. short essays
4. oral presentations
5. written quizzes and tests
6. aural assessments
7. projects

VI. **PROFESSIONAL DEVELOPMENT**

The following activities support this curriculum:

- A. Collaboration with colleagues through discussion and observation
- B. Department meetings to plan and coordinate curriculum and activities
- C. Visitation to districts that implement innovative language programs
- D. Professional development through courses or conferences.



## APPENDIX I

### New Jersey Student Learning Standards for World Languages

**STANDARD 7.1** All students will be able to use a world language in addition to English to engage in meaningful conversation, to understand and interpret spoken and written language, and to present information, concepts, and ideas, while also gaining an understanding of the perspectives of other cultures. Through language study, they will make connections with other content areas, compare the language and culture studied with their own, and participate in home and global communities.

#### **Strand A – Interpretive Mode**

- 7.1.NM.A.1 Recognize familiar spoken or written words and phrases contained in culturally authentic materials using electronic information sources related to targeted themes.
- 7.1.NM.A.3 Recognize a few common gestures and cultural practices associated with the target culture(s).
- 7.1.NM.A.4 Identify familiar people, places, and objects based on simple oral and/or written descriptions.
- 7.1.NM.A.5 Demonstrate comprehension of brief oral and written messages using age and level appropriate, culturally authentic materials on familiar topics.
- 7.1.NH.A.2 Demonstrate comprehension of simple, oral and written directions, commands, and requests through appropriate physical response.

#### **Strand B – Interpersonal Mode**

- 7.1.NM.B.1 Use digital tools to exchange basic information at the word and memorized-phrase level related to self and targeted themes.
- 7.1.NM.B.2 Give and follow simple oral and written directions, commands, and requests when participating in age appropriate classroom and cultural activities.
- 7.1.NM.B.3 Imitate appropriate gestures and intonations of the target culture(s)/language during greetings, leave-, takings, and daily interactions.
- 7.1.NM.B.4 Ask and respond to simple questions, make requests, and express preferences using memorized words and phrases.

Exchange information using words, phrases, and short sentences practiced in class on familiar topics or on topics studied in other content areas.

#### **Strand C – Presentational Mode**

- 7.1.NM.C.1 Use basic information at the word and memorized-phrase level to create a multimedia-rich presentation on targeted themes to be shared virtually with a target language audience.
- 7.1.NM.C.2 Imitate, recite, and/or dramatize simple poetry, rhymes, songs, and skits.

- 7.1.NM.C.3 Present information from age- and level-appropriate, culturally authentic materials orally or in writing
- 7.1.NM.C.4 Name and label tangible cultural products and imitate cultural practices from the target culture(s).

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs>*

## APPENDIX II

### **New Jersey Student Learning Standards for Social Studies**

**STANDARD 6.1** All students will acquire the knowledge and skills to think analytically about how past and present interactions of people, cultures, and the environment shape the American heritage. Such knowledge and skills enable students to make informed decisions that reflect fundamental rights and core democratic values as productive citizens in local, national, and global communities.

**STANDARD 6.2** All students will acquire the knowledge and skills to think analytically and systematically about how past interactions of people, cultures, and the environment affect issues across time and cultures. Such knowledge and skills enable students to make informed decisions as socially and ethically responsible world citizens in the 21st century.

**STANDARD 6.3** All students will acquire the skills needed to be active, informed citizens who value diversity and promote cultural understanding by working collaboratively to address challenges that are inherent in living in an interconnected world.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX III

### **New Jersey Student Learning Standards for English Language Arts**

**STANDARD NJLSA.R2.** Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX IV

### **New Jersey Student Learning Standards for Visual and Performing Arts**

**STANDARD 1.2. History of the Arts and Culture:** All students will understand the role, development, and influence of the arts throughout history and across cultures.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs>*

## APPENDIX V

### **New Jersey Student Learning Standards for Technology**

**STANDARD 8.1 Educational Technology:** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

**STANDARD 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:** All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*

## APPENDIX VI

### **New Jersey Student Learning Standards for 21<sup>st</sup> Century Life & Careers**

**STANDARD 9.1 (21<sup>st</sup> Century Life and Career Skills)** all students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

*The entire standards document may be viewed at <http://www.state.nj.us/education/cccs/>*