Light and Color Preference Inquiries

Objectives:

- To determine if mealworms and other insects show a preference for light or dark conditions

- To determine if mealworms and other insects show a preference for color

Materials:

- Insects (milkweed bugs and mealworms are good choices to begin with)
- Large pie pan or cake pan
- Two "lids", pieces of Plexiglas or window glass, each large enough to cover the pan
- Cardboard to cover one half of pan
- Lamp (a goose neck desk lamp is satisfactory
- Colored light bulbs (white, red, yellow, blue, 40 watt if available)
- Cellophane (clear, red, yellow, blue)

Methods for Light Preference Tests:

- Check fit of Plexiglas/glass "lid" to pan. If fit does not appear to be escape-proof, apply a layer of petroleum jelly or mineral oil to the rim of the pan
- Position lamp, with white bulb, to illuminate pan evenly from above
- Place six to ten insects in the center of the pan and cover with glass and immediately cover one half of the lid with cardboard
- Observe insects continuously or at five-minute intervals
- Record the number of insects in low light (under cardboard) and high light (uncovered)
- Do the insects show a preference?

Variations on Methods:

Design and conduct inquiries to determine if:

- adults respond differently than immatures
- male and female adults respond differently
- young immatures respond differently from older immatures

Methods for Color Preference Tests:

- Repeat previous inquiries using different colored light bulbs. Do the insects respond the same way?
- Cut four "pie slices" of cellophane, one from clear cellophane and three of different colors fitting them together. Sandwich them between the other lid.
- Center the lamp with the white bulb over the pan
- Place ten insects in the center of the pan and immediately cover with the cellophance sandwich, being careful to center it over the pan and under the lamp.
- Observe and record as before
- Do insect show a preference for color?