

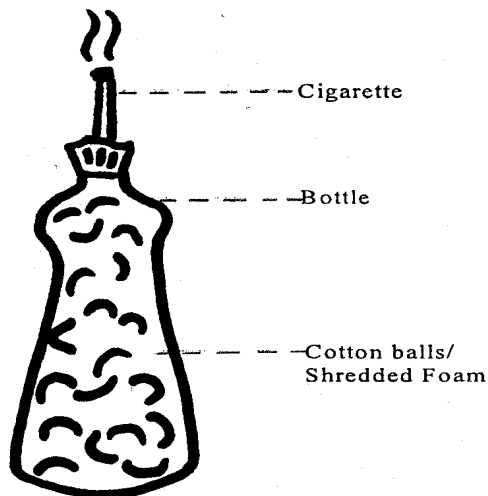
## Plastic Container Smoking Machine

### Smoking - Activity 1

This experiment will allow students to demonstrate the amount of tar that accumulates in a smoker's lungs. This experiment can also be done using a set of sponge lungs, which can be obtained through the Manitoba Lung Association.

For this experiment, you will need a clear, plastic container such as an empty bottle from dishwashing soap or window cleaner, cotton balls or white shredded foam, cigarettes, and matches.

If the plastic container is not clean, rinse it out with the water until it is clean. Fill the dry bottle with cotton balls or shredded foam. Place a cigarette in the opening of the bottle and tape it in place. If the cigarette is larger than the opening of the hole in the lid, it may be necessary to make the opening wider. An electric or hand drill can be used to do this, but remember to ask for help while using any tools.



The cigarette is ignited by squeezing the air out of the bottle and then placing a lit match near the end of the cigarette bottle and releasing. Continue to slowly squeeze and release the bottle until the entire cigarette has been "smoked". The cotton balls closest to the opening of the bottle will begin to turn yellow or brown from the chemicals in the cigarette smoke. For a more dramatic demonstration, "smoke" varying numbers of cigarettes using different bottles to see variations in the accumulation of tar.

In order to obtain the best results for both this and the foam lung model experiment, cigarettes without filters and/or cigarettes with high tar content should be used. The tar content of cigarettes with more than 12 mg of tar give off more chemicals than low tar and nicotine cigarettes and the results of these experiments are seen earlier. By using non-filtered cigarettes, all chemicals reach the foam or cotton because they are not trapped by a filter.

Students doing either experiment may also wish to compare several brands of cigarettes and demonstrate the accumulation of tar in separate sets of plastic lungs or bottles. The varying tar content of different brands of cigarettes will discolor the foam or cotton in the smoking machine to varying degrees.