West Essex Consortium Curriculum
Essex Fells
Fairfield
North Caldwell
Roseland
Science Department

I. COURSE NAME: Science 3

II. COURSE PREREQUISITES: Science 2

III. GRADE LEVEL(S): 3

IV. COURSE DESCRIPTION:

The performance expectations for third grade help students formulate answers to questions such as:"What is typical weather in different parts of the world and during different times of the year? How can the impact of weather-related hazards be reduced? How do organisms vary in their traits? How are plants, animals, and environments? What happens to organisms when their environment changes? How do equal and unequal forces on an object affect the object? How can magnets be used? Third Grade performance expectations include PS2, LS1, LS2, LS3, LS4, ESS2, and ESS3 Disciplinary Core Ideas. Students are able to organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. Students are expected to develop an understanding of the similarities and differences of organisms' life cycles. An understanding that organisms have different inherited traits, and that the environment can also affect the traits that an organism develops, is acquired by students at this level. In addition, students are able to construct an explanation using evidence for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. Students are expected to develop an understanding of types of organisms that lived long ago and also about the nature of their environments. Third graders are expected to develop an understanding of the idea that when the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. Students are able to determine the effects of balanced and unbalanced forces on the motion of an object and the cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. They are then able to apply their understanding of magnetic interactions to determine a simple design problem that can be solved with magnets. The crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.

V. COURSE OBJECTIVES:

In third grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems; developing and using models, planning and carrying out investigations, analyzing and interpreting data,

constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of core ideas.

VI. TEXTS/RESOURCES

A. Textbook

B. www.NSTA.org

C. www.nextgenscience.org

D. https://moore-stem.wikispaces.com/3rd+Grade+STEM

E. www.betterlesson.com

VII. EVALUATIONS/ASSESSMENTS

A combination of formative and summative assessments will be utilized in this course including, but not limited to teacher observations, student work and reflections, projects, quizzes and tests, and writing tasks.

VIII. SCOPE AND SEQUENCE (see table below)

This course has been designed with respect to and in compliance with the expectations set forth in the state-approved standards.

Beginning of Year Ideas:
Tech in a Bag:
- https://drive.google.com/drive/folders/0ByFBd0Ins-tSbG81ZWNqQVBlNkE

"Those Daren Squirrels" by Adam Rubin
- https://betterlesson.com/lesson/620235/those-darn-squirrels-brainstorming-ideas

"The Most Magnificent Things" by Ashley Spires
"What to do with an Idea" and "What to do with an Idea" by Kobi Yamada

Scope and Sequence of Content and Skills for Science 3

Unit Name	Motion and Stability: Forces and Interactions
Estimated Timeline	8 weeks
Essential Questions	• What forces are acting on an object at rest? • What forces are acting on an object in motion? • How can you change the forces acting on an object? • How can measurements and observations help predict future motion of objects? • How can electric and magnetic interactions between two objects affect the motion of an object?

Prepared by:
Date of Revision:
BOE Approval:

	● What simple designs solve problems using magnets?
NGSS	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives (standards)	● Students will plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. ● Students will make observations and/ or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. ● Students will ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. ● Students will create a simple design problem that can be solved by applying scientific ideas about magnets. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will 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. ● Students will 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.
Suggested projects, activities, labs used to support content	● Create an investigation to identify and describe the effects of different forces on an object's motion (starting, stopping, changing direction). ● Develop an investigation to change the motion of an object at rest by applying both balanced (forces that sum zero) and unbalanced forces (forces that do not sum to zero) ● Develop models to represent balanced and unbalanced forces ● Describe the motion of an object will be observed and recorded (control strength and vary the direction, control direction and strength, number of trials needed) ● Create an investigation that tests the magnetic pull of a bar magnet at varying distances with the use of paper clips. Students will hypothesize, conduct the experiment, collect the data, and draw conclusions. As a class, students will then compare each team's data and their interpretation of the results. ● Participate in hands-on investigations to observe the phenomena that occurs when an electrically charged comb interacts with cereal and styrofoam pellets. ● Participate in investigation where students will be given a set of everyday objects and asked to make predictions on how far each

Prepared by:
Date of Revision:
BOE Approval:

	object will move when they blow on it. They will then measure the distances the objects moved and record their data and observations in their science journals. ● Develop and carry out investigations to answer the following ○ Will magnets work underwater? ○ Can magnets be blocked by certain materials? ○ Is it harder for a magnet to work through solids, liquids, or gases? ○ Is it truly possible to block a magnetic field? ○ Are all metals magnetic? ○ Does the orientation of a magnet affect movement? ○ Does distance between the objects affect movement? ○ Does the size of the objects affect movement? ○ Can magnetism be transferred to other objects? ● Design a car that could move as far as possible with one breath of air only using four Lifesavers, two straws, two paper clips, scissors, tape, and a sheet of paper. ● Design and improved model of an everyday object using a magnet (example being a magnetic latch to keep a door closed) ● Motion and Wind- See Student Recording Sheet ● Lifesaver Model Car- See Student Recording Sheet
Suggested assessments	Students can demonstrate competency with tasks such as: ● Developing and refining models ● Planning and carrying out investigations ● Generating, discussing and analyzing data ● Constructing spoken and written scientific explanations ● Engaging in evidence-based argumentation ● Reflecting on their own understanding ● Notebook entries ● Response sheets ● Focus question answers ● Science and engineering practices checklist ● Rubrics to assess designs and models
Suggested resources	● *Christina Melillo will send Motion and Matter Unit* ● NSTA Resources and Lesson Plans: http://ngss.nsta.org/classroom-resources-results.aspx?CoreIdea=2 ● Design a car investigation: http://static.nsta.org/files/sc1501_34.pdf ● Movement lab http://serc.carleton.edu/sp/mnstep/activities/48587.html ● Static electricity lab https://www.scientificamerican.com/article/bring-science-home-static-electricity-attraction/ ● Magnet lab (distance) http://serc.carleton.edu/sp/mnstep/activities/26850.html ● Build your own ramp challenge https://stemplayground.org/activities/ramp-race/

Prepared by:
Date of Revision:
BOE Approval:

	• Improve an object using a magnet https://betterlesson.com/lesson/resource/3228140/situations • Inertia trajectory investigation https://betterlesson.com/lesson/637934/the-law-of-inertia • Make Magnetic Slime http://frugalfun4boys.com/2014/03/06/make-magnetic-slime/

Unit Name	From Molecules to Organisms: Structures and Processes
Estimated Timeline	8 weeks
Essential Questions	• What are the life cycles for birds, reptiles, and fish? • What are the life cycles for amphibians? • What are the life cycles for insects? • What are the life cycles of mammals? • How do different plants reproduce? • How do different animals reproduce? • What are the stages in an organism's life cycle?
NGSS	3-LS1-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives	• Students will develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. • Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. • Students will 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. • Students will 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.
Suggested projects, activities, labs used to support content	• Students will research an organism's life cycle • Students will develop models (conceptual, physical, and drawings) to represent different animal life cycles. • Students will develop models with clay to describe the phenomenon (birth, growth, reproduction, death). • Students will identify patterns across life cycles. • Students will observe and track the stages in an organism's life

Prepared by:
Date of Revision:
BOE Approval:

	cycle using a life specimen in the classroom. ● Students will observe and track the stages in the life cycle of a lima bean plant in a mason jar. ● Differentiate among the stages in the life cycle of a butterfly, mealworm, frog and plant. ● Life cycle museum (students choose a life cycle to research and represent using a model)
Suggested assessments	Students can demonstrate competency with tasks such as: ● developing and refining models ● generating, discussing and analyzing data ● constructing spoken and written scientific explanations ● engaging in evidence-based argumentation ● reflecting on their own understanding ● notebook entries ● response sheets ● focus question answers ● science and engineering practices checklist ● Rubrics to assess designs and projects
Suggested resources	● Lima Bean investigation http://www.myips.org/cms/lib8/IN01906626/Centricity/Domain/8123/2nd%20grade%20Unit%20Plant%20-%20The%20Life%20Cycle%20Of%20A%20Plant.pdf ● Mealworm/ Bess Beetle life cycle https://www.wardsci.com/store/product/8880391/ward-s-live-mealworm-larvae-pupae-and-beetles-tenebrio ● Tadpole life cycle https://www.homesciencetools.com/grow-a-frog-kit ● Scholastic Life Cycle Lessonshttps://www.scholastic.com/teachers/blog-posts/genia-connell/10-ready-go-resources-teaching-life-cycles ● Wisconsin Fast Grow Plant Seeds https://fastplants.org

Prepared by:
Date of Revision:
BOE Approval:

Unit Name	Ecosystems: Interactions, Energy, and Dynamics
Estimated Timeline	3-4 weeks
Essential Questions	● Why do some animals form groups? ● What do animals do to survive in their environments? ● What do animals need to survive in their environments?
NGSS	3-LS2-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives	● Students will construct an argument that some animals form groups that help members survive. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will 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. ● Students will 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.
Suggested projects, activities, labs used to support content	● Students will participate in “survival game”. Students will be split up and assigned as a specific animals (lone animal, animal in a pack) Students will have a limited time to travel around the room to get food, water, and shelter which are scattered around the room on different colored post-it notes. Students will debrief on the activity, discussing how the animal in a group had an easier time surviving. ● Watch videos observing different animals in groups. Write and discuss advantages and disadvantages to living in groups. ● Read and discuss articles on animals to identify animal behaviors and the benefits and drawbacks to these behaviors. ● Read articles and watch videos to discuss and write about how changes in the environment can affect animals.
Suggested assessments	Students can demonstrate competency with tasks such as: ● developing and refining models ● generating, discussing and analyzing data ● constructing spoken and written scientific explanations ● engaging in evidence-based argumentation ● reflecting on their own understanding ● notebook entries ● response sheets ● focus question answers

Prepared by:
Date of Revision:
BOE Approval:

	• science and engineering practices checklist
Suggested resources	• Reading passages on survival in groups https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages • Surviving in groups activity https://betterlesson.com/lesson/632602/animal-groups-what-purpose-do-they-serve • Observing animals in groups videos https://betterlesson.com/lesson/632602/animal-groups-what-purpose-do-they-serve • Writing the relationship between predator and prey (coyote/rabbit) https://betterlesson.com/lesson/631543/predator-and-prey-act-it-out • Amazing group behaviors in insects https://betterlesson.com/lesson/632312/amazing-ants-group-behavior-in-insects • Talents of ants https://betterlesson.com/lesson/635052/social-insects-the-many-talents-of-ants • Gorilla survival https://betterlesson.com/lesson/631906/introduction-to-mountain-gorillas • Animal Adaptations http://stem-works.com/subjects/30-the-animal-kingdom/activities/620 • Animal Lifecycles Video http://stem-works.com/subjects/30-the-animal-kingdom/activities/620 •

Prepared by:
Date of Revision:
BOE Approval:

Unit Name	Heredity: Inheritance and Variation of Traits
Estimated Timeline	2-4 weeks
Essential Questions	● What similarities and differences in traits are shared between offspring, parents, and siblings? ● What variations on traits are present among plants or animals of the same group? ● What patterns can be observed and recorded? ● What traits are inherited? ● What traits are affected by the environment? ● How can traits be affected by the environment?
NGSS	3-LS3-1 3-LS3-2 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives	● Students will 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. ● Students will use evidence to support the explanation that traits can be influenced by the environment. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will 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.
Suggested projects, activities, labs used to support content	● Students make a claim to support a given explanation of an adaptation/behavior (ex.: nest building, colorful plumage to attract mates, bright flowers). In their claim, students will include the idea that characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. ● Students will develop a model (e.g., Punnett squares, diagrams, simulations) of genetic variation in offspring relative to their parents. ● Students will use cause-and-effect relationships found in the model between the type of reproduction and the resulting genetic variation to predict that more genetic variation occurs in organisms. ● Students will identify inherited traits in partners.

Prepared by:
Date of Revision:
BOE Approval:

Suggested assessments	Students can demonstrate competency with tasks such as: ● developing and refining models ● generating, discussing and analyzing data ● constructing spoken and written scientific explanations ● engaging in evidence-based argumentation ● reflecting on their own understanding ● notebook entries ● response sheets ● focus question answers ● science and engineering practices checklist
Suggested resources	● NSTA Resources and Lesson Plans: http://ngss.nsta.org/DisplayStandard.aspx?view=topic&id=32 ● Inventory of Traits: http://teach.genetics.utah.edu/content/heredity/files/InventoryOfTraits.pdf, http://learn.genetics.utah.edu/content/inheritance/observable/ ● Effect of Environment on Plant Growth: http://www.apsnet.org/edcenter/K-12/TeachersGuide/PlantBiotechnology/Pages/Activity7.aspx ● Mutations and Variations: http://www.cosee-west.org/AprilLectureMaterials/Activities/Mutations&Variation.pdf ● Reproduction Lesson: http://ca.pbslearningmedia.org/resource/tdc02.sci.life.repro.lp_reproduce/reproduction/ ● Human Traits ● https://drive.google.com/drive/folders/0ByFBd0Ins-tSYTRsSU5Oc0tVRFE ● Monster Traits activity

Unit Name	Biological Evolution: Unity and Diversity
Estimated Timeline	2-4 weeks
Essential Questions	● What can fossils tell us about organisms and environments long ago? ● How do certain characteristics in living organisms act as advantages for survival and reproduction? ● How do certain characteristics in living organisms act as disadvantages for survival and reproduction? ● What cause and effect relationships are evident between organisms characteristics and their ability to survive, find mates, and reproduce? ● What factors in an organism's habitat affect its ability to survive, find a mate, and reproduce?

Prepared by:
Date of Revision:
BOE Approval:

	● How do environmental changes affect an organism's ability to survive, find a mate, and reproduce?
NGSS	3-LS4-1 3-LS4-2 3-LS4-3 3-LS4-4 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives	● Students will analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. ● Students will 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. ● Students will 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. ● Students will make a claim about the merit of a solution to a problem caused with the environment changes and the types of plants and animals that live there may change. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will 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. ● Students will 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. ● Students will identify how traits can be influenced by environmental factors (food, exercise, water, chemicals, etc.).
Suggested projects, activities, labs used to support content	● Students will compare animals of the same species with different traits to identify advantages and disadvantages. ● Students will discuss and write about environmental factors that affect the traits of living things using videos and text. ● Students will identify information that can be be concluded from fossils. ● Students will look at the size and distribution of fossils to draw conclusions about how land has changed over time. ● Students will participate in online-web quests to investigate fossils. ● Students will create their own fossils. ● Students will analyze real fossils and draw conclusions.

Prepared by:
Date of Revision:
BOE Approval:

Suggested assessments	Students can demonstrate competency with tasks such as: ● developing and refining models ● generating, discussing and analyzing data ● constructing spoken and written scientific explanations ● engaging in evidence-based argumentation ● reflecting on their own understanding ● notebook entries ● response sheets ● focus question answers ● science and engineering practices checklist
Suggested resources	● Inherited Traits in Animals: ● http://cals.arizona.edu/fps/sites/cals.arizona.edu.fps/files/education/juniors_tree.pdf ● What Made a Giraffe Decide to be Tall https://api.betterlesson.com/mtp/lesson/629946/print ● What does the Walrus do when the Ice is Gone? https://api.betterlesson.com/mtp/lesson/629946/print ● Colorful Clams https://betterlesson.com/lesson/630994/colorful-clams ● Animals that can't adapt ● https://betterlesson.com/lesson/631920/vanishing-vaquita-in-the-sea-of-cortez ● Fish of the Same Species with different traits https://betterlesson.com/lesson/627426/fish-vertebrates-of-the-sea ● Awesome Bird Traits https://betterlesson.com/lesson/627509/awesome-bird-traits ● What can we learn from a bird dog ● https://betterlesson.com/lesson/resource/3174805/bear-dogs-reading-passage ● Interpreting Fossil Records https://api.betterlesson.com/mtp/lesson/635846/print ● How Our Land has Changed over Time https://api.betterlesson.com/mtp/lesson/638823/print ● Make a fossil model http://serc.carleton.edu/sp/mnstep/activities/27092.html ● What can fossils tell us about organisms and environments long ago? Video Intro: http://study.com/academy/lesson/using-fossil-evidence-to-evaluate-changes-in-environment-life-conditions.html

Prepared by:
Date of Revision:
BOE Approval:

Unit Name	Earth's Systems
Estimated Timeline	2-3 weeks
Essential Questions	● What is the average temperature and precipitation within a region? ● What patterns in weather can be recorded across different times and areas? ● What are typical weather conditions in different areas? ● How can patterns in climate predict typical weather conditions?
NGSS	3-ESS2-1 3-ESS2-2 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives	● Students will represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. ● Students will obtain and combine information to describe climates in different regions of the world. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will 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. ● Students will 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.
Suggested projects, activities, labs used to support content	● Students will research and record data on the weather and climate in another region of the world. ● Students will measure temperature, precipitation, and wind direction using weather tools. ● Students will graph typical weather patterns for the region in which they live. ● Students will predict weather patterns based on patterns and

Prepared by:
Date of Revision:
BOE Approval:

	preview year's data.
Suggested assessments	Students can demonstrate competency with tasks such as: ● developing and refining models ● generating, discussing and analyzing data ● constructing spoken and written scientific explanations ● engaging in evidence-based argumentation ● reflecting on their own understanding ● notebook entries ● response sheets ● focus question answers ● science and engineering practices checklist
Suggested resources	● Difference between weather and climate: http://www3.epa.gov/climatechange/kids/documents/weather-climate.pdf ● Weather vs Climate & video from NatGeo https://www.ck12.org/earth-science/Weather-versus-Climate/lesson/Weather-versus-Climate/?referrer=concept_details ● Multiple topics under weather and climate http://climatekids.nasa.gov/next-generation-standards/review/ ● Climate change over time http://www3.epa.gov/climatechange/kids/documents/temp-and-co2.pdf ● Analyzing tree rings to look at climate change over time http://www3.epa.gov/climatechange/kids/documents/tree-rings.pdf And http://climate.nasa.gov/climate_resources/25/ ● https://api.betterlesson.com/mtp/lesson/636909/print ● Researching Climate ● https://betterlesson.com/lesson/636484/researching-climate-data ● Make Your own Barometer http://www.weatherwizkids.com/experiments-barometer.htm ● Blue Sky Experiment http://www.weatherwizkids.com/experiments-bluesky.htm ● Make Fog in a Jar http://stem-works.com/external/activity/418 ● Make a Rain Gauge http://stem-works.com/external/activity/247 ● Magic School Bus weather http://stem-works.com/external/activity/137 ● Make it Rain Experiment http://stem-works.com/external/activity/225

Prepared by:
Date of Revision:
BOE Approval:

Unit Name	Earth and Human Activity
Estimated Timeline	1 week
Essential Questions	● How can humans take steps to help reduce the impacts of natural hazards? ● What design solutions exist to help reduce the impacts of weather-related hazards? ● What could you design to help reduce the impacts of a particular weather-related hazard?
NGSS	3-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
Student Learning Objectives	● Students will make a claim about the merit of a design that reduces the impacts of a weather related hazard. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will 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. ● Students will 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.
Suggested projects, activities, labs used to support content	● Students will design solutions to prevent weather-related hazards (barriers for flooding, wind resistant roofs, etc.) ● Identify hazards and problems caused by weather. ● Identify cause and effect relationships associated with weather related hazards. ● Research recent natural disasters and the hazardous effects. Identify solutions that were used to solve these issues.
Suggested assessments	Students can demonstrate competency with tasks such as: ● developing and refining models ● generating, discussing and analyzing data ● constructing spoken and written scientific explanations ● engaging in evidence-based argumentation ● reflecting on their own understanding ● notebook entries ● response sheets ● focus question answers ● science and engineering practices checklist
Suggested resources	Building a Bridge - http://www.playdoughtoplato.com/stem-project-straw-bridges/

Prepared by:
Date of Revision:
BOE Approval:

	Flood protection design ● https://betterlesson.com/lesson/634338/protect-my-home ● Building an earthquake resistant structure ● https://betterlesson.com/lesson/636080/building-an-earthquake-resistant-structure ● https://betterlesson.com/lesson/635940/designing-an-earthquake-resistant-structure ● http://teachers.egfi-k12.org/activity-earthquake-proof-structure/ ● Tacoma Narrows Bridge Collapse "Gallopin' Gertie" ○ https://www.youtube.com/watch?v=j-zczJXSxnw ○ http://ngss.nsta.org/classroom-resources-results.aspx?CoreIdea=5

Prepared by:
Date of Revision:
BOE Approval: