Science Experiment Explanations

Science in My World

Life Science

Ecosystems – There are many different kinds of ecosystems, all of which have living and nonliving things.

Populations and Communities – You school environment is home to many different populations.

Habitats – A habitat gives its population everything it needs to survive.

Food Chains – A food chain is the path of food from one living thing to another.

Plant Adaptations – The wax paper leaf has adapted so that it can repel too much water.

Animal Adaptations – Neither environment provides all that the animal needs to live and grow. In order to survive, the animal has to migrate.

Structures and Mechanisms

Inclined Plane – It took more work to move the bag of beans straight up to the top of the stack of books, that's why the rubber band was stretched further. It took less work to move the bag up the inclined plane.

Levers – The ruler is the lever, the edge of the desk or table is the fulcrum, The book is the load. It is easier to move a load when it is close to the fulcrum.

Pulleys – Pulleys change the direction of the force. You pull *down* on the rope and the books go *up*.

Wedges – Wedges split things apart and this makes work easier.

Screws – The paper triangle is an inclined plane. When you wrap it around a post.

Wheel-and-Axle – The string on the wheel travels a greater distance than the string on the axle

Science Experiment Explanations

Science in My World

Matter and Energy

Heat – The heat from the sun has warmed up the cold water.

Light – When light moves from air to water it bends. This bending is called refraction. The refraction magnifies the print.

Sound – When you speak you make sound waves that vibrate in the bottom of the cup. The vibrations travel along the string and are converted back into sound waves at the other end so your friend can hear what you say.

Energy – The potential energy stored in the stretched rubber band converts into kinetic energy after you let the bands go.

Magnets – Your needles have become magnetized. You passed the magnetism from your magnet to the needles.

Motion – The greater the slope, the faster the marble will roll. The faster it rolls, the further it will go.

Earth and Space

Minerals – Testing the hardness of a mineral is one way to identify it.

Rocks – Some rocks are harder than others. Things that are harder than the rocks will leave a mark on them.

Fossils – Footprints give clues about where an animals lives, its size, and how it moves.

Weather – Warm air rises. When it meets colder air it condenses and forms clouds.

The Moon – The ball is acting as the moon, the light as the sun. As the moon changes its position, different amounts of it are lit up by the sun.

Earth – The ball represents Earth and the lamp represents the sun. Because Earth orbits the sun and is tilted on its axis, different parts have the most sunlight which causes the seasons.

Ecosystems

Concept: An ecosystem is all the living and nonliving things in an area.

Talk About
Science in My World

What You Need –

- a length of string twice as long as your arm

What You Do –

- Make a chart like this –

My Ecosystem			
Living Things	How Many?	Nonliving Things	How Many?

- Take your length of string outside. Lay it on the ground and pull the ends together to form a circle.
- Look at everything inside your circle.
- Record everything you see on the chart.
- Compare you chart with a friend's chart.

What You Should Notice –

There are many things in your circle. Some may be the same as in those on your friends chart.

Explanation –

Write your explanation here.

Populations

Concept: Populations are groups of living things that are the same and live in the same place.

Talk About
Science in My World

What You Need –

- a pencil
- a note book
- a sheet of paper

What You Do –

- Take a walk around the school. Go inside and outside.
- Make a list of all the populations you see.
- Draw a plan of your school on the sheet of paper.
- Mark on your plan where you saw each population.

What You Should Notice –

Many populations live in your school environment.

.

Explanation –

Write your explanation here.

Habitats

Concept: Some living things can only survive in a certain habitat.

Talk About
Science in My World

What You Need –

- two yogurt pots
- soil
- two small plants
- small bottle of water

What You Do –

- Fill the yogurt pots with soil.
- Put a plant in each pot.
- Sprinkle a little water on each plant.
- Put one plant in a warm sunny place.
- Put the other plant in a dark place.
- * Sprinkle a little water on the plant in the sunny place each day for a week. Do not over-water your plant.

What You Should Notice –

The plant in the sunny place will live and grow. The plant in the dark place will die.

Explanation –

Write your explanation here.

Food Chains

Concept: Each food chain starts with a producer and ends with a consumer.

Talk About
Science in My World

What You Need –

- white paper cut into strips
- stapler
- pencil, pen, or marker

What You Do –

- Write a name of a plants, insect, bird, or animal on each strip.
- Staple a strip with a plant written on it to make a circle.
- Choose a strip with something on it that eats that plant.
- Combine this strip with the plant circle to start a chain.
- Continue the chain until you end up with the final consumer.
- Make similar chains with your other plants and animal strips.

What You Should Notice –

All chains start with a plant and end with an animal, but some are longer than others.

Explanation –

Write your explanation here.

Plant Adaptations

Concept: Some plants change their leaves to adapt.

Talk About
Science in My World

What You Need –

- a piece of wax paper
- a piece of construction paper
- water bottle
- scissors

What You Do –

- Draw a leaf shape on both the pieces of paper and cut them out.
- Put them on a table and pour water on each of them.
- Leave them until the water is seeping into the construction paper.
- Lift each leaf up and and tip off the water.

What You Should Notice –

The wax paper is dry. The construction paper is wet.

Explanation –

Write your explanation here.

Animal Adaptations

Concept: Some animals camouflage to adapt.

Science in My World

What You Need –

- three sheets of paper
- crayons or markers
- scissors

What You Do –

- Choose an environment, for example – desert, ocean, forest, polar region.
- Draw that environment on one piece of paper.
- On the second piece of paper, design, draw and cut out an imaginary animal that migrates from that environment each year.
- Draw the environment it migrates to on the third piece of paper.
- Move your animal from one environment to the other.
- List why your animal migrates.

What You Should Notice –

The environments are different.

Explanation –

Write your explanation here.

Levers

Concept: You apply force to a lever to make it work.

Science in My World

What You Need –

- desk or table top
- heavy dictionary or textbook
- ruler

What You Do –

- Lay the ruler on the desk or table top with a quarter of it overhanging the edge.
- Put the dictionary on the other end.
- Press down on the part of the ruler that is sticking out and see if you can lift the dictionary.
- Move the book a little closer to the edge of the desk or table top by pulling on the ruler.
- Press the ruler down again.
- Do this several times until the book is at the edge of the table or desk.

What You Should Notice –

The closer the dictionary gets to the edge, the easier it is to lift.

Explanation –

Write your explanation here.

Pulleys

Concept: Pulleys make work easier.

Science in My World

What You Need –

- two thick books
- a long rope
- a door

What You Do –

- Tie the books to one end of the rope.
- With the books on the floor, throw the other end of the rope over the door.
- Pull down on the rope.

What You Should Notice –

You can lift the books to the top of the door by pulling down on the rope.

Explanation –

Write your explanation here.

Wedges

Concept: You can use a wedge to force things apart,.

Science in My World

What You Need –

- two thick books
- wedge-shaped building block

What You Do –

- Stand the books upright on a desk or table.
- Have a friend press the books together as tightly as they can.
- Push the narrow edge of the building block between the books.
- Push the wedge gently further between the books.

What You Should Notice –

As you push the wedge in the books get forced apart.

Explanation –

Write your explanation here.

Wedges

Concept: You can use a wedge to force things apart,.

Science in My World

What You Need –

- two thick books
- wedge-shaped building block

What You Do –

- Stand the books upright on a desk or table.
- Have a friend press the books together as tightly as they can.
- Push the narrow edge of the building block between the books.
- Push the wedge gently further between the books.

What You Should Notice –

As you push the wedge in the books get forced apart.

Explanation –

Write your explanation here.

Screws

Concept: A screw is a post with threads wrapped around it.

Talk About
Science in My World

What You Need –

- a pencil
- a sheet of paper
- crayon or marker
- scissors

What You Do –

- Fold the paper to make it square.
- Cut one half of the square to make a right angled triangle.
- Draw a line along the longest edge of the triangle with your crayon or marker.
- Put the pencil along the right angled edge.
- Roll the paper around the pencil.

What You Should Notice –

The marked edge of the paper resembles the threads on a screw.

Explanation –

Write your explanation here.

Wheel and Axle

Concept: The wheel and axle on simple machines work together.

Talk About
Science in My World

What You Need –

- a water bottle
- two pieces of string the same length
- two paper clips

What You Do –

- Tie one piece of string to the top of the water bottle.
- Tie the other piece of string to the bottom of the water bottle.
- Tie a paper clip on to the other end of each piece of string.
- Hold the bottle horizontal by each end and turn it.

What You Should Notice –

Both strings wind around the bottle but the paper clip on the widest part of the bottle gets to the bottle first.

Explanation –

Write your explanation here.

Heat

Concept: Heat is a form of energy that moves from warm objects to cold objects.

Talk About
Science in My World

What You Need –

- a sunny day
- a container of ice-cold water

What You Do –

- Fill the container with ice-cold water.
- Put it outside the classroom in a very sunny place.
- Dip you finger in the water.
- Leave the container in the sunny place for two hours.
- Go back outside and dip your finger in the water again.

What You Should Notice –

The water is now warmer.

Explanation –

Write your explanation here.

Light

Concept: Light bends when it moves through certain things.

Talk About
Science in My World

What You Need –

- a cereal box
- a glass
- water

What You Do –

- Put the glass close to the nutritional information on the cereal box.
- Look through the glass at the print.
- Note the size of the words and how easy they are to read.
- Fill the glass with water and put it back close to the nutritional information again.
- Read the list again.

What You Should Notice –
The print is bigger when you fill the glass with water.

Explanation –
Write your explanation here.

Sound

Concept: Sound travels through air but it travels better through some solids.

Talk About
Science in My World

What You Need –

- two paper cups
- a sharp pencil
- a piece of string longer than the classroom
- paper clips

What You Do –

- Use the pencil to poke a hole in the bottom of each paper cup.
- Thread the string through the holes.
- Tie the ends of the string to paper clips to stop it pulling through the cup.
- Give a friend one cup.
- Walk away from your friend holding the other cup until the string is tight. Make sure the string isn't touching anything.
- Talk into the cup while your friend listens with the other cup held up their ear.

What You Should Notice –
Even though you and your friend are not close to each other, your friend can hear what you're saying.

Explanation –
Write your explanation here.

Sound

Concept: Sound travels through air but it travels better through some solids.

Talk About
Science in My World

What You Need –

- two paper cups
- a sharp pencil
- a piece of string longer than the classroom
- paper clips

What You Do –

- Use the pencil to poke a hole in the bottom of each paper cup.
- Thread the string through the holes.
- Tie the ends of the string to paper clips to stop it pulling through the cup.
- Give a friend one cup.
- Walk away from your friend holding the other cup until the string is tight. Make sure the string isn't touching anything.
- Talk into the cup while your friend listens with the other cup held up their ear.

What You Should Notice –
Even though you and your friend are not close to each other, your friend can hear what you're saying.

Explanation –
Write your explanation here.

Energy

Concept: Potential energy is stored energy, it converts into kinetic energy when an object moves.

Talk About
Science in My World

What You Need –

- some different sized rubber bands

What You Do –

- Hold each end of one of the bands between your thumbs and forefingers.
- Stretch the band but don't let it go.
- Point the band at a wall, and let it go.
- Repeat the experiment with different sized rubber bands.

What You Should Notice –

When you let the bands go, they will fly through the air.

Explanation –

Write your explanation here.

Magnets

Concept: Magnetism can be passed to other objects that have iron and steel in them.

Talk About
Science in My World

What You Need –

- a magnet
- a few sewing pins
- two sewing needles

What You Do –

- Hold one of the needles by the eye.
- Stoke it gently with the magnet in the same direction 30 times. .
- Use the same end of the magnet and do the same thing with the other needle.
- Put the needles very close to some pins.

What You Should Notice –

You needles attract the pins.

Explanation –

Write your explanation here.

Motion

Concept: Motion relates to movement, speed, and distance.

Talk About
Science in My World

What You Need –

- books - not too thick
- a marble
- cardboard tube from kitchen paper or foil

What You Do –

- Stack three books on the floor.
- Rest one end of the tube on the books and the other end on floor.
- Hold the marble at the top of the tube and let it roll down.
- Measure how far it rolls from the end of the tube.
- Add two more books to the stack.
- Repeat the procedure.

What You Should Notice –

The higher the stack of books, the further the marble will roll on the floor.

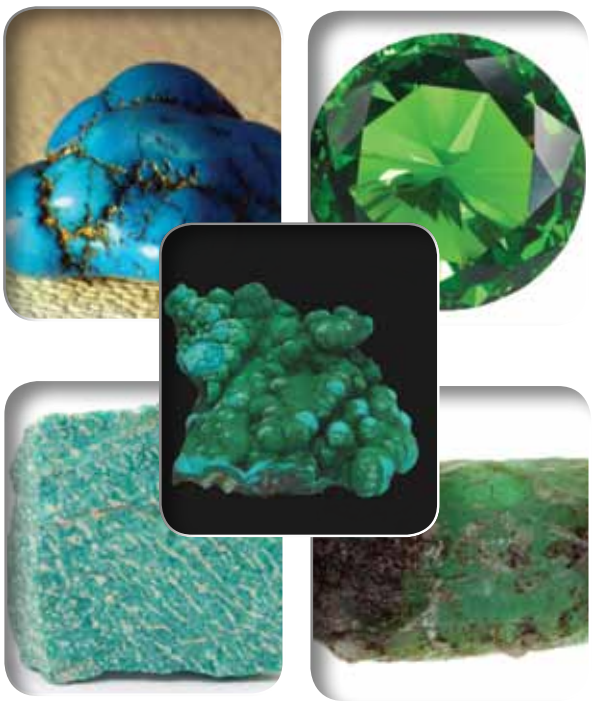
Explanation –

Write your explanation here.

Minerals

Concept: There are different tests that scientists do to identify minerals.

Talk About
Science in My World



What You Need –

- five different minerals

What You Do –

- Make a chart like this –

Testing Minerals		
Mineral	Minerals it Scratches	Minerals that scratch it
A		
B		
C		
D		
E		

- Try to scratch Mineral A with each of the other minerals.
- Record your findings on the chart.
- Repeat this with all the other minerals.
- Use your chart to order the minerals from softest to hardest.

What You Should Notice –

Some minerals scratch other minerals.

Explanation –

Write your explanation here.

Rocks

Concept: There are different types of rocks.

Talk About
Science in My World

What You Need –

- three different rocks
- a metal bottle top
- scissors

What You Do –

- Make a chart like this –

Which Objects Leave Marks on Rocks?			
	fingernail	bottle top	scissors
rock 1			
rock 2			
rock 3			

- Scratch each rock with your fingernail, the bottle top, and the scissors.
- Record your findings on the chart.

What You Should Notice –

Some of the objects will scratch some of the rocks.

Explanation –

Write your explanation here.

Fossils

Concept: Scientists can tell many things about extinct animals by studying fossils.

Science in My World

What You Need –

- a sheet of construction paper
- crayons
- animal footprint stamps
- ink pad

What You Do –

- Choose an animal.
- Draw a picture of the habitat it lives in.
- Use the ink pad and the stamps to mark the animals tracks.

What You Should Notice –

The habitat the animal lives in. The size and direction of the tracks.

Explanation –

Write your explanation here.

Weather

Concept: scientists can predict what the weather will be like by looking at clouds.

Talk About
Science in My World

What You Need –

- a container with a metal lid
- some ice cubes
- some very warm water

What You Do –

- Quarter fill the container with warm water.
- Place the lid upside down on the container.
- Put the ice cubes on top of the lid.

What You Should Notice –

A cloud forms in the container.

Explanation –

Write your explanation here.

The Moon

Concept: The moon has phases.

Talk About
Science in My World

What You Need –

- a light
- a tennis ball

What You Do –

- Hold the tennis ball in front of you just above your head.
- Have a friend shine the light onto the tennis ball.
- Look at the tennis ball.
- Keep on looking at the tennis ball as you slowly turn around.

What You Should Notice –

The light lights up different parts of the tennis ball as you turn around.

Explanation –

Write your explanation here.

Earth

Concept: The seasons change because Earth is tilted on its axis.

Talk About
Science in My World

What You Need –

- a foam ball
- a pencil
- a small 60w table lamp

What You Do –

- Push the pencil through the ball so equal amounts are on each side.
- Hold the end of the pencil so that the tip is tilted up and away from the lamp.
- Look at the light on the ball.
- Move the ball around to the other side of the lamp. Do not change the direction or the tilt of the pencil.
- Look at the light on the ball.

What You Should Notice –

The light shines most directly on different sides of the ball.

Explanation –

Write your explanation here.

