



ENVIRONMENTAL ENRICHMENT STORYBOOK



Helping you care for animals
and for yourself

Welcome to the environmental enrichment storybook by AnimalConcepts.

This storybook is a free resource to be enjoyed and shared. It highlights the work of many others in addition to our own work.

All animal artwork by Max Norman.

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Environmental enrichment as the sprinkles on top

BY SABRINA BRANDO

What do we mean by environmental enrichment? As with anything, it is always good and helpful to understand where things came from. Environmental enrichment was born from something that the words reflect: enriching the environment.

Not long ago, and even today, animals in all kinds of systems can find themselves in environments that are not enriching, which are lacking in stimuli, in opportunities, complexity, and therefore a lack of choices and control and ability to exercise one's agency.

Some of these areas are still very much lacking, think for example of the back of house areas animals can spend many hours in. Whether in zoos, aquariums, research laboratories, with farm animals, or animals in shelters and at home, we came to the realisation that we need to enrich the environment by adding structures (flexible, fixed, soft, hard, etc.), vegetations, substrates, considering their social needs, hiding places, places as viewpoints, shade, or spaces large enough to rest, play or sleep together. In the laboratory world, we often speak of environmental refinement, pointing to the fact that environments are not yet as good as they can be, or should be. Every time thinking and reviewing at how we can make things better. Environmental enrichment should spring from always wanting to make things better, especially as captive environments can easily become static and monotonous over time.

I think there are 2 main approaches and viewpoints we tend to currently find in facilities today: 1) enriching the environments to make them better - more biologically and ecologically relevant, and/or 2) enriching animals lives in general, making it fun, safe, engaging, and enriching regardless of whether what we do or provide is natural or not. These two can be complementary, overlapping and or in conflict with each other. I will review them both and propose and combined approach to which we should be moving.

Enriching an environment

This goes back to parts discussed in the introduction, the realisation that many of the environments animals find themselves in are not optimal and do not afford the animals many of the opportunities they encounter in the wild, benefitting from their capacities and capabilities. Enriching an environment tend to revolve around making the environment closer to life in the wild, biologically and ecologically relevant. Interestingly, however, many of the 'negative' stimuli are often still missing (e.g., predators, lack of food, challenging weather), as most of making things better revolve around promoting optimal and positive wellbeing.

But what if we are trying to preserve a species for future generations, and potentially reintroduce them into the wild? It would mean that we need to include focusing on their whole behavioural repertoire, including negative aspects, and other aspects which are part of successfully surviving in the wild such as e.g., a physiologically and psychologically prepared individual in relation to whatever social context. To what extent do we then need to include these aspects into the process of 'enriching' the environment? And doing this in ways that challenge the animals but also allow them to cope with the situation and build resilience. This holds true for many aspects of an animal's life and has been a long-discussed topic however not many implications and applications can be found, apart from animals in reintroduction programs mainly.

Enriching environments may include anything from the physical environment, as well as food, social, cognitive and sensory aspects. These changes can enrich, aka make better, an animals life, or it may not. All these changes, additions, or taking things away, change them around, are all part of animal care - the things we do for animals. It is then up to us to understand how the animal perceives the type of care received. Enrichment is still often something we do when we have time and many of the things 'filed' under enrichment are really part of good care in the first place. Having a place to hide for a prey species is not 'enrichment' (perhaps the types and locations can be but these should be available as part of good care, providing what species need.

Enriching an animals life

I have this 'rule' which really applies to both approaches, 'you are not allowed to call it enrichment unless you know it is enriching as perceived by the animals'. We have to be careful when using the words enrichment and enriching in that they do not trick our brain into thinking we have checked the 'good' animal welfare boxes and that we do not assume that things are well. That we feel good about having done something and ticking that box of daily duties of our checklist. We need to check if it is indeed enriching for them.

Enrichment and enriching an animals life from this perspective can literally mean anything and anything the animals enjoy and it does not need to be natural or part of living in the wild at all. Because not all we can encounter in life is fun and enriching, a lot of things are very scary and even lethal, while others are painful. A life like the one in the wild is not all moonlight and roses as they say.

Animals may enjoy looking at videos, going through old phone books, hanging in firehose hammocks, and pushing red boomer balls around. They may like to paint, interact with guests (nothing wild about that!), use a plastic and metal electronic puzzle feeder. and They may invent behaviours not seen in the wild, have different behavioural repertoires and time budgets than their conspecifics in the wild, but they might enjoy all these things and differences.

Joy, curiosity, relaxation and other animal-based indicators of good wellbeing all contribute to enriching and the enrichment of an animal's life. So, there is a lot to think about and it seems to me that we need to deeply think about the why which will dictate the how and onwards. Different whys call for different approaches.

If our why is about caring for animals for their whole life, those who stay in human care and while they might be part of a breeding program will never be reintroduced to the wild, the how will be different from those animals who are part of programs where they will be going (back) to the wild.

These different whys influence and affect how we look at enriching environments and enriching lives. There is so much more to say about this and soon I will share an extension on my thinking but for now, I would like to conclude with this shortcut.

Environmental enrichment as the sprinkles on top

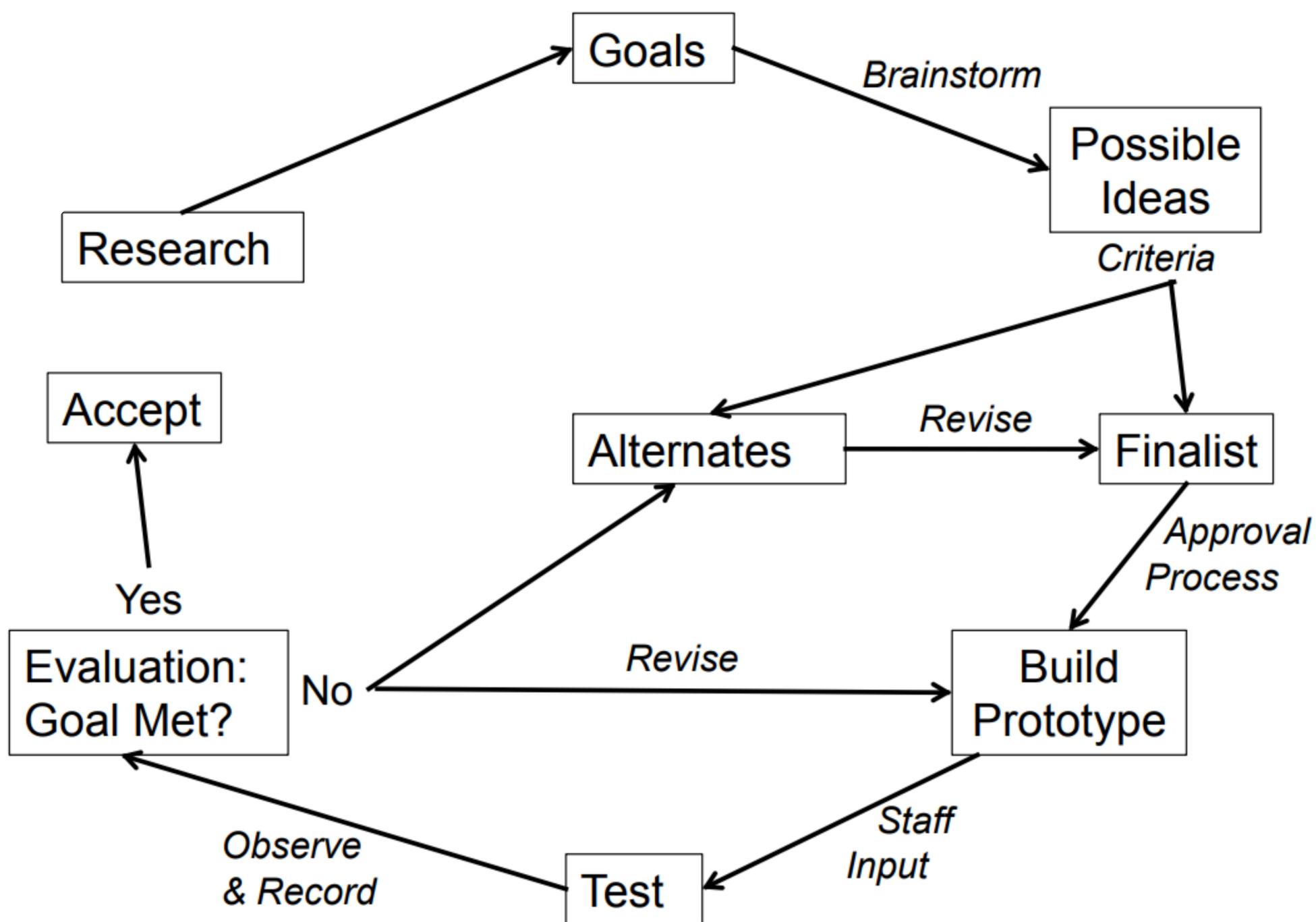
Environmental enrichment as we know it today in zoos should be on its way out. The time of 'nice to do if we have time or money' approach, of throwing in the boomer ball without seeing how this is perceived by an animal, designing the barren back of house environments, and this overdependence on animal care staff needs to come to an end. Of course, we constantly have to rub this up to reality. We will not be able to build all-new, spend millions, and more, but there is a lot we can do to make things better today. It certainly needs to be at the core when we build anew, and or refurbish.

We know captive environments will have an element of deprivation, and this is where the concept of 'controlled deprivation' from Professor Gordon Burghardt (1999) comes in. "Recognizing that all captive environments deprive animals of some natural stimuli and that these restrictions have varying, and often unpredictable, consequences on the welfare of captive animals." Knowing that there will be deprivation and differences, which do not necessarily need to be a welfare concern, we should focus on controlling the deprivation and increasing the opportunities. Environments of today and looking forward, are those that are meaningful to animals, are similar in quality to reflect a 24/7 across lifespan approach for all areas they spend time. It revolves around environmental design and habitat management so that animals be agents of their own lives, make meaningful choices and have control over the what, when and other aspects to an extensive degree.

Environmental enrichment would then be the sprinkles, the cherries on the cake as Dr David Shepherdson said many years ago, the changes animals can face as they are resilient, adaptive, and engaged. Let's continue the conversations and global collaborations and actions for animals together!

THE SHAPE OF ENRICHMENT

Instead of asking what 'items' you could use, try and think about what behavioural opportunities you can promote with your animals. Following this framework from SHAPE, aim to test each strategy you come up with until you have a list of approved enrichment ideas, all meeting your specific goals!



Check it out at the
[The Shape of Enrichment Site](#)

THE
SHAPE
OF ENRICHMENT
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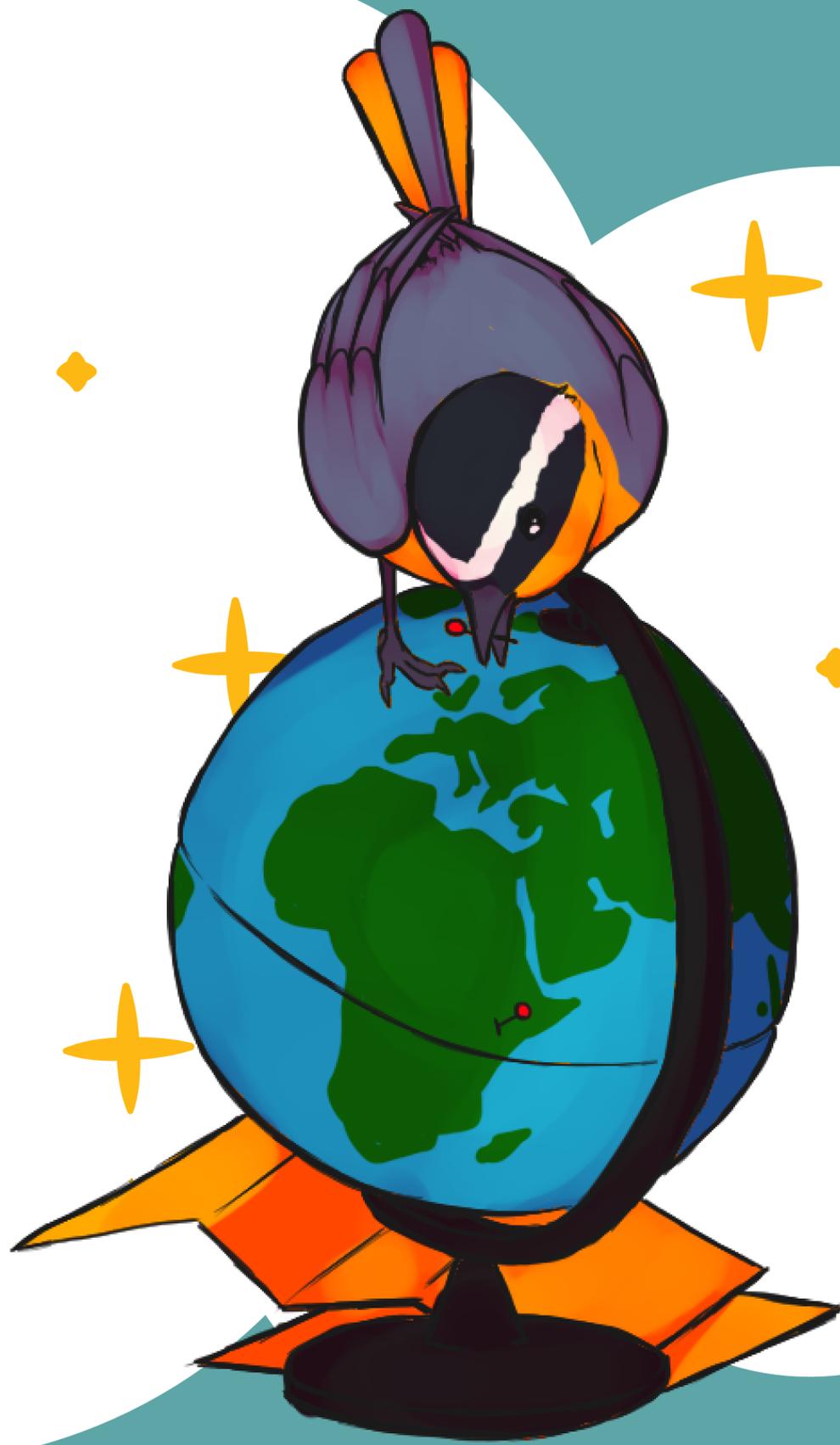
Research

What behavioural opportunities do you want to provide?

Using resources such as online research, husbandry manuals, and collaboration with other animal care staff, research natural behaviours for your species!

For example...

"I would like to provide opportunities for the red ruffed lemurs to display a wide range of social vocalisations!"



Goal

Focus on something specific that you'd like to accomplish!

Remember to make your goals 'SMART': Specific, Measurable, Achievable, Realistic and Timely.

For example...

"My goal is to increase the physical fitness of the Ruppell's robin chat by providing opportunities that encourage more flight behaviours!"



Brainstorm

Brainstorm all of the possible ideas that you have!

Without evaluating your ideas just yet, write down every idea you can think of for achieving your enrichment goal!

For example...

"My ideas for increasing feeding time in our snow leopard are ice blocks, barrels, hessian sacks, cardboard boxes, metal tubes..."



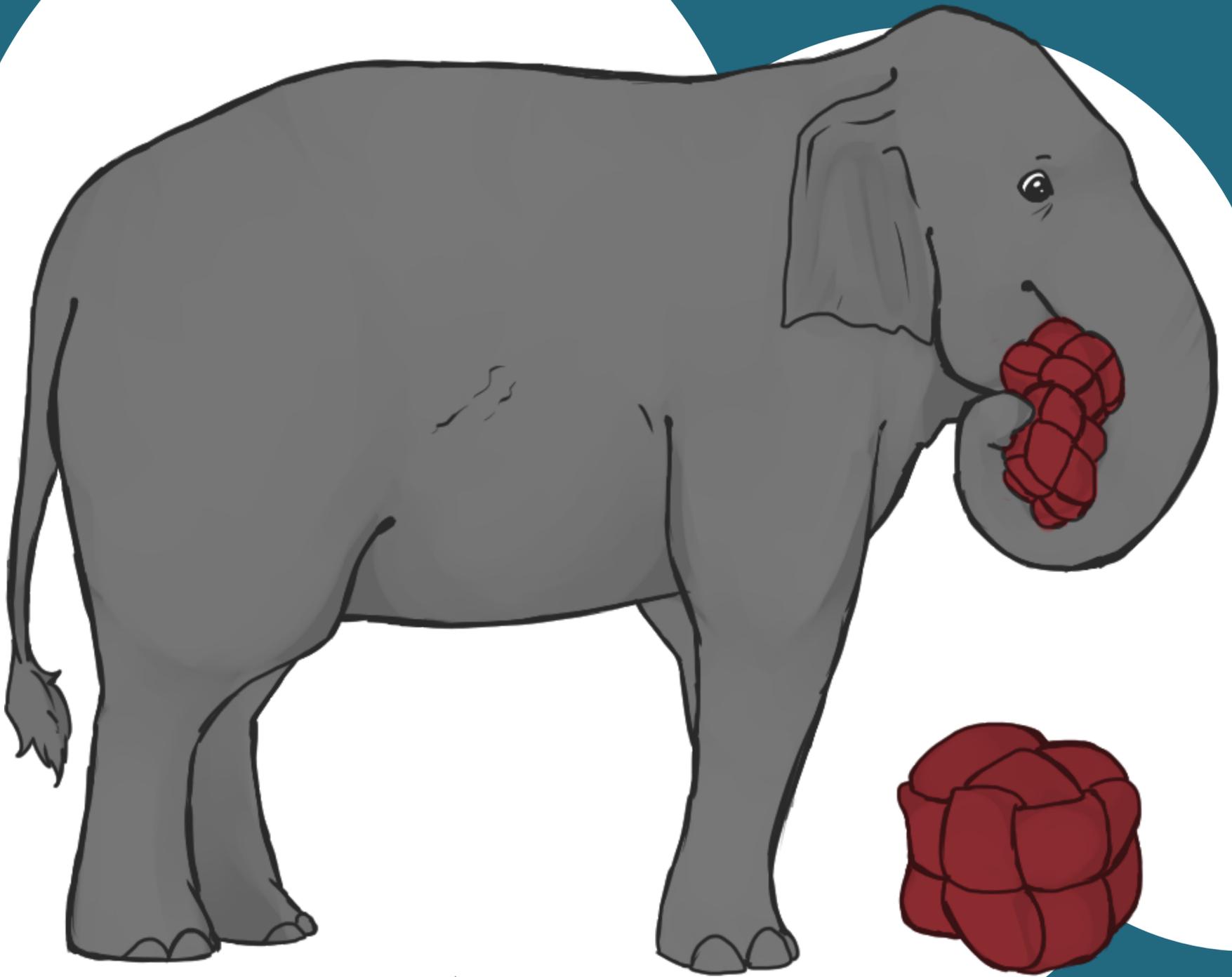
Finalists

Select two finalists that you are able to do *now*...

Establish the criteria for narrowing down your ideas, such as what resources you have available, and select two of your ideas to try that best fit your criteria!

For example...

"We would like our orca's enrichment to look naturalistic, so we chose to use ice blocks with different food inside."



Alternatives

...and everything else you can still do
later!

Keep a list of alternative enrichment ideas that do not fit your current criteria - they may become useful later!

For example...

"We don't have any fire hose strips to make anything new for the elephants right now, but we have ideas for how to make new toys in the future when we do."



Prototype

Create a 'first draft' version of your enrichment idea!

Considering every way an animal might interact with the item, consider how you can make a safe 'first draft'.

For example...

"Our chimpanzees are very strong, so we should think about how they might manipulate any objects in case they break them so that they are safe."



Test

Periodically test your new enrichment device and ensure it is effective!

Let your animals try out the enrichment for themselves!
Try implementing your idea and see what happens.

For example...

"We came up with a rubbing pole idea for our deer, and made sure to put it in when we would be able to watch and see how they interacted with it."



Observe

Observe and record the way animals interact with the enrichment!

Using direct observation, video recordings, photographic evidence, or a combination, keep a record of how your animals respond to enrichment.

For example...

"We hung up some meat in our tigers' enclosure, and one of our keepers stayed to capture her reaction on video."



Evaluate

**Were you able to meet your goals?
What could you do differently?**

Enrichment strategies should be assessed periodically to ensure they effectively meet your goals.

For example...

"We met our enrichment goal of increasing foraging time in our giant panda, but we could improve our idea to perform even better."



Accept

Build a library of approved ideas with specific behavioural goals!

If your enrichment idea meets your original goal, add it to your list of 'approved' enrichment.

If the enrichment didn't meet your goal, revise your prototype, experiment with alternative ideas and refine your ideas until you have a library full of effective ideas that meet your specific goals!

Remember 'SPIDER'

Setting goals

Clearly identify the behaviours to encourage or discourage through enrichment



Implementation

Scheduling enrichment in a calendar helps to ensure resources are available



Evaluation

Evaluation of trends and patterns in documentation allows refinement of the ideas



Planning

Following your approval process, develop a plan that achieves your desired goals



Documentation

Keep a record of when enrichment occurred and how animals reacted



Re-adjustment

Continue to adjust the enrichment plan based on the evaluations you do

Check it out at

[Disney's Animal Kingdom](https://www.disney.com/animal-kingdom)

ANIMAL
ENRICHMENT

Learning from experience

By Max Norman

One of the first "novel" enrichment approaches I tried to introduce as a student was a sensory-based approach for Hanuman's langurs; using a paste made from water and various spices, myself and other volunteers made scented fire-hose balls. We were excited to watch the langurs explore their new enrichment in their habitats, hopeful that we had created something new and exciting to provide the animals with hours of exploration and stimulation. Of course, we hadn't taken into account that the langurs' sense of smell is, at best, comparable to a humans; that is, the diluted paste we had created which even we could barely pick up was almost entirely uninteresting to the monkeys (who interacted with the fire hose balls for all of five seconds before dropping them, never to be touched again). I learned a valuable lesson about species-specific enrichment through that exercise; while I had come up with a good idea, I had skipped over what I know now to be the most important stage of any enrichment programme: I hadn't considered what the *goal* of the strategy was, nor how best to achieve that goal with the species I was working with.

I revisited the spice-paste idea when I worked with mandrills several years later. Armed with the wisdom of my past experience, the approach was much clearer: I wanted to encourage the mandrills to use their olfactory senses to explore, and I spent some time researching how mandrills would use scent to explore and communicate in a wild setting. Using a much stronger-smelling spice and herb paste, we smeared the scents around the enclosure in a manner which mimicked scent-marking behaviours exhibited by mandrills rather than applying them to objects. This time, I saw animals which benefitted from the approach - animals which willingly explored their enclosure not only through scent, but with

taste as well, learning yet another valuable lesson - this time concerning the unintended behavioural effects of enrichment!

However, the most important lesson I learned - in comparing the response of the animals themselves to the enrichment provided - was that in the mandrills, when the approach was geared towards thinking about what the animals would enjoy exploring rather than ticking a box, I saw animals which were enjoying themselves. I saw animals that were choosing to spend time exploring the new scents and were benefitting from the novelty in their environment.

Whenever I try new enrichment approaches, or even when I reuse enrichment approaches I have already tried in the past, I always ask myself what I can learn from the experience. Something I learned from working with langurs benefitted me later when I worked with mandrills and, on top of helping me grow as a professional working with animals, helped me rethink the way I approach caring for animals using enrichment. Very often we find ourselves becoming excited over an idea we come up with for enrichment without thinking of the real behavioural benefits first and I think, with all we have learned through cumulative years of experience and research, it is time to restructure our thinking with the real, long-term benefits to the animal at the centre.

Enriching the lives of animals is one of the most important things we can do as the people who care for animals. Giving animals more chances to have freedom and choices within an environment that is relatively safe and controlled should be at the forefront of how we think about behavioural management, and that starts with understanding what behaviours encourage positive welfare, learning how to elicit those behaviours, and of course, there is always more to learn - there is much that I have learned, and continue to learn all of the time, from speaking with other animal care professionals!

WOULD YOU LIKE MORE IDEAS?

By sharing enrichment ideas with the wider animal care community, we can help to create large databases of effective environmental enrichment strategies!

Submit an idea to Animal Welfare Expertise's IdeaBox to gain access to an amazing catalogue of ideas:

[Animal Welfare Expertise's IdeaBox](#)

Take a look at ZooSnippet's blog posts all about enrichment ideas and news:

[ZooSnippet's Enrichment Category](#)

For podcasts, blogs, and guides on creating enrichment from a zookeeper, check out Wild Enrichment:

[Wild Enrichment](#)

You can download our booklist for your own reference at any time from our website:

[AnimalConcept's Booklists](#)

OTHER GREAT RESOURCES...

We would like to thank all of the institutions and independent websites that take time to create valuable guides, resources, and catalogues for creating environmental enrichment.

We would like to thank SHAPE for its continued work to provide animal caretakers with accessible resources:

[SHAPE of Enrichment](#)

Check out the SPIDER framework from Disney's Animal Kingdom and other enrichment stories:

[Animal Kingdom's Animal Enrichment](#)

For an online database of different enrichment ideas and resources take a look at WildThink's website:

[WildThink's Enrichment Database](#)

For enrichment month on social media, we have put together a playlist of ideas and video resources:

[Enrichment Month Video Playlist](#)



**ARE YOU INTERESTED IN A WIDE
VARIETY OF ANIMAL CARE AND
WELFARE CONTENT LIKE WEBINARS
AND OTHER RESOURCES?**

JOIN OUR COMMUNITY!

Join!



Helping you care for animals
and for yourself