It is important to prepare an area for the experiment. Although the flies will not be let out, you might want to choose an outside location. Wherever you choose, you must read the directions from the manufacturer and verify that the flies will be in the correct light and temperature environment. Be certain that you will have enough room to operate the anesthetizing kit and the microscope with ease.

The Fruit flies will come to you in the larvae stage, so they will need at least a week to become mature. Use this waiting period to obtain the other materials needed. You will notice that the pupa will crawl up the side of the container. The pupa begin to darken just before they emerge. You will be able to see the outline of the wings about two days before they are ready to emerge.

After observing the darkened pupa and outline of the wings, you will know that it is almost time to begin the handling of the flies. This is an excellent time to read very carefully the directions of the manufacturer on the process of anesthetizing the flies.

* 1. Following the manufacturerís directions, anaesthetize the flies.
* 2. Handling the flies very gently, place them on a white card. This will help with the process of separating the males and the females. When observing them under the microscope, use at least a 12X magnification. Separate the males and the females, using the chart below:

|  |  |
| --- | --- |
| **Males** | **Females** |
| Dark bristeles near the abdomen | No bristles |
| Abdomen is dark in color | Abdomen is light in color |
| Rounded abdomen | Pointed abdomen |
| Males are smaller in size | Females are larger in size |
| Sex combs located on front legs | No sex combs on front legs |

Handle the flies with a needle, a brush, or any suitable tool that wonít harm them.

* 3. Using the manufacturers directions, prepare ten containers for the flies. These should all contain the same amount of medium and water. Label them clearly.

Caution: The next steps involve a toxic material, and require the use of gloves.

* 4. Using an eye dropper, place four drops of pesticide into two of the containers. Then add three drops to the next two containers. Then two drops to the next couple, one drop to the next two. Leave two containers free of poison.
* 5. When transporting the flies from the cards to the jars, set the containers on their sides, and place the flies onto the side of the containers. This will eliminate the flies sticking to the medium. Plug the tops of the containers with the foam plugs provided for you. When the flies awake and begin to move, turn the containers right side up.
* 6. Observe the flies for ten minutes.
* 7. All flies except for the lucky twenty in the control containers will die.
* 8. To dispose of the dead flies, simply shake the medium and dead flies into a garbage can. Throw away the plugs. Wash out the containers with a steady flow of hot water and soap.
* 9. Wait two and a half weeks until the control groups have bred enough flies to continue the experiment.
* 10. Repeat steps 1,2, and 3.
* 11. Using the eye dropper and an extra jar, mix one drop of pesticide and fifteen drops of water.
* 12. Using your new mixture, drop four, three, two and one drops into the ten containers as you did in step four.
* 13. Repeat step five.
* 14. Place the flies into their area and wait for them to complete their life cycle.
* 15. Flies will die within four days.
* 16. Repeat step 8.