

THE EXPERIMENT IN THE SCIENCE CLASS

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To cultivate the scientific method of making observations and by relying on evidence rather than upon propaganda, tradition or hearsay, and of exploring natural phenomena in terms of cause and effect relationships rather than in terms of superstitious beliefs" is one of the general aims of teaching science in the schools. This aim and objective can be accomplished by real and worthwhile experiences in which the pupils take an active part, like experimentation, observation, field trips and record keeping. Of the activities named, the first is seldom used if not left out in most science classes. This is due to the following reasons:

1. Lack of experience on the part of the teacher. The teacher may be one of those teachers who lack a science training.

2. Lack of basic supplies and necessary apparatus. In remote barrios, the teacher will experience difficulty in obtaining the necessary equipment for a good science experiment.

At the opening of schools in July, every science teacher should have some of the following supplies and equipment in her room:

- Two or three empty bottles
- One or two earthen or glass jars
- Several thick glass tumblers
- Two cups
- Two saucers
- One tin or aluminum measuring cup
- A tin pan
- Two or more lamp chimneys
- Several flower pots
- Spoons of different sizes
- Butcher or paring knife
- Old screen wire
- Clothes pins
- Broken pieces of window pane

- Pieces of tin, steel, or brass
- Some buttons
- Rubber bands
- Scraps of silk, fur or wool
- Old balls of various sizes
- Toy balloons
- Cardboard boxes
- Corks of different sizes
- Nails, tacks, screws, or bolts
- Flash light
- A pair of scissors
- Test tubes
- Simple machines, such as egg beater, can openers hammers, pliers, screw driver, levers

Science experiments especially in the elementary school is a "reliable asset" to the children. It enlarges the child's idea of a thing. However the value of the experiment to the child depends upon three things:

1. Purpose of the experiment to the child
2. Active participation of the child
3. Scientific truth proved by the experiment

A good science experiment should have a "pre-discussion, accurate performance, accurate recordings oral or written and valid conclusions." The teacher should select the experiment which will most clearly prove a certain truth to a particular group of children, i.e. the maturity of the children should be taken into consideration. For elementary school children we should avoid experiments intended for fourth year students. The simplest experiments in evaporation, condensation or the use of the magnet may be tried in a fifth grade class. The teacher should explain the purpose of an experiment before performing it. She should see to it that the pupils understand the purpose, and that

they make it their purpose and not the teacher's. Each step in the experiment should be explained before the performance. The pupils should be given the chance to explain the steps in their own words. The apparatus should be placed on a high place in the center of the class. If possible, several pupils should be allowed to perform the experiment. The pupils should describe in their own words what actually took place in the experiment.

Suggested experiments for the elementary grades:

1. Get a board 8 inches wide. Nail a flat piece 6 inches wide vertical to it. Place the board on the ground east and west. The flat piece will make a shadow on the board at different places as the sun rises and sets.

The sun makes short or long shadows at different hours of the day.

2. Put fire to a small amount of waste paper in your backyard. When it is burning pour a bucketful of sand over the fire.

Fire is put out by sand by keeping air away from the fire.

3. When there is a thunderstorm, watch for the flash of lightning. How many seconds will it take for the sound of thunder to reach you? As soon as you see the lightning, begin to count, one number for each second. If you count 6 before you hear the thunder, then it takes 6 seconds for the thunder to reach you. The lightning must have been 6,000 ft. away.

No sound is heard the second it occurs.

4. Get a box with only a small hole on one end for light. Grow a plant in this box. The plant will grow towards the light.

Plants seek light.

5. Fill a glass with water. Place a piece of paper or cardboard over the glass and remove your hand after a second. Water remains in the glass.

Air presses on things.

6. Get a basin half full of water. Leave

the basin of water on the window sill where the sun may shine on it or where the wind may blow over it. The water in the basin will disappear little by little.

Water evaporates.

7. Get several flowers (rosal, for example. See that the leaves are attached to the flower stalks. Put the flower stalks or stems in a bottle with water which has been colored with black or red ink. Keep the flowers in the shade. After a day hold the flowers or leaves up to the light and split the stems lengthwise. The stems will be black or red, whatever color you used.

Water passes through the stems.

8. Take a clean, dry, clear glass bottle with a cork. Put the bottle over a small branch of a tree and cork the bottle. A cut should be made on the cork on the side where the stem of the plant enters the bottle. Try the experiment on a dry day. After a day, water will be seen to collect on the inside of the bottle.

The leaves give off water.

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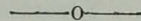
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