Collecting Basic Materials, What and How?

1. **Student Tubs and Storage**– The Dollar Store usually has dishpan like tubs for $1.00 each. Buy enough for a tub for each group of 4 to 5 students and 6 extras for you. Put I.D. on each tub to denote which student group in which grade uses that tub**. Sometimes** all my classes at different grade levels, used the same tubs of supplies. **Other times**, I had to set up tubs for separate grade levels as the needed contents were different.

2. Purchase a few **larger plastic storage bins** with lids that are at least 12-18 inches deep. If you can't, then buy a few boxes about that size. Collect and save **shoe boxes with lids**. With proper I.D. they are great for storage and stack easily. You can store lightweight things in these.

3. **Hand Lens** – It would be great if you had at least 30. Each one should have a string around it which fits around a child's neck. This **frees the child's hands** and keeps the hand lens **from being lost** when working with them outdoors. When not in use, store each hand lens (magnifying glass) in a small Ziploc bag so it won't get scratched.

4. **Plastic measuring cups** – Buy one set, of various sizes of metric measuring cups. They may also show measures in ounces as well as parts of a cup in English measure and Metric Measure. ` These serve as your **standard.**

5. Get everyone to **save the cups** which come in **detergent** and Oxiclean as well as the **tiny cups** which come with **cough syrup** and such. These are easy to mark with a permanent magic marker putting the measures on the containers. Also **collect about 200 baby food jars with lids, and art least 20 pint jars.** All these things have many different uses in the classroom. Use your standard

metric measuring cups to make sets of cups for your students from these free containers. **Put a set of measuring cups in a plastic bag, for each cooperative learning team, in each tub as needed.**

6. **Metric Rulers** – You need at least 3 for each tub. (WARNING – **kids tend to abuse and break these.**)They hit other students with them. So, **don't put them in the tubs until** the kids have learned how to use them responsibly. **Demonstrate** how to measure and how **to care** for the rulers. Immediately **remove rulers** when you see signs of abuse. They are great for making charts to record data as well as for measuring. It is **important kids learn to use them responsibly.** It may be best to have a student go get the rulers when they are needed and return them immediately after use. **For measuring temperature, you will also need at least 10 sturdy student thermometers.**

7. **Magic Markers, crayons. paper, large square graph paper, and extra pencils.** You can print copies of large squares graph paper. Often half a page will often be enough per group. **Creating and reading graphs** is a form of **technical reading**. When **kids make them,** they learn how to **read them meaningfully.** Often their experiments will call for a graph to show results.

8. **Paper cutter and hole puncher kids can use** – If this is not possible purchase at least one pair of scissors, and 1 small, hand-held hole puncher per student group.

9. **Medicine Droppers** – You need at least 30. See if you can get the droppers with bottles from your local pharmacist free or very cheap. Your pharmacist can also **order longer plastic ones,** which are easier for small hands to use. They cost 80 cents each. Or, have kids bring them from home. Have your friends and parents save them when they have been used and are empty.

10. **3 ring binders (notebooks) with medium size rings, 5 dividers and about 30 sheets of notebook paper to begin.** This notebook is just for SCIENCE. Be sure to **add** it to the **supplies list before the parents get them**. Every student needs his own notebook decorated with science things on the front so it is easy to grab for science days. **PROBLEM-** Some kids cannot afford these. You will need to appeal to your Sunday School Class, to Business Leaders who use them in their business, to Walmart, etc. You will need at least 36 extra for a student load of 200 children. **I ask kids to bring in old notebooks from home to be used again – "reduce, reuse, recycle.**" I deal with poverty by **going to every trashcan at school on the last day of school and rescuing all usable notebooks.** I put colored paper on the front and back, cut up old folders for dividers and have these ready so everyone can have a science notebook. I emphasize the importance to reduce, reuse, and recycle everything we can as a part of caring for our planet.

11. **At least one computer with Internet connection and printer**, and several reams of copy paper. Most children do not have good science books. It does not matter as long as you teach the children how to **do research with Google** and get the facts they need when they are experimenting. This improves **computer skills, reading, and thinking skills**. When you Google the facts that are needed, you can write them on the board for the kids to copy in their binders. Usually one paragraph is enough.

12. **Rocks** (sedimentary, metamorphic and igneous, plus some common minerals.) Collect enough so that you can chip pieces of the rocks and test fresh surfaces with nails and vinegar. See a website for good rock studies to see how children learn rocks are made of minerals; and soil is made from broken down rocks and other materials. Also collect shells and get several of each kind with different shapes and patterns on them. Collect seeds, and

seed- pods as these are great for classifying as well as variety and similarity. (See **website page "Children's Ecology" and "First Lessons in Math and Science."**)

13. **Aquarium**– which can be used for water organisms as well as for animal visits. **Torn up newspaper is O.K**. for putting in the bottom of animal homes. I covered these with pieces of bent hardware cloth to keep the animals inside. It is good to have **some kind of light** to warm them as needed. The glass sides are good for student observations. Check out the thrift stores, yard sales, and parents who want to get rid of one or two. For **water aquariums,** be sure t**hey don't leak** and you will need a filter. I did not keep animals in the classroom long. We would **observe, study, and then release** them. We preferred to study them in their natural settings outdoors.

14. **Plastic Soda Straws** – The best ones are those that come with your soda. Collect them, clean them, they have many uses. Fast food stores will give them to you.

15. **Soils** – Use cloth bags or 2 gallon Ziploc bags to collect different kinds of soils: **sandy, sandy loam, clay, clay loam, and humus (decayed plant materials).** Since there are living organisms in the soil don't seal the plastic bags tightly. These organisms need air. Experiment to find out w**hich soil is best** for growing plants? **What is soil made of**? **How do plants use soil**? Could we **smash up some sedimentary rocks** and make soil? Would plants grow in our soil? What would we need to add to the smashed up rocks?

16. **Research** – Study my website for ideas and for experiments. There are other websites as well with experiments for kids, on Google. Look on my website for "KID'S CHEMISTRY, Parts 1, 2, 3. Winter is a good time for chemistry. Find out what you need to teach for the tests, then branch out and get more experiments,

which help our children learn **how our planet works** as they develop **problem-solving skills.** There are many businesses and groups, which provide **free supplies** for kids. Some of my favorites are: **The American Dairy Council, and the U.S. Wildlife, Game, and Fisheries Agency. There are numerous energy and environmental conservation groups, which also provide free materials. Each state has a branch office. Google the free resources and see what comes up for your kids**

17. **Outdoor Classroom – My kids and I developed an** Outdoor Classroom, which contained the School Garden, with a Wildlife Refuge in each school I taught in. This one resource can be used to teach just about everything a child needs to learn about **how our planet works. Master Gardeners, County Extension Agents, Conservation Groups, Parents, Grandparents,** and others stand by to help as asked. See my website "**The School Garden"** for a plan. To start out small, ,get an old wheelbarrow, punch a few drainage holes in the bottom, cover the bottom with a bit of gravel, then, top it off with good garden soil. Plant a salad garden. It will come up in about a week or ten days and you can begin to thin the tiny seedlings **and eat them.** As the garden grows, keep thinning and eating. Kids love this little garden and **they will eat what they grow.**

18. **Other Basic Materials** – broom, mop, dustpan, rags, two buckets, cleaning supplies (Hands-0n science is messy.)

19. **Other good stuff to add as you go along** – Our **planet** is **magnetic.** To help kids learn about this aspect of our planet home, collect some magnets, electrical wire (thin), some flashlight bulbs and light up the bulbs. Wherever there is magnetism there is electricity. **Google the Magnetic North Pole.** Get a **few bottles of food coloring, all the same color,** and a bit of poster board.

20. How about adding **a few prisms to change sunlight into** its **colors (Roy G. Biv**)? How do **plants use sunlight?** How is fluorescent **(man-made) light different than sunlight**? What does the **prism show** you about **fluorescent light?** How do plants use sunlight to make food? Prisms are **inexpensive,** and lots of fun to use.