Third Grade

Weather and Climate

Core Concepts

1. Identify different attributes of weather and ways these attributes can be measured.
2. Represent data in tables and graphs.
3. Describe typical weather conditions in a particular season.
4. Use weather data to predict weather conditions.
5. Obtain and combine information to describe climates in different regions.
6. Analyze solutions designed to reduce the impact of weather related hazards.

Essential Vocabulary

Climate	Precipitation	Region	Season	Temperature
Thermometer	Weather	Wind Direction		

STEM Fair Ideas

1. Do air molecules move all the time - even when you can't feel it?
2. Do water molecules move all the time - even when you can't see it?
3. What happens to air when it gets hot? What happens to air when it gets cold?
4. What is air pressure? How does it work?
5. How does a kite or a plane stay in the air?
6. What makes air humid?
7. How do clouds form?
8. How does wind affect the temperature?
9. How does humidity (water) affect the temperature?
10. How does the angle of the sun's rays affect its strength?
11. How does direct light, indirect light, and shade affect the temperature?
12. Build your own thermometer, barometer, or anemometer. Explain how it works. Test it out and compare your results to a pre-made or digital version.

Third Grade

Force and Interactions

Core Concepts

1. Describe a force as a push or pull.
2. Explain unbalanced and balanced forces using a force diagram.
3. Explain how forces of gravity and air resistance work on a falling object.
4. Provide evidence that a pattern can be used to predict future motion.
5. Determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
6. Define a simple design problem that can be solved by applying scientific ideas about magnets.

Essential Vocabulary

Force	Push	Pull	Friction	Gravity
Balanced Forces		Unbalanced Forces		

STEM Fair Ideas

1. Does the weight of an object affect how fast it falls to the ground?
2. Does the shape of an object affect how fast it falls to the ground?
3. Does it take more force to push an object than to pull it?
4. How do different surfaces affect the force needed to move an object?
5. How does the amount of contact between an object and a surface affect the force needed to move the object?
6. How does the weight of an object affect the force needed to move the object?
7. Build a pendulum and set it in motion. Observe what happens over time. Can you predict what will happen in the future based upon your observations of the past?
8. What does an object need to contain in order to be attracted to a magnet?
9. Does a magnet need to be in contact with a magnetic object in order to affect its movement?
10. What is the effect of distance on the strength of a magnet?
11. How do different liquids (or different surfaces) affect how well a magnet attracts a metal object?
12. Does the size of a magnet affect its strength? Can you make a magnet stronger?
13. What is an electromagnet and how does it work? Build your own.

Third Grade

Matter and Its Interactions

Core Concepts

1. Classify materials based on their properties.
2. Create a model to describe matter is made of particles too small to be seen.
3. Determine the properties of a mystery solid and present evidence to support your claim.
4. Utilize the Engineering Design Process to design high quality play dough.
5. Determine whether the mixing of two or more substances results in new substances.

Essential Vocabulary

Matter	Properties	Substance	Interaction	Solid
Liquid	Gas			

STEM Fair Ideas

1. Determine the properties of baking soda, salt, sugar, flour, corn starch and plaster of Paris by testing them with water, vinegar, milk, heating, and cooling. Develop a flow chart that shows how to test a mystery substance in order to properly identify it.
2. Make a density tower using honey, corn syrup, maple syrup, whole milk, dish soap, water, vegetable oil, rubbing alcohol, and baby oil (use food coloring to distinguish layers as needed). When poured one layer at a time, the liquids stay separate. What happens when each liquid is mixed with another? Do any of them create a new substance or do they remain separated?
3. Try making a variety of different play dough recipes (salt dough, oobleck, silly putty, play dough, slime). What ingredients did they have in common? What ingredients were unique? Use this knowledge to make the best recipe for your play dough.
4. What causes rust? Use iron nails to test what happens when placed in the following: water and air, saltwater and air, water (no air), and air (no water). What happens when you mix iron with each of these substances?

Third Grade

Inheritance and the Variation of Traits

Core Concepts

1. Identify and explain that plants and animals have traits that are inherited from parents and a variation of these traits exists in a group of similar organisms.
2. Identify that traits can be influenced by the environment and variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

Essential Vocabulary

Metamorphosis	Traits	Acquired Traits	Inherited Traits
Simple Metamorphosis		Complete Metamorphosis	

STEM Fair Ideas

1. How does blubber help seals and whales survive in frigid waters?
2. How does burrowing underground help animals stay warm in cold temperatures and stay cool in hot temperatures?
3. How can variations in color help some butterflies hide better than others?
4. What makes some colors easier to spot than others? How could this be an advantage for flowers but a disadvantage for animals?
5. What type of bird beak is best for sipping nectar? Finding worms? Catching bugs in the air? Scooping fish out of the ocean?
6. How does a waxy coating on the leaves and stem stop plants from drying out?
7. What is mimicry? Why would an animal or plant want to look like something different? (Use water, Sprite, tonic, club soda, vinegar, etc. and see if you can figure out which one is water or which one is Sprite. You can also do this with chocolate covered items like raisins, peanuts, coffee beans, wasabi peas, etc.)
8. How do ducks float on water?
9. How does having an opposable thumb help apes and humans complete tasks that other animals cannot?
10. How do desert plants survive?
11. What is phototropism? How does the placement of the light affect how the plant grows?