

**New Jersey Core Curriculum  
Content Standards  
Elementary School Report Profile**

## Living with Technology New Jersey Core Curriculum Content Standards

### Living with Technology Mathematics Standards

#### **4.1 All students will develop the ability to pose and solve mathematical problems in mathematics, other disciplines, and everyday experiences.**

- ST11 Calculates the number of parts needed to build bridges.
- ST14 Investigates simple forces and how they are measured.
- ST14 Identifies forces and how they are measured.
- ST15 Constructs and observes the operation of a spring balance.
- ST15 Uses a spring balance to measure the weight of objects.
- ST15 Calculates the length of objects.
- ST15 Identifies appropriate units to measure length.

#### **4.2 All students will communicate mathematically through written, oral, symbolic, and visual forms of expression.**

- ST10 Investigates the forces involved in moving a load over land.
- ST10 Explores how friction can be minimized using rollers and wheels.
- ST10 Compares the frictional force on land to the frictional force on water.
- ST11 Investigates forces and how they are measured.
- ST14 Investigates simple forces and how they are measured.
- ST14 Identifies forces and how they are measured.
- ST15 Explores measurement of length and the importance of standard units.
- ST15 Measures angles of rotation and recognizes acute and obtuse angles relative to the right angle.
- ST15 Recognizes features and properties of triangles.
- ST15 Interprets actual length from maps and plans.
- ST15 Calculates area by counting square units and using formula.
- ST15 Calculates volume by counting cubic units and using formula.
- ST15 Constructs a balance scale.
- ST15 Compares the weight of objects using a balance scale.
- ST15 Uses a spring balance to measure the weight of objects.
- ST15 Observes the length, area and volume relationships between different size cubes.
- ST15 Identifies how area and volume changes when the sides of a cube are doubled in length.
- ST15 Identifies the scale factor in diagrams.
- ST15 Calculates area of shapes by counting squares.
- ST15 Calculates volume of objects by counting cubes and using formula.

#### **4.3 All students will connect mathematics to other learning by understanding the interrelationships of mathematical ideas and the roles that mathematics and mathematical modeling play in other disciplines and in life.**

- ST10 Investigates the forces involved in moving a load over land.
- ST10 Explores the use of gears on vehicles.
- ST11 Investigates forces and how they are measured.
- ST11 Calculates the number of parts needed to build bridges.
- ST14 Investigates simple forces and how they are measured.
- ST14 Identifies forces and how they are measured.
- ST15 Explores measurement of length and the importance of standard units.
- ST15 Constructs and observes the operation of a spring balance.

**4.4 All students will develop reasoning ability and will become self-reliant, independent mathematical thinkers.**

- ST15 Measures angles of rotation and recognizes acute and obtuse angles relative to the right angle.
- ST15 Recognizes features and properties of triangles.
- ST15 Calculates area by counting square units and using formula.
- ST15 Calculates volume by counting cubic units and using formula.
- ST15 Compares the weight of objects using a balance scale.
- ST15 Recognizes the properties of triangles.
- ST15 Calculates area of shapes by counting squares.
- ST15 Calculates volume of objects by counting cubes and using formula.

**4.5 All students will regularly and routinely use calculators, computers, manipulatives, and other mathematical tools to enhance mathematical thinking, understanding, and power.**

- ST10 Investigates the forces involved in moving a load over land.
- ST11 Investigates forces and how they are measured.
- ST11 Calculates the number of parts needed to build bridges.
- ST15 Measures angles of rotation and recognizes acute and obtuse angles relative to the right angle.
- ST15 Recognizes features and properties of triangles.
- ST15 Calculates area by counting square units and using formula.
- ST15 Calculates volume by counting cubic units and using formula.
- ST15 Uses a spring balance to measure the weight of objects.
- ST15 Calculates the length of objects.
- ST15 Identifies appropriate units to measure length.
- ST15 Calculates the angles of different types of triangle.
- ST15 Identifies the scale factor in diagrams.
- ST15 Calculates area of shapes by counting squares.
- ST15 Calculates volume of objects by counting cubes and using formula.

**4.6 All students will develop number sense and an ability to represent numbers in a variety of forms and use numbers in diverse situations.**

- ST10 Investigates the forces involved in moving a load over land.
- ST10 Investigates frictional forces on water.
- ST11 Investigates forces and how they are measured.
- ST11 Calculates the number of parts needed to build bridges.
- ST14 Investigates simple forces and how they are measured.
- ST14 Identifies forces and how they are measured.

**4.7 All students will develop spatial sense and an ability to use geometric properties and relationships to solve problems in mathematics and in everyday life.**

- ST15 Measures angles of rotation and recognizes acute and obtuse angles relative to the right angle.
- ST15 Recognizes features and properties of triangles.
- ST15 Calculates area by counting square units and using formula.
- ST15 Calculates volume by counting cubic units and using formula.
- ST15 Recognizes the properties of triangles.
- ST15 Calculates area of shapes by counting squares.
- ST15 Identifies units in which volume is measured.

**4.9 All students will develop an understanding of and will use measurement to describe and analyze phenomena.**

- ST10 Investigates the forces involved in moving a load over land.

- ST10 Investigates frictional forces on water.
- ST11 Investigates forces and how they are measured.
- ST14 Investigates simple forces and how they are measured.
- ST15 Explores measurement of length and the importance of standard units.
- ST15 Measures angles of rotation and recognizes acute and obtuse angles relative to the right angle.
- ST15 Recognizes features and properties of triangles.
- ST15 Interprets actual length from maps and plans.
- ST15 Uses a spring balance to measure the weight of objects.
- ST15 Recalls units of length.
- ST15 Recalls the measurement and types of angles.
- ST15 Recalls how to use scale to calculate actual distances on maps and plans.
- ST15 Recalls methods of measuring weight.
- ST15 Identifies appropriate units to measure length.
- ST15 Identifies the scale factor in diagrams.
- ST15 Identifies units in which volume is measured.

**4.10 All students will use a variety of estimation strategies and recognize situations in which estimation is appropriate.**

- ST15 Explores measurement of length and the importance of standard units.
- ST15 Compares the weight of objects using a balance scale.

### Living with Technology Science Standards

**5.1 All students will learn to identify systems of interacting components and understand how their interactions combine to produce the overall behavior of the system.**

- ST10 Discovers how the parts of a model vehicle are related to the parts of a real car.
- ST10 Classifies the control surfaces of an airplane and their purpose.
- ST10 Classifies the parts of the space shuttle and their purposes.
- ST10 Recalls the parts of a real automobile and the size of the motive forces involved.
- ST10 Recalls the parts of the space shuttle and their purposes.
- ST11 Investigates the properties of frameworks.
- ST11 Identifies the parts of a simple beam bridge.
- ST11 Identifies the parts of a suspension bridge.
- ST11 Identifies the different modules required to build a space station.
- ST11 Identifies the parts of a bridge.
- ST12 Identifies the parts of a plant and their function.
- ST13 Recognizes systems used to communicate data.
- ST14 Identifies the basic parts and function of a lever.
- ST10 Explores the parts of an automobile and their function.
- ST10 Recognizes the control surfaces of an airplane.
- ST10 Explores the parts of a space shuttle and their function.
- ST11 Recognizes simple bridges and the basic parts of a bridge.
- ST11 Identifies basic parts of a suspension bridge and their function.

**5.2 All students will develop problem-solving, decision-making and inquiry skills, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating results.**

- ST10 Investigates the forces involved in moving a load over land.
- ST10 Investigates the forces acting on moving objects.
- ST10 Investigates frictional forces on water.

ST10 Compares the frictional force on land to the frictional force on water.

ST11 Recognizes the forces at work when bridges bend.

ST11 Recognizes the forces in a suspension bridge.

**5.3 All students will develop an understanding of how people of various cultures have contributed to the advancement of science and technology, and how major discoveries and events have advanced science and technology.**

ST10 Explores the history of ships.

ST11 Recognize how structures are built from frameworks.

ST11 Recognizes how the design of houses is affected by the climate.

**5.4 All students will develop an understanding of technology as an application of scientific principles.**

ST10 Explores how friction can be minimized using rollers and wheels.

ST10 Explores the use of gears on vehicles.

ST10 Investigates frictional forces on water.

ST10 Compares the frictional force on land to the frictional force on water.

ST10 Recalls exploring moving vehicles on water.

ST10 Recalls how friction can be minimized using rollers and wheels.

ST10 Recalls the parts of the space shuttle and their purposes.

ST11 Investigates the factors which determine how beams bend.

ST11 Identifies the parts of a simple beam bridge.

ST11 Investigates methods of strengthening bridges using pillars and a superstructure.

ST11 Identifies the parts of a suspension bridge.

ST11 Recognizes that climate can influence the design of houses.

ST11 Recognizes how cantilevers are used in stadium design.

ST11 Recognizes how cables can be used in stadium design.

ST11 Identifies the different modules required to build a space station.

ST12 Identifies the machines used by farmers to sow seeds.

ST12 Examines machines used in the farming cycle.

ST12 Identifies methods and machines used in the farming cycle.

ST13 Compares the written word to other simple forms of communication.

ST13 Identifies different types and applications of signs.

ST13 Designs and builds a restaurant sign.

ST13 Investigates visual communication systems.

ST13 Interprets messages written in visual codes.

ST13 Explores basic principles of radio wave communications using walkie-talkies.

ST13 Investigates applications of radio wave based communications.

ST13 Investigates the basic principles of optical fiber communications.

ST13 Investigates how pictures are sent back to Earth from space probes.

ST14 Explores the basic principles of levers.

ST14 Investigates machines which use turning forces.

ST14 Investigates the engines and motors used to power modern machines.

ST14 Explores applications of the inclined plane.

ST14 Recalls the basic principles and operation of gear systems.

ST14 Recognizes engines provide the power for machines to do work.

ST14 Recalls the basic principles and application of the inclined plane.

ST15 Constructs and observes the operation of a spring balance.

ST10 Explores the parts of an automobile and their function.

ST10 Investigates the purpose of the different types of modern ship.

- ST10 Identifies the purpose of control surfaces on an airplane.
- ST10 Explores the parts of a space shuttle and their function.
- ST11 Recognizes simple bridges and the basic parts of a bridge.
- ST11 Recognizes how the design of houses is affected by the climate.
- ST13 Explores the early development of writing.
- ST13 Investigates the development of electronic communication systems.
- ST14 Explores the basic principles of machines.

**5.5 All students will integrate mathematics as a tool for problem-solving in science, and as a means of expressing and/or modeling scientific theories.**

- ST10 Investigates the forces involved in moving a load over land.
- ST10 Investigates the forces acting on moving objects.
- ST10 Investigates frictional forces on water.
- ST10 Compares the frictional force on land to the frictional force on water.
- ST10 Recalls how friction can be minimized using rollers and wheels.
- ST11 Investigates forces and how they are measured.
- ST11 Recognizes the forces in a suspension bridge.
- ST14 Investigates simple forces and how they are measured.
- ST14 Identifies forces and how they are measured.
- ST15 Explores measurement of length and the importance of standard units.
- ST15 Measures angles of rotation and recognizes acute and obtuse angles relative to the right angle.
- ST15 Recognizes features and properties of triangles.
- ST15 Interprets actual length from maps and plans.
- ST15 Calculates area by counting square units and using formula.
- ST15 Calculates volume by counting cubic units and using formula.
- ST15 Compares the weight of objects using a balance scale.
- ST15 Uses a spring balance to measure the weight of objects.
- ST15 Recalls the measurement and types of angles.
- ST15 Recalls the properties and types of triangles.
- ST15 Recalls how to use scale to calculate actual distances on maps and plans.
- ST15 Recalls methods of measuring weight.

**5.6 All students will gain an understanding of the structure, characteristics, and basic needs of organisms.**

- ST12 Identifies the stages in seed germination.
- ST12 Identifies the parts of a plant and their function.
- ST12 Identifies stages in the life cycle of a plant.
- ST12 Identifies processes of photosynthesis in plants.
- ST12 Describes methods used to promote plant growth.
- ST12 Describes parts of the water cycle.
- ST12 Describes food chains and natural selection.
- ST12 Describes processes of natural selection in plants and animals.

**5.7 All students will investigate the diversity of life.**

- ST12 Identifies that living things can be classified into kingdoms.
- ST12 Classifies living things by what they eat using a key.
- ST12 Describes methods used to promote plant growth.
- ST12 Describes parts of the water cycle.
- ST12 Matches living things, environments and habitats.

- ST12 Describes food chains and natural selection.
- ST12 Describes processes of natural selection in plants and animals.
- ST12 Investigates the classification of plants and animals.

**5.9 All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.**

- ST10 Investigates the forces involved in moving a load over land.
- ST10 Explores how friction can be minimized using rollers and wheels.
- ST10 Investigates the forces acting on moving objects.
- ST10 Investigates buoyancy.
- ST10 Investigates frictional forces on water.
- ST10 Compares the frictional force on land to the frictional force on water.
- ST10 Investigates aerodynamic lift.
- ST10 Investigates the effect of air resistance.
- ST10 Explores the forces that can be used to overcome gravity.
- ST10 Recalls the effect of forces in flight.
- ST10 Recalls how friction can be minimized using rollers and wheels.
- ST10 Recalls the forces acting on moving objects.
- ST11 Investigates forces and how they are measured.
- ST11 Recognizes the forces in a suspension bridge.
- ST13 Investigate how sound is produced and travels as a vibration.
- ST13 Investigates how the pitch of sounds can be changed.
- ST13 Investigates applications of radio wave based communications.
- ST13 Explores basic principles of radio wave communications using walkie-talkies.
- ST13 Recognizes the basic principles of sound production.
- ST14 Investigates simple forces and how they are measured.
- ST14 Explores the basic principles of levers.
- ST14 Identifies the basic parts and function of a lever.
- ST14 Investigates machines which use turning forces.
- ST14 Explores the idea of work as a force being applied for a certain distance.
- ST14 Investigates the basic principle of the inclined plane.
- ST14 Identifies forces and how they are measured.
- ST14 Recalls turning forces and how they can be magnified.
- ST10 Explores the forces that can be used to overcome gravity.

**5.10 All students will gain an understanding of the structure, dynamics, and geophysical systems of the earth.**

- ST12 Describes parts of the water cycle.
- ST15 Interprets actual length from maps and plans.
- ST15 Identifies the scale factor in diagrams.

**5.12 All students will develop an understanding of the environment as a system of the interdependent components affected by human activity and natural phenomena.**

- ST12 Matches living things, environments and habitats.