Centerville-Abington Elementary Curriculum Mapping
Science – 4th Grade
1st Nine Weeks
Mrs. Kohn

Unit Chapter Lesson	Indiana Standard(s)	Key Concepts	Resources/Activities	Vocabulary	Assessments
Prologue	The design process and nature of science	Scientific Method •What the Scientific Method is and how to use the Scientific Method to make new knowledge	•Teacher's Manual, page 1-14 •Inferencing, page 30 •Forming a Hypothesis, page 168 •Data and Numbers, page 206 •Foldable, page 207; instructions on page 290 •Design Process, Page 242 **Technology Resources** •Brainpop.com *Scientific Method* *Science Projects* •Sciencejams.com *Scientific Methods* *Scientific Theory & Evidence*	Hypothesis Variable Data Prediction Conclusion	Science Fair Projects (Grades are based on teacher created rubrics)

Unit 1 Lesson 1	4.1.1 Describe and investigate the different ways in which heat can be generated. 4.1.2 Investigate the variety of ways in which heat can be generated and moved from one place to another. Explain the direction the heat moved. 4.1.4 Experiment with materials to identify conductors and insulators of heat and electricity	•Describe ways that heat can be produced. •Describe how heat can move from one place to another through conduction, radiation, and convections.	Teacher's Manual, pages 18-33 •Explore, pg 20; You will need rubber erasers and thick rubber bands •Quicklab, page 278; you will need balloons, empty, narrow-mouth plastic bottles, and hot and cold water •Visual Literacy, page 255-256 •Foldable, page 22; instructions on page 290 •Study Guide Foldable, page 28; instructions on page 301 •Online books,journals, vocabulary games, and review **Technology Resources** •Brainpop.com *Heat* •Sciencejams.com *Heat* •SchoolTube.com *Bill Nye: Heat*	Heat (NCA) Insulator Conductor Radiation Convection	Lesson One review, pages 28-29 Teacher Observation Exam View Assessment Suite CD-ROM Teacher created assessments

Unit 1 Lesson 2	4.1.3 Construct a complete circuit through which an electrical current can pass as evidenced by the lighting of a bulb or ringing of a bell. 4.1.5 Demonstrate that electrical energy can be transformed into heat, light, and sound 4.1.4 Experiment with materials to identify conductors and insulators of heat and electricity	•Describe the characteristics and application of electrical charges. •Demonstrate how electrical energy is transformed into heat and light in a complete circuit.	Curriculum Resources Teacher's Manual, pages 34-49 •Explore, pg 36-37; •Quicklab, page 279; you will need hair combs and tissue paper •Visual Literacy, page 257 •Foldable, page 39; instructions on page 290. •Foldable, page 44; instructions on page 300 •Online books, journal, vocabulary games, and review **Technology Resources** •Brainpop.com *Current Electricity* *Electric Circuits* *Electricity* *Static Electricity* *Thomas Edison* •Sciencejams.com *Electricity* *Current Electricity & Electric Circuit* •SchoolTube.com *Bill Nye: Electricity*	Static Electricity Electrical Current (NCA) Discharge Circuit Switch Resistance	Lesson Two review, pages 44-45 Teacher Observation Exam View Assessment Suite CD-ROM Unit One Review, pages 50-55 Foldable, page 50; Foldable Instructions, page 300 Unit One Assessment available in Assessment Book ExamView Assessment Suite CD-ROM Teacher created assessments

Curriculum Mapping

Science – 4th Grade

2nd Nine Weeks

Unit Chapter Lesson	Indiana Standard(s)	Key Concepts	Resources/Activities	Vocabulary	Assessments
Unit 2 Lesson 1	4.2.1 Demonstrate and describe how smaller rocks come from the breakage and weathering of larger rocks in a process that occurs over a long period of time. 4.2.2 Describe how wind, water and glacial ice shape and reshape earth's land surface by eroding rock and soil in some areas and depositing them in other areas in a process that occurs over a long period of time.	•Explain how large rocks are broken down into small rocks through weathering. •Compare erosion with weathering and describe how wind, water, and glaciers change Earth's land surface through erosion and deposition.	Teacher's Manual Page 60-77 •Explore, pages 62-63; You will need sandstone rocks, measuring cups, 3 plastic jars with lids, a stopwatch, and hand lenses; •Quicklab page 280; You will need clear plastic jars and lids, measuring cups, sand, soil, pebbles, and water •Visual Literacy, pages 258-259 Foldables, page 71; instructions on page 297 •Foldable, page 72,instructions on page 301 •Foldable, page 75;instructions on page 290 **Technology Resources** •Brainpop.com *Weathering* *Erosion* *Glaciers* •Sciencejams.com *Weathering and Erosion* •SchoolTube.com *Bill Nye: Erosion*	Weathering (NCA) Erosion (NCA) Glacier Deposition Till Moraine	Lesson Review, pages 72-73 Teacher Observation Exam View Assessment Suite CD-ROM Teacher created assessments

Unit 2 Lesson 2	4.2.3 Describe how earthquakes, volcanoes and landslides suddenly change the shape of the land. ELA 4.4.1	•Demonstrate how earthquakes, volcanoes, and landslides change the shape of the land. •Describe the effects of earthquakes, volcanoes, and landslides.	Teacher's Manual Page 78-93 •Explore, page 80; you will need aluminum pans, sand, assorted blocks, and twigs •Quicklab-page 281; you will need small tubes of toothpaste and newspaper •Visual Literacy, pages 260-261 •Foldable, page 84; instructions on page 290 •Foldable, page 88, instructions on page 300-301 •Foldable on page 93; instructions on page 290 •Online books, journals, vocabulary games, and review **Technology Resources** •Brainpop.com *Natural Disasters* *Earthquakes* *Tsunami* *Volcano*. •SchoolTube.com *Bill Nye: Erosion*	Earthquake Tsunami Volcano Landslide	Lesson Review, pages 88-89 Teacher Assessment Exam View Assessment Suite CD-ROM Unit Two Review, pages 94-99 Foldable, page 94, instructions on page 300-301 Unit Test provided in Assessment Book ExamView Assessment Suite CD-ROM Teacher created assessments

Unit 3 Lesson 1	4.2.4 Investigate earth materials that serve as natural resources and gather data to determine which ones are limited by supply.	•Describe Earth's natural resources, where they come from, and how they are used. •Investigate Earth's supplies of nonrenewable and renewable resources.	Teacher's Manual, page 102-115 •Explore, page 104- 105; you will need hand lenses, chalk, ceramic pottery dishes, clay, cotton balls, fabric, limestone, pencils, and twigs •Quicklab, page 282; you will not need to provide any resources •Visual Literacy, pages 262-263 •Foldable, page 104; instructions on page 290 •Foldable, page 108; instructions on page 294 •Foldable, page 112; instructions on pages 300 -301 •Foldable, page 115; instructions, page 290 •Online books, journals, vocabulary games, and review **Technology Resources** •Brainpop.com *Natural Resources* •Studyjams.com *Natural Resources*	Natural Resources (NCA) Nonrenewable Resources (NCA) Renewable Resources	Lesson Review, page 112-113 Teacher Review ExamView Assessment Suite CD-ROM Teacher created assessments

Unit 3 Lesson 2	4.2.5 Describe methods that humans currently use to extend the use of natural resources. 4.2.6 Describe ways in which humans have changed the natural environment. Explain if these changes have been detrimental or beneficial.	•Identify the effects of pollution on Earth's land, water, and air. •Describe ways to benefit and protect the natural environment, including ways to conserve resources and reduce pollution.	Teacher's Manual, pages 116-129 •Explore, page 118-119; you will need plastic containers, water, cork, eyedroppers, vegetable oil, paper towels, and sponges •Quicklab, page 283; you will not need to provide any resources •Visual Literacy, pages 264 -265 •Foldable, page 119; instructions on page 292 •Foldable, page 123; instructions on page 294 •Foldable, page 126; instructions on pages 300-301 •Online books, journals, vocabulary games, and review **Technology Resources** •Brainpop.com *Humans and the Environment* *Air Pollution* *Water Pollution* *Waste Management*	Environment (NCA) Pollution Conservation Reduce Reuse Recycle	Lesson Review, pages 126-127 Teacher Observation Exam View Assessment Suite CD-ROM Unit Review, pages 130-135 Review Foldable on page 130 Instructions on pages 300-301 Unit Test provided with published materials . Exam View Assessment CDROM Teacher created assessment

Curriculum Mapping

Science – 4th Grade

3rd Nine Weeks

Unit Chapter Lesson	Indiana Standard(s)	Key Concepts	Resources/Activities	Vocabulary	Assessments
Unit 4 Lesson 1	4.3.1 Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction. 4.3.2 Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.	• Observe ho offspring are very much like their parents. • Describe how differences among individuals in a population may offer certain individuals an advantage in survival and reproduction.	Teacher Manual, pages 140-158 •Explore, page 142-143; you will need young chickens (Purdue Extension Agency—Incubating Chicks) and adult guinea pigs with babies •Quicklab, page 284; you will need two sets of inherited characteristics cards (one set on one color cardstock, the second set on another color of cardstock) •Visual Literacy, page 266 •Foldable, page 147; instructions on page 292 •Foldable, page 150; instructions on page 300-301 •Online books, journals, vocabulary games, and review	Offspring Inherited characteristics Physical characteristics (NCA) Population Instinct Learned behavior	Lesson Review, page 150-151 Teacher Observation ExamView Assessment Suite CD-ROM Teacher created assessment

Unit 4 Lesson 2	4.3.2 Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction. 4.3.3 Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.	• Compare the characteristics of plants and animals from different environments. • Describe how plants and animals are adapted to their environments.	Teacher Manual, pages 154-171 •Explore, pages 156-157; you will need a shoe box, scissors, cardboard, ruler, tape, and potted plant •Quicklab, page 285; you will need markers and modeling clay •Visual Literacy, pages 267-268 •Foldable, page 156; instructions on page 290 •Foldable, page 159; instructions, page 292 •Foldable, page 166; instructions on page 300-301 •Online Animation: "Adaptations of Desert Plants" •Online books, journals, vocabulary games, and review **Technology Resources** •Studyjams.com *Animal Adaptations* *Plant Adaptations*	Adaptations (NCA) Hibernates Stimuli Camouflage Mimicry	Lesson Review, pages 166-167 Teacher Observation Exam View Assessment Suite CD-ROM Teacher created assessment

Unit 4 Lesson 3	4.3.1 Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction. 4.3.2 Observe, compare and record the physical characteristics of living plants or animals from widely different environments. Describe how each plant or animal is adapted to its environment. 4.3.4 Describe a way that a given plant or animal might adapt to a change arising from a human or nonhuman impact on its environment.	• Understand that living and nonliving things cause environments to change. • Describe how living things can adapt to changes in the environment.	Teacher Manual, pages 172-183 •Explore, pages 174-175; you will need 18 green index cards, 18 yellow index cards, and 18 red index cards •Quicklab, page 286; you will need hard-boiled eggs, vinegar, and cups •Visual Literacy, page 269 •Foldable, page 178; instructions on page 290 •Foldable, page 180; instructions, page 300-301 •Online books, journals, vocabulary games, and review	Review Vocabulary from Lesson 1 and Lesson 2	Lesson Review, pages 180-181 Teacher Observation Exam View Assessment Suite CD-ROM Unit Four Review, pages 184-189 Unit Four foldable study guide, page 184—instructions on pages 300-301 Unit Four Test available in the Assessment book ExamView Assessment Suite CD-ROM Teacher created assessment

Science 4th Grade 4th Nine Weeks

Unit Chapter Lesson	Indiana Standard(s)	Key Concepts	Resources/Activities	Vocabulary	Assessments
Unit 5 Lesson 1	4.4.2 Make appropriate measurements to compare the speeds of objects in terms of the distance traveled in a given amount of time or the time required to travel a given distance. 4.4.3 Investigate how changes in speed or direction are caused by forces: the greater the force exerted on an object, the greater the change.	• Explain how changes in motion, including changes in speed and direction, are caused by forces. • Use measurement to compare the speeds and acceleration of different objects.	Teacher's Manual pages 194-209 •Explore, pages 196-197; you will need 4 books, cardboard tube, marble, and stopwatch •Quicklab, page 287; you will need textbooks, string, and a spring scale •Visual Literacy, pages 270-271 •Foldable, page 196; instructions on page 292 •Foldable, page 198; instructions on page 292 •Foldable, page 204; instructions on pages 300-301 •Online Animation: "Acceleration of Different Masses" •Online books, journals, vocabulary games, and review **Technology Resources** •Brainpop.com *Distance, Rate, and Time* *Acceleration* *Forces* •Sciencejams.com *Newton's First Law: Inertia* *Newton's Third Law: Action and Reaction* •Schooltube.com *Bill Nye Motion*	Distance Speed Velocity Force (NCA) Friction Gravity Acceleration	Lesson One review, pages 204-205 Teacher Observation Exam View Assessment CD-ROM Teacher created assessment

Unit 5 Lesson 2	4.4.1 Investigate transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity) that affect their motion.	• Describe the forces that affect the motion of transportation devices, including rockets, airplanes, boats, cars, and trains. • Use measurement, graphs, and tables to represent motion and evaluate the design of a moving object.	Teacher's Manual, pages 210-229 •Explore, pages 212-213; you will need string, plastic drinking straws, tape, chairs, 3 balloons of different sizes and shapes, a binder clip, measuring tape, and a stopwatch •Quicklab, page 288; you will need two identical plastic bottles •Visual Literacy, page 272 •Foldable, page 212; instructions on page 290 •Foldable study guide; instructions, pages 300-301 •Foldable, page 227; instructions on page 290 •Online books, journals, vocabulary games, and review **Technology Resources** •Brainpop.com *Buoyancy* *Flight* •Schooltube.com *Bill Nye Buoyancy* *Bill Nye Flight*	Thrust Drag Lift Buoyancy	Lesson Review, pages 224-225 Teacher Observation Exam View Assessment Suite Teacher created assessment

Unit 5 Lesson 3	4.4.4 Define a problem in the context of motion and transportatio. Propose a solution to this problem by evaluating, reevaluating and testingthe design . Gather evidence about how well the design meets the needs of the problem. Document the design so that it can be easily replicated.	• Understand the process engineers and scientists use the design and build new technologies. • Propose a solution to a problem related to transportation of people or goods by testing and evaluating a vehicle design.	Teacher's Manual, pages 230-245 •Explore, pages 232-233; you will need cardboard, a drawing compass, scissors, bendable drinking straw, a balloon, and measuring tape •Quicklab, page 289; you will need paper for constructing paper airplanes •Visual Literacy, page 273 •Foldable study guide; instructions on pages 300-301 •Online books, journals, vocabulary games, and review	Technology Engineer Prototype Design process	Lesson Review, pages 240-241 Teacher Observation Exam View Assessment Suite CD-ROM Unit Five Review, pages 246-251 Unit Five Foldable on page 246—instructions on pages 300-301 Unit test available in Assessment Books Exam View Assessment Suite CD-ROM Teacher created assessment

Standards and Standard Descriptions

Standard 1: Physical Science
Core Standard: Provide evidence that heat and electricity are forms of energy. (4.1.1, 4.1.2)
Core Standard: Design and assemble electric circuits that provide a means of transferring energy from one form or place to another. (4.1.3, 4.1.4, 4.1.5)
4.1.1 Describe and investigate the different ways in which heat can be generated.
4.1.2 Investigate the variety of ways in which heat can be generated and moved from one place to another. Explain the direction the heat moved.
4.1.3 Construct a complete circuit through which an electrical current can pass as evidenced by the lighting of a bulb or ringing of a bell .
4.1.4 Experiment with materials to identify conductors and insulators of heat and electricity.
4.1.5 Demonstrate that electrical energy can be transformed into heat, light, and sound.

Standard 2: Earth Science
Core Standard: Observe, investigate and give examples of ways that the shape of land changes over time. (4.2.1, 4.2.2, 4.2.3)
Core Standard: Describe how the supply of natural resources is limited and investigate ways that humans protect and harm the environment. (4.2.4, 4.2.5, 4.2.6)
4.2.1 Demonstrate and describe how smaller rocks come from the breakage and weathering of larger rocks in a process that occurs over a long period of time.
4.2.2 Describe how wind, water and glacial ice shape and reshape earth's land surface by eroding rock and soil in some areas and depositing them in other areas in a process that occurs over a long period of time.
4.2.3 Describe how earthquakes, volcanoes and landslides suddenly change the shape of the land.
4.2.4 Investigate earth materials that serve as natural resources and gather data to determine which ones are limited by supply.
4.2.5 Describe methods that humans currently use to extend the use of natural resources.
4.2.6Describe ways in which humans have changed the natural environment. Explain if these changes have been detrimental or beneficial.

Standard 3: Life Science
Core Standard: Observe, describe and ask questions about structures of organisms and how they affect their growth and survival.
4.3.1 Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.
4.3.2 Observe, compare and record the physical characteristics of living plants or animals from widely different environments. Describe how each plant or animalis adapted to its environment.
4.3.3 Design investigations to explore how organisms meet some of their needs by responding to stimuli from their environments.
4.3.4 Describe a way that a given plant or animal might adapt to a change arising from a human or non-human impact on its environment.

Standard 4: Science, Engineering and Technology
Core Standard: Design a moving system and measure its motion.
4.4.1 Investigate transportation systems and devices that operate on or in land, water, air and space and recognize the forces

(lift, drag, friction, thrust and gravity) that affect their motion.
4.4.2 Make appropriate measurements to compare the speeds of objects in terms of
the distance traveled in a given amount of time or the time required to travel a given distance.
4.4.3 Investigate how changes in speed or direction are caused by forces: the greater the force exerted on an object, the greater the change.
4.4.4 Define a problem in the context of motion and transportation. Propose a solution to this problem by evaluating, reevaluating and testing the design. Gather evidence about how well the design meets the needs of the problem. Document the design so that it easily replicated.