2nd Grade Science Curriculum Unit

Taneyville R-II School
2021-2022

Grade: 2nd Grade **Subject: Science**
Unit Title: Animal and Adventures

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
2.L2U1.9 Obtain, analyze, and communicate evidence that organisms need a source of energy, air, water, and certain temperature conditions to survive.	-Characteristics -Mammals -Invertebrates -Habitat -Biodiversity -Species	Weeks 1-2: How many different kinds of animals are there? In this lesson, students examine how scientists organize animals into groups based on their characteristics. In the activity, Animals Sorting Game, students study animal traits and use these traits to sort animal cards into mammals, birds, reptiles, and invertebrates. Students are then challenged to make decisions about animals that don't fall neatly into any of those categories. Weeks 3-4: Why would a wild animal visit a playground? In this lesson, students solve the mystery of why a group of wild bighorn sheep would leave their usual desert habitat to visit a second, very different habitat: a local playground. In the	Assessments, observation, participation, verbal check for understanding

		activity, Habitat Scavenger Hunt, students record observations of the diversity of life found in the desert and the playground, as well as the physical characteristics of each location. Students combine these observations to create an understanding of how the living and non-living parts of a habitat support the animals that live there. Weeks 5-6: Why do frogs say “ribbit”? This lesson is a case study in biodiversity using the frogs of North America. In the activity, Who's Calling?, students learn to identify frogs by their unique calls and investigate which of two locations has a greater variety of frogs. After listening to recordings of frog calls, students create words that will remind them of the sounds, and then use those words to identify frog sounds in different environments. Week 7-8: How could you get more birds to visit a bird feeder? In this lesson, students investigate which kinds of birds are likely to visit a	

		bird feeder based on what they eat. In the activity, Design a Bird Feeder, students first draw their own bird feeder design to attract a specific type of bird. Then they build a prototype of their bird feeder using available materials.	

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Unit Title: Plant Adaptations

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
2.LS2.A.2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. 2.LS2.A.1 Plan and conduct investigations on the growth of plants when growing conditions are altered (e.g., dark vs. light, water vs. no water).	-Seeds -Plant Life Cycle -Soil -Leaves -Light -Growth	Week 1: How did a tree travel halfway across the world? In this lesson, students will learn how seeds must get away from their parent plant in order to survive. In the activity, Fly Your Own Seed, students create a model seed from paper. Then, they release these seeds to model how they disperse and observe if any seeds are able to escape the parent plant's "Zone of Darkness" and survive. Week 2: Could a plant survive without light? In this lesson, students investigate how plants need water and sunlight to grow. In the two-part activity, Seeds — Light and Dark, students experiment with growing radish seeds in light and dark conditions. They plant them in cups, place half of the cups in sunlight, and put the other half in a dark container. Three to seven days later, students	Assessments, observation, participation, verbal check for understanding

		compare the seedlings and then watch what happens when all are placed in sunlight. Weeks 3-4: Why do trees grow so tall? In this lesson, students will learn the importance of sunlight to plants, which is collected by their leaves. In the activity, Grass Head, students make a person out of a paper towel and a popsicle stick with grass for hair! Then, students make predictions about the direction that the grass will grow based on the orientation (standing up or lying down) that they place the Grass Head. Weeks 5-6: Should you water a cactus? In this lesson, students will learn that plants have different needs in terms of sunlight and water. In the activity, Grass Head Revisited, students will examine the Grass Head they made in the previous lesson. Earlier, they predicted which way the grass would grow. Now they will discuss what happened and why.	

		Weeks 7-8: Where do plants grow best? In this lesson, students will practice thinking like gardeners. In the activity, students play Plant Survivor, a game that encourages students to think about what plants need and how habitats change over time.	

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Unit Title: Erosion and Earth's Surface (Split Unit)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
2.ESS2.B.1 Develop a model to represent the shapes and kinds of land and bodies of water in an area. 2.ESS1.C.1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly. 2.ESS2.A.1 Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	-Earth's surface -Mountains -Plains -Rivers -Weather -Floods -Canyon -Erosion	Weeks 1-3: If you floated down a river, where would you end up? In this lesson, students develop a model of the earth's surface and use it to discover an important principle about how rivers work. In the activity, Paper Mountains, students take turns using a spray bottle to make rain fall on paper models of mountains to observe patterns of how water and rivers flow. Weeks 4-5: Why is there sand at the beach? In this lesson, students investigate the effects of rocks tumbling in a river. Based on their observations, they construct an explanation for why there is sand at a beach. In the activity, Rocking the River, students pretend to be a river and tear up pieces of construction paper to model what happens to rocks as they travel along	Assessments, observation, participation, verbal check for understanding

		the river. Week 6: Where do flash floods happen? In this lesson, students explore the phenomenon of flash floods and create an explanation of why these severe weather events are more or less likely in different regions. They specifically attempt to locate and explain a unique region in Texas known as Flash Flood Alley. In the activity, Find Flash Flood Alley, students develop a map to document how land and water interact across the state. Students then use that map to explain how different shapes and kinds of land increase or decrease the chances of rainfall causing a flash flood. Weeks 7-8: What's strong enough to make a canyon? In this lesson, students make hypotheses and investigate the causes of canyons. In the activity, Cornmeal Canyons, students create a model landform using cornmeal. Then they drip water over this "land" to observe	

		how water can change its shape and to understand how, over long periods of time, canyons can be formed through a similar process. Weeks 9-10: How can you stop a landslide? In this lesson, students compare multiple solutions for preventing erosion. In the activity, Erosion Engineering, they design and test ways to keep water from washing away a hill modeled out of cornmeal.	

2nd Grade Science Curriculum Unit

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2021-2022

Unit Title: Material Magic

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
2PS1.A.1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2.PS1.A.2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. 2.PS2.A.1 Analyze data to determine how the motion of an object changed by an applied force or the mass of an object. 2.PS4.A.1 Plan and conduct investigations to provide	-Materials -Texture -Flexibility -Absorbency -Insulation -Heat -Glass -Invention -Structure	Week 1: Why do we wear clothes? In this lesson, students explore the different properties of materials used for clothing, such as texture, flexibility, and absorbency. In the activity, Mad Hatter, students use this information to design and build a hat that protects them from the Sun. Week 2: Can you really fry an egg on a hot sidewalk? In this lesson, students consider the insulating and conducting properties of different materials. In the activity, Feel the Heat, students test different materials and determine which would make the best oven mitts. Week 3: Why are so many toys made out of plastic?	Assessments, observation, participation, verbal check for understanding

evidence that changes in vibration create change in sound. 2.ETS1.A.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. 2.ETS1.B.1 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. 2.ETS1.C.1 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.		In this lesson, students learn about melting, about the solid and liquid states of matter, and then discover why plastic was invented. In the activity, Candy Melt, students conduct an investigation to determine which types of candy melt in hot water. Using their observations, they decide which candy is the best choice to bring to a hot summer camp. Week 4: What materials might be invented in the future? In this lesson, students learn how new materials are invented. In the activity, Bouncy Glass Inventions, students come up with ideas for inventions that use an exciting futuristic material: glass that bounces and stretches like rubber! Week 5: Could you build a house out of paper? In this lesson, students examine how large structures like houses are built from smaller pieces. In the activity, Paper Towers, they design their own structures using an unconventional	

		building material: paper! Students build towers using 3" x 5" index cards and paper clips. First, they build tall towers, then they are challenged to build towers strong enough to support a hardcover book. Week 6: How do you build a city out of mud? In this lesson, students learn about a unique building material: mud! The properties of mud depend on the properties of the soil it's made from. In the activity, Mystery Mud, students use models of sand and clay soils to investigate how the properties of soils can differ. They use their observations as evidence to classify each soil model based on whether or not it would make mud that's good for building.	

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Unit Title: Force Olympics

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
K.ETS1.B.1 - 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.ETS1.C.1 - Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. K.PS2.A.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.A.2 - Describe ways to		Week 1: What's the biggest excavator? In this lesson, students discover that there are pushes and pulls involved in any kind of work, including the work done by machines. In the activity, Be a Digging Machine, students pretend to use shovels and excavators to dig a hole for a swimming pool. Week 2: Why do builders need so many big machines? (Read Along Story) The lesson includes a short exercise where students act out the "work words" of their favorite machine. Week 3: How can you knock down a wall made of concrete?	Assessments, observation, participation, verbal check for understanding

change the motion of an object (i.e. how to cause an object to go slower, go faster, go farther, change direction, stop). K.PS1.A.1 - Make qualitative observations of the physical properties of objects (i.e. size, shape, color, mass) K.ETS1.A.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.		In this lesson, students change the strength and direction of a wrecking ball's push in order to solve a tricky problem. The activity, Don't Crush That House, is a game in which students experiment with the force of a paper wrecking ball in order to knock down a wall of cups. The challenge is: they can't knock down the paper houses! Week 4: How can you knock down the most bowling pins? (Read Along Story) In this Read-Along lesson, Daniel worries he won't do well at a friend's Bumper Bowling party…until he figures out an unexpected way to win. The lesson includes a short exercise where students act out bowling. If you want to extend the lesson, you can try this optional activity, Human Bumper Bowling, where students make a model bumper bowling alley and work together to knock down pins. Week 5: How can we protect a mountain town from falling rocks? In this lesson, students investigate how	

		pushes can change the speed and direction of falling objects. In the activity, Boulder Bounce, students play a game where they design a solution that protects a model town called Tiny Town from a bouncing-ball “boulder.” Week 6: How could you invent a trap? (Read Along Story) The lesson includes a short exercise where students imagine how to design a good monster trap, and then pretend to be sneaky monsters.	