

## Laboratory Animal Environmental Enrichment

**Summary/Purpose:** Mandatory environmental enrichment materials / practices.

The *Guide for the Care and Use of Laboratory Animals*\* states “The primary aim of environmental enrichment (EE) is to enhance animal well-being by providing animals with sensory and motor stimulation, through structures and resources that facilitate the expression of species-typical behaviors and promote psychology well-being through physical exercise, manipulative activities, and cognitive challenges according to species-specific characteristics.”

In order to ensure animal use conforms to the Guide, EE adequacy will be reviewed by the IACUC in three ways: through proposed EE in animal protocol study applications, semiannual facility inspections, and semiannual program reviews. Animal study protocols **must** have scientific justification, approved by the IACUC, to provide anything less than standard enrichment materials or practices. Examples of species-specific EE are in the table below.

- \* Guide for the Care and Use of Laboratory Animals (Guide), 8th Edition, National Research Council, 2011.

**TABLE OF STANDARD AND SUPPLEMENTAL ENVIRONMENTAL ENRICHMENT**

<b>Species</b>	<b>Standard Housing</b>	<b>Standard Environmental Enrichment</b>	<b>Supplemental Enrichment (as requested/approved by investigator)</b>
<b>Mice</b>	-Solid bottom plastic cage with wire bar lid -Water bottle -Corn cob bedding (1/8 or ¼ inch) -Commercially available laboratory rodent chow (Teklad)	-Group housed -Nesting material (combination of nestlets & Krinkl Nest) Modaks mouse tube or cardboard tube	-Alternative nesting material (i.e., aspen shavings)
<b>Mouse</b> (single housed) – by protocol approval or medical/behavioral necessity (e.g., surgery, aggression)	-Solid bottom plastic cage with wire bar lid -Water bottle -Corn cob bedding (1/8 or ¼ inch) -Commercially available laboratory rodent chow (Teklad)	-Nesting material (combination of nestlets & Krinkl Nest) Modaks mouse tube or cardboard tube	-Alternative nesting material (i.e., aspen shavings)
<b>Rats</b>	-Solid-bottom plastic cage with wire bar lid. -Water bottle -Corn cob bedding (combo – 1/8 and ¼ inch pellets) -Commercially available laboratory rodent chow (Teklad)	-Pair housed -Cardboard tunnel	-Sanitizable toys (nylabones) - Krinkl Nest (pregnant/nursing females) -Treats as approved by investigator (i.e. sunflower seeds)
<b>Rat</b> (single housed) by protocol approval or medical/behavioral necessity (e.g., surgery, aggression)	-Solid-bottom plastic cage with perforated metal lid (OneCage) -Water bottle -Corn cob bedding (combo –1/8 and ¼ inch pellets) -Commercially available laboratory rodent chow (Teklad)	Cardboard tunnel -Sanitizable toys (nylabones)	-PVC tubes, paper toweling, Krinkl Nest -Feed items, such as sunflower seeds -Nestlets, -Sanitizable toys (e.g., nylabones, cage-washable balls, etc.) (items under evaluation)
<b>Rabbits</b>	-Suspended floor caging -Water bottle -Commercially available laboratory rabbit chow (Teklad)	-Single housed -conspecifics visible through cage sides.	Fresh vegetables (e.g., carrots, sweet potato)

		<ul style="list-style-type: none"> <li>-whenever possible, racks positioned so that other rabbits can be seen across the aisle</li> <li>-Rabbit huts</li> <li>-Sanitizable toys (e.g., diving rings, dumbbells, PVC pipe)</li> <li>-Loose Timothy hay or cubes</li> </ul>	
<b><i>Guinea Pigs</i></b>	<ul style="list-style-type: none"> <li>-Suspended floor caging</li> <li>-Water bottle</li> <li>-Commercially available laboratory Guinea Pig chow (Teklad)</li> </ul>	<ul style="list-style-type: none"> <li>-Group housed</li> <li>-Guinea Pig huts</li> </ul>	<ul style="list-style-type: none"> <li>-Timothy hay cubes</li> <li>-Seasonal treats such as green pepper slices</li> </ul>
<b><i>Amphibians</i></b>	<ul style="list-style-type: none"> <li>-Sanitizable aquaria or tubs</li> <li>-Pond water (wild caught)</li> <li>-Mineral supplemented Live feed (crickets/mealworms) or</li> <li>-Commercially available amphibian diet</li> </ul>	<ul style="list-style-type: none"> <li>Group housed as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>-Shelter structure such as over turned ceramic pots or sanitizable plastic containers</li> <li>- leaf litter</li> <li>- woodland debris (tadpoles)</li> </ul>
<b><i>Zebra Finch</i></b>	<ul style="list-style-type: none"> <li>-Breeding cages with solid bottom trays</li> <li>-Flight aviaries</li> <li>-Corrugated cardboard substrate</li> <li>-Water bottles and water baths</li> <li>-Cuttle bone</li> <li>-Perches</li> <li>-Commercially available Finch Feed (KayTee)</li> </ul>	<ul style="list-style-type: none"> <li>-Group housed</li> <li>-Static, natural and swing perches</li> <li>-2x weekly treats (boiled egg, whole grain bread)</li> <li>-Misting</li> </ul>	<ul style="list-style-type: none"> <li>-Seasonal greens</li> <li>-Nest boxes</li> <li>-Natural wood perches</li> </ul>

<p><b><i>Domestic Chick/Turkey Poults</i></b></p>	<ul style="list-style-type: none"> <li>-Wire bottom hanging cages</li> <li>- Multi-level chick brooders</li> <li>-Poultry waterers</li> <li>-Poultry feeders</li> <li>-Commercially available chick starter (Purina, Ware Milling, Nutrena)</li> </ul>	<p>-Group housed</p>	<ul style="list-style-type: none"> <li>-Seasonal greens (e.g., Kale)</li> <li>-Fruits</li> <li>-Sanitizable toys</li> <li>- Natural wood perches</li> </ul>
<p><b><i>Wild Turkeys</i></b></p>	<ul style="list-style-type: none"> <li>-Outdoor pens with wood shaving or grass /dirt substrate</li> <li>-Perches</li> <li>-Automatic waterers</li> <li>Commercially available poultry feed (Nutrena, Naturewise Gamebird Feed)</li> </ul>	<p>-Group housed as appropriate</p>	<p>-Seasonal leafy greens, corn, melon</p>
<p><b><i>Fish</i></b></p>	<ul style="list-style-type: none"> <li>-Sanitizable aquaria</li> <li>-Static or flow through water system</li> <li>-Water conditioned or filtered to remove chlorine</li> <li>-Nutritionally complete fish food appropriate to species (Tetramin, brine shrimp, frozen live caught fish)</li> </ul>	<p>-Group housed as appropriate</p>	<p>-PVC pipe or rocks for shelter/protection from dominant fish (wild caught fish)</p>