

# Rodent enrichment at the MHRA

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## Introduction

The purpose of animal enrichment is to create an environment for the animals that is stimulating and promotes natural behaviours. Each species requires different environments to meet their physiological and behavioural needs that are crucial to their wellbeing. We are devoted to seeking and implementing suitable types of enrichment that will be beneficial for our animals to enable them to exhibit natural behaviours as they would in the wild.

With Animal Welfare in mind and with the help of technicians we have created a monthly enrichment rota for rodents. We are continuously reviewing our enrichment initiatives through our in-house 3Rs meetings. These meetings were established by the enrichment lead to provide the opportunity for staff to carry out their own research and suggest new ideas to the team, with a view to improving Animal Welfare.

## Rat enrichment

Our bespoke rat caging designed by one of our staff is spacious and allows for a variety of environmental enrichment (Figure 1). Rats are highly intelligent animals and live in colonies, therefore it is important to provide them with an environment that will encourage them to perform the natural behaviours they would in the wild.

The increased height of the enclosure has been designed to enable the rats to stand on their hind legs and climb. Rats are agile animals and the addition of a platform provides the opportunity for them to investigate along with a nest box at a height that is a perfect refuge. Each cage is equipped with a nesting box, tunnels and a range of wooden and disposable enrichment.



Figure 1.

## Enrichment rota for rats

The rat enrichment rota shows the range of enrichment provided on a weekly basis (Figure 2).

During cage cleaning, different nesting material is provided for variation. However we ensure that some old nesting is transferred to the new cage to keep scent cues. Whilst alternating enrichment can be beneficial for the animals, complete removal of pheromones can induce stress, therefore reusing some cage furniture is equally important.

## Rat enrichment rota February 2025

Week commencing	Type of enrichment
3/02/2025	Large red shelter with paper wool. 1x large fun tunnel x1 rope (attached on top of the cage) 1x nest box, 1x sock stuffed with bedding, seeds and peanuts. 2 x hanging red tunnels.
6/02/2025	2 x egg box (remove sock).
10/02/2025	Large cardboard rat house with aspen wool and small amount of paper wool. 1x large aspen ball, 2x large wooden blocks (attached on cage bars) 1x fun tunnel. 1x nest box. Handful of seeds hidden under substrate.
13/02/2025	Scatter popcorn in egg box.
17/02/2025	1x hanging hammock, 1x wooden block, 2x egg boxes and rope attached on either side of cage. 1x nest box filled with seeds and substrate.
20/02/2025	1x rat sock filled with shredded paper and monkey nuts.
24/02/2025	1x large red shelter filled with envirodri and small amount of aspen wool. 1x large fun tunnel. 1x aspen ball, 1x sock with Bonio, 1x nest box.
27/02/2025	1x egg box with seeds and peanut kernels.

Figure 2.

For familiarity, the nest box is provided weekly and this enables the rats to perform digging behaviours as they would in the wild. Wooden enrichment, such as aspen balls and different sizes of aspen chew blocks are rotated weekly. Large wooden blocks are attached to the wire bars at a height for climbing opportunities.

### Positive reinforcement

A key aspect of our rodent enrichment initiatives is creating a positive association for the animals with husbandry processes. Providing treats hidden in disposable enrichment during cage cleaning, not only allows the rats to express foraging behaviours but it also provides mental stimulation and gives a positive reward following handling and health checking. Examples of positive reinforcement include bonio, sunflower seeds, peanut kernels and monkey nuts. We recently introduced popcorn to our rats which has been a big hit! Since implementing tasty treats, we have observed calmer animals after cage cleaning. Due to this success, positive reinforcement is now being used post-procedure.

### Mouse enrichment

Our conventional mouse caging allows for a more spacious environment. Legally we can house a maximum of 10

mice per cage, however to provide additional space for our stock animals we group house up to 7 mice maximum.

Experimental animals are commonly housed in groups of 5 in the caging depicted below. Furthermore the development of our own rat cage has enabled us to repurpose the old rat caging for mice. This husbandry refinement allows for additional floor space and a more diverse range of enrichment (Figure 3).



Figure 3.

An example of our mouse enrichment rota is shown below (Figure 4).

## Mouse enrichment rota February 2025

Week commencing	Type of enrichment
3/02/2025	Red house with paper wool. 1x labyrinth. 1x T-brick. 1x cardboard mini fun tunnel. 2x egg boxes. 1x handling tunnel.
6/02/2025	2 x cocoon.
10/02/2025	Mouse igloo with aspen wool and small amount of paper wool. 1x aspen ball. 1x mini fun tunnel. 2x egg boxes. Handful of seeds.
13/02/2025	2 x cocoons with seeds.
17/02/2025	Cardboard mouse house with paper wool. 1x wooden block. 1x wooden cube. 2x egg boxes. Handful of seeds.
20/02/2025	1x seeded egg box.
24/02/2025	Mouse wedge with envirodri and small amount of aspen wool. 1x mini fun tunnel. 1x aspen ball. 2x egg boxes.
27/02/2025	1x T brick.

Figure 4.

Different types of refuge and nesting are alternated weekly, however the handling tunnel remains unless heavily soiled, in which case it is replaced. The mice are habituated to the handling tunnel to make handling easier and less stressful for both the animals and the operator (Figure 5).



**Figure 5.**

Disposable enrichment, such as egg box, cocoons and cardboard tunnels are supplied mid-week and these are perfect to hide treats. These not only promote gnawing and foraging behaviours but also present a challenge for the mice and can encourage nest building which is a natural behaviour performed in the wild.

Since the introduction of the mouse enrichment rota, technicians have observed reduced stereotypical behaviours, particularly in female occupied cages where stress induced behaviours were observed to be more common.



## **Conclusion and further ideas**

The rodent enrichment initiatives have been a huge success, helping to maintain the high standards of Animal Welfare and Culture of Care. High praise has been received for such initiatives from external visitors, including from Named Veterinary Surgeons and Home Office inspectors.

Regularly changing the environment for animals and developing environmental enrichment not only benefits the wellbeing of the animals but also leads to more reliable scientific outcomes. In future, we aim to create an enrichment rota for ferrets, guinea pigs and non-human primates. The 3Rs group meetings are a crucial part of this journey towards improving the quality of life for the animals.