Classic Science

PARENT COPY

ELEMENTARY LIFE SCIENCE

The lab of MR.Q

Scott McQuerry

Thank you so much for downloading this copy of

Elementary Life Science

It has been nearly a decade since the first edition of Classic Science: Elementary Life Science was published. I never would have imagined my "little hobby" would have resulted in tens of thousands of downloads, seven additional books, and collaboration with newfound friends and families around the globe.

To be honest, If I had the vision when I started making these textbooks, I would not have confused so many people with the title "Elementary..." as it does not covey the true grade-level for this curriculum. I wrote each book within the "Elementary" series using the National Science Education Standards for both elementary AND middle school aged children. Therefore, nearly every science standard that most public schools in the nation follow from grades K-8 can be found in the elementary series. In addition, I personally used most of this curriculum with my middle school students over the course of several years. I know it worked for them.

Timeline

This is a 36-week curriculum for children of ages 6-9. Each week has been broken down into three separate days to make it easier for you to set up a schedule:

- The first day of each week contains a reading assignment and worksheet review for your child.
- The second and third days contain hands-on activities to reinforce each weekly reading.

The weekly curriculum has been arranged into four-week units. Your child will find a Unit Test Review at the end of each unit. In this parent edition, you will find each test at the end of each unit as well.

Activities

Don't worry about expensive materials for these activities. Most equipment can be found around the home or at a local store. In addition, you will find several weekly activities that are titled "ESP Activities."

The ESP Activities require a child to set up an experiment and collect data. In essence, these are mini-science fair projects.

Before you start to cringe at the thought of doing many "science fair projects" I have provided a method for you to use. It is called the Exploring Scientific Procedures (ESP) Method and has been included in this book. Many people have found it to be an easy, step-by-step guide for you and your child to approach these inquiry-based projects. DON'T PANIC! They are not as hard as you may imagine. Think of it this way, at the end of this year, your child will have completed ten science fair projects. This is ten times more experimental design projects than your average public school student…and your child is only beginning.

What textbook do I choose next?

The #1 question I receive is, "What is the grade level of your textbooks?" I have to admit that it is very difficult for me to identify a specific grade/age level for each of the books because everyone's reading and interest level is different. The best way for you to gauge which text would be best would be to download the free copies of each science book and give them to your child(ren) to see how it goes.

I will say that the Physical Science contains the most abstract information. I do recommend it to advanced readers. In order of least to most abstract would be: Life Science, then Earth Science, Chemistry, and finally Physical Science.

I've received a lot of positive feedback from the free copies of all these books in terms of how they can identify the reading/interest level for a child. I would hate to have anyone purchase something they cannot use.

I hope your family enjoys this resource. Keep asking questions and keep searching for the answers.

Take care!

Scott McQuerry

Thank you to all of my faithful subscribers and readers. And a special thank you to those of you who have chosen to use my curriculum in your homeschools, co-ops, and classrooms. My family has been overwhelmed by your generosity and encouragement over the years. I am very hopeful that my curriculum has helped your homeschooling endeavor or classroom experience. I have been asked by several families the same question, “Who are you and why are you doing this?” Without going into great detail, E=McQ, LLC is owned, operated and stressed over by single individual. I am an educator by profession and began working with homeschool families several years ago while offering free programs to area families to explore various concepts in science. This product is the fruit of my 16-year labor in science education.

To those of you who have gotten caught up in the popular groups that condone illegal file sharing, I would like to share a few thoughts with you.

Unfortunately there are groups of homeschoolers and teachers who are choosing to download and/or “share” files they are not permitted to share. This bothers me a great deal – both as an educator and as an independent publisher of textbooks. Maybe you simply aren’t aware, but hosting and sharing files (paid or free) that were not made by you is illegal without the express written consent of the author. Downloading these files is also illegal. What you are doing is called “stealing” in the online world.

You may have even justified your actions due to your budgetary constraints, or simply out of the desire to “get a good deal.” I wonder how many of you would be able to walk up to your child and say “Honey, I really wanted this curriculum, but wanted to save money, so mommy stole it.” Conversely what would you say if your child did something similar? I hope you can understand there are no excuses for this type of behavior.

Homeschooling isn’t just about academics, but instead it is our way of imparting our character, values, morals, ethics, spiritual beliefs, and life skills onto our children. Furthermore, the unlawful distribution of copyrighted materials within a school makes you liable for prosecution. Today my hope is that you would be encouraged to check your ways and think twice before participating in these “sharing” groups. What you are doing is not only illegal and unethical, but you are also taking advantage of all of the bloggers and companies that have put their valuable time and energy into creating products to help your educational experience be more successful.

The motivational speaker Zig Ziglar once said, “Be careful not to compromise what you want most for what you want now.” I sincerely hope that you do not allow this small compromise to creep into other areas of your life. And most importantly I hope you are not passing down these values to your children and students.

**Thank you Erica at www.confessionsofahomeschooler.com for your help in preparing this statement.*

Table of Contents

Classic Science: Elementary Life Science Materials List

Chapter 1

One shoe-box, opaque bag, etc...
One handful of rocks
One handful of fruits, vegetables, flowers, etc...
One handful of metal objects (screws, bolts, etc…)
One handful of leaves
Newspapers and/or magazines with lots of pictures to cut out
Scissors
Pencil/pen
Glue
Paper

Chapter 2

Paper and pencil

Chapter 3

Old newspaper
Blender
Water
Cornstarch
Window screen (or stretched out pantyhose!!!)
Wax paper
Rolling pin or large spoon
Large pan
Large bowl
Paper or plastic bag

Chapter 4

Paper
Pencils/crayons/markers/paint
Paper punch (optional)
Old postcard, index card or manila folder
Aluminum foil
Needle
Toothpick
Petroleum jelly
Eye dropper or drinking straw
Glue
Tap water
Scissors
Water sample from a pond
Flashlight

Chapter 5

Water
Thermometer
Small bucket of soil
Lamp or sunny area
Freezer
Two small sponges
Rubber bands
Two bowls
Freezer

Chapter 6

Black socks, white socks and socks of different colors
Thermometer
Cardboard square
Drinking straw
Tape
One-two foot piece of string
Spool of thread, action figure, etc (to be used as a weight)
Measuring tape

Chapter 7

One plastic shoebox
Two cups of fresh water
One-half cup of small gravel stone
One cup of garden dirt
Four toothpicks
One solid cubic piece of clay, about 3 inches on a side
Freezer
1 cup sawdust
$\frac{1}{2}$ cup flour
$\frac{1}{4}$ cup water
Two Large Baggies (Gallon-size works well)
Vegetable shortening (enough to fill a large baggie)
Bucket of ice water
Two small sealable baggies (sandwich or quart-size works fine)

Chapter 8

Warm water
Salt
Blue food coloring (any color will work!)
Two drinking glasses
Pickling salt (spice aisle of grocery stores)
Three (or more) cups
Water
Clear drinking straw
Food coloring
Spoon

Chapter 9

4" x 6" index card (or a piece of heavyweight paper)
Tape
Sharpened pencil, pen, nail (to be used to poke a hole)
Two inch piece of drinking straw
~ Three feet of fishing line
Hair dryer
Measuring tape

Chapter 10

A paper towel
Scissors
One baby food jar and lid (or other similar container)
Plastic wrap
12 radish seeds
Popcorn
Oil/butter (optional)
Popcorn popper/pan

Chapter 11

Thermometer
Balloon and rubber band
Soup or juice can with ends removed
1/4-inch square of smooth aluminum foil or a tiny mirror
Glue stick or rubber cement
Flashlight or laser pointer
Radio or tape player

Chapter 12

Four strips of paper (2″ x 8 ½″)
One strip of paper (2″ x 11″)
Glue or tape
Masking tape
Marble
Book, board or other object to be used as a ramp
Cooking spray
Measuring tape

Chapter 13

Several different kinds of donuts
Sealable baggies
Paper/pencil
Transparent or masking tape
Pencil and paper
Clothing with buttons and zippers
Sock
Shoe with laces
Coin
Balloon
Toothbrush
Hairbrush or comb
Jar with a lid

Chapter 14

Two white carnations (one or more)
Drinking glass for each carnation
Food coloring
Scissors
Scissors
Bowl filled with water
Clock with second hand

Chapter 15

Teaspoon measure
Active dry yeast
Two bottles of soda pop
Water
Two large "helium quality" balloons
Bread
Potato (any other vegetable will do!)
Moist paper towels
Sealable baggies

Chapter 16

Clear tennis ball container (with cap)
Mud from the edge of a shallow pond
Water
¼ newspaper page (shredded)
One raw egg
Bowl
Spoon
Saucepan and stove
Packet of unflavored gelatin
Sugar
Beef bouillon
Four foil muffin cups and muffin pan
Measuring spoons
Four sealable sandwich baggies

Chapter 17

Container of birdseed
Small cup
Three different tools:
Scissors, Pliers, Clips, Tweezers, Garden shears, Fireplace tongs, BBQ tongs, etc...
Paper and pencil
Coloring materials

Chapter 18

One full piece of newspaper
Several dozens of small cutouts from colored paper (paper punched holes work great)
Several dozen small cutouts from a piece of newspaper
Empty one quart container
Old towel/paper towels
Masking tape
Bucket of water
Measuring cups (1 cup and 1/3 cup)

Chapter 19

10 small cups or containers
Hydrogen peroxide
Bleach
Eyedropper or straw
One cup of potting soil
Three small containers
Package of radish seeds
Cotton yarn or small strips of cloth
Water
Nail
Small bowl

Chapter 20

Story cards (see attached)
Paper
Pencils/pens/crayons/markers
Pencil
Typing/notebook paper
20 small objects like buttons, beans, etc.

Chapter 21

Several hard candies of different flavors (lollipops will work too!)
Glass of water
Blindfold (optional)
Several cotton swabs
Several kinds of liquid samples for each of the four flavors (i.e. Vinegar= sour, Strong coffee = bitter, Syrup = sweet and Salt water = salty)
Glass of water

Chapter 22

Small paper cup
2 feet of string
One toothpick
Small source of water
Pencil
Notebook/typing paper
Measuring tape

Chapter 23

Blindfold
Two jars containing $\frac{1}{4}$cup popcorn or a few pebbles
Paper/pencil

Chapter 24

Ten sets of paired cards with matching faces
Clock or watch with second hand
Paper and pencil
Thesaurus (optional)

Chapter 25

Two plastic rulers (the ones with three holes in them)
Tape measure or another ruler
One paper clip
Two feet of string
One metal brad
Clear tape
Measuring tape
Clock with second hand

Chapter 26

Five soda bottles with screw-on lids
Electrical tape
Two large clips (called "bulldog clips" you can find in an office supply store)
Two plastic funnels
Two pieces of (each 1 ½ feet long) of clear plastic tubing
Two pieces of 4" clear plastic tubing
Red and blue food coloring
Masking or duct tape
Modeling clay or bubble gum
Two balloons
Two rubber bands
One small strip of wood(1/4" x 4-6")
One drinking straw
Glue

Chapter 27

Light corn syrup
Unflavored gelatin
Measuring cup
Water
Stove/microwave
Cornstarch
Water
Two drinking glasses or coffee mugs
Sandwich baggie
Twist tie (from a bread sack)
Iodine

Chapter 28

Whole milk
Water
Shallow dish or pie pan
Food coloring
Liquid dish or hand soap
Cotton swabs
Paper towels
Measuring cups/spoons
Bowl of water

Chapter 29
Package of flavored gelatin (light-colored flavors work best)
Knox gelatin
Plastic cup/container to hold the gelatin
Various edible candies to represent organelles (i.e. fruit roll ups, cake sprinkles, hot tamales, chocolate covered raisins, gumball, etc.)
Plate
Knife
Spoon
Tea bags
Paper towels
Water
Container to water
Measuring tape

Chapter 30
Popsicle sticks/glue **or** gumdrops/toothpicks **or** clay/toothpicks **or** some kind of construction toys
Banana
Salt
Warm water
Blender
Liquid soap
Toothpicks
Strainer
Glass jar
Rubbing alcohol

Chapter 31
Small shrub, tree or houseplant
Aluminum foil or Cardboard
Paperclips
Scissors
Several oranges (other citrus fruit will do as well)
Container of water (large enough to hold the orange)
Knife (optional)

Chapter 32
Cardboard sheet (5"x36")
Fishing line
Duct tape
Scissors
Several different items chosen by the child
Organelle review sheet (see attached)
Paper and pencil

Chapter 33
Any brown soft drink (cola, root beer, etc…)
Water
Two Raw or hard-boiled eggs
Two Drinking glasses
Mouthwash with fluoride
Two Eggs
Two Drinking glasses
Vinegar
Water

Chapter 34

Cotton swab
Paper/pencil
Saucepan and stove
Packet of unflavored gelatin
Water
Sugar
Beef bouillon
Four foil muffin cups
Muffin pan
Measuring spoons
Four sealable sandwich baggies
Antibacterial soaps, lotions, etc.
Raw meat

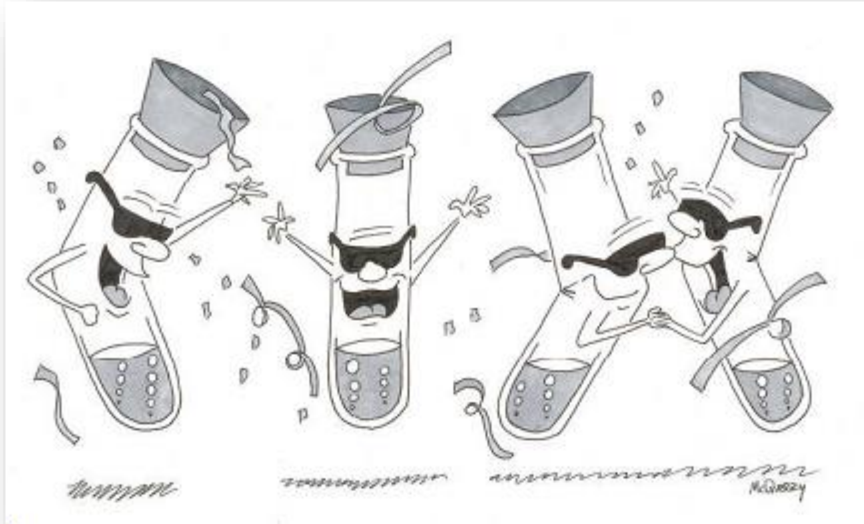
Chapter 35

Paper/pencil

Chapter 36

One unfiltered cigarette
Empty soda bottle
Modeling clay
Pencil
One Cotton ball
Gallon milk jug with the cap
Large bucket of water
Measuring cups
Tubing (section of hose will work)

Exploring Scientific Procedures

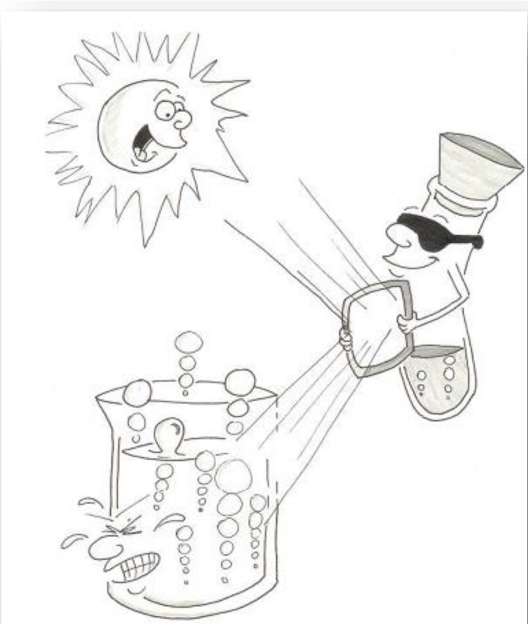


Exploring Scientific Procedures (ESP) is a method of introducing the concepts of experimental design to children which include:

Independent/dependent variables, hypothesis building, constructing data tables, and graphing

The materials necessary to perform this method are cheap and easy-to-find and use. Most materials can be found around the home.

This background into the method is intended to train you, the educator, on the basics of experimental design. A rough timeline has been provided within this presentation to guide you through the potential administration of the method to children of various ages. The proven success of this method has been accomplished through short, weekly activities with children over a long period of time. ESP should be presented to children much like multiplication facts: in repetitive short bites, spread out over an extended timeframe. Children will begin to see how the independent/dependent variables, hypothesis, data tables and graphs are all related to the process of effective experimental design.



What ESP is…

ESP is a method to integrate the process of experimental design into your regular science curriculum

ESP encourages problem-solving strategies for children and adults

ESP is low cost

ESP is a discipline that requires time and patience

ESP should be used repetitively, in short amounts, over a long period of time (similar to learning multiplication tables)

What ESP is not…

ESP is not a script to be read

ESP is not a curriculum to be memorized, but a method towards scientific literacy

ESP does not have a standardized timeline

ESP is not exclusively for children

ESP is not a long list of definitions found within a massive textbook (two definitions are all you need…)

Definition #1

Independent Variable

What you change in the experiment (to make life easier for your children, you may want this "change" to be measurable - i.e. weight, mass, volume, height, etc..)

Definition #2

Dependent Variable

The result from the change you made (this variable, also known as data, "depends" on your independent variable and, again, should be measurable.)

The INDEPENDENT VARIABLE and the DEPENDENT VARIABLE are close relatives and can be found throughout the following steps of experimental design:

QUESTIONS
HYPOTHESIS
DATA TABLES
and
GRAPHS

All scientific experiments begin with simple questions. It is this sense of inquiry that ESP begins its journey…

… with a question!

Question

Does the ______________________ affect the ______________________?
(Independent Variable) *(Dependent Variable)*

Now that you've asked a QUESTION, it is time to change it into a measurable and educated guess…

… a hypothesis

Hypothesis

If the ______________________________ is ___________________________,
(Independent Variable) *(increased/decreased)*
then the ____________________________ will __________________________.
(Dependent Variable) *(increase/decrease)*

All data that is collected within an experiment must be in an easy format for future study. The following data table should remain the same throughout each of your child's experiments. With practice, they will become very proficient in recording data that can be easily analyzed.

Independent Variable	Dependent Variable			
	Trial One	Trial Two	Trial Three	Average

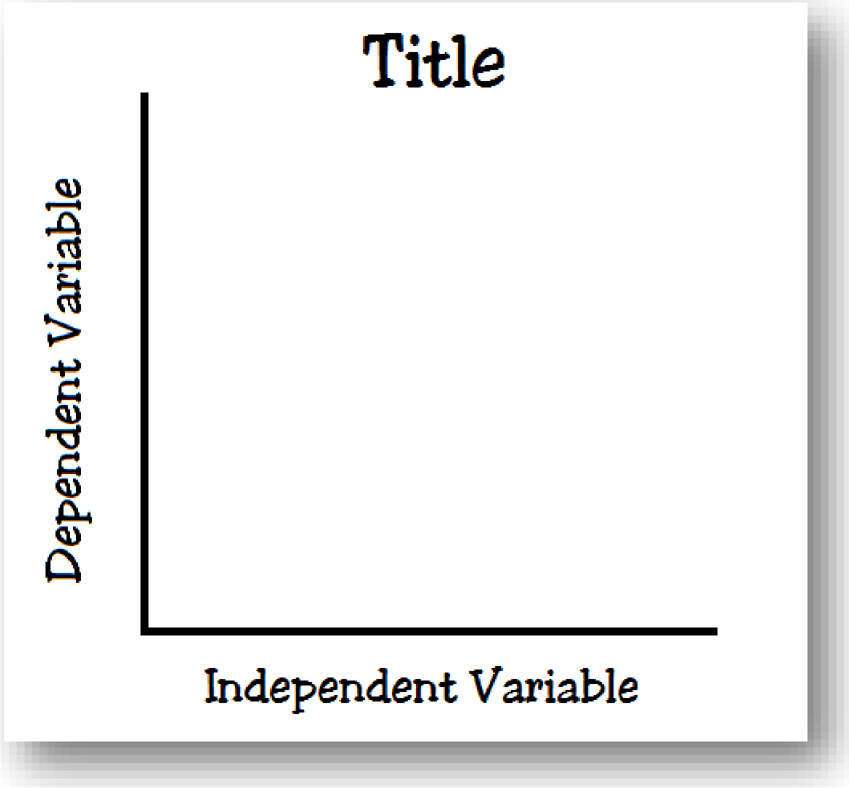
While analyzing the data in an experiment, you are typically looking for patterns and relationships between what you are changing (the INDEPENDENT VARIABLE) and your data (the DEPENDENT VARIABLE.)

A GRAPH can help visualize the data in a way that is easier to see any of these possible relationships.

The TITLE of any GRAPH should restate the HYPOTHESIS of the experiment…

. . . .this helps the person who is reading your graph to easily identify what the data is all about.

Let's try an example...



Graph Titles

The effect of the ____________________
(Independent Variable)
on the __________________________.
(Dependent Variable)

Children must see the INDEPENDENT VARIABLE and the DEPENDENT VARIABLE

in the

QUESTIONS, HYPOTHESIS, DATA TABLES, and GRAPHS

Question:

Does the distance a rubber band is pulled back affect the distance a rubber band can travel?

Can you identify the Independent and Dependent variables?

IV = Distance a rubber band is pulled back

DV = Distance a rubber band can travel

Look for these two phrases throughout the example!

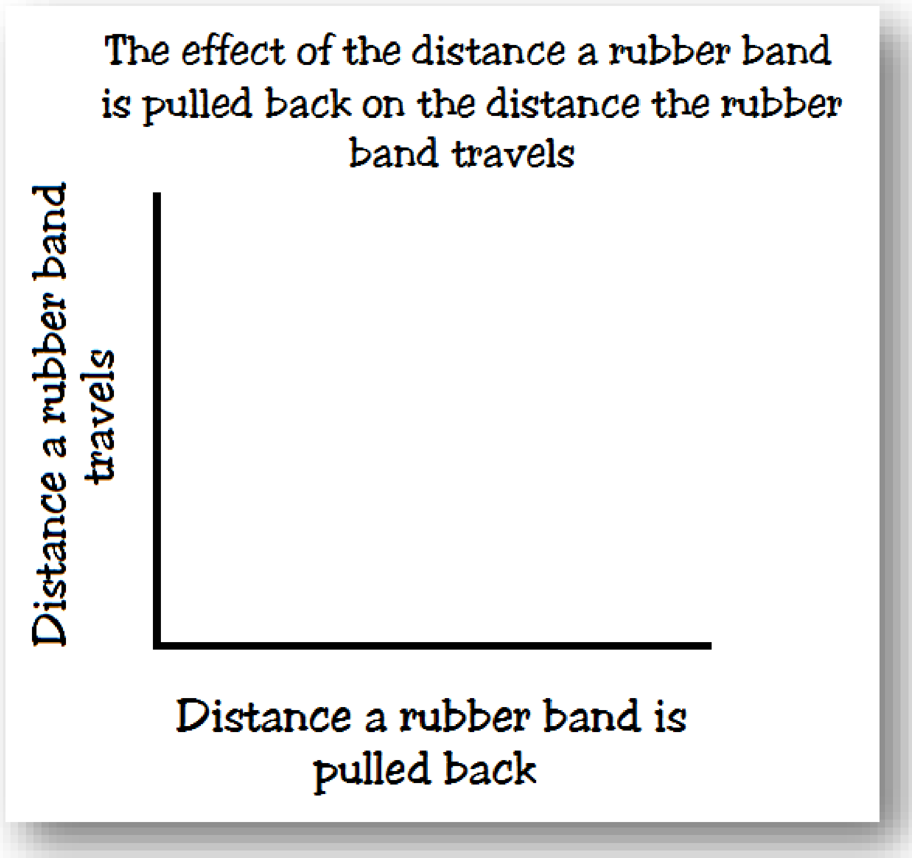
Hypothesis:

If the distance a rubber band is pulled back is increased, then the distance a rubber band can travel will decrease.

Data Table:

Distance a rubber band is pulled back	Distance a rubber band can travel			
	Trial One	Trial Two	Trial Three	Average

Graph:



The phrases...

"distance a rubber band is pulled back"

and

"distance a rubber band can travel"

...can be seen throughout the entire experiment.

You never change the phrases!

Therefore, the child will easily see the relationships between the:

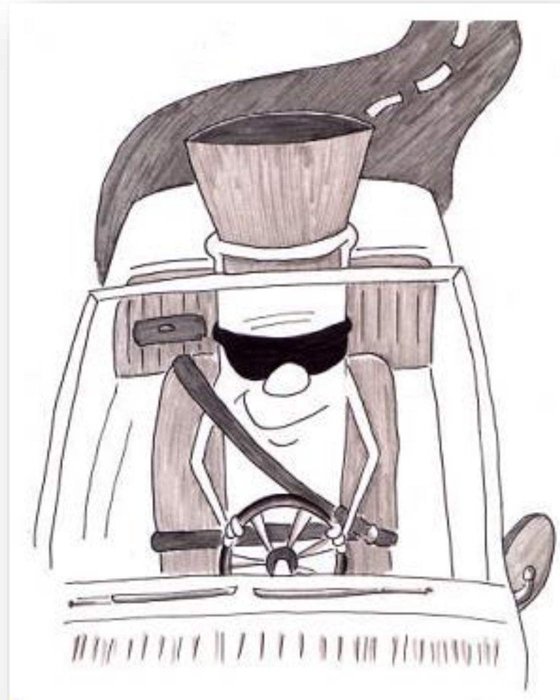
QUESTIONS, HYPOTHESIS, DATA TABLES, and GRAPHS

More importantly, each experiment can be used to reinforce the scientific concept your child is currently learning.

Have your child explore one activity a week. At first, provide them with a question, a hypothesis a data table and a graph…

…after a few weeks, ask your child to start writing their own hypothesis from your question. In addition, have them set up their own data table and graph before starting the experiment. With weekly repetition, children will be able to effectively set up, run and analyze the results of a scientific experiment.

For example.....
If your child is learning about how energy can be transferred from potential to kinetic, you can use the rubber band experiment to reinforce this concept...



...and while they are learning about the transfer of potential energy to kinetic energy, they are also practicing effective experimental design procedures.

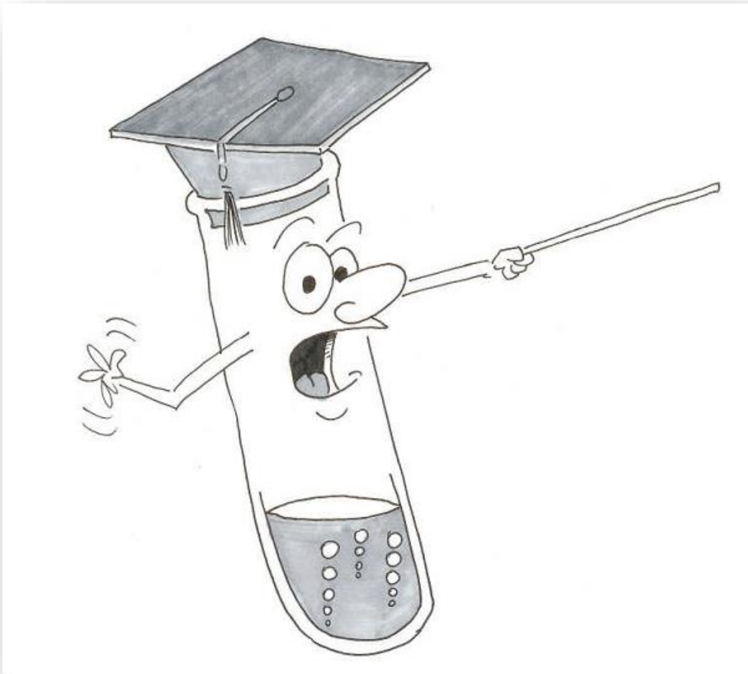
Once your child becomes more proficient at this model....

You can really start having fun with them by using...

Sources of Error

Have the child list:

All of the materials used in the experiment
(i.e. ruler, rubberband, etc.)
and
All of the possible ways the materials could have been changed (each of which is a "SOE") (i.e. size, shape, color of rubber band, angle of the launch, presence of wind, etc...



All materials in an experiment must remain constant. The possible changes in materials identify Sources of Error (SOE) that could alter the results of an experiment.

Constants are very important because you only want to change ONE variable in your experiment.

Why do you only want to change ONE thing in your experiment?

So that you can identify what variable is altering the results in your experiment…

…if you changed two variables, how would you know which one is affecting the results?

Constants share their importance with very important part of an experiment which is known as the…

Control

The control is a trial within your experiment that is used to identify any unknown SOE 's that may be affecting your data.

No matter how you change the independent variable, you should always run a control in your experiment. How do you do this? It's easy! The control in your experiment will provide data that you should easily be able to predict.

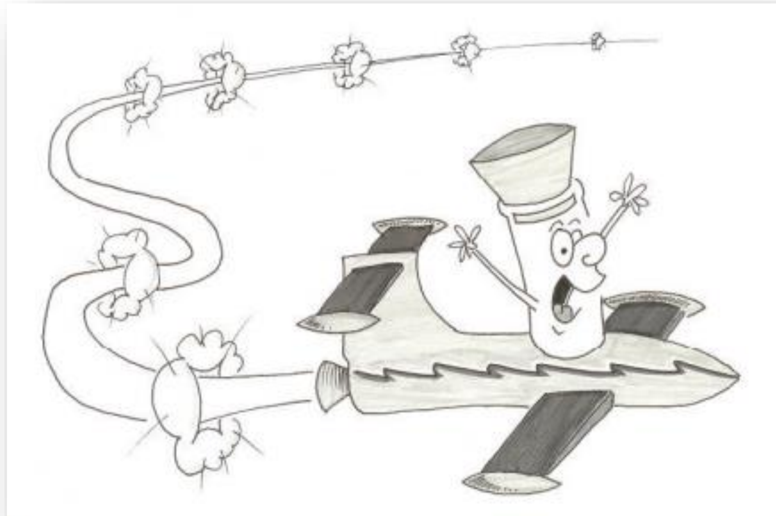
For example...

If your child wishes to see the effects of salt water on the growth rate of plants, the CONTROL in this experiment would be to use ordinary water with their plants to determine the normal growth rate.

You should expect all of the plants to live when they are watered, right? That makes the trials of plants being watered the CONTROL in the experiment.

Along with this CONTROL, the child will grow other plants with varying levels of salt water. If all the plants die, with the exception of the CONTROL, you may assume that the salt is the culprit. If the CONTROL perishes, you may have an unknown SOE in the water that needs to be identified.

So what do you do when your child is very comfortable with setting up, running, and analyzing the results from an experiment?



QMS Strategy

The QMS stands for:

Question

Method

Solution

Consider the QMS Strategy as the "challenge phase" of this method. Up to this time, you have been providing your child with the question to solve in their experiments

Now, let's change that procedure a bit...

Instead of providing the question to your child, now provide the Method (a procedure) or Results (a data table or graph) for them to follow….

For example…

By providing a completed graph to your child, or perhaps a procedure, your child can be asked to determine the experimental:

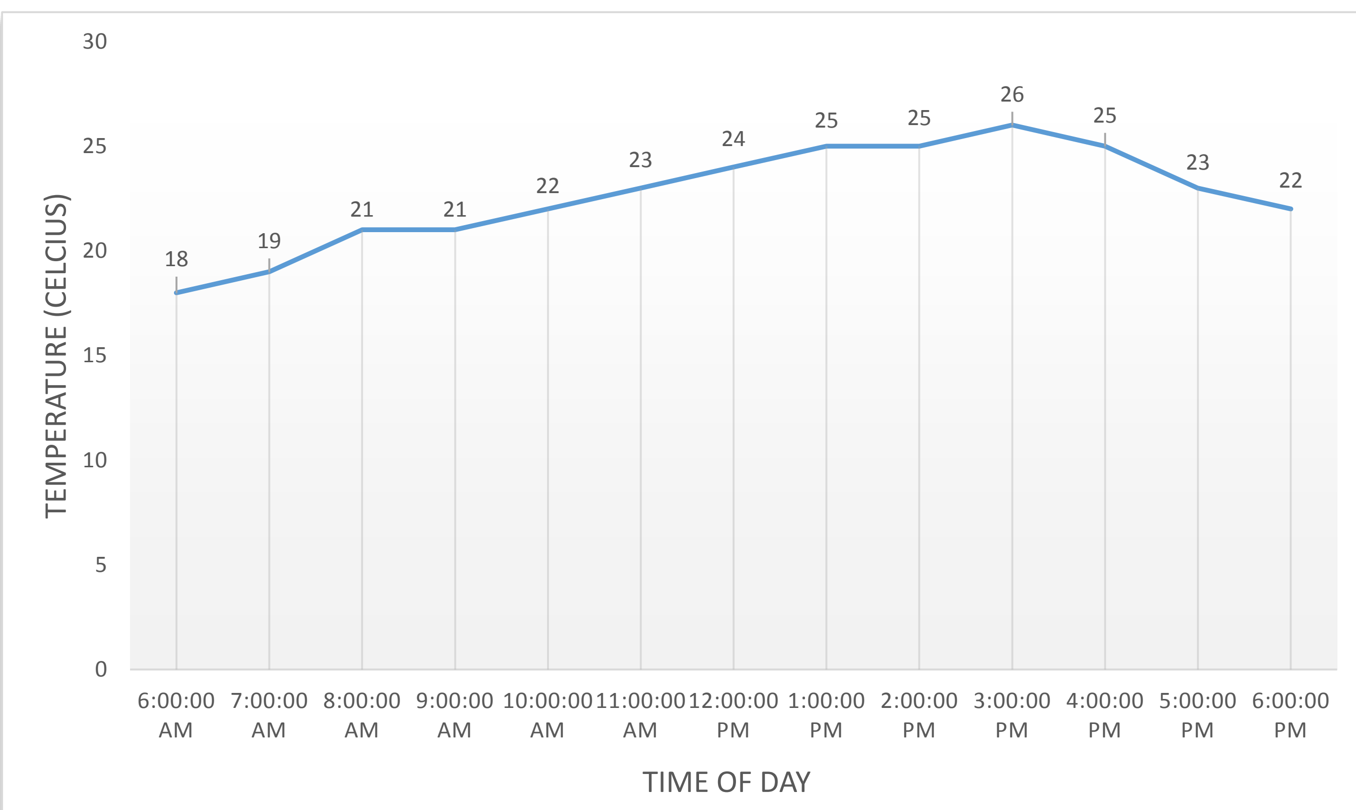
Question

Hypothesis

Data Table

Conclusion

By providing a graph such as this:



The Independent and Dependent Variables can be identified…

…. and can be used to create a question and a hypothesis such as these:

Question:

Does the time of day affect its temperature?

Hypothesis:

If the time of day is increased, then the temperature will increase/decrease.

….and a data table such as this:

Time of day	Temperature (Celcius)			
	Trial One	Trial Two	Trial Three	Average
6 am				
7am				
8am				
9am				
10am				
11am				
12pm				
1pm				
2pm				
3pm				
4pm				
5pm				
6pm				

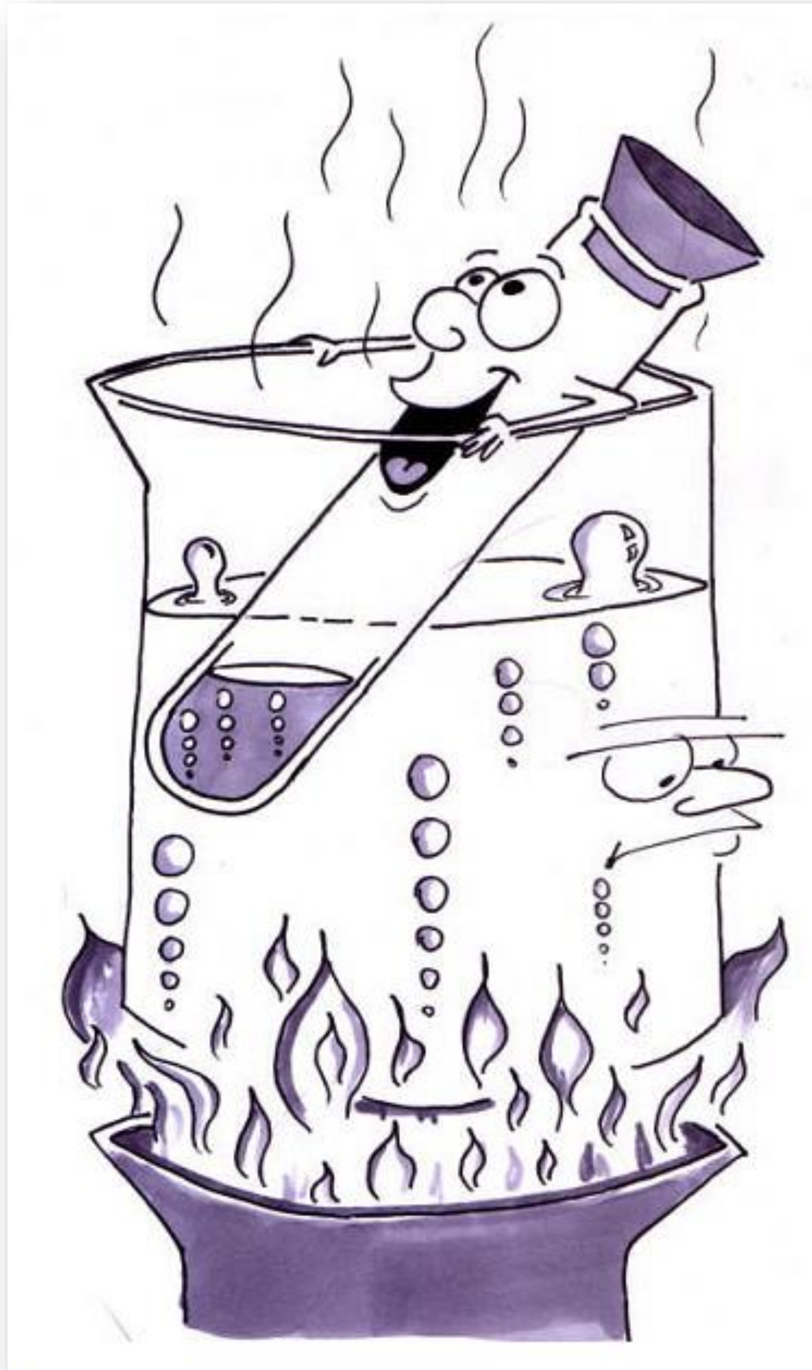
The QMS Strategy forces the child to look at an experiment from a more practical way...

... as a problem to solve!

Do not forget!!!

You really cannot be "wrong" In running a scientific experiment...as long as you can defend your data.

It does not matter if your data supports or does not support the hypothesis; each experiment should set the stage for further exploration.



Chapter One

Living and non-living things

Day One:

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Collect the materials you will need for days two and three

National Science Education Standards covered this week:

Organisms have basic needs. For example, animals need air, water, and food; plants require air, water, nutrients, and light. Organisms can survive only in environments in which their needs can be met. The world has many different environments, and distinct environments support the life of different types of organisms.

Definitions

Organism	any living creature on the planet
Biotic	all living or deceased organisms are biotic objects
Environment	"everything in the world"
Reproduce	to be able to make another organism of the same kind
Abiotic	nonliving objects in the world
Nutrients	another word for "food"
Resources	the basic things an organism can use every day to survive
Population	a group of similar organisms

Sample questions to ask your child after completing the weekly reading.

What kinds of resources do plants and animals need?

All plants and animals need air, water and food/nutrients to survive.

What is the difference between living and nonliving objects?

Living objects can use food, grow, react to changes in the environment, reproduce, breathe and/or move. Nonliving objects cannot do all of these things.

What do you think is more important, living or nonliving things?

They both are equally important. The air we breathe is a nonliving object, but without it, we could not live. Not all of our resources are living things so they are both very important.

Do you live in an environment?

Yes. Since you and I both exist in the world, we are definitely living within an environment.

Answers to worksheet questions:

Page 1:

2 – biotic
6 – population
8 – resources
7 – reproduce
5 – organism
3 – environment
4 – nutrients
1 – abiotic

Page 2:

1. B
2. C
3. B
4. C
5. C
6. B

Page 3:

Biotic objects in the picture may include the fisherman, birds, fish, plants and the worm.
Abiotic objects include the fishing rod, clouds, can, hook, fishing line, rock and the water.

Day Two:

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

Biotic (living) objects are very different from abiotic (nonliving) objects.

Biotic objects can do the following:

- use food
- grow
- react to changes in your environment (this is a big word that means "everything in the world")
- reproduce (to reproduce, an organism must be able to make another organism of its own kind)
- breathe
- and move

Touchy feely science in a box

Objective:

The child will be able to identify living (biotic) and non-living (abiotic) objects by only using their sense of touch.

Materials:

One shoe-box, opaque bag, etc...
One handful of rocks
One handful of fruits, vegetables, flowers, etc...
One handful of metal objects (screws, bolts, etc…)
One handful of leaves

You can add anything you like. Use your imagination!

Procedure:

Place all of your objects into your box or bag and keep it closed.
Allow your child to reach in and feel one object.
Have them describe what the object feels like and write these descriptions down on the enclosed worksheet.
As each object is removed from the box/bag, write down their names on the worksheet and have the child identify whether or not the object is biotic or abiotic by checking the correct box on their worksheet.

Explanation:

The rocks and metal objects are good examples of abiotic resources; the fruits, vegetables, flowers and leaves are all examples of biotic factors. Remember, even if your object was once alive (but it is now dead.) it still would be called a biotic factor! To be an abiotic factor, you cannot have ever been alive at all. If the child is unsure about an object being biotic or abiotic, have them look at the list of questions at the bottom of their worksheet.

Touchy feely science in a box

Describe the object in your hand.	What is the name of your object?	Is your object a biotic factor?	Is your object an abiotic factor?

Does the object use food, grow, react to changes in your environment, reproduce, breathe, or move? **If your object cannot do any of these things, you probably have an abiotic object!**

Day Three: Lab Activity

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

All groups of similar organisms (known as a population) need air, water, and food/nutrients to survive. These needs are known as resources.

Biotic (living) objects are very different from abiotic (nonliving) objects. Biotic objects can do the following:

- use food
- grow
- react to changes in your environment (this is a big word that means "everything in the world")
- reproduce (to reproduce, an organism must be able to make another organism of its own kind)
- breathe
- and move

Graphing life

Objective:

The child will be able to identify living (biotic) and non-living (abiotic) objects from many different sources.

Materials:

Newspapers and/or magazines with lots of pictures to cut out
Scissors
Pencil/pen
Glue
Paper

Procedure:

Divide the sheet of paper in half, lengthwise, by either drawing a line or folding it in half. Label one half of the paper “biotic objects” and the other side with “abiotic objects”.
Have the child search through newspapers or magazines for small pictures to cut out. For an extra challenge, take your child outside to collect small items from around your home.
Inform your child that these items will be pasted onto a sheet of paper that has been divided in half.
Before these items are pasted, however, your child must first place them on the correct side of the paper. Ask them if “their item is a biotic or abiotic object?”

Explanation:

You may need to remind them that even if an object was once alive (like the wood surrounding a pencil, or the grain that was used to make a noodle...) it is still considered to be a biotic object. Since most living things require the same resources to survive (food/nutrients, water and air) this would be an excellent time to review these basic needs.

After each of their items is correctly identified, paste them onto the correct side of your graph. If your child chooses a picture of a group of organisms, you can take this opportunity to remind them that a **population** is a group of similar organisms living in the same area (like a herd of deer, or a small patch of grass...)